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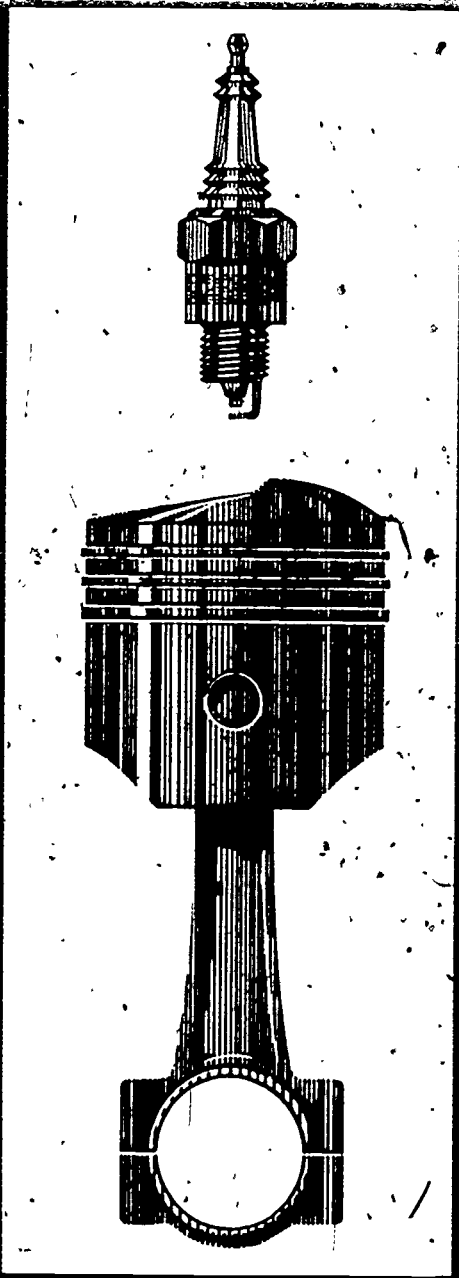
ABSTRACT

This workbook is designed to provide the student apprentice in the auto parts trade with up-to-date knowledge and technical skills. The subject matter is organized into six units: (1) scope or background material, and employment opportunities in the field; (2) areas of responsibility, including shipping and filling orders, receiving, stock maintenance, pickup and delivery, the counter, and sales; (3) cataloging systems for factory and jobber-independent parts; (4) inventory and stock control; (5) counter sales, covering parts terminology and how to sell; and (6) displays, their organization and purpose. The separate topics within these units each contain a summary of objectives, study assignments, discussion topics, self-administered tests (answer sheets are not provided), and study guides. (ELG)

J. Smith

# Workbook

# PARTS



A column labeled "Date Assigned" has been provided at the right-hand side of each page of the workbook section in the contents. Whenever your instructor assigns a topic, the date should be written in the appropriate blank. When you have completed the topic satisfactorily, your instructor should place his initials next to the assignment date. If this procedure has been followed, and you should transfer from one school to another, you will have an accurate record of the work you have completed. This procedure is intended to ensure that you complete each topic and to ensure that you do not have to duplicate work on topics already studied.

To provide other school records needed, be sure to fill in the blanks below, giving your name, home address, and telephone number. Then ask your instructor to fill in the official date of your enrollment in his class and to sign his name.

NAME _____

ADDRESS _____

_____ PHONE _____

DATE ENROLLED _____

INSTRUCTOR(S) _____

_____

# Workbook
# AUTO PARTS

Prepared under the direction of the
BUREAU OF INDUSTRIAL EDUCATION

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# Foreword

In the apprenticeship programs, experience gained on the job is supplemented by classroom work that is closely related to the job. This balanced system of training enables the apprentice to learn the "why" as well as the "how" of the trade. Both types of training are required for advancement in today's competitive industries.

The job-related courses for the skilled trades are highly specialized, and adequate training materials are for the most part not available commercially. To meet this need, the Department of Education, in cooperation with labor and management, develops the required training materials and makes them available to you at cost. This work is an example. It was written to provide you with up-to-date information you must have to meet the growing technical demands of the auto parts trade. Every effort you put forth today to become a competent auto parts person will bring you many rewards and satisfactions, and the benefits will extend also to your community. We need your skills and knowledge, and I wish you every success in your new venture.

Wilson Riles

*Superintendent of Public Instruction*

# Preface

The Bureau of Industrial Education in the State Department of Education provides for the development of instructional materials for apprentices under provisions of the California Apprentice Labor Standards Act. These materials are developed through the cooperative efforts of the Department of Education and employer-employee groups representing apprenticeable trades.

The original edition of *Auto Parts* was planned and prepared under the direction of the State Educational Advisory Committee for the Automotive Trades whose membership included the following representatives of employers and employees:

| Employer Representatives | Employee Representatives |
|---|---|
| Robert Larimore, San Mateo | L. J. Costa, San Mateo |
| Roy J. Harper, Los Angeles | Mack O. Keister, Fresno |
| Paul Stockburger, Fresno | R. N. Fleming, San Diego |

Material for this edition was provided by Mark Kustic, auto parts instructor, Southern California Regional Occupation Center, Torrance, California.

William Popkes, Supervisor in Industrial Education, coordinated the project activities for the Bureau of Industrial Education, and Blair Hansen, Publications Consultant, coordinated publications activities for the Bureau of Publications.

DAVIS W. CAMPBELL
*Deputy Superintendent for Programs*

DONALD W. FOWLER
*Assistant State Director of Vocational Education and Administrator*

SAMUEL L. BARRETT
*Assistant Superintendent and State Director of Vocational Education*

JAMES T. ALLISON
*Acting Chief Bureau of Industrial Education*

# Contents

# UNIT A Scope and Opportunity

## TOPIC 1 – THE AUTO PARTS INDUSTRY

This topic is planned to provide answers to the following questions:

- **How many people are employed by the automotive industry?**
- **What are the major divisions of the auto parts industry?**
- **What areas of the auto parts industry offer the best employment opportunities for the parts apprentice?**
- **What are the general practices of auto parts sales organizations?**

From its humble beginning before the turn of the century, the automotive industry has grown into one of the largest industries in the United States. Today, approximately one out of every seven wage earners is connected in some way with the automotive industry. In 1900, American manufacturers produced 4,192 automobiles. More recently, this country produced over 12 million cars, trucks, and buses. From 1900 until now, automobile manufacturers in the United States have produced about 329 million vehicles. Vehicle registrations indicate that more than 108 million of these vehicles, or over one-third of all automobiles produced, are still in service.

Not much imagination is needed to recognize that the auto parts industry has grown accordingly. During the past year car owners spent almost $5 billion for replacement parts. When this figure is added to the cost of parts manufactured for assembly into new vehicles, the enormous size and potential of the automotive parts industry is apparent.

### Parts Manufacturers

The manufacturers of auto parts can be divided into four general categories: (1) auto manufacturers who produce parts to assemble their own particular cars and trucks and who merchandise replacement parts and accessories through their agencies or dealerships, (2) subsidiaries of auto manufacturers, partly or wholly owned, whose products appear in new vehicles, on dealers shelves, and in other wholesale-retail outlets, (3) independent manufacturers who merchandise their products through franchised outlets, and (4) independent manufacturers who sell to any interested buyer.

### Parts Outlets

For most auto parts apprentices, employment opportunities are in two general areas: jobber-independent stores and automobile agencies (dealerships).

When the term *jobber-independent* is used in its broadest sense, it includes all wholesale-retail outlets which deal mainly in replacement automotive parts. This category includes UMS (United Motors Service) outlets, NAPA (National Automotive Parts Association) Jobbers, and the thousands of independent wholesale-retail stores that handle merchandise from all parts manufacturers.

The parts department in the automobile agency supplies parts to the agency service department and sells genuine parts to the general trade. The agency parts department is an outlet for parts manufactured by or contracted for by the parent company. An exclusive franchise usually is granted to the agency by the manufacturer, and almost all parts sold through the agency parts department are purchased from a regional warehouse maintained by the parent firm.

### General Practices

The general practices and methods used by both jobber-independents and auto agency parts departments are much the same. The only real differences between the two are the brands of merchandise sold, the cataloging systems used, and the pricing structure followed.

Both the jobber-independents and the auto agency parts departments sell at wholesale and at retail, that is, both offer wholesale discounts to qualified purchasers, and both sell at retail or list price to the general public. For both the agency

parts departments and the jobber-independents, counter sales are a large part of the business. Jobber-independents maintain machine shops, while agencies maintain service departments. Almost all jobbers and many agencies hire one or more outside salespersons. Both must employ shipping and receiving personnel, stock clerks, cashiers, counter salespersons, and bookkeepers, and both must maintain pickup and delivery services and ordering and inventory systems. Both also require trained management.

Because of the many similarities, sound training can be valuable to any auto parts apprentice, whether he or she is employed by an independent company or by an automotive agency. The general practices and methods used by both should provide a foundation upon which the apprentice can build a career.

## Trends in the Industry

The automotive industry, including the auto parts industry, is growing at an enormous rate. But the growth is not only in volume. The two major trends within the industry today are (1) increased competition, and (2) increased complexity.

### Makes and Models

Since 1950 the increase in competition has brought about substantial changes among automobile manufacturers. Old, established lines such as Studebaker, Hudson, and Packard have disappeared from the market. Companies have merged to survive, not because the total market has lessened but because of the increased competition. The so-called Big Three—General Motors, Ford, and Chrysler—lead the industry in sales. Their aim is to saturate the market and to provide vehicles in every style and price range demanded by the motoring public.

Chevrolet is a good example of the saturation effort. In one year the Chevrolet line included five models. Chevrolet, Vega, Corvette, Chevy II, and the Chevelle. Each model offered a full range of body styles, engine sizes, transmissions, and accessory options. The line included a full-sized model, a compact, sports car, and two in-between models to appeal to those people who could not find what they wanted among the first three models. Chevrolet is one of five lines of cars that General Motors offers the public; the other lines include Pontiac, Oldsmobile, Buick, and Cadillac. The intense competition that exists in the automobile market can be appreciated when one takes into account the fact that Ford and Chrysler have a similar blanket coverage of the market.

### Growth of the Parts Business

The large number of models available and the competition to bring new and desirable innovations to motorists have caused the auto parts industry to grow almost beyond measure. The competition in the parts field is apparent from the large number of new outlets that have appeared and continue to appear. The number of legitimate wholesale-retail businesses is growing. In addition, discount houses are springing up, selling anything from a stuffed toy animal to a set of original equipment spark plugs, all at wholesale prices. The competition that presently exists within the automobile industry should not be viewed negatively. Such competition opens up a great many opportunities, which will be discussed in the next topic.

### Complexity of Industry

The increasing complexity that competition among manufacturers has bred into the industry must be considered. To appeal to the largest possible segment of the motoring public, manufacturers are offering more and more models and options. The options, many of which are now considered essential, are becoming more sophisticated. In 1963, intricate automatic transmissions appeared in 75.5 percent of the American passenger cars produced. Four-speed transmissions and multiple carburetion, with dozens of engine options, are now universally offered. Alternators (alternating current generators) have become standard equipment, and careless testing of the electrical circuit can burn out the alternator diodes in a matter of microseconds. Power steering, power brakes, power windows, power seats, positraction rear axles, and a host of other complicated units provide both a challenge and an opportunity to the auto parts trade. More trained personnel are needed in this complicated field to handle the increasing sales of replacement parts.

The auto parts industry today is big and complicated, competitive, and industrious. Barring some national catastrophe, it cannot do anything but grow. The auto parts person who is well prepared cannot help but grow with the industry.

## Study Assignment

*Automobile Facts and Figures*. Detroit. Automobile Manufacturers' Association, Inc., (Latest edition).

## Topics for Discussion

Be prepared to discuss the following if you are asked to do so:

1. What are the general categories of the auto parts industry? Can you name a specific local example of each?
2. What are the similarities between an auto agency parts department and a jobber-independent store?
3. Discuss four or five examples of extremely complex units; e.g., transmissions, carburetors, or electric circuitry.
4. Discuss the problems an auto parts person might encounter in supplying such complex units.

## UNIT A – SCOPE AND OPPORTUNITY

## TOPIC 1 – THE AUTO PARTS INDUSTRY

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Today one out of every 1 wage earners is connected with the automotive industry. 1. _____
2. In the past year, car owners spent almost 2 billion dollars for replacement parts. 2. _____
3. Most auto parts apprentices will be employed by auto agencies or by 3 - 4. 3. _____ 4. _____
4. The two current major trends in the automotive industry are 5 and 6. 5. _____ 6. _____
5. The aim of the Big Three is to 7 the auto market. 7. _____
6. The number of different models and 8 offered by the auto industry has greatly increased the complexity of the parts business. 8. _____
7. Four-speed 9 and multiple 10 are two major options that are offered to the buyer. 9. _____ 10. _____
8. The modern service person is aided by using 11 - 12 to analyze trouble. 11. _____ 12. _____
9. The system of matching pistons, rings, connecting rods, and bearings in sets is known as 13 fit. 13. _____
10. The term *jobber-independent* includes wholesale-retail outlets whose principal wares are 14 automotive parts. 14. _____

### Test

Circle T if the statement is true; circle F is the statement is false.

1. The value of automotive parts imported from some foreign countries exceeds the value of the motor vehicles imported from the same countries. 1. T F
2. More than one-fourth of all businesses in the United States depend on the manufacture, distribution, servicing, and use of motor vehicles. 2. T F
3. Automobile manufacturers make all the parts for their cars. 3. T F
4. Jig borers which are accurate to within a few millionths of an inch are used in auto manufacture. 4. T F
5. The parts department of an automobile service agency supplies parts only to the agency service department. 5. T F

6. The price of an auto part is the same to any buyer. 6. T F

7. Growth of the auto parts industry has not yet reached a plateau. 7. T F

8. Mergers of auto manufacturers have hurt the replacement parts business. 8. T F

9. Competition and complexity are two characteristics of the auto parts industry. 9. T F

10. Careless electrical testing can ruin an alternator. 10. T F

## UNIT A – SCOPE AND OPPORTUNITY

## TOPIC 2 – OPPORTUNITIES IN THE FIELD

This topic is planned to provide answers to the following questions:

- **Is there a need for trained personnel in the auto parts field?**
- **Can a person make a living in auto parts work?**
- **What are the opportunities for advancement in the auto parts business?**
- **What kinds of jobs can a parts person aspire to?**

The rapid growth of the auto parts industry has created new job opportunities faster than it has been possible to train people to fill them. Also, the lack of well-structured apprenticeship programs, the reluctance of some business people to enter into apprenticeship agreements, and the prevalence of a low-wage scale have contributed to a shortage of competent and well-trained parts persons. These conditions are rapidly improving; however, and this improvement will continue. A real and widespread need exists, and a competent parts technician can look forward to a bright future, limited only by his or her own initiative and ability.

### Wage Scales

Wage scales for auto parts persons are improving. The establishment of formal apprenticeship agreements, supervised by company and union committees, is an encouraging sign. The wage scale, which was for many years a detriment to the industry, is rising, and fringe benefits now include paid vacations and holidays, profit sharing programs, and insurance.

### Working Conditions

The actual working conditions in the auto parts industry have also been improved. Union agreements give the parts employee recourse for the settlement of grievances. The 40-hour work week is now almost universal in union shops. Overtime pay and premium pay for certain shifts have been established.

For years many parts organizations were dirty and poorly housed. But the competition and complexity of the business, which is causing the field to grow, is also acting to improve conditions. The volume of material presently handled, the number of items stocked, and the value and complexity of the stock have required that new emphasis be placed on modernizing the physical plant and on improving working conditions. The agency parts department, which was once relegated to a dark corner of the service shop, is now most often an attractive and prominent part of the dealership. Jobber-independent parts stores are also improving (Fig. A-1).

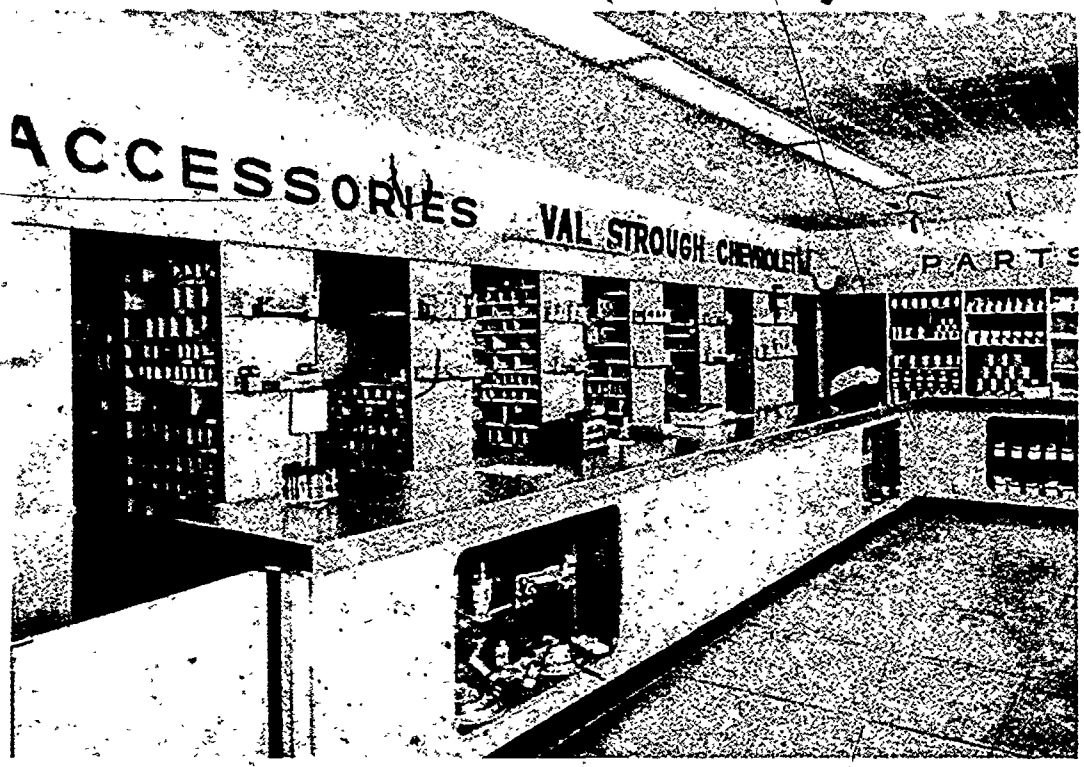
Courtesy Torrence Auto Parts

**Fig. A-1. Example of a self-service counter located in front of the main service counter.**

Today, most parts organizations occupy clean and comfortable areas. Auto parts employees enjoy a variety of work, a chance to meet the public, and an opportunity to form new and rewarding relationships with fellow employees and customers. The parts industry offers the apprentice a chance to progress in an interesting and growing field of endeavor (Fig. A-2).

### Job Opportunities

Whatever other basic interests and skills a person may have, his or her ability to understand mechanical concepts and business practices may be




Courtesy Val Strough Chevrolet Co., Oakland

Fig. A-2. Example of a modern, well-arranged, well-kept auto agency parts department.

enough to obtain a position in the auto parts industry. The field is so diversified that it can accommodate any interested person. From the engineer who designs the part to the service person who makes the final installation in a customer's vehicle, there is a range of jobs broad enough to suit most interests. Job classifications such as engineer, drafter, forger, machinist, assembler, cost accountant, packaging supervisor, stock controller, cataloger, shipping clerk, displayer, and salesperson are common to the auto parts industry.

A few of the specific job opportunities which exist in the automotive parts field, and related fields, are described in the following sections.

### Counter Salesperson

Sales are the lifeblood of any parts organization, and most sales occur over the counter. A counter sales job is one of the immediate goals available to the parts apprentice. Counter sales work requires mechanical knowledge and salesmanship. If one possesses or can acquire both, and if he or she enjoys meeting people, then he or she may prosper in this phase of the business. Qualified counter salespersons are almost always in demand.

### Outside Salesperson

The basic requirements for this job are the same as those for counter sales, but the outside salesperson calls on customers outside the store. A regular route is established, and new accounts are added as the opportunity permits. Many prefer this type of selling to the routine of inside counter sales and work toward this specific goal. The customers called upon include trucking firms, auto fleets, repair shops, service stations, body shops, specialty shops, and others. An outside salesperson frequently works on a salary plus commission basis, an arrangement that offers high earnings.

### Jobber Salesperson

A jobber is an interagent. Jobbing firms buy from manufacturers and sell to the other wholesale-retail firms, who in turn sell to the general trade. To sell the large quantities of merchandise that the jobbers handle, many jobber-salespersons go out into the field and call on parts houses and many other wholesale establishments. The volume of sales involved is large, and many jobber-salespersons earn substantial incomes. In some cases the sales representatives of jobbing firms

cover several states. A particularly good salesperson who enjoys travel may find the vocation of jobber-salesperson most appealing.

### Parts Manager

Every parts organization requires trained management, and the success of the business depends to a great extent on the ability of the manager. A manager must be something more than a clerk or a salesperson. The successful manager must be able to (1) supervise people without alienating them; (2) supervise in every phase of the business; and (3) plan, structure, and guide the overall effort of all members of the team. If the manager cannot gain the confidence of the employees and encourage their participation in the total effort, he or she will fail. A manager's job awaits the person who has the ability to plan and to supervise. A parts manager's and service manager's ability to make a profit can be the only way a dealership may stay in business during periods of low car sales.

### Car Salesperson

People trained in the parts field often move into auto sales work. Experience in either parts or service departments provides an excellent background. The person who knows auto mechanics can do a much better job of talking about a car or truck and of demonstrating and comparing it with other makes and models.

### Automotive Dealer

Many opportunities exist for owning one's own business. Some parts stores, specialty shops, jobbing firms, and automobile agencies are owned by persons who started their career in parts or service work.

## Opportunities for Advancement

Opportunities for advancement within the auto parts industry are limited only by one's ambition, ability, and willingness to work. Some of the possibilities for advancement have been mentioned, and there are dozens of others. One very important consideration, however, needs to be stressed. The really good jobs will be filled by trained people—those who have realized the need and have prepared themselves accordingly.

The apprenticeship program represents a minimum of preparation. In this technical and competitive age, one must take advantage of every academic and vocational opportunity. School courses in mathematics, science, and business are important to success. Evening courses in many subjects (academic and vocational) are offered in many high schools and junior colleges. The parts person who hopes to move up to a really responsible position in the field should prepare himself or herself to use his or her total ability. School counselors will help prepare a full or part-time program of study to achieve this objective.

## Dealership Parts Operation

The parts department in a dealership is managed by the parts manager. In a dealership the salesperson will sell the parts required for the make of cars sold by the dealer. Parts and price books are available for only these cars.

Most of the parts handled by a dealership parts operation are sold to its own service department. In addition, this kind of operation will have over the counter retail sales and wholesale sales to repair shops and body and paint shops. The parts sold will be purchased from the manufacturer's local and factory warehouses.

In a dealership the salesperson will be called on to furnish many more items or parts for an automobile than an independent jobber. The dealer parts department must sell all of the sheet metal, such as fenders, hoods, doors, and inner panels, and all of the chrome outer moldings, including such items as seat and door upholstery. The accessory line includes radios, clocks, outside mirrors, speed controls, and air conditioning units.

## Independent Jobber Operation

An independent jobber may have a store manager, or the owner may be the manager. The jobber sells parts wholesale and retail, or may have a machine shop to grind valves and heads and turn crankshafts. The jobber will probably have fast selling parts in stock for all makes and models of cars and small trucks. Most of the stock will consist of parts for the engine and chassis, electrical tune-ups, batteries, and rebuilt units, such as generators, alternators, and water pumps.

The independent-jobber's catalog may be made up of as many as 48 or more different manufacturers catalogs. The apprentice will have to learn what each manufacturer makes to know which catalog to use. One manufacturer will probably make only suspension parts, while another may make only certain engine parts.

Both the dealership and jobber have parts return and warranty plans for obsolete and defective parts.

## Study Assignments

*The Retail Automobile Business.* Detroit: General Motors Corporation (Latest edition).

## Topics for Discussion

Be prepared to discuss the following topics if you are asked to do so:

1. Why might a business person hesitate to hire an apprentice?
2. Why are courses in science, mathematics, and business subjects important to the auto parts apprentice?
3. What are some of the attributes of a successful parts manager?
4. Discuss your own particular skills and interests, and try to determine where you would fit best in the auto parts industry.



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## UNIT A — SCOPE AND OPPORTUNITY

## TOPIC 2 — OPPORTUNITIES IN THE FIELD

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. The rapid growth of the automobile industry has __1__ new job opportunities faster than people have been __2__ to fill them. 1._____ 2._____

2. A competent parts technician can look forward to a bright future, limited only by his or her own __3__ and __4__. 3._____ 4._____

3. An improvement has been noted in __5__ scales and working __6__ for auto parts persons. 5._____ 6._____

4. The auto parts industry offers the apprentice a chance to __7__ in an interesting and __8__ field of endeavor. 7._____ 8._____

5. The auto parts industry is so __9__ that is can accommodate any interested __10__. 9._____ 10._____

6. Three sales job opportunities in the auto parts business are __11__, __12__, and __13__. 11._____ 12._____ 13._____

7. Auto parts training can lead to jobs as __14__ person or __15__ manager. 14._____ 15._____

8. The apprenticeship program represents the __16__ in the way of preparation for success in a trade. 16._____

9. To move up to a really responsible position in any field, a person must be trained to use his or her __17__ __18__. 17._____ 18._____

10. Education, __19__, and many different __20__ contribute to development of a successful career in the automotive world. 19._____ 20._____

### Test

Circle T if the statement is true; circle F if the statement if false.

1. A general shortage of well-trained auto parts persons exists in the industry. 1. T F
2. Wage scales have not contributed to the shortage of parts persons. 2. T F
3. Auto parts apprentices work a 35-hour week. 3. T F
4. The diversity and complexity of stocks of auto parts prevent orderly storage and display. 4. T F
5. The auto parts industry provides jobs for forgers, assemblers, and artists. 5. T F

6. Counter sales work in the auto parts business requires good mechanical knowledge. 6. T F

7. A jobber salesperson does not work for an interagent. 7. T F

8. To be a successful manager calls for knowledge of people as well as of the work they do. 8. T F

9. Training as a parts apprentice is valuable to a truck salesperson. 9. T F

10. Successful completion of an apprentice course ensures reaching any top job in the trade. 10. T F

# UNIT B Areas of Responsibilty

## TOPIC 1 – FILLING AND SHIPPING ORDERS

This topic is planned to provide answers to the following questions:

- How is a replacement parts order filled?
- What action is taken with respect to an order for a part not in stock?
- What item is always packed with the order?
- Are shipping rules the same for all carriers?
- Why are some shipments made COD?

The first task of the new apprentice in the auto parts business is frequently to help in the shipping and receiving department, or to serve as pickup and delivery driver. In this position, the apprentice may package merchandise for shipment, receive and check merchandise, stock the bins, or more than likely perform a combination of all three tasks. For this reason the apprentice is urged to read through the first three topics of this unit before beginning any detailed study of each. All three topics are closely related. The instructor may wish to rearrange the order of study of these topics (B1, 2, 3) into a pattern which best fits the apprentice's on-the-job assignment. However, the reading assignment should be carried out, because the relationship holds regardless of the pattern of study.

Parts persons in automotive dealerships are not usually called upon to ship the amount of merchandise that is shipped by parts persons in specialty or jobbing houses. However, all workers, regardless of the branch of the auto parts trade in which they are employed, should be familiar with the basic steps in filling orders and preparing them for shipment.

### Filling Orders

The first step in filling an order is to examine the order carefully to get a general idea of the size and nature of the parts ordered. The shipper can thus form an idea of the cartons and packages needed and can determine a route to follow through the department so that the order can be filled as quickly and efficiently as possible.

Picking the order is best done with the aid of an order cart or, in the case of a smaller order, a carton of appropriate size. As each item is located the items are counted carefully into the container and are checked against the order form for quantity and part number. Appropriate check marks are made beside each filled quantity, if shortages occur, or back orders are necessary, the order is marked accordingly. Before shorting an order (i.e., marking any items missing), other storerooms and overstocks (frequently found on the tops of bins) are checked for the needed merchandise.

After the order has been picked, it is taken to the shipping desk or department, where it is rechecked prior to final packaging. If shortages are noted on the order form, those items are checked against the inventory cards to ensure that stock has not been overlooked. If the missing parts are on order, the approximate date the customer may expect to receive the merchandise is indicated on the order form. If the ordered part has been superseded, both the old and the new part numbers should be shown on the order with an explanation of the change.

In some cases it may be necessary to make substitutions on an order. If the brand specified is not available, or if a component part is ordered when only a complete assembly containing the component is available, then the shipper should obtain permission from the customer to make the necessary substitution. Brand name substitutions occur frequently in jobbers stocks. Some brands carry their own numbering system, while others are stocked under original equipment numbers. In any case, permission should be obtained from the customer before making any substitutions, especially if substantial differences in price are involved.

When any of the parts on order cannot be delivered with the bulk of the order, a back order (order for future delivery) is prepared, providing the customer will accept back orders. If a back order is approved, the appropriate form is made out and placed in the action files, and the material is delivered or shipped as soon as stock is available. In cases where one item is ordered for a retail customer, his or her name, address, and phone number should be taken, and, when it is received, he or she should be notified.

## Packing

Packing merchandise for shipment requires the proper selection of containers, arrangement of contents, and labeling. Some heavy or bulky items require only the attachment of shipping tags or labels. Ordinary parts should be arranged in cartons of suitable size and strength. Careful attention to the placement of items in a carton will save space and minimize the danger of damage due to shifting contents. Heavy items should never be packaged with items that are subject to breakage. Special individual packaging should be used for glass, moldings, gages, and other fragile items. All empty spaces in cartons should be filled with excelsior or other cushioning material, with special attention given to glass and fragile items.

After the packing slip has been placed in the carton, the carton is stapled, tied, or firmly glued shut. Sealing tape is adequate for most cartons, but, if the carton is unduly heavy, steel bands or strong twine may be necessary. If more than one carton is involved in the shipment, the carton in which the packing slip has been placed is marked "Packing Slip Enclosed."

Two types of labels are used. (1) the gummed label, which is glued directly to the package; and (2) the tie-on label, which is tied or wired to the package or bundle. The same basic information should be contained on each label. The required information is printed or stamped clearly on the label, so that the name and address of both shipper and customer are plainly legible.

## Shipping Regulations

Shipping regulations differ among the various carriers, and the shipping clerk must be acquainted with the rates, packaging limitations, schedules, and delivery points of each carrier. Instructions for routing the shipment are sometimes given with the order, if not, the shipper must select the mode of transportation which will give the customer the fastest and most economical service.

### Parcel Post

Packages sent by mail to a customer are normally sent as fourth class mail, which includes most merchandise from 1 to 70 pounds in weight as well as certain other mailable matter. The regulations governing the allowable weights and sizes of fourth class mail are somewhat complex and change from time to time. Every shipping activity should have a copy of the latest rules at hand and should periodically check with the local postal authorities for changes.

Current general rules include the following:

- The package must bear the name and address of the sender, preceded by "From," as well as the name and address of the addressee. The use of ZIP codes is encouraged.
- The package must be susceptible of postal inspection.
- A written or printed invoice or bill, with necessary identifying or descriptive data, may be enclosed. Letters may not be enclosed unless a special notation is made and additional postage paid.
- Mailing explosives and flammable substances is generally prohibited.

The use of air parcel post, while more costly, sometimes affords a means of meeting a delivery deadline otherwise impossible. Size and weight regulations for air mail are somewhat different from those covering surface mail; the local post office should be consulted.

### Stage (Bus) Regulations

Local or interline shipments are accepted for transportation, either prepaid or collect, by most stage companies to any stations on their scheduled route. All shipments must be packed in containers made of material of such strength and durability that they can withstand handling, stacking, strapping, or rubbing against baggage racks. All packages that contain fragile articles must be plainly marked. The name and address of the shipper and consignee must be shown plainly on all packages.

Because of the nature or contents of the package, the following automotive items are not normally accepted for bus transportation. acids, wet batteries, gases in cylinders, flammable thinners, and certain paints. Limitations on the weight and size of each package vary with different bus companies. If a package exceeds 100 pounds, the shipper should check with the company to determine whether it is acceptable.

### Trucking Companies and City Delivery Services

Most trucking companies and city delivery services have similar rules for packaging, sealing, and labeling. However, the limitations on size, weight, and type of material carried are not as strict as postal or bus regulations. The shipper should check with the individual companies as to their specific regulations.

### Shipping Forms

After an appropriate means of transportation has been selected, a bill of lading should be prepared. Information entered on the bill of lading should include the number of packages shipped, the total weight of the packages, and whether the shipment is prepaid or COD. The form is made out in duplicate or triplicate so that a copy can be filed for future reference in case of damage to, or loss of, the shipment.

### Insured and COD Shipments

The Post Office Department and most transportation companies provide for both insured and COD shipments. Insurance against loss or damage may be obtained for an amount equivalent to the actual value of the merchandise, or up to a stated maximum per parcel. A firm that makes many shipments on a regular basis may obtain a post office form book and originate insured shipments from its place of business.

Shippers use COD service when they do not desire to extend credit or when customers do not wish to establish credit or pay in advance. Postal COD service is especially useful because of its wide area service, low fees, and prompt receipt of collections. The COD form book furnished by the post office is the same as that used for insured packages. All postal COD packages are marked with serial numbers that are assigned by the post office to each firm and are registered in the form book by the firm sending the package, with a duplicate made for the post office department. These numbers are used to identify insured packages and money orders in payment of COD shipments.

### Study Assignment

*Jobbers Guide to Retail Marketing*, Midland, Michigan: Transportation Chemicals Department, Dow Chemical Company (Latest edition).

### Topics For Discussion

Be prepared to discuss the following topics if you are asked to do so:

1. Discuss wholesale and retail sales profit patterns.
2. Discuss your own particular skills and interests, and try to determine where you fit in the auto parts industry.

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 1 – FILLING AND SHIPPING ORDERS

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. The new apprentice in the auto parts business is frequently assigned to the __1__ and __2__ department. — 1.____ 2.____

2. All parts employees should be familiar with the steps to be followed in __3__ and __4__ orders for shipment. — 3.____ 4.____

3. An order should be examined beforehand to determine the __5__ to be followed through the department in filling the order. — 5.____

4. Before "shorting" an order, both the __6__ and the __7__ should be checked. — 6.____ 7.____

5. Permission should always be obtained from the __8__ before making substitutions on an order. — 8.____

6. Careful attention to the __9__ of items in a carton will save space and minimize the danger of __10__ due to shifting contents. — 9.____ 10.____

7. After the __11__ __12__ is placed in the carton, the carton is firmly closed. — 11.____ 12.____

8. Shipping __13__ differ among the various carriers. — 13.____

9. Instructions for __14__ the shipment are sometimes with the order. — 14.____

10. Packages sent by mail are usually sent __15__ class. — 15.____

11. All parcel post shipments are subject to __16__ by postal authorities. — 16.____

12. When one item is special ordered for a retail customer, his or her name, address and __17__ __18__ should be taken. — 17.____ 18.____

13. In case any part ordered has been superseded, both old and new __19__ __20__ should be shown on the order. — 19.____ 20.____

14. Postal regulations allow both __21__ and __22__ shipments. — 21.____ 22.____

15. The COD service is used when the shipper does not want to extend __23__, or customers do not want to pay in __24__. — 23.____ 24.____

## Test

Circle T if the statement is true; circle F if the statement is false.

| | | | |
|---|---|---|---|
| 1. The last assignment of the auto parts apprentice before graduation will be to the shipping department. | 1. | T | F |
| 2. Parts persons in dealerships do less shipping than those in jobber firms. | 2. | T | F |
| 3. The order in which parts are gathered to fill an order has no significance. | 3. | T | F |
| 4. Apparent shortages are checked against inventory cards. | 4. | T | F |
| 5. If an item is on back order, the customer is notified that it will be sent sometime in the future. | 5. | T | F |
| 6. Substitutions should never be made. | 6. | T | F |
| 7. Many items are shipped without packaging them. | 7. | T | F |
| 8. The packing slip should be mailed the same day the order is shipped, never earlier. | 8. | T | F |
| 9. Zip codes are used on letters only, ~~not~~ packages. | 9. | T | F |
| 10. Wet batteries are not normally accepted for shipment by stage lines. | 10. | T | F |
| 11. The list price is always found on the bill of lading. | 11. | T | F |
| 12. The Post Office Department offers insurance on packages up to the total value of the contents. | 12. | T | F |
| 13. Mailing explosives and flammable substances is generally prohibited. | 13. | T | F |
| 14. All packages containing fragile articles must be plainly marked. | 14. | T | F |
| 15. If more than one carton is involved, the carton with the packing slip is marked "Packing Slip Enclosed." | 15. | T | F |

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 2 – RECEIVING

This topic is planned to provide answers to the following questions:

- What are the various forms commonly used for receiving goods into stock?
- What is the function of the packing slip?
- How does a bill of lading differ from a shipping receipt?
- What inspections should be made before merchandise is accepted?
- Who reimburses the receiver when damaged items are delivered?

One of the first tasks assigned to the auto parts apprentice may be helping to receive shipments into the department and to store them properly. He or she should become very familiar with the forms, terms, and procedures commonly used for the receipt of merchandise. A great deal of the knowledge required of the parts person will be acquired through his or her participation in receiving activities.

### Forms

Four forms handled most frequently in the auto parts receiving department are the shipping receipt, packing slip, invoice, and bill of lading.

A *shipping receipt* lists the number of packages, the nature of their contents, and the weight of a shipment that is to be delivered by a transportation company. The method of payment for the delivery is also indicated (i.e., COD, Collect, Prepaid). The receipt should be filled out in detail to avoid confusion. A description of the merchandise, the name of the shipper, and the name and address of the firm to whom the merchandise is being shipped must be listed on the receipt (Fig. B-1).

The *packing slip* is an itemized list of the articles included in a package or in a group of packages shipped together. The packing slip may be inserted in one of the cartons, or it may be found in an envelope marked "Packing Slip" and stapled or glued to one of the packages. When a large shipment is being unloaded, it is a good idea to watch for the package marked "Packing Slip" and to set it apart from the other packages (Fig. B-2).

An *invoice* is similar to a packing slip in that it lists the parts by number and description. In addition, it shows the price per item and the total price of shipment. The invoice is usually sent by mail. In some cases the invoice is received before the shipment, but more often the invoice is mailed to the buyer after the shipment has been received (Fig. B-3).

A *bill of lading*, which is issued by the transportation company, acknowledges receipt of goods from the shipper. It contains the total number and a description of the packages to be shipped, along with the shipping instructions (Fig. B-4).

### Kinds of Shipments

A *prepaid shipment* is a shipment on which the transportation charges are paid by the shipper. On a *COD shipment*, both the cost of the merchandise and the shipping charges are paid by the receiver at the time the merchandise is delivered. A *collect shipment* requires payment of only the transportation charges by the receiver at the time of delivery.

### Accepting Merchandise

When a shipment of merchandise is accepted from a transportation company or service, two fundamental rules should be observed. First, the number and type of containers received should be checked against the number and types of packages listed on the shipping receipt or the bill of lading. Second, the address on each item should be verified to avoid delay and confusion caused by accepting the wrong merchandise.

Before the shipping receipt is signed, each package should be inspected for damage. Cartons which show evidence of crushing, especially those marked "glass" or "fragile," should be opened immediately for inspection. Any shortages or damage must be noted on the shipping receipt and acknowledged in writing by the person who delivers the merchandise. If the shipment is found to be complete and in good order, the shipping receipt need only be signed and dated by the receiver.

### Filing Claims

If it is discovered after the driver for the transportation company has gone that merchandise is missing or damaged, the local representative of the transportation company should be notified

**Trans-Bay MOTOR EXPRESS CO.**

EMERYVILLE 8
1291 - 63d STREET
OLympic 5-5225

SAN FRANCISCO
SUtter 1-0314

COMMON CARRIER SERVICE SUBJECT TO CONDITIONS NAMED IN THIS COMPANY'S TARIFF

DATE 3/3 19 | SHIPPER'S NO. | PREPAID [X] COLLECT [ ]

(SHIPPER) FROM: Chandler + Lyon | (CONSIGNEE): Joe's Auto Parts | 89527

STREET: 1470 High St. | STREET: 1414 Dearborn St. | C.O.D.:

CITY: Oakland, Calif. | CITY: San Jose, Calif. | C.O.D. FEE

| PACKAGES | ARTICLES | WEIGHT | CLASS | RATE |
|---|---|---|---|---|
| 4 | Gaskets, rings and Bearings | 48 lb | | |

RECEIVED IN APPARENT GOOD ORDER BY TRANS-BAY MOTOR EXPRESS CO. EXCEPT AS NOTED

PICK-UP DRIVER

RECEIVED BY CONSIGNEE IN GOOD ORDER

CONSIGNEE

DECLARED VALUE $ 80.00

NOTE SHIPPER: PLEASE PRESS FIRMLY WHEN WRITING THIS TAG, SO CONSIGNEE'S COPY WILL BE LEGIBLE.

TOTAL TO COLLECT

Fig. B-1. Shipping receipt

PACKING LIST **THE FULLWELL MOTOR PRODUCTS CO.** 111050

[ ] NEW ACCOUNT MAIN OFFICE - 14700 INDUSTRIAL PARKWAY - CLEVELAND, OHIO 44135

PAGE 1 OF 1 SHIPPED FROM: [ ] 14700 INDUSTRIAL PARKWAY CLEVELAND, OHIO 44135 [X] 827 E. 10TH ST. OAKLAND, CAL. 94606 [ ] 218 NORTH WALTON ST. DALLAS, TEX. 75226 [ ] 1213 ALLENBY ST. N.W. ATLANTA, GA. 30310

INVOICE TO: JOHN DOE Co (PRINT NAME AND ADDRESS) | CUST. P. O. NO. 1888

ADDRESS: 366 8th AVE | DATE 2-4-

CITY AND STATE: HOMETOWN, USA | CLASSIFICATION

F. O. B. [X] DESTINATION [ ] SHIPPING POINT

SHIP TO: SAME | TERMS: Net

ADDRESS | SALESMAN: G. Bolman | TERR. NO. 107

| P | P | QUANTITY | PART NO. & DESCRIPTION |
|---|---|---|---|
| | | 10 | 85989 Hose |
| | | 10 | 82888 Bolt |

ITEMS NOT CHECKED ARE BACK ORDERED

ROUTING: PMT

SIGNATURE: John Doe

Thank You!

STATE SALES TAX [X] EXEMPT [ ] NON-EXEMPT

CREDIT INFO. & INSTRUCTIONS

MAKE CHECKS PAYABLE TO: FULLWELL MOTOR PRODUCTS CO. ONLY

Fig. B-2. Packing slip

**CORONADO MFG. COMPANY** — INVOICE

MAILING ADDRESS: P. O. BOX 2108, Long Beach, Calif. PLANT: 1206 E. HILL ST., Long Beach, Calif.

TELEPHONES: GA rfield 7-0986 - NE vada 6-7557

CORONADO MFG. CO. LONG BEACH CALIFORNIA

STATE CODE: 5 — CUSTOMER'S NUMBER: 7206 — SALESMAN'S NUMBER: 25

SAVEWAY AUTO ACCESS
3807 SAN PABLO AVE
OAKLAND 8 CALIF ← SOLD TO

SAVEWAY AUTO ACCESS
3807 SAN PABLO AVE
OAKLAND 8 CALIF ← SHIP TO

| CUSTOMER ORDER NUMBER | PRODUCT DESCRIPTION | | | | | | PACKING LIST NO. 23938 | INVOICE NO 40145 | INVOICE DATE | |
|---|---|---|---|---|---|---|---|---|---|---|
| DESCRIPTION | PROD. NO. | DASH NO | VOLT | MAT | FIN | QUANTITY ORDERED | QUANTITY BACK ORDERED | QUANTITY SHIPPED | UNIT PRICE | AMOUNT |
| HEAD - C | 660 | 2 | | | 2 | 1 | | 1 | | 1 50 T |

TERMS: 2% 10TH PROX.
NET THEREAFTER

Fig. B-3. Invoice

(Uniform Domestic Straight Bill of Lading, Adopted by Carriers in Official, Southern, Western and Illinois Classification Territories, March 15, 1922, as amended August 1, 1930 and June 15, 1941)

UNIFORM STRAIGHT BILL OF LADING — **Original—Not Negotiable**

Shipper's No. 28

Southern Pacific Lines — Company Agent's No. 7

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading,

at Richmond Calif 3/8 19 from Claar Chevrolet Co.

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee—for purposes of notification only.)

Consigned to Colfax Auto Repair

Destination Colfax, State of Calif. County of

Route Van Lines

Delivering Carrier Van Lines Car Initial O-K Car No. 12-721

| No. Packages | Description of Articles, Special Marks, and Exceptions | *Weight (Subj. to Cor.) | Class or Rate | Check Column |
|---|---|---|---|---|
| 1 | 3741079 hood panel | 40 | 2 | ✓ |
| 1 | 3743650 Front Fender | 30 | 2 | ✓ |
| 1 | 3137077 Radiator Core | 25 | 2 | ✓ |
| 1 | 3738775 Grille | 10 | 2 | ✓ |

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

Claar Chevrolet
(Signature of Consignor)

If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

NOTE—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding $175.00

†"The fibre boxes used for this shipment conform to the specifications set forth in the box maker's certificate thereon, and all other requirements of Uniform Freight Classification."
(Shipper's imprint in lieu of stamp not a part of bill of lading approved by the Interstate Commerce Commission.

Per (The signature here acknowledges only the amount prepaid.)

Charges Advanced: $

Claar Chevrolet Co. Shipper, Per Glenn Agent, Per

Permanent post-office address of shipper. 480 23rd St. Richmond, Calif.

Fig. B-4. Bill of lading

immediately, and the shipment should be set aside pending investigation and settlement of the claim. All claims for shortages and damages should be filed promptly to prevent costly delays in settlement.

If the damaged shipment was prepaid, the company or dealer who shipped the merchandise should also be notified so that they can file a claim against the transportation company. If the shipment was paid for by the company that received the goods, it is the responsibility of the individual accepting the merchandise to make sure that notice of any damage or shortage is given to the person in the company who is responsible for filing and settling claims.

The above procedure is used in all cases when the shortage or damage may be attributed to the transportation company's manner of handling and shipment. If, however, discrepancies are found between the quantity of items in the packages and the quantity listed on the packing slip, or if concealed damage is found that resulted from improper packaging, claims are brought against the company or manufacturer from whom the merchandise was purchased.

### Unpacking and Checking

A few simple precautions must be observed in unpacking merchandise. When wooden crates are opened, one end of each cover board should be lifted carefully about ½ inch with a claw hammer or a crate opener, and the boards then tapped down flush again, leaving the nail heads standing above the boards. Then the nails can be removed easily, leaving the boards free at one end. After this is done, it is a simple task to remove the cover boards completely, using either tool. All nails that could injure anyone handling the crate or cover boards should be completely removed.

Heavy cartons and crates that are bound with wire or steel bands should be opened with care. Such bands and wire are tied under pressure and have a tendency to fly up and out when they are cut. The loose ends can easily put out an eye or cause other serious injury. A sharp pair of wire cutters should be used, so that the loose ends are restricted from flying about. A pair of heavy gloves should be worn when handling wires and steel bands.

Cardboard cartons are difficult to tear open when the cover flaps are glued or stapled securely. When a stapled flap is forced open, a person's hands or arms may become hooked on the sharp staples, or the staples may fly off in any direction. Also, the sharp edges of sealing tapes can cut like a knife. The quickest and simplest way to open a cardboard carton is to cut it open. To open a taped carton, the tape is cut where the flaps come together and at both ends of the cover flaps, without, however, inserting the knife far enough to damage any of the contents. To open a glued carton, the cardboard is cut just beneath the flaps on the three sides, and the lid thus formed is lifted. In this way none of the enclosed merchandise will be damaged.

Each item received is carefully checked against the packing slip to make sure that the quantities agree. If a shortage exists and is not detected, the company will pay for merchandise that it did not receive, the inventory system will be affected, because entries are made according to the quantities shown on the packing slip; and at the yearly inventory, a search will be made for merchandise that was never received. Any discrepancies in quantity or part number should be reported to the designated person so that a claim or adjustment can be made.

When the dealer or manufacturer is temporarily out of certain items and is not able to completely fill an order, the items should be back ordered for shipment at some future date. The receiving clerk should check with the purchasing agent or buyer to determine whether the dealer who shipped the merchandise does or does not ship back orders. Some dealers or manufacturers cancel all items not shipped, in which case the buyer has to reorder. And some companies, as a matter of policy, do not accept back-ordered merchandise. With today's automated inventory control and ordering systems, packing slips will show superseded numbers, transposed numbers, and items that are back ordered, and the point from which they will be shipped.

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 2 – RECEIVING

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. A shipping receipt lists the __1__ of packages, the nature of their __2__, and the __3__ of a shipment. — 1.____ 2.____ 3.____

2. The itemized list of the articles included in a package or a group of packages is called a __4__ __5__. — 4.____ 5.____

3. An invoice is different from a packing slip in that it lists the __6__ per item and the total __7__ of all the items. — 6.____ 7.____

4. The transportation company issues a __8__ __9__ form which acknowledges receipt of goods from the shipper. — 8.____ 9.____

5. A __10__ shipment is one on which the transportation charges are paid by the shipper. — 10.____

6. On a __11__ shipment the cost of the merchandise and the shipping charges are both paid by the receiver. — 11.____

7. A collect shipment requires payment of the __12__ charges only by the receiver. — 12.____

8. Before signing the shipping receipt, each piece of freight is inspected for __13__. — 13.____

9. A damaged shipment should be set aside for __14__ and __15__. — 14.____ 15.____

10. __16__ damage is often the result of __17__ packing. — 16.____ 17.____

11. When checking merchandise against the packing slip, the apprentice should make sure the __18__ agree. — 18.____

12. A __19__ __20__ is that portion of an order that cannot be filled at the present time, but will be __21__ at a future date. — 19.____ 20.____ 21.____

13. With today's automated inventory control and ordering systems, packing slips will show the __22__ numbers. — 22.____

14. When a shipment is received from a transportation company, there are __23__ rules to be observed. — 23.____

15. All claims for shortages or __24__ should be filed promptly. — 24.____

## Test

Circle T if the statement is true; circle F if the statement is false.

| | | | |
|---|---|---|---|
| 1. A shipping receipt usually names the shipper, the transportation company, and the consignee. | 1. | T | F |
| 2. A packing slip must be enclosed in each carton. | 2. | T | F |
| 3. An invoice includes prices and discount information. | 3. | T | F |
| 4. The invoice should, in each case, be stapled to the packing slip during shipment. | 4. | T | F |
| 5. On most COD shipments, transportation charges are prepaid by the receiver. | 5. | T | F |
| 6. Damaged cartons that are marked "fragile" should be opened immediately for inspection. | 6. | T | F |
| 7. Claims for damages should be filed without delay. | 7. | T | F |
| 8. Claims for damages should always be made against both the shipper and the transportation company. | 8. | T | F |
| 9. When a wooden crate is opened, all nails should be completely removed. | 9. | T | F |
| 10. Cardboard cartons are the easiest packages to open. | 10. | T | F |

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 3 – BIN ARRANGEMENTS AND STOCK MAINTENANCE

This topic is planned to provide answers to the following questions:

- Why is a stock of auto parts binned?
- How are stock bins arranged?
- What stock items present the greatest storage problem?
- How are spare parts and bins numbered?
- What action is taken when a part number changes?

When merchandise has been received and checked, it should be distributed to the bins as quickly as possible for two reasons: first, to replenish an existing shortage in the bin stock, and second, to keep the receiving department cleared for further incoming shipments. If incoming orders are allowed to become mixed prior to checking, the job of segregating and checking each shipment becomes much more difficult.

### Types of Bins

Automotive parts bins may be of almost any possible shape, depending on the nature of the merchandise to be stored. Bins are usually commercially purchased, although many adequate substitutes can be built inexpensively. A few of the most common types of bins are described in the following paragraphs.

Stock commercial bins are generally of steel construction, measuring typically about 7 feet high and 3 feet wide. The depth of a bin may be from 1 to 4 feet, depending on what it is to contain. Shelves in standard bins may be bolted in at any level so that openings of any desired height can be arranged. The metal partitions are designed so that they can be set at various positions. When shelves and partitions in bins are arranged, careful thought should be given to the various sizes of the parts which will eventually be stocked to minimize tearing down and rearranging shelves at future times (Fig. B-5). One good method is to draw the bins on paper and then purchase or make the bins accordingly.

Conventional bins in an assortment of sizes will accommodate almost all regular and bulky parts, but a few special bins or storage arrangements are often required. Tail pipes are best stored vertically along wall areas that have been partitioned off in some simple manner–usually by wooden barriers. Drive shafts are frequently stored in a similar manner. Most axles will fit conveniently into simply designed racks or in 4-feet-deep commercial bins.

Head gaskets, valve cover gaskets, and other gaskets of medium and large sizes should be stored flat in bins. Smaller gaskets, such as differential covers, timing covers, transmission covers, and the like, may be hung on pegboards or stored in drawers. Cabinets with small drawers are normally used for carburetor parts and other small parts. Separate metal drawers may also be installed among the bins to hold small washers, pins, springs, screws, and the like, that otherwise might slip under or behind shelves or partitions.

Sheet metal storage is a real problem; fenders, hoods, doors, and panels are bulky, so a large area is needed to store them. These large items are usually relegated to a loft or an attic, where the fenders are hung on racks made of pipe, while the panels are stored by standing them vertically against walls or barriers. The disadvantages of the arrangement are obvious–the heavy panels must be carried up-stairs or over long distances–but unless the parts department has a large amount of unused space, little else can be done. New and updated parts departments have conveyor belts to move these items up and down.

Moldings can be stored in light, vertical wooden racks of local design; they pose no great problem, except for the location, design, and construction of the racks.

Other items that may pose special storage problems include radiator hoses, fan belts, wire, and metal or rubber tubing. These parts should be stored with the emphasis on convenience, being either binned or hung in handy locations. A little ingenuity is all that is needed (Fig. B-6).

### Bin Arrangement

The arrangement of bins in the most practical sequence is not always an easy task. Major manufacturers arrange their parts in a group sequence,

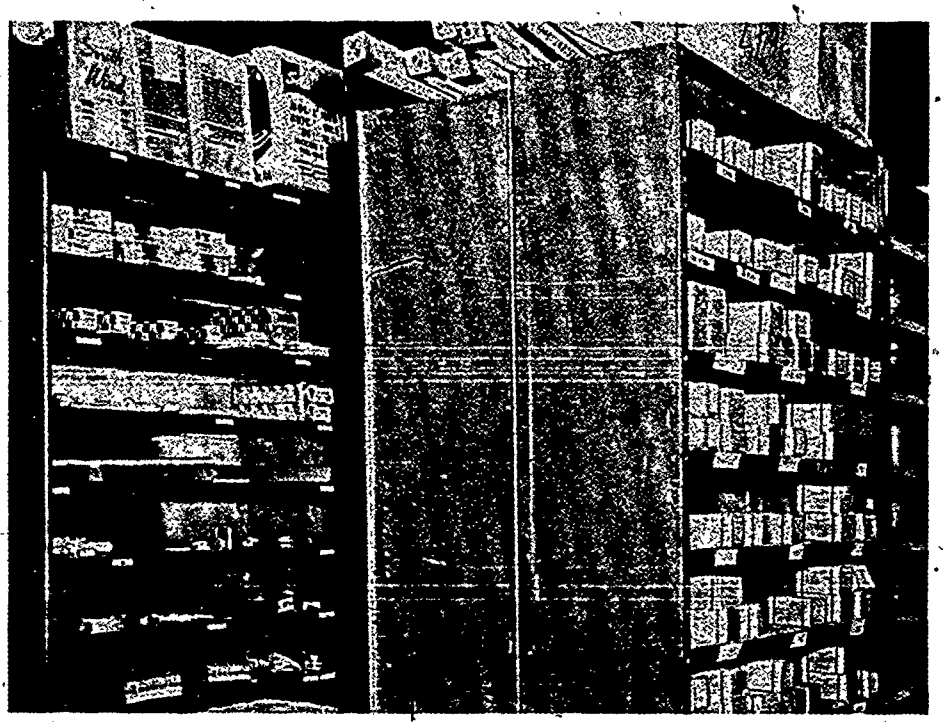


Fig. B-5. Typical metal parts bin

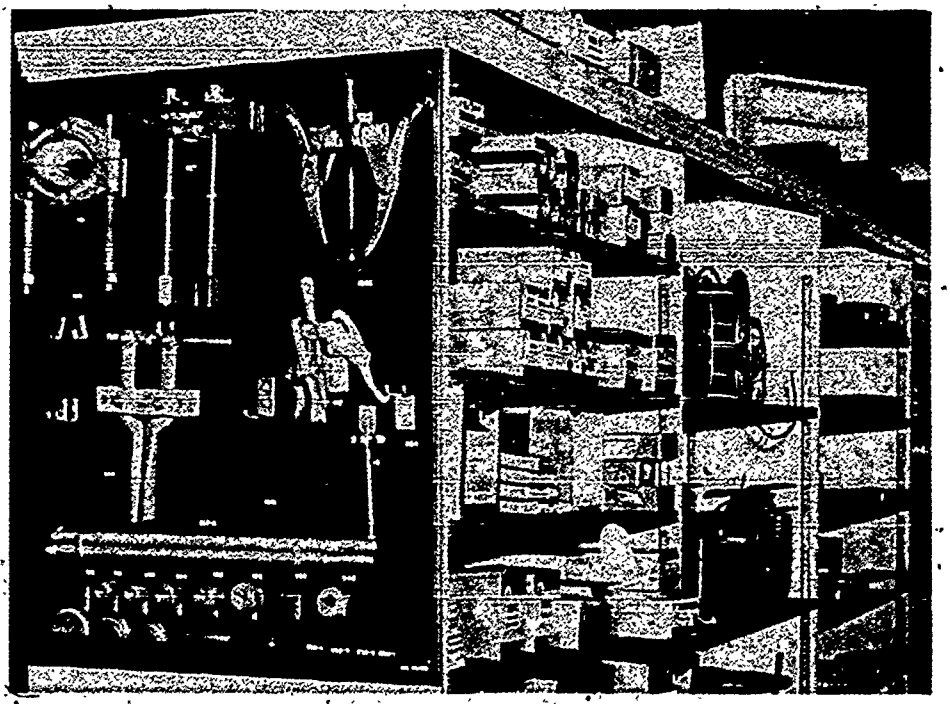


Fig. B-6. Tool storage and display, showing wire and hose storage in conventional bins

which must be followed if parts are to be located quickly and accurately (Unit C). This kind of arrangement sounds easy enough to do, but several drawbacks may be encountered. The bulky items usually do not fit well into the regular bin section and must be located elsewhere. The building design may not allow an orderly layout of bins by group number, and the order must be broken. Whether to locate gaskets in numerical sequence with related parts or to place all gaskets in a single gasket section must be decided. If the group sequence is followed meticulously, heavy, awkward items may be assigned to the top shelf – 7 feet up – while small, hard-to-reach items may be found in the very bottom row.

The layout and floor space of the parts department is, in most cases, the determining factor in the arrangement of the bins. After dividing the regular-size bin section from the bulky section, the bins are best arranged (usually back-to-back) with the ends of the rows toward the main sales counter. The small parts should be located nearest the counter, while the bulky items, which normally sell much more slowly, should be grouped at the far end of the regular bins. A 3-foot aisle should be maintained to allow free passage without waste of valuable floor space.

When bins are arranged according to manufacturers' groupings, then a related system of parts is established. All parts for the engine are located in a group of adjacent bins, cooling system parts are similarly grouped, electrical parts, fuel system units, and transmission parts are also placed in logical, continuous bin locations. Other part groupings follow, until the entire line of necessary and related parts is completed. The only exceptions to this sequence are, as already mentioned, the bulky items such as large housings, pipes, axles, mufflers, moldings, and panels, which must be located in some other place. These bulky items, however, may be placed in logical group order, and their locations traced out as easily as the smaller parts.

### Bin and Part Numbers

For adequate control, every part must be assigned a discrete number, and every bin within the department numbered. Card-type inventory control systems provide space for recording the location of every part (for example, Part Number 7450745, bearing, location, Bin Number 23). The ability to locate parts by bin number is important in a large parts department, because there may be some question as to whether the part is to be found in the regular or bulky section of the bins. Bin numbers should follow the same logical order as the group numbering sequence of the parts, and every inventory card should show the bin in which that particular part is located.

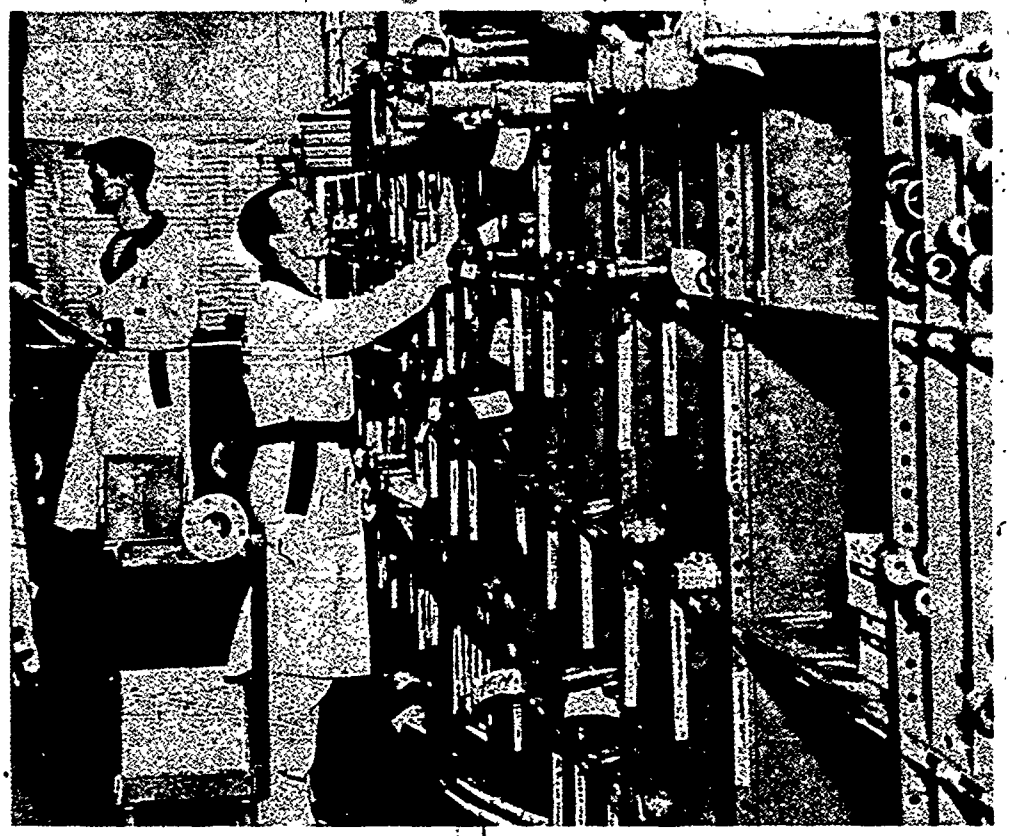
Some parts departments, especially those in agencies, find it helpful to display the group numbers on the ends of the rows of bins. For example, a particular row of General Motors parts bins might contain groups 4.022 to 4.465. Such coding of each row of bins assures the parts person of finding the correct aisle without using trial and error.

Part number labels that identify the part within should appear on every bin. Auto manufacturers supply complete sets of bin labels at nominal cost. These labels are indispensable for locating, identifying, and pricing the parts in stock. When part numbers, model usages, or prices change, new labels are supplied.

Jobbers and independent parts dealers are not so fortunate in having sets of labels supplied to them by the various companies whose parts they stock. Some jobber-independents operate without bin labels, relying solely on their catalogs for the required information. Others make write-in tags to identify and price the merchandise.

### Stocking the Bins

When an apprentice is assigned to stocking the bins, he or she should learn the bin sequence of the store or department as quickly as possible. Once the general location of parts is determined, putting away stock becomes routine, except for certain precautions which must be followed. The importance of putting each part in its correct location on the shelves, in the bins, or on the racks can not be over-emphasized (Fig. B-7). Parts which are placed in the wrong location may lose their identity or may be given out in a costly error. Each part must be correctly tagged or numbered before it is placed in stock. New merchandise should be placed behind old merchandise, so that old stock will be moved out first and fresh stock maintained. All parts should be handled carefully; many parts that do not look fragile can be severely damaged if they are dropped. When bins are stocked, part number changes should be checked. If a new number is issued to supersede an old number, the old stock must be marked accordingly. However, it must be noted that some superseded parts will fit the older models, but the old part will not fit the newer models. Parts and bins should be kept clean, dirt can damage many parts, and a dirty part is unattractive to the customer.



*Courtesy Cochran and Celli, Oakland*

**Fig. B-7. Stocking bins with bulky items**

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 3 – BIN ARRANGEMENTS AND STOCK MAINTENANCE

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. New merchandise should be placed in the __1__ as soon as it has been __2__. — 1.____ 2.____
2. Auto parts bins may be built in almost any __3__, depending on the __4__ of the parts to be stored. — 3.____ 4.____
3. Commercially built bins are usually of __5__ construction. — 5.____
4. Small gaskets may be hung on __6__ or put in gasket __7__. — 6.____ 7.____
5. For agencies and dealers __8__ __9__ storage is often a difficult problem. — 8.____ 9.____
6. The arrangement of bins in a group __10__ is not always possible. — 10.____
7. If parts are to be located quickly and accurately, a __11__ must be followed. — 11.____
8. The __12__ and __13__ __14__ of the parts department are the determining factors in the arrangement of the bins. — 12.____ 13.____ 14.____
9. Bulky items may be placed in a __15__ group sequence. — 15.____
10. For adequate control, it is necessary that every part be assigned a __16__ __17__. — 16.____ 17.____

### Test

Circle T if the statement is true; circle F is the statement is false.

1. Newly received stock must be checked before it is binned. — 1. T F
2. Checking several incoming orders together will save time. — 2. T F
3. All the bins in one group should be of the same size. — 3. T F
4. Tail pipes should be stored flat on the floor behind the bins. — 4. T F
5. Most axles are less than 4 feet long. — 5. T F
6. Carburetor parts are usually stored in small drawers. — 6. T F
7. Door panels should be binned to prevent damage. — 7. T F

8. Moldings can be stored in vertical racks. 8. T F

9. Bins should always be arranged to strictly follow the manufacturer's group sequence. 9. T F

10. Small parts should be located near the service counter. 10. T F

11. Every inventory card should show the bin location of the part. 11. T F

12. A mislocated part can cause a costly error. 12. T F

13. Before stocking bins, the apprentice should learn the bin sequence of the store. 13. T F

14. Jobbers and independent parts dealers are supplied with printed bin labels. 14. T F

15. Part number labels, identifying the part within, should appear on every bin. 15. T F

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 4 – PICKUP AND DELIVERY

This topic is planned to provide answers to the following questions:

- Why is pickup and delivery service offered?
- Why is a schedule prepared for pickups and deliveries?
- What are the advantages of route plans?
- What records does a driver keep?
- Does the driver of the delivery vehicle take orders?

Pickup and delivery service in the auto parts business is no longer optional – it is necessary. The increasing competition among firms, the sprawling urbanization of business districts, and the rising cost of the garage employees' time are some of the reasons why this service is essential.

Pickup and delivery service requires something more than just a pickup truck and an apprentice driver. Certain practices, when followed, can substantially increase sales volume and improve customer relations. Some of these desirable practices will be discussed in this topic.

### Establishing Schedules

Scheduling and routing are keys to effective pickup and delivery. In a large operation, which has many pickups and deliveries to perform, two schedules are usually arranged, one for morning and one for afternoon. These schedules must be kept at the hours arranged, and all personnel and customers must know the schedule.

Educating the customer to scheduled deliveries should be done tactfully and honestly. This is the task of the person receiving the order, as well as of the delivery driver. Once the customer is aware of the scheduled hours, he or she can plan his or her work accordingly. The important thing, of course, is to maintain the schedule as closely as possible so that commitments are kept and promised material is delivered on time.

If the territory to be covered is small, it is possible to make two complete circuits a day, depending on the number of orders received and the quantity of merchandise to be delivered. Over a larger area the route is usually divided into two half-circles, one-half is scheduled for morning deliveries and the other half for afternoon deliveries. Again, all of those involved must be informed of the scheduled hours of delivery if the program is to be successful.

The number of orders will vary from day to day, as will the location of business firms that place the order. Hence, a certain amount of flexibility should be built into every schedule – an extra few minutes to take care of the unexpected things that will occasionally happen. The driver should allow a few critical minutes at each location, for reasons which will be discussed later.

### Planning Routes

The driver's route should be planned so that it is the most convenient and shortest possible route. This task is often difficult because delivery points will vary from day to day. The driver should also have a delivery or route book in which every delivery can be logged in the order that he or she intends to make them. When the driver knows every stop beforehand, he or she is able to route deliveries in the most economical manner and in accordance with the preestablished schedule.

Pickups should be made with the deliveries. As the driver logs the route, pickup orders should be noted and worked into the delivery schedule. Pickup orders, usually in the form of purchase orders originated by other parts personnel, can be conveniently arranged into the delivery route, thereby conserving time and expense. Copies of purchase orders for material to be picked up should be placed in an established place so that the driver will automatically receive them and know the merchandise is to be picked up.

### Checking Orders

The driver should have the delivery invoice of each order before him or her, preferably on a clipboard, so that each piece of merchandise can be checked against the invoice as he or she loads the truck. This is a good practice for two reasons. If the clerk who filled the order made an error, it can be corrected before the delivery is made, possibly saving an extra trip. Also, the driver is protected against any claims of shortage or damage alleged to have occurred between loading and delivery.

When the orders have been checked to the driver's satisfication, he or she should log each in the delivery book, noting the customer's name, address, and invoice number or numbers. At the time of delivery, the driver should obtain the signature, in his or her delivery book, of the person receiving the merchandise and record the date and time of delivery. This procedure serves as an additional safeguard for the driver and his or her company by documenting that the merchandise was properly delivered. Often the driver is expected to return signed copies of invoices to his or her company—if both the original and the customer's copy were sent—and this must be done faithfully.

### Improving Customer Relations

The driver has a unique opportunity for building customer relations. Besides a generally helpful attitude, which the driver should always exhibit, there are a number of courtesies which, when extended, pay big dividends. Some of the following courtesies are small, others require effort, but all are important:

1. Never block the customer's driveway, either entrance or exit. If necessary, park outside momentarily until provisions can be made for unloading.
2. Ask where the merchandise is to be delivered; do not dump the order in the middle of the garage floor and leave it. If the order is for a particular car that is present in the shop at the place of delivery, ask if the parts should be placed in or near the vehicle. This is often appreciated, since it keeps the merchandise out of the way and near the car on which it will be used. And it is particularly appreciated if the order contains large sheet metal panels for a body.
3. Review the order with the garage management if they wish to do so. Be prepared to answer any questions in regard to undelivered or back-ordered merchandise. The customer will be vitally interested in when the missing parts will be delivered, and this information should be given to him or her prior to the delivery. Never say, "I'm just the driver; I don't know anything about that!" The customer has reason to expect the driver to be interested in his or her problem. The driver has an obligation to be concerned. Courtesy is always proper when dealing with a customer. Do not just pass the buck to the parts person who filled the order.

### Building Sales

The driver can often recognize additional sales opportunities while making deliveries. Having checked each order when loading, he or she knows pretty well what each contains. While unloading, at or near a vehicle under repair, the driver may notice damaged parts for which replacement parts were not ordered. It is easy for a busy garage person to overlook needed parts, especially for extensive body damage. He or she may appreciate a tactful reminder that certain other parts are needed.

While a driver is in a customer's place of business, he or she should always inquire about other needs. The customer will welcome such concern, and it is very possible that additional needs have arisen since the original order was placed. An order pad should be kept in the truck for such occasions. If the driver feels inadequate to take the order, he or she can telephone the parts department for any help needed. Accepting and writing the orders is good parts experience, and it will relieve the customer of the time-consuming necessity of placing the order.

### Collecting Cash

Some deliveries may be to charge customers, while the driver may have to collect either cash or checks for the remainder of the deliveries. The driver may have to make change; and, if this is necessary, it should be done correctly, otherwise he or she may have to make up any shortages when he or she checks in with the cashier.

## UNIT B — AREAS OF RESPONSIBILITY

## TOPIC 4 — PICKUP AND DELIVERY

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. In the auto parts business, 1 and 2 services are no longer optional but are necessary. — 1.____ 2.____

2. The keys to the effectiveness of auto parts services are 3 and 4. — 3.____ 4.____

3. All 5 and 6 must be aware of the schedule for deliveries. — 5.____ 6.____

4. A certain amount of 7 should be built into every schedule to take care of 8 happenings. — 7.____ 8.____

5. The 9 must be planned by each driver to be the 10 that will cover all necessary stops. — 9.____ 10.____

6. The driver should 11 every delivery in the 12 in which they are to be made. — 11.____ 12.____

7. The driver should integrate 13 with the delivery schedule. — 13.____

8. Pickup orders are usually in the form of 14 15 originated by other parts personnel. — 14.____ 15.____

9. At the time of delivery, the driver should obtain in his or her delivery book the 16 of the person receiving the merchandise. — 16.____

10. The delivery driver has a unique opportunity for building customer 17. — 17.____

11. The driver should be concerned about the 18 problems. — 18.____

12. The driver should know how to receive checks and make proper 19. — 19.____

13. The driver should be able to recognize additional 20 opportunities while delivering. — 20.____

14. While a delivery is being made, it is always a good idea to inquire about other 21. — 21.____

15. Each order to be delivered should be 22 when it is loaded. — 22.____

## Test

Circle T if the statement is true; circle F if the statement is false.

1. Providing pickup and delivery service is one way to overcome competition in the parts business. 1. T F
2. Increased sales may prove to be a side result of a good delivery service. 2. T F
3. Making a schedule and sticking to it are basic to a satisfactory delivery service. 3. T F
4. With a regular schedule, one daily delivery will satisfy most customers. 4. T F
5. The order in which deliveries are made is not important. 5. T F
6. A good delivery person memorizes his or her stops daily. 6. T F
7. Pickups and deliveries should be made on separate runs. 7. T F
8. Each order should be checked when it is loaded. 8. T F
9. The delivery person should always park at the customer's door, unload there speedily, and clear the doorway by leaving without delay. 9. T F
10. The driver should not undertake to answer a customer's questions about back orders. 10. T F
11. The driver should not point out to the customer items the customer may have carelessly forgotten. 11. T F
12. The delivery person may properly ask the customer if he or she needs any additional merchandise. 12. T F
13. At the time of delivery the driver should obtain the signature of the person receiving the parts. 13. T F
14. Planning the route for delivery is not an important function. 14. T F
15. Delivery persons should know how to make change and accept checks. 15. T F

## UNIT B — AREAS OF RESPONSIBILITY

## TOPIC 5 — INTRODUCTION TO COUNTER SALES

This topic is planned to provide answers to the following questions:

- **What facet of a parts business generates jobs for parts persons?**
- **How should regular customers and casual customers be treated?**
- **How should customer complaints be avoided?**
- **How should a counter salesperson be dressed?**

The topic of counter sales is covered in detail in Unit E of this workbook. However, an introductory word about selling is in order for three reasons. First, the apprentice may become engaged in counter work very early in his or her career. Second, the conduct associated with successful salesmanship is important to every employee in the parts organization. And third, the importance of counter sales should be made clear early in the parts apprentice's career, wherever he or she may be located in the parts structure.

### Profitable Sales

The company the apprentice works for is like all other companies in that it is in business to make a profit. Indeed, if the company did not make a profit, it could not continue to operate and to provide jobs. This is a fact which is so commonplace that one tends to forget it, and at times everyone needs to be reminded of it. Counter sales mean customers, customers mean profits, and profits mean jobs—it is that simple.

But the subject of counter sales cannot be covered quite as easily as previously suggested. Profitable counter sales require two things: (1) customers, and (2) competent parts salespersons. Without customers the dealer might as well lock up and go home. If there are plenty of customers, but the parts people are incompetent, there soon will be neither profits nor customers, and the business will fail. Profitable counter sales are vital functions of any company.

### Rules for Salespersons

A good salesperson is always courteous. No matter how busy the salesperson maybe when a customer enters the store, the customers' presence should be acknowledged, and a courteous greeting extended. If the customer cannot be waited on immediately, he or she should be told that a salesperson will help him or her as soon as possible. A simple greeting like "Good morning, I'll be with you in a moment" will suffice.

The salesperson should never quarrel with a customer, because nobody ever wins an argument with the customer. A salesperson may win a point but lose a sale and a customer. A customer may be critical and demanding, but the seller has an obligation to serve him or her to the best of his or her ability. When the salesperson was hired, he or she accepted the responsibility of working to make the company's business successful and profitable, which includes waiting on difficult customers. The one compensation about difficult customers is that they make one appreciate the good customers.

If a customer has a complaint, he or she should be heard courteously and attentively. If the counter person cannot handle the complaint, he or she should call the person who would be most likely to help. Correcting a legitimate complaint is a normal and necessary part of every business.

Interest should be taken and shown in the customer's needs, making him or her feel that he or she will be helped. The customer will be grateful, and the salesperson's job will be more pleasant. A lot of customer goodwill is lost because of laxity and indifference. The salesperson should know his or her regular customers by name. He or she should never make promises he or she cannot or does not intend to keep. Friendliness and helpfulness pay big dividends.

Good telephone habits are essential, because much of the parts business is conducted over the phone. The person who answers the phone should identify himself or herself by speaking clearly into the transmitter; he or she should be prepared with a pad and pencil to take an order. Courtesy is as important in telephone transactions as it is in counter sales. Care should be taken to get all the information needed to check out wanted parts. The salesperson should not make a guess as to whether items are in stock, but should go to the bin and confirm that the part or parts are on hand. Finally, the salesperson should always thank the person for calling and invite him or her to call again.

Personal conduct and appearance take on a new meaning when one begins to serve the public. Careless habits of speech and dress should be corrected. Profanity is never in good taste, and good grooming is always desirable. Dress shirts and ties are recommended, although sport shirts may be permissible. Most parts people wear shop coats to protect their street clothes. Soiled shop coats should be changed regularly. Effective salesmanship requires good personal habits.

### Competence in Selling

Competence is another essential in the parts business, and it should be developed as quickly as possible. Competence consists of two components. accuracy and speed. As in learning to type, one works for accuracy first, and then for speed.

The complexity of the parts industry requires that careful attention be given to every sale. The current Chevrolet Master Catalog lists many different types of fan belts as compared to the one fan belt listed just twelve years ago. Today a careful, extensive inquiry in regard to the model and options is required just to sell a fan belt! This complexity, which is present in every phase of the industry, requires that the apprentice develop an early respect for accuracy, or careful attention to detail. The apprentice should learn to read the parts catalogs properly and to know the product thoroughly. These skills come only with experience, but their development begins the day a new employee opens the parts book for the first time or waits on his or her first customer. Giving out wrong parts is a costly, time-consuming business.

Speed in handling customer needs will come with experience. Familiarity with the product and the premises is the key to rapid performance. But accuracy must not be sacrificed for speed, rather, a balance of the two must be achieved.

Most errors are caused by carelessness and can be avoided. Errors always cost more to correct than to avoid. Also, errors can prove to be dangerous. For example, if a 1-inch wheel cylinder kit is used for a cylinder with a $1\frac{1}{16}$-inch bore, the cylinder may blow out under hard braking. A few years ago, one of the major auto manufacturers, as the result of a lawsuit, had to pay $100,000 in damages because metal cuttings were found in the master cylinder of one of their new cars that was involved in a fatal accident. An inspector at the plant had been careless, and it cost the life of a man.

### Topics for Discussion

Be prepared to discuss the following topics if you are asked to do so:

1. Why should the salesperson expose merchandise?
2. Why should customer mix be taken into account in selling?
3. What product mix and other services should the salesperson offer?

## UNIT B — AREAS OF RESPONSIBILITY

## TOPIC 5 — INTRODUCTION TO COUNTER SALES

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. The conduct associated with __1__ is important to every employee in the parts organization. 1._____
2. A common purpose of all parts companies is to make a __2__. 2._____
3. Profitable counter sales require __3__ and __4__ parts salespersons. 3._____ 4._____
4. A good salesperson is always __5__. 5._____
5. The employee should never __6__ with a customer. 6._____
6. If a customer has a __7__, the salesperson should listen to what he or she has to say. 7._____
7. A __8__ should always be taken in the customer's needs. 8._____
8. The person who answers a phone should __9__ himself or herself, and should always __10__ the person for calling. 9._____ 10._____
9. In the parts business, __11__ is a must, and it should be acquired as quickly as possible. 11._____
10. Competence has two components: __12__ and __13__. 12._____ 13._____

### Test

Circle T if the statement is true; circle F if the statement is false.

1. Assignment to counter work may come early in an apprentice's career. 1. T F
2. Auto parts companies are out to make profits. 2. T F
3. Profits mean something only to owners. 3. T F
4. The seller has no obligation to an unknown customer. 4. T F
5. Laxity of the counter person can cause loss of sales. 5. T F
6. Parts orders should not be taken by phone. 6. T F
7. The counter person should verify that wanted parts are in stock. 7. T F
8. Accuracy has two components: competence and speed. 8. T F
9. A thorough knowledge of each product is gained by reading the catalog. 9. T F
10. Speed in handling parts increases with experience. 10. T F

## UNIT B — AREAS OF RESPONSIBILITY

## TOPIC 6 — THE SHOP COUNTER

This topic is planned to provide answers to the following questions:

- What is the difference between a shop counter and a sales counter?
- Which counter is given priority of service?
- Which parts person usually staffs the shop counter? Why?
- What part does the mechanic play in shop counter transactions?
- How are out-of-stock items handled at the shop counter?

In the automobile agency, and to a lesser extent in the jobber-independent machine shop, the shop parts counter occupies a place of strategic importance. Agencies rely heavily on their service operation for maintenance of the cars and trucks they sell, for customer satisfaction, and for profit.

Service shops require an adequate supply of parts. In some agencies the number of parts and accessories sold through the service department approaches 50 percent of the total parts volume. Most parts sold through agency service departments are list price sales, so it can be appreciated that shop counter sales offer a most profitable potential.

### Relations Between Service and Parts Departments

Large agencies, which usually have a dozen or more mechanics and body workers drawing upon the parts room, may require a shop counter that is staffed with two or more full-time parts persons. Shop counters are usually set apart from the customer or street counter, because they require special procedures.

Agencies depend heavily upon car and truck sales for their financial success. To maintain the new and used cars sold and to perform the warranty and service operations demanded by customers, the service department becomes a vital part of the agency operation. Because sales and service are so closely linked, and the service department is dependent upon a continuing supply of parts, the three primary functions of an agency—sales, service, and parts— are complementary and depend upon one another.

This interdependence of departments becomes most evident at the shop counter, where mechanics and parts persons meet. Nowhere in the automotive agency is cooperation needed more than in this area. Mechanics who present parts requisitions at the shop counter must be given priority, because needless delays cost the company heavily in terms of profit and customer satisfaction. Time wasted at the shop counter may cost the company $12 or more per hour, plus a dissatisfied customer if the job is not finished on time.

### Shop Counter Knowledge and Skill

Parts knowledge and skills are needed at the shop counter more than at any other place. At the current customer labor rate, which ranges from $12 to $35 per hour in most auto agencies, it is very expensive to keep a mechanic or body worker waiting at the shop counter. Therefore, competent, thoroughly trained parts persons are needed to expedite filling each mechanic's needs and to minimize delays.

One of the reasons for staffing the shop counter with the best parts people is that they are the first to come in contact with the radical new designs in automobiles and automotive products which are introduced almost every new model year by auto manufacturers. Warranty service is a substantial part of the agency service department operation; and, as new models appear yearly, parts personnel must continually acquaint themselves with a multitude of new parts. Shop counter parts employees usually feel the burden first, often receiving requisitions for new parts even before the parts have been placed in stock, or before the new car model has been put on display. During the early weeks and months of a new production year, shop counter persons must become operationally acquainted with the new models. This process often involves learning the function as well as the parts of some complex new unit, including the study of special parts lists and service bulletins.

### Requisitions

A clear understanding should exist between parts and service personnel that, when a mechanic presents a parts requisition at the shop counter, certain obligations must be met. The mechanic must present a clear and legible requisition to the

parts person. The requisition should be made out by the mechanic for several reasons. First, because the mechanic is intimately aware of the parts needed, he or she should be able to write down all the parts required to complete a job. Second, if the mechanic stands at the parts counter and dictates his or her needs for the parts person to write down, it takes up both employee's time. A third reason is that omissions and errors may occur during the verbal dictation of a parts order, especially if a long list of parts is involved.

The parts person is obligated to process and complete each order as quickly as possible. Emergency orders which occasionally arise should be treated as such, and an added effort should be made by the parts person to expedite filling them.

Parts and service personnel can cooperate in a number of ways in the handling of shop requisitions. If a mechanic is working on a major overhaul, such as an engine or transmission, chances are that by the time he or she has completed the tearing-down operation, he or she will have a good idea of the parts needed. The mechanic should then prepare and present a parts requisition to the parts room for all the items needed. Thus, while the mechanic completes cleaning and machining operations, the parts department will have time between other smaller orders to fill the order and to take action to obtain parts not in stock.

Another timesaving method of handling shop requisitions is to issue first the parts needed to start the job, thereby allowing the mechanic or body worker to return to his or her job while the balance of the order is being filled. For example, if, a mechanic requests a long list of automatic transmission parts, he or she could be given the clutch discs, plates, and clutch drum bushing first. The mechanic could then return to his or her bench and assemble the clutch units while the parts person fills the rest of the order. Similarly, a body worker with a list of front-end sheet metal parts might be able to return to work for several hours if he or she needed and was issued the frame horn extensions, a radiator core support, and certain inner panels and baffles. The parts person would then be able to complete the order at his or her leisure.

Many shop requisitions will call for material not in stock. The nature and price of the part, and the urgency with which it is needed, will determine how the order is to be treated. Small purchases are usually treated as local buy-outs, the part is located by phone, and a purchase order is issued for it. Larger items, especially warranty materials, are normally available from the factory only and must be ordered from the factory on a emergency or car-tie-up basis.

Inventory clerks generally use shop requisitions to maintain the inventory system. For this reason shop requisitions must be kept clean and legible, and all part numbers and quantities must be clearly shown. When shop requisitions have been completed, they usually are sent to the inventory clerk so that posting may be completed.

## Charges

All parts, including special purchases and emergency materials, that are issued to the shop must be charged out on the work order or repair order. These orders usually come to the shop counter from the service dispatcher, and it is the responsibility of parts personnel to make sure that parts are properly charged. Different companies have slightly different rules concerning entering parts used on repair orders, but ordinarily it is by part number, name, and list price. Wholesale and warranty repair orders are handled according to the policy or procedures set up by the agency or company.

When purchase orders are prepared for parts needed to complete a repair job, the part or parts to be purchased and the purchase order numbers should be entered on the repair order. This precaution will preclude the possibility of a repair order being closed out without a complete list of the parts.

UNIT B — AREAS OF RESPONSIBILITY

TOPIC 6 — THE SHOP COUNTER

## Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. In an automobile agency, the 1 2 supports the service operation. 1.____ 2.____
2. Most parts sold through agency service departments are sold at 3 4. 3.____ 4.____
3. The three primary functions of an auto agency—sales, 5, and 6—depend substantially upon one another. 5.____ 6.____
4. Mechanics who present parts requisitions at the shop counter must be given 7 over lesser tasks. 7.____
5. Warranty service is a 8 part of the agency service department operation. 8.____
6. During the early weeks and months of a new production year, shop counter persons must become 9 acquainted with the new 10. 9.____ 10.____
7. The parts requisition should be made out by the 11. 11.____
8. Emergency orders require an added effort by the parts person to 12 them. 12.____
9. Parts persons and service personnel must cooperate in handling 13 14. 13.____ 14.____
10. Inventory clerks usually work from the 15 16 to 17 the inventory system. 15.____ 16.____ 17.____

## Test

Circle T if the statement is true; circle F if the statement is false.

1. Agencies depend on their service shops to ensure continued customer satisfaction. 1. T F
2. Outside sales can account for 50 percent of an agency's parts business. 2. T F
3. The three primary functions of an agency are mutually independent. 3. T F
4. The best parts persons should be stationed at the shop counter. 4. T F
5. The shop counter parts person must know the names and numbers of all parts, but he or she need not know their functions. 5. T F
6. The parts person should prepare the requisitions for the shop mechanic's needs. 6. T F

7. When the parts person fills a long shop list, he or she should first issue the parts to be used first, then assemble the remainder of the parts as his or her work load permits. 7. T F

8. Inventory clerks use a recap of shop requisitions to assist in keeping the inventory current. 8. T F

9. All parts used in the shop are charged to the work order. 9. T F

10. All parts used in the shop are paid for by the customers. 10. T F

## UNIT B — AREAS OF RESPONSIBILITY

## TOPIC 7 — THE MACHINE SHOP AND RELATED SALES

This topic is planned to provide answers to the following questions:

- What is the relationship between a machine shop and a parts business?
- What are the advantages of a combined parts sales and machine shop operations?
- How can a machine shop generate related sales?

For both the jobber-independents and agencies, a well-equipped automotive machine shop is increasingly necessary. The complex nature of today's automotive products is such that shade-tree methods and equipment are no longer adequate. Some of the components on current automobiles are difficult, if not impossible, to repair or replace with the tools and equipment used ten years ago. Many smaller garages and repair shops do not possess the expensive equipment necessary to make satisfactory repairs.

### Machine Shop Equipment

The high-compression, high rpm, V-8 engine used in most U.S. automobiles today is a carefully fitted, finely balanced power plant. The piston pins, for example, are so carefully fitted that at least one major manufacturer does not sell piston pins as replacement parts, but instead will sell only a factory-fitted piston and pin assembly. Many new pistons are size-marked in 0.0005 (½ thousandth) graduations so that cylinders which vary slightly in bore may be individually fitted. Engine bearings are precisely selected and fitted. This complexity is not limited to engines alone, multiple carburetion, complex electrical circuits, automatic equipment, and complicated drives are such that diagnosis and repair can be made only with the aid of specialized and expensive equipment.

Typical of the equipment found in a modern automotive machine shop are the following: pin hones and reamers, assorted valve guide tools, valve refacers, hard seat grinders, boring bars, line-boring equipment, bearing resizers, armature lathes, brake drum lathes and shoe sizing jigs, crankshaft grinders, camshaft grinders, rod boring and aligning equipment, balancing jigs, clutch rebuilding machines, degreasing tanks, arbor presses, fly wheel and cylinder head resurfacers, and dozens of special hand tools, micrometers, dial indicators, and test gages (Figs. B-8 through B-11).

The ordinary garage proprietor owns but a few of the machines and equipment listed above. He or she relies on local machine shops for specialty work, which opens up a number of related sales opportunities for the well-equipped parts dealer.

### Machine Shop Service

The one-stop service offered by the parts organization with a machine shop provides a distinct advantage. Today, professional auto repair people are usually in a hurry. They measure their time in dollars and cents, their business textbook is a flat-rate manual. They cannot tolerate unnecessary delays. They will purchase materials where the service is quick, efficient, and complete. The establishment that can offer them a complete line of replacement parts and accessories, plus machine shop services to help them complete their repairs efficiently, economically, and with a minimum of delay, can count on their continued patronage. The retail customer, however, is a little different in this respect. A few so-called bargain hunters will shop around, but the one-stop service is a distinct advantage. The shop that sells this service can expect continued growth in sales.

Machine shop services contribute significantly to the income of the parts organization, and the parts person should be thoroughly familiar with the shop and its capabilities. Machine shop services are profitable to the company and provide valuable opportunities for related sales. Moreover, proper shop diagnosis, assembly, and installation can reduce parts failures.

### Related Sales Opportunities

One of the biggest assets of a machine shop is the related sales opportunities that it presents. A related sales opportunity is any part or service that can logically be suggested for purchase along with the parts or service requested by the customer. This opportunity works in two ways, if the customer is buying parts that suggest service operations, then he or she may be encouraged to buy the needed services; if the customer brings some machining or assembly work to the shop, there may be an opportunity to sell him or her related parts. The parts person who is thoroughly

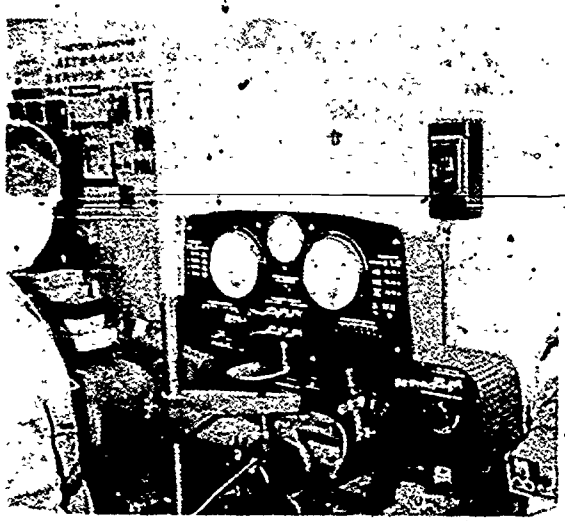


Fig. B-8. Testing a generator and voltage regulator on a modern electrical test bench

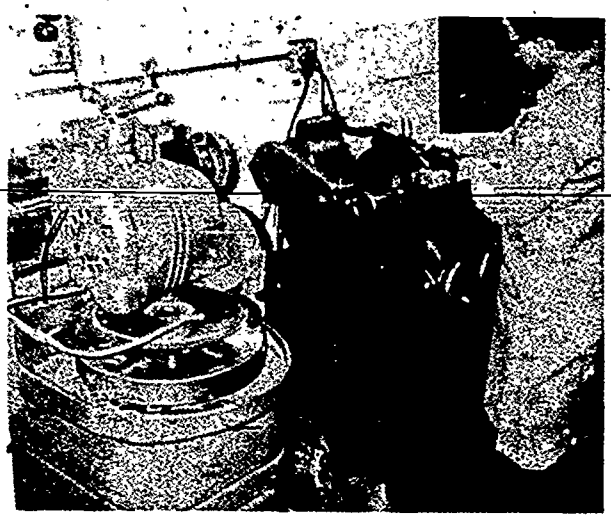


Fig. B-9. Flywheel resurfacing grinder (foreground) and piston grinder (background)

Fig. B-10. Fitting piston pins on a Sunnen hone (A sortment of mandrels and truing sleeves at the right)

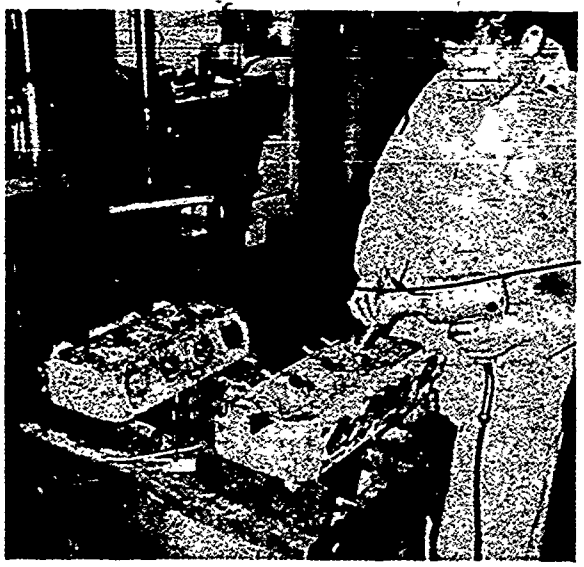


Fig. B-11. Grinding valve seats

Courtesy Tri-City Auto Supply, Richmond

familiar with shop services may take full advantage of this dual opportunity for related sales. The necessity for auto parts apprentices to be well-grounded in the essentials of automotive principles and design is apparent.

A worn-out clutch disc that shows signs of scoring on the flywheel side should suggest several sales opportunities to the parts person. The flywheel is scored, therefore, it should be resurfaced or replaced. Similarly, scored brake shoes suggest scored brake drums, the drums should be turned and new linings ground to fit them. A simple inquiry into a head gasket purchase may turn up a warped cylinder head and a chance to sell a valuable machine shop service.

The number of related sales opportunities that machine shops offer is tremendous, and one should take advantage of each one. A counter person acquainted with shop equipment and its operation can talk intelligently about machining operations whenever the opportunity arises. He or she can impress upon the customers the advantages of

proper testing and assembly. Many people are only vaguely aware of the services a machine shop can offer. When the customer's needs are pointed out to him or her, the parts and service should sell each other.

### Reducing Parts Failure

Machine shop services reduce parts failures and returns. Proper assembly and installation of new or rebuilt parts can materially reduce the number of parts failures now experienced. Some customers are simply careless about proper installation, while others may be completely unaware of the factors involved. Many a generator has been returned because of reversed polarity or a faulty voltage regulator that was never checked. A scored flywheel will spoil a new clutch disc, and a new master cylinder kit installed in a pitted cylinder is uneconomical and dangerous as well. Driving a bearing on a rear axle shaft with a hammer and punch can crack the inner race, or put out an eye if the hardened steel should chip. Guessing at the crankshaft bearing sizes can cause trouble and needless expense. Expanding a set of pistons and aligning the rods may keep a ring job from going sour.

These examples should serve to point out the constant threat of failures due to careless and improper procedures. By knowing the precautions against such failures, the parts person can suggest methods and service to prevent them. Customers appreciate practical advice and an invitation into the shop to view a needed service. But the customer should not be coaxed into buying something that he or she does not need. Customer good will is an expensive commodity. Plenty of opportunities are available for legitimate sales, the parts person need only learn to recognize them.

Parts failure due to improper installation by the customer is an expense that the company usually must bear. Even though the part may clearly indicate faulty or careless installation, it is usually good business to replace the part free of charge (unless it is quite expensive) to maintain customer goodwill. If the number of such failures can be reduced by selling the services of the machine shop, then not only will a needless expense be avoided, but shop revenue will be increased.

### Study Assignment

1. Crouse, William H. *Automotive Mechanics* (Sixth edition). New York: McGraw-Hill Book Company, 1974. Read chapters 4 and 5 and answer the questions at the end of each chapter.
2. Bring to your instructor a written account, at least one full page in length, of the services offered by the machine shop where you work. If the company does not operate a machine shop, visit a nearby shop and obtain the information.

### Topic for Discussion

Be prepared to discuss the following topic if you are asked to do so:

1. What opportunities for additional parts sales are suggested by the machine shop services in your report?

## UNIT B — AREAS OF RESPONSIBILITY

## TOPIC 7 — THE MACHINE SHOP AND RELATED SALES

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Many small garages and repair shops do not have the expensive __1__ necessary to make __2__ repairs. — 1. _____ 2. _____
2. A combined parts sales and machine shop operation can offer __3__ service. — 3. _____
3. Today the professional auto repair person cannot tolerate unnecessary __4__; he or she will buy where the service is __5__, __6__, and __7__. — 4. _____ 5. _____ 6. _____ 7. _____
4. Machine shop services contribute significantly to the __8__ of the parts organization. — 8. _____
5. One of the greatest assets of a machine shop is the opportunities it affords for __9__ __10__. — 9. _____ 10. _____
6. A wornout clutch disc may indicate a __11__ flywheel. — 11. _____
7. Proper __12__ and __13__ of new or rebuilt parts can materially reduce the number of parts failures experienced by parts stores. — 12. _____ 13. _____
8. Customers appreciate an invitation into the __14__ and __15__. — 14. _____ 15. _____
9. Scored brake drums should be __16__ in the shop. — 16. _____
10. The __17__ __18__ is the garage proprietor's business textbook. — 17. _____ 18. _____

### Test

Circle T if the statement is true; circle F if the statement is false.

1. The tools and equipment of ten years ago no longer suffice for current auto repair work. — 1. T F
2. An engine block with cylinder bores that vary just slightly is discarded. — 2. T F
3. The owner of a small garage can farm out necessary machining. — 3. T F
4. The professional auto repair person will usually buy any replacement part from the cheapest source. — 4. T F
5. The parts person needs to know little about machine tool capabilities. — 5. T F
6. Machine shop operations play no part in increasing sales of replacement parts. — 6. T F
7. Inquiry about a gasket purchase may lead to a cylinder head honing job. — 7. T F

8. Proper assembly and installation of parts is essential to the reduction in parts failures. 8. T F

9. If the customer is responsible for faulty installation of a part, he or she should always be charged for a replacement. 9. T F

10. Some manufacturers will not sell just the replacement piston. 10. T F

# UNIT C Cataloging Systems

## TOPIC 1 — FACTORY PARTS SYSTEMS

This topic is planned to provide answers to the following questions:

- Are all parts numbering systems the same?
- What is a nonsignificant part number?
- How can a part be identified if its number is not known?
- Must the auto parts apprentice memorize the numbers of all the parts he or she works with?
- Are standard items, such as nuts and flat washers, assigned part numbers?

Major similarities exist in all automobile manufacturer's cataloging systems. Examples taken from the different catalogs are presentated in Figs. C-1 through C-9. From these examples the parts apprentice may gain an appreciation of the fundamental concepts of parts catalog design and may then apply these basic concepts in learning details of the particular catalogs with which he or she must work.

As the auto parts industry continues to increase in size and complexity, the parts person must spend a proportionately greater amount of time in study and use of the parts catalogs. An example of this growth is one of GM's parts catalogs. In the 1940s, the Chevrolet Master Parts Catalog contained less than 700 pages. The latest combined Chevrolet catalog and price list has well over 3,500 pages, an increase of 400 percent, or 25 percent per year.

Parts catalogs are indispensable operating tools of the parts department. Without the information they contain, it would be impossible for a parts person to locate, identify, and price the merchandise that he or she must handle. Consequently, a thorough working knowledge of parts catalogs and related manuals is essential if the parts employee is to function at his or her best.

### Parts Catalogs

A study of the major auto manufacturer's catalogs reveals that they all have the same basic structure. All contain an alphabetical and a numerical index, and all present pictorial diagrams, which usually precede each group division. Each manufacturer uses a group number or part number prefix to identify the major assemblies and subassemblies of the vehicle. And, of course, all manufacturers use discrete part numbers to identify each individual part. In addition, manufacturers' catalogs present a wealth of related information to aid the parts person in model identification, interior trim classification, engine and option specifications, ordering procedures, and so forth.

### Assignment of Parts Numbers

Each new part produced by an automobile manufacturer must be assigned a unique part number to give it identity. The methods of assigning part numbers differ slightly with various manufacturers. Two examples are the General Motors block systems and the Ford Motor Company expansion method.

In the General Motors system certain blocks of numbers are assigned to specific manufacturing divisions [1] (Fig. C-1). As new parts are designed by the various divisions, each division assigns part numbers in rotation from its block of numbers. General Motors parts numbers are *nonsignificant*, which means that no digit in the manufacturer's part number identifies parts in a certain category. For example, nothing within GM part number 7450745 indicates that it is a differential side carrier bearing that is found in group 5.536.

The GM manufacturer's part number, which is a six or seven digit number, is used only to describe an individual part. The same part number is used

[1] Permission to use Figs. C-1 through C-9 has been granted by the manufacturers whose catalogs are represented and is gratefully acknowledged.

# GENERAL MOTORS ENGINEERING STANDARDS

## PART NUMBERING SYSTEM

| FROM | TO | NAME |
|---|---|---|
| 000,001 | 050,000 | Delco Products Division, Dayton, Ohio |
| 050,001 | 100,000 | GMC Truck & Coach Division, Pontiac, Michigan |
| 100,001 | 149,999 | General Motors Standard Parts |
| 150,000 | 228,999 | General Motors Standard Parts (Originally assigned to Buick Division)† |
| 229,000 | 230,000 | Buick Motor Division, Flint, Michigan |
| 230,001 | 232,000 | Oldsmobile Division, Lansing Axle Plant, Lansing, Michigan |
| 232,001 | 252,500 | GMC Truck & Coach Division, Pontiac, Michigan |
| 252,501 | 271,000 | Saginaw Steering Gear Division, Saginaw, Michigan |
| 271,001 | 275,000 | General Motors Standard Parts (Originally assigned to Saginaw Steering Gear Division) |
| 275,001 | 277,500 | Chevrolet Division, Detroit, Michigan (Originally assigned to Central Products) |
| 277,501 | 325,000 | GMC Truck & Coach Division, Pontiac, Michigan |
| 325,001 | 380,000 | Chevrolet Division, Warren, Michigan |
| 380,001 | 420,000 | Oldsmobile Division, Lansing, Michigan |
| 420,001 | 457,500 | General Motors Standard Parts |
| 457,501 | 477,500 | Chevrolet Division, Detroit, Michigan |
| 477,501 | 550,000 | Pontiac Motor Division, Pontiac, Michigan |
| 550,001 | 590,000 | Oldsmobile Division, Lansing, Michigan (Muncie Products) |
| 590,001 | 610,000 | Chevrolet Division, Warren, Michigan |
| 610,001 | 613,000 | GMC Truck & Coach Division, Pontiac, Michigan |
| 613,001 | 643,000 | Frigidaire Division, Dayton, Ohio |
| 643,001 | 725,000 | GMC Truck & Coach Division, Pontiac, Michigan |
| 725,001 | 750,000 | General Motors of Canada, Ltd., Oshawa, Ontario, Canada |
| 750,001 | 771,000 | Inland Manufacturing Division, Dayton, Ohio |
| 771,001 | 790,000 | General Motors Standard Tools |
| 790,001 | 800,000 | GMC Truck & Coach Division, Pontiac, Michigan |
| 800,001 | 835,000 | Delco Remy Division, Anderson, Indiana |
| 835,001 | 835,500 | Research Staff, Warren, Michigan |
| 835,501 | 840,000 | Chevrolet Division, Warren, Michigan |
| 840,001 | 870,000 | AC Spark Plug Division, Flint, Michigan |
| 870,001 | 897,000 | Cadillac Motor Car Division, Detroit, Michigan |
| 897,001 | 900,000 | Guide Lamp Division, Anderson, Indiana |
| 900,001 | 910,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 910,001 | 910,250 | Saginaw Products, Motor Division, Saginaw, Michigan |
| 910,251 | 930,000 | Guide Lamp Division, Anderson, Indiana |
| 930,001 | 930,500 | General Motors of Canada, Canadian Products Plant, Oshawa, Ontario, Canada |
| 930,501 | 932,500 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| *932,501 | 954,100 | General Motors Standard Tools (Jaxon Steel Products)* |
| 954,101 | 955,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 955,001 | 965,000 | General Motors Standard Tools |
| 965,001 | 980,000 | Buick Motor Division, Flint, Michigan (Brown-Lipe-Chapin) |
| 980,001 | 982,000 | General Motors Parts Division (Buick Division Custodian) |
| 982,001 | 983,500 | General Motors Parts Division (Oldsmobile Division Custodian) |
| 983,501 | 985,000 | General Motors Parts Division (Pontiac Division Custodian) |
| 985,001 | 988,500 | General Motors Parts Division (Chevrolet Division Custodian) |
| 988,501 | 990,000 | General Motors Parts Division (Custodian Unassigned) |
| 990,001 | 991,250 | General Motors Parts Division (Cadillac Division Custodian) |
| 991,251 | 992,500 | General Motors Parts Division (Custodian Unassigned) |

**Administered by Chevrolet Parts and Accessories Department Detroit, Michigan

* Approximately 1,000 numbers used by Jaxon are in divisional records and will not be reassigned to tools.
** Custodians should be contacted for information relative to these part numbers.
† A portion of the original Buick numbers are in divisional records and will not be reassigned to standard parts.

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Fig. C-1. General Motors block system for assigning parts numbers (Page 1 of 5)

## GENERAL MOTORS ENGINEERING STANDARDS

### PART NUMBERING SYSTEM

| FROM | TO | NAME |
|---|---|---|
| 992,501 | 1,000,000 | Buick Motor Division, Flint, Michigan (Brown-Lipe-Chapin) |
| 1,000,001 | 1,050,000 | Vauxhall Motors, Ltd., Luton, England |
| 1,050,001 | 1,053,000 | General Motors Parts Division, Administered by Chevrolet Parts and Accessories Dept., Detroit, Michigan (Originally assigned to General Motors G.m.b.H., Berlin) |
| 1,053,001 | 1,080,000 | Delco Products Division, Dayton, Ohio |
| 1,080,001 | 1,100,000 | Cadillac Motor Car Division, Detroit, Michigan (Sub-Assemblies, No Drawing) |
| 1,100,001 | 1,120,000 | Delco Remy Division, Anderson, Indiana |
| 1,120,001 | 1,150,000 | Frigidaire Division, Dayton, Ohio |
| 1,150,001 | 1,153,000 | Buick Motor Division, Flint, Michigan (Armstrong Spring) |
| 1,153,001 | 1,154,000 | General Motors Continental, Antwerp, Belgium |
| 1,154,001 | 1,156,000 | Blank (Originally assigned to General Motors G.m.b.H., Berlin) |
| 1,156,001 | 1,160,000 | Delco Moraine Division, Dayton, Ohio |
| 1,160,001 | 1,161,000 | General Motors France, AC-Delco Division, Clichy-Seine, France |
| 1,161,001 | 1,164,000 | Buick Motor Division, Flint, Michigan (Armstrong Spring) |
| 1,164,001 | 1,200,000 | Buick Motor Division, Flint, Michigan |
| 1,200,001 | 1,230,000 | Delco Radio Division, Kokomo, Indiana (Originally assigned to General Motors Radio Corp & United Motors Radio) |
| 1,230,001 | 1,400,000 | Buick Motor Division, Flint, Michigan |
| 1,400,001 | 1,500,000 | Cadillac Motor Car Division, Detroit, Michigan |
| 1,500,001 | 1,600,000 | AC Spark Plug Division, Flint, Michigan |
| 1,600,001 | 1,750,000 | Cadillac Motor Car Division, Detroit, Michigan |
| 1,750,001 | 1,800,000 | General Motors of Canada, Ltd., Oshawa, Ontario, Canada |
| 1,800,001 | 1,835,000 | McKinnon Industries, Ltd., St. Catharines, Ontario, Canada |
| 1,835,001 | 2,000,000 | Delco-Remy Division, Anderson, Indiana |
| 2,000,001 | 2,500,000 | GMC Truck & Coach Division, Pontiac, Michigan |
| 2,500,001 | 2,600,000 | Adam Opel, A. G., Russelsheim, Germany |
| 2,600,001 | 2,620,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 2,620,001 | 2,719,999 | Blank (Originally assigned to New Departure-Hyatt Bearings Division) |
| 2,720,000 | 2,725,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 2,725,001 | 2,739,999 | Blank (Originally assigned to New Departure-Hyatt Bearings Division) |
| 2,740,000 | 2,765,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 2,765,001 | 2,779,999 | Blank (Originally assigned to New Departure-Hyatt Bearings Division) |
| 2,800,000 | 2,805,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 2,805,001 | 2,829,999 | Blank (Originally assigned to New Departure-Hyatt Bearings Division) |
| 2,830,000 | 2,835,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 2,835,001 | 2,850,000 | Blank (Originally assigned to New Departure-Hyatt Bearings Division) |
| 2,850,001 | 2,865,000 | General Motors Ltd., Frigidaire Division, London, England (2,850,001 - 2,860,000 Originally assigned to New Departure-Hyatt Bearings Division) |
| 2,865,001 | 2,900,000 | Adam Opel, A. G., Russelsheim, Germany |
| 2,900,001 | 2,930,000 | General Motors France, Frigidaire Division, Gennevilliers-Seine, France |
| 2,930,001 | 2,960,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 2,960,001 | 2,990,000 | Packard Electric Division, Warren, Ohio |
| 2,990,001 | 3,000,000 | General Motors South African, Ltd., Port Elizabeth, South Africa |
| 3,000,001 | 3,160,000 | Harrison Radiator Division, Lockport, New York |
| 3,160,001 | 3,200,000 | Delco Products Division, Dayton, Ohio |
| 3,200,001 | 3,283,499 | Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division) |
| 3,283,500 | 3,289,300 | General Motors South African, Ltd., Port Elizabeth, South Africa (Originally assigned to Cleveland Diesel Engine Division) |

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Fig. C-1. General Motors block system for assigning parts numbers (Page 2 of 5)

# GENERAL MOTORS ENGINEERING STANDARDS

## PART NUMBERING SYSTEM

| FROM | TO | NAME |
|---|---|---|
| 3,289,301 | 3,292,799 | Electro-Motive Division, LaGrange, Illinois (Orignially assigned to Cleveland Diesel Engine Division) |
| 3,292,800 | 3,300,000 | General Motors de Mexico, Mexico City, Mexico (Originally assigned to Cleveland Diesel Engine Division) |
| 3,300,001 | 3,330,699 | Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division) |
| 3,330,700 | 3,340,000 | General Motors New Zealand, Ltd., Wellington, New Zealand (Originally assigned to Cleveland Diesel Engine Division) |
| 3,340,001 | 3,350,099 | Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division) |
| 3,350,100 | 3,355,000 | General Motors, Ltd., Power and Industrial Division, Wellingborough, England (Originally assigned to Cleveland Diesel Engine Division) |
| 3,355,001 | 3,360,000 | Frigidaire Products of Canada, Ltd., Scarborough, Ontario, Canada (Originally assigned to Cleveland Diesel Engine Division) |
| 3,360,001 | 3,389,999 | Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division) |
| 3,390,000 | 3,410,000 | General Motors of Canada, Ltd., Oshawa, Ontario, Canada (Originally assigned to Cleveland Diesel Engine Division) |
| 3,410,001 | 3,415,000 | Frigidaire Products of Canada, Ltd., Scarborough, Ontario, Canada (Originally assigned to Cleveland Diesel Engine Division) |
| 3,415,001 | 3,430,000 | General Motors South African, Ltd., Port Elizabeth, South Africa (Originally assigned to Cleveland Diesel Engine Division) |
| 3,430,001 | 3,470,000 | Adam Opel, A. G., Russelsheim, Germany |
| 3,470,001 | 3,500,000 | General Motors France, AC-Delco Division, Clichy-Sei France (Originally assigned to Cleveland Diesel Engine Division) |
| 3,500,001 | 3,650,000 | Cadillac Motor Car Division, Detroit, Michigan (Sub-Assemblies, No Drawing) |
| 3,650,001 | 4,000,000 | Chevrolet Division, Warren, Michigan |
| 4,000,001 | 4,150,085 | Fisher Body Division, Warren, Michigan |
| 4,150,086 | 4,159,999 | Ternstedt Division, Warren, Michigan |
| 4,160,000 | 4,230,076 | Fisher Body Division, Warren, Michigan |
| 4,230,077 | 4,239,999 | Ternstedt Division, Warren, Michigan |
| 4,240,000 | 4,300,241 | Fisher Body Division, Warren, Michigan |
| 4,300,242 | 4,309,999 | Ternstedt Division, Warren, Michigan |
| 4,310,000 | 4,900,000 | Fisher Body Division, Warren, Michigan |
| 4,900,001 | 5,100,000 | Delco Products Division, Dayton, Ohio (Formerly Delco-Appliance Division) |
| 5,000,101 | 5,000,672 | Sunlight Electrical Division, Warren, Ohio (Duplication - Error) |
| 5,100,001 | 5,200,000 | Detroit Diesel Engine Division, Detroit, Michigan |
| 5,200,001 | 5,225,000 | Packard Electric Division, Warren, Ohio |
| 5,225,001 | 5,226,000 | General Motors France, AC-Delco Division, Clichy-Seine, France |
| 5,226,001 | 5,236,000 | Diesel Equipment Division, Grand Rapids, Michigan |
| 5,236,001 | 5,260,000 | General Motors Overseas Operations, Detroit, Michigan |
| 5,260,001 | 5,270,000 | General Motors of Canada, Ltd., Oshawa, Ontario, Canada |
| 5,270,001 | 5,300,000 | Packard Electric Division, Warren, Ohio |
| 5,300,001 | 5,400,000 | Delco Products Division, Dayton, Ohio |
| 5,400,001 | 5,450,000 | Frigidaire Division, Dayton, Ohio |
| 5,450,001 | 5,475,000 | Delco Moraine Division, Dayton, Ohio |
| 5,475,001 | 5,500,000 | General Motors Ltd., Frigidaire Division, London, England |
| 5,500,001 | 5,510,000 | General Motors France, AC-Delco Division, Clichy-Seine, France |
| 5,510,001 | 5,560,000 | Delco Products Division, Dayton, Ohio |
| 5,560,001 | 5,660,000 | AC Spark Plug Division, Flint, Michigan |
| 5,660,001 | 5,710,000 | Saginaw Steering Gear Division, Saginaw, Michigan |
| 5,710,001 | 5,710,981 | Ternstedt Division, Warren, Michigan (Originally assigned to Instrument Plant) |
| 5,710,982 | 5,720,000 | Ternstedt Division, Warren, Michigan |
| 5,720,001 | 5,740,000 | General Motors of Canada, Ltd., Oshawa, Ontario, Canada |
| 5,740,001 | 5,745,000 | General Motors de Mexico, Mexico City, Mexico |
| 5,745,001 | 5,755,000 | General Motors Argentina, Buenos Aires, Argentina |
| 5,755,001 | 5,850,000 | General Motors of Canada, Ltd., Oshawa, Ontario, Canada |

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Fig. C-1. General Motors block system for assigning parts numbers (Page 3 of 5)

## GENERAL MOTORS ENGINEERING STANDARDS

### PART NUMBERING SYSTEM

| FROM | TO | NAME |
|---|---|---|
| 5,850,001 | 5,930,000 | Frigidaire Division, Dayton, Ohio |
| 5,930,001 | 5,980,000 | Guide Lamp Division, Anderson, Indiana |
| 5,980,001 | 6,000,000 | Hydra-Matic Division, Ypsilanti, Michigan |
| 6,000,001 | 6,216,400 | Research Staff, Warren, Michigan |
| 6,216,401 | 6,219,000 | Central Foundry Division, Saginaw, Michigan (Originally assigned to Fabricast Division) |
| 6,219,001 | 6,220,500 | Reserved |
| 6,220,501 | 6,228,300 | Research Staff, Warren, Michigan |
| 6,228,301 | 6,235,499 | Adam Opel, A. G., Russelsheim, Germany |
| 6,235,500 | 6,239,200 | Research Staff, Warren, Michigan |
| 6,239,201 | 6,245,499 | General Motors South African, Ltd., Port Elizabeth, South Africa |
| 6,245,500 | 6,245,800 | Research Staff, Warren, Michigan |
| 6,245,801 | 6,250,500 | General Motors South African, Ltd., Port Elizabeth, South Africa |
| 6,250,501 | 6,255,500 | Research Staff, Warren, Michigan |
| 6,255,501 | 6,275,000 | Chevrolet Division, Warren, Michigan |
| 6,275,001 | 6,285,499 | Fisher Body Division, Warren, Michigan |
| 6,285,500 | 6,285,700 | Research Staff, Warren, Michigan |
| 6,285,701 | 6,300,500 | Packard Electric Division, Warren, Ohio |
| 6,300,501 | 6,300,800 | Research Staff, Warren, Michigan |
| 6,300,801 | 6,306,499 | Vauxhall Motors, Ltd., Luton, England |
| 6,306,500 | 6,308,500 | Research Staff, Warren, Michigan |
| 6,308,501 | 6,400,000 | Vauxhall Motors, Ltd., Luton, England |
| 6,400,001 | 6,500,000 | AC Spark Plug Division, Flint, Michigan |
| 6,500,001 | 6,530,000 | Allison Division (Aircraft Operations), Indianapolis, Indiana (Originally assigned to Aeroproducts Division) |
| 6,530,001 | 6,535,000 | Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division) |
| 6,535,001 | 6,600,000 | Frigidaire Division, Dayton, Ohio |
| 6,600,001 | 6,700,000 | Adam Opel, A. G., Russelsheim, Germany |
| 6,700,001 | 6,749,999 | Allison Division (Aircraft Operations), Indianapolis, Indiana |
| 6,750,000 | 6,779,999 | Allison Division (Transmission Operations), Indianapolis, Indiana |
| 6,780,000 | 6,829,949 | Allison Division (Aircraft Operations), Indianapolis, Indiana |
| 6,829,950 | 6,839,999 | Allison Division (Transmission Operations), Indianapolis, Indiana |
| 6,840,000 | 6,900,000 | Allison Division (Aircraft Operations), Indianapolis, Indiana |
| 6,900,001 | 6,902,000 | Engineering Staff, Warren, Michigan (Originally assigned to Chevrolet-Cleveland Division) |
| 6,902,001 | 6,905,000 | General Motors de Mexico, Mexico City, Mexico |
| 6,905,001 | 6,905,500 | Engineering Staff, Warren, Michigan (Originally assigned to Chevrolet-Cleveland Division) |
| 6,905,501 | 6,910,500 | General Motors de Mexico, Mexico City, Mexico |
| 6,910,501 | 7,000,000 | General Motors Diesel Ltd., London, Ontario, Canada |
| 7,000,001 | 7,050,000 | Rochester Products Division, Rochester, New York |
| 7,050,001 | 7,220,000 | Vauxhall Motors, Ltd., Luton, England |
| 7,220,001 | 7,230,000 | General Motors, Ltd., AC-Delco Division, Dunstable, England |
| 7,230,001 | 7,315,000 | Delco Radio Division, Kokomo, Indiana |
| 7,315,001 | 7,365,000 | General Motors do Brazil, Sao Paulo, Brazil |
| 7,365,001 | 7,375,000 | General Motors New Zealand Ltd., Wellington, New Zealand |
| 7,375,001 | 7,450,000 | General Motors Holden's Ltd., Melbourne, Australia |
| 7,450,001 | 7,499,999 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 7,500,000 | 7,501,200 | Euclid (Great Britain) Ltd., Newhouse, Lanarkshire, Scotland |
| 7,501,201 | 7,549,999 | Frigidaire Division, Dayton, Ohio |
| 7,550,000 | 7,552,300 | Euclid (Great Britain) Ltd., Newhouse, Lanarkshire, Scotland |

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Fig. C-1. General Motors block system for assigning parts numbers (Page 4 of 5)

## GENERAL MOTORS ENGINEERING STANDARDS

### PART NUMBERING SYSTEM

| FROM | TO | NAME |
|---|---|---|
| 7,552,301 | 7,580,000 | Defense Research Laboratories, Goleta, California |
| 7,580,001 | 7,800,000 | Fisher Body Division, Warren, Michigan |
| 7,800,001 | 7,850,000 | Saginaw Steering Gear Division, Saginaw, Michigan |
| 7,850,001 | 7,929,999 | AC Electronics Division, Milwaukee, Wisconsin |
| 7,930,000 | 7,939,999 | Delco Radio Division, Kokomo, Indiana |
| 7,940,000 | 7,950,000 | AC Electronics Division, Milwaukee, Wisconsin |
| 7,950,001 | 8,000,000 | General Motors Ltd., AC-Delco Division, Dunstable, England |
| 8,000,001 | 8,500,000 | Electro-Motive Division, LaGrange, Illinois |
| 8,500,001 | 8,550,000 | Harrison Radiator Division, Lockport, New York |
| 8,550,001 | 8,600,000 | AC Electronics Division, Milwaukee, Wisconsin |
| 8,600,001 | 8,700,000 | Hydra-Matic Division, Ypsilanti, Michigan |
| 8,700,001 | 8,810,000 | Blank |
| 8,810,001 | 8,860,000 | Vauxhall Motors Ltd., Luton, England |
| 8,860,001 | 8,880,000 | GMC Truck & Coach Division, Pontiac, Michigan |
| 8,890,001 | 8,900,000 | Hydra-Matic Division, Ypsilanti, Michigan |
| 8,900,001 | 8,930,000 | Blank (Originally assigned to Allison Division) |
| 8,930,001 | 8,960,000 | Adam Opel, A. G., Russelsheim, Germany (Originally assigned to Allison Division) |
| 8,960,001 | 9,000,000 | Blank (Originally assigned to Allison Division) |
| 9,000,001 | 9,001,000 | Delco Remy Division, Anderson, Indiana |
| 9,001,001 | 9,349,999 | Euclid Division, Cleveland, Ohio |
| 9,350,000 | 9,400,000 | Euclid (Great Britain) Ltd., Newhouse, Lanarkshire, Scotland |
| 9,400,001 | 9,700,000 | General Motors Standard Parts |
| 9,700,001 | 9,725,000 | Ternstedt Division, Warren, Michigan (Originally assigned to Brown-Lipe-Chapin Division) |
| 9,725,001 | 9,740,000 | Ternstedt Division, Warren, Michigan (Originally assigned to Aircraft Standard Parts) |
| 9,740,001 | 9,770,000 | Inland Manufacturing Division, Dayton, Ohio |
| 9,770,001 | 9,800,000 | Pontiac Motor Division, Pontiac, Michigan |
| 9,800,001 | 9,900,000 | Blank (Originally assigned to Eastern Aircraft Division) |
| 9,900,001 | 9,915,000 | Vauxhall Motors Ltd., Luton, England |
| 9,915,001 | 9,920,000 | General Motors de Venezuela, C. A., Caracas, Venezuela |
| 9,920,001 | 9,980,000 | Blank |
| 9,980,001 | 9,999,999 | General Motors Standard Engineering Materials and Processes |

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Fig. C-1. General Motors block system for assigning parts numbers (Page 5 of 5)

by all divisions (Chevrolet, Pontiac, Buick, Oldsmobile, Cadillac, and GMC Truck) to describe the same part. Hence, if a certain part were used on Pontiac products and on Chevrolet products, both divisions would use the same part number to identify that part.

Ford Motor Company part numbers, however, are formed by expanding the basic group numbers that subdivide the parts catalog. Ford part numbers are *significant* in that they identify the nature, location, and application of the part to which they are assigned. For example, Ford part number C3AZ 6303A indicates to the experienced Ford parts person that the number is for a crankshaft (all crankshafts have the basic number 6303) and that it fits a 1963 series A vehicle (C3 means 1963, and A identifies the model). By the addition of proper prefixes (C3AZ is a prefix) and suffixes (the final A in the part number above is a suffix), new parts can be added to the existing system and still retain the basic group information. Any new crankshaft will be assigned the basic part number 6303, but the prefix and suffix will change (Fig. C-2).

The Ford parts catalog is divided into sections, which are further divided into basic groups (Fig. C-2). The basic group numbers are divided into subgroups, which are the basis for constructing individual part numbers. The assignment of Ford part numbers, then, depends upon the individual subgroup divisions already established (Fig. C-3).

## Group Numbers

Group numbers are particularly important to those manufacturers' systems whose part numbers are nonsignificant. In the General Motors example above it was noted that GM part number 7450745 indicates nothing about the nature and application of that particular part. In such systems, one must turn to the group number for information which will give meaning to nonsignificant part numbers.

The group number sequence of each of the major automobile manufacturers is given in Figs. C-2 and C-4. Although these group divisions vary in number and interpretation, a basic similarity exists among all of them. Each group division represents a major section or area of the vehicle, and each group is divided into subgroups within which discrete parts may be identified.

In the General Motors system, the group numerals before the decimal point identify the major assemblies or systems in the automobiles, numerals after the decimal relate to subassemblies or individual parts. Referring to the earlier example of GM group 5.536, the 5. refers to a rather large group section of the book which contains the data on parts for the operating brake, propeller shaft, and rear axle. Further division of the 5.000 group separates these three units, and it is not until one refers to a subgroup 5.536 that the nature of the specific part can be found. Then, subgroup 5.536 can be identified as a specific subgroup (Bearing-Bearing Assembly-Race, Differential Side) within a larger group system (Fig. C-5).

A method of dividing parts into major groups and subgroups is followed in all automotive parts catalogs. Although the various manufacturers have assigned different numbers to each group and subgroup, the basic systems are similar. As a beginning exercise, it is a good idea for the parts apprentice to memorize the major group divisions of the catalog with which he or she is working. This is a reasonable task, since most catalogs contain less than 25 major group divisions.

Group numbers seldom change, whereas part numbers may change frequently. Therefore, it is not advisable for the parts apprentice to attempt to memorize large blocks of part numbers, because there are too many and they change too often. The group numbers are more stable and are used so frequently that they should be committed to memory. The parts apprentice will find that it is a decided advantage to be able to turn quickly and efficiently to the major group within which the needed part can be found.

## Use of the Catalog

Three general methods are used in locating parts in the manufacturers' catalogs. Two of the methods are used frequently, while the third is used less often. The most common method of locating parts is by referring to the noun name as listed in the alphabetical index. The alphabetical index is keyed to the group number system of the book and leads directly to the numerical group under which the part can be found.

A request for a fan blade for a 1975 Cadillac Coupe de Ville with air conditioning, for example, would lead to group 1.064 (Fig. C-6). Although this page was reproduced from a Chevrolet alphabetical index, it will provide the correct group number, because all GM divisions use the same group system. When one turns to group 1.064 in the Cadillac catalog, and runs down the Series column to "1973 exc. 75, CC," then reads across in the Specifications column to "Air conditioning, 7 blade type," it is found that the desired part

## FORD CAR PARTS SECTION 63

1

| YEAR | MODEL | CYL. ETC. | OVERALL MODEL CODE | DESCRIPTION | QTY. PER VEHICLE | PART NUMBER |
|---|---|---|---|---|---|---|
| | **6A302 PIN - CRANKSHAFT REAR OIL SEAL** | | | | | |
| 60/ | X, B | 6 | 144,170 | .094"/.096" O.D. - .31" long-pointed | 1 | C0DZ 6A302-A |
| 62/ | B, A | 8 | 221 | | 1 | |
| | **6303 CRANKSHAFT ASSY.** | | | | | |
| 60/ | X | 6 | 144 | 29.005" overall length | 1 | C2DZ 6303-B |
| 61/ | X, B | 6 | 170 | 29.005" overall length | 1 | C2DZ 6303-A |
| 52/53 | A | 6 | 215 | 30.90" overall length | 1 | B3A 6303-A |
| 63 | B | 6 | 200 | | 1 | C2OZ 6303-A |
| 54/60 | A | 6 | 223 | 31.26" overall length-when used to replace EBF 6303-A for service, spacer B4A 6434-A must be used between the crankshaft & f/wheel | 1 | B6A 6303-E |
| 61 | A | 6 | 223 | 31.26"o/all length-repl. by C2AZ 6303-A(11-62) | 1 | C1AE 6303-B |
| 62/ | A "Before 5/1/63" | 6 | 223 | #Oil squirt holes have 90° chamfer - use with C1AE 6200-D rod | 1 | ∅ C2AZ 6303-A |
| 63 | A "From 5/1/63" | 6 | 223 | Use with C3AZ 6200-E rod & C3AZ 6211-A brg. | 1 | § C3AZ 6303-M |
| 49/51 | A | 6 | 226 | 31.27" overall length-.78" diam. hole rear flange | 1 | 8MTH 6303-B |
| 62/ | B, A | 8 | 221,250 | 24.145" overall length | 1 | C2OZ 6303-A |
| 49/53 | A | 8 | 239 | | 1 | EAB 6303-A |
| 54 | A | 8 | 239 | When used to replace EBU 6303-B, B4A 6434-A flywheel to crankshaft spacer must also be used | 1 | B4A 6303-B |
| 55/62 | A, S | 8 | 272,292 | 25.608" overall length-2.1880"/2.1888" O.D. connecting rod-2.4980"/2.4988" O.D. main bearing journals | 1 | B9TE 6303-A |
| 63 | A, X | 8 | 260,289 | | 1 | ∅ C3AZ 6303-F |
| 63 | B Special (4/B carb.) | 8 | 289 | | 1 | C3OZ 6303-B |
| 56/57 | A, S | 8 | 312 | 25.608" overall length | 1 | B6A 6303-C |
| 58/59 | A | 8 | 332 | 27.935" overall length-5/8"-18 x 1.42" hole front end-2.4380"/2.4388" O.D. connecting rod-2.7484"/2.7492" O.D. main bearing journals-$EDC | 1 | B9A 6303-B |
| 58/60 | A, S | 8 | 352 | 27.935" overall length-5/8"-18 x 1.42" hole front end-2.4380"/2.4388" O.D. connecting rod-2.7484"/2.7492" O.D. main bearing journals-$EDT | 1 | B9A 6303-A |
| 61/62 | A | 8 | 352 | 27.935" overall length-5/16"-18 x 1.42" hole front end-2.4380"/2.4388" O.D. connecting rod -2.7484"/2.7492" O.D. main bearing journals-#EDD-3 1/2" from center line of journal to center line of crank pin | 1 | C0AE 6303-B |
| 63 | A | 8 | 352 | | 1 | C3AZ 6303-A |
| 60 | A Special (4/B carb.) | 8 | 352 | | 1 | C0AE 6303-D |
| 61/62 | A-except Special 4/B & 6/B carb., S | 8 | 390 | 27.935" overall length-5/16"-18 x 1.42" hole front end-2.4380"/2.4388" O.D. connecting rod -2.7484"/2.7492" O.D. main bearing journals-#C1AE-3.874" from center line of journal to center line of crank pin | 1 | C1AE 6303-A |
| 61/62 | P/I - "Before 1/15/62" | 8 | 390 | | 1 | |
| 63 | A(except P/I), S | 8 | 390 | Use with C1AE 6200-C rods-"Before 11/1/62" | 1 | C3AZ 6303-B |
| 63 | A(except P/I), S | 8 | 390 | #C3AE 6303-E - use with C3AZ 6200-B rods | 1 | ‡C3AZ 6303-D |
| 61/62 | A Special (4/B & 6/B carb.) | 8 | 390 | 27.935" overall length-5/8"-18 x 1.85" hole front end-2.4380"/2.4388" O.D. connecting rod-2.7484"/2.7472" O.D. main bearing journals-#oil grooves in main bearing journals | 1 | C1AE 6303-D |
| 62 | P/I | 8 | 390 | Use with C2AZ 6200-A rods-"From 1/15/62" | 1 | C2AZ 6303-B |
| 62 | A Special (4/B & 6/B carb.) | 8 | 406 | | 1 | |
| 63 | A Special (4/B & 8/B carb.) | 8 | 427 | "Before 2/4/63"-repl. by C3AZ 6303-G (1-63) | 1 | C3AZ 6303-E |
| 63 | A Special, P/I | 8 | 390,406 | #Oil grooves on all main bearing journals | 1 | C3AZ 6303-C |
| 63 | A Special (4/B & 8/B carb.) | 8 | 427 | "From 2/4/63" | 1 | C3AZ 6303-G |
| 59/60 | S | 8 | 430 | 29.23" overall length-5/8"-18 tapped hole at front end-repl. by C2VY 6303-A (1-63) | 1 | C1VE 6303-A |
| 59/60 | A | 8 | 430 | #(2) drilled holes in No. 4 & 5 journals | 1 | C2VY 6303-A |

∅ Identification marking ‡—From November 1, 1962



Fig. C-2. Specimen pages of Ford parts catalog, showing basic grouping arrangement (Page 1 of 2)

8 GENERAL INFORMATION **FORD CAR PARTS**

## FORD BASIC GROUP NUMBERS and RELATED CATALOG SECTION NUMBERS

Following is an index of the basic group numbers and their related catalog section numbers. A more detailed listing of the basic group numbers, their related expansion numbers and functional areas is shown on the next three pages.

| BASIC GROUP NUMBER | CATALOG SECTION NO. | BASIC GROUP NUMBER | CATALOG SECTION NO. | BASIC GROUP NUMBER | CATALOG SECTION NO. | BASIC GROUP NUMBER | BODY SECTION NO. |
|---|---|---|---|---|---|---|---|
| CHASSIS PARTS | | CHASSIS PARTS | | CHASSIS PARTS | | BODY PARTS | |
| Miscellaneous | Paint | 7100 - 7199 | *71 | 10000 - 10299 | 100 | 00000 - 02999 | 000 |
| 1000 - 1999 | 10 | 7200 - 7299 | *72 | 10300 - 10599 | 103 | 03000 - 04199 | 030 |
| 2000 - 2199 | 20 | 7300 - 7499 | *73 | 10600 - 10999 | 106 | 04200 - 09999 | 042 |
| 2200 - 2299 | 22 | 7500 - 7599 | *75 | 11000 - 11999 | 110 | 10000 - 19999 | 100 |
| 2300 - 2399 | 23 | 7600 - 7999 | *76 | 12000 - 12999 | 120 | 20000 - 20999 | 200 |
| 2400 - 2999 | 24 | | | 13000 - 13399 | 130 | 21000 - 21999 | 210 |
| 3000 - 3499 | 30 | | | 13400 - 13699 | 134 | 22000 - 22999 | 220 |
| 3500 - 3599 | 35 | 7000 - 7999 | | 13700 - 13999 | 137 | 23000 - 23999 | 230 |
| 3600 - 3999 | 36 | (Automatic Trans.) | A70/A76 | 14000 - 14399 | 140 | 24000 - 25999 | 240 |
| 4000 - 4599 | 40, 40.1 | Identification | A70 | 14400 - 14499 | 144 | 26000 - 26999 | 260 |
| 4600 - 4999 | 46 | F/M - 1960 | A71 | 14500 - 14999 | 145 | 27000 - 27999 | 270 |
| 5000 - 5199 | 50 | F/M/2 - 1960/64 | A73 | 15000 - 15999 | 150 | 28000 - 28999 | 280 |
| 5200 - 5299 | 52 | C/M - 1960/ | A75 | 16000 - 16599 | 160 | 29000 - 29499 | 290 |
| 5300 - 5399 | 53 | C4 - 1964/ | A76 | 16600 - 16999 | 166 | 29500 - 29999 | 295 |
| 5400 - 5999 | 54 | 8000 - 8499 | 80 | 17000 - 17199 | 170 | 30000 - 39999 | 300 |
| 6000 - 6199 | 60 | 8500 - 8999 | 85 | 17200 - 17399 | 172 | 40000 - 41999 | 400 |
| 6200 - 6299 | 62 | 9000 - 9299 | 90 | 17400 - 17599 | 175 | 42000 - 42999 | 420 |
| 6300 - 6499 | 63 | 9300 - 9399 | 93 | 17600 - 17999 | 176 | 43000 - 43999 | 430 |
| 6500 - 6599 | 65 | 9400 - 9499 | 94 | 18000 - 18299 | 180 | 44000 - 49999 | 440 |
| 6600 - 6899 | 66 | 9500 - 9999 | 95 | 18300 - 18999 | 184 | 50000 - 50999 | 500 |
| 6900 - 7099 | *70 | CARBURETOR PARTS LISTS | 95A | 19000 - 19999 | 190 | 51000 - 51999 | 510 |
| | | CARB. KIT COMPONENTS | 95B | | | | |
| | | | | | | 52000 - 52999 | 520 |
| | | | | | | 53000 - 59999 | 530 |
| | | | | | | 60000 - 60999 | 600 |
| | | | | | | 61000 - 61999 | 610 |
| | | | | | | 62000 - 69999 | 620 |
| | | | | | | 0000 - 69999 (AS APPLICABLE) | Soft Trim (By Model Year) |

* For Automatic Transmission, see A70 thru A76

Fig. C-2. Specimen pages of Ford parts catalog, showing basic grouping arrangement (Page 2 of 2)

# FORD MOTOR COMPANY BASIC PART NUMBERING

## CHASSIS, ENGINE AND ELECTRICAL BASIC NUMBER SERIES

| BASIC PART NO SERIES | BASIC SERIES EXPANSION | PARTS WHICH QUALIFY BY FUNCTIONAL AREA |
|---|---|---|
| 1000-1250 | 1A000-1A250 | Wheels, Hubs, and Drums |
| 1251-1349 | 1A251-1A349 | Open Numbers |
| 1350-1499 | 1A350-1A499 | Spare Wheel Carrier |
| 1500-1724 | 1A500-1A724 | Tires and Tubes |
| 1725-1999 | 1A725-1A999 | Open Numbers |
| 2000-2584 | 2A000-2A584 | Brakes |
| 2585-2874 | 2A585-2A874 | Brakes—Parking |
| 2875-2999 | 2A875-2A999 | Air Compressor |
| 3000-3499 | 3A000-3A499 | Front Axles and Front Suspensions |
| 3500-3776 | 3A500-3A776 | Steering Gear and Steering Wheel |
| 3777-3999 | 3A777-3A999 | Open Numbers |
| 4000-4999 | 4A000-4A999 | Rear Axle and Driveshaft and Coupling Shaft |
| 5000-5149 | 5A000-5A149 | Frame and Brackets |
| 5150-5199 | 5A150-5A199 | * |
| 5200-5299 | 5A200-5A299 | Muffler, Exhaust Pipes, and Brackets |
| 5300-5350 | 5A300-5A350 | Front Springs |
| 5351-5416 | 5A351-5A416 | Sub-Frame (For Cab Mounting) |
| 5417-5454 | 5A417-5A454 | Open Numbers |
| 5455-5481 | 5A455-5A481 | Front Springs—Clips, Shims, and Bushings |
| 5482-5499 | 5A482-5A499 | Stabilizer and Attaching Parts |
| 5500-5515 | 5A500-5A515 | Front Spring Covers |
| 5516-5999 | 5A516-5A999 | Rear Springs and Attaching Parts |
| 6000-6899 | 6A000-6A899 | Engine and Mounts |
| 6900-6944 | 6A900-6A944 | * |
| 6945-6999 | 6A945-6A999 | Engine Installation and Dress-up Kits |
| 7000-7499 | 7A000-7A499 | Transmission and Shifting Controls |
| 7500-7649 | 7A500-7A649 | Clutch and Controls |
| 7650-7799 | 7A650-7A799 | Transmission Overdrive |
| 7800-7999 | 7A800-7A999 | Torque Converter |
| 8000-8499 | 8A000-8A499 | Radiator and Grille Parts |
| 8500-8599 | 8A500-8A599 | Water Pumps |
| 8600-8669 | 8A600-8A669 | Fan and Brackets |
| 8670-8999 | 8A670-8A999 | Open Numbers |
| 9000-9269 | 9A000-9A269 | Fuel Tank |
| 9270-9339 | 9A270-9A339 | Fuel and Oil Gauges and Fuel Tubes |
| 9340-9423 | 9A340-9A423 | Fuel Pumps |
| 9424-9499 | 9A424-9A499 | Manifold, Clamps, Thermostats, etc. |
| 9500-9599 | 9A500-9A599 | Carburetors |
| 9600-9699 | 9A600-9A699 | Carburetor Air Cleaners |
| 9700-9899 | 9A700-9A899 | Thermostatic Choke, Acc. Spark & Throttle Control Rod |
| 9900-9999 | 9A900-9A999 | * |
| 10000-10299 | 10A000-10A299 | Generators |
| 10300-10399 | 10A300-10A399 | Alternator and Rectifier |
| 10400-10499 | 10A400-10A499 | Open Numbers |
| 10500-10649 | 10A500-10A649 | Generator Regulator |
| 10650-10837 | 10A650-10A837 | Battery and Supports—Voltmeter and Charge Indicator |
| 10838-10999 | 10A838-10A999 | Instrument Cluster and Controls |
| 11000-11529 | 11A000-11A529 | Starter Motor and Starter Switch |
| 11530-11568 | 11A530-11A568 | Open Numbers |
| 11569-11619 | 11A569-11A619 | Ignition Switch |
| 11620-11644 | 11A620-11A644 | Open Numbers |
| 11645-11688 | 11A645-11A688 | Lighting Switch |
| 11689-11999 | 11A689-11A999 | Open Numbers |
| 12000-12399 | 12A000-12A399 | Ignition Coil, Distributor, Condenser and Diaphragm |
| 12400-12427 | 12A400-12A427 | Spark Plugs |
| 12428-12449 | 12A428-12A449 | Open Numbers |
| 12450-12499 | 12A450-12A499 | Engine Governor |
| 12500-12599 | 12A500-12A599 | Open Numbers |
| 12600-12999 | 12A600-12A999 | Open Numbers |
| 13000-13199 | 13A000-13A199 | Head Lamps |
| 13200-13299 | 13A200-13A299 | Parking Lamps |
| 13300-13399 | 13A300-13A399 | Turn Signal |
| 13400-13699 | 13A400-13A699 | License, Tail, and Stop Lamps |
| 13700-13799 | 13A700-13A799 | Courtesy, Dome, and Instrument Lamps and Switches |
| 13800-13949 | 13A800-13A949 | Horn |
| 13950-13999 | 13A950-13A999 | Open Numbers |
| 14000-14689 | 14A000-14A689 | Wiring and Circuit Breakers, Terminals and Connectors, Window Regulator, Fuse Panel |
| 14690-14724 | 14A690-14A724 | Seat Regulator (Electrical) |
| 14725-14999 | 14A725-14A999 | Junction Boxes and Electric Conduit |
| 15000-15039 | 15A000-15A039 | Clocks |
| 15040-15074 | 15A040-15A074 | Cigar Lighter |
| 15075-15114 | 15A075-15A114 | Lamp Assy.—Cluster |
| 15115-15199 | 15A115-15A199 | * |
| 15200-15299 | 15A200-15A299 | Road Lamps |
| 15300-15399 | 15A300-15A399 | Spot Lamps |
| 15400-15489 | 15A400-15A489 | Lamp Assy.—Marker |
| 15490-15549 | 15A490-15A549 | Lamp Assy.—Back-up |
| 15550-15579 | 15A550-15A579 | Lamp Assy.—Utility |
| 15580-15599 | 15A580-15A599 | Lamp Assy.—Police Flasher |
| 15600-15649 | 15A600-15A649 | * |
| 15650-15655 | 15A650-15A655 | Map Lamp |
| 15656-15699 | 15A656-15A699 | Top Control |
| 15700-15724 | 15A700-15A724 | Engine Compartment Lamp |
| 15725-15759 | 15A725-15A759 | Commercial Pump Motors Note: Not used Passenger Car, Truck & Industrial Engines |
| 15760-15799 | 15A760-15A799 | Open Numbers |
| 15800-15849 | 15A800-15A849 | Lamp Assy.—Transmission Control Selector Indicator |
| 15850-15874 | 15A850-15A874 | Parking Brake Signal |
| 15875-15899 | 15A875-15A899 | Open Numbers |
| 15900-15999 | 15A900-15A999 | * |
| 16000-16249 | 16A000-16A249 | Front Fender and Aprons |
| 16250-16299 | 16A250-16A299 | Fender Shields |
| 16300-16449 | 16A300-16A449 | Rear Fenders |
| 16450-16549 | 16A450-16A549 | Running Boards and Brackets |
| 16550-16579 | 16A550-16A579 | Splash Shields |
| 16580-16599 | 16A580-16A599 | Open Numbers |
| 16600-16999 | 16A600-16A999 | Hood, Brackets, and Controls |
| 17000-17149 | 17A000-17A149 | Tools |
| 17150-17249 | 17A150-17A249 | Open Numbers |
| 17250-17384 | 17A250-17A384 | Speedometer and Tachometer |
| 17385-17399 | 17A385-17A399 | Open Numbers |
| 17400-17424 | 17A400-17A424 | Rear Window Wiper |
| 17425-17599 | 17A425-17A599 | Windshield Wipers |
| 17600-17674 | 17A600-17A674 | Windshield Washers |
| 17675-17748 | 17A675-17A748 | Rear View Mirrors |
| 17749-17999 | 17A749-17A999 | Front and Rear Bumpers and Stone Deflectors |
| 18000-18199 | 18A000-18A199 | Shock Absorbers |
| 18200-18241 | 18A200-18A241 | * |
| 18242-18699 | 18A242-18A699 | Heaters |
| 18700-18799 | 18A700-18A799 | Air Brakes |
| 18800-19499 | 18A800-19A499 | Radio |
| 19500-19549 | 19A500-19A549 | Miscellaneous Accessories |
| 19550-19999 | 19A550-19A999 | Air Conditioners |

*This series has become inactive and parts qualifying will be identified with part numbers from a more appropriate series.



Fig. C-3. Ford basic parts numbering system (Page 1 of 3)

10 GENERAL INFORMATION

# FORD CAR PARTS

## BODY BASIC NUMBERS AND CORRESPONDING FUNCTIONS

| BASIC PART NO. SERIES | BASIC SERIES EXPANSION | PARTS WHICH QUALIFY BY FUNCTIONAL AREA |
|---|---|---|
| *7000000-7000099 | 70000A00-70000A99 | Body Assembly & Trim Sets |
| 00100-00399 | 001A00-003A99 | Front End Assembly |
| 01400-01499 | 014A00-014A99 | Ventilating Ducts & Valves |
| 01500-01599 | 015A00-015A99 | Brake Pedal Support |
| 01600-01799 | 016A00-017A99 | Dash Assembly |
| 01800-01999 | 018A00-019A99 | Ventilating Ducts & Valves |
| 02000-02499 | 020A00-024A99 | Cowl Assembly |
| 02500-02699 | 025A00-026A99 | Front Body Pillar Assy. |
| 02700-02899 | 027A00-028A99 | Open |
| 02900-02999 | 029A00-029A99 | Body Front Tie Bow Braces, Etc. |
| 03000-03999 | 030A00-035A99 | Windshield Assembly |
| 04000-04249 | 040A00-042A49 | Visor Assembly |
| 04250-04399 | 042A50-043A99 | Front Belt Rail Inst. Panel Assy. |
| 04400-04599 | 044A00-045A99 | Panel Assy.—Instr. Panel Details |
| 04600-04799 | 046A00-047A99 | Cigar Lighter Assy. & Instrument Cluster |
| 04800-04899 | 048A00-048A99 | Ash Receptacle Assy |
| 04900-05999 | 049A00-059A99 | Open |
| 06000-06199 | 060A00-061A99 | Glove Compt. Assy. |
| 06200-09999 | 062A00-099A99 | Open |
| *7010000-7010099 | 70100A00-70100A99 | Floor Assembly |
| 10100-10599 | 101A00-105A99 | Floor Side Member Assy. |
| 10600-10999 | 106A00-109A99 | Floor Cross Sill Assy. |
| 11000-11099 | 110A00-110A99 | Under Body Assy. |
| 11100-11399 | 111A00-113A99 | Floor Pan Assembly |
| 11400-11499 | 114A00-114A99 | Floor Pan Silencers & Pads |
| 11500-11799 | 115A00-117A99 | Floor Board Assy. |
| 11800-11999 | 118A00-119A99 | Open |
| 12000-12099 | 120A00-120A99 | Floor Board Riser |
| 12100-12299 | 121A00-122A99 | Floor Trans. Cover Dust Sealer |
| 12300-12599 | 123A00-125A99 | Open |
| 12600-12699 | 126A00-126A99 | Floor Stud Strip |
| 12700-12999 | 127A00-129A99 | Open |
| 13000-13199 | 130A00-131A99 | Floor Mat & Carpet |
| 13200-13299 | 132A00-132A99 | Floor Scuff Plate |
| 13300-13499 | 133A00-134A99 | Open |
| 13500-13599 | 135A00-135A99 | Floor Tool Box |
| 13600-13799 | 136A00-137A99 | Open |
| 14000-14099 | 140A00-140A99 | Member Assy.—Body Side Front |
| 14100-14199 | 141A00-141A99 | Member Assy.—Body Side Rear |
| 14200-14299 | 142A00-142A99 | Sill Assy.—Floor Pan Cross Front |
| 14300-19999 | 143A00-199A99 | Open |
| *7020000-7020099 | 70200A00-70200A99 | Body Side Assembly |
| 20100-20199 | 201A00-201A99 | Front Door |
| 20200-20399 | 202A00-203A99 | Front Door Panel |
| 20400-20499 | 204A00-204A99 | Front Door Pillar |
| 20500-20699 | 205A00-206A99 | Front Door Header |
| 20700-20799 | 207A00-207A99 | Front Door Bottom |
| 20800-21099 | 208A00-210A99 | Front Door Garnish Mldg. & Mldgs. |
| 21100-21299 | 211A00-212A99 | Front Door Reinf. |
| 21300-21399 | 213A00-213A99 | Open |
| 21400-21799 | 214A00-217A99 | Front Door Glass |
| 21800-22199 | 218A00-221A99 | Front Door Lock |
| 22200-22399 | 222A00-223A99 | Front Door—Glass Frame |
| 22400-22499 | 224A00-224A99 | Front Door Handles |
| 22500-22599 | 225A00-225A99 | Open |
| 22600-22699 | 226A00-226A99 | Front Door Handles—Inside |
| 22700-22799 | 227A00-227A99 | Open |
| 22800-22899 | 228A00-228A99 | Front Door Hinge |
| 22900-22999 | 229A00-229A99 | Front Door Ventilating Window |
| 23000-23099 | 230A00-230A99 | Front Door Dovetail |
| 23100-23399 | 231A00-233A99 | Front Door Regulator |
| 23400-23499 | 234A00-234A99 | Front Door Window Regulator |
| 23500-23599 | 235A00-235A99 | Front Door Check |
| 23600-23699 | 236A00-236A99 | Open |
| 23700-23999 | 237A00-239A99 | Front Door Trim |
| 24000-24199 | 240A00-241A99 | Front Door Arm Rest |
| 24200-24299 | 242A00-242A99 | Hydraulic Window Operating |
| 24300-24599 | 243A00-245A99 | Center Pillar Assy. |
| 24600-24699 | 246A00-246A99 | Rear Door Assy. |
| 24700-24999 | 247A00-249A99 | Rear Door Panels |
| 25000-25099 | 250A00-250A99 | Rear Door Frame & Pillar Assy. |
| 25100-25299 | 251A00-252A99 | Rear Door Header |
| 25300-25399 | 253A00-253A99 | Rear Door Bottom |
| 25400-25699 | 254A00-256A99 | Rear Door Garnish Moulding |
| 25700-25899 | 257A00-258A99 | Rear Door Glass |
| 25900-25999 | 259A00 259A99 | Open |
| 26000-26199 | 260A00-261A99 | Rear Door Reinf. |
| 26200-26399 | 262A00-263A99 | Rear Door Glass Frame |
| 26400-26599 | 264A00 265A99 | Rear Door Lock |
| 26600-26699 | 266A00-266A99 | Rear Door Handles |
| 26700-26799 | 267A00-267A99 | Open |
| 26800-26899 | 268A00-268A99 | Rear Door Hinge |
| 26900-26999 | 269A00-269A99 | Open |
| 27000-27199 | 270A00-271A99 | Rear Door Regulator |
| 27200-27299 | 272A00-272A99 | Rear Door Check |
| 27300-27399 | 273A00-273A99 | Rear Door Regulator Vacuum Lift |
| 27400-27699 | 274A00-276A99 | Rear Door Trim |
| 27700-27799 | 277A00-277A99 | Quarter Assy. |
| 27800-28099 | 278A00-280A99 | Quarter Panel Assy. |
| 28100-28399 | 281A00 283A99 | Quarter Lock Pillar |
| 28400-28499 | 284A00 284A99 | Open |
| 28500-28599 | 285A00-285A99 | Quarter Header |
| 28600-28699 | 286A00-286A99 | Quarter Frame |
| 28700-28799 | 287A00-287A99 | Quarter Belt Rail |
| 28800-28999 | 288A00-289A99 | Open |
| 29000-29199 | 290A00-291A99 | Quarter Window Garnish Moulding & Moulding |
| 29200-29599 | 292A00-295A99 | Quarter Reinf. Braces & Brkts. |
| 29600-29699 | 296A00-296A99 | Quarter Window Assy. |
| 29700-29799 | 297A00-297A99 | Quarter Window Glass |
| 29800-29999 | 298A00-299A99 | Quarter Glass Channel |
| 7030000-7030199 | 70300A00-70300A99 | Quarter Glass Run Quarter Window Reg. |
| 30200-30299 | 302A00-302A99 | Quarter Vent. Window |
| 30300-30499 | 303A00-304A99 | Quarter Window Regulator |
| 30500-30699 | 305A00-306A99 | Quarter Glass Frame |
| 30700-30799 | 307A00-307A99 | Quarter Arm Rest Ash Receptacle |
| 30800-30999 | 308A00-309A99 | Open |
| 31000-31499 | 310A00-314A99 | Quarter Trim Assy. & Assist Loop |
| 31500-31599 | 315A00-315A99 | Open |
| 31600-31899 | 316A00-318A99 | Qtr. Arm Rest Assy & Rear Seat Center Arm Rest |
| 31900-31999 | 319A00-319A99 | Quarter Panel Spare Wheel Compt. |
| 32000-32199 | 320A00-321A99 | Open |
| 32200-32299 | 322A00-323A99 | Side Slats—Trim Sticks—Anti-Squeaks |
| 32400-32499 | 324A00-324A99 | Quarter Folding Compt.—Package |
| 32500-39999 | 325A00-399A99 | Open |
| 7040000-7040099 | 70400A00-70400A99 | Back Door Assembly |
| 40100-40199 | 401A00-401A99 | Luggage Compt. Door Assy. |
| 40200-40299 | 402A00-402A99 | Tail Gate Assy. |
| 40300-40399 | 403A00-403A99 | Back Panel Assy. |
| 40400-40499 | 404A00-404A99 | Lift Gate |
| 40500-40599 | 405A00-405A99 | Open |
| 40600-40699 | 406A00-406A99 | Luggage Compt. Door Panel |
| 40700-40799 | 407A00-407A99 | Tail Gate Panel Assy. |
| 40800-40899 | 408A00-408A99 | Back Door Frame Assy. |
| 40900-40999 | 409A00-409A99 | Tail Gate Frame Assy. |
| 41000-41099 | 410A00-410A99 | Back Door Pillar Fillers |
| 41100-41199 | 411A00-411A99 | Open |
| 41200-41299 | 412A00-412A99 | Deck Pillar Group |
| 41300-41399 | 413A00-413A99 | Luggage Compt. & Lift Gate Door Header |
| 41400-41599 | 414A00-415A99 | Open |
| 41600-41699 | 416A00-416A99 | Tail Gate Framing |
| 41700-41899 | 417A00-418A99 | Back Belt Rail |
| 41900-41999 | 419A00-419A99 | Back Door Glass & Framing |
| 42000-42199 | 420A00-421A99 | Back Window Glass |
| 42200-42299 | 422A00-422A99 | Back Window Frame Assy. |
| 42300-42499 | 423A00-424A99 | Back Window Garnish Moulding |
| 42500-42599 | 425A00-425A99 | Back Door Finish Strip—Mouldings |
| 42600-42699 | 426A00-426A99 | Tail Gate Cross Finish Strip |
| 42700-42899 | 427A00-428A99 | Luggage Compt. Hinge Assy.—Lamp Assy. |
| 42900-42999 | 429A00-429A99 | Back Door Hinge & Reinf. Assy. |

Fig. C-3. Ford basic parts numbering system (Page 2 of 3)

**FORD CAR PARTS** — GENERAL INFORMATION — 11

## BODY BASIC NUMBERS AND CORRESPONDING FUNCTIONS (Continued)

| BASIC PART NO. SERIES | BASIC SERIES EXPANSION | PARTS WHICH QUALIFY BY FUNCTIONAL AREA |
|---|---|---|
| 43000-43099 | 430A00-430A99 | Tail Gate Hinge Assy. |
| 43100-43149 | 431A00-431A49 | Back Door Lock Assy. |
| 43150-43199 | 431A50-431A99 | Tail Gate Lock Assy. |
| 43200-43399 | 432A00-433A99 | Luggage Compt. Lock Assy |
| 43400-43499 | 434A00-434A99 | Back Door Handle Assembly |
| 43500-43699 | 435A00-436A99 | Luggage Compt. Locking Handle |
| 43700-43799 | 437A00-437A99 | Back Door Weatherstrip |
| 43800-43899 | 438A00-438A99 | Luggage Compt., Bumper & Weatherstrip |
| 43900-43999 | 439A00-439A99 | Tail Gate Bumper & Dowel |
| 44000-44099 | 440A00-440A99 | Back Window Regulator Assy. |
| 44100-44199 | 441A00-441A99 | Back Door Check Assy |
| 44200-44299 | 442A00-442A99 | Luggage Compt. Lid Support—Clamp |
| 44300-44399 | 443A00-443A99 | Open |
| 44400-44599 | 444A00-445A99 | Tail Gate Support |
| 44600-44699 | 446A00-446A99 | Back Reinf. Brackets |
| 44700-44799 | 447A00-447A99 | Back Door Reinf. |
| 44800-44999 | 448A00-449A99 | Luggage Compt. Opening Reinf. |
| 45000-45099 | 450A00-450A99 | Tail Gate Reinforcement |
| 45100-45199 | 451A00-451A99 | Luggage Compt. Drain Trough |
| 45200-45299 | 452A00-452A99 | Back Trim |
| 45300-45399 | 453A00-453A99 | Back Curtain |
| 45400-45599 | 454A00-455A99 | Luggage Compt. Trim |
| 45600-45699 | 456A00-456A99 | Luggage Tool Compt. |
| 45700-45799 | 457A00-457A99 | Luggage Compt. Partition Board |
| 45800-45899 | 458A00-458A99 | Luggage Compt. Shelf Board |
| 45900-45999 | 459A00-459A99 | Luggage Compt. Lamp Assy |
| 46000-46099 | 460A00-460A99 | Luggage Compartment Package Compt. |
| 46100-46199 | 461A00-461A99 | Tool Compt. |
| 46200-46299 | 462A00-462A99 | Deck Step |
| 46300-46399 | 463A00-463A99 | Back Door Trim |
| 46400-46499 | 464A00-464A99 | Luggage Compt. Trim |
| 46500-46999 | 465A00-469A99 | Package Tray |
| 47000-47299 | 470A00-472A99 | Spare Wheel Compartment |
| 47300-47999 | 473A00-479A99 | Open |
| 48000-48099 | 480A00-480A99 | Rear Rack Assy. |
| 48100-49999 | 481A00-499A99 | Open |
| 70500000-7050099 | 705000A00-70500A99 | Roof Assy. |
| 50100-50199 | 501A00-501A99 | Top Assy. |
| 50200-50299 | 502A00-502A99 | Roof Panel Assy. |
| 50300-50599 | 503A00-505A99 | Top Slat Iron |
| 50600-50799 | 506A00-507A99 | Top Operating Mechanism |
| 50800-51299 | 508A00-512A99 | Roof Reinf. Retainers |
| 51300-51399 | 513A00-513A99 | Roof Rail Assembly |
| 51400-51599 | 514A00-515A99 | Top Bow Assy. & Dome Lamp—Brkts. & Att. Parts |
| 51600-51699 | 516A00-516A99 | Roof Rib & Slats |
| 51700-51799 | 517A00-517A99 | Roof Drip & Finish Moulding |
| 51800-51899 | 518A00-518A99 | Roof Partition |
| 51900-51999 | 519A00-519A99 | Roof Trim Panel Headliner |
| 52100-52299 | 521A00-522A99 | Roof Headlining Support |
| 52300-52399 | 523A00-523A99 | Roof Binding |
| 52400-52499 | 524A00-524A99 | Roof Cardboard |
| 52500-52599 | 525A00-525A99 | Top Back Curtain |
| 52600-52699 | 526A00-526A99 | Open |
| 52700-52999 | 527A00-529A99 | Top Deck & Slide Quarter |
| 53000-53099 | 530A00-530A99 | Top Stack—Topple |
| 53100-53199 | 531A00-531A99 | Top Landau—Folding Pillar |
| 53200-53299 | 532A00-532A99 | Top Back Curtain |
| 53300-53399 | 533A00-533A99 | Hydraulic Group |
| 53400-53499 | 534A00-534A99 | Top Curtain Container |
| 53500-53599 | 535A00-535A99 | Top Side Front Curtain |
| 53600-53699 | 536A00-536A99 | Top Side Rear Curtain |
| 53700-53799 | 537A00-537A99 | Top Covers, Pads and Retainers |
| 53800-53899 | 538A00-538A99 | Quarter Curtain |
| 53900-54199 | 539A00-541A99 | Folding Top |
| 54200-54299 | 542A00-542A99 | Top Back Stay |
| 54300-54399 | 543A00-543A99 | Roof Pads & Wadding—Silencers |
| 54400-54499 | 544A00-544A99 | Top Dust Hood & Container |
| 54500-54599 | 545A00-545A99 | Open |
| 54600-54699 | 546A00-546A99 | Top Folding Compt. |
| 54700-54799 | 547A00-547A99 | Roof Weatherstrip |
| 54800-54899 | 548A00-548A99 | Top Hold Down Strap |
| 54900-54999 | 549A00-549A99 | Roof Ventilator |
| 55000-55199 | 550A00-551A99 | Top Luggage Carrier |
| 55200-55999 | 552A00-559A99 | Open |
| 7060000-7060024 | 706000A00-70600A24 | Front Seat Assy. Compt. Less Trim |
| 60025-60049 | 600A25-600A49 | Rear Seat Assy.—Opera Seat Assy. |
| 60050-60074 | 600A50-600A74 | Front Seat Assy. |
| 60075-60099 | 600A75-600A99 | Rear Seat Cushion Assy. |
| 60100-60124 | 601A00-601A24 | Driver's Seat Adjustment |
| 60125-60199 | 601A25-601A99 | Rear Seat Back Assy.—Deck Seat Back Assy. |
| 60200-60299 | 602A00-602A99 | Driver's Seat Back Assy. Comp. |
| 60300-60499 | 603A00-604A99 | Front Seat Cushion Frame Assy. |
| 60500-60799 | 605A00-607A99 | Rear Seat Cushion Framing Aux. Seat Cushion Framing Opera Seat Cushion Framing |
| 60800-60999 | 608A00-609A99 | Driver's Seat Cushion Framing |
| 61000-61299 | 610A00-612A99 | Front Seat Back Framing |
| 61300-61399 | 613A00-613A99 | Rear Seat Back Frame |
| 61400-61499 | 614A00-614A99 | Rear Seat Side Pillar—Front Seat Side Board |
| 61500-61599 | 615A00-615A99 | Rear Seat Side Panel |
| 61600-61699 | 616A00-616A99 | Front Seat Back Panel |
| 61700-61899 | 617A00-618A99 | Front Seat Adjusting |
| 61900-62099 | 619A00-620A99 | Driver's Seat Adjustment |
| 62100-62299 | 621A00-622A99 | Front Seat Back Reinf. |
| 62300-62399 | 623A00-623A99 | Driver's Back Reinf. |
| 62400-62499 | 624A00 624A99 | Rear Seat Back Reinf |
| 62500-62599 | 625A00-625A99 | Driver & Passenger Seat Support Rear Seat Legs |
| 62600-62799 | 626A00-627A99 | Front Seat Floor Rest Toe Guard |
| 62800-62899 | 628A00-628A99 | Front Seat Back Robe Cord Front Seat Back Ash Receptacle |
| 62900-63199 | 629A00-631A99 | Front Seat Cushion Cover—Center Seat Opera Seat Cushion |
| 63100-63199 | 631A00-631A99 | Front Seat Cushion Spring—Center Seat Opera Seat Cushion Spring Rear Seat Cushion Spring |
| 63200-63299 | 632A00-632A99 | Seat Cushion Pad |
| 63300-63399 | 633A00-633A99 | Seat Cushion Facing |
| 63400-63499 | 634A00-634A99 | Seat Cushion End Pipe |
| 63500-63599 | 635A00-635A99 | Cushion Button |
| 63600-63699 | 636A00-636A99 | Seat Cushion Welt Binding |
| 63700-63799 | 637A00-637A99 | Front Seat Side Carpet |
| 63900-63899 | 638A00-638A99 | Rear Seat Cushion Cover Deck Seat Cushion Cover |
| 64000-64099 | 640A00-640A99 | Driver's Seat Rear Cover |
| 64200-64399 | 642A00-643A99 | Partition Window Operating Mech. |
| 64400-64599 | 644A00-645A99 | Front Seat Back Cushion Cover |
| 64600-64699 | 646A00-646A99 | Seat Back & Pad Assy. Seat Back Division Frame |
| 64700-64799 | 647A00-647A99 | Front Seat Back Spring—Center Seat |
| 64800-64899 | 648A00-648A99 | Front Seat Back Pad |
| 64900-64999 | 649A00-649A99 | Front Seat Back Cardboard Opera Seat Cardboard Cover Etc., Center Seat |
| 65000-65099 | 650A00-650A99 | Front Seat Back Facing |
| 65100-65199 | 651A00-651A99 | Front Seat Back Trim Rail |
| 65200-65299 | 652A00-652A99 | Front Seat Back Cushion Welt & Bldg. |
| 65300-65399 | 653A00-653A99 | Front Seat Back Wadding |
| 65400-65499 | 654A00-654A99 | Front Seat Back Misc. Trim—Hassock Assy. |
| 65500-65599 | 655A00-655A99 | Front Seat Back Bellows |
| 65600-65999 | 656A00-659A99 | Open |
| 66000-66099 | 660A00-660A99 | Pedestal Seat |
| 66100-66599 | 661A00-665A99 | Open |
| 66600-66699 | 666A00-666A99 | Rear Seat Back Cover Deck Seat Back Cover |
| 66700-66799 | 667A00-667A99 | Rear Seat Back Spring Deck Seat Back Spring |
| 66800-66899 | 668A00-668A99 | Rear Seat Back Pad Deck Seat Back Pad |
| 66900-66999 | 669A00-669A99 | Rear Seat Cardboard |
| 67000-67099 | 670A00-670A99 | Rear Seat Back Facing |
| 67100-67199 | 671A00-671A99 | Rear Seat Back Center Arm Rest Cover |
| 67200-67299 | 672A00-672A99 | Rear Seat Arm Rest |
| 67300-67399 | 673A00-673A99 | Rear Seat Silencer |
| 67400-67599 | 674A00-675A99 | Rear Seat Headboard |

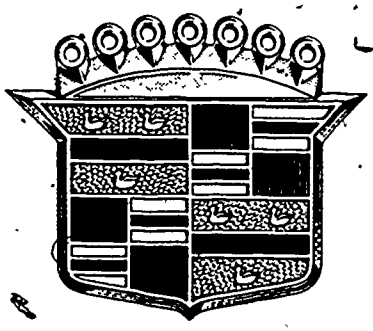
***IMPORTANT: AS EACH INDIVIDUAL EXPANSION SERIES BECOMES EXHAUSTED OF NUMBERS, ANOTHER SERIES WILL BE ESTABLISHED BY USE OF THE NEXT ALPHABETICAL EXPANSION LETTER SUCH AS "B" THRU "Z".***



Fig. C-3. Ford basic parts numbering system (Page 3 of 3)

Cadillac

# MASTER PARTS LIST



## CHASSIS PARTS SECTION

This Parts List is effective September 1, 1964

The "List Prices" shown in this Parts List are suggested prices only for sales to consumers.

**ISSUED BY:**

Parts and Prices are subject to change or removal without notice.



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Fig. C-4. Automobile manufacturers' parts groups (Page 1 of 4)

# CHRYSLER

PASSENGER CAR PARTS CATALOG

"A" SERIES
1965

PLYMOUTH
VALIANT
DODGE
DART
CHRYSLER
IMPERIAL

NOVEMBER 1964

PARTS DIVISION CHRYSLER MOTORS CORPORATION

DETROIT, MICHIGAN 48231

| Pages | |
|---|---|
| INF-1 | General Information |
| PK-1 | Parts Packages |
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| 2-1 | Group 2 Front Suspension |
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| 4-1 | Group 4 Brake - Parking |
| 5-1 | Group 5 Brake - Service |
| 6-1 | Group 6 Clutch |
| 7-1 | Group 7 Cooling |
| 8-1 | Group 8 Electrical |
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| 10-1 | Group 10 Engine Oiling |
| 11-1 | Group 11 Exhaust |
| 12-1 | Group 12 Fenders and Sheet Metal |
| 13-1 | Group 13 Frame |
| 14-1 | Group 14 Fuel |
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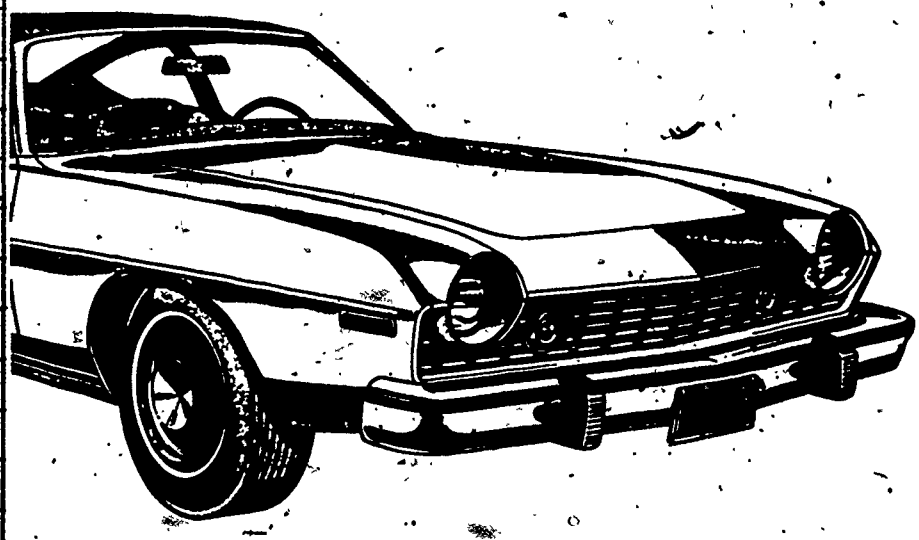
| 17-1 | Group 17 Springs |
| 18-1 | Group 18 Standard Parts |
| 19-1 | Group 19 Steering |
| 21-1 | Group 21 Transmission |
| 22-1 | Group 22 Wheels |
| 23-1 | Group 23 Body |
| IT-1 | Group 23 Interior Trim |
| 24-1 | Air Conditioning |
| AL-1 | Alphabetical Index |
| NU-1 | Numerical Index |
| X-1 | Vendor Cross Reference |

Fig. C-4. Automobile manufacturers' parts groups (Page 2 of 4)

| Group No. | |
|---|---|
| | GENERAL INFORMATION |
| 1 | ENGINE |
| 2 | COOLING - GRILLE |
| 3 | ELECTRICAL INSTRUMENT CLUSTER |
| 4 | FUEL - EXHAUST |
| 5 | CLUTCH |
| 6 | STD. - OD. - HYDRA. TRANSMISSION |
| 7 | SHIFTING |
| 8 | BRAKES - WHEELS |
| 9 | REAR AXLE PROP. SHAFT |
| 10 | FRONT SUSPENSION STEERING GEAR |
| 11 | ROAD SPRINGS SHOCK ABSORBERS |
| 12 | HOOD FENDERS - BUMPERS |
| 13 | HEATER AIR CONDITIONING |
| 14 | CHASSIS MISCELLANEOUS |
| 15 | ACCESSORIES |
| 16 | AUTOMATIC TRANSMISSION |
| 17 | STANDARD PARTS |
| 20 | BODY SHEET METAL |
| 22 | WINDSHIELD WIPER COWL VENT - INST. PANEL |
| 23 | DOORS - LOCKS HANDLES - DOOR VENTS |
| 24 | REAR QUARTER VENTS |
| 25 | GLASS - CHANNELS |
| 26 | BODY MOLDINGS |
| 27 | BODY HARDWARE |
| 29 | TRIM MATERIAL |
| 30 | BODY MISCELLANEOUS |
| | TRIM CHART |

# AMC

## PARTS CATALOG F-14075



American Motors Corporation Parts and Distribution Services Division
3280 S. Clement Ave. Milwaukee, Wisconsin 53201 Printed in U.S.A.

Fig. C-4. Automobile manufacturers' parts groups (Page 3 of 4)

# DATSUN 610
# SEDAN · HARDTOP

## USA & CANADA

# PARTS CATALOG

## MODEL 610 SERIES

## NISSAN MOTOR CO., LTD.

17-1, GINZA, 6-CHOME, CHUO-KU
TOKYO, JAPAN
Phone: TOKYO 543-5523
Telex: NISMO J2 2503
Cable Address: "NISMO" TOKYO

Pub. No. C-0100U



Fig. C-4. Automobile manufacturers' parts groups (Page 4 of 4)

5.533 PAD-SCREW-NUT, Ring Gear

| | | | | | |
|---|---|---|---|---|---|
| 38-55 | UTILITY (1st Ser.), | | | | |
| 46-60 | ½, 1 TON, | | | | |
| 59 | Ser. 3A w/4/WD | thrust | 370463 | 1 | .45 |
| 40-55 | UTILITY (1st Ser.), | | | | |
| 46-60 | ¾, 1 TON | SCREW, thrust pad (⅞—14 x 3¾) | 3652255 | 1 | .65 |
| 40-55 | UTILITY (1st Ser.), | | | | |
| 46-60 | ¾, 1 TON | NUT, thrust pad screw (⅞—14) | 124954 | 1 | (8.916) |

5.535 LUBRICANT, Hypoid Gear

| | | | | | |
|---|---|---|---|---|---|
| ALL | PASS., CORVETTE, ½ TON w/P/Trac | special hypoid (1 quart container) | 1050015 | A.R. | (8.800) |
| ALL | PASS., CORVETTE, ½ TON w/P/Trac | special hypoid (15 gal.) | 1050016 | A.R. | (8.800) |

5.536 BEARING-BEARING ASSY.-RACE, Differential Side

| | | | | | |
|---|---|---|---|---|---|
| 38-54 | PASS. (exc. FA, FD), | | | | |
| 53-55 | CORVETTE | (Hyatt A 11360) (Hy 11360 Z) | 127861* | 2 | 8.15 |
| | *NOTE: Must be installed in sets of two on 1939-40 models. | | | | |
| 38-53 | UTILITY, | | | | |
| 54-55 | 1½ TON (exc. 2-SPD.) (1st Ser.) | (Hyatt A 11820) (Hy 11820 Z) | 148399† | 2 | 13.55 |
| | †NOTE. Must be installed as an assembly and in sets of two on 1938-39 models. | | | | |
| 40-42 | COMM., | | | | |
| 46-56 | ½ TON, | | | | |
| 55-56 | PASS., | | | | |
| 56 | CORVETTE | (Hyatt CK 11445 X) | 7450385 | 2 | 9.25 |
| 57-59 | Ser. 3A w/4/WD | front axle. | | | |
| 57-59 | PASS., CORVETTE, ½ TON (exc. ½ TON w/P/Trac.), | | | | |
| 60-62 | PASS., CORVETTE, ½ TON, | | | | |
| 63-64 | PASS., | | | | |
| 63 | Ser. 10 (4/WD) (1st Ser.) | (Hyatt A 159286 Z) | 7450745 | 2 | 6.09 |
| 46-65 | ¾, 1 TON | (Hyatt D 11786) (Hy 11786 Y). | | | |
| 57-59 | Ser. 3E-3G w/4/WD | front axle | 188930 | 2 | 10.05 |
| 54-55 | 2 TON (prod.) (1st Ser.) | (Hyatt KC 11948Y) | 7450326 | 2 | 19.40 |
| 58-59 | ½ TON w/P/Trac. | w/roller (Timken 25590) | 9412266 | 2 | 3.94 |
| 63-65 | CORVETTE, Ser. 10 (exc. 4/WD), | | | | |
| 63-65 | Ser. 10 (4/WD) (2nd Ser.), | | | | |
| 64-65 | G-10 w/3.73, 4.11 ratio, | | | | |
| 65* | PASS. w/4 arm suspension | | 7451140 | 2 | 6.15 |
| 58 | ½ TON w/P/Trac. | BEARING ASSY., rear, | | | |
| 64 | 4/WD | front (Bower 25590-25523) | 9412262 | 2 | 6.50 |
| 60-63 | 4/WD | BEARING ASSY., w/roller (1 11/16 I.D. x 3 11/64 O.D.) (Timken 25577-25523) | 9415224 | 2 | 6.40 |
| 63 | CORVETTE | BEARING ASSY., "U" joint yoke | 455724 | 2 | 1.50 |
| 64-65 | G-10 w/3.36 ratio, | | | | |
| 65 | PASS. w/3 arm suspension | BEARING ASSY., (1⅜ x 2 17/64 O.D.) | 7451281 | 2 | 5.43 |
| | Not required in this group. See groups 6.311, 6.313 | BEARING ASSY., (23/32 I.D. x 3¼ O.D. x 21/32 thk.) | 7451090 | | 5.97 |
| | Not required in this group. See group 6.313 | BEARING ASSY. | 7451226 | | 5.31 |
| 39-55 | 2-SPD. (1st Ser.) | RACE, outer (Timken M 3920) | 457319 | 2 | 4.30 |
| 46-55 | 2-SPD. w/Vac. Shift (1st Ser.) | RACE, inner, w/roller (Timken X 3994) | 435973 | 2 | 8.20 |
| 58-59 | ½ TON w/P/Trac., | | | | |
| 60-64 | 4/WD | RACE, outer (Timken 25523) | 9412267 | 2 | 2.46 |
| 58 | ½ TON w/P/Trac., | | | | |
| 64 | 4/WD | RACE, inner w/roller (Timken 25590) | 9412266 | 2 | 3.94 |
| 60-63 | 4/WD | RACE, inner w/roller (Timken 25577) | 9415225 | 2 | 3.96 |
| 63-64 | CORVETTE, | | | | |
| 63-64 | Ser. 10, | | | | |
| 64 | G-10 w/3.73, 4.11 ratio | RACE, outer | 7451141 | 2 | 2.19 |
| 64 | G-10 w/3.36 ratio | RACE, outer | 7451282 | 1 | 1.98 |





Fig. C-5. Specimen page of Chevrolet parts catalog, showing Group 5.536

Fig. C-6. Specimen page of Chevrolet parts index

## 1.050 CLUTCH ASSY.—SCREW—STUD, ENGINE FAN

| | | | | | |
|---|---|---|---|---|---|
| 60-63 | (A.C.) | 1482704 | 41.10 | CLUTCH (Note 1) | 1 |
| | NOTE 1 When used on 1960 series also use 4-180077 (7/16"—18 x 3/4") Bolts to attach | | | | |
| 64 | Before V.I. No 116400 (A.C.) | 1482704 | 41.10 | CLUTCH | 1 |
| 67 | Exc CC (A.C.) | 1489214 | 41.10 | CLUTCH | 1 |
| 68 | (A.C.) | 5361036 | 38.80 | CLUTCH | 1 |
| 69 | Exc. Eld. (A.C.) | 4941106 | 41.95 | CLUTCH | 1 |
| 69 | Eld (A.C.) | 4939915 | 41.95 | CLUTCH | 1 |
| 60-63 | (A.C.)—(8.900) | 9415086 | 15 | SCREW, 7/16"—24 x 3/4", self locking | 4 |
| 64 | Before V.I. No 116400 (A.C.)—(8.900) | 9415086 | 15 | SCREW, 7/16"—24 x 3/4", self locking | 4 |
| 67 | Exc CC (A.C.)—(8.900) | 9415086 | 15 | SCREW, 7/16"—24 x 3/4", self locking | 4 |
| 68-69 | (A.C.) | 1364760 | 25 | STUD, 7/16"—18, 7/16"—24 x 1 3/16" | 4 |

## 1.060 BRACKET—SPACER, ENGINE FAN BELT IDLER PULLEY

| | | | | | |
|---|---|---|---|---|---|
| 68-69 | CC (130 amp. gen.) | 1491847 | 2.26 | BRACKET | 1 |
| 70 | CC (130 amp gen.) | 1496044 | 2.26 | BRACKET | 1 |
| 71-73 | CC (145 amp gen.) | 1491847 | 2.26 | BRACKET | 1 |
| 70 | CC (130 amp. gen.) | 1496042 | 70 | SPACER, to bracket | 1 |

## 1.062 PULLEY (IDLER) ENGINE FAN BELT ADJUSTING

| | | | | | |
|---|---|---|---|---|---|
| 68-69 | CC (130 amp gen.) | 1492280 | 32.80 | PULLEY, idler | 1 |
| 70 | CC (130 amp gen) | 1496055 | 32.80 | PULLEY, idler | 1 |
| 71-73 | CC (145 amp gen) | 1492280 | 32.80 | PULLEY, idler | 1 |

## 1.062 PULLEY, ENGINE FAN AND WATER PUMP, DRIVEN

| | | | | | |
|---|---|---|---|---|---|
| 58-62 | (Exc. A.C.) | 1480393 | 7.20 | PULLEY, double, water pump | 1 |
| 58-64 | (A.C.) | 1483552 | 10.90 | PULLEY, triple, water pump | 1 |
| 63-64 | (Exc A.C.) | 1479282 | 8.10 | PULLEY, double, water pump | 1 |
| 65 | Exc 75 | 1483552 | 10.90 | PULLEY, triple, water pump | 1 |
| 65 | 75 (A.C.) | 1483552 | 10.90 | PULLEY, triple, water pump | 1 |
| 65 | 75 (Exc A.C.) | 1479282 | 8.10 | PULLEY, double, water pump | 1 |
| 66-67 | All | 1483552 | 10.90 | PULLEY, triple, water pump | 1 |
| 68-69 | (A.C.) | 1490924 | 7.95 | PULLEY, double, exc 130 amp. gen. | 1 |
| 68-69 | (Exc. A.C.) | 1491086 | 7.95 | PULLEY, double, exc 130 amp gen. | 1 |
| 68-69 | CC (A.C.) | 1491870 | 8.90 | PULLEY, single, use with 130 amp. gen. | 1 |
| 68-69 | CC (exc. A.C.) | 1491871 | 8.90 | PULLEY, single, use with 130 amp. gen. | 1 |
| 70 | (Exc. 130 amp gen) | 1495998 | 5.02 | PULLEY, single | 1 |
| 70 | CC (130 amp. gen.) | 1496021 | 9.15 | PULLEY, double | 1 |
| 71-72 | (Exc. 145 amp. gen.) | 1497933 | 4.87 | PULLEY, double | 1 |
| 71-73 | CC (145 amp. gen.) | 1491870 | 8.90 | PULLEY, single | 1 |
| 73 | (Exc. 145 amp gen.) | 1601101 | 4.87 | PULLEY, double | 1 |

## 1.064 FAN, ENGINE COOLING

| | | | | | |
|---|---|---|---|---|---|
| 57-59 | (A.C.) | 1488156 | 18.50 | FAN, 7 blade type | 1 |
| 57-62 | Exc. 75,CC (exc. A.C.) | 1480963 | 9.00 | FAN, 4 blade type | 1 |
| 57-64 | 75,CC (exc. A.C.) | 1488156 | 18.50 | FAN, 7 blade type | 1 |
| 60-62 | (A.C.) | 1474312 | 19.70 | FAN, 7 blade type | 1 |
| 63 | (A.C.) | 1480833 | 14.30 | FAN, 5 blade type | 1 |
| 63-64 | Exc. 75,CC (exc. A.C.) | 1481916 | 9.65 | FAN, 4 blade type | 1 |
| 64 | Before V.I. No. 116400 (A.C.) | 1480833 | 14.30 | FAN, 5 blade type | 1 |
| 64 | After V.I. No. 116399 (A.C.) | 1488156 | 18.50 | FAN, 7 blade type | 1 |
| 65 | All | 1488156 | 18.50 | FAN, 7 blade type (Note 1) | 1 |
| | NOTE 1 Also use 1-1485421 spacer, before approx. V.I. No. 145200. | | | | |
| 66 | All | 1488156 | 18.50 | FAN, 7 blade type | 1 |
| 67 | Exc. 75,CC (exc. A.C.) | 1488156 | 18.50 | FAN, 7 blade type | 1 |
| 67 | Exc. Eld., CC (A.C.) | 401371 | 19.55 | FAN, 7 blade type | 1 |
| 67 | Eld. (A.C.) | 1489215 | 17.60 | FAN, 6 blade type | 1 |
| 67 | CC | 1488156 | 18.50 | FAN, 7 blade type | 1 |
| 68-69 | (A.C.) | 401371 | 19.55 | FAN, 7 blade type | 1 |
| 68 | (Exc. A.C.) | 1491244 | 19.70 | FAN, 7 blade type | 1 |
| 69 | Exc. Eld., 75 (exc. A.C.) | 1493930 | 19.65 | FAN, 7 blade type | 1 |
| 69 | Eld. (exc. A.C.) | 1491244 | 19.70 | FAN, 7 blade type | 1 |
| 70-72 | All | 1600885 | 34.85 | FAN, 7 blade type (Note 2) | 1 |
| 73 | All | 1602245 | 34.85 | FAN, 7 blade type | 1 |
| | NOTE 2 Service replacement for 5 blade type fan. | | | | |

## 1.064 SPACER, ENGINE FAN BLADE

| | | | | | |
|---|---|---|---|---|---|
| 58 | All | 1476107 | 1.23 | SPACER | 1 |
| 59 | (Exc. A.C.) | 1476107 | 1.23 | SPACER | 1 |
| 60 | All | 1476107 | 1.23 | SPACER | 1 |
| 61-64 | (Exc. A.C.) | 1475058 | 2.36 | SPACER | 1 |
| 64 | After V.I. No. 116399 (A.C.) | 1361930 | 1.95 | SPACER | 1 |





Fig. C-7. Specimen of Cadillac part catalog (Part 1 of 2)

| | | | | | |
|---|---|---|---|---|---|
| 65-66 | All | 1361930 | 1.95 | SPACER | 1 |
| 65 | 75 (exc. A.C.) | 1475058 | 2.36 | SPACER | 1 |
| 67 | Exc. 75.CC (exc. A.C.) | 1361930 | 1.95 | SPACER | 1 |
| 67 | CC | 1381930 | 1.95 | SPACER | 1 |
| 68 | (Exc. A.C.) | 535253 | 2.00 | SPACER | 1 |
| 69 | Exc. Eld., 75 (exc. A.C.) | 530247 | 1.54 | SPACER | 1 |
| 69 | Eld. (exc. A.C.) | 535253 | 2.00 | SPACER | 1 |
| 70 | Exc. Eld. | 1495919 | 2.67 | SPACER | 1 |
| 70 | Eld. | 535253 | 2.00 | SPACER | 1 |
| 71-72 | Exc. Eld. | 535253 | 2.00 | SPACER, 2½" thk. | 1 |
| 71 | Eld. (Trlr. Tw. or H.D.C.) | 3927793 | 1.85 | SPACER, 2¼" thk | 1 |
| 71 | Eld. (exc. Trlr. Tw. or H.D.C.) | 535253 | 2.00 | SPACER, 2½" thk. | 1 |
| 72 | Eld. (exc. Trlr. Tw. or H.D.C.) (1st Type) | 535253 | 2.00 | SPACER, 2½" thk. (Note 1) | 1 |
| 72 | Eld. (Trlr. Tw. or H.D.C.) (1st Type) | 3927793 | 1.85 | SPACER, 2¼" thk. (Note 1) | 1 |
| 72 | Eld. (2nd Type) | 3927793 | 1.85 | SPACER, 2¼" thk. (Note 2) | 1 |
| 73 | Exc. Eld. | 1600631 | 2.00 | SPACER, 2¾" thk. | 1 |
| 73 | Eld. | 1600632 | 2.00 | SPACER, 2⅞" thk. | 1 |

NOTE 1 Before approx. V.I. No. Q407861
NOTE 2 After approx. V.I. No. Q407860.

## 1.066 BELT, ENGINE FAN (A.C. COMPRESSOR, GENERATOR, PWR. STEER. PUMP, OR AIR INJECTION REACTOR PUMP)

NOTE All specifications of size (width by pitch line length) are approximate dimensions as required to meet manufacturing tolerances allowed.
NOTE For listing by top width & pitch line length see chart at rear of group 1.

### AIR CONDITIONING COMPRESSOR

| | | | | | |
|---|---|---|---|---|---|
| 53-56 | (A.C.) | 569995 | 9.75 | BELT (matched set) (⅞" x 65²⁹⁄₃₂") | 1 |
| 57 | (A.C.) | 1466858 | 11.20 | BELT (matched set) (⅞" x 65¹³⁄₃₂") | 1 |
| 58 | (A.C.) | 398929 | 4.61 | BELT (⅞" x 63") (Note 1) | 1 |
| 59 | (A.C.) | 1477393 | 6.20 | BELT (⅞" x 61²⁷⁄₃₂") w/5" diam. pulley on comp. (Note 1) | 1 |
| 59 | (A.C.) | 398929 | 4.61 | BELT (⅞" x 63") w/5¾" diam. pulley on comp (Note 1) | 1 |
| 60 | (A.C.) | 1477393 | 6.20 | BELT (⅞" x 61²⁷⁄₃₂") w/5" diam. pulley on comp. | 1 |
| 60 | (A.C.) | 1475391 | 6.20 | BELT (⅞" x 62¹³⁄₃₂") w/5½" diam. pulley on comp. | 1 |
| 61 | (A.C.) | 1475391 | 6.20 | BELT (⅞" x 62¹³⁄₃₂") | 1 |
| 62 | (A.C.) | 1477393 | 6.20 | BELT (⅞" x 61²⁷⁄₃₂") | 1 |
| 63 | (A.C.) | 1455114 | 5.50 | BELT (⅞" x 57") | 1 |
| 64-65 | (A.C.) | 6263718 | 4.36 | BELT (¹⁹⁄₃₂" x 56") | 1 |
| 66 | (A.C.) | 3847711 | 4.20 | BELT (¹⁹⁄₃₂" x 55¼") | 1 |
| 67 | Exc. Eld. (A.C.) | 3847711 | 4.20 | BELT (¹⁹⁄₃₂" x 55¼") | 1 |
| 67 | Eld. (A.C.) | 1488496 | 9.00 | BELT (matched set) (¹⁹⁄₃₂" x 55⁹⁄₁₆") | 1 |
| 68 | Before V.I. No. 197767 (A.C.) | 1488578 | 9.10 | BELT (matched set) (⅞" x 59") | 1 |
| 68 | After V.I. No. 197766 (A.C.) | 1493677 | 9.10 | BELT (matched set) (⅞" x 59½") | 1 |
| 69-72 | (A.C.) | 1493677 | 9.10 | BELT (matched set) (⅞" x 59½") | 1 |
| 73 | (A.C.) | 1602011 | 9.10 | BELT (matched set) (⅞" x 59½") | 1 |

NOTE 1 For 1958 thru 1959 series cars equipped with A.C. service compressor 6550152, use compressor drive Belt 1475391.

### GENERATOR

| | | | | | |
|---|---|---|---|---|---|
| 49-52 | All | 1455114 | 5.50 | BELT (⅞" x 57") | 1 |
| 53-57 | (Exc. A.C.) | 1455114 | 5.50 | BELT (⅞" x 57") | 1 |
| 53-58 | (A.C.) | 569995 | 9.75 | BELT (matched set) (⅞" x 65²⁹⁄₃₂") | 1 |
| 57 | (A.C.) | 3861952 | 4.00 | BELT (⅞" x 56½") | 1 |
| 58 | Before V.I. No. 050860 (A.C.) | 1455114 | 5.50 | BELT (⅞" x 57") | 1 |
| 58 | After V.I. No. 050859 (A.C.) | 6263718 | 4.36 | BELT (¹⁹⁄₃₂" x 56") | 1 |
| 58 | Before V.I. No. 051150 (exc. A.C.) | 1455114 | 5.50 | BELT (⅞" x 57") | 1 |
| 58 | After V.I. No. 051149 (exc. A.C.) | 3861952 | 4.00 | BELT (⅞" x 56½") | 1 |
| 59 | (Exc. A.C.) | 6263718 | 4.38 | BELT (¹⁹⁄₃₂" x 56") | 1 |
| 59-60 | (A.C.) | 1455114 | 5.50 | BELT (⅞" x 57") | 1 |
| 60 | (Exc. A.C.) | 3881952 | 4.00 | BELT (⅞" x 56½") (Note 2) | 1 |
| 60 | (Exc. A.C.) | 6263718 | 4.38 | BELT (¹⁹⁄₃₂" x 56") (Note 3) | 1 |
| 61-62 | (Exc. A.C.) | 1455114 | 5.50 | BELT (⅞" x 57") | 1 |
| 61-62 | (A.C.) | 3861952 | 4.00 | BELT (⅞" x 56½") | 1 |
| 63-64 | (A.C.) | 3881871 | 3.38 | BELT (⅞" x 52") | 1 |
| 63-64 | (Exc. A.C.) | 390540 | 3.95 | BELT (⅞" x 53") | 1 |
| 65 | Exc. 75 | 9433729 | 3.84 | BELT (¹⁵⁄₃₂" x 38½") | 1 |
| 65 | 75 (exc. A.C.) | 390540 | 3.95 | BELT (⅞" x 53") | 1 |





Fig. C-7. Specimen of Cadillac parts catalog (Page 2 of 2)

number is 1485400 (Fig. C-7). A note specifies that when this part is installed on a car built prior to engine number 145200, it is necessary to install a spacer, for which the part number is given.

The second common method of locating parts is by referring to the illustrations that precede each major group division in most manufacturers' catalogs. Continuing with the Cadillac fan blade example, the group number of the fan blade (1.064) can be determined by examining the illustration of a complete engine assembly, which is found at the beginning of the engine group section (Fig. C-8).

The third method of locating a part is used when only the part number is known. Reference to the numerical index or price index will yield the group number under which the part is stocked. Under the group number, a description and location of the part can be obtained.

### Supplementary Information in Catalogs

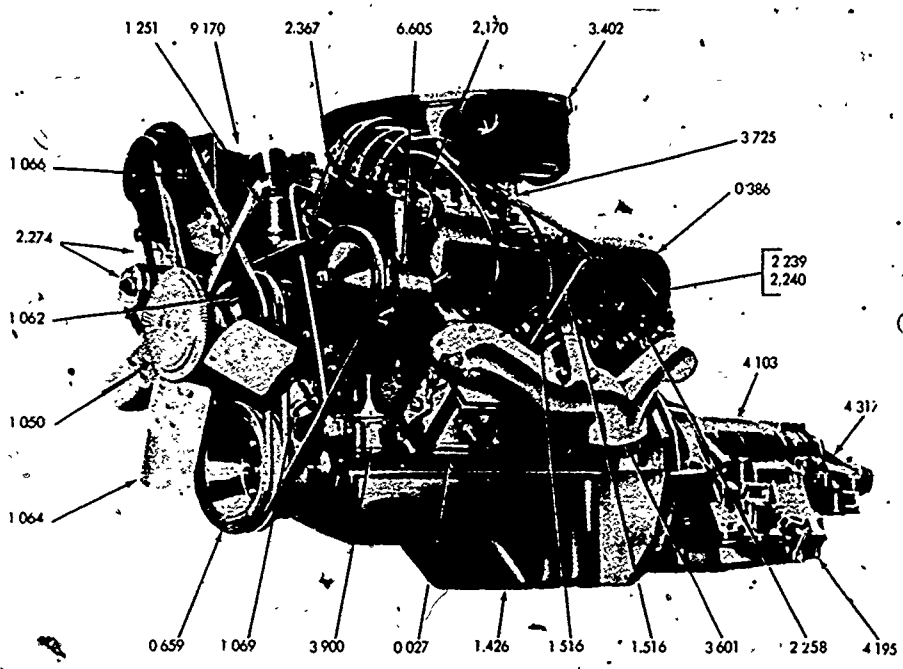
Agency parts books are filled with supplementary materials to aid the parts person in determining and locating the correct parts. Model indentification, engine-change-over specifications, fan belt dimensions, generator output ratings, bearing charts, gear ratio tables, molding and clip charts, and interior trim color schemes are just a few of the data contained in parts catalogs. Since these supplementary aids vary widely from company to company, the apprentice is urged to become thoroughly acquainted with the parts book (or books) that he or she must use.

One of the most informative sections of the parts catalogs is the Parts History Index (Fig. C-9). In this section part number changes, superseded numbers, and items removed from service are recorded. The section is especially valuable for identifying old part numbers and in helping to keep stock current by noting the parts dropped from service. Items in stock that have been removed from service are usually returned to the factory under an obsolescence plan offered by most manufacturers.

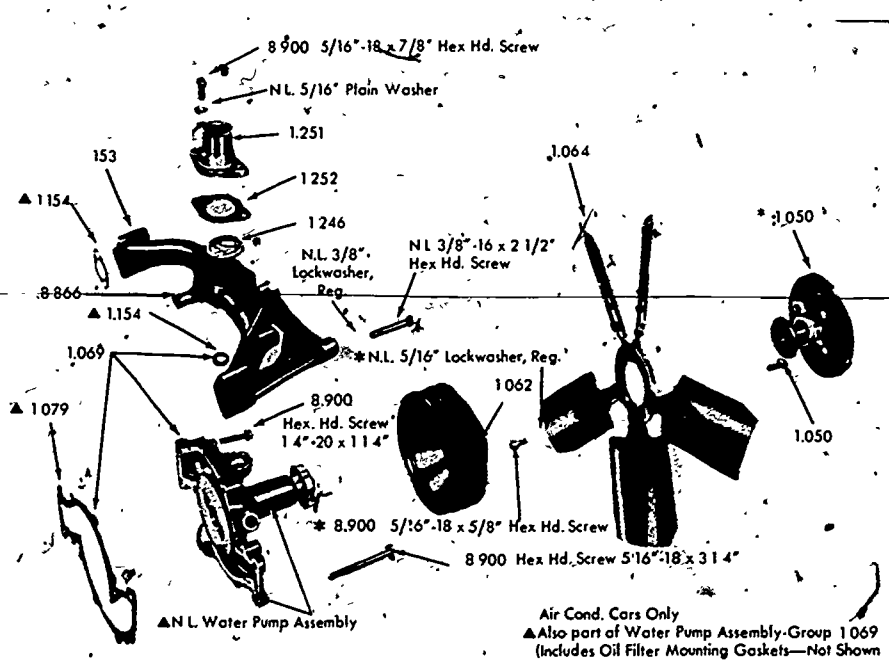
The catalogs in use today are very expensive. Therefore, the manufacturers and distributors of auto parts are putting their parts and price manuals on microfiche. Entire books are often contained on as many as four to eight microfiche. A special microfiche reader is usually placed on the counter for use in reading the microfiche. All auto parts companies are expected to be using this method sometime in the 1980s.

### Study Assignment

The apprentice should ask the parts manager or supervisor to assign 20 parts for which he or she should determine the correct part numbers. The parts assigned should include examples from many different parts of the book. When he or she has completed the assignment, the manager or supervisor should mark the number of incorrect answers, the result should be submitted to the instructor for grading.




ENGINE ASSEMBLY—SERIES 1963; 1964; 65-75




WATER PUMP AND CYLINDER HEAD WATER OUTLET PIPE
SERIES 1963 thru 1964; Representative of 1965



Fig. C-8. Specimen page of Cadillac parts catalog that illustrates engine assembly

# PARTS HISTORY INDEX

This index comprises a list of parts which have been removed from the Master Parts List

The part numbers are arranged in numerical sequence.

The date of removal is shown and in the case of superseded parts the superseding part numbers and the stock disposition are also indicated.

| Part No. | Disposition | Date |
|---|---|---|
| 043 234 | Removed | |
| 109 454 | Mix w/941 1027 | |
| 109 461 | Mix w/941 1010 | |
| 111 603 | Use 147 8678 | |
| 112 572 | Use 145 5359 | |
| 114 496 | Mix w/124 934 | |
| 114 624 | Removed | |
| 114 861 | Removed | |
| 120 228 | Use 180 075 | |
| 125 258 | Removed | |
| 120 377 | Mix w/942 1867 | |
| 120 525 | Removed | |
| 120 528 | Removed | |
| 120 530 | Removed | |
| 120 706 | Use 180 016 | |
| 126 001 | Removed | |
| 126 051 | Removed | |
| 126 177 | Use 219 281 | |
| 127 927 | Removed | |
| 131 101 | Removed | |
| 131 250 | Use 148 0543 | |
| 131 282 | Use 274 004 | |
| 138 235 | Removed | |
| 138 530 | Removed | |
| 138 553 | Removed | |
| 142 027 | Removed | |
| 144 051 | Removed | |
| 144 587 | Removed | |
| 145 350 | Removed | |
| 147 485 | Use 104 918 | |
| 147 500 | Mix w/453 593 | |
| 148 310 | Removed | |
| 148 312 | Mix w/219 281 | |
| 169 064 | Removed | |
| 169 067 | Removed | |
| 169 110 | Removed | |
| 179 821 | Removed | |
| 179 825 | Removed | |
| 180 083 | Removed | |
| 180 159 | Use 433 234 | |
| 186 643 | Removed | |
| 187 317 | Removed | |
| 187 510 | Removed | |
| 187 824 | Removed | |
| 214 440 | Mix w/372 2860 | |
| 215 667 | Removed | |
| 224 971 | Removed | |
| 230 857 | Removed | |
| 231 217 | Removed | |
| 231 334 | Use 546 1031 | |
| 231 432 | Use 546 0420 | |
| 231 579 | Removed | |
| 263 303 | Removed | |
| 263 698 | Removed | |
| 264 926 | Removed | |
| 265 184 | Removed | |
| 265 228 | Removed | |
| 266 677 | Removed | |
| 267 824 | Removed | |
| 267 831 | Removed | |
| 267 844 | Removed | |
| 267 865 | Removed | |
| 270 837 | Removed | |
| 271 172 | Removed | |
| 272 849 | Use 147 0030 | |
| 273 157 | Use 941 7863 | |
| 273 329 | Mix w/941 9224 | |
| 273 789 | Removed | |
| 273 889 | Use 273 471 | |
| 273 896 | Mix w/941 3215 | |
| 273 898 | Removed | |
| 274 045 | Removed | |
| 274 154 | Removed | |
| 274 267 | Removed | |
| 274 461 | Use 378 6275 | |
| 274 635 | Mix w/148 0719 | |
| 274 750 | Mix w/483 3958 | |
| 274 782 | Removed | |
| 274 871 | Mix w/554 0299 | |
| 393 487 | Removed | |
| 393 489 | Removed | |
| 411 143 | Use 516 442 | |
| 412 108 | Removed | |
| 420 447 | Removed | |
| 425 568 | Removed | |
| 426 370 | Removed | |
| 427 026 | Removed | |
| 432 712 | Removed | |
| 432 751 | Removed | |
| 436 750 | Removed | |
| 439 254 | Removed | |
| 440 491 | Removed | |
| 441 869 | Removed | |
| 444 052 | Removed | |
| 445 138 | Removed | |
| 445 441 | Removed | |
| 445 567 | Removed | |
| 445 625 | Removed | |
| 450 543 | Removed | |
| 450 521 | Removed | |
| 451 236 | Removed | |
| 451 238 | Removed | |
| 451 240 | Removed | |
| 451 607 | Removed | |
| 451 633 | Removed | |
| 451 715 | Removed | |
| 454 646 | Use 941 7866 | |
| 454 674 | Removed | |
| 455 106 | Use 456 652 | |
| 455 283 | Removed | |
| 455 422 | Removed | |
| 455 526 | Removed | |
| 455 683 | Removed | |
| 455 825 | Removed | |
| 455 976 | Removed | |
| 456 321 | Removed | |
| 456 889 | Removed | |
| 475 885 | Removed | |
| 476 745 | Removed | |
| 494 177 | Removed | |
| 496 342 | Removed | |
| 502 250 | Removed | |
| 502 793 | Removed | |
| 504 256 | Removed | |
| 509 210 | Removed | |
| 509 211 | Removed | |
| 519 408 | Use 148 0774 | |
| 520 042 | Removed | |
| 520 652 | Removed | |
| 520 658 | Removed | |
| 520 660 | Removed | |
| 520 661 | Removed | |
| 520 664 | Removed | |
| 520 689 | Removed | |
| 521 853 | Removed | |
| 522 045 | Removed | |
| 522 069 | Removed | |
| 522 071 | Removed | |
| 522 072 | Removed | |
| 524 297 | Removed | |
| 524 304 | Removed | |
| 524 305 | Removed | |
| 524 391 | Removed | |
| 534 103 | Removed | |
| 535 078 | Use 543 283 | |
| 536 841 | Use 148 0774 | |
| 538 399 | Use 148 0391 | |
| 543 345 | Removed | |
| 560 656 | Removed | |
| 563 125 | Removed | |
| 563 702 | Removed | |
| 563 724 | Removed | |
| 563 734 | Removed | |
| 563 735 | Mix w/148 1326 | |
| 563 736 | Removed | |
| 563 844 | Removed | |
| 565 213 | Removed | |
| 569 010 | Mix w/148 0589 | |
| 569 794 | Removed | |
| 572 846 | Use 941 1943 | |
| 576 439 | Use 147 9774 | |
| 595 563 | Removed | |
| 599 233 | Removed | |
| 606 261 | Removed | |
| 606 277 | Removed | |
| 609 794 | Removed | |
| 613 511 | Removed | |
| 699 013 | Removed | |
| 759 281 | Removed | |
| 759 790 | Removed | |
| 759 931 | Removed | |
| 759 932 | Removed | |
| 759 934 | Removed | |
| 759 935 | Removed | |
| 759 938 thru 759 948 | Removed | |
| 761 087 | Removed | |
| 761 089 | Removed | |
| 761 093 | Removed | |
| 761 095 thru 761 101 | Removed | |
| 761 102 | Use 762-532 | |
| 761 738 | Removed | |
| 762 174 | Removed | |
| 762 294 | Removed | |
| 762 313 | Removed | |
| 762 314 | Removed | |
| 762 522 | Removed | |
| 762 525 thru 762 527 | Removed | |
| 762 531 | Removed | |
| 762 532 | Removed | |
| 763 657 | Removed | |
| 763 658 | Removed | |
| 763 660 thru 763 663 | Removed | |
| 764 637 | Removed | |
| 764 641 | Removed | |
| 764 644 | Removed | |
| 764 645 | Removed | |
| 764 650 | Removed | |
| 764 651 | Removed | |
| 766 137 | Use 146 7308 | |
| 799 389 | Removed | |
| 806 915 | Mix w/191 1324 | |
| 809 658 | Removed | |
| 810 226 | Removed | |
| 811 450 | Removed | |
| 811 601 | Removed | |
| 813 554 | Removed | |
| 816 784 | Removed | |
| 836 754 | Removed | |



Fig. C-9. Specimen page of Cadillac parts history index

## UNIT C – CATALOGING SYSTEMS

## TOPIC 1 – FACTORY PARTS SYSTEMS

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Parts 1 are indispensable operating tools of the parts department. 1. _____
2. The major auto manufacturers' catalogs all have the same basic 2 . 2. _____
3. Each new part produced must be arbitrarily assigned a 3 4 to give it an 5 . 3. _____ 4. _____ 5. _____
4. General Motors uses a 6 system in the assignment of part numbers. 6. _____
5. A part number which does not 7 the part is termed *nonsignificant*. 7. _____
6. Ford Motor Company part numbers are formed by expanding the basic 8 numbers. 8. _____
7. Ford part numbers are 9 in that they identify the nature, location, and application of the part to which they are assigned. 9. _____
8. All Ford crankshafts have the basic number 10 . 10. _____
9. In the General Motors system, the group numerals preceding the decimal point identify 11 assemblies or 12 of the automobile. 11. _____ 12. _____
10. Numerals following the decimal point in the GM system relate to 13 or 14 parts. 13. _____ 14. _____
11. The parts apprentice should memorize the 15 divisions. 15. _____
12. Group numbers seldom 16 , whereas part numbers may do so frequently. 16. _____
13. The most common method of locating parts is through the name as listed in the 17 index. 17. _____
14. The second most common method of locating parts is by referring to the 18 . 18. _____
15. One of the most informative sections of parts catalogs is the 19 20 index. 19. _____ 20. _____

### Test

Circle T if the statement is true; circle F if the statement if false.

1. Major groups of parts are given the same numbers by all auto manufacturers. 1. T F
2. Parts interchangeable between a Cadillac and a Corvair would be numbered alike. 2. T F

3. The Ford parts number system is being expanded throughout from five to six numbers. 3. T F

4. General Motors uses block assignments of parts numbers to their subsidiaries. 4. T F

5. Without a parts catalog, an agency parts department could not operate efficiently. 5. T F

6. All major auto manufacturers' parts catalogs are similarly constructed. 6. T F

7. Similar parts may be assigned identical parts numbers. 7. T F

8. The first number group 745 in General Motors part number 7450745 indicates the item is a bearing. 8. T F

9. Each group number assignment covers a major portion of the vehicle. 9. T F

10. Helpful supplementary tables, data, and information are found in most parts catalogs. 10. T F

## UNIT C – CATALOGING SYSTEMS

### TOPIC 2 – JOBBER AND INDEPENDENT SYSTEMS

This topic is planned to provide answers to the following questions:

- **Do jobbers and independent parts stores use auto factory indexing systems?**
- **How does a jobber correlate the parts produced by independent manufacturers?**
- **What does the Weatherly Index system comprise?**
- **How is the Weatherly system used?**

In this topic the Weatherly Index, the one representative cataloging system used by jobber-independents, will be discussed. Although other systems are used, only a few are in widespread use, and all the systems are similar. An understanding of the Weatherly Index System will enable the apprentice to comprehend all of these systems.

The Weatherly Index System, copyrighted in 1932, provides a complete alphabetical and numerical index which is designed to accommodate automotive, aeronautical, and marine supply catalogs with equal ease. The system is versatile enough that the automotive indexing of parts, supplies, and equipment may be used alone, without any loss in the efficiency of the system. It is widely used to locate the manufacturers' catalog insert pages in the wholesaler's catalog. A majority of the auto parts manufacturers now key their catalogs to the Weatherly Index System. The Weatherly Index number is printed in the upper right-hand corner of the cover or index sheet of the manufacturers' catalog, making it a simple matter to insert the catalog into its proper place in the system (Fig. C-10).

In a sense, the use of the Weatherly Index is the reverse of the usual procedure. Catalogs are usually compiled first and then provided with an index of their contents. With the Weatherly Index System, the index is provided first, and the catalogs and information sheets are fitted into the indexing system.

Not all manufacturers print their catalogs with the Weatherly Index number. When such catalogs or information sheets are received, the alphabetical listing of the Weatherly Index should be consulted for the correct group, and the number should be stamped in the upper right corner of each unnumbered sheet or catalog. When the material has been given a proper group number, it can be located readily in the counter catalog.

Frequently, manufacturers' catalogs that contain several groups of items will show several Weatherly Index numbers. Four Weatherly numbers are shown in Fig. C-10; the principal number is 136, but the catalog also contains items listed in groups 126, 130, and 134. Such groupings are not unusual; many catalogs contain a greater variety of groups. In such cases the catalog should be divided, and each group or page placed in its correct order.

Some pages of a catalog may list items involving two or more numerical locations. This can be easily overcome, however, by inserting the page in one of the locations and by placing a reference sheet or notation in the other group or groups.

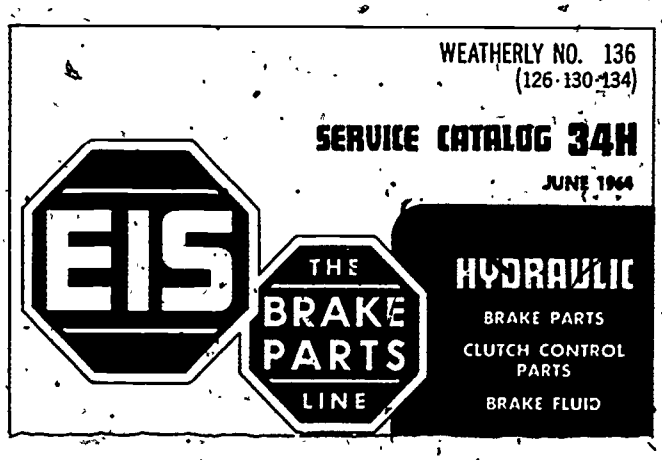



Fig. C-10. Manufacturer's catalog with weatherly index number

## UNIT C – CATALOGING SYSTEMS

## TOPIC 2 – JOBBER AND INDEPENDENT SYSTEMS

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. The Weatherly Index System provides a complete __1__ and __2__ index of parts. 1.____ 2.____
2. The Weatherly Index System may be used to insert __3__ catalog pages into the __4__ catalog. 3.____ 4.____
3. In addition to automotive parts, both __5__ and __6__ items have been assigned Weatherly Index numbers. 5.____ 6.____
4. Index numbers are not assigned to items at __7__, but are carefully selected to place __8__ lines together in the catalog. 7.____ 8.____
5. The automotive indexing of parts, supplies, and equipment may be used alone with no loss of system __9__. 9.____
6. The majority of auto manufacturers now __10__ their catalogs to the Weatherly Index System. 10.____
7. In a sense, use of the Weatherly Index is the __11__ of ordinary procedure. 11.____
8. A catalog is usually compiled first, and then provided with an __12__ of its __13__. 12.____ 13.____
9. The Weatherly Index uses only __14__ numbers to designate items. 14.____
10. In each major group of the Weatherly Index, __15__ numbers are assigned. 15.____

### Test

Circle T if the statement is true; circle F if the statement is false.

1. Although many systems are used for cataloging auto parts, few systems have gained widespread use. 1. T F
2. The Weatherly Index System can be copied by any jobber for his or her own use. 2. T F
3. No single cataloging system has been devised to cover both airplane and power boat parts. 3. T F
4. Each manufacturer of parts modifies the Weatherly Index System to fit his or her catalog. 4. T F
5. Each Weatherly Index major group contains 100 item numbers. 5. T F
6. Hand tools are not indexed in the Weatherly Index System. 6. T F

7. Each major Weatherly Index group is divided into ten subgroups. 7. T F

8. Catalog pages showing items belonging to several groups can be properly filed in a Weatherly system. 8. T F

9. Weatherly Index numbers are essentially random groupings. 9. T F

10. All parts manufacturers key their catalogs to the Weatherly Index System as well as to their own system. 10. T F

# UNIT D Inventory and Control

## TOPIC 1 – INVENTORY SYSTEMS

This topic is planned to provide answers to the following questions:

- Why is an inventory system necessary in the parts business?
- What constitutes a satisfactory inventory system?
- How is an inventory system set up and maintained?

Any of the various systems that enable a company to obtain accurate and immediate information in regard to the amount of stock on hand, the quantity sold, the turnover rate, and the number of orders or back orders pending may be properly described as inventory control systems. The apprentice will refer again and again to the inventory system for information; therefore, he or she should be intimately acquainted with the working of the system the company uses.

### Inventory Records

Two types of inventory systems are used in most auto parts businesses: manual systems and automated systems.

#### Manual Systems

Formerly, most of the inventory systems in use by auto parts businesses were of the Kardex type. A card-type system uses a single card for each part or accessory stocked. These systems differ only in the design of the card and the way in which the cards are stored. Brief descriptions of three major card systems are as follows:

*Tub file system.* The tub file system uses standard inventory cards held in a tub-like cabinet. The cards are arranged vertically, with suitable dividers to aid quick location. Numerical order is usually arranged from front to rear. The cards may be lifted out quickly for ease in posting (Posting means making any entry of information of the card). The tub file requires a minimum of space, and for large inventories this system seems to be the most practical. The Weatherly catalog illustrates a tub file system (see Topic C-2).

*Roller file.* The roller type of inventory file consists of a large revolving wheel arrangment, with cards fixed to the wheel by a circular rod. The cards, each with a hole near its base, are threaded onto the circular rod in numerical order. To refer to a particular card, one need only rotate the wheel until the desired card is found.

*Visible-index.* The visible-index system is a flat-drawer system in which the cards lie flat on top of each other in a stairstep, hinged arrangement. The drawers, or trays, are about 30 inches long and 1½ inches high. By stepping the cards, it is possible to get 70 or more into each tray. The drawers are mounted in a unit cabinet about 30 inches high and 12 inches wide. Each cabinet contains 16 to 18 drawers, and by banking the cabinets, an inventory system of any required size can be built (Fig. D-1). In this system the part number and description appear at the bottom of the card, which is visible as soon as the drawer is pulled.

#### Automated Systems

The large and complicated inventories required by today's automotive businesses have encouraged certain companies to propose automatic inventory control systems. These automated systems are becoming very popular because they offer better control than some businesses are able to maintain. One such system is called the Dealer Management Service (DMS). This system is an improved version of the DMS program which has been offered for the last few years by the Service Bureau Corporation.

The objective of the DMS system is to provide dealers with improved parts department inventory control and management. This objective is met by simplifying the routine of balancing dealer parts stocks and by offering the added advantages of weekly and semiannual reports, plus an automatic parts-ordering procedure.

Courtesy Cochran and Celli, Oakland

Fig. D-1. Visible-index system of inventory control

The DMS provides automatic computation of guide figures for every item and order period. The system produces a weekly parts order which tends to minimize special orders and to decrease the number of out-of-stock items.

Dealers who use this system report to a service bureau on a special form their daily sales and shipments received for each part. These data are fed into automatic computers that (1) automatically establish and adjust guide figures; (2) reorder when stocks reach 70 percent of the guide figure, and (3) automatically print a weekly and semiannual report for the dealer. The reports are detailed and complete, giving the dealer an accurate record of parts activity (Figs. D-2 through D-6). Today cash registers are combination registers and inventory control computers. They record the sale and part number and can reorder the stock immediately, if necessary. Parts may be added or deleted from the system by simply notifying the bureau.

## Inventory Maintenance

When inventory systems are properly maintained, they can supply a complete record of every part or accessory in stock. A card must be made out for every item stocked to show group number, part number, description and, if possible, location. A typical tub-file card is shown in Fig. D-4.

Every time a part is ordered, an entry must be made on the inventory card, which shows the date, quantity ordered, and the order number. When orders are received, the quantity must be entered in the appropriate column on the card and added to the number already in stock. Back orders should be posted along with material received. As back orders are received, the quantity must be added to existing totals, and the back order figure reduced.

Every sale of a particular part must be posted, including the date of sale, quantity sold, and invoice number. The quantity sold is subtracted each time from the quantity on hand. Similar additions or subtractions must be made for credit memorandum transactions and replacements of defective parts.

When inventory records are kept accurately, the following information is available: quantities on hand, on order, on back order, and sold in any given period. Thus the general activity of any item is known at all times. From this activity the order clerk can determine how many of a given part should be normally stocked.

## Inventory Control

Since all of the card systems are basically alike, some general rules can be formulated for their use. Prompt, accurate posting is essential if the card system is to be effective. If posting falls a week behind, the quantity on hand usually will not be accurate. One of the real assets of a perpetual inventory is the ability to rely on the cards to show quantities on hand. This feature is particularly helpful in answering telephone inquiries, often saving a long trip to the bin.

When the quantity of an item reaches an established minimum, the card is flagged for immediate order (Fig. D-4). Most orders can be placed directly from the cards if the quantities are watched and the cards are flagged. This system is much easier than chasing up and down the aisles

AID

DEALER NAME

REPORT PERIOD

PAGE NO

DATE | PAGE | DEALER CODE

| WHSE | GROUP NUMBER | PART NUMBER | PART NAME | USE LO | USE HI | UNIT PKG | PREV | DEALER PRICE LOT | DEALER PRICE PRICE | SALES TO DATE | SALES LAST EIGHT PERIODS | SALES BY PERIOD 6 | CR | 5 | CR | 4 | CR | 3 | CR | 2 | CR | 1 | CR | OPEN BAL | REC | CR | DISB. | CR | CLOSE BAL | CR | ON ORDER NOT REC'D | GUIDE | SUGGESTED ORDER | LAST ORDER | QTY ON HAND | QUANTITY ORDERED | PART NUMBER | WHSE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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Courtesy Service Bureau Corp., San Francisco

Fig. D-2. DMS parts activity and order report

AID

MANAGEMENT INVENTORY ANALYSIS

DEALER NAME | DEALER NUMBER | PERIOD ENDING | PAGE

| SALES BY PERIOD 6 | CR | 5 | CR | 4 | CR | 3 | CR | 2 | CR | 1 | CR | SALES LAST 6 PERIODS | SALES TO DATE | PERIOD 1 OF ESTOY | PERIOD OF LAST SALE | MOVE S | MOVE P | MOVE T | GROUP NUMBER | PART NUMBER | DESCRIPTION | WHSE | UNIT PACK | USAGE LO | USAGE HI | DEALER PRICE LOT | DEALER PRICE PRICE | ON HAND QUANTITY | ON HAND VALUE | DAYS SUPPLY ON HAND | ON ORDER NOT REC'D | GUIDE MIN | GUIDE MAX | GUIDE QUANTITY | GUIDE VALUE | VARIANCE QUANTITY | VARIANCE VALUE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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Fig. D-3. DMS management inventory analysis

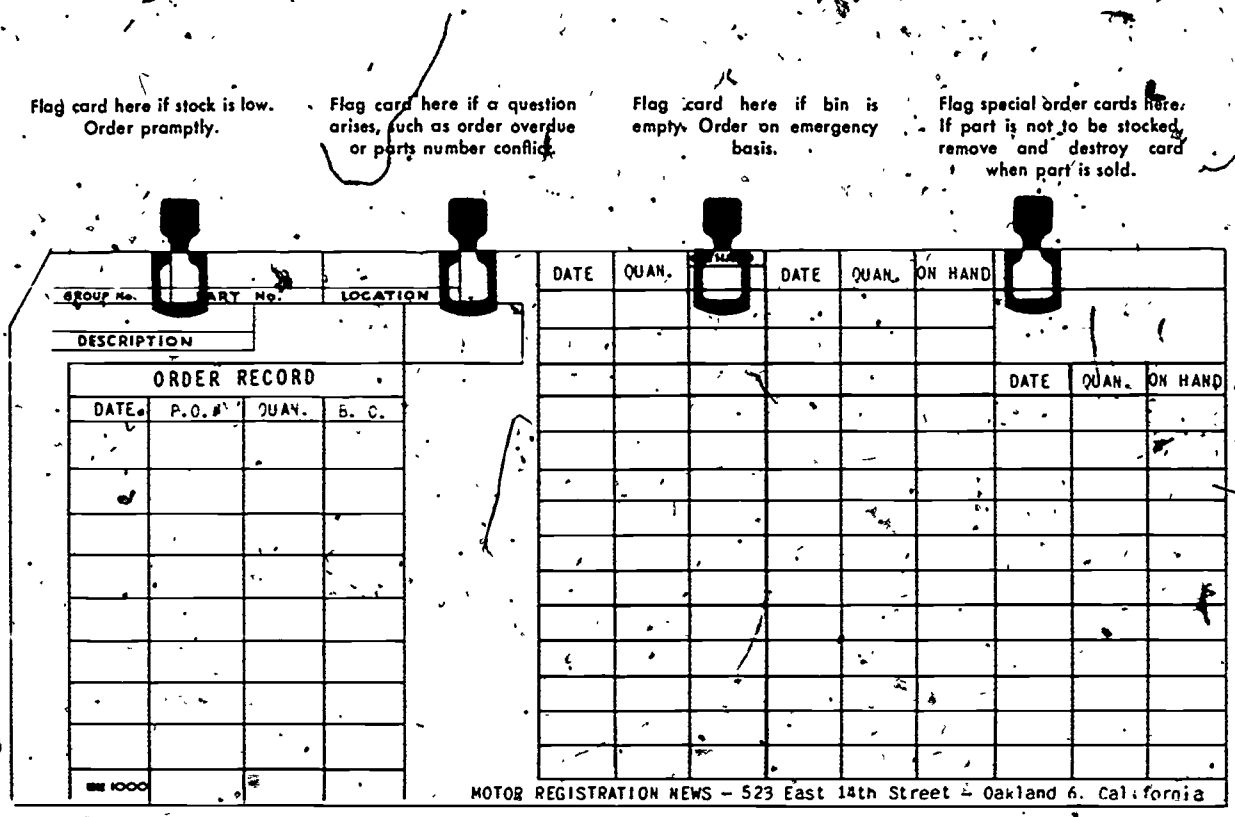



Fig. D-4. Typical inventory system card, showing one method of flagging cards to facilitate ordering and control

```
OAKLAND APC
GMPD PARTS ORDER TO PDC 20 FROM DEALER 903763
RONALD MORAN INC
SCHED CODE? C10
CONT? 0322
INST?
W/C TIME?
PART NO / QTY  CAR RET  LINE FEED
03633605:002
00983398:200
03516021:010
08700948:025
00413755:002
07755526:002
04548570:001
04548571:001
08704416:001
09733755:001
08707081:001
HASH?
END?
0011 ACCEPTED
000 REJECTED
0322, 74081, 1230.
YES
```

```
GA903763

903763  20 0322 551011
00983398 200 REV AMF 4
03516021 010     MICHPP
08700948 025     MICHPP
00413755 002     OAKLND271529
08704416 001     OAKLND271529
09733755 001     MICHPP
08707081 001     MICHPP
END ANSWER BACK

X
```

Fig. D-5. Example of computer wire order

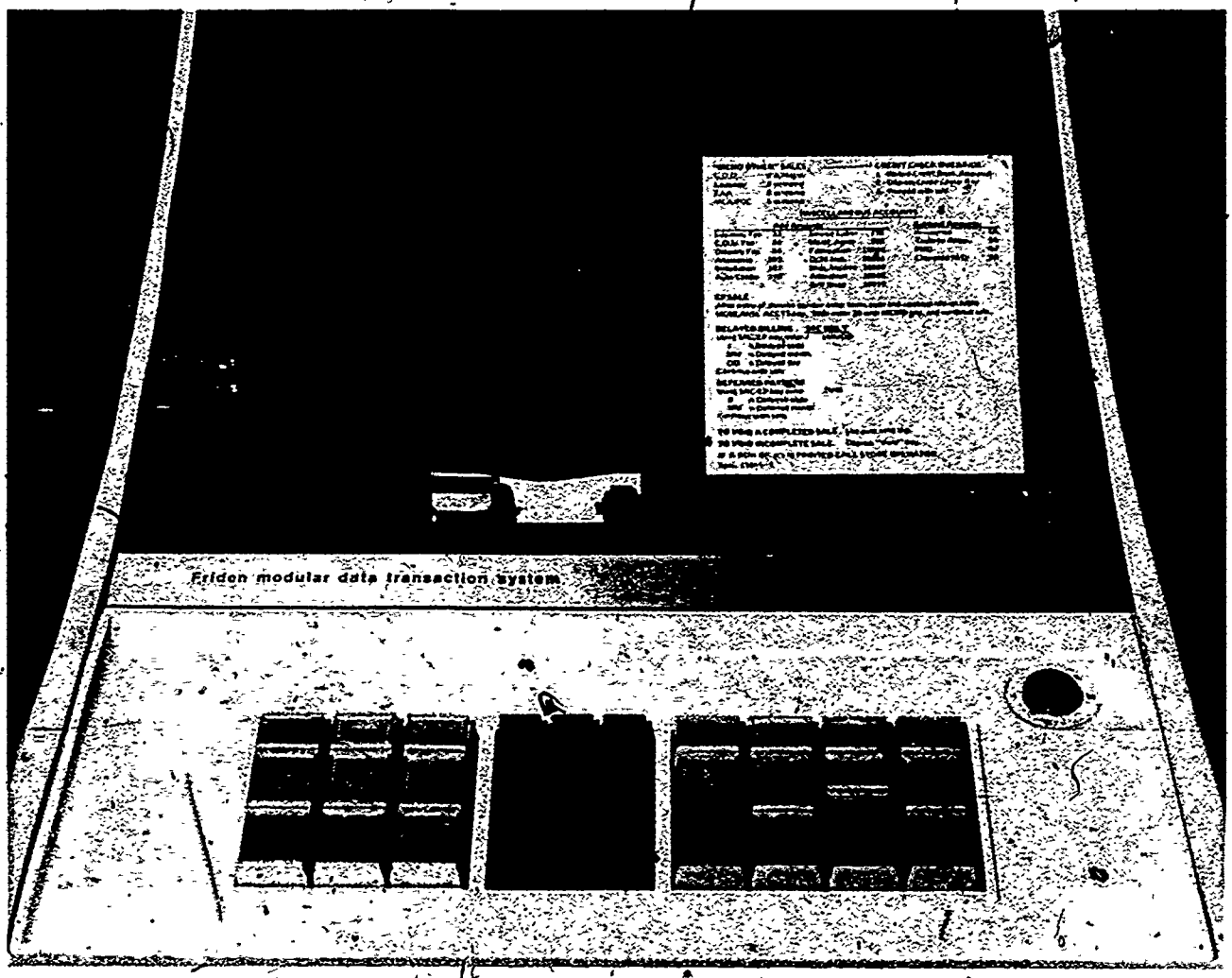



Fig. D-6. Modular data transaction system

with an order pad making emergency orders when out of stock.

When a part number is superseded by another number, the new number should be entered on the card above the old number. The old card should be left in the file, and a new card with the new part number should be posted and placed in proper sequence in the file. When stock under the old number is depleted and the new number is firmly established as replacing the old, the old card should be destroyed.

A guide figure, which is simply the quantity to be kept in stock, is established for each part. By carefully matching the sales against stock received and taking into account the time required for replenishment, it is possible to determine the proper amount of stock to keep on hand. By timely ordering, when the card shows the established minimum number on hand, a shortage of any item can usually be prevented. However, the guide figure should not be viewed as permanent. Over a period of time, sales will increase and decrease, and a periodic adjustment of the guide figure will be necessary.

## Special Orders

Special orders are always a problem for the inventory clerk. More and more special orders are required, because an agency cannot possibly keep all the required parts in stock. A tub-file card system for handling special orders is described below. With certain variations, the method may be adapted to other card systems.

When a special order is placed, the inventory clerk should use a suitable form that provides the customer's name, address, phone number, date, and parts ordered. This form may be of company design or may be purchased commercially. If the order originated in the company shop, the repair order number should be shown, along with a complete model description of the vehicle. Special orders from the shop should be approved by the shop supervisor. The completed special order form is then given to the inventory clerk, who in turn makes out a temporary special order inventory card for each part ordered. This special order card should be of a different color than the stock cards and should be flagged, as shown in Fig. D-4, before it is inserted into the card system. The special order card should be keyed to the original order (preferably by name), so that when the part arrives the inventory clerk will know immediately that it is a special order and for whom it is intended. The original special order form, which has been filed in a suitable manner while awaiting receipt of the part, is now consulted and the customer is notified that the part has arrived. A form letter or post card is normally used for notification. When the sale is completed, the order form and the temporary inventory card may be filed or destroyed, as provided by company prcedures.

## Study Assignment

1. Read the Service Bureau Company booklet on Automated Inventory Control.
2. Study the advantages of inventory control for good business practices.

## UNIT D – INVENTORY AND CONTROL

## TOPIC 1 – INVENTORY SYSTEMS

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. A card-type inventory system uses a single card for every __1__ or __2__ stocked. 1. _____ 2. _____
2. In the visible-index system of inventory control the cards are stowed in __3__ __4__. 3. _____ 4. _____
3. The __5__ type of inventory file has the cards arranged on a large wheel. 5. _____
4. For large inventories the __6__ system seems to be the most practical. 6. _____
5. Inventory systems, when properly __7__, supply a complete __8__ of every part or accessory in stock. 7. _____ 8. _____
6. Every time a part is ordered, an __9__ must be made on the inventory card. 9. _____
7. The number of items received [redacted] __10__ to the number already in stock on the inventory card. 10. _____
8. From the information on the inventory card, the general __11__ of any item can be determined. 11. _____
9. Prompt, accurate __12__ is essential if the card system is to be effective. 12. _____
10. When the quantity of an item reaches a minimum, [redacted]ard is __13__ for immediate order. 13. _____

### Test

Circle T if the statement is true; circle F if the statement is false.

1. A satisfactory inventory control system is a "must" for an auto parts business. 1. T F
2. A satisfactory inventory system must provide accurate and immediate information. 2. T F
3. Operation of any inventory system is based on regular monthly physical inventories. 3. T F
4. Most current inventory systems use cards. 4. T F
5. Most current inventory systems use tub files. 5. T F
6. In the visible-index systems, each card is identified at the top. 6. T F
7. Automated inventory control systems are available. 7. T F

8. No physical inventories are required with the DMS system. 8. T F

9. The establishment of guide figures is based on sales history. 9. T F

10. The guide figure is the quantity ordered each time. 10. T F

## UNIT D — INVENTORY AND CONTROL

## TOPIC 2 — STOCK CONTROL

This topic is planned to provide answers to the following questions:

- What factors and operations does stock control comprise?
- How many of each part should be carried in stock?
- What advance preparations can make physical inventories easier to accomplish?
- Of what significance is total inventory value?

The success or failure of any auto parts organization depends primarily on the operation of its purchasing department. Automotive parts, in a practical sense, are subject to obsolescence. The majority of auto parts and accessories are designed for specific models, and they are limited in interchangeability and seldom can be converted to other uses. When the many factors that depreciate the sales value of replacement parts and equipment are considered, together with the large number of items that must be carried in stock, one can see that a considerable amount of money can be lost by a company that carries many slow-moving or obsolete items. The purchasing department must be well-organized and operated efficiently to ensure stock availability, uniformity, and profit-making turnover.

### Stock Turnover

A definite stock control plan is necessary to maintain a well-balanced stock of parts. When it is possible to supply most of the items requested without undue delay and without an excessive inventory, the stock of merchandise on hand is considered adequate and balanced. A stock turnover of four to six times a year is considered ideal for the most profitable operation. This turnover rate does not imply that four to six of every item will be sold in the course of a year. Obviously, many parts will sell much more rapidly, while some parts will sell only one or two per year. The turnover refers to total gross sales. A company with a $50,000 parts inventory should have a yearly gross sales of $200,000 to $300,000, which is four to six times the cost of the inventory.

A stock turnover less than four times a year ties up, in slow-moving stock, capital that could be used more profitably. If there is a complete stock turnover more than six times a year, the stock is usually out of balance, and business is probably being lost because of inability to fill orders completely. Too much turnover may result in more costly buying. The turnover should be balanced with the cost of buying. Often, there is an element of false economy in a high turnover rate, which suggests that not enough stock is carried in inventory and that only fast-moving items are being sold. A certain number of average and slow-moving parts must be stocked if orders are to be filled completely and customer goodwill retained. A parts store that is consistently out of needed slow-moving parts will lose favor with its customers.

### Control by Guide Figures

A properly maintained inventory system is the best guarantee of adequate stock control. With the customary large inventories of today, it is physically impossible for the order clerk to remember the sales activity of every part in stock. The clerk may be conscious of the fact that a part is a slow or fast seller, but he or she can not know how fast or slow unless a definite record of purchases and sales is made. The inventory card can supply such a record.

Normally, the order clerk should try to keep a 90-day supply of every item on hand. This supply will ensure a stock turnover four times a year and will not tie up working capital in too large of an inventory. If a 90-day supply is maintained, there is little danger of shortages, with consequent lost sales.

A 90-day supply is easy to maintain with a good inventory system. The first thing to do is to establish a guide figure equal to the 90-day supply of each item. The guide figure is based on the sales activity shown on the inventory card. If an item shows consistent sales of five or six per month, then a guide figure of approximately 15 should be used. Some items will not show regular sales patterns, but may reflect large sales one month and few the next month. In such cases an average may be taken over a three-month period and used as a guide figure.

Orders must be placed regularly if the guide figure is to be effective. When the quantity of a

certain part drops to approximately two-thirds of the guide figure, the part should be reordered. In the sample guide figure of 15 mentioned above, when the quantity of a part in stock drops to 10, the part should be reordered. By ordering five of that particular item, the order clerk can maintain a balanced stock. If similar guide figures are established for every item in stock, then ordering procedures can be simplified, and adequate stock can be maintained. Consideration should, of course, be given to standard ordering quantities and pricing factors.

Guide figures are not permanent. As sales rates increase and decrease, guide figures must be reappraised and revised. If an item is consistently out of stock, the guide figure is no longer adequate and must be revised upward. Conversely, if the sale of an item slows and there is no regular turnover of the item, a lower guide figure should be used.

### Establishing the Stock

A balanced stock is primarily the maintenance of adequate quantities of every item. But just what parts should be carried in stock? Since this is a subject of very large scope, it can be dealt with only in a very general way.

The order or inventory clerk is often separated from direct sales. He or she can discern from the inventory system the activity of every part in stock, but he or she can not know how many sales are consistently lost because the part is not carried in inventory. This problem is compounded by the fact that each year thousands of new parts are produced, and the inventory clerk must help decide which of these are important to stock. At the same time the inventory clerk must appraise his or her present stock and delete those items which are no longer profitable or necessary. At the beginning of each model year, new car manufacturers supply an initial order which serves to establish an initial stock of new parts to be added to the dealer's inventory. This supply is not a final solution, however, and the inventory clerk or parts manager must ultimately select the items to be regularly stocked. The selection can best be made on the basis of what groups of parts have already proven necessary. Certain items may be assumed to be necessary, such as ignition parts, brake shoes, universal joints, transmission parts, and so forth. Most parts should be selected on the basis of proven requirements from the records and experience of past years.

Regardless of how carefully one may select new parts to stock, some items will be overlooked. One way to correct this situation is to keep a want list posted at the parts counter. Each time the customer requests a part that is not carried in stock, the salesperson should record the part number of the lost sale on the want list. If a certain number repeatedly appears on the list, the inventory clerk should add that part to the inventory.

### Physical Inventory

At least once each year a complete physical inventory must be taken. The annual inventory establishes an accurate inventory cost for purposes of tax assessment, and it also indicates to the owner whether accurate (and honest) records are being kept.

The yearly inventory requires a substantial amount of work, but it is absolutely essential to stock maintenance and control. Employees should begin well in advance to prepare for the physical count. Bins should be cleaned, and open cartons should be examined for their content. If the contents are intact, boxes should be resealed and stacked in an orderly manner to facilitate counting. Kits with missing parts should be broken down and the parts individually binned, or the missing parts replaced and the kit sealed. Overage (extra stock) should be brought from store rooms or taken from the tops of bins and placed in the proper location. All miscellaneous parts must be identified and tagged.

Some smaller companies continue to take inventory by hand (Fig. D-7). Every part in stock is entered on a handwritten list, which shows the group number, part number, noun name, quantity, unit price, and bin location. This tedious job is usually done well in advance, leaving only the quantity of each item to be recorded on the actual day of inventory. After the count, the inventory sheets must be extended (quantity times unit price), and a total cost figure determined. Parts and accessories are usually counted as separate inventory groups.

Larger businesses sometimes employ inventory service companies. A punched card is made up for every part in stock, leaving only the quantity to be written in (Fig. D-8 and D-9). These cards are placed in the proper bins shortly before inventory. On the day of the count, only the quantities of the parts on hand are recorded on the cards. The cards are then machine processed by the inventory company to yield a complete record.

When the inventory record is completed, the inventory clerk should promptly check it against his or her cards and correct the cards as necessary.

Since the clerk must examine each card in the system, this is an excellent time to analyze the record of each part, evaluate the stock, and revise the prescribed stock levels. Parts that are no longer selling should be deleted and disposed of (most automotive manufacturers have a provision for returning unwanted or obsolete merchandise). Quantities that are too large should be reduced. Part number discrepancies often come to light during inventories, and these must be traced out and corrected. In spite of the additional work involved, the annual inventory should be made an opportunity for cleaning and balancing the stock on hand and adjusting the records involved.

INVENTORY _____ PAGE _____

SHEET NO. _____ PRICED BY _____

CALLED BY _____ DEPARTMENT _____ EXTENDED BY _____

ENTERED BY _____ LOCATION _____ EXAMINED BY _____

| CHECK | QUANTITY | DESCRIPTION | ✓ | PRICE | UNIT | EXTENSIONS |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Fig. D-7. Write-in inventory sheet

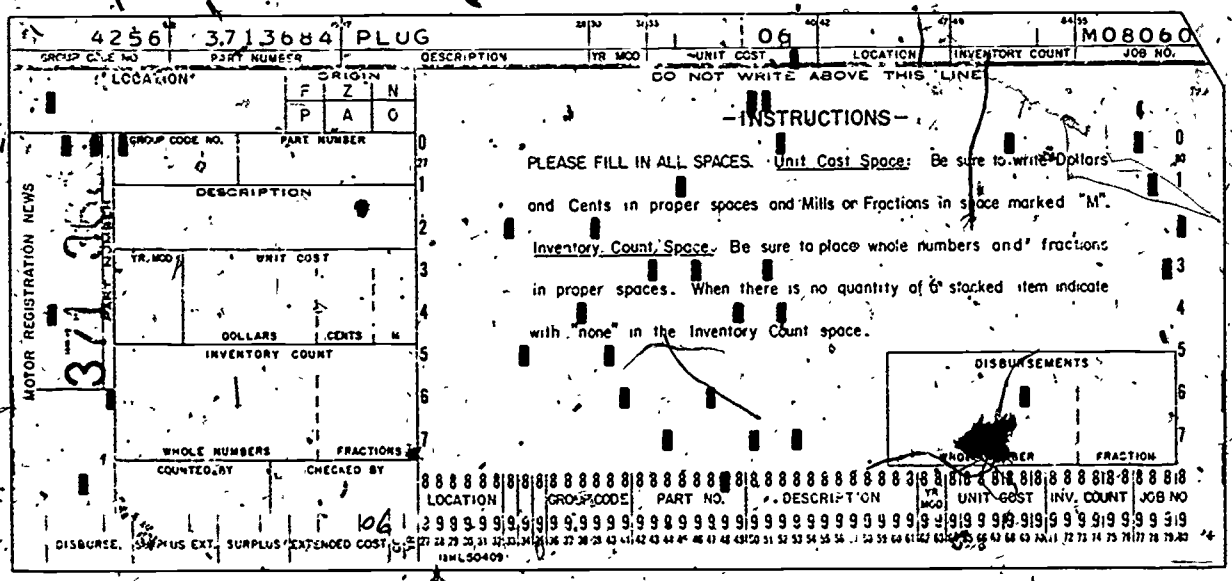



Fig. D-8. Machine-punched card prepared for an annual inventory.

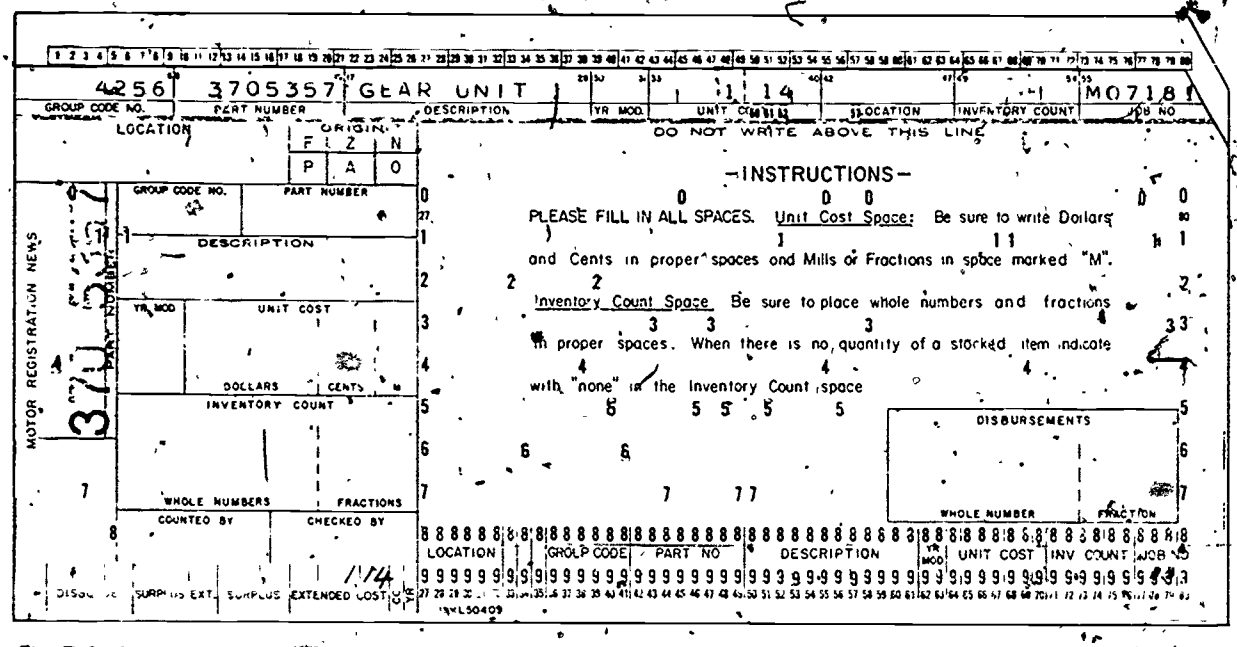



Fig. D-9. Inventory count card superimposed on a blank card. (Numbers on blank card show-through punched openings in inventory card. All pertinent information is represented by the locations of the holes; e.g., part number 3705357 is found in columns 43–49.)

UNIT D — INVENTORY AND CONTROL

TOPIC 2 — STOCK CONTROL

## Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Auto parts, in a practical sense, are 1 items. 1._____

2. A stock of parts is considered 2 and 3 when it is possible to supply most of the items requested without undue delay. 2._____ 3._____

3. A stock turnover of 4 to 5 times a year is considered ideal. 4._____ 5._____

4. Stock turnover refers to total 6 . 6._____

5. A parts store that is consistently out of needed parts will lose 7 . 7._____

6. An 8 system, properly maintained, is the best 9 of adequate stock control. 8._____ 9._____

7. The order clerk should keep a 10 supply of every item on hand. 10._____

8. If 11 figures are established for each item in stock, ordering procedures are simplified and 12 stock maintained. 11._____ 12._____

9. The inventory clerk or 13 must ultimately select the items to be stocked. 13._____

10. If a certain item consistently appears on the 14 15 , the part should be added to the inventory. 14._____ 15._____

11. At least once each year a complete 16 inventory must be taken. 16._____

12. Parts and accessories are usually taken as 17 inventories. 17._____

13. On a punched inventory card, only the 18 must be recorded. 18._____

14. The annual inventory is an opportunity to 19 and 20 the stock. 19._____ 20._____

15. Most automotive manufacturers have a 21 for returning unwanted or obsolete parts. 21._____

## Test

Circle T if the statement is true; circle F if the statement is false.

1. Some automobile parts soon become obsolete. 1. T F

2. A 180-day stock turnover rate is ideal. 2. T F

3. The stock turnover rate is figured on gross sales. 3. T F
4. Stock turnover is a good indicator of stock balances. 4. T F
5. The primary tool of stock control is the inventory card. 5. T F
6. The guide figure, once established, should never be changed. 6. T F
7. A guide figure may be established from average annual sales. 7. T F
8. The manufacturer's "initial order" of new parts solves the new model problem. 8. T F
9. The value of the inventory on hand may have a bearing on local tax bills. 9. T F
10. To extend an inventory means to add new items. 10. T F

## UNIT D – INVENTORY AND CONTROL

## TOPIC 3 – ORDERING AND PURCHASING

This topic is planned to provide answers to the following questions:

- What are the most common kinds of orders?
- What procedures should be followed in placing orders?
- What governs granting of discounts to buyers?
- What part do manufacturers' representatives play in the parts business?

Ordering merchandise is an important function in the automobile parts business. A good knowledge of the various kinds of orders, as well as of general purchasing procedures, usually is required of the auto parts person. Such knowledge can also pave the way for his or her promotion to jobs of increasing responsibility.

### Kinds of Orders

Four kinds of orders are used to order parts for an automobile parts business: stock order; intermediate order; emergency order; and local buy-outs.

#### Stock Orders

Stock orders are the principal orders used for normal replacement of depleted stock. They are placed regularly on or before a set date, which may be weekly or monthly. These orders are referred to in agencies and dealerships as pad orders. Shipment of most stock orders is prepaid by the manufacturer. Some stock orders carry an additional discount if they are placed before a certain date or for a given quantity or value, but many small independent stores place stock orders every day.

#### Intermediate Orders

Intermediate orders are unscheduled stock orders placed at any time. They are supplementary to the stock orders and are used to replace quickly regularly stocked items that have been depleted through unexpected sales or through some ordering or shipping oversight. They may also serve to obtain a needed new item before the next stock order. The intermediate order usually does not carry any special discount, and shipment is prepaid by the manufacturer only if it reaches a stated dollar amount.

#### Emergency Orders

Emergency orders are special orders used to request the immediate shipment by rapid means of merchandise that is urgently needed. An emergency order may be used for stocking items that are completely exhausted, but is more frequently used for items not normally carried in stock. Among agencies this is called a car-tie-up order. Emergency orders are usually placed by telephone or telegraph to the nearest manufacturer's warehouse. When telegrams are used to place orders or to make inquiries concerning orders, special telegraphic codes are often used (Fig. D-10).

#### Local Buy-outs

Local buy-outs are usually small emergency orders to be filled by local dealer or warehouse. These orders are normally used only for one or two items needed to complete a customer order or a job in the shop. Many dealers try not to use local buy-outs because of the short discounts allowed on such orders. If a price has been quoted on a shop job or on a merchandise order and a local buy-out becomes necessary, most companies consider the item as a special purchase and charge accordingly.

### Order Forms and Ordering

Order blanks are prepared in many forms. The dealer pad order mentioned earlier is a carefully planned, numerically arranged pad of order blanks furnished by the manufacturer and designed to facilitate both ordering and processing. Pad orders, used for placing the regular stock order, normally provide a space for a guide figure to be inserted and may indicate the national sales activity of each item by various symbols.

In addition to the order pad mentioned above, many manufacturers supply order forms for various stock and supplementary orders (Fig. D-11). Orders placed on such forms are subject to all the conditions set forth on the particular form used.

Not all manufacturers furnish ready-to-use forms. In such cases, order forms are usually made up to individual specifications and include, in essence, the information indicated in Fig. D-11.

## G. M. TELEGRAPHIC CODE

Revised telegraph regulations now make it possible to specify actual part number digits at code word cost when ordering parts by telegram. Therefore it will not be necessary to use the G. M. Numerical Code for sending part numbers in telegrams.

The Numerical Code should be used in decoding phrases which are always prefixed XL.

| G | M | P | R | O | D | U | C | T | S |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

### COMMONLY USED PHRASES—CODING TABULATION

| | | | | | |
|---|---|---|---|---|---|
| 101 | Refer order | XLGSG | 303 | Shipped by truck | XLPSP |
| 102 | Refer to our wire of | XLGSM | 306 | Shipped by air mail | XLPSD |
| 103 | Refer to our letter of | XLGSP | 307 | Shipped by air express | XLPSU |
| 105 | Wire answer to our wire of | XLGSO | 308 | Shipped by parcel post | XLPSC |

Courtesy General Motors Corp.

Fig. D-10. Telegraphic code used for emergency orders or queries

## PARTS AND ACCESSORIES ORDER
## TO GENERAL MOTORS PARTS DIVISION
GENERAL MOTORS CORPORATION

DATE _____ 19__

CHARGE TO _____ SHIP TO _____

ADDRESS _____ ADDRESS _____

| ACCT | ZONE | ORDER NO | TERMS | CLASS OF PURCH | SHIPPING ORDER REFERENCE NO | SHIP VIA |
|---|---|---|---|---|---|---|
| | | | | | | ZW ITEMS- |

| CARD CODE | DEALER S O NUMBER | CONTROL NUMBER | PPD | COLL | DATE RECEIVED | SCHED CODE | DLR ORDER NO | MW ITEMS- |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | FACT. ITEMS- |

| | GROUP NUMBER | PART NUMBER | PART NAME (NOUN NAME ONLY REQ'D) | QUANTITY | WHSE CODE | CAR CODE | LOCATION | DEALER PRICE | LIST PRICE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |

THIS ORDER IS SUBJECT TO THE TERMS AND CONDITIONS OF DEALER'S CURRENT SELLING AGREEMENT AS SUPPLEMENTED. THE PARTS AND/OR ACCESSORIES ORDERED HEREON WILL BE INVOICED AT DEALER NET PRICES IN EFFECT AT THE TIME OF SHIPMENT.

(FOR WAREHOUSE USE ONLY)

THANK YOU

SIGNED _____ (PURCHASER'S FIRM NAME)

PER _____ (INDIVIDUAL)

PC-66 REV. 10-63

Fig. D-11. Specimen order form

Certain precautions should be taken in placing the actual order. In the case of orders for large quantities of items, care must be taken to maintain a balanced stock. Since there, is a continuing element of obsolescence, large quantities are potentially dangerous. Quantities to be ordered should be judged by the recent sales activity of the item. Guide figures should be carefully derived and revised periodically as the sales pattern of an item changes. Accurate guide figures make ordering simpler, allow the order clerk to order only the needed quantity, and preclude the danger of either understocked or overstocked shelves.

Many shipping errors and delays can be avoided if the following rules are observed:

1. Use the correct order form and fill it out completely.
2. Write or print orders clearly and legibly.
3. Fill in all necessary information in regard to the consignee, destination, method and terms of shipment, and the number and description of each item ordered.
4. Have all the orders signed by an authorized person.
5. Furnish a list of authorized signatures to the firms with whom business is regularly done.
6. Make all orders at least in duplicate; retain one copy for record.
7. Place orders on time to ensure timely shipment. Delayed orders mean delayed shipments and lost sales.
8. Take full advantage of discounts. Many manufacturers allow an additional discount for stock orders placed on or before a certain date. On a $5,000 order, a 5 percent extra discount means a $250 clear profit, simply by placing the order on time.
9. Whenever possible, take advantage of ordering standard quantities offered at prices lower than odd lots.

## Pricing and Discounts

An individual firm or corporation from whom purchases are made is a vendor. A vendor can be a manufacturer, a wholesaler, or a commission merchant. The terms *discount* or *vendor's discount* indicate a deduction from the billing price of the merchandise allowed to the buying dealer or wholesaler. This discount is usually allowed to encourage quantity buying and prompt payment of bills.

The four general types of pricing and discounts are retail (or list), trade, cash, and extra dating.

### Retail Prices

Retail prices, or manufacturer's list prices, are those usually paid by the customer who ultimately uses the parts in question. When the customer pays for a repair job on his or her car, or when he or she buys parts directly from the dealer, he or she usually pays retail prices. These prices are more accurately called suggested retail prices and are subject to some differences among various firms.

### Trade Discounts

Trade discounts are given to garage proprietors, service station operators, auto body and fender shops, and auto and truck fleet operators. The trade discount is deducted from the list or retail price, and it varies considerably, depending on the purchaser and the type of material purchased. The range of trade discounts is both very complex and extremely varied throughout the country. Trade discounts range from 10 percent on some major assemblies to 60 percent on fast-moving competitive items. The auto parts apprentice must become acquainted with the pricing policies of the company and of other firms dealt with.

### Cash Discounts

Cash discounts are given to trades people who pay cash at the time of purchase or who pay their bills promptly. Some companies use 2 percent as a premium cash discount. Customers who pay cash receive 2 percent off the net purchase price at the time of the sale. If the customer has a charge account, his or her statement may be marked "2%, 10th prox.," which means that 2 percent may be deducted if the bill is paid on or before the 10th day of the following month.

### Extra Dating

Extra dating means that a discount will be available for items purchased and delivered on a certain date and marked payable in 30, 60, or 90 days. This type of discount is usually given on items that are called *stocking items*. In other words, if a dealer wants to have a stock of parts on hand and does not want to pay for the stock in one payment, he or she may ask for extra dating to spread the payments over a period of time without losing the cash discount saving.

## Manufacturer's Representatives

Many orders are placed with a manufacturer's representative or salesperson. Most large manufacturers and suppliers are represented by such

persons, who call periodically at the customer's place of business. These salespersons can be both a convenience and a nuisance. As a convenience, the manufacturer's representative is able to take merchandise orders directly, often aiding the buyer with timely suggestions as to quantities and choice of merchandise. The salesperson can introduce the buyer to new products and explain their qualities. If problems arise concerning the merchandise, it is possible to obtain immediate and satisfactory adjustments. The representative will often aid in the yearly inventory by helping to count and price the merchandise he or she sells.

Representatives and salespersons can be nuisances in several ways. They may call during the busiest times and take the buyer away from other important work. Some salespersons have a long-winded and elaborate sales pitch which consumes the valuable time of the buyer or order clerk. Some of the merchandise offered by the salesperson is inferior to, or a duplication of, merchandise already stocked. Yet the buyer often feels obligated, in all courtesy, to hear out the salesperson. Some buyers and parts managers have, from necessity, set aside certain hours in which they will see these representatives, some also limit each call to a specific length of time.

### Study Assignment

Submit to your instructor a one page report on the stock order method used where you work. If standard order forms are used, describe the forms and the data they contain.

## UNIT D – INVENTORY AND CONTROL

## TOPIC 3 – ORDERING AND PURCHASING

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. A 1 order is a major order placed on or before a set date. 1. _____
2. Intermediate orders are 2 stock orders. 2. _____
3. Special orders that request immediate shipment of merchandise are called 3 orders. 3. _____
4. When 4 are used to place urgent orders, special 5 are often used. 4. _____ 5. _____
5. The dealer pad order uses a carefully planned, numerically arranged pad of order blanks furnished by the 6 and designed to facilitate both 7 and 8. 6. _____ 7. _____ 8. _____
6. When large quantities are involved, care must be taken to maintain a 9 stock. 9. _____
7. Accurate 10 figures make ordering simpler. 10. _____
8. The four common types of discounts are 11, 12, 13; and 14. 11. _____ 12. _____ 13. _____ 14. _____
9. A 15 16 may introduce the buyer to new products and explain their qualities at first hand. 15. _____ 16. _____
10. Buyers sometimes limit 17 calls to a specified time. 17. _____

### Test

Circle T if the statement is true; circle F if the statement is false.

1. A regular monthly order for stock replacement may be termed a pad order. 1. T F
2. Intermediate orders supplement stock orders. 2. T F
3. Any order not placed on the regular date is treated as an emergency order. 3. T F
4. Local buy-outs enjoy larger discounts than emergency orders. 4. T F
5. Quantities ordered are governed by guide figures. 5. T F
6. Use of guide figures often results in overstocks. 6. T F

7. The signature of any employee on an order will be accepted by the vendor. 7. T F

8. A commission merchant is not a vendor. 8. T F

9. Retail prices are always the same as list prices. 9. T F

10. Extra dating applies to a discount extended for a longer time than usual. 10. T F

# UNIT E Counter Sales

## TOPIC 1 — PARTS TERMINOLOGY

This topic is planned to provide answers to the following questions:

- How are auto parts named?
- How can the thousands of names be learned?
- Is there any system to auto parts names?
- What is a spiral bevel axle gear?

The auto parts apprentice should not be expected to memorize the name, part number, and bin location of each of the several thousand parts that make up the modern automobile and that are commonly carried in stock in a parts business. The terms used to describe the parts, tools, and materials for any trade or occupation are best learned from experience and contact with them during the learning period.

Learning names and locations of parts can be compared to learning names and addresses of people in a community by a newcomer. By repeatedly meeting persons and visiting their homes, the newcomer learns the names, addresses, and perhaps the telephone numbers of the people with whom he or she has most frequent contact. To know the occupation of a person, as well as other pertinent information about him or her, greatly assists the newcomer in learning the person's name.

Similarly, an auto parts apprentice learns the names and locations of the items most frequently called for and eventually will use the card index to locate parts only when an unfamiliar part is sought. To know the function of a certain part and where it fits in an automobile materially aids the apprentice in identifying it.

A person learning auto parts work should not attempt to memorize the part names any more than one should memorize names and addresses from a city directory. He or she should, instead, acquire a basic knowledge of the construction and operation of the various assemblies that make up an automobile and learn the meaning of the many trade terms used in describing and designating parts.

### Formation of Compound Terms

An examination of any parts catalog will reveal that the names of a majority of parts consist of the name of a common mechanical device, prefixed by one or more descriptive words, plus the name of the assembly to which it belongs. The part name *generator brush holder* is a good example. The word *holder* may refer to many types of devices used in an automobile, but if prefixed by the word *brush,* it becomes *brush holder,* of which there are only two kinds on the automobile. The word *generator* denotes the assembly to which it belongs and completely differentiates that part from all others. Most often some of the smallest parts on an automobile have, under this system, the longest names. Other examples of names of parts are given below:

| Assembly | Descriptive Word | Mechanical Device |
|---|---|---|
| 1. Carburetor | pump | jet |
| 2. Pitman arm | shaft | bushing |
| 3. Propeller shaft | coupling | pin |
| 4. Front wheel | inner | bearing |

### Procedure for Learning Nomenclature

First, the auto parts apprentice must become familiar with the various assemblies and their functions. To understand the meaning of the term *assembly,* the apprentice should know the following definitions, which most automobile manufacturers use:

A *part* is usually a single piece of material such as a casting, shaft, bolt, or gear. However, some parts are composed of more than one piece, such as roller bearing made up of rollers and races. A part

may be thought of as the smallest purchasable item that goes into an automobile.

An *assembly* is made up of two or more parts that perform a single function. For example, the carburetor is composed of a housing, valves, jets, and floats; it serves only one purpose—supplying the proper mixture of gas and air to the cylinders.

A *group*, or *system*, usually consists of two or more assemblies closely associated and dependent upon each other. For example, the fuel group is composed of such assemblies as the carburetor, fuel pump, fuel gauge, and fuel tank. If the auto parts apprentice is unfamiliar with the overall construction and operation of each assembly of an automobile, he or she should make an immediate effort to learn them.

Next, the auto parts apprentice should be sure that he or she understands the meaning of the common, everyday mechanical terms that are used in naming parts. Although the apprentice probably knows the majority of them, such as lever, wheel, crank, gear, and shaft, he or she will have more difficulty in properly identifying a transmission, pinion, or shim. Other terms that are only vaguely familiar to the layperson—trunnion, dowel, grommet, diaphragm, and the like—should be learned.

### Name Group Classifications

The common mechanical terms can be divided into several categories.

1. First, there are those terms whose meanings are not necessarily apparent in the names themselves, but which are known, or must be learned by every mechanic. Their meaning is practically the same whether they apply to automobiles, ships, radios, watches, or buildings. Examples of such terms are as follows:

| | |
|---|---|
| axle | manifold |
| baffle | nozzle |
| bearing | nut |
| bolt | panel |
| boss | pawl |
| bracket | pinion |
| bushing | piston |
| cam | plat |
| chassis | plug |
| clevis | pulley |
| clutch | rod |
| crank | socket |
| dowel | spindle |
| ferrule | spline |
| flange | spring |
| frame | sprocket |
| gasket | strap |
| gage | stud |
| gear | throttle |
| grommet | trunnion |
| hub | universal |
| jet | valve |
| journal | washer |
| lever | |

2. The mechnical devices in the next group are named according to the function that they perform. Examples of these terms, which are usually taken from a verb, are as follows:

| | |
|---|---|
| balancer | guard |
| bleeder | guide |
| brace | hanger |
| bypass | idler |
| carrier | impeller |
| check | keeper |
| choke | muffler |
| clamp | pilot |
| connection | plunger |
| contact | regulator |
| coupling | retainer |
| cover | rocker |
| deflector | roller |
| distributor | rotor |
| driver | seal |
| fastener | spacer |
| filter | support |
| float | |

3. Perhaps the most interesting category of terms is that relating to shape. Human beings have always been inclined to name new or unfamiliar objects after some known objects that they resemble. Examples of this group are as follows:

| | |
|---|---|
| arm | housing |
| ball | jacket |
| band | key |
| bar | knuckle |
| barrel | leaf |
| belt | neck |
| block | needle |
| bowl | nipple |
| brush | pan |
| butterfly | pin |
| cap | pipe |
| case | ring |
| collar | shell |
| column | shoe |

| | |
|---|---|
| coil | skirt |
| core | sleeve |
| disc | spider |
| drum | stem |
| elbow | tee |
| foot | tip |
| fork | U-bolt |
| head | V-belt |
| hood | worm |
| horn | yoke |

4. Another category into which the naming of trade terms falls is that of technical terms, usually of Latin derivation. This category is perhaps the most difficult to learn:

| | |
|---|---|
| armature | solenoid |
| carburetor | synchronizer |
| commutator | thermostat |
| helical gear | venturi |
| hypoid gear | |

5. The last category consists of proper names, which usually include the name of the inventor or patent holder, such as:

| | |
|---|---|
| Alemite | Parker screw |
| Bendix driver | Phillips screw |
| Hotchkiss tube | Pitman arm |

All of the terms listed in the first four groups above can be found in the dictionary; those with which the apprentice is unfamiliar should be looked up and their meanings written down for future study.

## Parts Nomenclature

A brief explanation of some of the most common parts and devices that the auto parts apprentice comes in contact with is given below. These parts have been arranged into groups by nature or function.

Bearing—A support in which a shaft rotates.

*Babbitt*—A poured bearing made of a soft alloy of tin, copper, and antimony.

*Ball*—A bearing in which the rotating shaft or axle is carried on a number of small steel balls that are free to turn in annular paths, called races.

*Insert*—A removable plain bearing.

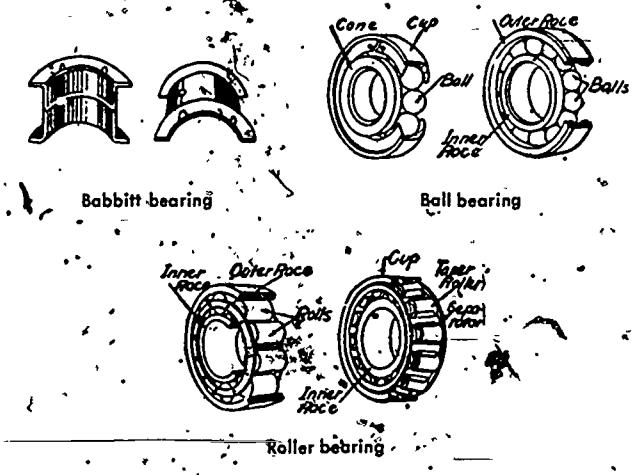
*Needle*—An antifriction bearing made up of small, needlelike rollers. The needles are laid one against the other until the shaft has been completely surrounded. The shaft rests and turns in the nest of rollers.

*Radial*—A bearing designed to carry loads from a direction at right angles to the axis of the shaft.

*Roller*—A bearing in which the journal or shaft rests upon and is surrounded by hardened steel rollers that revolve in a channel or race surrounding the shaft.

*Sleeve (brushing)*—A removable cylindrical lining of low-friction metal that is used as a bearing for a shaft or similar part.

*Thrust*—A bearing designed to support loads or resist pressure parallel to the shaft.




Babbitt bearing

Ball bearing

Roller bearing

Gasket—A thin sheet of packing material placed between two metallic surfaces to seal against liquid or gas leaks.

*Asbestos and wire*—A joint-sealing device made to withstand intense heat without jeopardizing its sealing abilities.

*Asbestos-lined*—A joint-sealing device made from a combination of copper and asbestos or of brass and asbestos sheets; usually used for cylinder head gaskets.

*Cork*—A sealing device made from cork.

*Fiber*—A gasket made of specially prepared fiber material which may be purchased in large sheets for making up many types of gaskets on the job.

*Paper*—A gasket made of a stiff composition material for use as a sealing device for special joints.

Gear—A wheel with teeth cut into its rim, designed to mesh with and drive another gear.

*Bevel*—A gear with teeth cut in the surface of a conical face.

*Helical*—A gear with teeth cut in the cylindrical surface but not parallel to its axis.

*Hypoid*—A spiral bevel gear with curved teeth.

*Internal*–A gear with teeth that project inward toward the center from the circumference of the gear wheel.

*Miter*–A bevel gear of a 45 degree angle.

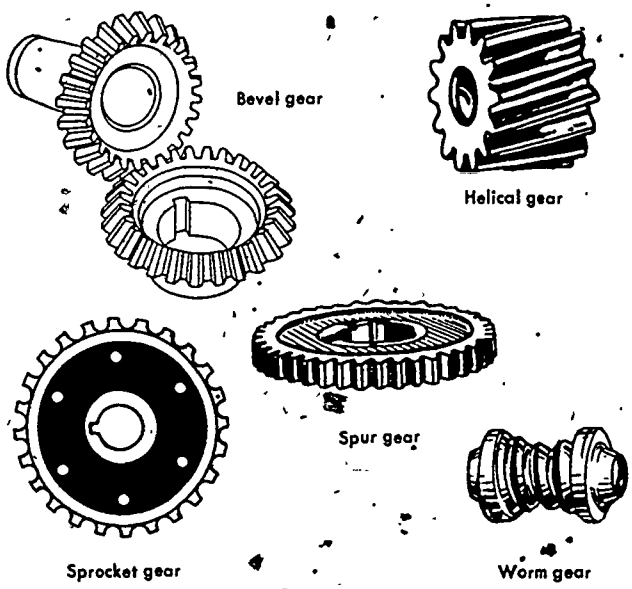
*Spiral*–A gear with curved teeth radiating spirally from its axis.

*Sprocket*–A wheel with teeth around the circumference so shaped that the teeth fit into the links of a chain that drives or is driven by the sprockets.

*Spur*–A gear with teeth cut in a cylindrical surface parallel to its axis.

*Worm*–A helical gear designed to transmit motion at right angles to its axis.

*Worm wheel*–The mating gear to the worm gear.




Joint–A device for connecting parts so that power or motion can be transmitted from one part to another part.

*Ball and socket*–A joint in which a ball is placed in a socket recessed to fit it, permitting free motion in any direction, within design limits.

*Clevis*–A fork on the end of a rod.

*Toggle*–A joint permitting to-and-fro motion only.

*Universal*–A flexible coupling for transmitting power between shafts set at an angle to one another.

Keeper–A device for keeping parts in their proper location.

*Internal*–An internal keeper usually expands into a recess in the inner circumference of a hole.

*External*–An external keeper contracts or slides into a slot in the circumference of a shaft.

Key–A semicircular or oblong piece of metal used to secure a member to a shaft.

*Baldwin*–A key with an oblong section.

*Spline*–A series of ribs that have been machined on the shaft and on to which fits another part having mating slots machined in it.

*Woodruff*–A key with a semicircular section.

Pin–A device designed to hold parts together.

*Clevis*–A pin that passes through the ends of a clevis and through an eye.

*Cotter*–A split metal pin designed to pass through a hole in a bolt and a slot in its nut to prevent the nut from turning.

*Straight*–A cylindrical metal pin used for fastening two parts together.

*Taper*–A conically shaped metal pin, usually tapering ¼ inch per foot.

Plug–A device for sealing or closing a hole.

*Drive-in or press-in*–A plug that is slightly larger than the hole it is to fit and that must be pressed or driven into place.

*Expansion*–A round piece of metal with a slightly curved surface. As the surface is pushed in, the circumference expands.

*Screw (straight and taper)*–A solid piece of metal, such as a pipe plug, with threads so it can be screwed into a hole to close or seal it.

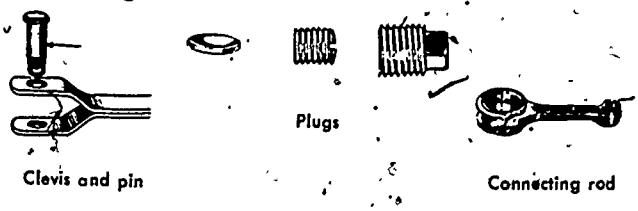
Retainer–A seal that prevents the escape of oil or grease around a shaft. Retainers are made of felt, leather, or metal with felt.

Rod–A device for transmitting motion.

*Connecting*–A rod that transmits motion in two directions.

*Push*–A rod that transmits motion in one direction only.

*Torque*–A rod designed to hold parts in alignment.




Shaft–A rod by which power is transmitted.

*Cam*–One or more cams mounted on a shaft for the purpose of changing rotary motion into reciprocating motion.

*Crank*—An offset shaft for the purpose of changing reciprocating motion into rotary motion, or vice versa.

*Keyed*—A shaft containing a keyway.

*Pinned*—A shaft containing a straight or tapered hole to receive a pin.

*Spline*—A shaft on which splines have been cut.

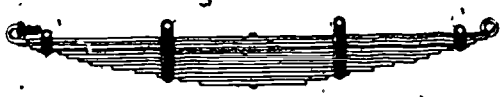
Crankshaft

Spring—Metal that is so shaped and of such resiliency as to bend under strain and return to its original position after the bending force is removed; a mechanical device of many forms used to absorb shock and produce tension.

*Flat*—A spring having an oblong cross section.

*Leaf*—A series of varying lengths of flat springs placed upon each other and held together by means of metal clips.

*Coil*—Usually formed of helically wound wire designed to resist either compression or tension.



Leaf spring

Valve—A device for controlling the flow of liquids or gases.

*Ball or check*—An automatic valve, in the form of a steel ball on a seat, that prevents fluids or gases from flowing through a line.

*Butterfly*—A valve inserted in a pipe; usually circular and nearly the same diameter as the pipe, designed to turn upon a spindle through its diameter to control the flow of gas or liquid.

*Needle*—A valve with a conical seat.

*Poppet*—A disc or drop valve that seats itself by means of a spring or by gravity and is opened by cams or by suction.

The following are some of the parts abbreviations used most often throughout the auto parts industry.

| | |
|---|---|
| Abs. | Absorber |
| A.C. | Automatic Choke Carburetor |
| A.C. Gen. | Alternating Current Generator |
| Acc. | Accessory |
| Accel. | Accelerator |
| A/Cl. | Air Cleaner |
| Adj. | Adjustable Adjusting |
| A.I.R. | Air Injection Reactor |
| Air Equip. | Air Over Hydraulic Brake and Air Brake |
| Air/S | Air Suspension |
| A.M. | Air Meter |
| Amp. | Ampere |
| A.O.H.B. | Air Over Hydraulic Brake |
| A.R. | As Required |
| Assy. | Assembly |
| A.T. | All Automatic Transmissions |
| C.S. | Custom Sport Truck |
| Ctr. | Center |
| Cush. | Cushion |
| Custom | Custom Air Conditioner |
| Cyl. | Cylinder |
| 2 cyc. | 2 cycle |
| 4 cyc. | 4 cycle |
| Dbl. | Double |
| Defl. | Deflector |
| Def. | Defroster |
| Dev. | Developed |
| Diaph. | Diaphragm |
| Dia. | Diameter |
| Diff. | Differential |
| Distr. | Distributor |
| Div. | Division |
| Dr. | Door |
| Drld. | Drilled |
| D-D, Dubl-Duti. | Forward Control Chassis |

## Study Assignment

Crouse, William H. *Automotive Mechanics* (Sixth edition). New York. McGraw-Hill Book Company, 1974. Read Chapter 6 and answer the questions at the end of the chapter.

UNIT E – COUNTER SALES

TOPIC 1 – PARTS TERMINOLOGY

## Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. A. 1 is usually a single piece of material such as a casting, shaft, bolt, or gear. 1. _____

2. An 2 is composed of two or more parts that perform a single function. 2. _____

3. A 3, or 4 usually consists of two or more assemblies closely associated and interdependent. 3. _____ 4. _____

4. Some mechanical devices such as balancers and distributors are named according to the 5 they perform. 5. _____

5. Parts such as butterflies and spiders are named according to 6. 6. _____

6. Phillips and Hotchkiss are proper names of the 7. 7. _____

7. A 8 is a support in which a shaft rotates. 8. _____

8. A spiral bevel gear with curved teeth is called a 9 gear. 9. _____

9. A worm is a 10 gear designed to transmit motion perpendicular to its axis. 10. _____

10. A 11 is a flexible coupling for transmitting power between shafts set at an 12 to one another. 11. _____ 12. _____

11. Motion is transmitted in two directions by a 13 rod. 13. _____

12. An offset in a shaft for the purpose of changing reciprocating motion into rotary motion is called a 14. 14. _____

13. A spring is a mechanical device of many forms used to 15 shock or produce 16. 15. _____ 16. _____

14. A valve is a device for 17 the 18 of liquids and gases. 17. _____ 18. _____

15. A poppet is a disc or drop valve that seats itself by means of a 19 or by 20. 19. _____ 20. _____

## Test

Circle T if the statement is true; circle F if the statement is false.

1. Names of auto parts can be learned only from experience. 1. T F

2. An auto part may be one piece or several pieces. 2. T F

3. An assembly may be one part or several parts. 3. T F

4. The fuel group includes the carburetor. 4. T F

5. A grommet is a bushing. 5. T F

6. Many auto part names are derived from functional verbs. 6. T F

7. A venturi is a tube constricted at the ends. 7. T F

8. Alimony is an ingredient of babbitt metal. 8. T F

9. A roller bearing rolls. 9. T F

10. Spiral bevel gears all have curved teeth. 10. T F

11. Miter gears have a 45 degree bevel. 11. T F

12. A Baldwin key is semicircular in section. 12. T F

13. A chassis book refers to sheet metal parts. 13. T F

14. A gasket is most generally composed of metal. 14. T F

15. A group or system usually consists of two or more assemblies. 15. T F

## UNIT E – COUNTER SALES

## TOPIC 2 – DIVISIONS OF COUNTER WORK

This topic is planned to provide answers to the following questions:

- What are the ways in which payment can be made for parts?
- What are open-account purchases?
- How can a parts person estimate an overhaul job?
- What are the problems of warranties?
- Who ultimately bears the cost of defective parts?

Auto parts counter sales are divided into the three conventional categories of payment. cash, COD, and charge. Since a substantial part of the counter person's workday is spent in writing invoices, all of which specify methods of payment, these methods should be clear in his or her mind.

### Payment for Parts

The three general types of cash sales are the retail cash sale, the user cash sale, and the dealer cash sale. The highest profits are made in retail cash sales, because they are on a list price basis, without discount. User cash sales provide the second highest profit, as they only give a small discount. Dealer cash sales are also desirable; they preclude extra bookkeeping procedures and provide available cash funds with which the company can pay manufacturers' and suppliers' bills promptly, thus receiving any added discounts offered for prompt payment. Dealer sales involve discounts from list prices.

In cash sales parts are often paid for by check. The counter person who accepts a check should always make sure it is made out properly, including the date, company name, correct amount, and proper signature. If the customer is a stranger, some reliable identification should be required. The counter person should initial the check and, if possible, put the sales slip number on the check for reference in case the check is returned for any reason.

Collect on delivery (COD) shipments are made for two reasons. Some customers would rather pay for the merchandise at the time of delivery. Their credit may be very good, but by paying for the merchandise on delivery, they have no unpaid bills at the end of the month. Other customers are billed on a COD basis because they have poor credit ratings and are considered poor risks for charge accounts. Some may take so long to pay their bills that the seller actually loses money. A customer who consistently proves to be a poor credit risk should be dealt with only on a cash or COD basis.

A large percent of sales are on an open-account or charge basis. Instead of paying for merchandise or service as it is received, customers who use this type of account pay the accumulated charges at the end of each month. The customer who uses this convenience tends to make all of his or her purchases at the place where he or she has the account. Open-account purchases by dealers are usually considered the same as cash purchases, and the same discounts on parts and services are usually applied. The convenience of a charge account should be offered only to those dealers or companies that are good credit risks, because no interest or finance charge is added to their bill, and the parts dealer does not receive interest for the use of the money involved.

More and more customers are buying on time payment plans. A time payment may be handled as a loan through a bank or handled by the seller. This plan is usually set up only for a large sale, such as expensive equipment or a major overhaul. Even if a customer is not a good enough credit risk for an open account, he or she can be extended a time payment plan, because security is required for the money involved. With an account of this type, a finance charge is made or interest is charged on the unpaid balance, or both.

### Sales Slips and Cash Registers

Writing up sales slips is an important part of the automotive parts salesperson's job. Since most of the items sold are identified by part number, the importance of writing numbers, descriptions, and other information correctly and legibly cannot be overstressed. Customers may have names and addresses that are similar, these also must be written clearly so that one customer will not be charged for something another one received.

In some companies the use of the cash register is limited to one person to expedite sales and free the counter persons for other work. The chance for error is much smaller when only one trained person is using the register. However, other companies use a register with two or more drawers; each salesperson uses a separate drawer and separate record of transactions. This setup allows the company to determine responsibility for mistakes. The register prints a total record of all sales and disbursements, as well as the separate record for each drawer; thus a complete sales record is furnished to the company.

### Pricing and Estimating

Since prices are subject to change without notice, the counter person must keep up to date with all incoming price changes. Some manufacturers supply price pages, revised as necessary, showing list prices and dealer's net after discount. Other manufacturers do not furnish price page revisions for the items they sell, but price the invoice instead. Under these circumstances, the company bookkeeper or price clerk should furnish the counter persons with priced pages for their catalogs. Still other companies or suppliers use a list price page with the discount shown as a percent of the list price. Some items, such as tools and equipment, are listed at net price only. Prices and discounts should be checked periodically against manufacturer's invoices and the latest price information.

The question often arises whether a customer is eligible to receive discounts, particularly when it is uncertain what type of service the customer renders. The following are types of customers who commonly are granted discounts:

- Garage operators who maintain an established business that specializes in the servicing and repairing of automobiles and trucks
- New car and used car dealers who maintain an established business and who employ personnel for servicing and repairing automobiles and trucks
- Paint and body shops that maintain an establishment for repairing and painting automobiles and trucks
- Fleet operators who have five or more cars, trucks, or buses and who employ personnel for the repair of these units
- Service stations that purchase only those parts and accessories that they are equipped to install
- Factories or manufacturers who use the parts for production or maintenance of equipment
- Parts distributors who resell to other dealers or garages

The counter person is occasionally asked to estimate the price of a complete or partial overhaul of some major assembly. This estimate must include the price of the parts used plus the labor or shop charge. The shop charge comprises direct labor and overhead. Most automobile manufacturers publish flat-rate manuals that show the estimated or average time required to repair or replace many common items. By referring to such a manual, it is possible to make up a labor schedule for jobs that come to the parts clerk's attention, this schedule should be included when he or she makes an estimate.

### Returned Merchandise

The customer's privilege of returning merchandise, either new or in warranty, is an expensive but necessary problem for most companies. The return of any article requires time in handling the complaint, tracing the original sale, recording the transaction, and putting the item back in stock or returning it to the supplier. Additional time and effort may have to be spent in soothing an angry or disappointed customer. Nevertheless, the return privilege is an important part of maintaining customer goodwill. Even when the utmost care has been taken to avoid errors, there will be cases when a return is entirely justified. Many companies have adopted a policy of accepting all returns without question. In cases of defective merchandise, the manufacturer or supplier will usually replace the defective part or issue credit for it.

Merchandise that is returned should be inspected carefully. Items that are defective should be sent back to the source for replacement or credit, this will involve filling out applicable forms. When a mistake has been made in ordering or delivering, the customer may exchange the merchandise for the correct items, or a credit memorandum or a cash refund may be issued. When the customer returns merchandise, he or she is expected to present the original sales slip, because the price of the article may have changed since the purchase date. Many companies will not accept new merchandise for refund after 30 days.

Refund slips and credit memorandums should list the customer's name, the part numbers, and description of the material returned, the date and

number of the original sales slip, and the amount to be credited or refunded to the customer.

The warranty on automobile and truck replacement parts will vary, but it is usually based on a 90-day or 4,000-mile period, whichever occurs first. Any defects in material or workmanship that appear within the warranty period will be cause for free replacement by the seller. However, some make a labor charge for any time spent in removing and replacing the defective part. If a part or assembly covered by a warranty has obviously been misused by the customer, it is not unreasonable to ask the customer to share the cost of replacement. Every effort should be made by the employee to convince the customer of the justification of such a charge. Prompt and fair handling of all warranty adjustments is necessary if customer confidence is to be maintained.

Auto parts personnel must be aware of the procedures for handling defective replacement parts, since detailed information is often required before credit can be obtained from the manufacturer. Claims for defective merchandise often must be submitted on a very detailed form.

UNIT E – COUNTER SALES

TOPIC 2 – DIVISIONS OF COUNTER WORK

## Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Three conventional methods of payment for merchandise are 1 , 2 , and 3 . — 1. _____ 2. _____ 3. _____
2. Dealer sales involve 4 . — 4. _____
3. Charge accounts should be offered only to companies that are good 5 risks, because no 6 or finance charge is added. — 5. _____ 6. _____
4. Many customers buy on a 7 8 plan. — 7. _____ 8. _____
5. Eligibility for 9 depends to a degree upon occupation. — 9. _____
6. Most auto manufacturers publish 10 manuals that include the 11 time involved in the repair or replacement of auto parts. — 10. _____ 11. _____
7. The customer's privilege of 12 merchandise is an expensive but 13 problem for most companies. — 12. _____ 13. _____
8. When a part is defective, the manufacturer will usually 14 the defective part or issue a 15 for it. — 14. _____ 15. _____
9. When returning merchandise, the customer should always present his or her 16 17 18 . — 16. _____ 17. _____ 18. _____
10. If a part or an assembly covered under warranty has obviously been 19 , it is not unreasonable to ask the customer to share the cost of 20 . — 19. _____ 20. _____

## Test

Circle T if the statement is true; circle F if the statement is false.

1. Retail cash sales generally provide the highest profits. — 1. T F
2. Invoices specify prices but not methods of payment. — 2. T F
3. Shipments may be made COD to either good or bad credit risks. — 3. T F
4. An open account is evidence of good credit. — 4. T F
5. A time payment plan may bear finance charges, interest, or both. — 5. T F
6. Discounts and finance charges never apply to the same transaction. — 6. T F

7. Most cash registers in current use print a record of transactions. 7. T F

8. Thirty days' notice must be given before manufacturers' list prices are raised. 8. T F

9. The shop charge is strictly a labor charge. 9. T F

10. Independent shops are required to follow the flat-rate manual for any job. 10. T F

## UNIT E – COUNTER SALES

## TOPIC 3 – WHAT IS A CUSTOMER?

This topic is planned to provide answers to the following questions:

- How should a parts person treat outside customers?
- How can a new customer be made a regular customer?
- What facts will help a parts person win most arguments with customers?
- What does the dealer need from each customer?

**What is a Customer?**

A customer is the most important person ever in this office . . . in person or by mail.

A customer is not dependent on us . . . we are dependent on the customer.

A customer is not an interruption of our work . . . he or she is the purpose of it. We are not doing the customer a favor by serving him or her . . he or she is doing us a favor by giving us the opportunity to do so.

A customer is not an outsider to our business . . . he or she is a part of it.

A customer is not a cold statistic . . . he or she is a flesh-and-blood human being with feelings and emotions like your own and with biases and prejudices.

A customer is not someone to argue or match wits with. Nobody ever won an argument with a customer.

A customer is a person who brings us his or her wants. It is our job to handle them profitably to him or her and to ourselves.

Author Unknown

"A customer is the most important person ever in your establishment, in person, by phone, or by mail." All of the combined activities of the parts industry are aimed at one final act – the successful sale. Sales can only be to customers, therefore, customers are most important. It is a simple rule, but one that is frequently forgotten. Service to the customer must take precedence over every other activity in the store. This does not mean that other activities are not important. Merchandise must be received, bins stocked, and inventories kept. But these activities are purposeful only if profitable sales are being made. The customer is number one.

"A customer is not dependent on us, we are dependent on the customer." Every commercial organization depends on customer profits for survival. The competition in today's market emphasizes this dependence. On rare occasions a customer may be dependent, temporarily, on one store for a particular item. But even this rare occasion does not alter the fundamental fact that the company depends on the profit from that sale for its existence. Even if an organization had a monopoly on certain parts, the store would still depend on the customers who bought them. Each establishment is totally dependent upon its customers, and the building and maintenance of a clientele is the direct responsibility of all the employees who greet and serve them.

"A customer is not an interruption of our work; he or she is the purpose of it." All other activities must somehow be subordinated to the fact that customers come first! Putting away stock is important, but it must be done between customers. Prolonged or personal telephone conversations must be terminated when customers are waiting. Stock orders, paper work, bin changing, display arranging – anything that can logically be put aside must be deferred until the customer's needs are met.

"A customer is not an outsider to our business; he or she is a part of it." But one wouldn't believe it to see the way many customers are treated at a parts counter. The parts counter frequently becomes a barrier across which only merchandise and payment can pass. Conversations are usually limited to cold facts and bare statistics, there is no sense of a desire to help or of a need to be filled. Personal involvement is avoided in the transaction by either party, which is all the more tragic because human relations, regardless of the environment or setting, are the most rewarding events of life. A customer can not be an outsider to your business; he or she is a participant in it! The customer can be an outsider only if the owner or the customer chooses to make it so. The customer should be made to feel that he or she is a very welcome insider!

"A customer is not a cold statistic – he or she is a flesh-and-blood human being with feelings and emotions like your own and with biases and prejudices." As such he or she must be treated with all the care and consideration that the seller would expect to be shown should he or she suddenly find the positions reversed. One of the quickest ways to

prevent the development of a friendly sales relationship is a superior attitude on the part of the salesperson. He or she should indeed know his or her job and know it well—in fact, competence is stressed throughout this course. But a customer who has no training in the field can not be expected to meet the trained salesperson on even terms. Many customers do not even know automotive nomenclature. All a customer wants is an honest and competent solution to his or her needs, presented in a manner that will not arouse prejudice or bias and that will not make him or her feel inferior in the process. That kind of an approach sounds easy, but in reality it is not; it must be cultivated.

"A customer is not someone to argue or match wits with. Nobody ever won an argument with a customer." Only rarely does a customer come into a store to argue, and that is most often when he or she has a complaint to register. If the customer's complaint is legitimate, then it should be handled by an understanding person who is trying to help. But most customers come to buy something or to seek information. Quarreling is not justified in such a situation, either he or she should be sold what he or she needs or helped with his or her problem. Quarreling and matching wits are egocentric devices which have no place in a simple sales transaction. If a customer wants to quarrel or act superior, the salesperson should not react in the same manner. Tolerance and understanding are keys to good salesmanship.

"A customer is someone who brings us his or her wants." These wants may be physical needs or problems to be solved, but whatever they are, he or she brings them to be filled. The customer does so with a certain legitimate assumption—that the company has, or can supply, the answer to his or her wants.

Herein, of course, lies the essence of successful business relations—a customer with a need and a company with the resources to fill that need, profitably for both parties. But the successful outcome, a satisfied need, is subject to many conditions, some of which have been mentioned above. Others will be discussed in a later topic.

UNIT E – COUNTER SALES

TOPIC 3 – WHAT IS A CUSTOMER?

## Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. The most important person in an auto parts store is the 1 . — 1. _____
2. All of the combined activities of the parts industry are aimed at one final act, the 2 3 . — 2. _____ 3. _____
3. The customer is not 4 on the store. — 4. _____
4. To build and maintain a satisfied-customer clientele is the direct 5 of the 6 who greet and serve them. — 5. _____ 6. _____
5. A customer is not an 7 of the work; he or she is the 8 of it. — 7. _____ 8. _____
6. The parts counter should never become a barrier across which only 9 and 10 can pass. — 9. _____ 10. _____
7. A customer can not be an outsider to your business; he or she is a 11 in it! — 11. _____
8. A customer is not a cold 12 ; he or she is a flesh-and-blood human being. — 12. _____
9. Only rarely does a customer come into a store to 13 , and that is when he or she has a 14 to register. — 13. _____ 14. _____
10. The salesperson never 15 or matches 16 with the customer in a simple sales transaction. — 15. _____ 16. _____

## Test

Circle T if the statement is true; circle F if the statement is false.

1. The target of the auto parts industry is the customer. — 1. T F
2. Service to the customer should take precedence over inventory. — 2. T F
3. Competition emphasizes the customer's dependence. — 3. T F
4. A monopoly is no good without sales. — 4. T F
5. All phone conversations should be cut short when customers are waiting at the parts counter. — 5. T F
6. A prejudiced customer is an asset to a store. — 6. T F
7. Only the owner should be allowed to argue with a customer. — 7. T F

8. Every customer assumes that the store he or she enters can fulfill his or her need. 8. T F

9. Personal involvement in a parts sale should be avoided. 9. T F

10. Every transaction should end profitably for all parties to it. 10. T F

## UNIT E — COUNTER SALES

## TOPIC 4 — HOW TO SELL

This topic is planned to provide answers to the following questions:

- **What are the traits of a good salesperson?**
- **What is the most effective sales approach?**
- **What must the salesperson get from the customer?**
- **To what extent should the salesperson go to push related sales?**

A popular myth that has prevailed over the years is that a smooth, fast talker, or someone with a "gift of gab," should become a salesperson. This myth is partially true. Many customers are susceptible to a high-pressure, hard-sell appeal, and most salespersons of this character enjoy some financial success. However, this sales technique is not a good foundation upon which to build reliable repeat sales, and the company which tries to do so often finds itself unstably established. Only a certain number of people succumb to the big pitch, and many of them regret later that they were sweet-talked into a sale.

The repeat sales are the backbone of most businesses, and such sales are built on something more than talk. The salesperson's sincerity and willingness to help are crucial to lasting sales. Fairness, honesty, and a willingness on the part of the company to back its merchandise must be evident if customer confidence is to be gained and kept.

In today's complex and competitive automotive world, a few pennies of profit must often be sacrificed for the larger profit of tomorrow. Catering to the needs and wants of the customer, as perhaps he or she has never been catered to before, is called for. Signs often link the words *sales* and *service*. In salesmanship, the two words become almost synonymous.

### The Sales Approach

In first approaching a customer, the salesperson should be interested, honest, and sincere. He or she should remember that the customer is a person with a want or a need, a person who assumes that this particular company is in a position to satisfy that need. If this were not so, it is not likely that the customer would be there in the first place.

A casual approach is not one that borders on indifference. The salesperson should refrain from swooping down on a customer with platitudes and prerecorded sales introductions. Although this kind of approach seems genuine at first, it usually takes on a note of insincerity after repeated performances, and discerning customers are apt to be offended by it. The opening statement should be varied from time to time. By keeping it simple and sincere, the salesperson can avoid the danger of falling into a verbal rut.

Honesty in approaching a customer is more of an attitude than a verbal statement. Somehow the salesperson's attitude must convey to the customer his or her genuine desire to be fair and helpful. The attitude must be an expression of truth, if one does not feel it, he or she cannot express it. The ability to project honesty is a rare quality that is rapidly disappearing beneath a veneer of sophisticated salesmanship. But real honesty in efforts to help the customer will show itself and will prove one of the most powerful tools the salesperson, auto parts, or other, can possess.

Sincerity is like honesty in that it is expressed in the attitude. The salesperson does not do the customer a favor by waiting upon him or her. The salesperson needs to have a genuine desire to help and to serve. Successful sales are the result of a sincere effort to help the customer with his or her various problems. The customer can sense whether a real effort is being made to meet his or her needs. Repeat business may depend upon the customer's opinion as to the element of sincerity in the customer-salesperson relationship.

### Meeting the Customer

The initial customer-salesperson meeting forms the most important relationship to develop in the auto parts store. From this encounter will or will not develop the successful sale, which hinges upon the customer's original need, the company's ability to physically meet that need, and the salesperson's handling of the situation. The original encounter between the auto parts salesperson and the customer deserves serious attention.

Except for the presence of a few generalized accessories, auto parts form a highly specialized body of material that requires specific knowledge

for proper identification. The auto parts salesperson must be prepared, during the original encounter with the customer, to determine the exact nature of the part or parts involved, the exact model for which they are intended, and the presence on the vehicle of certain options that affect the selection of the correct parts. The existence of so many models and options complicates the parts salesperson's job to the extent that frequently even a mechanic or the car owner can not give the correct information.

The selection of even a correct fan belt can lead to a detailed interrogation, and the situation may be much more complicated when certain other parts are needed, for example, parts for an intricate automatic transmission. Questioning the customer is necessary for the proper selection of most modern parts and can be a source of frustration for both customer and salesperson.

The ability to make such interrogations skillfully only comes from long and broad experience in the field. Knowledge of each item is paramount, and the parts person must constantly remind himself or herself that, even though the procedure is often boring and complex, it is a necessary part of his or her vocation. Failure to elicit enough information may result in the wrong part being sold. An antagonistic approach will only frustrate and complicate the whole procedure. Short cuts should be developed to gain the needed information as quickly as possible. One shortcut is to learn the distinctive differences that will identify correctly the model and the needed part. If it is feasible to bring in the old part for identification, replacement is usually simpler.

## Sales Techniques

Sales techniques in the automotive parts field include all of those previously mentioned in this topic—honesty, sincerity, competence, patience—and more. Customers frequently do not know exactly what they want or need, and, certainly for the most part, they are unaware of related needs. For example, it is never a good idea to sell ignition points without suggesting a condenser (and vice versa). If the customer asks for the point gap setting on a particular model, he or she should be told, even though it must be looked up, and then the suggestion made that he or she lubricate the distributor cam lobe lightly with a suitable lubricant. Such constructive suggestions can make steady customers of casual ones.

Suggesting related items for purchase (e.g., clamps with hose, cement with gaskets, or paint supplies with paint) is an important part of the salesperson's repertoire. Not only are such suggestions legitimate but they are often appreciated, and they bring considerable added revenue to the store. Such related items should be suggested at a strategic time, pointing out the potential need for the utility of the related item(s).

The auto parts salesperson must be ready to discuss any item in the store with clarity and competence, setting forth its virtues and comparing it, feature by feature, with other brands and models. This kind of knowledge requires a constant effort by the parts person to remain current by reading service bulletins, trade publications, and advertising media concerning the merchandise he or she sells. Nothing will kill a sale quicker than a salesperson who is not fully informed on the product he or she is showing to the customer.

New items in stock are always a potential sales feature that may be shown legitimately on the strength of their newness. New tools, gages, instruments, accessories, and any items of improved design are particularly good subjects for sales efforts. Garage owners and mechanics are especially interested in new accessories and in simplified parts or replacement kits.

## Closing the Sale

Closing the sale should include a courteous inquiry as to any other items needed and an appraisal as to related parts that might have been overlooked. Tips may be offered on quicker, more satisfactory installation methods that the salesperson has learned. Retail customers are apt to inquire about installation instructions, and these should be supplied quickly and courteously. If the salesperson does not know, the customer should be put in touch with shop personnel who can help.

When the parts person does not have a part that the customer needs, he or she should make an effort to locate it for him or her. A phone call to another store takes only a minute, and the customer will appreciate the effort. Special orders can be handled for the customer by whatever system has been established by the store.

UNIT E – COUNTER SALES

TOPIC 4 – HOW TO SELL

## Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Repeat __1__ are the backbone of most businesses and are built on more than __2__. 1.____ 2.____

2. The salesperson's __3__ and willingness to __4__ are crucial to lasting sales. 3.____ 4.____

3. A company must be willing to back its merchandise if __5__ __6__ is to be built and maintained. 5.____ 6.____

4. A casual approach does not mean a __7__ approach. 7.____

5. Honesty is shown in approaching a customer more by __8__ than by __9__. 8.____ 9.____

6. Repeat business may depend upon the customer's opinion as to the sincerity of the __10__. 10.____

7. Except for a few general __11__, auto parts are a highly __12__ body of material. 11.____ 12.____

8. The presence on the vehicle of certain __13__ will often affect the selection of correct parts. 13.____

9. Proper selection of most current auto parts may require __14__ __15__ of the customer. 14.____ 15.____

10. Failure to elicit complete __16__ may result in the sale of the wrong part. 16.____

11. Nothing will kill a sale quicker than __17__ knowledge of a product being shown. 17.____

12. New items in stock are always a __18__ sales feature. 18.____

13. Retail customers are often interested in new __19__ and simplified replacement __20__. 19.____ 20.____

14. Retail customers are apt to ask about __21__ instructions. 21.____

15. When out of a part needed, the parts person should make an effort to __22__ it for the customer. 22.____

## Test

Circle T if the statement is true; circle F if the statement is false.

1. A glib talker is the best salesperson. 1. T F

2. Some customers can be sweet-talked into buying. 2. T F

3. A sincere, helpful salesperson builds repeat sales. 3. T F

4. In his or her first approach to a difficult customer, the salesperson should seem indifferent rather than avid. 4. T F

5. The customer will be influenced by his or her appraisal of the salesperson's mental attitude. 5. T F

6. Specific knowledge of the customer's needs must sometimes be obtained by lengthy interrogation. 6. T F

7. Frequently, customers do not know just what they need. 7. T F

8. Ignition points should never be sold without suggesting a new point gap setting. 8. T F

9. The more the salesperson knows about his or her wares, the more wares he or she is likely to sell. 9. T F

10. A customer should never be sent to a competitor's store for an item that is not in stock where he or she first seeks it. 10. T F

# UNIT F. Displays

## TOPIC 1 – DISPLAY MERCHANDISING

This topic is planned to provide answers to the following questions:

- How have auto parts selling policies changed?
- What are the basic types of merchandising?
- What is critical to walk-in trade?
- What is the purpose of sales promotion?
- What is vital to the economic life of an auto parts store?

The auto parts sales program recently went through a significant change in selling policies. Manufacturers' parts are now on thousands of counters and shelves in the major retail and chain stores throughout the United States. Their sales are aimed at the "do-it-yourselfer." And for this reason the auto parts stores will have to change their approach to selling if they expect to stay in business.

### Forms of Merchandising

In analyzing in-store sales of automotive parts, equipment, and accessory and service items, several basic types of merchandising should be considered.

1. *Exposure of merchandise.* A good merchandiser exposes as much merchandise as possible to the customer. Mass merchandisers, such as Sears and Penneys, know the value of merchandise exposure, and their sales records are proof that it pays off in profitable sales. Auto parts jobbers throughout the country have experienced an increase in sales of 30 to 40 percent as the result of adopting a good display merchandising program.
2. *Point-of-purchase sales information.* Up until now few auto parts and equipment wholesalers have considered pricing and product information as a necessary step in selling merchandise. However, with the recent changes in selling policies, point-of-purchase sales information has become an important selling point with walk-in customers.
3. *Trained sales personnel to encourage customers to buy.* Today, customers want to look around and select merchandise for themselves; therefore, all salespersons should be trained to encourage customers to look around and buy.

After good store planning, layout, and merchandise displays have been established, sales promotion efforts should be directed to getting consistent customer traffic into the store. Some of the tools which can be used to get return customers are as follows:

1. Attention-getting newspaper ads
2. Radio and television commercials
3. Circulars
4. Direct mail
5. Customer discount cards

The merchandiser must think "walk-in" trade, which includes more than just retail trade. Every wholesale customer that comes into the store is subject to impulse buying of well-displayed merchandise.

### Display Factors

Any good merchandising plan is based on a knowledge of past performance, current abilities, and limitations, and the objectives one has for his or her business in the areas of sales, investments, and profits. Before an in-store display merchandising program can be put into effect, the following factors must be taken into consideration.

#### Type of Customer

The type of customer that will be patronizing the store should be determined beforehand—service station operator, garage proprietor, fleet operator, car dealer, recreational vehicle dealer, truck dealer,

and so forth. If, for example, 75 percent of the business is with wholesale trade, and it is the intention of the auto parts store management to keep this kind of trade, the displays should be constructed around the type of merchandise that appeals to the wholesale customer.

### Kinds of Products

The kinds of products and other services offered by the auto parts store should be assessed thoroughly prior to making any display decisions. Products such as engine parts, body supplies, accessories, and service items and services such as tool rental are important factors in determining the character and health of the business. As these factors are reviewed, the strengths and weaknesses of the business can be identified, and plans can be made to capitalize or improve on them through good display programs.

### Store Traffic

Store traffic is vital to the economic health of an auto parts business. Some of the questions that should be resolved before the auto parts person decides on an appropriate display are as follows:

1. What is the in-store traffic?
2. Does the store have contacts that can be used to build traffic?
3. What kind of neighborhood is the store located in?
4. What are the business hours of the store?

### Employees

Employees play an important part in getting and holding in-store business. Therefore, they should be able to do some, if not all, of the following tasks:

1. Address every customer by name
2. Wait on female customers
3. Change and freshen displays
4. Communicate technical knowledge to the customer
5. Learn new customer handling techniques that will encourage browsing and impulse buying.
6. Think profit
7. Give sound advice to the "do-it-yourselfer"
8. Make presentations
9. Participate in sales and product meetings

### Facilities and Equipment

The store location is critical to walk-in trade. If the store is to be relocated, or new branches are to be opened, management should use the warehouse distributor's knowledge, manpower, and expertise to find the best location.

Perhaps one of the most important factors in establishing an auto parts business is the appearance of the building. In assessing the exterior of the store, the following questions should be asked:

1. What image does the exterior of the business convey to the potential customer?
2. Is the building clean, attractive, and inviting to the customer?
3. Are the merchandise displays in the windows inviting?
4. Is there convenient parking?
5. Do the employees look like they want to help the customer?

The delivery truck is used in the auto parts business not only to deliver orders but also to create an image. This vehicle should tell people what the store sells, convey the idea that the store can save them money, and impart an image that will attract prospective customers. The driver of the truck should be neat and clean, polite, and able to encourage new business. In some cases, the driver and the truck are the only contacts that the customer ever has with the store; therefore, both must project the most desirable image.

### Advertising

The main objective of advertising is to attract and hold the attention of the prospective customer. This task is best accomplished by the use of the basic elements of attention such as size, position, contrast, color, sound, movement, illustration, and benefits.

*Size.* In the newpaper and the yellow pages of the telephone directory, the large ad rather than the small ad is more likely to catch the eye of the prospective customer. However, doubling the ad size does not double the results. Psychological studies have shown that a full-page ad has an attention value of 100 percent, that a half-page ad has an attention value of 71 percent, and that a quarter-page ad has an attention value of 50 percent. The general rule is to have as large of an ad or as long of a radio or television commercial as possible to do the best selling job.

*Position.* Advertisers should use prime driving time on the radio. In newspapers the best results are obtained by placing the ads for men on or near the business or sports page and the ads for women on the society or household pages. Ads should be placed under every heading that describes the

store's major products or services in the yellow pages.

The size of the ad will often determine the position it will get in the newspaper. The larger the ad, the better the position. The right-hand page in newspapers gets 5 to 10 percent better readership than the left-hand page. Outside columns catch the eye better than inside columns. Also, the upper half of the page gets better readership than the lower half of the page.

In the yellow pages, the best positions are those closest to the beginning of a heading. People who use this reference are ready to buy and are looking for suppliers. Therefore, ad features such as layout, headlines, content, and illustrations are important.

*Color and contrast.* These elements are extremely important, even in black and white ads. Most ads are printed with black type on a white background; however, reverse type can be used for contrast to other ads. Half tones can be used for color effect. Plenty of white space should be used in ads, particularly if they are small.

*Sound.* Sound is obviously important in radio and television advertising. A quiet, well-modulated voice may be a welcome relief when the advertising is on a rock music station. If the advertising is during a talk show, a music background may attract extra attention.

*Movement and illustration.* These elements can be achieved by using illustrations and type. The illustration should be functional and show the product or its use. The illustration should either show the positive benefits the customer can expect from using the product, or warn them of the consequences if they do not use the product.

*Benefits.* Benefits are the primary feature of the best and most successful ads. Headlines that speak directly to the prospective customer should be used to tell them how the products and services can enhance their lives or solve their problems. Illustrations and other movement elements can also be used to convey benefits.

The auto parts store management should work closely with the warehouse distributor to get the best results from advertising. The warehouse distributor can help with ad mats, supplier advertising funds, cost sharing programs, and so forth. The members of the warehouse distributor management team are real experts in these areas and should be used to the best advantage.

**Sales Promotion**

Sales promotion is the act of furthering the development of the sale after the store and the customer have made contact. This contact may occur when the customer sees a sign, reads a newspaper advertisement, or enters the store for the first time.

In addition to telling the customer where the store is located, what it sells, and when to come in, the sales promotion should offer to sell something at a very low price to improve chances that the customer will visit the store. Some of the sales promotion methods used today are as follows:

1. Special discount on a given item with a minimum dollar purchase
2. Discount on second item with the purchase of two items
3. Free item with a purchase
4. Premiums or free goods with dealer purchase
5. Dealer trip programs
6. Salesperson on the road to promote and sell
7. Signs and point-of-purchase information
8. Customer delivery service
9. Special terms and seasonal billing terms

## UNIT F — DISPLAYS

## TOPIC 1 — DISPLAY MERCHANDISING

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Auto parts sales in the major retail and chain stores are aimed at the 1 . — 1. _____
2. The auto parts store location is critical to 2 trade. — 2. _____
3. Sales promotion is the act of furthering the development of the sale after the 3 and 4 have made contact. — 3. _____ 4. _____
4. The main objective of advertising is to 5 and 6 the attention of the prospective customer. — 5. _____ 6. _____
5. One of the most important factors in establishing an auto parts business is the 7 of the building. — 7. _____
6. In some cases, the 8 and the 9 are the only contacts the customer ever has with the auto parts store. — 8. _____ 9. _____
7. In the newspaper, the 10 ad rather than the 11 ad is more likely to catch the eye of the prospective customer. — 10. _____ 11. _____
8. The economic health of an auto parts business is dependent on 12 13 . — 12. _____ 13. _____
9. A good merchandiser 14 as much 15 as possible to the customer. — 14. _____ 15. _____
10. Special discounts, free items, and customer delivery service are forms of 16 17 . — 16. _____ 17. _____

### Test

1. The new trend in parts merchandising is aimed at the wholesale customer. — 1. T F
2. Sales personnel should not encourage customers to look around. — 2. T F
3. The type of customer has no bearing on the type of inventory to be stocked. — 3. T F
4. The type of customer and kind of product should be similar. — 4. T F
5. Store location is critical to the sales of walk-in trade. — 5. T F
6. Delivery trucks and drivers are not important to parts sales. — 6. T F
7. The image conveyed by the exterior of the auto parts store is not important. — 7. T F

8. Advertising is used to attract and hold the attention of the prospective customer. 8. T F

9. Customery delivery service is a type of sales promotion. 9. T F

10. The warehouse distributor can be of tremendous help with an advertising program. 10. T F

## UNIT F – DISPLAYS

## TOPIC 2 – WHY DISPLAY?

This topic is planned to provide answers to the following questions:

- **What functions are assigned to displays?**
- **What can display do for a new product?**
- **What is the chief function of a seasonal display?**
- **What can displays do for store appearance?**

A display has been described as a silent salesperson to which several functions of the vocal salesperson may be assigned. Displays are aimed at ultimate sales through customer interest, but they reach the target in a variety of ways. Any display that is attractive or interesting has a potential sales appeal, and any passerby who pauses to examine a display is a potential customer.

### Creating Customer Interest

Most displays are designed for direct sales appeal. Others are designed to appeal to the customer in a less direct way through an interest theme.

Direct sales appeal is a theme easily carried out. An item or items which lend themselves to attractive display can be set up in many ways. Accessories, tools, and equipment are especially suited for effective display, although they are by no means the only items that display well. The direct appeal display should be simple, uncluttered, attractively arranged, and prominently placed.

The interest-theme display can be just as effective as a direct appeal display, but in a more subtle way. One of the most effective interest displays was an early Powerglide automatic transmission, completely disassembled, with each component identified by a name card, and with the whole transmission arranged in an exploded fashion in a parts room display case. The display created a great deal of interest. For retail customers it illustrated the concept and complexity of the Powerglide transmission (which was new on the market), and reminded them of the importance of regular transmission service. For mechanics and parts persons alike, it was an excellent reference for identifying needed transmission parts and for suggesting related items.

### Introducing New Products

One of the most frequent and effective uses of display is to introduce new products. The purpose of such displays is to make the customer aware of a new and desirable product and to create within him or her the desire to buy it. Such displays usually follow the direct appeal method, although some items are not restricted to direct sales. Many displays carry both direct sales and interest themes, and an effective blending of both themes can be the most profitable of all.

New products especially need prominent and effective display. The qualities and claims of the new product must be set before the consumer in such a manner that he or she will understand its value and be persuaded to buy. New products represent some new concept or an improvement over an old concept. Effective display must exploit the newness of the improvement that the product offers (Fig. F-1).

### Selling Related Items

Displays frequently sell related items. A related item is a piece of merchandise that can be logically

Fig. F-1. Self-selling display

suggested for purchase along with the article or articles requested. By the transmission display previously mentioned the repair person was frequently reminded of related parts he or she might need, such as gaskets, rings, seals, thrust washers, spacers, plates, lock rings, and the like. Many effective displays carry out a mechanical or seasonal theme in which a number of related parts are displayed together. Many automotive assemblies lend themselves to group display.

Related items may be connected with preventive maintenance. The small interior parts of a carburetor, mounted on a velvet-covered display board to enhance their intricate nature, will sell many a gas filter to owners whose cars are not presently equipped with adequate filtering means. If a customer can be shown that such preventive maintenance is not only desirable but economical, he or she will buy the product and be thankful for the suggestion.

A direct relationship exists between preventive maintenance sales and customer goodwill, which is frequently overlooked. Such related sales are legitimate and practical, well-planned displays are an effective way of achieving them.

### Selling Seasonal Items

Seasonal display themes that emphasize groups of items are extremely effective when properly arranged. Summer accessories, cold-weather requirements, wet-weather goods, and spring maintenance items are themes with almost limitless possibilities. These group themes can use all the potential that displays possess, direct sales appeal, interest groups, related sales opportunities, and preventive maintenance.

Summer accessories provide the largest single sales appeal in seasonal merchandise. Each year Americans drive billions of vehicle miles on highways in the United States. A substantial part of this mileage is accumulated during the summer vacation of the motoring public. Comfort and convenience accessories and their maintenance are a large item in the vacationing motorist's budget. Air conditioners, coolers, luggage carriers, trailers, campers, traveling and camping accessories, tires, and so on, plus the mechanical maintenance aids necessary for extended trips, are all items which can be effectively displayed and sold through a summer theme.

Other seasonal needs lend themselves to effective group display. The best ways to plan and arrange displays will be discussed in the next topic.

### Improving Store Appearance

Automotive parts and accessories can be used to make very attractive displays. A little imagination and ingenuity can transform an ordinary parts stockroom into an attractive parts department for little cost. Vacant corners, unused wall space, large window areas, and counter space are all potential display sites (Fig. F-2).

Displays should be designed to enhance the appearance of the customer sales area. People enjoy shopping in an area that is clean and well lighted, and in which merchandise may be viewed. A waiting customer will browse if there are interest centers and attractive displays available.

Displays can be planned to invite attention while generally improving the appearance of the store. Wall space can be equipped with pedestals, shelving clusters, or shadow-box arrangements. Window treatments, while dressing up the window space, should serve as attention-getters to invite the customer inside for potential sales. Unused corners, which tend to collect odds and ends, should instead be fitted with suitable displays. In areas where there is counter space, counter displays will serve as interest centers while breaking up an otherwise drab architectural necessity.

Courtesy Tri-City Auto Supply, Richmond

**Fig. F-2. Typical displays in a wholesale-retail auto supply store**

UNIT E — DISPLAYS

TOPIC 2 — WHY DISPLAY?

## Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Displays are aimed at ultimate _1_ through _2_. — 1. _____ 2. _____
2. Most displays are designed for _3_ sales appeal. — 3. _____
3. Another appeal to the customer can be made in a less direct way through an _4_ _5_. — 4. _____ 5. _____
4. One of the most frequent and effective uses of display is to _6_ _7_ products. — 6. _____ 7. _____
5. New products represent a new _8_, or an _9_. — 8. _____ 9. _____
6. Effective display of a new product must _10_ the newness or the improvement. — 10. _____
7. A related item is one that can be _11_ suggested for purchase along with the articles _12_. — 11. _____ 12. _____
8. Related items may include _13_ _14_ items. — 13. _____ 14. _____
9. The largest single sales appeal in seasonal displays are _15_ accessories. — 15. _____
10. An ordinary parts stockroom can become an attractive parts department through _16_. — 16. _____

## Test

Circle T if the statement is true; circle F if the statement is false.

1. Most displays appeal to the customer indirectly. — 1. T F
2. Tools and accessories are well suited to display. — 2. T F
3. A complex display of an assembly may serve as a reminder that such assemblies need regular maintenance. — 3. T F
4. New products can best be sold without display. — 4. T F
5. Selling preventive maintenance is one way to obtain customer goodwill. — 5. T F
6. A grouping of snow tires, antifreeze, windshield scrapers, lightweight oil, and wheel chains could be a very effective late autumn display. — 6. T F
7. When displayed, new products usually try to make a direct appeal. — 7. T F

8. When improved items are displayed, the improvements will be self-evident. 8. T F

9. Comfort and convenience accessories provide a small market compared to efficiency and safety items. 9. T F

10. Displays may prove of value not only to customers but also to shop mechanics. 10. T F

## UNIT F — DISPLAYS

## TOPIC 3 — HOW TO DISPLAY

This topic is planned to provide answers to the following questions:

- What qualities of an item should be emphasized when it is placed on display?
- Can more than one quality be emphasized at one time?
- How can each different quality be stressed?
- Can more than one item be effectively displayed at the same point?
- How many different displays should be staged in the salesroom at one time?

A person may do good display work without knowing just what it is that makes his or her work successful. Some people have an intuitive feel for the arrangement of materials into an attractive display. Describing display techniques, however, can be simplified by the use of certain key words. If one has the feel for good display, then the words will reinforce what is already known. Without experience in display work, these words can be helpful toward understanding the aims and purposes of effective display.

### Display Terminology

The following are examples of terminology that is used frequently in display work.

#### Functional Display

A functional display points out the usefulness of the product. The desirability of the item lies in its usefulness, it may do a job better or more easily. The functional display must exploit this aspect of the product.

#### Aesthetic Display

Aesthetic display emphasizes the beauty of the product. Certain shapes or finishes appeal to us in a way which can not always be described. This is an aesthetic appeal. Manufacturers spend millions of dollars in design engineering, trying to create a form or shape that has aesthetic appeal. New car styles are a prime example of this effort.

#### Staged Display

A staged display has a definite plan. It is not just a row of bottled polishes or chemicals, or an array of chrome. It has a plan and a theme. Staged displays are far more effective than random displays.

#### Symmetry of Display

Symmetry means a certain visual balance in the products displayed. Grocery clerks build pyramids of canned goods. This is a form of display symmetry, but it can be achieved in other ways. A display should not be top-heavy or lop-sided, but arranged in a way that gives a feeling of balance.

#### Prominence of Display

Prominence means conspicuousness or striking to the eye. A displayed item should occupy a place that stands out, both in its display setting and in its general location. Visual accessibility is a key to good display.

### Kinds of Merchandise Displays

The most common kinds of interior merchandise displays are open displays, end displays, closed displays, architectural displays, platform displays, and ledge and wall displays.

#### Open Displays

Open displays may present an entire assortment of merchandise from which the customer can select or may present certain items selected from stock to attract the customer's attention. In either case open displays allow the customers to handle the goods. The merchandise may be placed in an orderly fashion on tables, racks, or gondolas. The basket or dump display is also a form of open display. Merchandise is piled into wire baskets or onto bargain tables in a helter-skelter fashion to give the impression of a great volume of merchandise being offered at low prices. Goods in damaged packages or cans are often sold in this manner.

#### End Displays

Stores use end displays (displays placed at the ends of merchandise aisles) to feature advertised merchandise. End displays with arches or canopies are the best displays for focusing attention upon the featured merchandise. Motion in a display attracts more attention and sells more goods than does a stationary display. The larger an end display and the more prominent its location, the greater are the chances of a sale.

### Closed Displays

Closed displays allow the customer to view the merchandise but do not permit them to handle it. Examples of closed displays are glassed-in showcases, interior windows, and niches (often near elevators and escalators). Closed displays protect goods from physical damage and theft and are easy to keep in order.

## Display Techniques

An introduction to display techniques is really an introduction to the five key expressions listed above. Three of these word concepts or display concepts–staging, symmetry, and prominence–should always be sought. The nature of the product will determine whether a functional or aesthetic theme (or both) should be stressed.

Displays must be prominent, but not offensive. The top of the counter should not be cluttered with a lot of miscellaneous material, especially if work space is limited. The customer area should not be cluttered with many displays that make walking about difficult. A few well-planned and well-placed displays will do a better job of selling than many unplanned displays (Fig. F-3).

Displays should be kept simple, but attractive. A single item, rather than a whole pyramid of the same item, can be just as effective if properly posed. Attention can be brought to the item by a prominent setting, appropriate surroundings, and where possible, special lighting. A chrome accessory, highly polished and mounted on a draped pedestal with special lighting, has more sales appeal than a windowful of cluttered and unposed merchandise. This is true for most displays, whether they are on countertops or wall shelves, in display cases or window cases. A display should be simple, uncluttered, attractively posed, and prominently placed.


Courtesy Tri-City Auto Supply, Richmond

Fig. F-3. Behind the counter displays

## Display Appropriateness

Before a display is begun, the appeal the merchandise offers should be determined. If it is a functional appeal, a setting should be designed to emphasize this functional quality. If related items will help to emphasize usefulness, they should be arranged together. If a comparison with an older–less useful–product is appropriate, the display should compare them. All signs, placards, and descriptive material should join in carrying out the functional appeal of the product. Function should be the central theme; other rules of good display must also be followed.

Some items display best for their aesthetic appeal. Chrome wheel covers (discs) have no particular functional value, but their beauty of design is attractive. Displays which emphasize the aesthetic qualities of a product should reflect special attention given to the setting. Padded and draped pedestals and backdrops are especially attractive. Rich colors are usually desirable. Special lighting–direct, indirect, or shadowed–can be extremely effective in this kind of display. The beauty of the product is emphasized; the more attractive it can be made to appear, the greater the sales appeal.

Some items lend themselves to both functional and aesthetic display. These items should be treated with all the display skill that the parts person can muster, for they offer the greatest potential sales appeal. Both themes–usefulness and beauty–should be exploited to the fullest.

## Display Staging

Staging a display demands a place and a theme. The place must be prominent; people must be able to see it (but not stumble over it). The theme is a little more complicated. Is it a direct sales appeal or an interest theme? Is it a theme relating several items, such as a seasonal display? What is the selling point, beauty or usefulness?

Once the location and theme are chosen, the job is half-finished. A sketch should be prepared. All the materials should be gathered, and the display area thoroughly cleaned. Any pedestals, stands, drapes, or coverings to be used are arranged first. If the merchandise has no related theme, the

items may be tried in various patterns until balance is achieved. Special lighting is then provided where needed.

Related themes require special attention. Certain items should be grouped. For example, in a spring tune-up theme the spark plugs, ignition wires, ignition coil, distributor cap, condenser, points, and rotor are related components. Interest themes, such as the transmission display mentioned earlier, provide an effective display only if accurately grouped. Balance and sight appeal should always be sought.

### Display Maintenance

Displays must be cleaned regularly and realigned frequently. If displays are open, people are bound to handle them. A display should not be left out too long. When interest begins to fade, the display should be changed.

### Study Assignment

1. Look up the following words in an unabridged dictionary:

| | |
|---|---|
| functional | symmetry |
| aesthetic | prominent |
| staged | |

From the dictionary definition of each word formulate a simple, easily remembered definition that applies to displays.

2. Plan and sketch a large display. Use as many of the ideas from this unit as you can in the displays. On the back of the sketch, explain briefly your reasons for staging the display as you did. Show the work to your instructor; then show it to your employer. Discuss with your employer the possibility of actually building the display.

## UNIT F – DISPLAYS

## TOPIC 2 – HOW TO DISPLAY

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. The utility and usefulness of a product is pointed out by a __1__ display. 1. _____
2. An __2__ display emphasizes the beauty of the product. 2. _____
3. A __3__ display has a definite plan. 3. _____
4. In the open display the customer __4__ the goods. 4. _____
5. A displayed item should occupy a place of __5__, in both its setting and its __6__. 5. _____ 6. _____
6. The key to good display is __7__ __8__. 7. _____ 8. _____
7. The nature of the product displayed will determine whether a __9__ or __10__ theme, or both, should be stressed. 9. _____ 10. _____
8. The counter top should not be __11__. 11. _____
9. Before a display is begun, the __12__ that the items offer should be determined. 12. _____
10. Staging a display requires a __13__ and a __14__. 13. _____ 14. _____

### Test

Circle T if the statement is true; circle F if the statement is false.

1. Intuition plays a part in making a good display. 1. T F
2. If one has a feel for a good display, words cannot help him or her to understand the subject. 2. T F
3. Aesthetic display stresses beauty of form or finish. 3. T F
4. A staged display should have a random arrangement. 4. T F
5. Symmetry can involve either physical or visual balance. 5. T F
6. Staging, symmetry, and prominence can all be included in the same display. 6. T F
7. Clutter reduces the effectiveness of a display. 7. T F
8. The more displays that can be set up in a store area, the more customers will be persuaded to buy. 8. T F

9. All parts of a display should support its theme. 9. T F

10. Usefulness and beauty can both be exploited in a single display. 10. T F

11. A display can be effectively staged anywhere in the salesroom. 11. T F

12. Displays in open areas should be cleaned and realigned frequently. 12. T F

13. End displays are used to feature advertised merchandise. 13. T F

14. Displays need not be too well planned to be effective. 14. T F

15. In closed displays the customer is not allowed to handle the merchandise. 15. T F

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ABSTRACT

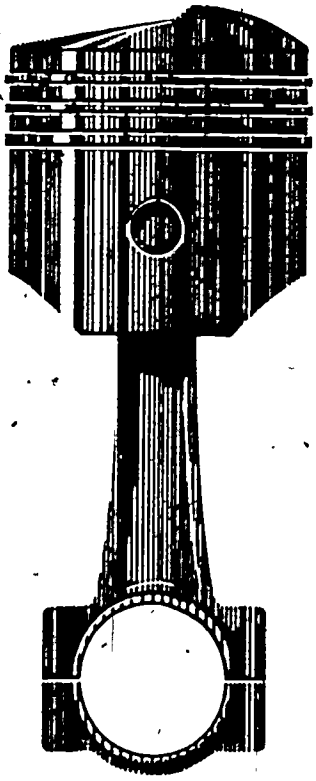
This workbook is designed to provide the student apprentice in the auto parts trade with up-to-date knowledge and technical skills. The subject matter is organized into six units: (1) scope or background material, and employment opportunities in the field; (2) areas of responsibility, including shipping and filling orders, receiving, stock maintenance, pickup and delivery, the counter, and sales; (3) cataloging systems for factory and jobber-independent parts; (4) inventory and stock control; (5) counter sales, covering parts terminology and how to sell; and (6) displays, their organization and purpose. The separate topics within these units each contain a summary of objectives, study assignments, discussion topics, self-administered tests (answer sheets are not provided), and study guides. (ELG)

CE

J. Smith

# Workbook

# PARTS



A column labeled "Date Assigned" has been provided at the right-hand side of each page of the workbook section in the contents. Whenever your instructor assigns a topic, the date should be written in the appropriate blank. When you have completed the topic satisfactorily, your instructor should place his initials next to the assignment date. If this procedure has been followed, and you should transfer from one school to another, you will have an accurate record of the work you have completed. This procedure is intended to ensure that you complete each topic and to ensure that you do not have to duplicate work on topics already studied.

To provide other school records needed, be sure to fill in the blanks below, giving your name, home address, and telephone number. Then ask your instructor to fill in the official date of your enrollment in his class and to sign his name.

NAME _____

ADDRESS _____

_____ PHONE _____

DATE ENROLLED _____

INSTRUCTOR(S) _____

_____

# Workbook
# AUTO PARTS

Prepared under the direction of the
BUREAU OF INDUSTRIAL EDUCATION

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# Foreword

In the apprenticeship programs, experience gained on the job is supplemented by classroom work that is closely related to the job. This balanced system of training enables the apprentice to learn the "why" as well as the "how" of the trade. Both types of training are required for advancement in today's competitive industries.

The job-related courses for the skilled trades are highly specialized, and adequate training materials are for the most part not available commercially. To meet this need, the Department of Education, in cooperation with labor and management, develops the required training materials and makes them available to you at cost. This work is an example. It was written to provide you with up-to-date information you must have to meet the growing technical demands of the auto parts trade. Every effort you put forth today to become a competent auto parts person will bring you many rewards and satisfactions, and the benefits will extend also to your community. We need your skills and knowledge, and I wish you every success in your new venture.

*Superintendent of Public Instruction*

# Preface

The Bureau of Industrial Education in the State Department of Education provides for the development of instructional materials for apprentices under provisions of the California Apprentice Labor Standards Act. These materials are developed through the cooperative efforts of the Department of Education and employer-employee groups representing apprenticeable trades.

The original edition of *Auto Parts* was planned and prepared under the direction of the State Educational Advisory Committee for the Automotive Trades whose membership included the following representatives of employers and employees:

| Employer Representatives | Employee Representatives |
|---|---|
| Robert Larimore, San Mateo | L. J. Costa, San Mateo |
| Roy J. Harper, Los Angeles | Mack O. Keister, Fresno |
| Paul Stockburger, Fresno | R. N. Fleming, San Diego |

Material for this edition was provided by Mark Kustic, auto parts instructor, Southern California Regional Occupation Center, Torrance, California.

William Popkes, Supervisor in Industrial Education, coordinated the project activities for the Bureau of Industrial Education, and Blair Hansen, Publications Consultant, coordinated publications activities for the Bureau of Publications.

DAVIS W. CAMPBELL
*Deputy Superintendent for Programs*

DONALD W. FOWLER
*Assistant State Director of Vocational Education and Administrator*

SAMUEL L. BARRETT
*Assistant Superintendent and State Director of Vocational Education*

JAMES T. ALLISON
*Acting Chief Bureau of Industrial Education*

# Contents

# UNIT A Scope and Opportunity

## TOPIC 1 – THE AUTO PARTS INDUSTRY

This topic is planned to provide answers to the following questions:

- **How many people are employed by the automotive industry?**
- **What are the major divisions of the auto parts industry?**
- **What areas of the auto parts industry offer the best employment opportunities for the parts apprentice?**
- **What are the general practices of auto parts sales organizations?**

From its humble beginning before the turn of the century, the automotive industry has grown into one of the largest industries in the United States. Today, approximately one out of every seven wage earners is connected in some way with the automotive industry. In 1900, American manufacturers produced 4,192 automobiles. More recently, this country produced over 12 million cars, trucks, and buses. From 1900 until now, automobile manufacturers in the United States have produced about 329 million vehicles. Vehicle registrations indicate that more than 108 million of these vehicles, or over one-third of all automobiles produced, are still in service.

Not much imagination is needed to recognize that the auto parts industry has grown accordingly. During the past year car owners spent almost $5 billion for replacement parts. When this figure is added to the cost of parts manufactured for assembly into new vehicles, the enormous size and potential of the automotive parts industry is apparent.

### Parts Manufacturers

The manufacturers of auto parts can be divided into four general categories: (1) auto manufacturers who produce parts to assemble their own particular cars and trucks and who merchandise replacement parts and accessories through their agencies or dealerships, (2) subsidiaries of auto manufacturers, partly or wholly owned, whose products appear in new vehicles, on dealers shelves, and in other wholesale-retail outlets, (3) independent manufacturers who merchandise their products through franchised outlets, and (4) independent manufacturers who sell to any interested buyer.

### Parts Outlets

For most auto parts apprentices, employment opportunities are in two general areas: jobber-independent stores and automobile agencies (dealerships).

When the term *jobber-independent* is used in its broadest sense, it includes all wholesale-retail outlets which deal mainly in replacement automotive parts. This category includes UMS (United Motors Service) outlets, NAPA (National Automotive Parts Association) Jobbers, and the thousands of independent wholesale-retail stores that handle merchandise from all parts manufacturers.

The parts department in the automobile agency supplies parts to the agency service department and sells genuine parts to the general trade. The agency parts department is an outlet for parts manufactured by or contracted for by the parent company. An exclusive franchise usually is granted to the agency by the manufacturer, and almost all parts sold through the agency parts department are purchased from a regional warehouse maintained by the parent firm.

### General Practices

The general practices and methods used by both jobber-independents and auto agency parts departments are much the same. The only real differences between the two are the brands of merchandise sold, the cataloging systems used, and the pricing structure followed.

Both the jobber-independents and the auto agency parts departments sell at wholesale and at retail, that is, both offer wholesale discounts to qualified purchasers, and both sell at retail or list price to the general public. For both the agency

parts departments and the jobber-independents, counter sales are a large part of the business. Jobber-independents maintain machine shops, while agencies maintain service departments. Almost all jobbers and many agencies hire one or more outside salespersons. Both must employ shipping and receiving personnel, stock clerks, cashiers, counter salespersons, and bookkeepers, and both must maintain pickup and delivery services and ordering and inventory systems. Both also require trained management.

Because of the many similarities, sound training can be valuable to any auto parts apprentice, whether he or she is employed by an independent company or by an automotive agency. The general practices and methods used by both should provide a foundation upon which the apprentice can build a career.

## Trends in the Industry

The automotive industry, including the auto parts industry, is growing at an enormous rate. But the growth is not only in volume. The two major trends within the industry today are (1) increased competition, and (2) increased complexity.

### Makes and Models

Since 1950 the increase in competition has brought about substantial changes among automobile manufacturers. Old, established lines such as Studebaker, Hudson, and Packard have disappeared from the market. Companies have merged to survive, not because the total market has lessened but because of the increased competition. The so-called Big Three—General Motors, Ford, and Chrysler—lead the industry in sales. Their aim is to saturate the market and to provide vehicles in every style and price range demanded by the motoring public.

Chevrolet is a good example of the saturation effort. In one year the Chevrolet line included five models: Chevrolet, Vega, Corvette, Chevy II, and the Chevelle. Each model offered a full range of body styles, engine sizes, transmissions, and accessory options. The line included a full-sized model, a compact, sports car, and two in-between models to appeal to those people who could not find what they wanted among the first three models. Chevrolet is one of five lines of cars that General Motors offers the public; the other lines include Pontiac, Oldsmobile, Buick, and Cadillac. The intense competition that exists in the automobile market can be appreciated when one takes into account the fact that Ford and Chrysler have a similar blanket coverage of the market.

### Growth of the Parts Business

The large number of models available and the competition to bring new and desirable innovations to motorists have caused the auto parts industry to grow almost beyond measure. The competition in the parts field is apparent from the large number of new outlets that have appeared and continue to appear. The number of legitimate wholesale-retail businesses is growing. In addition, discount houses are springing up, selling anything from a stuffed toy animal to a set of original equipment spark plugs, all at wholesale prices. The competition that presently exists within the automobile industry should not be viewed negatively. Such competition opens up a great many opportunities, which will be discussed in the next topic.

### Complexity of Industry

The increasing complexity that competition among manufacturers has bred into the industry must be considered. To appeal to the largest possible segment of the motoring public, manufacturers are offering more and more models and options. The options, many of which are now considered essential, are becoming more sophisticated. In 1963, intricate automatic transmissions appeared in 75.5 percent of the American passenger cars produced. Four-speed transmissions and multiple carburetion, with dozens of engine options, are now universally offered. Alternators (alternating current generators) have become standard equipment, and careless testing of the electrical circuit can burn out the alternator diodes in a matter of microseconds. Power steering, power brakes, power windows, power seats, positraction rear axles, and a host of other complicated units provide both a challenge and an opportunity to the auto parts trade. More trained personnel are needed in this complicated field to handle the increasing sales of replacement parts.

The auto parts industry today is big and complicated, competitive, and industrious. Barring some national catastrophe, it cannot do anything but grow. The auto parts person who is well prepared cannot help but grow with the industry.

## Study Assignment

*Automobile Facts and Figures*. Detroit. Automobile Manufacturers Association, Inc., (Latest edition).

## Topics for Discussion

Be prepared to discuss the following if you are asked to do so:

1. What are the general categories of the auto parts industry? Can you name a specific local example of each?
2. What are the similarities between an auto agency parts department and a jobber-independent store?
3. Discuss four or five examples of extremely complex units; e.g., transmissions, carburetors, or electric circuitry.
4. Discuss the problems an auto parts person might encounter in supplying such complex units.

## UNIT A — SCOPE AND OPPORTUNITY

## TOPIC 1 — THE AUTO PARTS INDUSTRY

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Today one out of every __1__ wage earners is connected with the automotive industry. 1._____
2. In the past year, car owners spent almost __2__ billion dollars for replacement parts. 2._____
3. Most auto parts apprentices will be employed by auto agencies or by __3__ - __4__. 3._____ 4._____
4. The two current major trends in the automotive industry are __5__ and __6__. 5._____ 6._____
5. The aim of the Big Three is to __7__ the auto market. 7._____
6. The number of different models and __8__ offered by the auto industry has greatly increased the complexity of the parts business. 8._____
7. Four-speed __9__ and multiple __10__ are two major options that are offered to the buyer. 9._____ 10._____
8. The modern service person is aided by using __11__ - __12__ to analyze trouble. 11._____ 12._____
9. The system of matching pistons, rings, connecting rods, and bearings in sets is known as __13__ fit. 13._____
10. The term *jobber-independent* includes wholesale-retail outlets whose principal wares are __14__ automotive parts. 14._____

### Test

Circle T if the statement is true; circle F is the statement is false.

1. The value of automotive parts imported from some foreign countries exceeds the value of the motor vehicles imported from the same countries. 1. T F
2. More than one-fourth of all businesses in the United States depend on the manufacture, distribution, servicing, and use of motor vehicles. 2. T F
3. Automobile manufacturers make all the parts for their cars. 3. T F
4. Jig borers which are accurate to within a few millionths of an inch are used in auto manufacture. 4. T F
5. The parts department of an automobile service agency supplies parts only to the agency service department. 5. T F

6. The price of an auto part is the same to any buyer. 6. T F

7. Growth of the auto parts industry has not yet reached a plateau. 7. T F

8. Mergers of auto manufacturers have hurt the replacement parts business. 8. T F

9. Competition and complexity are two characteristics of the auto parts industry. 9. T F

10. Careless electrical testing can ruin an alternator. 10. T F

## UNIT A — SCOPE AND OPPORTUNITY

## TOPIC 2 — OPPORTUNITIES IN THE FIELD

This topic is planned to provide answers to the following questions:

- Is there a need for trained personnel in the auto parts field?
- Can a person make a living in auto parts work?
- What are the opportunities for advancement in the auto parts business?
- What kinds of jobs can a parts person aspire to?

The rapid growth of the auto parts industry has created new job opportunities faster than it has been possible to train people to fill them. Also, the lack of well-structured apprenticeship programs, the reluctance of some business people to enter into apprenticeship agreements, and the prevalence of a low-wage scale have contributed to a shortage of competent and well-trained parts persons. These conditions are rapidly improving; however, and this improvement will continue. A real and widespread need exists, and a competent parts technician can look forward to a bright future, limited only by his or her own initiative and ability.

### Wage Scales

Wage scales for auto parts persons are improving. The establishment of formal apprenticeship agreements, supervised by company and union committees, is an encouraging sign. The wage scale, which was for many years a detriment to the industry, is rising, and fringe benefits now include paid vacations and holidays, profit sharing programs, and insurance.

### Working Conditions

The actual working conditions in the auto parts industry have also been improved. Union agreements give the parts employee recourse for the settlement of grievances. The 40-hour work week is now almost universal in union shops. Overtime pay and premium pay for certain shifts have been established.

For years many parts organizations were dirty and poorly housed. But the competition and complexity of the business, which is causing the field to grow, is also acting to improve conditions. The volume of material presently handled, the number of items stocked, and the value and complexity of the stock have required that new emphasis be placed on modernizing the physical plant and on improving working conditions. The agency parts department, which was once relegated to a dark corner of the service shop, is now most often an attractive and prominent part of the dealership. Jobber-independent parts stores are also improving (Fig. A-1).

Courtesy Torrence Auto Parts

Fig. A-1. Example of a self-service counter located in front of the main service counter.

Today, most parts organizations occupy clean and comfortable areas. Auto parts employees enjoy a variety of work, a chance to meet the public, and an opportunity to form new and rewarding relationships with fellow employees and customers. The parts industry offers the apprentice a chance to progress in an interesting and growing field of endeavor (Fig. A-2).

### Job Opportunities

Whatever other basic interests and skills a person may have, his or her ability to understand mechanical concepts and business practices may be


Courtesy Val Strough Chevrolet Co., Oakland

Fig. A-2. Example of a modern, well-arranged, well-kept auto agency parts department.

enough to obtain a position in the auto parts industry. The field is so diversified that it can accommodate any interested person. From the engineer who designs the part to the service person who makes the final installation in a customer's vehicle, there is a range of jobs broad enough to suit most interests. Job classifications such as engineer, drafter, forger, machinist, assembler, cost accountant, packaging supervisor, stock controller, cataloger, shipping clerk, displayer, and salesperson are common to the auto parts industry.

A few of the specific job opportunities which exist in the automotive parts field, and related fields, are described in the following sections.

### Counter Salesperson

Sales are the lifeblood of any parts organization, and most sales occur over the counter. A counter sales job is one of the immediate goals available to the parts apprentice. Counter sales work requires mechanical knowledge and salesmanship. If one possesses or can acquire both, and if he or she enjoys meeting people, then he or she may prosper in this phase of the business. Qualified counter salespersons are almost always in demand.

### Outside Salesperson

The basic requirements for this job are the same as those for counter sales, but the outside salesperson calls on customers outside the store. A regular route is established, and new accounts are added as the opportunity permits. Many prefer this type of selling to the routine of inside counter sales and work toward this specific goal. The customers called upon include trucking firms, auto fleets, repair shops, service stations, body shops, specialty shops, and others. An outside salesperson frequently works on a salary plus commission basis, an arrangement that offers high earnings.

### Jobber Salesperson

A jobber is an interagent. Jobbing firms buy from manufacturers and sell to the other wholesale-retail firms, who in turn sell to the general trade. To sell the large quantities of merchandise that the jobbers handle, many jobber-salespersons go out into the field and call on parts houses and many other wholesale establishments. The volume of sales involved is large, and many jobber-salespersons earn substantial incomes. In some cases the sales representatives of jobbing firms

cover several states. A particularly good salesperson who enjoys travel may find the vocation of jobber-salesperson most appealing.

#### Parts Manager

Every parts organization requires trained management, and the success of the business depends to a great extent on the ability of the manager. A manager must be something more than a clerk or a salesperson. The successful manager must be able to (1) supervise people without alienating them; (2) supervise in every phase of the business; and (3) plan, structure, and guide the overall effort of all members of the team. If the manager cannot gain the confidence of the employees and encourage their participation in the total effort, he or she will fail. A manager's job awaits the person who has the ability to plan and to supervise. A parts manager's and service manager's ability to make a profit can be the only way a dealership may stay in business during periods of low car sales.

#### Car Salesperson

People trained in the parts field often move into auto sales work. Experience in either parts or service departments provides an excellent background. The person who knows auto mechanics can do a much better job of talking about a car or truck and of demonstrating and comparing it with other makes and models.

#### Automotive Dealer

Many opportunities exist for owning one's own business. Some parts stores, specialty shops, jobbing firms, and automobile agencies are owned by persons who started their career in parts or service work.

### Opportunities for Advancement

Opportunities for advancement within the auto parts industry are limited only by one's ambition, ability, and willingness to work. Some of the possibilities for advancement have been mentioned, and there are dozens of others. One very important consideration, however, needs to be stressed. The really good jobs will be filled by trained people—those who have realized the need and have prepared themselves accordingly.

The apprenticeship program represents a minimum of preparation. In this technical and competitive age, one must take advantage of every academic and vocational opportunity. School courses in mathematics, science, and business are important to success. Evening courses in many subjects (academic and vocational) are offered in many high schools and junior colleges. The parts person who hopes to move up to a really responsible position in the field should prepare himself or herself to use his or her total ability. School counselors will help prepare a full or part-time program of study to achieve this objective.

### Dealership Parts Operation

The parts department in a dealership is managed by the parts manager. In a dealership the salesperson will sell the parts required for the make of cars sold by the dealer. Parts and price books are available for only these cars.

Most of the parts handled by a dealership parts operation are sold to its own service department. In addition, this kind of operation will have over the counter retail sales and wholesale sales to repair shops and body and paint shops. The parts sold will be purchased from the manufacturer's local and factory warehouses.

In a dealership the salesperson will be called on to furnish many more items or parts for an automobile than an independent jobber. The dealer parts department must sell all of the sheet metal, such as fenders, hoods, doors, and inner panels, and all of the chrome outer moldings, including such items as seat and door upholstery. The accessory line includes radios, clocks, outside mirrors, speed controls, and air conditioning units.

### Independent Jobber Operation

An independent jobber may have a store manager, or the owner may be the manager. The jobber sells parts wholesale and retail, or may have a machine shop to grind valves and heads and turn crankshafts. The jobber will probably have fast selling parts in stock for all makes and models of cars and small trucks. Most of the stock will consist of parts for the engine and chassis, electrical tune-ups, batteries, and rebuilt units, such as generators, alternators, and water pumps.

The independent-jobber's catalog may be made up of as many as 48 or more different manufacturers catalogs. The apprentice will have to learn what each manufacturer makes to know which catalog to use. One manufacturer will probably make only suspension parts, while another may make only certain engine parts.

Both the dealership and jobber have parts return and warranty plans for obsolete and defective parts.

## Study Assignments

*The Retail Automobile Business.* Detroit: General Motors Corporation (Latest edition).

## Topics for Discussion

Be prepared to discuss the following topics if you are asked to do so:

1. Why might a business person hesitate to hire an apprentice?
2. Why are courses in science, mathematics, and business subjects important to the auto parts apprentice?
3. What are some of the attributes of a successful parts manager?
4. Discuss your own particular skills and interests, and try to determine where you would fit best in the auto parts industry.



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## UNIT A – SCOPE AND OPPORTUNITY

## TOPIC 2 – OPPORTUNITIES IN THE FIELD

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. The rapid growth of the automobile industry has __1__ new job opportunities faster than people have been __2__ to fill them. 1.____ 2.____

2. A competent parts technician can look forward to a bright future, limited only by his or her own __3__ and __4__. 3.____ 4.____

3. An improvement has been noted in __5__ scales and working __6__ for auto parts persons. 5.____ 6.____

4. The auto parts industry offers the apprentice a chance to __7__ in an interesting and __8__ field of endeavor. 7.____ 8.____

5. The auto parts industry is so __9__ that is can accommodate any interested __10__. 9.____ 10.____

6. Three sales job opportunities in the auto parts business are __11__, __12__, and __13__. 11.____ 12.____ 13.____

7. Auto parts training can lead to jobs as __14__ person or __15__ manager. 14.____ 15.____

8. The apprenticeship program represents the __16__ in the way of preparation for success in a trade. 16.____

9. To move up to a really responsible position in any field, a person must be trained to use his or her __17__ __18__. 17.____ 18.____

10. Education, __19__, and many different __20__ contribute to development of a successful career in the automotive world. 19.____ 20.____

### Test

Circle T if the statement is true; circle F if the statement if false.

1. A general shortage of well-trained auto parts persons exists in the industry. 1. T F
2. Wage scales have not contributed to the shortage of parts persons. 2. T F
3. Auto parts apprentices work a 35-hour week. 3. T F
4. The diversity and complexity of stocks of auto parts prevent orderly storage and display. 4. T F
5. The auto parts industry provides jobs for forgers, assemblers, and artists. 5. T F

6. Counter sales work in the auto parts business requires good mechanical knowledge. 6. T F

7. A jobber salesperson does not work for an interagent. 7. T F

8. To be a successful manager calls for knowledge of people as well as of the work they do. 8. T F

9. Training as a parts apprentice is valuable to a truck salesperson. 9. T F

10. Successful completion of an apprentice course ensures reaching any top job in the trade. 10. T F

# UNIT B Areas of Responsibilty

## TOPIC 1 – FILLING AND SHIPPING ORDERS

This topic is planned to provide answers to the following questions:

- **How is a replacement parts order filled?**
- **What action is taken with respect to an order for a part not in stock?**
- **What item is always packed with the order?**
- **Are shipping rules the same for all carriers?**
- **Why are some shipments made COD?**

The first task of the new apprentice in the auto parts business is frequently to help in the shipping and receiving department, or to serve as pickup and delivery driver. In this position, the apprentice may package merchandise for shipment, receive and check merchandise, stock the bins, or more than likely perform a combination of all three tasks. For this reason the apprentice is urged to read through the first three topics of this unit before beginning any detailed study of each. All three topics are closely related. The instructor may wish to rearrange the order of study of these topics (B1, 2, 3) into a pattern which best fits the apprentice's on-the-job assignment. However, the reading assignment should be carried out, because the relationship holds regardless of the pattern of study.

Parts persons in automotive dealerships are not usually called upon to ship the amount of merchandise that is shipped by parts persons in specialty or jobbing houses. However, all workers, regardless of the branch of the auto parts trade in which they are employed, should be familiar with the basic steps in filling orders and preparing them for shipment.

### Filling Orders

The first step in filling an order is to examine the order carefully to get a general idea of the size and nature of the parts ordered. The shipper can thus form an idea of the cartons and packages needed and can determine a route to follow through the department so that the order can be filled as quickly and efficiently as possible.

Picking the order is best done with the aid of an order cart or, in the case of a smaller order, a carton of appropriate size. As each item is located, the items are counted carefully into the container and are checked against the order form for quantity and part number. Appropriate check marks are made beside each filled quantity, if shortages occur, or back orders are necessary, the order is marked accordingly. Before shorting an order (i.e., marking any items missing), other storerooms and overstocks (frequently found on the tops of bins) are checked for the needed merchandise.

After the order has been picked, it is taken to the shipping desk or department, where it is rechecked prior to final packaging. If shortages are noted on the order form, those items are checked against the inventory cards to ensure that stock has not been overlooked. If the missing parts are on order, the approximate date the customer may expect to receive the merchandise is indicated on the order form. If the ordered part has been superseded, both the old and the new part numbers should be shown on the order with an explanation of the change.

In some cases it may be necessary to make substitutions on an order. If the brand specified is not available, or if a component part is ordered when only a complete assembly containing the component is available, then the shipper should obtain permission from the customer to make the necessary substitution. Brand name substitutions occur frequently in jobbers stocks. Some brands carry their own numbering system, while others are stocked under original equipment numbers. In any case, permission should be obtained from the customer before making any substitutions, especially if substantial differences in price are involved.

When any of the parts on order cannot be delivered with the bulk of the order, a back order (order for future delivery) is prepared, providing the customer will accept back orders. If a back order is approved, the appropriate form is made out and placed in the action files, and the material is delivered or shipped as soon as stock is available. In cases where one item is ordered for a retail customer, his or her name, address, and phone number should be taken, and, when it is received, he or she should be notified.

## Packing

Packing merchandise for shipment requires the proper selection of containers, arrangement of contents, and labeling. Some heavy or bulky items require only the attachment of shipping tags or labels. Ordinary parts should be arranged in cartons of suitable size and strength. Careful attention to the placement of items in a carton will save space and minimize the danger of damage due to shifting contents. Heavy items should never be packaged with items that are subject to breakage. Special individual packaging should be used for glass, moldings, gages, and other fragile items. All empty spaces in cartons should be filled with excelsior or other cushioning material, with special attention given to glass and fragile items.

After the packing slip has been placed in the carton, the carton is stapled, tied, or firmly glued shut. Sealing tape is adequate for most cartons, but, if the carton is unduly heavy, steel bands or strong twine may be necessary. If more than one carton is involved in the shipment, the carton in which the packing slip has been placed is marked "Packing Slip Enclosed."

Two types of labels are used. (1) the gummed label, which is glued directly to the package; and (2) the tie-on label, which is tied or wired to the package or bundle. The same basic information should be contained on each label. The required information is printed or stamped clearly on the label, so that the name and address of both shipper and customer are plainly legible.

## Shipping Regulations

Shipping regulations differ among the various carriers, and the shipping clerk must be acquainted with the rates, packaging limitations, schedules, and delivery points of each carrier. Instructions for routing the shipment are sometimes given with the order, if not, the shipper must select the mode of transportation which will give the customer the fastest and most economical service.

### Parcel Post

Packages sent by mail to a customer are normally sent as fourth class mail, which includes most merchandise from 1 to 70 pounds in weight as well as certain other mailable matter. The regulations governing the allowable weights and sizes of fourth class mail are somewhat complex and change from time to time. Every shipping activity should have a copy of the latest rules at hand and should periodically check with the local postal authorities for changes.

Current general rules include the following:

- The package must bear the name and address of the sender, preceded by "From," as well as the name and address of the addressee. The use of ZIP codes is encouraged.
- The package must be susceptible of postal inspection.
- A written or printed invoice or bill, with necessary identifying or descriptive data, may be enclosed. Letters may not be enclosed unless a special notation is made and additional postage paid.
- Mailing explosives and flammable substances is generally prohibited.

The use of air parcel post, while more costly, sometimes affords a means of meeting a delivery deadline otherwise impossible. Size and weight regulations for air mail are somewhat different from those covering surface mail; the local post office should be consulted.

### Stage (Bus) Regulations

Local or interline shipments are accepted for transportation, either prepaid or collect, by most stage companies to any stations on their scheduled route. All shipments must be packed in containers made of material of such strength and durability that they can withstand handling, stacking, strapping, or rubbing against baggage racks. All packages that contain fragile articles must be plainly marked. The name and address of the shipper and consignee must be shown plainly on all packages.

Because of the nature or contents of the package, the following automotive items are not normally accepted for bus transportation. acids, wet batteries, gases in cylinders, flammable thinners, and certain paints. Limitations on the weight and size of each package vary with different bus companies. If a package exceeds 100 pounds, the shipper should check with the company to determine whether it is acceptable.

### Trucking Companies and City Delivery Services

Most trucking companies and city delivery services have similar rules for packaging, sealing, and labeling. However, the limitations on size, weight, and type of material carried are not as strict as postal or bus regulations. The shipper should check with the individual companies as to their specific regulations.

### Shipping Forms

After an appropriate means of transportation has been selected, a bill of lading should be prepared. Information entered on the bill of lading should include the number of packages shipped, the total weight of the packages, and whether the shipment is prepaid or COD. The form is made out in duplicate or triplicate so that a copy can be filed for future reference in case of damage to, or loss of the shipment.

### Insured and COD Shipments

The Post Office Department and most transportation companies provide for both insured and COD shipments. Insurance against loss or damage may be obtained for an amount equivalent to the actual value of the merchandise, or up to a stated maximum per parcel. A firm that makes many shipments on a regular basis may obtain a post office form book and originate insured shipments from its place of business.

Shippers use COD service when they do not desire to extend credit or when customers do not wish to establish credit or pay in advance. Postal COD service is especially useful because of its wide area service, low fees, and prompt receipt of collections. The COD form book furnished by the post office is the same as that used for insured packages. All postal COD packages are marked with serial numbers that are assigned by the post office to each firm and are registered in the form book by the firm sending the package, with a duplicate made for the post office department. These numbers are used to identify insured packages and money orders in payment of COD shipments.

### Study Assignment

*Jobbers Guide to Retail Marketing*, Midland, Michigan: Transportation Chemicals Department, Dow Chemical Company (Latest edition).

### Topics For Discussion

Be prepared to discuss the following topics if you are asked to do so:

1. Discuss wholesale and retail sales profit patterns.
2. Discuss your own particular skills and interests, and try to determine where you fit in the auto parts industry.

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 1 – FILLING AND SHIPPING ORDERS

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. The new apprentice in the auto parts business is frequently assigned to the 1 and 2 department. — 1.____ 2.____

2. All parts employees should be familiar with the steps to be followed in 3 and 4 orders for shipment. — 3.____ 4.____

3. An order should be examined beforehand to determine the 5 to be followed through the department in filling the order. — 5.____

4. Before "shorting" an order, both the 6 and the 7 should be checked. — 6.____ 7.____

5. Permission should always be obtained from the 8 before making substitutions on an order. — 8.____

6. Careful attention to the 9 of items in a carton will save space and minimize the danger of 10 due to shifting contents. — 9.____ 10.____

7. After the 11 12 is placed in the carton, the carton is firmly closed. — 11.____ 12.____

8. Shipping 13 differ among the various carriers. — 13.____

9. Instructions for 14 the shipment are sometimes with the order. — 14.____

10. Packages sent by mail are usually sent 15 class. — 15.____

11. All parcel post shipments are subject to 16 by postal authorities. — 16.____

12. When one item is special ordered for a retail customer, his or her name, address and 17 18 should be taken. — 17.____ 18.____

13. In case any part ordered has been superseded, both old and new 19 20 should be shown on the order. — 19.____ 20.____

14. Postal regulations allow both 21 and 22 shipments. — 21.____ 22.____

15. The COD service is used when the shipper does not want to extend 23, or customers do not want to pay in 24. — 23.____ 24.____

## Test

Circle T if the statement is true; circle F if the statement is false.

| | | | |
|---|---|---|---|
| 1. The last assignment of the auto parts apprentice before graduation will be to the shipping department. | 1. | T | F |
| 2. Parts persons in dealerships do less shipping than those in jobber firms. | 2. | T | F |
| 3. The order in which parts are gathered to fill an order has no significance. | 3. | T | F |
| 4. Apparent shortages are checked against inventory cards. | 4. | T | F |
| 5. If an item is on back order, the customer is notified that it will be sent sometime in the future. | 5. | T | F |
| 6. Substitutions should never be made. | 6. | T | F |
| 7. Many items are shipped without packaging them. | 7. | T | F |
| 8. The packing slip should be mailed the same day the order is shipped, never earlier. | 8. | T | F |
| 9. Zip codes are used on letters only, not packages. | 9. | T | F |
| 10. Wet batteries are not normally accepted for shipment by stage lines. | 10. | T | F |
| 11. The list price is always found on the bill of lading. | 11. | T | F |
| 12. The Post Office Department offers insurance on packages up to the total value of the contents. | 12. | T | F |
| 13. Mailing explosives and flammable substances is generally prohibited. | 13. | T | F |
| 14. All packages containing fragile articles must be plainly marked. | 14. | T | F |
| 15. If more than one carton is involved, the carton with the packing slip is marked "Packing Slip Enclosed." | 15. | T | F |

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 2 – RECEIVING

This topic is planned to provide answers to the following questions:

- What are the various forms commonly used for receiving goods into stock?
- What is the function of the packing slip?
- How does a bill of lading differ from a shipping receipt?
- What inspections should be made before merchandise is accepted?
- Who reimburses the receiver when damaged items are delivered?

One of the first tasks assigned to the auto parts apprentice may be helping to receive shipments into the department and to store them properly. He or she should become very familiar with the forms, terms, and procedures commonly used for the receipt of merchandise. A great deal of the knowledge required of the parts person will be acquired through his or her participation in receiving activities.

### Forms

Four forms handled most frequently in the auto parts receiving department are the shipping receipt, packing slip, invoice, and bill of lading.

A *shipping receipt* lists the number of packages, the nature of their contents, and the weight of a shipment that is to be delivered by a transportation company. The method of payment for the delivery is also indicated (i.e., COD, Collect, Prepaid). The receipt should be filled out in detail to avoid confusion. A description of the merchandise, the name of the shipper, and the name and address of the firm to whom the merchandise is being shipped must be listed on the receipt (Fig. B-1).

The *packing slip* is an itemized list of the articles included in a package or in a group of packages shipped together. The packing slip may be inserted in one of the cartons, or it may be found in an envelope marked "Packing Slip" and stapled or glued to one of the packages. When a large shipment is being unloaded, it is a good idea to watch for the package marked "Packing Slip" and to set it apart from the other packages (Fig. B-2).

An *invoice* is similar to a packing slip in that it lists the parts by number and description. In addition, it shows the price per item and the total price of shipment. The invoice is usually sent by mail. In some cases the invoice is received before the shipment, but more often the invoice is mailed to the buyer after the shipment has been received (Fig. B-3).

A *bill of lading*, which is issued by the transportation company, acknowledges receipt of goods from the shipper. It contains the total number and a description of the packages to be shipped, along with the shipping instructions (Fig. B-4).

### Kinds of Shipments

A *prepaid shipment* is a shipment on which the transportation charges are paid by the shipper. On a *COD shipment*, both the cost of the merchandise and the shipping charges are paid by the receiver at the time the merchandise is delivered. A *collect shipment* requires payment of only the transportation charges by the receiver at the time of delivery.

### Accepting Merchandise

When a shipment of merchandise is accepted from a transportation company or service, two fundamental rules should be observed. First, the number and type of containers received should be checked against the number and types of packages listed on the shipping receipt or the bill of lading. Second, the address on each item should be verified to avoid delay and confusion caused by accepting the wrong merchandise.

Before the shipping receipt is signed, each package should be inspected for damage. Cartons which show evidence of crushing, especially those marked "glass" or "fragile," should be opened immediately for inspection. Any shortages or damage must be noted on the shipping receipt and acknowledged in writing by the person who delivers the merchandise. If the shipment is found to be complete and in good order, the shipping receipt need only be signed and dated by the receiver.

### Filing Claims

If it is discovered after the driver for the transportation company has gone that merchandise is missing or damaged, the local representative of the transportation company should be notified

**Trans-Bay MOTOR EXPRESS CO.**

EMERYVILLE 8, 1291 - 63d STREET, OLympic 5-5225
SAN FRANCISCO, SUtter 1-0314

COMMON CARRIER SERVICE • SUBJECT TO CONDITIONS NAMED IN THIS COMPANY'S TARIFF

DATE 3/3 19 | SHIPPER'S NO. | PREPAID ☒ COLLECT ☐

(SHIPPER) FROM: Chanslor + Lyon | (CONSIGNEE): Joes Auto Parts | 89527

STREET: 1470 High St. | STREET: 1414 Dearborn St. | C.O.D.

CITY: Oakland, Calif. | CITY: San Jose, Calif. | C.O.D. FEE

| PACKAGES | ARTICLES | WEIGHT | CLASS | RATE |
|---|---|---|---|---|
| 4 | Gaskets, rings and Bearings | 48 lb. | | |

RECEIVED IN APPARENT GOOD ORDER BY TRANS-BAY MOTOR EXPRESS CO EXCEPT AS NOTED
PICK-UP DRIVER

RECEIVED BY CONSIGNEE IN GOOD ORDER
CONSIGNEE

DECLARED VALUE $ 80.00

NOTE SHIPPER: PLEASE PRESS FIRMLY WHEN WRITING THIS TAG, SO CONSIGNEE'S COPY WILL BE LEGIBLE.

TOTAL TO COLLECT

Fig. B-1. Shipping receipt

**PACKING LIST — THE FULLWELL MOTOR PRODUCTS CO.** 111050

☐ NEW ACCOUNT — MAIN OFFICE - 14700 INDUSTRIAL PARKWAY - CLEVELAND, OHIO 44135

PAGE 1 OF 1 — SHIPPED FROM: ☐ 14700 INDUSTRIAL PARKWAY, CLEVELAND, OHIO, 44135 ☒ 527 E. 10TH ST., OAKLAND, CAL., 94606 ☐ 215 NORTH WALTON ST., DALLAS, TEX. 75226 ☐ 1213 ALENE AVE. S. W., ATLANTA, GA. 30310

INVOICE TO: JOHN DOE Co (PRINT NAME AND ADDRESS) | CUST. P. O. NO. 888

ADDRESS: 366 8th AVE | DATE 2-4-

CITY AND STATE: HOMETOWN, USA | CLASSIFICATION 1

F. O. B. ☐ DESTINATION ☐ SHIPPING POINT

SHIP TO: SAME | TERMS Net

ADDRESS | SALESMAN G. Guilemm | TERR. NO. 107

| ✓ | ✓ | QUANTITY | PART NO. & DESCRIPTION |
|---|---|---|---|
| | | 10 | 85989 Hose |
| | | 10 | 82888 Bolt |

ITEMS NOT CHECKED ARE BACK ORDERED

ROUTING: PMT

SIGNATURE: John Doe

Thank You!

STATE SALES TAX ☒ EXEMPT ☐ NON-EXEMPT

CREDIT INFO. & INSTRUCTIONS

MAKE CHECKS PAYABLE TO: FULLWELL MOTOR PRODUCTS CO. ONLY

Fig. B-2. Packing slip

**CORONADO MFG. COMPANY** — INVOICE

MAILING ADDRESS: P. O. BOX 2108, Long Beach, Calif. PLANT: 1208 E. HILL ST., Long Beach, Calif.

TELEPHONES: GA rfield 7-0906 - NE vada 6-7557

CORONADO MFG. CO. LONG BEACH CALIFORNIA

SAVEWAY AUTO ACCESS
3807 SAN PABLO AVE
OAKLAND 8 CALIF ← SOLD TO

SAVEWAY AUTO ACCESS
3807 SAN PABLO AVE
OAKLAND 8 CALIF ← SHIP TO

| DATE SHIPPED | SHIPPING-B NUMBER |
|---|---|
| 57206 | |
| 25 | |

| CUSTOMER ORDER NUMBER | PACKING LIST NO. | INVOICE NO | INVOICE DATE |
|---|---|---|---|
| | 23938 | 40145 | |

| DESCRIPTION | PRODUCT DESCRIPTION: PROD NO | DASH NO | VOLT | MAT | FIN | QUANTITY ORDERED | QUANTITY BACK ORDERED | QUANTITY SHIPPED | UNIT PRICE | AMOUNT |
|---|---|---|---|---|---|---|---|---|---|---|
| HEAD C | 660 | 2 | | | 2 | 1 | | 1 | | 1.50 T |

TERMS: 2% 10TH PROX.
NET THEREAFTER

Fig. B-3. Invoice

(Uniform Domestic Straight Bill of Lading, Adopted by Carriers in Official, Southern, Western and Illinois Classification Territories, March 15, 1922, as amended August 1, 1930 and June 15, 1941.)

UNIFORM STRAIGHT BILL OF LADING — **Original—Not Negotiable**

Shipper's No. 28

Southern Pacific Lines — Company Agent's No. 7

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading,

at Richmond, Calif 3/8 19 from Claar Chevrolet Co.

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee—For purposes of notification only.)

Consigned to Colfax Auto Repair

Destination Colfax, State of Calif. County of

Route Van Lines

Delivering Carrier Van Lines Car Initial O-C Car No. 12-721

| No. Packages | Description of Articles, Special Marks, and Exceptions | | *Weight (Subj. to Cor.) | Class or Rate | Check Column |
|---|---|---|---|---|---|
| 1 | 3741079 Hood panel | | 40 | 2 | ✓ |
| 1 | 3743650 Front fender | | 30 | 2 | ✓ |
| 1 | 3137077 Radiator core | | 25 | 2 | ✓ |
| 1 | 3738775 Grille | | 10 | 2 | ✓ |

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

Claar Chevrolet
(Signature of Consignor.)

*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

NOTE—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding $175.00

†"The fibre boxes used for this shipment conform to the specifications set forth in the box maker's certificate thereon, and all other requirements of Uniform Freight Classification."
(Shipper's imprint in lieu of stamps not a part of bill of lading approved by the Interstate Commerce Commission.)

*(The signature here acknowledges only the amount prepaid.)

Charges Advanced:

$

Claar Chevrolet Co. Shipper, Per Glenn Agent, Per

Permanent post-office address of shipper. 480 23rd St. Richmond, Calif.

Fig. B-4. Bill of lading

immediately, and the shipment should be set aside pending investigation and settlement of the claim. All claims for shortages and damages should be filed promptly to prevent costly delays in settlement.

If the damaged shipment was prepaid, the company or dealer who shipped the merchandise should also be notified so that they can file a claim against the transportation company. If the shipment was paid for by the company that received the goods, it is the responsibility of the individual accepting the merchandise to make sure that notice of any damage or shortage is given to the person in the company who is responsible for filing and settling claims.

The above procedure is used in all cases when the shortage or damage may be attributed to the transportation company's manner of handling and shipment. If, however, discrepancies are found between the quantity of items in the packages and the quantity listed on the packing slip, or if concealed damage is found that resulted from improper packaging, claims are brought against the company or manufacturer from whom the merchandise was purchased.

## Unpacking and Checking

A few simple precautions must be observed in unpacking merchandise. When wooden crates are opened, one end of each cover board should be lifted carefully about ½ inch with a claw hammer or a crate opener, and the boards then tapped down flush again, leaving the nail heads standing above the boards. Then the nails can be removed easily, leaving the boards free at one end. After this is done, it is a simple task to remove the cover boards completely, using either tool. All nails that could injure anyone handling the crate or cover boards should be completely removed.

Heavy cartons and crates that are bound with wire or steel bands should be opened with care. Such bands and wire are tied under pressure and have a tendency to fly up and out when they are cut. The loose ends can easily put out an eye or cause other serious injury. A sharp pair of wire cutters should be used, so that the loose ends are restricted from flying about. A pair of heavy gloves should be worn when handling wires and steel bands.

Cardboard cartons are difficult to tear open when the cover flaps are glued or stapled securely. When a stapled flap is forced open, a person's hands or arms may become hooked on the sharp staples, or the staples may fly off in any direction. Also, the sharp edges of sealing tapes can cut like a knife. The quickest and simplest way to open a cardboard carton is to cut it open. To open a taped carton, the tape is cut where the flaps come together and at both ends of the cover flaps, without, however, inserting the knife far enough to damage any of the contents. To open a glued carton, the cardboard is cut just beneath the flaps on the three sides, and the lid thus formed is lifted. In this way none of the enclosed merchandise will be damaged.

Each item received is carefully checked against the packing slip to make sure that the quantities agree. If a shortage exists and is not detected, the company will pay for merchandise that it did not receive, the inventory system will be affected, because entries are made according to the quantities shown on the packing slip; and at the yearly inventory, a search will be made for merchandise that was never received. Any discrepancies in quantity or part number should be reported to the designated person so that a claim or adjustment can be made.

When the dealer or manufacturer is temporarily out of certain items and is not able to completely fill an order, the items should be back ordered for shipment at some future date. The receiving clerk should check with the purchasing agent or buyer to determine whether the dealer who shipped the merchandise does or does not ship back orders. Some dealers or manufacturers cancel all items not shipped, in which case the buyer has to reorder. And some companies, as a matter of policy, do not accept back-ordered merchandise. With today's automated inventory control and ordering systems, packing slips will show superseded numbers, transposed numbers, and items that are back ordered, and the point from which they will be shipped.

## UNIT B — AREAS OF RESPONSIBILITY

## TOPIC 2 — RECEIVING

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. A shipping receipt lists the __1__ of packages, the nature of their __2__, and the __3__ of a shipment. — 1.____ 2.____ 3.____

2. The itemized list of the articles included in a package or a group of packages is called a __4__ __5__. — 4.____ 5.____

3. An invoice is different from a packing slip in that it lists the __6__ per item and the total __7__ of all the items. — 6.____ 7.____

4. The transportation company issues a __8__ __9__ form which acknowledges receipt of goods from the shipper. — 8.____ 9.____

5. A __10__ shipment is one on which the transportation charges are paid by the shipper. — 10.____

6. On a __11__ shipment the cost of the merchandise and the shipping charges are both paid by the receiver. — 11.____

7. A collect shipment requires payment of the __12__ charges only by the receiver. — 12.____

8. Before signing the shipping receipt, each piece of freight is inspected for __13__. — 13.____

9. A damaged shipment should be set aside for __14__ and __15__. — 14.____ 15.____

10. __16__ damage is often the result of __17__ packing. — 16.____ 17.____

11. When checking merchandise against the packing slip, the apprentice should make sure the __18__ agree. — 18.____

12. A __19__ __20__ is that portion of an order that cannot be filled at the present time, but will be __21__ at a future date. — 19.____ 20.____ 21.____

13. With today's automated inventory control and ordering systems, packing slips will show the __22__ numbers. — 22.____

14. When a shipment is received from a transportation company, there are __23__ rules to be observed. — 23.____

15. All claims for shortages or __24__ should be filed promptly. — 24.____

## Test

Circle T if the statement is true; circle F if the statement is false.

| | | | |
|---|---|---|---|
| 1. A shipping receipt usually names the shipper, the transportation company, and the consignee. | 1. | T | F |
| 2. A packing slip must be enclosed in each carton. | 2. | T | F |
| 3. An invoice includes prices and discount information. | 3. | T | F |
| 4. The invoice should, in each case, be stapled to the packing slip during shipment. | 4. | T | F |
| 5. On most COD shipments, transportation charges are prepaid by the receiver. | 5. | T | F |
| 6. Damaged cartons that are marked "fragile" should be opened immediately for inspection. | 6. | T | F |
| 7. Claims for damages should be filed without delay. | 7. | T | F |
| 8. Claims for damages should always be made against both the shipper and the transportation company. | 8. | T | F |
| 9. When a wooden crate is opened, all nails should be completely removed. | 9. | T | F |
| 10. Cardboard cartons are the easiest packages to open. | 10. | T | F |

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 3 – BIN ARRANGEMENTS AND STOCK MAINTENANCE

This topic is planned to provide answers to the following questions:

- **Why is a stock of auto parts binned?**
- **How are stock bins arranged?**
- **What stock items present the greatest storage problem?**
- **How are spare parts and bins numbered?**
- **What action is taken when a part number changes?**

When merchandise has been received and checked, it should be distributed to the bins as quickly as possible for two reasons. first, to replenish an existing shortage in the bin stock, and second, to keep the receiving department cleared for further incoming shipments. If incoming orders are allowed to become mixed prior to checking, the job of segregating and checking each shipment becomes much more difficult.

### Types of Bins

Automotive parts bins may be of almost any possible shape, depending on the nature of the merchandise to be stored. Bins are usually commercially purchased, although many adequate substitutes can be built inexpensively. A few of the most common types of bins are described in the following paragraphs.

Stock commercial bins are generally of steel construction, measuring typically about 7 feet high and 3 feet wide. The depth of a bin may be from 1 to 4 feet, depending on what it is to contain. Shelves in standard bins may be bolted in at any level so that openings of any desired height can be arranged. The metal partitions are designed so that they can be set at various positions. When shelves and partitions in bins are arranged, careful thought should be given to the various sizes of the parts which will eventually be stocked to minimize tearing down and rearranging shelves at future times (Fig. B-5). One good method is to draw the bins on paper and then purchase or make the bins accordingly.

Conventional bins in an assortment of sizes will accommodate almost all regular and bulky parts, but a few special bins or storage arrangements are often required. Tail pipes are best stored vertically along wall areas that have been partitioned off in some simple manner–usually by wooden barriers. Drive shafts are frequently stored in a similar manner. Most axles will fit conveniently into simply designed racks or in 4-feet-deep commercial bins.

Head gaskets, valve cover gaskets, and other gaskets of medium and large sizes should be stored flat in bins. Smaller gaskets, such as differential covers, timing covers, transmission covers, and the like, may be hung on pegboards or stored in drawers. Cabinets with small drawers are normally used for carburetor parts and other small parts. Separate metal drawers may also be installed among the bins to hold small washers, pins, springs, screws, and the like, that otherwise might slip under or behind shelves or partitions.

Sheet metal storage is a real problem; fenders, hoods, doors, and panels are bulky, so a large area is needed to store them. These large items are usually relegated to a loft or an attic, where the fenders are hung on racks made of pipe, while the panels are stored by standing them vertically against walls or barriers. The disadvantages of the arrangement are obvious–the heavy panels must be carried up-stairs or over long distances–but unless the parts department has a large amount of unused space, little else can be done. New and updated parts departments have conveyor belts to move these items up and down.

Moldings can be stored in light, vertical wooden racks of local design; they pose no great problem, except for the location, design, and construction of the racks.

Other items that may pose special storage problems include radiator hoses, fan belts, wire, and metal or rubber tubing. These parts should be stored with the emphasis on convenience, being either binned or hung in handy locations. A little ingenuity is all that is needed (Fig. B-6).

### Bin Arrangement

The arrangement of bins in the most practical sequence is not always an easy task. Major manufacturers arrange their parts in a group sequence,

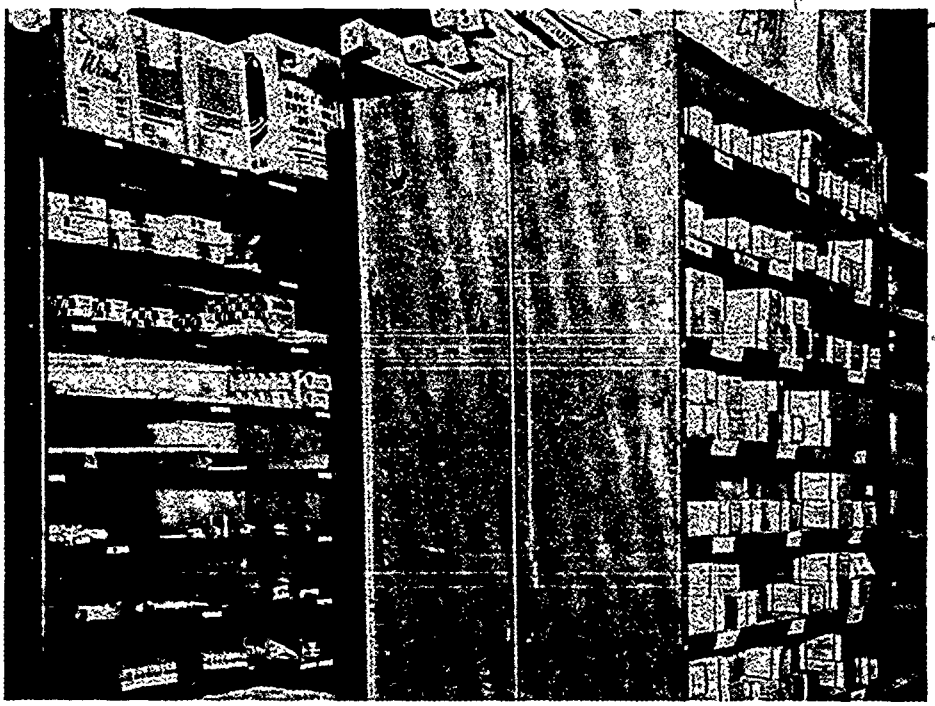

Fig. B-5. Typical metal parts bin

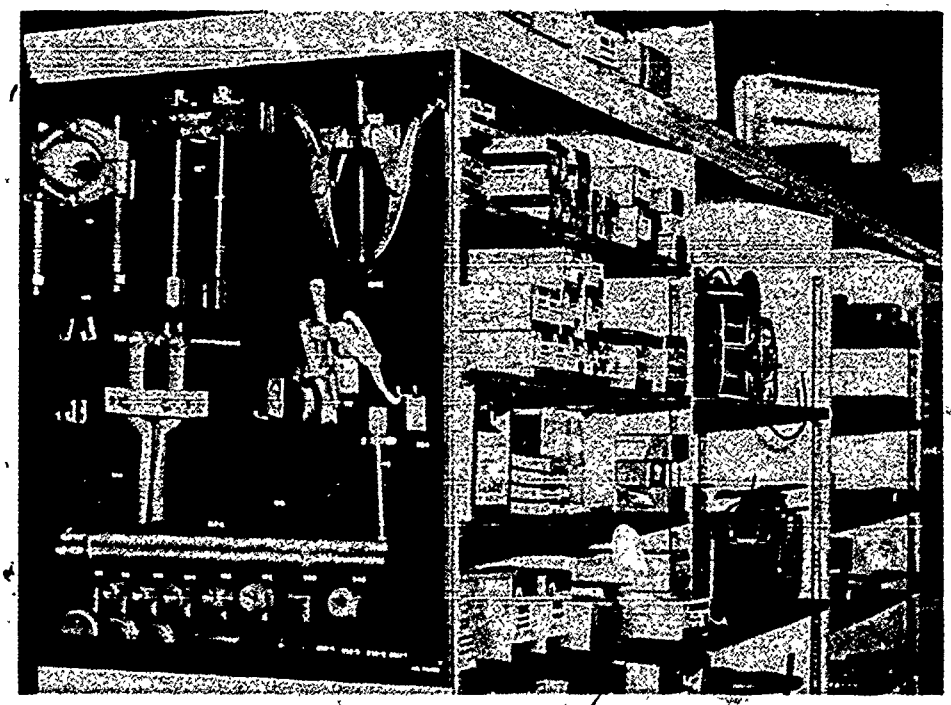

Fig. B-6. Tool storage and display, showing wire and hose storage in conventional bins

which must be followed if parts are to be located quickly and accurately (Unit C). This kind of arrangement sounds easy enough to do, but several drawbacks may be encountered. The bulky items usually do not fit well into the regular bin section and must be located elsewhere. The building design may not allow an orderly layout of bins by group number, and the order must be broken. Whether to locate gaskets in numerical sequence with related parts or to place all gaskets in a single gasket section must be decided. If the group sequence is followed meticulously, heavy, awkward items may be assigned to the top shelf – 7 feet up – while small, hard-to-reach items may be found in the very bottom row.

The layout and floor space of the parts department is, in most cases, the determining factor in the arrangement of the bins. After dividing the regular-size bin section from the bulky section, the bins are best arranged (usually back-to-back) with the ends of the rows toward the main sales counter. The small parts should be located nearest the counter, while the bulky items, which normally sell much more slowly, should be grouped at the far end of the regular bins. A 3-foot aisle should be maintained to allow free passage without waste of valuable floor space.

When bins are arranged according to manufacturers' groupings, then a related system of parts is established. All parts for the engine are located in a group of adjacent bins, cooling system parts are similarly grouped, electrical parts, fuel system units, and transmission parts are also placed in logical, continuous bin locations. Other part groupings follow, until the entire line of necessary and related parts is completed. The only exceptions to this sequence are, as already mentioned, the bulky items such as large housings, pipes, axles, mufflers, moldings, and panels, which must be located in some other place. These bulky items, however, may be placed in logical group order, and their locations traced out as easily as the smaller parts.

### Bin and Part Numbers

For adequate control, every part must be assigned a discrete number, and every bin within the department numbered. Card-type inventory control systems provide space for recording the location of every part (for example, Part Number 7450745, bearing, location, Bin Number 23). The ability to locate parts by bin number is important in a large parts department, because there may be some question as to whether the part is to be found in the regular or bulky section of the bins. Bin numbers should follow the same logical order as the group numbering sequence of the parts, and every inventory card should show the bin in which that particular part is located.

Some parts departments, especially those in agencies, find it helpful to display the group numbers on the ends of the rows of bins. For example, a particular row of General Motors parts bins might contain groups 4.022 to 4.465. Such coding of each row of bins assures the parts person of finding the correct aisle without using trial and error.

Part number labels that identify the part within should appear on every bin. Auto manufacturers supply complete sets of bin labels at nominal cost. These labels are indispensable for locating, identifying, and pricing the parts in stock. When part numbers, model usages, or prices change, new labels are supplied.

Jobbers and independent parts dealers are not so fortunate in having sets of labels supplied to them by the various companies whose parts they stock. Some jobber-independents operate without bin labels, relying solely on their catalogs for the required information. Others make write-in tags to identify and price the merchandise.

### Stocking the Bins

When an apprentice is assigned to stocking the bins, he or she should learn the bin sequence of the store or department as quickly as possible. Once the general location of parts is determined, putting away stock becomes routine, except for certain precautions which must be followed. The importance of putting each part in its correct location on the shelves, in the bins, or on the racks can not be over-emphasized (Fig. B-7). Parts which are placed in the wrong location may lose their identity or may be given out in a costly error. Each part must be correctly tagged or numbered before it is placed in stock. New merchandise should be placed behind old merchandise, so that old stock will be moved out first and fresh stock maintained. All parts should be handled carefully; many parts that do not look fragile can be severely damaged if they are dropped. When bins are stocked, part number changes should be checked. If a new number is issued to supersede an old number, the old stock must be marked accordingly. However, it must be noted that some superseded parts will fit the older models, but the old part will not fit the newer models. Parts and bins should be kept clean, dirt can damage many parts, and a dirty part is unattractive to the customer.

*Courtesy Cochran and Celli, Oakland*

**Fig. B-7. Stocking bins with bulky items**

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 3 – BIN ARRANGEMENTS AND STOCK MAINTENANCE

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. New merchandise should be placed in the __1__ as soon as it has been __2__. — 1.____ 2.____
2. Auto parts bins may be built in almost any __3__, depending on the __4__ of the parts to be stored. — 3.____ 4.____
3. Commercially built bins are usually of __5__ construction. — 5.____
4. Small gaskets may be hung on __6__ or put in gasket __7__. — 6.____ 7.____
5. For agencies and dealers __8__ __9__ storage is often a difficult problem. — 8.____ 9.____
6. The arrangement of bins in a group __10__ is not always possible. — 10.____
7. If parts are to be located quickly and accurately, a __11__ must be followed. — 11.____
8. The __12__ and __13__ __14__ of the parts department are the determining factors in the arrangement of the bins. — 12.____ 13.____ 14.____
9. Bulky items may be placed in a __15__ group sequence. — 15.____
10. For adequate control, it is necessary that every part be assigned a __16__ __17__. — 16.____ 17.____

### Test

Circle T if the statement is true; circle F is the statement is false.

1. Newly received stock must be checked before it is binned. — 1. T F
2. Checking several incoming orders together will save time. — 2. T F
3. All the bins in one group should be of the same size. — 3. T F
4. Tail pipes should be stored flat on the floor behind the bins. — 4. T F
5. Most axles are less than 4 feet long. — 5. T F
6. Carburetor parts are usually stored in small drawers. — 6. T F
7. Door panels should be binded to prevent damage. — 7. T F

8. Moldings can be stored in vertical racks. 8. T F

9. Bins should always be arranged to strictly follow the manufacturer's group sequence. 9. T F

10. Small parts should be located near the service counter. 10. T F

11. Every inventory card should show the bin location of the part. 11. T F

12. A mislocated part can cause a costly error. 12. T F

13. Before stocking bins, the apprentice should learn the bin sequence of the store. 13. T F

14. Jobbers and independent parts dealers are supplied with printed bin labels. 14. T F

15. Part number labels, identifying the part within, should appear on every bin. 15. T F

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 4 – PICKUP AND DELIVERY

This topic is planned to provide answers to the following questions:

- Why is pickup and delivery service offered?
- Why is a schedule prepared for pickups and deliveries?
- What are the advantages of route plans?
- What records does a driver keep?
- Does the driver of the delivery vehicle take orders?

Pickup and delivery service in the auto parts business is no longer optional – it is necessary. The increasing competition among firms, the sprawling urbanization of business districts, and the rising cost of the garage employees' time are some of the reasons why this service is essential.

Pickup and delivery service requires something more than just a pickup truck and an apprentice driver. Certain practices, when followed, can substantially increase sales volume and improve customer relations. Some of these desirable practices will be discussed in this topic.

### Establishing Schedules

Scheduling and routing are keys to effective pickup and delivery. In a large operation, which has many pickups and deliveries to perform, two schedules are usually arranged, one for morning and one for afternoon. These schedules must be kept at the hours arranged, and all personnel and customers must know the schedule.

Educating the customer to scheduled deliveries should be done tactfully and honestly. This is the task of the person receiving the order, as well as of the delivery driver. Once the customer is aware of the scheduled hours, he or she can plan his or her work accordingly. The important thing, of course, is to maintain the schedule as closely as possible so that commitments are kept and promised material is delivered on time.

If the territory to be covered is small, it is possible to make two complete circuits a day, depending on the number of orders received and the quantity of merchandise to be delivered. Over a larger area the route is usually divided into two half-circles, one-half is scheduled for morning deliveries and the other half for afternoon deliveries. Again, all of those involved must be informed of the scheduled hours of delivery if the program is to be successful.

The number of orders will vary from day to day, as will the location of business firms that place the order. Hence, a certain amount of flexibility should be built into every schedule – an extra few minutes to take care of the unexpected things that will occasionally happen. The driver should allow a few critical minutes at each location, for reasons which will be discussed later.

### Planning Routes

The driver's route should be planned so that it is the most convenient and shortest possible route. This task is often difficult because delivery points will vary from day to day. The driver should also have a delivery or route book in which every delivery can be logged in the order that he or she intends to make them. When the driver knows every stop beforehand, he or she is able to route deliveries in the most economical manner and in accordance with the preestablished schedule.

Pickups should be made with the deliveries. As the driver logs the route, pickup orders should be noted and worked into the delivery schedule. Pickup orders, usually in the form of purchase orders originated by other parts personnel, can be conveniently arranged into the delivery route, thereby conserving time and expense. Copies of purchase orders for material to be picked up should be placed in an established place so that the driver will automatically receive them and know the merchandise is to be picked up.

### Checking Orders

The driver should have the delivery invoice of each order before him or her, preferably on a clipboard, so that each piece of merchandise can be checked against the invoice as he or she loads the truck. This is a good practice for two reasons. If the clerk who filled the order made an error, it can be corrected before the delivery is made, possibly saving an extra trip. Also, the driver is protected against any claims of shortage or damage alleged to have occurred between loading and delivery.

When the orders have been checked to the driver's satisfication, he or she should log each in the delivery book, noting the customer's name, address, and invoice number or numbers. At the time of delivery, the driver should obtain the signature, in his or her delivery book, of the person receiving the merchandise and record the date and time of delivery. This procedure serves as an additional safeguard for the driver and his or her company by documenting that the merchandise was properly delivered. Often the driver is expected to return signed copies of invoices to his or her company—if both the original and the customer's copy were sent—and this must be done faithfully.

### Improving Customer Relations

The driver has a unique opportunity for building customer relations. Besides a generally helpful attitude, which the driver should always exhibit, there are a number of courtesies which, when extended, pay big dividends. Some of the following courtesies are small, others require effort, but all are important:

1. Never block the customer's driveway, either entrance or exit. If necessary, park outside momentarily until provisions can be made for unloading.
2. Ask where the merchandise is to be delivered; do not dump the order in the middle of the garage floor and leave it. If the order is for a particular car that is present in the shop at the place of delivery, ask if the parts should be placed in or near the vehicle. This is often appreciated, since it keeps the merchandise out of the way and near the car on which it will be used. And it is particularly appreciated if the order contains large sheet metal panels for a body.
3. Review the order with the garage management if they wish to do so. Be prepared to answer any questions in regard to undelivered or back-ordered merchandise. The customer will be vitally interested in when the missing parts will be delivered, and this information should be given to him or her prior to the delivery. Never say, "I'm just the driver; I don't know anything about that!" The customer has reason to expect the driver to be interested in his or her problem. The driver has an obligation to be concerned. Courtesy is always proper when dealing with a customer. Do not just pass the buck to the parts person who filled the order.

### Building Sales

The driver can often recognize additional sales opportunities while making deliveries. Having checked each order when loading, he or she knows pretty well what each contains. While unloading, at or near a vehicle under repair, the driver may notice damaged parts for which replacement parts were not ordered. It is easy for a busy garage person to overlook needed parts, especially for extensive body damage. He or she may appreciate a tactful reminder that certain other parts are needed.

While a driver is in a customer's place of business, he or she should always inquire about other needs. The customer will welcome such concern, and it is very possible that additional needs have arisen since the original order was placed. An order pad should be kept in the truck for such occasions. If the driver feels inadequate to take the order, he or she can telephone the parts department for any help needed. Accepting and writing the orders is good parts experience, and it will relieve the customer of the time-consuming necessity of placing the order.

### Collecting Cash

Some deliveries may be to charge customers, while the driver may have to collect either cash or checks for the remainder of the deliveries. The driver may have to make change; and, if this is necessary, it should be done correctly, otherwise he or she may have to make up any shortages when he or she checks in with the cashier.

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 4 – PICKUP AND DELIVERY

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. In the auto parts business, 1 and 2 services are no longer optional but are necessary. — 1.____ 2.____
2. The keys to the effectiveness of auto parts services are 3 and 4. — 3.____ 4.____
3. All 5 and 6 must be aware of the schedule for deliveries. — 5.____ 6.____
4. A certain amount of 7 should be built into every schedule to take care of 8 happenings. — 7.____ 8.____
5. The 9 must be planned by each driver to be the 10 that will cover all necessary stops. — 9.____ 10.____
6. The driver should 11 every delivery in the 12 in which they are to be made. — 11.____ 12.____
7. The driver should integrate 13 with the delivery schedule. — 13.____
8. Pickup orders are usually in the form of 14 15 originated by other parts personnel. — 14.____ 15.____
9. At the time of delivery, the driver should obtain in his or her delivery book the 16 of the person receiving the merchandise. — 16.____
10. The delivery driver has a unique opportunity for building customer 17. — 17.____
11. The driver should be concerned about the 18 problems. — 18.____
12. The driver should know how to receive checks and make proper 19. — 19.____
13. The driver should be able to recognize additional 20 opportunities while delivering. — 20.____
14. While a delivery is being made, it is always a good idea to inquire about other 21. — 21.____
15. Each order to be delivered should be 22 when it is loaded. — 22.____

## Test

Circle T if the statement is true; circle F if the statement is false.

| | | | |
|---|---|---|---|
| 1. Providing pickup and delivery service is one way to overcome competition in the parts business. | 1. | T | F |
| 2. Increased sales may prove to be a side result of a good delivery service. | 2. | T | F |
| 3. Making a schedule and sticking to it are basic to a satisfactory delivery service. | 3. | T | F |
| 4. With a regular schedule, one daily delivery will satisfy most customers. | 4. | T | F |
| 5. The order in which deliveries are made is not important. | 5. | T | F |
| 6. A good delivery person memorizes his or her stops daily. | 6. | T | F |
| 7. Pickups and deliveries should be made on separate runs. | 7. | T | F |
| 8. Each order should be checked when it is loaded. | 8. | T | F |
| 9. The delivery person should always park at the customer's door, unload there speedily, and clear the doorway by leaving without delay. | 9. | T | F |
| 10. The driver should not undertake to answer a customer's questions about back orders. | 10. | T | F |
| 11. The driver should not point out to the customer items the customer may have carelessly forgotten. | 11. | T | F |
| 12. The delivery person may properly ask the customer if he or she needs any additional merchandise. | 12. | T | F |
| 13. At the time of delivery the driver should obtain the signature of the person receiving the parts. | 13. | T | F |
| 14. Planning the route for delivery is not an important function. | 14. | T | F |
| 15. Delivery persons should know how to make change and accept checks. | 15. | T | F |

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 5 – INTRODUCTION TO COUNTER SALES

This topic is planned to provide answers to the following questions:

- What facet of a parts business generates jobs for parts persons?
- How should regular customers and casual customers be treated?
- How should customer complaints be avoided?
- How should a counter salesperson be dressed?

The topic of counter sales is covered in detail in Unit E of this workbook. However, an introductory word about selling is in order for three reasons. First, the apprentice may become engaged in counter work very early in his or her career. Second, the conduct associated with successful salesmanship is important to every employee in the parts organization. And third, the importance of counter sales should be made clear early in the parts apprentice's career, wherever he or she may be located in the parts structure.

### Profitable Sales

The company the apprentice works for is like all other companies in that it is in business to make a profit. Indeed, if the company did not make a profit, it could not continue to operate and to provide jobs. This is a fact which is so commonplace that one tends to forget it, and at times everyone needs to be reminded of it. Counter sales mean customers, customers mean profits, and profits mean jobs–it is that simple.

But the subject of counter sales cannot be covered quite as easily as previously suggested. Profitable counter sales require two things: (1) customers, and (2) competent parts salespersons. Without customers the dealer might as well lock up and go home. If there are plenty of customers, but the parts people are incompetent, there soon will be neither profits nor customers, and the business will fail. Profitable counter sales are vital functions of any company.

### Rules for Salespersons

A good salesperson is always courteous. No matter how busy the salesperson maybe when a customer enters the store, the customers' presence should be acknowledged, and a courteous greeting extended. If the customer cannot be waited on immediately, he or she should be told that a salesperson will help him or her as soon as possible. A simple greeting like "Good morning, I'll be with you in a moment" will suffice.

The salesperson should never quarrel with a customer, because nobody ever wins an argument with the customer. A salesperson may win a point but lose a sale–and a customer. A customer may be critical and demanding, but the seller has an obligation to serve him or her to the best of his or her ability. When the salesperson was hired, he or she accepted the responsibility of working to make the company's business successful and profitable, which includes waiting on difficult customers. The one compensation about difficult customers is that they make one appreciate the good customers.

If a customer has a complaint, he or she should be heard courteously and attentively. If the counter person cannot handle the complaint, he or she should call the person who would be most likely to help. Correcting a legitimate complaint is a normal and necessary part of every business.

Interest should be taken and shown in the customer's needs, making him or her feel that he or she will be helped. The customer will be grateful, and the salesperson's job will be more pleasant. A lot of customer goodwill is lost because of laxity and indifference. The salesperson should know his or her regular customers by name. He or she should never make promises he or she cannot or does not intend to keep. Friendliness and helpfulness pay big dividends.

Good telephone habits are essential, because much of the parts business is conducted over the phone. The person who answers the phone should identify himself or herself by speaking clearly into the transmitter; he or she should be prepared with a pad and pencil to take an order. Courtesy is as important in telephone transactions as it is in counter sales. Care should be taken to get all the information needed to check out wanted parts. The salesperson should not make a guess as to whether items are in stock, but should go to the bin and confirm that the part or parts are on hand. Finally, the salesperson should always thank the person for calling and invite him or her to call again.

Personal conduct and appearance take on a new meaning when one begins to serve the public. Careless habits of speech and dress should be corrected. Profanity is never in good taste, and good grooming is always desirable. Dress shirts and ties are recommended, although sport shirts may be permissible. Most parts people wear shop coats to protect their street clothes. Soiled shop coats should be changed regularly. Effective salesmanship requires good personal habits.

### Competence in Selling

Competence is another essential in the parts business, and it should be developed as quickly as possible. Competence consists of two components. accuracy and speed. As in learning to type, one works for accuracy first, and then for speed.

The complexity of the parts industry requires that careful attention be given to every sale. The current Chevrolet Master Catalog lists many different types of fan belts as compared to the one fan belt listed just twelve years ago. Today a careful, extensive inquiry in regard to the model and options is required just to sell a fan belt! This complexity, which is present in every phase of the industry, requires that the apprentice develop an early respect for accuracy, or careful attention to detail. The apprentice should learn to read the parts catalogs properly and to know the product thoroughly. These skills come only with experience, but their development begins the day a new employee opens the parts book for the first time or waits on his or her first customer. Giving out wrong parts is a costly, time-consuming business.

Speed in handling customer needs will come with experience. Familiarity with the product and the premises is the key to rapid performance. But accuracy must not be sacrificed for speed, rather, a balance of the two must be achieved.

Most errors are caused by carelessness and can be avoided. Errors always cost more to correct than to avoid. Also, errors can prove to be dangerous. For example, if a 1-inch wheel cylinder kit is used for a cylinder with a $1\frac{1}{16}$-inch bore, the cylinder may blow out under hard braking. A few years ago, one of the major auto manufacturers, as the result of a lawsuit, had to pay $100,000 in damages because metal cuttings were found in the master cylinder of one of their new cars that was involved in a fatal accident. An inspector at the plant had been careless, and it cost the life of a man.

### Topics for Discussion

Be prepared to discuss the following topics if you are asked to do so:

1. Why should the salesperson expose merchandise?
2. Why should customer mix be taken into account in selling?
3. What product mix and other services should the salesperson offer?

## UNIT B — AREAS OF RESPONSIBILITY

## TOPIC 5 — INTRODUCTION TO COUNTER SALES

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. The conduct associated with __1__ is important to every employee in the parts organization. 1._____
2. A common purpose of all parts companies is to make a __2__. 2._____
3. Profitable counter sales require __3__ and __4__ parts salespersons. 3._____ 4._____
4. A good salesperson is always __5__. 5._____
5. The employee should never __6__ with a customer. 6._____
6. If a customer has a __7__, the salesperson should listen to what he or she has to say. 7._____
7. A __8__ should always be taken in the customer's needs. 8._____
8. The person who answers a phone should __9__ himself or herself, and should always __10__ the person for calling. 9._____ 10._____
9. In the parts business, __11__ is a must, and it should be acquired as quickly as possible. 11._____
10. Competence has two components: __12__ and __13__. 12._____ 13._____

### Test

Circle T if the statement is true; circle F if the statement is false.

1. Assignment to counter work may come early in an apprentice's career. 1. T F
2. Auto parts companies are out to make profits. 2. T F
3. Profits mean something only to owners. 3. T F
4. The seller has no obligation to an unknown customer. 4. T F
5. Laxity of the counter person can cause loss of sales. 5. T F
6. Parts orders should not be taken by phone. 6. T F
7. The counter person should verify that wanted parts are in stock. 7. T F
8. Accuracy has two components: competence and speed. 8. T F
9. A thorough knowledge of each product is gained by reading the catalog. 9. T F
10. Speed in handling parts increases with experience. 10. T F

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 6 – THE SHOP COUNTER

This topic is planned to provide answers to the following questions:

- What is the difference between a shop counter and a sales counter?
- Which counter is given priority of service?
- Which parts person usually staffs the shop counter? Why?
- What part does the mechanic play in shop counter transactions?
- How are out-of-stock items handled at the shop counter?

In the automobile agency, and to a lesser extent in the jobber-independent machine shop, the shop parts counter occupies a place of strategic importance. Agencies rely heavily on their service operation for maintenance of the cars and trucks they sell, for customer satisfaction, and for profit.

Service shops require an adequate supply of parts. In some agencies the number of parts and accessories sold through the service department approaches 50 percent of the total parts volume. Most parts sold through agency service departments are list price sales, so it can be appreciated that shop counter sales offer a most profitable potential.

### Relations Between Service and Parts Departments

Large agencies, which usually have a dozen or more mechanics and body workers drawing upon the parts room, may require a shop counter that is staffed with two or more full-time parts persons. Shop counters are usually set apart from the customer or street counter, because they require special procedures.

Agencies depend heavily upon car and truck sales for their financial success. To maintain the new and used cars sold and to perform the warranty and service operations demanded by customers, the service department becomes a vital part of the agency operation. Because sales and service are so closely linked, and the service department is dependent upon a continuing supply of parts, the three primary functions of an agency—sales, service, and parts— are complementary and depend upon one another.

This interdependence of departments becomes most evident at the shop counter, where mechanics and parts persons meet. Nowhere in the automotive agency is cooperation needed more than in this area. Mechanics who present parts requisitions at the shop counter must be given priority, because needless delays cost the company heavily in terms of profit and customer satisfaction. Time wasted at the shop counter may cost the company $12 or more per hour, plus a dissatisfied customer if the job is not finished on time.

### Shop Counter Knowledge and Skill

Parts knowledge and skills are needed at the shop counter more than at any other place. At the current customer labor rate, which ranges from $12 to $35 per hour in most auto agencies, it is very expensive to keep a mechanic or body worker waiting at the shop counter. Therefore, competent, thoroughly trained parts persons are needed to expedite filling each mechanic's needs and to minimize delays.

One of the reasons for staffing the shop counter with the best parts people is that they are the first to come in contact with the radical new designs in automobiles and automotive products which are introduced almost every new model year by auto manufacturers. Warranty service is a substantial part of the agency service department operation; and, as new models appear yearly, parts personnel must continually acquaint themselves with a multitude of new parts. Shop counter parts employees usually feel the burden first, often receiving requisitions for new parts even before the parts have been placed in stock, or before the new car model has been put on display. During the early weeks and months of a new production year, shop counter persons must become operationally acquainted with the new models. This process often involves learning the function as well as the parts of some complex new unit, including the study of special parts lists and service bulletins.

### Requisitions

A clear understanding should exist between parts and service personnel that, when a mechanic presents a parts requisition at the shop counter, certain obligations must be met. The mechanic must present a clear and legible requisition to the

parts person. The requisition should be made out by the mechanic for several reasons. First, because the mechanic is intimately aware of the parts needed, he or she should be able to write down all the parts required to complete a job. Second, if the mechanic stands at the parts counter and dictates his or her needs for the parts person to write down, it takes up both employee's time. A third reason is that omissions and errors may occur during the verbal dictation of a parts order, especially if a long list of parts is involved.

The parts person is obligated to process and complete each order as quickly as possible. Emergency orders which occasionally arise should be treated as such, and an added effort should be made by the parts person to expedite filling them.

Parts and service personnel can cooperate in a number of ways in the handling of shop requisitions. If a mechanic is working on a major overhaul, such as an engine or transmission, chances are that by the time he or she has completed the tearing-down operation, he or she will have a good idea of the parts needed. The mechanic should then prepare and present a parts requisition to the parts room for all the items needed. Thus, while the mechanic completes cleaning and machining operations, the parts department will have time between other smaller orders to fill the order and to take action to obtain parts not in stock.

Another timesaving method of handling shop requisitions is to issue first the parts needed to start the job, thereby allowing the mechanic or body worker to return to his or her job while the balance of the order is being filled. For example, if a mechanic requests a long list of automatic transmission parts, he or she could be given the clutch discs, plates, and clutch drum bushing first. The mechanic could then return to his or her bench and assemble the clutch units while the parts person fills the rest of the order. Similarly, a body worker with a list of front-end sheet metal parts might be able to return to work for several hours if he or she needed and was issued the frame horn extensions, a radiator core support, and certain inner panels and baffles. The parts person would then be able to complete the order at his or her leisure.

Many shop requisitions will call for material not in stock. The nature and price of the part, and the urgency with which it is needed, will determine how the order is to be treated. Small purchases are usually treated as local buy-outs, the part is located by phone, and a purchase order is issued for it. Larger items, especially warranty materials, are normally available from the factory only and must be ordered from the factory on a emergency or car-tie-up basis.

Inventory clerks generally use shop requisitions to maintain the inventory system. For this reason shop requisitions must be kept clean and legible, and all part numbers and quantities must be clearly shown. When shop requisitions have been completed, they usually are sent to the inventory clerk so that posting may be completed.

### Charges

All parts, including special purchases and emergency materials, that are issued to the shop must be charged out on the work order or repair order. These orders usually come to the shop counter from the service dispatcher, and it is the responsibility of parts personnel to make sure that parts are properly charged. Different companies have slightly different rules concerning entering parts used on repair orders, but ordinarily it is by part number, name, and list price. Wholesale and warranty repair orders are handled according to the policy or procedures set up by the agency or company.

When purchase orders are prepared for parts needed to complete a repair job, the part or parts to be purchased and the purchase order numbers should be entered on the repair order. This precaution will preclude the possibility of a repair order being closed out without a complete list of the parts.

UNIT B — AREAS OF RESPONSIBILITY

TOPIC 6 — THE SHOP COUNTER

## Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. In an automobile agency, the 1 2 supports the service operation. 1.____ 2.____
2. Most parts sold through agency service departments are sold at 3 4. 3.____ 4.____
3. The three primary functions of an auto agency—sales, 5, and 6—depend substantially upon one another. 5.____ 6.____
4. Mechanics who present parts requisitions at the shop counter must be given 7 over lesser tasks. 7.____
5. Warranty service is a 8 part of the agency service department operation. 8.____
6. During the early weeks and months of a new production year, shop counter persons must become 9 acquainted with the new 10. 9.____ 10.____
7. The parts requisition should be made out by the 11. 11.____
8. Emergency orders require an added effort by the parts person to 12 them. 12.____
9. Parts persons and service personnel must cooperate in handling 13 14. 13.____ 14.____
10. Inventory clerks usually work from the 15 16 to 17 the inventory system. 15.____ 16.____ 17.____

## Test

Circle T if the statement is true; circle F if the statement is false.

1. Agencies depend on their service shops to ensure continued customer satisfaction. 1. T F
2. Outside sales can account for 50 percent of an agency's parts business. 2. T F
3. The three primary functions of an agency are mutually independent. 3. T F
4. The best parts persons should be stationed at the shop counter. 4. T F
5. The shop counter parts person must know the names and numbers of all parts, but he or she need not know their functions. 5. T F
6. The parts person should prepare the requisitions for the shop mechanic's needs. 6. T F

7. When the parts person fills a long shop list, he or she should first issue the parts to be used first, then assemble the remainder of the parts as his or her work load permits. 7. T F

8. Inventory clerks use a recap of shop requisitions to assist in keeping the inventory current. 8. T F

9. All parts used in the shop are charged to the work order. 9. T F

10. All parts used in the shop are paid for by the customers. 10. T F

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 7 – THE MACHINE SHOP AND RELATED SALES

This topic is planned to provide answers to the following questions:

- What is the relationship between a machine shop and a parts business?
- What are the advantages of a combined parts sales and machine shop operations?
- How can a machine shop generate related sales?

For both the jobber-independents and agencies, a well-equipped automotive machine shop is increasingly necessary. The complex nature of today's automotive products is such that shade-tree methods and equipment are no longer adequate. Some of the components on current automobiles are difficult, if not impossible, to repair or replace with the tools and equipment used ten years ago. Many smaller garages and repair shops do not possess the expensive equipment necessary to make satisfactory repairs.

### Machine Shop Equipment

The high-compression, high rpm, V-8 engine used in most U.S. automobiles today is a carefully fitted, finely balanced power plant. The piston pins, for example, are so carefully fitted that at least one major manufacturer does not sell piston pins as replacement parts, but instead will sell only a factory-fitted piston and pin assembly. Many new pistons are size-marked in 0.0005 (½ thousandth) graduations so that cylinders which vary slightly in bore may be individually fitted. Engine bearings must be precisely selected and fitted. This complexity is not limited to engines alone, multiple carburetion, complex electrical circuits, automatic equipment, and complicated drives are such that diagnosis and repair can be made only with the aid of specialized and expensive equipment.

Typical of the equipment found in a modern automotive machine shop are the following: pin hones and reamers, assorted valve guide tools, valve refacers, hard seat grinders, boring bars, line-boring equipment, bearing resizers, armature lathes, brake drum lathes and shoe sizing jigs, crankshaft grinders, camshaft grinders, rod boring and aligning equipment, balancing jigs, clutch rebuilding machines, degreasing tanks, arbor presses, fly wheel and cylinder head resurfacers, and dozens of special hand tools, micrometers, dial indicators, and test gages (Figs. B-8 through B-11).

The ordinary garage proprietor owns but a few of the machines and equipment listed above. He or she relies on local machine shops for specialty work, which opens up a number of related sales opportunities for the well-equipped parts dealer.

### Machine Shop Service

The one-stop service offered by the parts organization with a machine shop provides a distinct advantage. Today, professional auto repair people are usually in a hurry. They measure their time in dollars and cents, their business textbook is a flat-rate manual. They cannot tolerate unnecessary delays. They will purchase materials where the service is quick, efficient, and complete. The establishment that can offer them a complete line of replacement parts and accessories, plus machine shop services to help them complete their repairs efficiently, economically, and with a minimum of delay, can count on their continued patronage. The retail customer, however, is a little different in this respect. A few so-called bargain hunters will shop around, but the one-stop service is a distinct advantage. The shop that sells this service can expect continued growth in sales.

Machine shop services contribute significantly to the income of the parts organization, and the parts person should be thoroughly familiar with the shop and its capabilities. Machine shop services are profitable to the company and provide valuable opportunities for related sales. Moreover, proper shop diagnosis, assembly, and installation can reduce parts failures.

### Related Sales Opportunities

One of the biggest assets of a machine shop is the related sales opportunities that it presents. A related sales opportunity is any part or service that can logically be suggested for purchase along with the parts or service requested by the customer. This opportunity works in two ways, if the customer is buying parts that suggest service operations, then he or she may be encouraged to buy the needed services; if the customer brings some machining or assembly work to the shop, there may be an opportunitity to sell him or her related parts. The parts person who is thoroughly

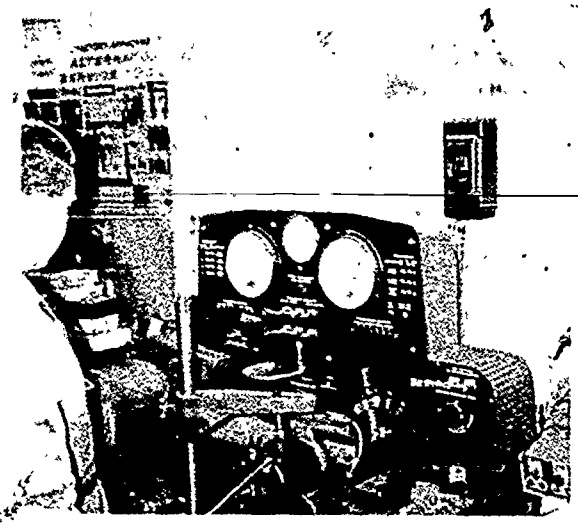

Fig. B-8. Testing a generator and voltage regulator on a modern electrical test bench

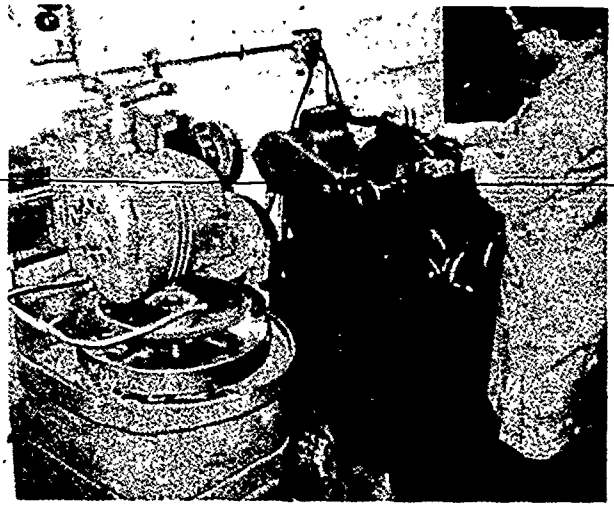

Fig. B-9. Flywheel resurfacing grinder (foreground) and piston grinder (background)

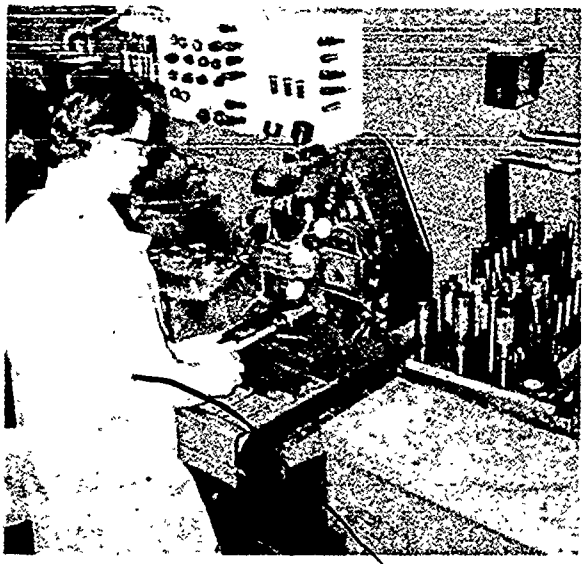

Fig. B-10. Fitting piston pins on a Sunnen hone (Assortment of mandrels and truing sleeves at the right)

Fig. B-11. Grinding valve seats

Courtesy Tri-City Auto Supply, Richmond

familiar with shop services may take full advantage of this dual opportunity for related sales. The necessity for auto parts apprentices to be well-grounded in the essentials of automotive principles and design is apparent.

A worn-out clutch disc that shows signs of scoring on the flywheel side should suggest several sales opportunities to the parts person. The flywheel is scored, therefore, it should be resurfaced or replaced. Similarly, scored brake shoes suggest scored brake drums, the drums should be turned and new linings ground to fit them. A simple inquiry into a head gasket purchase may turn up a warped cylinder head and a chance to sell a valuable machine shop service.

The number of related sales opportunities that machine shops offer is tremendous, and one should take advantage of each one. A counter person acquainted with shop equipment and its operation can talk intelligently about machining operations whenever the opportunity arises. He or she can impress upon the customers the advantages of

proper testing and assembly. Many people are only vaguely aware of the services a machine shop can offer. When the customer's needs are pointed out to him or her, the parts and service should sell each other.

### Reducing Parts Failure

Machine shop services reduce parts failures and returns. Proper assembly and installation of new or rebuilt parts can materially reduce the number of parts failures now experienced. Some customers are simply careless about proper installation, while others may be completely unaware of the factors involved. Many a generator has been returned because of reversed polarity or a faulty voltage regulator that was never checked. A scored flywheel will spoil a new clutch disc, and a new master cylinder kit installed in a pitted cylinder is uneconomical and dangerous as well. Driving a bearing on a rear axle shaft with a hammer and punch can crack the inner race, or put out an eye if the hardened steel should chip. Guessing at the crankshaft bearing sizes can cause trouble and needless expense. Expanding a set of pistons and aligning the rods may keep a ring job from going sour.

These examples should serve to point out the constant threat of failures due to careless and improper procedures. By knowing the precautions against such failures, the parts person can suggest methods and service to prevent them. Customers appreciate practical advice and an invitation into the shop to view a needed service. But the customer should not be coaxed into buying something that he or she does not need. Customer good will is an expensive commodity. Plenty of opportunities are available for legitimate sales, the parts person need only learn to recognize them.

Parts failure due to improper installation by the customer is an expense that the company usually must bear. Even though the part may clearly indicate faulty or careless installation, it is usually good business to replace the part free of charge (unless it is quite expensive) to maintain customer goodwill. If the number of such failures can be reduced by selling the services of the machine shop, then not only will a needless expense be avoided, but shop revenue will be increased.

### Study Assignment

1. Crouse, William H. *Automotive Mechanics* (Sixth edition). New York: McGraw-Hill Book Company, 1974. Read chapters 4 and 5 and answer the questions at the end of each chapter.
2. Bring to your instructor a written account, at least one full page in length, of the services offered by the machine shop where you work. If the company does not operate a machine shop, visit a nearby shop and obtain the information.

### Topic for Discussion

Be prepared to discuss the following topic if you are asked to do so:

1. What opportunities for additional parts sales are suggested by the machine shop services in your report?

## UNIT B – AREAS OF RESPONSIBILITY

## TOPIC 7 – THE MACHINE SHOP AND RELATED SALES

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Many small garages and repair shops do not have the expensive __1__ necessary to make __2__ repairs. — 1. _____ 2. _____
2. A combined parts sales and machine shop operation can offer __3__ service. — 3. _____
3. Today the professional auto repair person cannot tolerate unnecessary __4__; he or she will buy where the service is __5__, __6__, and __7__. — 4. _____ 5. _____ 6. _____ 7. _____
4. Machine shop services contribute significantly to the __8__ of the parts organization. — 8. _____
5. One of the greatest assets of a machine shop is the opportunities it affords for __9__ __10__. — 9. _____ 10. _____
6. A wornout clutch disc may indicate a __11__ flywheel. — 11. _____
7. Proper __12__ and __13__ of new or rebuilt parts can materially reduce the number of parts failures experienced by parts stores. — 12. _____ 13. _____
8. Customers appreciate an invitation into the __14__ and __15__. — 14. _____ 15. _____
9. Scored brake drums should be __16__ in the shop. — 16. _____
10. The __17__ __18__ is the garage proprietor's business textbook. — 17. _____ 18. _____

### Test

Circle T if the statement is true; circle F if the statement is false.

1. The tools and equipment of ten years ago no longer suffice for current auto repair work. — 1. T F
2. An engine block with cylinder bores that vary just slightly is discarded. — 2. T F
3. The owner of a small garage can farm out necessary machining. — 3. T F
4. The professional auto repair person will usually buy any replacement part from the cheapest source. — 4. T F
5. The parts person needs to know little about machine tool capabilities. — 5. T F
6. Machine shop operations play no part in increasing sales of replacement parts. — 6. T F
7. Inquiry about a gasket purchase may lead to a cylinder head honing job. — 7. T F

8. Proper assembly and installation of parts is essential to the reduction in parts failures. 8. T F

9. If the customer is responsible for faulty installation of a part, he or she should always be charged for a replacement. 9. T F

10. Some manufacturers will not sell just the replacement piston. 10. T F

# UNIT C Cataloging Systems

## TOPIC 1 — FACTORY PARTS SYSTEMS

This topic is planned to provide answers to the following questions:

- **Are all parts numbering systems the same?**
- **What is a nonsignificant part number?**
- **How can a part be identified if its number is not known?**
- **Must the auto parts apprentice memorize the numbers of all the parts he or she works with?**
- **Are standard items, such as nuts and flat washers, assigned part numbers?**

Major similarities exist in all automobile manufacturer's cataloging systems. Examples taken from the different catalogs are presentated in Figs. C-1 through C-9. From these examples the parts apprentice may gain an appreciation of the fundamental concepts of parts catalog design and may then apply these basic concepts in learning details of the particular catalogs with which he or she must work.

As the auto parts industry continues to increase in size and complexity, the parts person must spend a proportionately greater amount of time in study and use of the parts catalogs. An example of this growth is one of GM's parts catalogs. In the 1940s, the Chevrolet Master Parts Catalog contained less than 700 pages. The latest combined Chevrolet catalog and price list has well over 3,500 pages, an increase of 400 percent, or 25 percent per year.

Parts catalogs are indispensable operating tools of the parts department. Without the information they contain, it would be impossible for a parts person to locate, identify, and price the merchandise that he or she must handle. Consequently, a thorough working knowledge of parts catalogs and related manuals is essential if the parts employee is to function at his or her best.

### Parts Catalogs

A study of the major auto manufacturer's catalogs reveals that they all have the same basic structure. All contain an alphabetical and a numerical index, and all present pictorial diagrams, which usually precede each group division. Each manufacturer uses a group number or part number prefix to identify the major assemblies and subassemblies of the vehicle. And, of course, all manufacturers use discrete part numbers to identify each individual part. In addition, manufacturers' catalogs present a wealth of related information to aid the parts person in model identification, interior trim classification, engine and option specifications, ordering procedures, and so forth.

### Assignment of Parts Numbers

Each new part produced by an automobile manufacturer must be assigned a unique part number to give it identity. The methods of assigning part numbers differ slightly with various manufacturers. Two examples are the General Motors block systems and the Ford Motor Company expansion method.

In the General Motors system certain blocks of numbers are assigned to specific manufacturing divisions [1] (Fig. C-1). As new parts are designed by the various divisions, each division assigns part numbers in rotation from its block of numbers. General Motors parts numbers are *nonsignificant*, which means that no digit in the manufacturer's part number identifies parts in a certain category. For example, nothing within GM part number 7450745 indicates that it is a differential side carrier bearing that is found in group 5.536.

The GM manufacturer's part number, which is a six or seven digit number, is used only to describe an individual part. The same part number is used

[1] Permission to use Figs. C-1 through C-9 has been granted by the manufacturers whose catalogs are represented and is gratefully acknowledged.

# GENERAL MOTORS ENGINEERING STANDARDS

## PART NUMBERING SYSTEM

| FROM | TO | NAME |
|---|---|---|
| 000,001 | 050,000 | Delco Products Division, Dayton, Ohio |
| 050,001 | 100,000 | GMC Truck & Coach Division, Pontiac, Michigan |
| 100,001 | 149,999 | General Motors Standard Parts |
| 150,000 | 228,999 | General Motors Standard Parts (Originally assigned to Buick Division)† |
| 229,000 | 230,000 | Buick Motor Division, Flint, Michigan |
| 230,001 | 232,000 | Oldsmobile Division, Lansing Axle Plant, Lansing, Michigan |
| 232,001 | 252,500 | GMC Truck & Coach Division, Pontiac, Michigan |
| 252,501 | 271,000 | Saginaw Steering Gear Division, Saginaw, Michigan |
| 271,001 | 275,000 | General Motors Standard Parts (Originally assigned to Saginaw Steering Gear Division) |
| 275,001 | 277,500 | Chevrolet Division, Detroit, Michigan (Originally assigned to Central Products) |
| 277,501 | 325,000 | GMC Truck & Coach Division, Pontiac, Michigan |
| 325,001 | 380,000 | Chevrolet Division, Warren, Michigan |
| 380,001 | 420,000 | Oldsmobile Division, Lansing, Michigan |
| 420,001 | 457,500 | General Motors Standard Parts |
| 457,501 | 477,500 | Chevrolet Division, Detroit, Michigan |
| 477,501 | 550,000 | Pontiac Motor Division, Pontiac, Michigan |
| 550,001 | 590,000 | Oldsmobile Division, Lansing, Michigan (Muncie Products) |
| 590,001 | 610,000 | Chevrolet Division, Warren, Michigan |
| 610,001 | 613,000 | GMC Truck & Coach Division, Pontiac, Michigan |
| 613,001 | 643,000 | Frigidaire Division, Dayton, Ohio |
| 643,001 | 725,000 | GMC Truck & Coach Division, Pontiac, Michigan |
| 725,001 | 750,000 | General Motors of Canada, Ltd., Oshawa, Ontario, Canada |
| 750,001 | 771,000 | Inland Manufacturing Division, Dayton, Ohio |
| 771,001 | 790,000 | General Motors Standard Tools |
| 790,001 | 800,000 | GMC Truck & Coach Division, Pontiac, Michigan |
| 800,001 | 835,000 | Delco Remy Division, Anderson, Indiana |
| 835,001 | 835,500 | Research Staff, Warren, Michigan |
| 835,501 | 840,000 | Chevrolet Division, Warren, Michigan |
| 840,001 | 870,000 | AC Spark Plug Division, Flint, Michigan |
| 870,001 | 897,000 | Cadillac Motor Car Division, Detroit, Michigan |
| 897,001 | 900,000 | Guide Lamp Division, Anderson, Indiana |
| 900,001 | 910,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 910,001 | 910,250 | Saginaw Products, Motor Division, Saginaw, Michigan |
| 910,251 | 930,000 | Guide Lamp Division, Anderson, Indiana |
| 930,001 | 930,500 | General Motors of Canada, Ltd., Canadian Products Plant, Oshawa, Ontario, Canada |
| 930,501 | 932,500 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 932,501 | 954,100 | General Motors Standard Tools (Jaxon Steel Products)* |
| 954,101 | 955,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 955,001 | 965,000 | General Motors Standard Tools |
| 965,001 | 980,000 | Buick Motor Division, Flint, Michigan (Brown-Lipe-Chapin) |
| 980,001 | 982,000 | General Motors Parts Division (Buick Division Custodian) |
| 982,001 | 983,500 | General Motors Parts Division (Oldsmobile Division Custodian) |
| 983,501 | 985,000 | General Motors Parts Division (Pontiac Division Custodian) |
| 985,001 | 988,500 | General Motors Parts Division (Chevrolet Division Custodian) |
| 988,501 | 990,000 | General Motors Parts Division (Custodian Unassigned) |
| 990,001 | 991,250 | General Motors Parts Division (Cadillac Division Custodian) |
| 991,251 | 992,500 | General Motors Parts Division (Custodian Unassigned) |

**Administered by Chevrolet Parts and Accessories Department Detroit, Michigan

* Approximately 1,000 numbers used by Jaxon are in divisional records and will not be reassigned to tools.
** Custodians should be contacted for information relative to these part numbers.
† A portion of the original Buick numbers are in divisional records and will not be reassigned to standard parts.

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Fig. C-1. General Motors block system for assigning parts numbers (Page 1 of 5)

## GENERAL MOTORS ENGINEERING STANDARDS

### PART NUMBERING SYSTEM

| FROM | TO | NAME |
|---|---|---|
| 992,501 | 1,000,000 | Buick Motor Division, Flint, Michigan (Brown-Lipe-Chapin) |
| 1,000,001 | 1,050,000 | Vauxhall Motors, Ltd., Luton, England |
| 1,050,001 | 1,053,000 | General Motors Parts Division, Administered by Chevrolet Parts and Accessories Dept., Detroit, Michigan (Originally assigned to General Motors G.m.b.H., Berlin) |
| 1,053,001 | 1,080,000 | Delco Products Division, Dayton, Ohio |
| 1,080,001 | 1,100,000 | Cadillac Motor Car Division, Detroit, Michigan (Sub-Assemblies, No Drawing) |
| 1,100,001 | 1,120,000 | Delco Remy Division, Anderson, Indiana |
| 1,120,001 | 1,150,000 | Frigidaire Division, Dayton, Ohio |
| 1,150,001 | 1,153,000 | Buick Motor Division, Flint, Michigan (Armstrong Spring) |
| 1,153,001 | 1,154,000 | General Motors Continental, Antwerp, Belgium |
| 1,154,001 | 1,156,000 | Blank (Originally assigned to General Motors G.m.b.H., Berlin) |
| 1,156,001 | 1,160,000 | Delco Moraine Division, Dayton, Ohio |
| 1,160,001 | 1,161,000 | General Motors France, AC-Delco Division, Clichy-Seine, France |
| 1,161,001 | 1,164,000 | Buick Motor Division, Flint, Michigan (Armstrong Spring) |
| 1,164,001 | 1,200,000 | Buick Motor Division, Flint, Michigan |
| 1,200,001 | 1,230,000 | Delco Radio Division, Kokomo, Indiana (Originally assigned to General Motors Radio Corp & United Motors Radio) |
| 1,230,001 | 1,400,000 | Buick Motor Division, Flint, Michigan |
| 1,400,001 | 1,500,000 | Cadillac Motor Car Division, Detroit, Michigan |
| 1,500,001 | 1,600,000 | AC Spark Plug Division, Flint, Michigan |
| 1,600,001 | 1,750,000 | Cadillac Motor Car Division, Detroit, Michigan |
| 1,750,001 | 1,800,000 | General Motors of Canada, Ltd., Oshawa, Ontario, Canada |
| 1,800,001 | 1,835,000 | McKinnon Industries, Ltd., St. Catharines, Ontario, Canada |
| 1,835,001 | 2,000,000 | Delco-Remy Division, Anderson, Indiana |
| 2,000,001 | 2,500,000 | GMC Truck & Coach Division, Pontiac, Michigan |
| 2,500,001 | 2,600,000 | Adam Opel, A. G., Russelsheim, Germany |
| 2,600,001 | 2,620,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 2,620,001 | 2,719,999 | Blank (Originally assigned to New Departure-Hyatt Bearings Division) |
| 2,720,000 | 2,725,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 2,725,001 | 2,739,999 | Blank (Originally assigned to New Departure-Hyatt Bearings Division) |
| 2,740,000 | 2,765,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 2,765,001 | 2,779,999 | Blank (Originally assigned to New Departure-Hyatt Bearings Division) |
| 2,800,000 | 2,805,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 2,805,001 | 2,829,999 | Blank (Originally assigned to New Departure-Hyatt Bearings Division) |
| 2,830,000 | 2,835,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 2,835,001 | 2,850,000 | Blank (Originally assigned to New Departure-Hyatt Bearings Division) |
| 2,850,001 | 2,865,000 | General Motors Ltd., Frigidaire Division, London, England (2,850,001 - 2,860,000 Originally assigned to New Departure-Hyatt Bearings Division) |
| 2,865,001 | 2,900,000 | Adam Opel, A. G., Russelsheim, Germany |
| 2,900,001 | 2,930,000 | General Motors France, Frigidaire Division, Gennevilliers-Seine, France |
| 2,930,001 | 2,960,000 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 2,960,001 | 2,990,000 | Packard Electric Division, Warren, Ohio |
| 2,990,001 | 3,000,000 | General Motors South African, Ltd., Port Elizabeth, South Africa |
| 3,000,001 | 3,160,000 | Harrison Radiator Division, Lockport, New York |
| 3,160,001 | 3,200,000 | Delco Products Division, Dayton, Ohio |
| 3,200,001 | 3,283,499 | Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division) |
| 3,283,500 | 3,289,300 | General Motors South African, Ltd., Port Elizabeth, South Africa (Originally assigned to Cleveland Diesel Engine Division) |

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Fig. C-1. General Motors block system for assigning parts numbers (Page 2 of 5)

## GENERAL MOTORS ENGINEERING STANDARDS

### PART NUMBERING SYSTEM

| FROM | TO | NAME |
|---|---|---|
| 3,289,301 | 3,292,799 | Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division) |
| 3,292,800 | 3,300,000 | General Motors de Mexico, Mexico City, Mexico (Originally assigned to Cleveland Diesel Engine Division) |
| 3,300,001 | 3,330,699 | Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division) |
| 3,330,700 | 3,340,000 | General Motors New Zealand, Ltd., Wellington, New Zealand (Originally assigned to Cleveland Diesel Engine Division) |
| 3,340,001 | 3,350,099 | Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division) |
| 3,350,100 | 3,355,000 | General Motors, Ltd., Power and Industrial Division, Wellingborough, England (Originally assigned to Cleveland Diesel Engine Division) |
| 3,355,001 | 3,360,000 | Frigidaire Products of Canada, Ltd., Scarborough, Ontario, Canada (Originally assigned to Cleveland Diesel Engine Division) |
| 3,360,001 | 3,389,999 | Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division) |
| 3,390,000 | 3,410,000 | General Motors of Canada, Ltd., Oshawa, Ontario, Canada (Originally assigned to Cleveland Diesel Engine Division) |
| 3,410,001 | 3,415,000 | Frigidaire Products of Canada, Ltd., Scarborough, Ontario, Canada (Originally assigned to Cleveland Diesel Engine Division) |
| 3,415,001 | 3,430,000 | General Motors South African, Ltd., Port Elizabeth, South Africa (Originally assigned to Cleveland Diesel Engine Division) |
| 3,430,001 | 3,470,000 | Adam Opel, A. G., Russelsheim, Germany |
| 3,470,001 | 3,500,000 | General Motors France, AC-Delco Division, Clichy-Sei France (Originally assigned to Cleveland Diesel Engine Division) |
| 3,500,001 | 3,650,000 | Cadillac Motor Car Division, Detroit, Michigan (Sub-Assemblies, No Drawing) |
| 3,650,001 | 4,000,000 | Chevrolet Division, Warren, Michigan |
| 4,000,001 | 4,150,085 | Fisher Body Division, Warren, Michigan |
| 4,150,086 | 4,159,999 | Ternstedt Division, Warren, Michigan |
| 4,160,000 | 4,230,076 | Fisher Body Division, Warren, Michigan |
| 4,230,077 | 4,239,999 | Ternstedt Division, Warren, Michigan |
| 4,240,000 | 4,300,241 | Fisher Body Division, Warren, Michigan |
| 4,300,242 | 4,309,999 | Ternstedt Division, Warren, Michigan |
| 4,310,000 | 4,900,000 | Fisher Body Division, Warren, Michigan |
| 4,900,001 | 5,100,000 | Delco Products Division, Dayton, Ohio (Formerly Delco-Appliance Division) |
| 5,000,101 | 5,000,672 | Sunlight Electrical Division, Warren, Ohio (Duplication - Error) |
| 5,100,001 | 5,200,000 | Detroit Diesel Engine Division, Detroit, Michigan |
| 5,200,001 | 5,225,000 | Packard Electric Division, Warren, Ohio |
| 5,225,001 | 5,226,000 | General Motors France, AC-Delco Division, Clichy-Seine, France |
| 5,226,001 | 5,236,000 | Diesel Equipment Division, Grand Rapids, Michigan |
| 5,236,001 | 5,260,000 | General Motors Overseas Operations, Detroit, Michigan |
| 5,260,001 | 5,270,000 | General Motors of Canada, Ltd., Oshawa, Ontario, Canada |
| 5,270,001 | 5,300,000 | Packard Electric Division, Warren, Ohio |
| 5,300,001 | 5,400,000 | Delco Products Division, Dayton, Ohio |
| 5,400,001 | 5,450,000 | Frigidaire Division, Dayton, Ohio |
| 5,450,001 | 5,475,000 | Delco Moraine Division, Dayton, Ohio |
| 5,475,001 | 5,500,000 | General Motors Ltd., Frigidaire Division, London, England |
| 5,500,001 | 5,510,000 | General Motors France, AC-Delco Division, Clichy-Seine, France |
| 5,510,001 | 5,560,000 | Delco Products Division, Dayton, Ohio |
| 5,560,001 | 5,660,000 | AC Spark Plug Division, Flint, Michigan |
| 5,660,001 | 5,710,000 | Saginaw Steering Gear Division, Saginaw, Michigan |
| 5,710,001 | 5,710,981 | Ternstedt Division, Warren, Michigan (Originally assigned to Instrument Plant) |
| 5,710,982 | 5,720,000 | Ternstedt Division, Warren, Michigan |
| 5,720,001 | 5,740,000 | General Motors of Canada, Ltd., Oshawa, Ontario, Canada |
| 5,740,001 | 5,745,000 | General Motors de Mexico, Mexico City, Mexico |
| 5,745,001 | 5,755,000 | General Motors Argentina, Buenos Aires, Argentina |
| 5,755,001 | 5,850,000 | General Motors of Canada, Ltd., Oshawa, Ontario, Canada |

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Fig. C-1. General Motors block system for assigning parts numbers (Page 3 of 5)

## GENERAL MOTORS ENGINEERING STANDARDS

### PART NUMBERING SYSTEM

| FROM | TO | NAME |
|---|---|---|
| 5,850,001 | 5,930,000 | Frigidaire Division, Dayton, Ohio |
| 5,930,001 | 5,980,000 | Guide Lamp Division, Anderson, Indiana |
| 5,980,001 | 6,000,000 | Hydra-Matic Division, Ypsilanti, Michigan |
| 6,000,001 | 6,216,400 | Research Staff, Warren, Michigan |
| 6,216,401 | 6,219,000 | Central Foundry Division, Saginaw, Michigan (Originally assigned to Fabricast Division) |
| 6,219,001 | 6,220,500 | Reserved |
| 6,220,501 | 6,228,300 | Research Staff, Warren, Michigan |
| 6,228,301 | 6,235,499 | Adam Opel, A. G., Russelsheim, Germany |
| 6,235,500 | 6,239,200 | Research Staff, Warren, Michigan |
| 6,239,201 | 6,245,499 | General Motors South African, Ltd., Port Elizabeth, South Africa |
| 6,245,500 | 6,245,800 | Research Staff, Warren, Michigan |
| 6,245,801 | 6,250,500 | General Motors South African, Ltd., Port Elizabeth, South Africa |
| 6,250,501 | 6,255,500 | Research Staff, Warren, Michigan |
| 6,255,501 | 6,275,000 | Chevrolet Division, Warren, Michigan |
| 6,275,001 | 6,285,499 | Fisher Body Division, Warren, Michigan |
| 6,285,500 | 6,285,700 | Research Staff, Warren, Michigan |
| 6,285,701 | 6,300,500 | Packard Electric Division, Warren, Ohio |
| 6,300,501 | 6,300,800 | Research Staff, Warren, Michigan |
| 6,300,801 | 6,306,499 | Vauxhall Motors, Ltd., Luton, England |
| 6,306,500 | 6,308,500 | Research Staff, Warren, Michigan |
| 6,308,501 | 6,400,000 | Vauxhall Motors, Ltd., Luton, England |
| 6,400,001 | 6,500,000 | AC Spark Plug Division, Flint, Michigan |
| 6,500,001 | 6,530,000 | Allison Division (Aircraft Operations), Indianapolis, Indiana (Originally assigned to Aeroproducts Division) |
| 6,530,001 | 6,535,000 | Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division) |
| 6,535,001 | 6,600,000 | Frigidaire Division, Dayton, Ohio |
| 6,600,001 | 6,700,000 | Adam Opel, A. G., Russelsheim, Germany |
| 6,700,001 | 6,749,999 | Allison Division (Aircraft Operations), Indianapolis, Indiana |
| 6,750,000 | 6,779,999 | Allison Division (Transmission Operations), Indianapolis, Indiana |
| 6,780,000 | 6,829,949 | Allison Division (Aircraft Operations), Indianapolis, Indiana |
| 6,829,950 | 6,839,999 | Allison Division (Transmission Operations), Indianapolis, Indiana |
| 6,840,000 | 6,900,000 | Allison Division (Aircraft Operations), Indianapolis, Indiana |
| 6,900,001 | 6,902,000 | Engineering Staff, Warren, Michigan (Originally assigned to Chevrolet-Cleveland Division) |
| 6,902,001 | 6,905,000 | General Motors de Mexico, Mexico City, Mexico |
| 6,905,001 | 6,905,500 | Engineering Staff, Warren, Michigan (Originally assigned to Chevrolet-Cleveland Division) |
| 6,905,501 | 6,910,500 | General Motors de Mexico, Mexico City, Mexico |
| 6,910,501 | 7,000,000 | General Motors Diesel Ltd., London, Ontarib, Canada |
| 7,000,001 | 7,050,000 | Rochester Products Division, Rochester, New York |
| 7,050,001 | 7,220,000 | Vauxhall Motors, Ltd., Luton, England |
| 7,220,001 | 7,230,000 | General Motors, Ltd., AC-Delco Division, Dunstable, England |
| 7,230,001 | 7,315,000 | Delco Radio Division, Kokomo, Indiana |
| 7,315,001 | 7,365,000 | General Motors do Brazil, Sao Paulo, Brazil |
| 7,365,001 | 7,375,000 | General Motors New Zealand Ltd., Wellington, New Zealand |
| 7,375,001 | 7,450,000 | General Motors Holden's Ltd., Melbourne, Australia |
| 7,450,001 | 7,499,999 | New Departure-Hyatt Bearings Division, Sandusky, Ohio |
| 7,500,000 | 7,501,200 | Euclid (Great Britain) Ltd., Newhouse, Lanarkshire, Scotland |
| 7,501,201 | 7,549,999 | Frigidaire Division, Dayton, Ohio |
| 7,550,000 | 7,552,300 | Euclid (Great Britain) Ltd., Newhouse, Lanarkshire, Scotland |

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Fig. C-1. General Motors block system for assigning parts numbers (Page 4 of 5)

# GENERAL MOTORS ENGINEERING STANDARDS

## PART NUMBERING SYSTEM

| FROM | TO | NAME |
|---|---|---|
| 7,952,001 | ---- 7,500,000 | Defense Research Laboratories Goleta, California |
| 7,500,001 | ---- 7,600,000 | Fisher Body Division, Warren, Michigan |
| 7,800,001 | ---- 7,900,000 | Saginaw Steering Gear Division, Saginaw, Michigan |
| 7,850,001 | ---- 7,929,999 | AC Electronics Division, Milwaukee, Wisconsin |
| 7,930,000 | ---- 7,939,999 | Delco Radio Division, Kokomo, Indiana |
| 7,940,000 | ---- 7,949,999 | AC Electronics Division, Milwaukee, Wisconsin |
| 7,950,001 | ---- 8,000,000 | General Motors Ltd., AC-Delco Division, Dunstable, England |
| 8,000,001 | ---- 8,050,000 | Electro-Motive Division, LaGrange, Illinois |
| 8,500,001 | ---- 8,550,000 | Harrison Radiator Division, Lockport, New York |
| 8,550,001 | ---- 8,600,000 | AC Electronics Division, Milwaukee, Wisconsin |
| 8,600,001 | ---- 8,700,000 | Hydra-Matic Division, Ypsilanti, Michigan |
| 8,700,001 | ---- 8,810,000 | Blank |
| 8,810,001 | ---- 8,860,000 | Vauxhall Motors Ltd., Luton, England |
| 8,860,001 | ---- 8,890,000 | GMC Truck & Coach Division, Pontiac, Michigan |
| 8,890,001 | ---- 8,900,000 | Hydra-Matic Division, Ypsilanti, Michigan |
| 8,900,001 | ---- 8,930,000 | Blank (Originally assigned to Allison Division) |
| 8,930,001 | ---- 8,960,000 | Adam Opel, A. G., Russelsheim, Germany (Originally assigned to Allison Division) |
| 8,960,001 | ---- 9,000,000 | Blank (Originally assigned to Allison Division) |
| 9,000,001 | ---- 9,001,000 | Delco Remy Division, Anderson, Indiana |
| 9,001,001 | ---- 9,349,999 | Euclid Division, Cleveland, Ohio |
| 9,350,000 | ---- 9,400,000 | Euclid (Great Britain) Ltd., Newhouse, Lanarkshire, Scotland |
| 9,400,001 | ---- 9,700,000 | General Motors Standard Parts |
| 9,700,001 | ---- 9,725,000 | Ternstedt Division, Warren, Michigan (Originally assigned to Brown-Lipe-Chapin Division) |
| 9,725,001 | ---- 9,740,000 | Ternstedt Division, Warren, Michigan (Originally assigned to Aircraft Standard Parts) |
| 9,740,001 | ---- 9,770,000 | Inland Manufacturing Division, Dayton, Ohio |
| 9,770,001 | ---- 9,800,000 | Pontiac Motor Division, Pontiac, Michigan |
| 9,800,001 | ---- 9,900,000 | Blank (Originally assigned to Eastern Aircraft Division) |
| 9,900,001 | ---- 9,915,000 | Vauxhall Motors Ltd., Luton, England |
| 9,915,001 | ---- 9,920,000 | General Motors de Venezuela, C. A., Caracas, Venezuela |
| 9,920,001 | ---- 9,980,000 | Blank |
| 9,980,001 | ---- 9,999,999 | General Motors Standard Engineering Materials and Processes |

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Fig. C.1. General Motors block system for assigning parts numbers (Page 5 of 5)

by all divisions (Chevrolet, Pontiac, Buick, Oldsmobile, Cadillac, and GMC Truck) to describe the same part. Hence, if a certain part were used on Pontiac products and on Chevrolet products, both divisions would use the same part number to identify that part.

Ford Motor Company part numbers, however, are formed by expanding the basic group numbers that subdivide the parts catalog. Ford part numbers are *significant* in that they identify the nature, location, and application of the part to which they are assigned. For example, Ford part number C3AZ 6303A indicates to the experienced Ford parts person that the number is for a crankshaft (all crankshafts have the basic number 6303) and that it fits a 1963 series A vehicle (C3 means 1963, and A identifies the model). By the addition of proper prefixes (C3AZ is a prefix) and suffixes (the final A in the part number above is a suffix), new parts can be added to the existing system and still retain the basic group information. Any new crankshaft will be assigned the basic part number 6303, but the prefix and suffix will change (Fig. C-2).

The Ford parts catalog is divided into sections, which are further divided into basic groups (Fig. C-2). The basic group numbers are divided into subgroups, which are the basis for constructing individual part numbers. The assignment of Ford part numbers, then, depends upon the individual subgroup divisions already established (Fig. C-3).

## Group Numbers

Group numbers are particularly important to those manufacturers' systems whose part numbers are nonsignificant. In the General Motors example above it was noted that GM part number 7450745 indicates nothing about the nature and application of that particular part. In such systems, one must turn to the group number for information which will give meaning to nonsignificant part numbers.

The group number sequence of each of the major automobile manufacturers is given in Figs. C-2 and C-4. Although these group divisions vary in number and interpretation, a basic similarity exists among all of them. Each group division represents a major section or area of the vehicle, and each group is divided into subgroups within which discrete parts may be identified.

In the General Motors system, the group numerals before the decimal point identify the major assemblies or systems in the automobiles, numerals after the decimal relate to subassemblies or individual parts. Referring to the earlier example of GM group 5.536, the 5. refers to a rather large group section of the book which contains the data on parts for the operating brake, propeller shaft, and rear axle. Further division of the 5.000 group separates these three units, and it is not until one refers to a subgroup 5.536 that the nature of the specific part can be found. Then, subgroup 5.536 can be identified as a specific subgroup (Bearing-Bearing Assembly-Race, Differential Side) within a larger group system (Fig. C-5).

A method of dividing parts into major groups and subgroups is followed in all automotive parts catalogs. Although the various manufacturers have assigned different numbers to each group and subgroup, the basic systems are similar. As a beginning exercise, it is a good idea for the parts apprentice to memorize the major group divisions of the catalog with which he or she is working. This is a reasonable task, since most catalogs contain less than 25 major group divisions.

Group numbers seldom change, whereas part numbers may change frequently. Therefore, it is not advisable for the parts apprentice to attempt to memorize large blocks of part numbers, because there are too many and they change too often. The group numbers are more stable and are used so frequently that they should be committed to memory. The parts apprentice will find that it is a decided advantage to be able to turn quickly and efficiently to the major group within which the needed part can be found.

## Use of the Catalog

Three general methods are used in locating parts in the manufacturers' catalogs. Two of the methods are used frequently, while the third is used less often. The most common method of locating parts is by referring to the noun name as listed in the alphabetical index. The alphabetical index is keyed to the group number system of the book and leads directly to the numerical group under which the part can be found.

A request for a fan blade for a 1975 Cadillac Coupe de Ville with air conditioning, for example, would lead to group 1.064 (Fig. C-6). Although this page was reproduced from a Chevrolet alphabetical index, it will provide the correct group number, because all GM divisions use the same group system. When one turns to group 1.064 in the Cadillac catalog, and runs down the Series column to "1973 exc. 75, CC," then reads across in the Specifications column to "Air conditioning, 7 blade type," it is found that the desired part

# FORD CAR PARTS

SECTION 63

1

| YEAR 19— | MODEL | NO. CYL. | ENGINE CUBIC INCH DISPL. | DESCRIPTION | QTY PER VEHICLE | PART NUMBER |
|---|---|---|---|---|---|---|
| | **6A302 PIN - CRANKSHAFT REAR OIL SEAL** | | | | | |
| 60/ | X, B | 6 | 144,170 | .094"/.098" O.D. - .31" long-pointed | 1 | C0DZ 6A302-A |
| 62/ | B, A | 8 | 221 | | 1 | |
| | **6303 CRANKSHAFT ASSY.** | | | | | |
| 60/ | X | 6 | 144 | 29.005" overall length | 1 | C2DZ 6303-B |
| 61/ | X, B | 6 | 170 | 29.005" overall length | 1 | C2DZ 6303-A |
| 52/53 | A | 6 | 215 | 30.90" overall length | 1 | B3A 6303-A |
| 63 | B | 6 | 200 | | 1 | C2OZ 6303-A |
| 54/60 | A | 6 | 223 | 31.26" overall length-when used to replace EBF 6303-A for service, spacer B4A 6434-A must be used between the crankshaft & f/wheel | 1 | B6A 6303-E |
| 61 | A | 6 | 223 | 31.26"o/all length-repl. by C2AZ 6303-A (11-62) | 1 | C1AE 6303-B |
| 62/ | A "Before 6/1/63" | 6 | 223 | #Oil squirt holes have 90° chamfer -use with C1AE 6200-D rod | 1 | ϕ C2AZ 6303-A |
| 63 | A "From 5/1/63" | 6 | 223 | Use with C3AZ 6200-E rod & C3AZ 6211-A brg. | 1 | § C3AZ 6303-M |
| 49/51 | A | 6 | 226 | 31.27" overall length-.78" diam. hole rear flange | 1 | 8MTH 6303-B |
| 62/ | B, A | 8 | 221,260 | 24.145" overall length | 1 | C2OZ 6303-A |
| 49/53 | A | 8 | 239 | . | 1 | EAB 6303-A |
| 54 | A | 8 | 239 | When used to replace EBU 6303-B, B4A 6434-A flywheel to crankshaft spacer must also be used | 1 | B4A 6303-B |
| 55/62 | A, S | 8 | 272,292 | 25.608" overall length-2.1880"/2.1888" O.D. connecting rod-2.4980"/2.4988" O.D. main bearing journals | 1 | B9TE 6303-A |
| 63 | A, X | 8 | 260,289 | | 1 | ϕ C3AZ 6303-F |
| 63 | B Special (4/B carb.) | 8 | 289 | | 1 | C3OZ 6303-B |
| 56/57 | A, S | 8 | 312 | 25.608" overall length | 1 | B6A 6303-C |
| 58/59 | A | 8 | 332 | 27.935" overall length-5/8"-18 x 1.42" hole front end-2.4380"/2.4388" O.D. connecting rod-2.7484"/2.7492" O.D. main bearing journals-$EDC | 1 | B9A 6303-B |
| 58/60 | A, S | 8 | 352 | 27.935"overall length-5/8"-18 x 1.42" hole front end-2.4380"/2.4388" O.D. connecting rod-2.7484"/2.7492" O.D. main bearing journals-$EDT | 1 | B9A 6303-A |
| 61/62 | A | 8 | 352 | 27.935" overall length-5/16"-18 x 1.42" hole front end-2.4380"/2.4388" O.D. connecting rod -2.7484"/2.7492" O.D. main bearing journals-#EDD-3 1/2" from center line of journal to center line of crank pin | 1 | C0AE 6303-B |
| 63 | A | 8 | 352 | | 1 | C3AZ 6303-A |
| 60 | A Special (4/B carb.) | 8 | 352 | | 1 | C0AE 6303-D |
| 61/62 | A-except Special 4/B & 6/B carb., S | 8 | 390 | 27.935" overall length-5/16"-18 x 1.42" hole front end-2.4380"/2.4388" O.D. connecting rod -2.7484"/2.7492" O.D. main bearing journals-#C1AE-3.874" from center line of journal to center line of crank pin | 1 | C1AE 6303-A |
| 61/62 | P/I -"Before 1/15/62" | 8 | 390 | | 1 | |
| 63 | A(except P/I), S | 8 | 390 | Use with C1AE 6200-C rods-"Before 11/1/62" | 1 | C3AZ 6303-B |
| 63 | A(except P/I), S | 8 | 390 | #C3AE 6303-E -use with C3AZ 6200-B rods | 1 | ‡C3AZ 6303-D |
| 61/62 | A Special (4/B & 6/B carb.) | 8 | 390 | 27.935"overall length-5/8"-18 x 1.85" hole front end-2.4380"/2.4388" O.D. connecting rod-2.7484"/2.7472" O.D. main bearing journals-#oil grooves in main bearing journals | 1 | C1AE 6303-D |
| 62 | P/I | 8 | 390 | Use with C2AZ 6200-A rods-"From 1/15/62" | 1 | C2AZ 6303-B |
| 62 | A Special (4/B & 6/B carb.) | 8 | 406 | | 1 | |
| 63 | A Special (4/B & 8/B carb.) | 8 | 427 | "Before 2/4/63"-repl. by C3AZ 6303-G (1-63) | 1 | C3AZ 6303-E |
| 63 | A Special, P/I | 8 | 390,406 | #Oil grooves on all main bearing journals | 1 | C3AZ 6303-C |
| 63 | A Special (4/B & 8/B carb.) | 8 | 427 | "From 2/4/63" | 1 | C3AZ 6303-G |
| 59/60 | 8 | 8 | 430 | 29.23" overall length-5/8"-18 tapped hole at front end-repl. by C2VY 6303-A (1-63) | 1 | C1VE 6303-A |
| 59/60 | | 8 | 430 | #(2) drilled holes in No. 4 & 5 journals | 1 | C2VY 6303-A |

ϕ Identification marking ‡— From November 1, 1962



Fig. C-2. Specimen pages of Ford parts catalog, showing basic grouping arrangement (Page 1 of 2)

8 GENERAL INFORMATION **FORD CAR PARTS**

## FORD BASIC GROUP NUMBERS and RELATED CATALOG SECTION NUMBERS

Following is an index of the basic group numbers and their related catalog section numbers. A more detailed listing of the basic group numbers, their related expansion numbers and functional areas is shown on the next three pages.

| BASIC GROUP NUMBER | CATALOG SECTION NO. | BASIC GROUP NUMBER | CATALOG SECTION NO. | BASIC GROUP NUMBER | CATALOG SECTION NO. | BASIC GROUP NUMBER | BODY SECTION NO. |
|---|---|---|---|---|---|---|---|
| CHASSIS PARTS | | CHASSIS PARTS | | CHASSIS PARTS | | BODY PARTS | |
| Miscellaneous | Paint | 7100 - 7199 | *71 | 10000 - 10299 | 100 | 00000 - 02999 | 000 |
| 1000 - 1999 | 10 | 7200 - 7299 | *72 | 10300 - 10599 | 103 | 03000 - 04199 | 030 |
| 2000 - 2199 | 20 | 7300 - 7499 | *73 | 10600 - 10999 | 106 | 04200 - 09999 | 042 |
| 2200 - 2299 | 22 | 7500 - 7599 | *75 | 11000 - 11999 | 110 | 10000 - 19999 | 100 |
| 2300 - 2399 | 23 | 7600 - 7999 | *76 | 12000 - 12999 | 120 | 20000 - 20999 | 200 |
| 2400 - 2999 | 24 | | | 13000 - 13399 | 130 | 21000 - 21999 | 210 |
| 3000 - 3499 | 30 | | | 13400 - 13699 | 134 | 22000 - 22999 | 220 |
| 3500 - 3599 | 35 | 7000 - 7999 | | 13700 - 13999 | 137 | 23000 - 23999 | 230 |
| 3600 - 3999 | 36 | (Automatic Trans.) | A70/A76 | 14000 - 14399 | 140 | 24000 - 25999 | 240 |
| 4000 - 4599 | 40, 40. 1 | Identification | A70 | 14400 - 14499 | 144 | 26000 - 26999 | 260 |
| 4600 - 4999 | 46 | F/M - 1960 | A71 | 14500 - 14999 | 145 | 27000 - 27999 | 270 |
| 5000 - 5199 | 50 | F/M/2 - 1960/64 | A73 | 15000 - 15999 | 150 | 28000 - 28999 | 280 |
| 5200 - 5299 | 52 | C/M - 1960/ | A75 | 16000 - 16599 | 160 | 29000 - 29499 | 290 |
| 5300 - 5399 | 53 | C4 - 1964/ | A76 | 16600 - 16999 | 166 | 29500 - 29999 | 295 |
| 5400 - 5999 | 54 | 8000 - 8499 | 80 | 17000 - 17199 | 170 | 30000 - 39999 | 300 |
| 6000 - 6199 | 60 | 8500 - 8999 | 85 | 17200 - 17399 | 172 | 40000 - 41999 | 400 |
| 6200 - 6299 | 62 | 9000 - 9299 | 90 | 17400 - 17599 | 175 | 42000 - 42999 | 420 |
| 6300 - 6499 | 63 | 9300 - 9399 | 93 | 17600 - 17999 | 176 | 43000 - 43999 | 430 |
| 6500 - 6599 | 65 | 9400 - 9499 | 94 | 18000 - 18299 | 180 | 44000 - 49999 | 440 |
| 6600 - 6899 | 66 | 9500 - 9999 | 95 | 18300 - 18999 | 184 | 50000 - 50999 | 500 |
| 6900 - 7099 | *70 | CARBURETOR PARTS LISTS | 95A | 19000 - 19999 | 190 | 51000 - 51999 | 510 |
| | | CARB. KIT COMPONENTS | 95B | | | | |
| | | | | | | 52000 - 52999 | 520 |
| | | | | | | 53000 - 59999 | 530 |
| | | | | | | 60000 - 60999 | 600 |
| | | | | | | 61000 - 61999 | 610 |
| | | | | | | 62000 - 69999 | 620 |
| | | | | | | 0000 - 69999 (AS APPLICABLE) | Soft Trim (By Model Year) |

* *For Automatic Transmission, see A70 thru A76*

Fig. C-2. Specimen pages of Ford parts catalog, showing basic grouping arrangement (Page 2 of 2)

# FORD MOTOR COMPANY BASIC PART NUMBERING

## CHASSIS, ENGINE AND ELECTRICAL BASIC NUMBER SERIES

| BASIC PART NO SERIES | BASIC SERIES EXPANSION | PARTS WHICH QUALIFY BY FUNCTIONAL AREA |
|---|---|---|
| 1000-1250 | 1A000-1A250 | Wheels, Hubs, and Drums |
| 1251-1349 | 1A251-1A349 | Open Numbers |
| 1350-1499 | 1A350-1A499 | Spare Wheel Carrier |
| 1500-1724 | 1A500-1A724 | Tires and Tubes |
| 1725-1999 | 1A725-1A999 | Open Numbers |
| 2000-2594 | 2A000-2A594 | Brakes |
| 2595-2874 | 2A595-2A874 | Brakes—Parking |
| 2875-2999 | 2A875-2A999 | Air Compressor |
| 3000-3499 | 3A000-3A499 | Front Axles and Front Suspensions |
| 3500-3776 | 3A500-3A776 | Steering Gear and Steering Wheel |
| 3777-3999 | 3A777-3A999 | Open Numbers |
| 4000-4999 | 4A000-4A999 | Rear Axle and Driveshaft and Coupling Shaft |
| 5000-5149 | 5A000-5A149 | Frame and Brackets |
| 5150-5199 | 5A150-5A199 | * |
| 5200-5299 | 5A200-5A299 | Muffler, Exhaust Pipes, and Brackets |
| 5300-5350 | 5A300-5A350 | Front Springs |
| 5351-5416 | 5A351-5A416 | Sub-Frame (For Cab Mounting) |
| 5417-5454 | 5A417-5A454 | Open Numbers |
| 5455-5481 | 5A455-5A481 | Front Springs—Clips, Studs, and Bushings |
| 5482-5499 | 5A482-5A499 | Stabilizer and Attaching Parts |
| 5500-5515 | 5A500-5A515 | Front Spring Covers |
| 5516-5999 | 5A516-5A999 | Rear Springs and Attaching Parts |
| 6000-6899 | 6A000-6A899 | Engine and Mounts |
| 6900-6944 | 6A900-6A944 | * |
| 6945-6999 | 6A945-6A999 | Engine Installation and Dress-up Kits |
| 7000-7499 | 7A000-7A499 | Transmission and Shifting Controls |
| 7500-7649 | 7A500-7A649 | Clutch and Controls |
| 7650-7799 | 7A650-7A799 | Transmission Overdrive |
| 7800-7999 | 7A800-7A999 | Torque Converter |
| 8000-8499 | 8A000-8A499 | Radiator and Grille Parts |
| 8500-8599 | 8A500-8A599 | Water Pumps |
| 8600-8669 | 8A600-8A669 | Fan and Brackets |
| 8670-8999 | 8A670-8A999 | Open Numbers |
| 9000-9269 | 9A000-9A269 | Fuel Tank |
| 9270-9339 | 9A270-9A339 | Fuel and Oil Gauges and Fuel Tubes |
| 9340-9423 | 9A340-9A423 | Fuel Pumps |
| 9424-9499 | 9A424-9A499 | Manifold, Clamps, Thermostats, etc. |
| 9500-9599 | 9A500-9A599 | Carburetors |
| 9600-9699 | 9A600-9A699 | Carburetor Air Cleaners |
| 9700-9899 | 9A700-9A899 | Thermostatic Choke, Acc. Spark & Throttle Control Rods |
| 9900-9999 | 9A900-9A999 | * |
| 10000-10299 | 10A000-10A299 | Generators |
| 10300-10399 | 10A300-10A399 | Alternator and Rectifier |
| 10400-10499 | 10A400-10A499 | Open Numbers |
| 10500-10649 | 10A500-10A649 | Generator Regulator |
| 10650-10837 | 10A650-10A837 | Battery and Supports—Voltmeter and Charge Indicator |
| 10838-10999 | 10A838-10A999 | Instrument Cluster and Controls |
| 11000-11529 | 11A000-11A529 | Starting Motor and Starter Switch |
| 11530-11568 | 11A530-11A568 | Open Numbers |
| 11569-11619 | 11A569-11A619 | Ignition Switch |
| 11620-11644 | 11A620-11A644 | Open Numbers |
| 11645-11688 | 11A645-11A688 | Lighting Switch |
| 11689-11999 | 11A689-11A999 | Open Numbers |
| 12000-12399 | 12A000-12A399 | Ignition Coil, Distributor, Condenser and Diaphragm |
| 12400-12427 | 12A400-12A427 | Spark Plugs |
| 12428-12449 | 12A428-12A449 | Open Numbers |
| 12450-12499 | 12A450-12A499 | Engine Governor |
| 12500-12599 | 12A500-12A599 | Open Numbers |
| 12600-12999 | 12A600-12A999 | Open Numbers |
| 13000-13199 | 13A000-13A199 | Head Lamps |
| 13200-13299 | 13A200-13A299 | Parking Lamps |
| 13000-13399 | 13A300 13A399 | Turn Signal |
| 13400-13699 | 13A400-13A699 | License, Tail, and Stop Lamps |
| 13700-13799 | 13A700-13A799 | Courtesy, Dome, and Instrument Lamps and Switches |
| 13800-13949 | 13A800-13A949 | Horn |
| 13950-13999 | 13A950 13A999 | Open Numbers |
| 14000-14689 | 14A000-14A689 | Wiring and Circuit Breakers, Terminals and Connectors, Window Regulator, Fuse Panel |
| 14690-14724 | 14A690-14A724 | Seat Regulator (Electrical) |
| 14725-14999 | 14A725-14A999 | Junction Boxes and Electric Conduit |
| 15000-15039 | 15A000-15A039 | Clocks |
| 15040-15074 | 15A040-15A074 | Cigar Lighter |
| 15075-15114 | 15A075 15A114 | Lamp Assy.—Cluster |
| 15115-15199 | 15A115-15A199 | * |
| 15200-15299 | 15A200-15A299 | Road Lamps |
| 15300-15399 | 15A300-15A399 | Spot Lamps |
| 15400-15489 | 15A400-15A489 | Lamp Assy —Marker |
| 15490-15549 | 15A490-15A549 | Lamp Assy —Back-up |
| 15550-15579 | 15A550-15A579 | Lamp Assy.—Utility |
| 15580-15599 | 15A580-15A599 | Lamp Assy.—Police Flasher |
| 15600-15649 | 15A600-15A649 | * |
| 15650-15655 | 15A650-15A655 | Map Lamp |
| 15656-15699 | 15A656-15A699 | Top Control |
| 15700-15724 | 15A700-15A724 | Engine Compartment Lamp |
| 15725-15759 | 15A725-15A759 | Commercial Pump Motors Note. * Not used Passenger Car, Truck & Industrial Engines |
| 15760-15799 | 15A760-15A799 | Open Numbers |
| 15800-15849 | 15A800-15A849 | Lamp Assy.—Transmission Control Selector Indicator |
| 15850-15874 | 15A850-15A874 | Parking Brake Signal |
| 15875-15899 | 15A875-15A899 | Open Numbers |
| 15900-15999 | 15A900-15A999 | * |
| 16000-16249 | 16A000-16A249 | Front Fender and Aprons |
| 16250-16299 | 16A250-16A299 | Fender Shields |
| 16300-16449 | 16A300-16A449 | Rear Fenders |
| 16450-16549 | 16A450-16A549 | Running Boards and Brackets |
| 16550-16579 | 16A550-16A579 | Splash Shields |
| 16580-16599 | 16A580-16A599 | Open Numbers |
| 16600-16999 | 16A600-16A999 | Hood, Brackets, and Controls |
| 17000-17149 | 17A000-17A149 | Tools |
| 17150-17249 | 17A150-17A249 | Open Numbers |
| 17250-17384 | 17A250-17A384 | Speedometer and Tachometer |
| 17385-17399 | 17A385-17A399 | Open Numbers |
| 17400-17424 | 17A400-17A424 | Rear Window Wiper |
| 17425-17599 | 17A425-17A599 | Windshield Wipers |
| 17600-17674 | 17A600-17A674 | Windshield Washers |
| 17675-17748 | 17A675-17A748 | Rear View Mirrors |
| 17749-17999 | 17A749-17A999 | Front and Rear Bumpers and Stone Deflectors |
| 18000-18199 | 18A000-18A199 | Shock Absorbers |
| 18200-18241 | 18A200-18A241 | * |
| 18242-18699 | 18A242-18A699 | Heaters |
| 18700-18799 | 18A700-18A799 | Air Brakes |
| 18800-19499 | 18A800-19A499 | Radio |
| 19500-19549 | 19A500-19A549 | Miscellaneous Accessories |
| 19550-19999 | 19A550-19A999 | Air Conditioners |

*This series has become inactive and parts qualifying will be identified with part numbers from a more appropriate series.



Fig. C-3. Ford basic parts numbering system (Page 1 of 3)

10 GENERAL INFORMATION

# FORD CAR PARTS

## BODY BASIC NUMBERS AND CORRESPONDING FUNCTIONS

| BASIC PART NO. SERIES | BASIC SERIES EXPANSION | PARTS WHICH QUALIFY BY FUNCTIONAL AREA |
|---|---|---|
| *7000000-7000099 | 70000A00 70000A99 | Body Assembly & Trim Sets |
| 00100-00399 | 001A00-003A99 | Front End Assembly |
| 01400-01499 | 014A00-014A99 | Ventilating Ducts & Valves |
| 01500-01599 | 015A00-015A99 | Brake Pedal Support |
| 01600-01799 | 016A00-017A99 | Dash Assembly |
| 01800-01999 | 018A00-019A99 | Ventilating Ducts & Valves |
| 02000-02499 | 020A00-024A99 | Cowl Assembly |
| 02500-02699 | 025A00-026A99 | Front Body Pillar Assy. |
| 02700-02899 | 027A00-028A99 | Open |
| 02900-02999 | 029A00-029A99 | Body Front Tie Bow Braces, Etc. |
| 03000-03999 | 030A00-039A99 | Windshield Assembly |
| 04000-04249 | 040A00-042A49 | Visor Assembly |
| 04250-04399 | 042A50-043A99 | Front Belt Rail Inst. Panel Assy. |
| 04400-04599 | 044A00-045A99 | Panel Assy—Instr. Panel Details |
| 04600-04799 | 046A00-047A99 | Cigar Lighter Assy & Instrument Cluster |
| 04800-04899 | 048A00 048A99 | Ash Receptacle Assy |
| 04900-05999 | 049A00 059A99 | Open |
| 06000-06199 | 060A00-061A99 | Glove Compt. Assy |
| 06200-09999 | 062A00 099A99 | Open |
| *7010000-7010099 | 70100A00 70100A99 | Floor Assembly |
| 10100-10599 | 101A00 105A99 | Floor Side Member Assy |
| 10600-10999 | 106A00 109A99 | Floor Cross Sill Assy |
| 11000-11099 | 110A00-110A99 | Under Body Assy. |
| 11100-11399 | 111A00-113A99 | Floor Pan Assembly |
| 11400-11499 | 114A00-114A99 | Floor Pan Sdencers & Pads |
| 11500-11799 | 115A00-117A99 | Floor Board Assy. |
| 11800-11999 | 118A00-119A99 | Open |
| 12000-12099 | 120A00-120A99 | Floor Board Riser |
| 12100-12299 | 121A00-122A99 | Floor Trans. Cover Dust Sealer |
| 12300-12599 | 123A00-125A99 | Open |
| 12600-12699 | 126A00-126A99 | Floor Skid Strip |
| 12700-12999 | 127A00-129A99 | Open |
| 13000-13199 | 130A00-131A99 | Floor Mat & Carpet |
| 13200-13299 | 132A00-132A99 | Floor Scuff Plate |
| 13300-13499 | 133A00-134A99 | Open |
| 13500-13599 | 135A00-135A99 | Floor Tool Box |
| 13600-13799 | 136A00-137A99 | Open |
| 14000-14099 | 140A00-140A99 | Member Assy—Body Side Front |
| 14100-14199 | 141A00-141A99 | Member Assy—Body Side Rear |
| 14200-14299 | 142A00-142A99 | Sill Assy—Floor Pan Cross Front |
| 14300-19999 | 143A00-199A99 | Open |
| *7020000-7020099 | 70200A00-70200A99 | Body Side Assembly |
| 20100-20199 | 201A00-201A99 | Front Door |
| 20200-20399 | 202A00-203A99 | Front Door Panel |
| 20400-20499 | 204A00-204A99 | Front Door Pillar |
| 20500-20699 | 205A00-206A99 | Front Door Header |
| 20700-20799 | 207A00-207A99 | Front Door Bottom |
| 20800-21099 | 208A00-210A99 | Front Door Garnish Mldg. & Mldgs. |
| 21100-21299 | 211A00-212A99 | Front Door Reinf. |
| 21300-21399 | 213A00-213A99 | Open |
| 21400-21799 | 214A00-217A99 | Front Door Glass |
| 21800-22199 | 218A00-221A99 | Front Door Lock |
| 22200-22399 | 222A00-223A99 | Front Door—Glass Frame |
| 22400-22499 | 224A00-224A99 | Front Door Handles |
| 22500-22599 | 225A00-225A99 | Open |
| 22600-22699 | 226A00-226A99 | Front Door Handles—Inside |
| 22700-22799 | 227A00-227A99 | Open |
| 22800-22899 | 228A00-228A99 | Front Door Hinge |
| 22900-22999 | 229A00-229A99 | Front Door Ventilating Window |
| 23000-23099 | 230A00-230A99 | Front Door Dovetail |
| 23100-23399 | 231A00-233A99 | Front Door Regulator |
| 23400-23499 | 234A00-234A99 | Front Door Window Regulator |
| 23500-23549 | 235A00-235A99 | Front Door Check |
| 23600-23699 | 236A00-236A99 | Open |
| 23700-23999 | 237A00-239A99 | Front Door Trim |
| 24000-24199 | 240A00-241A99 | Front Door Arm Rest |
| 24200-24299 | 242A00-247A99 | Hydraulic Window Operating |
| 24300-24599 | 243A00-245A99 | Center Pillar Assy. |
| 24600-24699 | 246A00-246A99 | Rear Door Assy. |
| 24700-24999 | 247A00-249A99 | Rear Door Panels |
| 25000-25099 | 250A00-250A99 | Rear Door Frame & Pillar Assy. |
| 25100-25299 | 251A00 252A99 | Rear Door Header |
| 25300-25399 | 253A00-253A99 | Rear Door Bottom |
| 25400-25699 | 254A00 256A99 | Rear Door Garnish Moulding |
| 25700-25899 | 257A00-258A99 | Rear Door Glass |
| 25900-25999 | 259A00 259A99 | Open |
| 26000-26199 | 260A00 261A99 | Rear Door Reinf |
| 26200-26399 | 262A00-263A99 | Rear Door Glass Frame |
| 26400-26599 | 264A00 265A99 | Rear Door Lock |
| 26600-26699 | 266A00 266A99 | Rear Door Handles |
| 26700-26799 | 267A00-267A99 | Open |
| 26800-26899 | 268A00-268A99 | Rear Door Hinge |
| 26900-26999 | 269A00-269A99 | Open |
| 27000-27199 | 270A00-271A99 | Rear Door Regulator |
| 27200-27299 | 272A00 272A99 | Rear Door Check |
| 27300-27399 | 273A00 273A99 | Rear Door Regulator Vacuum Lift |
| 27400-27699 | 274A00 276A99 | Rear Door Trim |
| 27700-27799 | 277A00 277A99 | Quarter Assy |
| 27800-28099 | 278A00 280A99 | Quarter Panel Assy |
| 28100-28399 | 281A00 283A99 | Quarter Lock Pillar |
| 28400-28499 | 284A00 284A99 | Open |
| 28500-28599 | 285A00-285A99 | Quarter Header |
| 28600 28699 | 286A00-286A99 | Quarter Frame |
| 28700 28799 | 287A00-287A99 | Quarter Belt Rail |
| 28800-28999 | 288A00 289A99 | Open |
| 29000-29199 | 290A00 291A99 | Quarter Window Garnish Moulding & Moulding |
| 29200-29599 | 292A00 295A99 | Quarter Reinf Braces & Brkts. |
| 29600 29699 | 296A00-296A99 | Quarter Window Assy |
| 29700-29799 | 297A00 297A99 | Quarter Window Glass |
| 29800-29999 | 298A00 299A99 | Quarter Glass Channel |
| 7030000-7030199 | 70300A00-70301A99 | Quarter Glass Run Quarter Window Reg. |
| 30200-30299 | 302A00 302A99 | Quarter Vent. Window |
| 30300-30499 | 303A00-304A99 | Quarter Window Regulator |
| 30500 30699 | 305A00-306A99 | Quarter Glass Frame |
| 30700-30799 | 307A00 307A99 | Quarter Arm Rest Ash Receptacle |
| 30800-30999 | 308A00-309A99 | Open |
| 31000-31499 | 310A00 314A99 | Quarter Trim Assy. & Assist Loop |
| 31500-31599 | 315A00 315A99 | Open |
| 31600-31899 | 316A00-318A99 | Qtr. Arm Rest Assy. & Rear Seat Center Arm Rest |
| 31900-31999 | 319A00-319A99 | Quarter Panel Spare Wheel Compt. |
| 32000-32199 | 320A00-321A99 | Open |
| 32200-32299 | 322A00-323A99 | Side Stats—Trim Sticks—Anti-Squeaks |
| 32400-32499 | 324A00-324A99 | Quarter Folding Compt.—Package |
| 32500-39999 | 325A00 399A99 | Open |
| 7040000-7040099 | 70400A00-70400A99 | Back Door Assembly |
| 40100-40199 | 401A00-401A99 | Luggage Compt. Door Assy. |
| 40200-40299 | 402A00-402A99 | Tail Gate Assy. |
| 40300-40399 | 403A00-403A99 | Back Panel Assy. |
| 40400-40499 | 404A00-404A99 | Lift Gate |
| 40500-40599 | 405A00-405A99 | Open |
| 40600-40699 | 406A00-406A99 | Luggage Compt. Door Panel |
| 40700-40799 | 407A00-407A99 | Tail Gate Panel Assy. |
| 40800-40899 | 408A00-408A99 | Back Door Frame Assy |
| 40900-40999 | 409A00-409A99 | Tail Gate Frame Assy. |
| 41000-41099 | 410A00-410A99 | Back Door Pillar Fillers |
| 41100-41199 | 411A00-411A99 | Open |
| 41200-41299 | 412A00-412A99 | Deck Pillar Group |
| 41300-41399 | 413A00-413A99 | Luggage Compt. & Lift Gate Door Header |
| 41400-41599 | 414A00-415A99 | Open |
| 41600-41699 | 416A00-416A99 | Tail Gate Framing |
| 41700-41899 | 417A00-418A99 | Back Belt Rail |
| 41900-41999 | 419A00-419A99 | Back Door Glass & Framing |
| 42000-42199 | 420A00-421A99 | Back Window Glass |
| 42200-42299 | 422A00-422A99 | Back Window Frame Assy. |
| 42300-42499 | 423A00-424A99 | Back Window Garnish Moulding |
| 42500-42599 | 425A00-425A99 | Back Door Finish Strip—Moulding |
| 42600-42699 | 426A00-426A99 | Tail Gate Cross Finish Strip |
| 42700-42899 | 427A00-428A99 | Luggage Compt. Hinge Assy.—Lamp Assy. |
| 42900-42999 | 429A00-429A99 | Back Door Hinge & Hdwr. Assy. |

Fig. C-3. Ford basic parts numbering system (Page 2 of 3)

# FORD CAR PARTS

GENERAL INFORMATION 11

## BODY-BASIC NUMBERS AND CORRESPONDING FUNCTIONS (Continued)

| BASIC PART NO. SERIES | BASIC SERIES EXPANSION | PARTS WHICH QUALIFY BY FUNCTIONAL AREA |
|---|---|---|
| 43000-43099 | 430A00-430A99 | Tail Gate Hinge Assy |
| 43100-43149 | 431A00-431A49 | Back Door Lock Assy. |
| 43150-43199 | 431A50-431A99 | Tail Gate Lock Assy |
| 43200-43399 | 432A00 433A99 | Luggage Compt. Lock Assy. |
| 43400-43499 | 434A00-434A99 | Back Door Handle Assembly |
| 43500-43699 | 435A00 436A99 | Luggage Compt. Locking Handle |
| 43700-43799 | 437A00-437A99 | Back Door Weatherstrip |
| 43800-43899 | 438A00 438A99 | Luggage Compt., Bumper & Weatherstrip |
| 43900-43999 | 439A00-439A99 | Tail Gate Bumper & Dowel |
| 44000-44099 | 440A00 440A99 | Back Window Regulator Assy |
| 44100-44199 | 441A00 441A99 | Back Door Check Assy |
| 44200-44299 | 442A00-442A99 | Luggage Compt. Lid Support—Clamp |
| 44300-44399 | 443A00 443A99 | Open |
| 44400-44599 | 444A00 445A99 | Tail Gate Support |
| 44600-44699 | 446A00-446A99 | Back Reinf. Brackets |
| 44700-44799 | 447A00-447A99 | Back Door Reinf. |
| 44800-44999 | 448A00-449A99 | Luggage Compt. Opening Reinf |
| 45000-45099 | 450A00-450A99 | Tail Gate Reinforcement |
| 45100-45199 | 451A00-451A99 | Luggage Compt. Drain Trough |
| 45200-45299 | 452A00 452A99 | Back Trim |
| 45300-45399 | 453A00-453A99 | Back Curtain |
| 45400-45699 | 454A00-455A99 | Luggage Compt. Trim |
| 45600-45699 | 456A00-456A99 | Luggage Tool Compt. |
| 45700-45799 | 457A00-457A99 | Luggage Compt. Partition Board |
| 45800-45899 | 458A00 458A99 | Luggage Compt. Shelf Board |
| 45900-45999 | 459A00-459A99 | Luggage Compt. Lamp Assy |
| 46000-46099 | 460A00 460A99 | Luggage Compartment Package Compt. |
| 46100-46199 | 461A00-461A99 | Tool Compt. |
| 46200-46299 | 462A00-462A99 | Deck Step |
| 46300-46399 | 463A00-463A99 | Back Door Trim |
| 46400-46499 | 464A00-464A99 | Luggage Compt. Trim |
| 46500-46999 | 465A00-469A99 | Package Tray |
| 47000-47299 | 470A00-472A99 | Spare Wheel Compartment |
| 47300-47999 | 473A00-479A99 | Open |
| 48000-48099 | 480A00-480A99 | Rear Rack Assy. |
| 48100-49999 | 481A00-499A99 | Open |
| 7050000-7050099 | 70500A00-70500A99 | Roof Assy. |
| 50100-50199 | 501A00-501A99 | Top Assy. |
| 50200-50299 | 502A00 502A99 | Roof Panel Assy. |
| 50300-50599 | 503A00 505A99 | Top Slat Iron |
| 50600-50799 | 506A00-507A99 | Top Operating Mechanism |
| 50900-51299 | 508A00 512A99 | Roof Reinf. Retainers |
| 51300-51399 | 513A00-513A99 | Roof Rail Assembly |
| 51400-51599 | 514A00-515A99 | Top Bow Assy. & Dome Lamp—Brkts. & Att. Parts |
| 51600-51699 | 516A00-516A99 | Roof Rib & Slats |
| 51700-51799 | 517A00-517A99 | Roof Drip & Finish Moulding |
| 51800-51899 | 518A00-518A99 | Roof Partition |
| 51900-51999 | 519A00-519A99 | Roof Trim Panel Headlining |
| 52100-52299 | 521A00-522A99 | Roof Headlining Support |
| 52300-52399 | 523A00-523A99 | Roof Binding |
| 52400-52499 | 524A00-524A99 | Roof Cardboard |
| 52500-52599 | 525A00-525A99 | Top Back Curtain |
| 52600-52699 | 526A00-526A99 | Open |
| 52700-52999 | 527A00-529A99 | Top Deck & Slide Quarter |
| 53000-53099 | 530A00-530A99 | Top Stack—Toggle |
| 53100-53199 | 531A00-531A99 | Top Landau—Folding Pillar |
| 53200-53299 | 532A00-532A99 | Top Back Curtain |
| 53300-53399 | 533A00-533A99 | Hydraulic Group |
| 53400-53499 | 534A00-534A99 | Top Curtain Container |
| 53500-53599 | 535A00-535A99 | Top Side Front Curtain |
| 53600-53699 | 536A00-536A99 | Top Side Rear Curtain |
| 53700-53799 | 537A00-537A99 | Top Covers, Pads and Retainers |
| 53800-53899 | 538A00-538A99 | Quarter Curtain |
| 53900-54199 | 539A00-541A99 | Folding Top |
| 54200-54299 | 542A00 542A99 | Top Back Stay |
| 54300-54399 | 543A00-543A99 | Roof Pads & Wadding—Silencers |
| 54400-54499 | 544A00-544A99 | Top Dust Hood & Container |
| 54500-54599 | 545A00-545A99 | Open |
| 54600-54699 | 546A00-546A99 | Top Folding Compt. |
| 54700-54799 | 547A00-547A99 | Roof Weatherstrip |
| 54800-54899 | 548A00-548A99 | Top Hold Down Strap |
| 54900-54999 | 549A00-549A99 | Roof Ventilator |
| 55000-55199 | 550A00 551A99 | Top Luggage Carrier |
| 55200-55999 | 552A00 559A99 | Open |
| 7060000-7060024 | 70600A00-70600A24 | Front Seat Assy. Compt. Less Trim |
| 60025-60049 | 600A26 600A49 | Rear Seat Assy.—Opera Seat Assy. |
| 60050-60074 | 600A50 600A74 | Front Seat Assy. |
| 60075-60099 | 600A75-600A99 | Rear Seat Cushion Assy |
| 60100-60124 | 601A00 601A24 | Driver's Seat Adjustment |
| 60125-60199 | 601A25 601A99 | Rear Seat Back Assy.—Deck Seat Back Assy |
| 60200-60299 | 602A00 602A99 | Driver's Seat Back Assy. Comp. |
| 60300-60499 | 603A00 604A99 | Front Seat Cushion Frame Assy. |
| 60500-60799 | 605A00 607A99 | Rear Seat Cushion Framing<br>Aux. Seat Cushion Framing<br>Opera Seat Cushion Framing |
| 60800-60999 | 608A00 609A99 | Driver's Seat Cushion Framing |
| 61000-61299 | 610A00 612A99 | Front Seat Back Framing |
| 61300-61399 | 613A00-613A99 | Rear Seat Back Frame |
| 61400-61499 | 614A00-614A99 | Rear Seat Side Pillar—Front Seat Side Board |
| 61500-61599 | 615A00-615A99 | Rear Seat Side Panel |
| 61600-61699 | 616A00 616A99 | Front Seat Back Panel |
| 61700-61799 | 617A00-618A99 | Front Seat Adjusting |
| 61900 62099 | 619A00 620A99 | Driver's Seat Adjustment |
| 62100-62299 | 621A00 622A99 | Front Seat Back Reinf |
| 62300-62399 | 623A00 623A99 | Driver's Back Reinf. |
| 62400-62499 | 624A00 624A99 | Rear Seat Back Reinf |
| 62500-62599 | 625A00-625A99 | Driver & Passenger Seat Support<br>Rear Seat Legs |
| 62600-62799 | 626A00-627A99 | Front Seat Floor Rest Toe Guard |
| 62800-62899 | 628A00 628A99 | Front Seat Back Robe Cord<br>Front Seat Back Ash Receptacle |
| 62900-63199 | 629A00-631A99 | Front Seat Cushion Cover—Center Seat Opera Seat Cushion |
| 63100-63199 | 631A00-631A99 | Front Seat Cushion Spring—Center Seat<br>Opera Seat Cushion Spring<br>Rear Seat Cushion Spring |
| 63200-63299 | 632A00-632A99 | Seat Cushion Pad |
| 63300-63399 | 633A00 633A99 | Seat Cushion Facing |
| 63400-63499 | 634A00-634A99 | Seat Cushion End Pipe |
| 63500-63599 | 635A00-635A99 | Cushion Button |
| 63600-63699 | 636A00-636A99 | Seat Cushion Welt Binding |
| 63700-63799 | 637A00-637A99 | Front Seat Side Carpet |
| 63800-63899 | 638A00-638A99 | Rear Seat Cushion Cover<br>Deck Seat Cushion Cover |
| 64000-64099 | 640A00-640A99 | Driver's Seat Rear Cover |
| 64200-64399 | 642A00 643A99 | Partition Window Operating Mech. |
| 64400-64599 | 644A00-645A99 | Front Seat Back Cushion Cover |
| 64600-64699 | 646A00-646A99 | Seat Back & Pad Assy.<br>Seat Back Division Frame |
| 64700-64799 | 647A00-647A99 | Front Seat Back Spring—Center Seat |
| 64800-64899 | 648A00-648A99 | Front Seat Back Pad |
| 64900-64999 | 649A00-649A99 | Front Seat Back Cardboard<br>Opera Seat Cardboard Cover Etc., Center Seat |
| 65000-65099 | 650A00-650A99 | Front Seat Back Facing |
| 65100-65199 | 651A00-651A99 | Front Seat Back Trim Roll |
| 65200-65299 | 652A00-652A99 | Front Seat Back Cushion Welt & Bldg. |
| 65300-65399 | 653A00-653A99 | Front Seat Back Wadding |
| 65400-65499 | 654A00-654A99 | Front Seat Back Misc. Trim—Hassock Assy. |
| 65500-65599 | 655A00-655A99 | Front Seat Back Bellows |
| 65600-65999 | 656A00-659A99 | Open |
| 66000-66099 | 660A00-660A99 | Pedestal Seat |
| 66100-66599 | 661A00-665A99 | Open |
| 66600-66699 | 666A00-666A99 | Rear Seat Back Cover<br>Deck Seat Back Cover |
| 66700-66799 | 667A00-667A99 | Rear Seat Back Spring<br>Deck Seat Back Spring |
| 66800-66899 | 668A00-668A99 | Rear Seat Back Pad<br>Deck Seat Back Pad |
| 66900-66999 | 669A00-669A99 | Rear Seat Cardboard |
| 67000-67099 | 670A00-670A99 | Rear Seat Back Facing |
| 67100-67199 | 671A00-671A99 | Rear Seat Back Center Arm Rest Cover |
| 67200-67299 | 672A00-672A99 | Rear Seat Arm Rest |
| 67300-67399 | 673A00-673A99 | Rear Seat Silencer |
| 67400-67599 | 674A00-675A99 | Rear Seat Headboard |

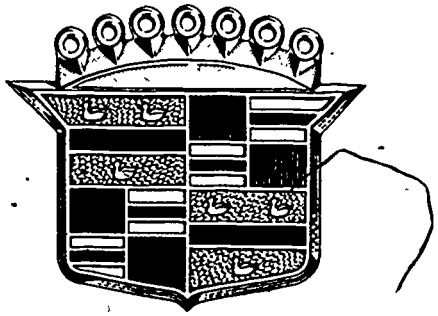
***IMPORTANT: AS EACH INDIVIDUAL EXPANSION SERIES BECOMES EXHAUSTED OF NUMBERS, ANOTHER SERIES WILL BE ESTABLISHED BY USE OF THE NEXT ALPHABETICAL EXPANSION LETTER SUCH AS "B" THRU "Z".***



Fig. C-3. Ford basic parts numbering system (Page 3 of 3)

Cadillac

# MASTER PARTS LIST



## CHASSIS PARTS SECTION

This Parts List is effective September 1, 1964

The "List Prices" shown in this Parts List are suggested prices only for sales to consumers.

**ISSUED BY:**

Parts and Prices are subject to change or removal without notice.



Printed in U.S.A.



TWENTY NINTH EDITION

Fig. C-4. Automobile manufacturers' parts groups (Page 1 of 4)

# CHRYSLER

PASSENGER CAR PARTS CATALOG

"A" SERIES
1965

PLYMOUTH
VALIANT
DODGE
DART
CHRYSLER
IMPERIAL

NOVEMBER 1964

PARTS DIVISION CHRYSLER MOTORS CORPORATION

DETROIT, MICHIGAN 48231

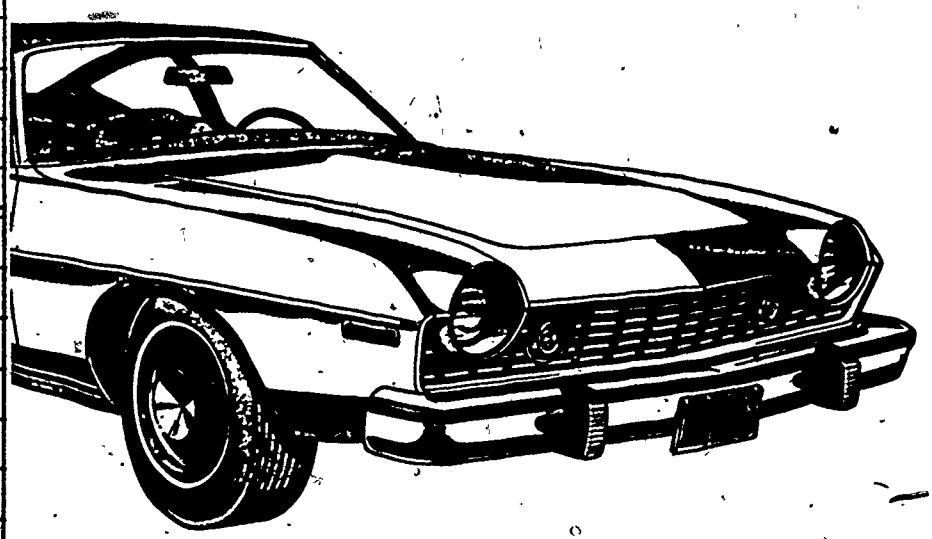
| Pages | |
|---|---|
| INF-1 | General Information |
| PK-1 | Parts Packages |
| PT-1 | Police - Taxi |
| 1-1 | Group 1 Accessories |
| 2-1 | Group 2 Front Suspension |
| 3-1 | Group 3 Axle - Rear |
| 4-1 | Group 4 Brake - Parking |
| 5-1 | Group 5 Brake - Service |
| 6-1 | Group 6 Clutch |
| 7-1 | Group 7 Cooling |
| 8-1 | Group 8 Electrical |
| 9-1 | Group 9 Engine |
| 10-1 | Group 10 Engine Oiling |
| 11-1 | Group 11 Exhaust |
| 12-1 | Group 12 Fenders and Sheet Metal |
| 13-1 | Group 13 Frame |
| 14-1 | Group 14 Fuel |
| 15-1 | Group 15 Hood |
| 16-1 | Group 16 Prop. Shaft & Univ. Jt. |
| 17-1 | Group 17 Springs |
| 18-1 | Group 18 Standard Parts |
| 19-1 | Group 19 Steering |
| 21-1 | Group 21 Transmission |
| 22-1 | Group 22 Wheels |
| 23-1 | Group 23 Body |
| IT-1 | Group 23 Interior Trim |
| 24-1 | Air Conditioning |
| AL-1 | Alphabetical Index |
| NU-1 | Numerical Index |
| X-1 | Vendor Cross Reference |

Fig. C-4. Automobile manufacturers' parts groups (Page 2 of 4)

| Group No. | |
|---|---|
| | GENERAL INFORMATION |
| 1 | ENGINE |
| 2 | COOLING - GRILLE |
| 3 | ELECTRICAL INSTRUMENT CLUSTER |
| 4 | FUEL - EXHAUST |
| 5 | CLUTCH |
| 6 | STD. - OD. - HYDRA. TRANSMISSION |
| 7 | SHIFTING |
| 8 | BRAKES - WHEELS |
| 9 | REAR AXLE PROP. SHAFT |
| 10 | FRONT SUSPENSION STEERING GEAR |
| 11 | ROAD SPRINGS SHOCK ABSORBERS |
| 12 | HOOD FENDERS - BUMPERS |
| 13 | HEATER AIR CONDITIONING |
| 14 | CHASSIS MISCELLANEOUS |
| 15 | ACCESSORIES |
| 16 | AUTOMATIC TRANSMISSION |
| 17 | STANDARD PARTS |
| 20 | BODY SHEET METAL |
| 22 | WINDSHIELD WIPER COWL VENT - INST. PANEL |
| 23 | DOORS - LOCKS HANDLES - DOOR VENTS |
| 24 | REAR QUARTER VENTS |
| 25 | GLASS - CHANNELS |
| 26 | BODY MOLDINGS |
| 27 | BODY HARDWARE |
| 29 | TRIM MATERIAL |
| 30 | BODY MISCELLANEOUS |
| | TRIM CHART |

# AMC

## PARTS CATALOG F-14075



American Motors Corporation Parts and Distribution Services Division
3280 S. Clement Ave. Milwaukee, Wisconsin 53201 Printed in U.S.A.

Fig. C-4. Automobile manufacturers' parts groups (Page 3 of 4)

# DATSUN 610
# SEDAN · HARDTOP

## USA & CANADA

# PARTS CATALOG

## MODEL 610 SERIES

## NISSAN MOTOR CO., LTD.

17-1, GINZA, 6-CHOME, CHUO-KU
TOKYO, JAPAN
Phone: TOKYO 543-5523
Telex: NISMO J2 2503
Cable Address: "NISMO" TOKYO

Pub. No. C-0100U



Fig. C-4. Automobile manufacturers' parts groups (Page 4 of 4)

5.533 PAD-SCREW-NUT, Ring Gear

| | | | | | |
|---|---|---|---|---|---|
| 38-55 | UTILITY (1st Ser.). | | | | |
| 46-60 | ¾. 1 TON. | | | | |
| 59 | Ser. 3A w/4/WD | thrust | 370463 | 1 | .45 |
| 40-55 | UTILITY (1st Ser.). | | | | |
| 46-60 | ¾. 1 TON | SCREW, thrust pad (¼-14 x 3¼) | 3652255 | 1 | .65 |
| 40-55 | UTILITY (1st Ser.). | | | | |
| 46-60 | ¾. 1 TON | NUT, thrust pad screw (¼-14) | 124954 | 1 | (8.916) |

5.535 LUBRICANT, Hypoid Gear

| | | | | | |
|---|---|---|---|---|---|
| ALL | PASS. CORVETTE. ½ TON w/P/Trac | special hypoid (1 quart container) | 1050015 | A.R. | (8.800) |
| ALL | PASS.. CORVETTE. ½ TON w/P/Trac | special hypoid (15 gal.) | 1050016 | A.R. | (8.800) |

5.536 BEARING-BEARING ASSY.-RACE, Differential Side

| | | | | | |
|---|---|---|---|---|---|
| 38-54 | PASS. (exc. FA, FD). | | | | |
| 53-55 | CORVETTE | (Hyatt A 11360) (Hy 11360 Z) | 127861* | 2 | 8.15 |
| | *NOTE: Must be installed in sets of two on 1939-40 models. | | | | |
| 38-53 | UTILITY. | | | | |
| 54-55 | 1½ TON (exc. 2-SPD.) (1st Ser.) | (Hyatt A 11820) (Hy 11820 Z) | 148399† | 2 | 13.55 |
| | †NOTE. Must be installed as an assembly and in sets of two on 1938-39 models. | | | | |
| 40-42 | COMM.. | | | | |
| 46-56 | ½ TON. | | | | |
| 55-56 | PASS.. | | | | |
| 56 | CORVETTE | (Hyatt CK 11445 X) | 7450385 | 2 | 9.25 |
| 57-59 | Ser. 3A w/4/WD | front axle. | | | |
| 57-59 | PASS.. CORVETTE. ½ TON (exc. ½ TON w/P/Trac.). | | | | |
| 60-62 | PASS.. CORVETTE. ½ TON. | | | | |
| 63-64 | PASS.. | | | | |
| 63 | Ser. 10 (4/WD) (1st Ser.) | (Hyatt A 159286 Z) | 7450745 | 2 | 6.09 |
| 46-65 | ¾. 1 TON | (Hyatt D 11786) (Hy 11786 Y). | | | |
| 57-59 | Ser. 3E-3G w/4/WD | front axle | 188930 | 2 | 10.05 |
| 54-55 | 2 TON (prod.) (1st Ser.) | (Hyatt KC 11948Y) | 7450326 | 2 | 19.40 |
| 58-59 | ½ TON w/P/Trac. | w/roller (Timken 25590) | 9412266 | 2 | 3.94 |
| 63-65 | CORVETTE. Ser. 10 (exc. 4/WD). | | | | |
| 63-65 | Ser. 10 (4/WD) (2nd Ser.). | | | | |
| 64-65 | G-10 w/3.73, 4.11 ratio. | | | | |
| 65 | PASS. w/4 arm suspension | | 7451140 | 2 | 6.15 |
| 58 | ½ TON w/P/Trac. | BEARING ASSY., rear, | | | |
| 64 | 4/WD | front (Bower 25590-25523) | 9412262 | 2 | 6.50 |
| 60-63 | 4/WD | BEARING ASSY., w/roller (1 11/16 I.D. x 3 17/64 O.D.) (Timken 25577-25523) | 9415224 | 2 | 6.40 |
| 63 | CORVETTE | BEARING ASSY., "U" joint yoke | 455724 | 2 | 1.50 |
| 64-65 | G-10 w/3.36 ratio, | | | | |
| 65 | PASS.. w/3 arm suspension | BEARING ASSY., (1⅝ x 2 17/64 O.D.) | 7451281 | 2 | 5.43 |
| | Not required in this group. See groups 6.311, 6.313 | BEARING ASSY.. (25/32 I.D. x 3¼ O.D. x 25/32 thk.) | 7451090 | | 5.97 |
| | Not required in this group. See group 6.313 | BEARING ASSY. | 7451226 | | 5.31 |
| 39-55 | 2-SPD. (1st Ser.) | RACE, outer (Timken M 3920) | 457319 | 2 | 4.30 |
| 46-55 | 2-SPD. w/Vac. Shift (1st Ser.) | RACE, inner, w/roller (Timken X 3994) | 435973 | 2 | 8.20 |
| 58-59 | ½ TON w/P/Trac.. | | | | |
| 60-64 | 4/WD | RACE, outer (Timken 25523) | 9412267 | 2 | 2.46 |
| 58 | ½ TON w/P/Trac., | | | | |
| 64 | 4/WD | RACE, inner w/roller (Timken 25590) | 9412266 | 2 | 3.94 |
| 60-63 | 4/WD | RACE, inner w/roller (Timken 25577) | 9415225 | 2 | 3.96 |
| 63-64 | CORVETTE. | | | | |
| 63-64 | Ser. 10. | | | | |
| 64 | G-10 w/3.73, 4.11 ratio | RACE, outer | 7451141 | 2 | 2.19 |
| 64 | G-10 w/3.36 ratio | RACE, outer | 7451282 | 1 | 1.98 |





Fig. C-5. Specimen page of Chevrolet parts catalog, showing Group 5.536

Fig. C-6. Specimen page of Chevrolet parts index

## 1.050 CLUTCH ASSY.—SCREW—STUD, ENGINE FAN

| | | | | | |
|---|---|---|---|---|---|
| 60-63 | (A.C.) | 1482704 | 41 10 | CLUTCH (Note 1) | 1 |
| | NOTE 1 When used on 1960 series also use 4-180077 (5/16"—18 x 3/4") Bolts to attach | | | | |
| 64 | Before V.I. No. 116400 (A.C.) | 1482704 | 41.10 | CLUTCH | 1 |
| 67 | Exc. CC (A.C.) | 1489214 | 41 10 | CLUTCH | 1 |
| 68 | (A.C.) | 5361036 | 38 80 | CLUTCH | 1 |
| 69 | Exc. Eld. (A.C.) | 4941106 | 41 95 | CLUTCH | 1 |
| 69 | Eld. (A.C.) | 4939915 | 41 95 | CLUTCH | 1 |
| 60-63 | (A.C.)—(8 900) | 9415086 | 15 | SCREW, 5/16"—24 x 3/4", self locking | 4 |
| 64 | Before V.I. No. 116400 (A.C.)—(8 900) | 9415086 | 15 | SCREW, 5/16"—24 x 3/4", self locking | 4 |
| 67 | Exc. CC (A.C.)—(8 900) | 9415086 | 15 | SCREW, 5/16"—24 x 3/4", self locking | 4 |
| 68-69 | (A.C.) | 1364760 | 25 | STUD, 5/16"—18, 5/16"—24 x 1 3/16" | 4 |

## 1.060 BRACKET—SPACER, ENGINE FAN BELT IDLER PULLEY

| | | | | | |
|---|---|---|---|---|---|
| 68-69 | CC (130 amp gen) | 1491847 | 2.26 | BRACKET | 1 |
| 70 | CC (130 amp gen) | 1496044 | 2.26 | BRACKET | 1 |
| 71-73 | CC (145 amp gen) | 1491847 | 2 26 | BRACKET | 1 |
| 70 | CC (130 amp gen) | 1496042 | 70 | SPACER, to bracket | 1 |

## 1.062 PULLEY (IDLER) ENGINE FAN BELT ADJUSTING

| | | | | | |
|---|---|---|---|---|---|
| 68-69 | CC (130 amp gen) | 1492280 | 32 80 | PULLEY, idler | 1 |
| 70 | CC (130 amp gen) | 1496055 | 32 80 | PULLEY, idler | 1 |
| 71-73 | CC (145 amp gen) | 1492280 | 32 80 | PULLEY, idler | 1 |

## 1.062 PULLEY, ENGINE FAN AND WATER PUMP, DRIVEN

| | | | | | |
|---|---|---|---|---|---|
| 58-62 | (Exc. A.C.) | 1489393 | 7.20 | PULLEY, double, water pump | 1 |
| 58-64 | (A.C.) | 1483552 | 10 90 | PULLEY, triple, water pump | 1 |
| 63-64 | (Exc. A.C.) | 1479282 | 8 10 | PULLEY, double, water pump | 1 |
| 65 | Exc. 75 | 1483552 | 10 90 | PULLEY, triple, water pump | 1 |
| 65 | 75 (A.C.) | 1483552 | 10 90 | PULLEY, triple, water pump | 1 |
| 65 | 75 (Exc. A.C.) | 1479282 | 8 10 | PULLEY, double, water pump | 1 |
| 66-67 | All | 1483552 | 10 90 | PULLEY, triple, water pump | 1 |
| 68-69 | (A.C.) | 1490924 | 7.95 | PULLEY, double, exc. 130 amp gen | 1 |
| 68-69 | (Exc. A.C.) | 1491086 | 7.95 | PULLEY, double, exc. 130 amp. gen | 1 |
| 68-69 | CC (A.C.) | 1491870 | 8.90 | PULLEY, single, use with 130 amp. gen | 1 |
| 68-69 | CC (exc. A.C.) | 1491871 | 8.90 | PULLEY, single, use with 130 amp gen | 1 |
| 70 | (Exc. 130 amp gen) | 1495996 | 5 02 | PULLEY, single | 1 |
| 70 | CC (130 amp. gen) | 1496021 | 9 15 | PULLEY, double | 1 |
| 71-72 | (Exc. 145 amp gen) | 1497933 | 4 87 | PULLEY, double | 1 |
| 71-73 | CC (145 amp gen.) | 1491870 | 8 90 | PULLEY, single | 1 |
| 73 | (Exc. 145 amp. gen.) | 1601101 | 4.87 | PULLEY, double | 1 |

## 1.064 FAN, ENGINE COOLING

| | | | | | |
|---|---|---|---|---|---|
| 57-59 | (A.C.) | 1488156 | 18 50 | FAN, 7 blade type | 1 |
| 57-62 | Exc. 75.CC (exc. A.C.) | 1460963 | 9 00 | FAN, 4 blade type | 1 |
| 57-64 | 75.CC (exc. A.C.) | 1488156 | 18.50 | FAN, 7 blade type | 1 |
| 60-62 | (A.C.) | 1474312 | 19.70 | FAN, 7 blade type | 1 |
| 63 | (A.C.) | 1480833 | 14.30 | FAN, 5 blade type | 1 |
| 63-64 | Exc. 75.CC (exc. A.C.) | 1481916 | 9.65 | FAN, 4 blade type | 1 |
| 64 | Before V.I. No. 116400 (A.C.) | 1480833 | 14 30 | FAN, 5 blade type | 1 |
| 64 | After V.I. No. 116399 (A.C.) | 1488156 | 18.50 | FAN, 7 blade type | 1 |
| 65 | All | 1488156 | 18.50 | FAN, 7 blade type (Note 1) | 1 |
| | NOTE 1 Also use 1-1465421 spacer, before approx. V.I. No. 145200. | | | | |
| 66 | All | 1488156 | 18 50 | FAN, 7 blade type | 1 |
| 67 | Exc. 75.CC (exc. A.C.) | 1488156 | 18.50 | FAN, 7 blade type | 1 |
| 67 | Exc. Eld., CC (A.C.) | 401371 | 19 55 | FAN, 7 blade type | 1 |
| 67 | Eld. (A.C.) | 1489215 | 17.60 | FAN, 6 blade type | 1 |
| 67 | CC | 1488156 | 18.50 | FAN, 7 blade type | 1 |
| 68-69 | (A.C.) | 401371 | 19.55 | FAN, 7 blade type | 1 |
| 68 | (Exc. A.C.) | 1491244 | 19.70 | FAN, 7 blade type | 1 |
| 69 | Exc. Eld., 75 (exc. A.C.) | 1493930 | 19.65 | FAN, 7 blade type | 1 |
| 69 | Eld. (exc. A.C.) | 1491244 | 19.70 | FAN, 7 blade type | 1 |
| 70-72 | All | 1600885 | 34.85 | FAN, 7 blade type (Note 2) | 1 |
| 73 | All | 1602245 | 34.85 | FAN, 7 blade type | |
| | NOTE 2 Service replacement for 5 blade type fan. | | | | |

## 1.064 SPACER, ENGINE FAN BLADE

| | | | | | |
|---|---|---|---|---|---|
| 58 | All | 1476107 | 1.23 | SPACER | 1 |
| 59 | (Exc. A.C.) | 1476107 | 1.23 | SPACER | 1 |
| 60 | All | 1476107 | 1.23 | SPACER | 1 |
| 61-64 | (Exc. A.C.) | 1475058 | 2.36 | SPACER | 1 |
| 64 | After V.I. No. 116399 (A.C.) | 1361930 | 1.95 | SPACER | 1 |





Fig. C-7. Specimen of Cadillac part catalog (Part 1 of 2)

| | | | | | |
|---|---|---|---|---|---|
| 65-66 | All | 1361930 | 1 95 | SPACER | 1 |
| 65 | 75 (exc A.C) | 1475058 | 2.36 | SPACER | 1 |
| 67 | Exc 75.CC (exc A.C) | 1361930 | 1.95 | SPACER | 1 |
| 67 | CC | 1361930 | 1 95 | SPACER | 1 |
| 68 | (Exc. A.C) | 535253 | 2.00 | SPACER | 1 |
| 69 | Exc Eld. 75 (exc. A C) | 530247 | 1.54 | SPACER | 1 |
| 69 | Eld. (exc. A.C) | 535253 | 2.00 | SPACER | 1 |
| 70 | Exc Eld. | 1495919 | 2.67 | SPACER | 1 |
| 70 | Eld. | 535253 | 2 00 | SPACER | 1 |
| 71-72 | Exc Eld. | 535253 | 2 00 | SPACER, 2½" thk. | 1 |
| 71 | Eld (Trlr. Tw. or H.D C) | 3927793 | 1 85 | SPACER, 2¼" thk | 1 |
| 71 | Eld. (exc. Trlr Tw or H D.C) | 535253 | 2 00 | SPACER, 2½" thk | 1 |
| 72 | Eld. (exc. Trlr Tw or H.D.C) (1st Type) | 535253 | 2 00 | SPACER, 2½" thk (Note 1) | 1 |
| 72 | Eld. (Trlr Tw or H D.C.) (1st Type) | 3927793 | 1 85 | SPACER, 2¼" thk. (Note 1) | 1 |
| 72 | Eld (2nd Type) | 3927793 | 1 85 | SPACER, 2¼" thk (Note 2) | 1 |
| 73 | Exc. Eld | 1600631 | 2.00 | SPACER, 2³/₄" thk | 1 |
| 73 | Eld. | 1600632 | 2 00 | SPACER, 2³/₄" thk | 1 |

NOTE 1 Before approx. V.I No Q407861
NOTE 2 After approx. V'I No Q407860

## 1.066 BELT, ENGINE FAN (A.C. COMPRESSOR, GENERATOR, PWR. STEER. PUMP, OR AIR INJECTION REACTOR PUMP)

NOTE All specifications of size (width by pitch line length) are approximate dimensions as required to meet manufacturing tolerances allowed

NOTE For listing by top width & pitch line length see chart at rear of group 1

### AIR CONDITIONING COMPRESSOR

| | | | | | |
|---|---|---|---|---|---|
| 53-56 | (A.C) | 569995 | 9.75 | BELT (matched set) (⅜" x 65²⁹/₃₂") | 1 |
| 57 | (A.C) | 1466656 | 11 20 | BELT (matched set) (⅜" x 65¹⁹/₃₂") | 1 |
| 58 | (A.C.) | 398929 | 4.61 | BELT (⅜" x 63") (Note 1) | 1 |
| 59 | (A.C.) | 1477393 | 6 20 | BELT (⅜" x 61²⁷/₃₂") w/5" diam. pulley on comp (Note 1) | 1 |
| 59 | (A C.) | 398929 | 4.61 | BELT (⅜" x 63") w/5¼" diam. pulley on comp (Note 1) | 1 |
| 60 | (A.C) | 1477393 | 6 20 | BELT (⅜" x 61²⁷/₃₂") w/5" diam. pulley on comp. | 1 |
| 60 | (A.C) | 1475391 | 6 20 | BELT (⅜" x 62¹⁹/₃₂") w/5½" diam. pulley on comp | 1 |
| 61 | (A.C) | 1475391 | 6 20 | BELT (⅜" x 62¹⁹/₃₂") | 1 |
| 62 | (A.C) | 1477393 | 6.20 | BELT (⅜" x 61²⁷/₃₂") | 1 |
| 63 | (A.C.) | 1455114 | 5.50 | BELT (⅜" x 57") | 1 |
| 64-65 | (A C) | 6263718 | 4 36 | BELT (¹⁵/₃₂" x 56") | 1 |
| 66 | (A.C) | 3847711 | 4 20 | BELT (¹⁵/₃₂" x 55¼") | 1 |
| 67 | Exc. Eld. (A.C) | 3847711 | 4.20 | BELT (¹⁵/₃₂" x 55¼") | 1 |
| 67 | Eld. (A.C) | 1486496 | 9.00 | BELT (matched set) (¹⁵/₃₂" x 55¼") | 1 |
| 68 | Before V I No 197767 (A.C) | 1488578 | 9.10 | BELT (matched set) (⅜" x 59") | 1 |
| 68 | After V.I. No. 197766 (A.C.) | 1493677 | 9.10 | BELT (matched set) (⅜" x 59½") | 1 |
| 69-72 | (A.C). | 1493677 | 9.10 | BELT (matched set) (⅜" x 59½") | 1 |
| 73 | (A.C.) | 1602011 | 9.10 | BELT (matched set) (⅜" x 59½") | 1 |

NOTE 1 For 1958 thru 1959 series cars equipped with A.C. service compressor 6550152, use compressor drive Belt 1475391.

### GENERATOR

| | | | | | |
|---|---|---|---|---|---|
| 49-52 | All | 1455114 | 5 50 | BELT (⅜" x 57") | 1 |
| 53-57 | (Exc. A.C.) | 1455114 | 5.50 | BELT (⅜" x 57") | 1 |
| 53-56 | (A.C.) | 569995 | 9.75 | BELT (matched set) (⅜" x 65²⁹/₃₂") | 1 |
| 57 | (A.C) | 3861952 | 4.00 | BELT (⅜" x 56½") | 1 |
| 58 | Before V.I. No. 050860 (A.C) | 1455114 | 5.50 | BELT (⅜" x 57") | 1 |
| 58 | After V.I. No. 050859 (A.C.) | 6263718 | 4.36 | BELT (¹⁵/₃₂" x 56") | 1 |
| 58 | Before V.I. No. 051150 (exc. A.C.) | 1455114 | 5.50 | BELT (⅜" x 57") | 1 |
| 58 | After V.I. No. 051149 (exc. A.C.) | 3861952 | 4.00 | BELT (⅜" x 56½") | 1 |
| 59 | (Exc. A.C.) | 6263718 | 4.36 | BELT (¹⁵/₃₂" x 56") | 1 |
| 59-60 | (A.C.) | 1455114 | 5.50 | BELT (⅜" x 57") | 1 |
| 60 | (Exc. A.C.) | 3861952 | 4.00 | BELT (⅜" x 56½") (Note 2) | 1 |
| 60 | (Exc. A.C.) | 6263718 | 4.36 | BELT (¹⁵/₃₂" x 56") (Note 3) | 1 |
| 61-62 | (Exc. A.C.) | 1455114 | 5.50 | BELT (⅜" x 57") | 1 |
| 61-62 | (A.C.) | 3861952 | 4.00 | BELT (⅜" x 56½") | 1 |
| 63-64 | (A.C.) | 3881871 | 3.38 | BELT (⅜" x 52") | 1 |
| 63-64 | (Exc. A.C.) | 390540 | 3.95 | BELT (½" x 53") | 1 |
| 65 | Exc. 75 | 9433729 | 3.84 | BELT (¹⁵/₃₂" x 38½") | 1 |
| 65 | 75 (exc. A.C.) | 390540 | 3.95 | BELT (½" x 53") | 1 |





Fig. C-7. Specimen of Cadillac parts catalog (Page 2 of 2)

number is 1485400 (Fig. C-7). A note specifies that when this part is installed on a car built prior to engine number 145200, it is necessary to install a spacer, for which the part number is given.

The second common method of locating parts is by referring to the illustrations that precede each major group division in most manufacturers' catalogs. Continuing with the Cadillac fan blade example, the group number of the fan blade (1.064) can be determined by examining the illustration of a complete engine assembly, which is found at the beginning of the engine group section (Fig. C-8).

The third method of locating a part is used when only the part number is known. Reference to the numerical index or price index will yield the group number under which the part is stocked. Under the group number, a description and location of the part can be obtained.

### Supplementary Information in Catalogs

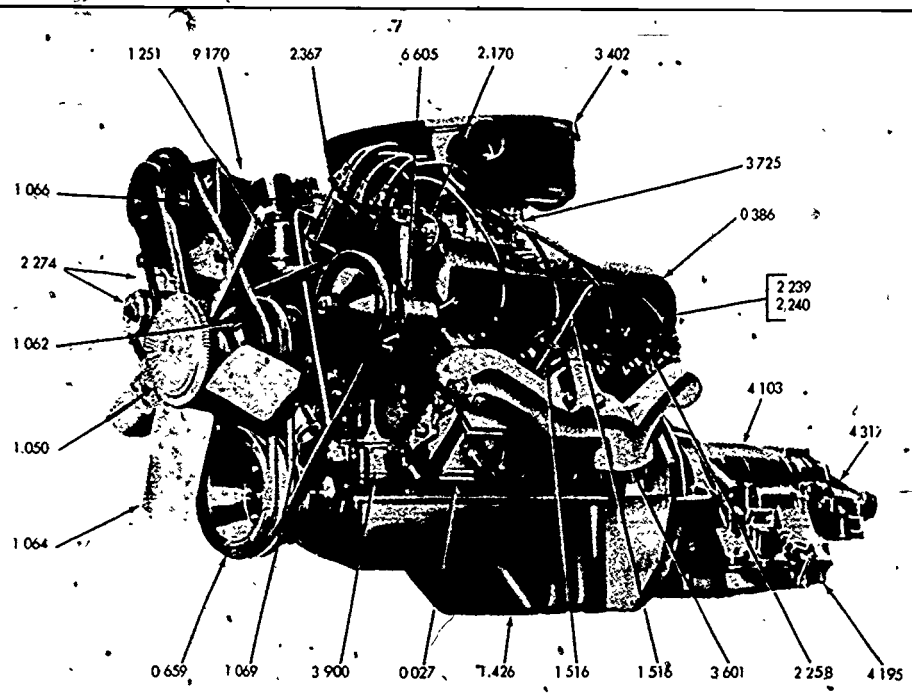
Agency parts books are filled with supplementary materials to aid the parts person in determining and locating the correct parts. Model indentification, engine-change-over specifications, fan belt dimensions, generator output ratings, bearing charts, gear ratio tables, molding and clip charts, and interior trim color schemes are just a few of the data contained in parts catalogs. Since these supplementary aids vary widely from company to company, the apprentice is urged to become thoroughly acquainted with the parts book (or books) that he or she must use.

One of the most informative sections of the parts catalogs is the Parts History Index (Fig. C-9). In this section part number changes, superseded numbers, and items removed from service are recorded. The section is especially valuable for identifying old part numbers and in helping to keep stock current by noting the parts dropped from service. Items in stock that have been removed from service are usually returned to the factory under an obsolescence plan offered by most manufacturers.

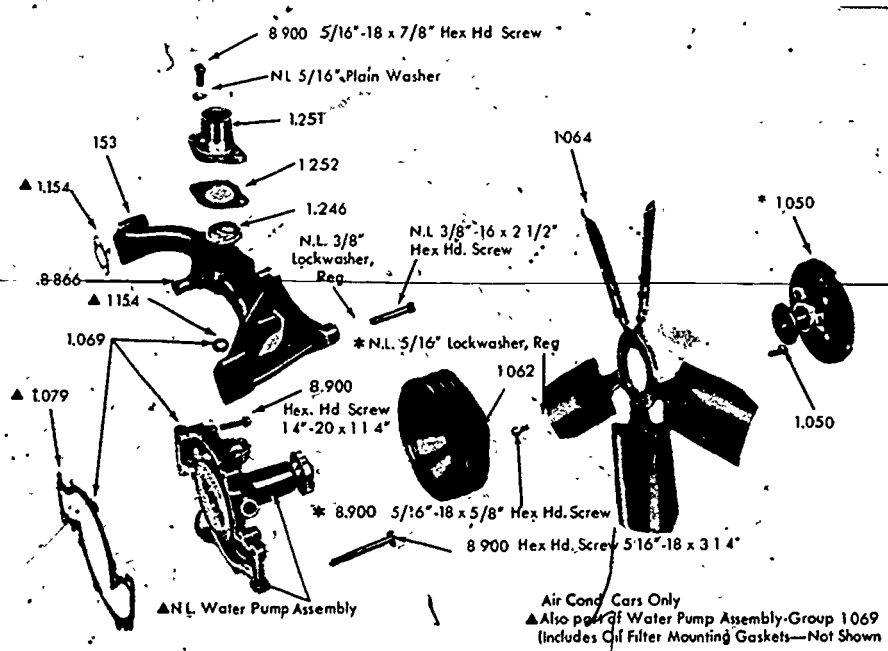
The catalogs in use today are very expensive. Therefore, the manufacturers and distributors of auto parts are putting their parts and price manuals on microfiche. Entire books are often contained on as many as four to eight microfiche. A special microfiche reader is usually placed on the counter for use in reading the microfiche. All auto parts companies are expected to be using this method sometime in the 1980s.

### Study Assignment

The apprentice should ask the parts manager or supervisor to assign 20 parts for which he or she should determine the correct part numbers. The parts assigned should include examples from many different parts of the book. When he or she has completed the assignment, the manager or supervisor should mark the number of incorrect answers, the result should be submitted to the instructor for grading.




ENGINE ASSEMBLY—SERIES 1963; 1964; 65-75




WATER PUMP AND CYLINDER HEAD WATER OUTLET PIPE
SERIES 1963 thru 1964; Representative of 1965



Fig. C-8. Specimen page of Cadillac parts catalog that illustrates engine assembly

# PARTS HISTORY INDEX

This index comprises a list of parts which have been removed from the Master Parts List

The part numbers are arranged in numerical sequence.

The date of removal is shown and in the case of superseded parts the superseding part numbers and the stock disposition are also indicated.

| Part No. | Disposition | Date |
|---|---|---|
| 043 234 | Removed | |
| 109 454 | Mix w/941 1027 | |
| 109 461 | Mix w/941 1010 | |
| 111 603 | Use 147 8678 | |
| 112 572 | Use 145 5359 | |
| 114 496 | Mix w/124 934 | |
| 114 624 | Removed | |
| 114 861 | Removed | |
| 120 228 | Use 180 075 | |
| 125 258 | Removed | |
| 120 377 | Mix w/942 1867 | |
| 120 525 | Removed | |
| 120 528 | Removed | |
| 120 530 | Removed | |
| 120 706 | Use 180 016 | |
| 126 001 | Removed | |
| 126 051 | Removed | |
| 126 177 | Use 219 281 | |
| 127 927 | Removed | |
| 131 101 | Removed | |
| 131 250 | Use 148 0543 | |
| 131 282 | Use 274 004 | |
| 138 235 | Removed | |
| 138 530 | Removed | |
| 138 553 | Removed | |
| 142 027 | Removed | |
| 144 051 | Removed | |
| 144 587 | Removed | |
| 145 350 | Removed | |
| 147 485 | Use 104 918 | |
| 147 500 | Mix w/453 593 | |
| 148 310 | Removed | |
| 148 312 | Mix w/219 281 | |
| 169 064 | Removed | |
| 169 067 | Removed | |
| 169 110 | Removed | |
| 179 821 | Removed | |
| 179 825 | Removed | |
| 180 083 | Removed | |
| 180 159 | Use 433 234 | |
| 186 643 | Removed | |
| 187 317 | Removed | |
| 187 510 | Removed | |
| 187 824 | Removed | |
| 214 440 | Mix w/372 2860 | |
| 215 667 | Removed | |
| 224 971 | Removed | |
| 230 857 | Removed | |
| 231 217 | Removed | |
| 231 334 | Use 546 1051 | |
| 231 432 | Use 546 0420 | |
| 231 579 | Removed | |
| 263 303 | Removed | |
| 263 698 | Removed | |
| 264 926 | Removed | |
| 265 184 | Removed | |
| 265 228 | Removed | |
| 266 677 | Removed | |
| 267 824 | Removed | |
| 267 831 | Removed | |
| 267 844 | Removed | |
| 267 865 | Removed | |
| 270 837 | Removed | |
| 271 172 | Removed | |
| 272 849 | Use 147 0030 | |
| 273 157 | Use 941 7863 | |
| 273 329 | Mix w/941 9224 | |
| 273 789 | Removed | |
| 273 889 | Use 273 471 | |
| 273 896 | Mix w/941 3215 | |
| 273 898 | Removed | |
| 274 045 | Removed | |
| 274 154 | Removed | |
| 274 267 | Removed | |
| 274 461 | Use 378 6275 | |
| 274 635 | Mix w/148 0719 | |
| 274 750 | Mix w/483 3958 | |
| 274 782 | Removed | |
| 274 871 | Mix w/554 0299 | |
| 393 487 | Removed | |
| 393 489 | Removed | |
| 411 143 | Use 516 442 | |
| 412 108 | Removed | |
| 420 447 | Removed | |
| 425 568 | Removed | |
| 426 370 | Removed | |
| 427 026 | Removed | |
| 432 712 | Removed | |
| 432 751 | Removed | |
| 436 750 | Removed | |
| 439 254 | Removed | |
| 440 491 | Removed | |
| 440 869 | Removed | |
| 444 052 | Removed | |
| 445 138 | Removed | |
| 445 441 | Removed | |
| 445 567 | Removed | |
| 445 625 | Removed | |
| 450 543 | Removed | |
| 450 521 | Removed | |
| 451 236 | Removed | |
| 451 238 | Removed | |
| 451 240 | Removed | |
| 451 607 | Removed | |
| 451 633 | Removed | |
| 451 715 | Removed | |
| 454 646 | Use 941 7866 | |
| 454 674 | Removed | |
| 455 106 | Use 456 652 | |
| 455 283 | Removed | |
| 455 422 | Removed | |
| 455 526 | Removed | |
| 455 683 | Removed | |
| 455 825 | Removed | |
| 455 976 | Removed | |
| 456 321 | Removed | |
| 456 889 | Removed | |
| 475 885 | Removed | |
| 476 745 | Removed | |
| 494 177 | Removed | |
| 496 342 | Removed | |
| 502 250 | Removed | |
| 502 793 | Removed | |
| 504 256 | Removed | |
| 509 210 | Removed | |
| 509 211 | Removed | |
| 519 458 | Use 148 0774 | |
| 520 042 | Removed | |
| 520 652 | Removed | |
| 520 658 | Removed | |
| 520 660 | Removed | |
| 520 661 | Removed | |
| 520 664 | Removed | |
| 520 689 | Removed | |
| 521 853 | Removed | |
| 522 045 | Removed | |
| 522 069 | Removed | |
| 522 071 | Removed | |
| 522 072 | Removed | |
| 524 297 | Removed | |
| 524 304 | Removed | |
| 524 305 | Removed | |
| 524 391 | Removed | |
| 534 103 | Removed | |
| 535 078 | Use 543 283 | |
| 536 841 | Use 148 0774 | |
| 538 399 | Use 148 0391 | |
| 543 345 | Removed | |
| 560 656 | Removed | |
| 563 125 | Removed | |
| 563 702 | Removed | |
| 563 724 | Removed | |
| 563 734 | Removed | |
| 563 735 | Mix w/148 1326 | |
| 563 736 | Removed | |
| 563 844 | Removed | |
| 565 213 | Removed | |
| 569 010 | Mix w/148 0589 | |
| 569 794 | Removed | |
| 572 846 | Use 941 1943 | |
| 576 439 | Use 147 9374 | |
| 595 563 | Removed | |
| 599 233 | Removed | |
| 606 261 | Removed | |
| 606 277 | Removed | |
| 609 794 | Removed | |
| 613 511 | Removed | |
| 699 013 | Removed | |
| 759 281 | Removed | |
| 759 790 | Removed | |
| 759 931 | Removed | |
| 759 932 | Removed | |
| 759 934 | Removed | |
| 759 935 | Removed | |
| 759 938 thru 759 948 | Removed | |
| 761 087 | Removed | |
| 761 089 | Removed | |
| 761 093 | Removed | |
| 761 095 thru 761 101 | Removed | |
| 761 102 | Use 762-532 | |
| 761 738 | Removed | |
| 762 174 | Removed | |
| 762 294 | Removed | |
| 762 313 | Removed | |
| 762 314 | Removed | |
| 762 522 | Removed | |
| 762 525 thru 762 527 | Removed | |
| 762 531 | Removed | |
| 762 532 | Removed | |
| 763 657 | Removed | |
| 763 658 | Removed | |
| 763 660 thru 763 663 | Removed | |
| 764 637 | Removed | |
| 764 641 | Removed | |
| 764 644 | Removed | |
| 764 645 | Removed | |
| 764 650 | Removed | |
| 784 651 | Removed | |
| 766 137 | Use 146 7308 | |
| 799 389 | Removed | |
| 806 915 | Mix w/191 1324 | |
| 809 658 | Removed | |
| 810 226 | Removed | |
| 811 450 | Removed | |
| 811 601 | Removed | |
| 813 554 | Removed | |
| 816 784 | Removed | |
| 836 754 | Removed | |



Fig. C-9. Specimen page of Cadillac parts history index

## UNIT C – CATALOGING SYSTEMS

## TOPIC 1 – FACTORY PARTS SYSTEMS

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Parts 1 are indispensable operating tools of the parts department. 1. _____
2. The major auto manufacturers' catalogs all have the same basic 2 . 2. _____
3. Each new part produced must be arbitrarily assigned a 3 4 to give it an 5 . 3. _____ 4. _____ 5. _____
4. General Motors uses a 6 system in the assignment of part numbers. 6. _____
5. A part number which does not 7 the part is termed *nonsignificant.* 7. _____
6. Ford Motor Company part numbers are formed by expanding the basic 8 numbers. 8. _____
7. Ford part numbers are 9 in that they identify the nature, location, and application of the part to which they are assigned. 9. _____
8. All Ford crankshafts have the basic number 10 . 10. _____
9. In the General Motors system, the group numerals preceding the decimal point identify 11 assemblies or 12 of the automobile. 11. _____ 12. _____
10. Numerals following the decimal point in the GM system relate to 13 or 14 parts. 13. _____ 14. _____
11. The parts apprentice should memorize the 15 divisions. 15. _____
12. Group numbers seldom 16 , whereas part numbers may do so frequently. 16. _____
13. The most common method of locating parts is through the name as listed in the 17 index. 17. _____
14. The second most common method of locating parts is by referring to the 18 . 18. _____
15. One of the most informative sections of parts catalogs is the 19 20 index. 19. _____ 20. _____

### Test

Circle T if the statement is true; circle F if the statement if false.

1. Major groups of parts are given the same numbers by all auto manufacturers. 1. T F
2. Parts interchangeable between a Cadillac and a Corvair would be numbered alike. 2. T F

3. The Ford parts number system is being expanded throughout from five to six numbers. 3. T F

4. General Motors uses block assignments of parts numbers to their subsidiaries. 4. T F

5. Without a parts catalog, an agency parts department could not operate efficiently. 5. T F

6. All major auto manufacturers' parts catalogs are similarly constructed. 6. T F

7. Similar parts may be assigned identical parts numbers. 7. T F

8. The first number group 745 in General Motors part number 7450745 indicates the item is a bearing. 8. T F

9. Each group number assignment covers a major portion of the vehicle. 9. T F

10. Helpful supplementary tables, data, and information are found in most parts catalogs. 10. T F

## UNIT C – CATALOGING SYSTEMS

### TOPIC 2 – JOBBER AND INDEPENDENT SYSTEMS

This topic is planned to provide answers to the following questions:

- Do jobbers and independent parts stores use auto factory indexing systems?
- How does a jobber correlate the parts produced by independent manufacturers?
- What does the Weatherly Index system comprise?
- How is the Weatherly system used?

In this topic the Weatherly Index, the one representative cataloging system used by jobber-independents, will be discussed. Although other systems are used, only a few are in widespread use, and all the systems are similar. An understanding of the Weatherly Index System will enable the apprentice to comprehend all of these systems.

The Weatherly Index System, copyrighted in 1932, provides a complete alphabetical and numerical index which is designed to accommodate automotive, aeronautical, and marine supply catalogs with equal ease. The system is versatile enough that the automotive indexing of parts, supplies, and equipment may be used alone, without any loss in the efficiency of the system. It is widely used to locate the manufacturers' catalog insert pages in the wholesaler's catalog. A majority of the auto parts manufacturers now key their catalogs to the Weatherly Index System. The Weatherly Index number is printed in the upper right-hand corner of the cover or index sheet of the manufacturers' catalog, making it a simple matter to insert the catalog into its proper place in the system (Fig. C-10).

In a sense, the use of the Weatherly Index is the reverse of the usual procedure. Catalogs are usually compiled first and then provided with an index of their contents. With the Weatherly Index System, the index is provided first, and the catalogs and information sheets are fitted into the indexing system.

Not all manufacturers print their catalogs with the Weatherly Index number. When such catalogs or information sheets are received, the alphabetical listing of the Weatherly Index should be consulted for the correct group, and the number should be stamped in the upper right corner of each unnumbered sheet or catalog. When the material has been given a proper group number, it can be located readily in the counter catalog.

Frequently, manufacturers' catalogs that contain several groups of items will show several Weatherly Index numbers. Four Weatherly numbers are shown in Fig. C-10, the principal number is 136, but the catalog also contains items listed in groups 126, 130, and 134. Such groupings are not unusual, many catalogs contain a greater variety of groups. In such cases the catalog should be divided, and each group or page placed in its correct order. Some pages of a catalog may list items involving two or more numerical locations. This can be easily overcome, however, by inserting the page in one of the locations and by placing a reference sheet or notation in the other group or groups.

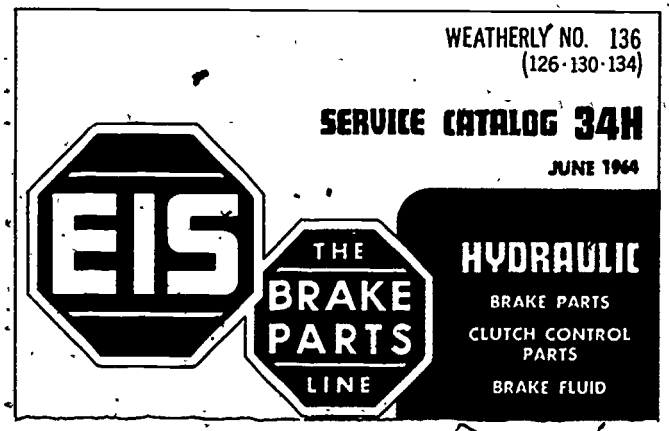



Fig. C-10. Manufacturer's catalog with weatherly index number

## UNIT C – CATALOGING SYSTEMS

## TOPIC 2 – JOBBER AND INDEPENDENT SYSTEMS

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. The Weatherly Index System provides a complete __1__ and __2__ index of parts. 1.____ 2.____
2. The Weatherly Index System may be used to insert __3__ catalog pages into the __4__ catalog. 3.____ 4.____
3. In addition to automotive parts, both __5__ and __6__ items have been assigned Weatherly Index numbers. 5.____ 6.____
4. Index numbers are not assigned to items at __7__, but are carefully selected to place __8__ lines together in the catalog. 7.____ 8.____
5. The automotive indexing of parts, supplies, and equipment may be used alone with no loss of system __9__. 9.____
6. The majority of auto manufacturers now __10__ their catalogs to the Weatherly Index System. 10.____
7. In a sense, use of the Weatherly Index is the __11__ of ordinary procedure. 11.____
8. A catalog is usually compiled first, and then provided with an __12__ of its __13__. 12.____ 13.____
9. The Weatherly Index uses only __14__ numbers to designate items. 14.____
10. In each major group of the Weatherly Index, __15__ numbers are assigned. 15.____

### Test

Circle T if the statement is true; circle F if the statement is false.

1. Although many systems are used for cataloging auto parts, few systems have gained widespread use. 1. T F
2. The Weatherly Index System can be copied by any jobber for his or her own use. 2. T F
3. No single cataloging system has been devised to cover both airplane and power boat parts. 3. T F
4. Each manufacturer of parts modifies the Weatherly Index System to fit his or her catalog. 4. T F
5. Each Weatherly Index major group contains 100 item numbers. 5. T F
6. Hand tools are not indexed in the Weatherly Index System. 6. T F

7. Each major Weatherly Index group is divided into ten subgroups. 7. T F

8. Catalog pages showing items belonging to several groups can be properly filed in a Weatherly system. 8. T F

9. Weatherly Index numbers are essentially random groupings. 9. T F

10. All parts manufacturers key their catalogs to the Weatherly Index System as well as to their own system. 10. T F

# UNIT D Inventory and Control

## TOPIC 1 – INVENTORY SYSTEMS

This topic is planned to provide answers to the following questions:

- **Why is an inventory system necessary in the parts business?**
- **What constitutes a satisfactory inventory system?**
- **How is an inventory system set up and maintained?**

Any of the various systems that enable a company to obtain accurate and immediate information in regard to the amount of stock on hand, the quantity sold, the turnover rate, and the number of orders or back orders pending may be properly described as inventory control systems. The apprentice will refer again and again to the inventory system for information; therefore, he or she should be intimately acquainted with the working of the system the company uses.

### Inventory Records

Two types of inventory systems are used in most auto parts businesses. manual systems and automated systems.

#### Manual Systems

Formerly, most of the inventory systems in use by auto parts businesses were of the Kardex type. A card-type system uses a single card for each part or accessory stocked. These systems differ only in the design of the card and the way in which the cards are stored. Brief descriptions of three major card systems are as follows:

*Tub file system.* The tub file system uses standard inventory cards held in a tub-like cabinet. The cards are arranged vertically, with suitable dividers to aid quick location. Numerical order is usually arranged from front to rear. The cards may be lifted out quickly for ease in posting (Posting means making any entry of information of the card). The tub file requires a minimum of space, and for large inventories this system seems to be the most practical. The Weatherly catalog illustrates a tub file system (see Topic C-2).

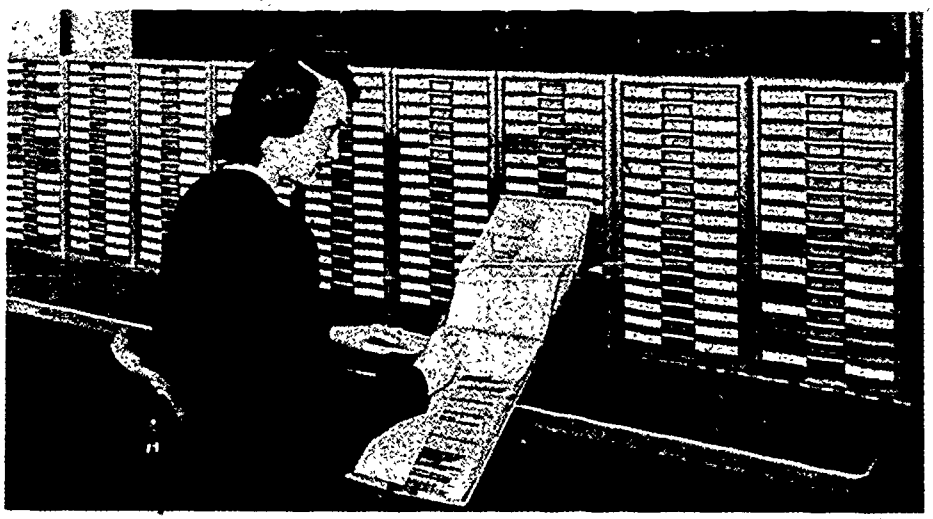
*Roller file.* The roller type of inventory file consists of a large revolving wheel arrangment, with cards fixed to the wheel by a circular rod. The cards, each with a hole near its base, are threaded onto the circular rod in numerical order. To refer to a particular card, one need only rotate the wheel until the desired card is found.

*Visible-index.* The visible-index system is a flat-drawer system in which the cards lie flat on top of each other in a stairstep, hinged arrangement. The drawers, or trays, are about 30 inches long and 1 ½ inches high. By stepping the cards, it is possible to get 70 or more into each tray. The drawers are mounted in a unit cabinet about 30 inches high and 12 inches wide. Each cabinet contains 16 to 18 drawers, and by banking the cabinets, an inventory system of any required size can be built (Fig. D-1). In this system the part number and description appear at the bottom of the card, which is visible as soon as the drawer is pulled.

#### Automated Systems

The large and complicated inventories required by today's automotive businesses have encouraged certain companies to propose automatic inventory control systems. These automated systems are becoming very popular because they offer better control than some businesses are able to maintain. One such system is called the Dealer Management Service (DMS). This system is an improved version of the DMS program which has been offered for the last few years by the Service Bureau Corporation.

The objective of the DMS system is to provide dealers with improved parts department inventory control and management. This objective is met by simplifying the routine of balancing dealer parts stocks and by offering the added advantages of weekly and semiannual reports, plus an automatic parts-ordering procedure.



Courtesy Cochran and Celli, Oakland

Fig. D-1. Visible-index system of inventory control

The DMS provides automatic computation of guide figures for every item and order period. The system produces a weekly parts order which tends to minimize special orders and to decrease the number of out-of-stock items.

Dealers who use this system report to a service bureau on a special form their daily sales and shipments received for each part. These data are fed into automatic computers that (1) automatically establish and adjust guide figures; (2) reorder when stocks reach 70 percent of the guide figure, and (3) automatically print a weekly and semiannual report for the dealer. The reports are detailed and complete, giving the dealer an accurate record of parts activity (Figs. D-2 through D-6). Today cash registers are combination registers and inventory control computers. They record the sale and part number and can reorder the stock immediately, if necessary. Parts may be added or deleted from the system by simply notifying the bureau.

## Inventory Maintenance

When inventory systems are properly maintained, they can supply a complete record of every part or accessory in stock. A card must be made out for every item stocked to show group number, part number, description and, if possible, location. A typical tub-file card is shown in Fig. D-4.

Every time a part is ordered, an entry must be made on the inventory card, which shows the date, quantity ordered, and the order number. When orders are received, the quantity must be entered in the appropriate column on the card and added to the number already in stock. Back orders should be posted along with material received. As back orders are received, the quantity must be added to existing totals, and the back order figure reduced.

Every sale of a particular part must be posted, including the date of sale, quantity sold, and invoice number. The quantity sold is subtracted each time from the quantity on hand. Similar additions or subtractions must be made for credit memorandum transactions and replacements of defective parts.

When inventory records are kept accurately, the following information is available. quantities on hand, on order, on back order, and sold in any given period. Thus the general activity of any item is known at all times. From this activity the order clerk can determine how many of a given part should be normally stocked.

## Inventory Control

Since all of the card systems are basically alike, some general rules can be formulated for their use. Prompt, accurate posting is essential if the card system is to be effective. If posting falls a week behind, the quantity on hand usually will not be accurate. One of the real assets of a perpetual inventory is the ability to rely on the cards to show quantities on hand. This feature is particularly helpful in answering telephone inquiries, often saving a long trip to the bin.

When the quantity of an item reaches an established minimum, the card is flagged for immediate order (Fig. D-4). Most orders can be placed directly from the cards if the quantities are watched and the cards are flagged. This system is much easier than chasing up and down the aisles

AID

DEALER NAME | REPORT PERIOD | PAGE NO | DATE | PAGE | DEALER CODE

| GROUP NUMBER | PART NUMBER | PART NAME | USE LO | USE HI | UNIT PKG | DEALER PRICE LOT | DEALER PRICE PRICE | SALES TO DATE | SALES LAST EIGHT PERIODS | SALES BY PERIOD 6 | 5 | 4 | 3 | 2 | 1 | OPEN BAL | REC | DISB | CLOSE BAL | ON ORDER NOT REC'D | GUIDE | SUG OESTED ORDER | LAST ORDER | QUANTITY ORDERED | PART NUMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | |
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Courtesy Service Bureau Corp., San Francisco

Fig. D-2. DMS parts activity and order report

AID

## MANAGEMENT INVENTORY ANALYSIS

DEALER NAME | DEALER NUMBER | PERIOD ENDING | PAGE

| SALES BY PERIOD 6 | 5 | 4 | 3 | 2 | 1 | SALES LAST 8 PERIODS | SALES TO DATE | PERIOD OF ENTRY | PERIOD OF LAST SALE | MOVE | GROUP NUMBER | PART NUMBER | DESCRIPTION | UNIT PACK | USAGE LO | USAGE HI | DEALER PRICE LOT | DEALER PRICE PRICE | ON HAND QUANTITY | ON HAND VALUE | DAYS SUPPLY ON HAND | ON ORDER NOT REC'D | GUIDE MIN | GUIDE MAX | GUIDE QUANTITY | GUIDE VALUE | VARIANCE QUANTITY | VARIANCE VALUE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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Fig. D-3. DMS management inventory analysis

Flag card here if stock is low. Order promptly.

Flag card here if a question arises, such as order overdue or parts number conflict.

Flag card here if bin is empty. Order on emergency basis.

Flag special order cards here. If part is not to be stocked, remove and destroy card when part is sold.

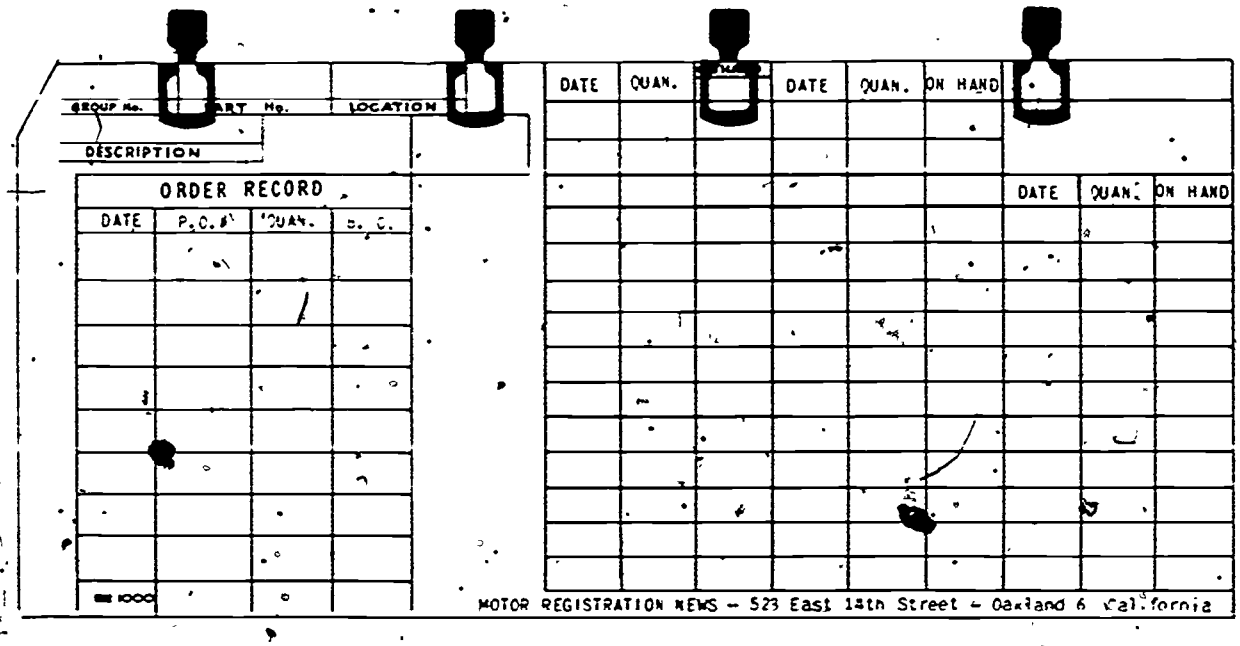



Fig. D-4. Typical inventory system card, showing one method of flagging cards to facilitate ordering and control

```
OAKLAND APC

GMPD PARTS ORDER TO PDC 20 FROM DEALER 903763
RONALD MORAN INC
SCHED CODE? CIO
CONT? 0322
INST?
W/C TIME?
PART NO / QTY  CAR RET  LINE FEED
03633605:002
00983398:200
03516021:010
08700948:025
00413755:002
07455526:002
04548570:001
04548571:001
08704416:001
09733755:001
08707081:001
HASH?
END?
0011 ACCEPTED
000 REJECTED
0322, 74081, 1230.
YES
```

```
GA903763

903763  20 0322 551011
00983398 200 REV AMF 4
03516021 010     MICHPP
08700948 025     MICHPP
00413755 002     OAKLND271529
08704416 001     OAKLND271529
09733755 001     MICHPP
08707081 001     MICHPP
END ANSWER BACK
X
```

Fig. D-5. Example of computer wire order

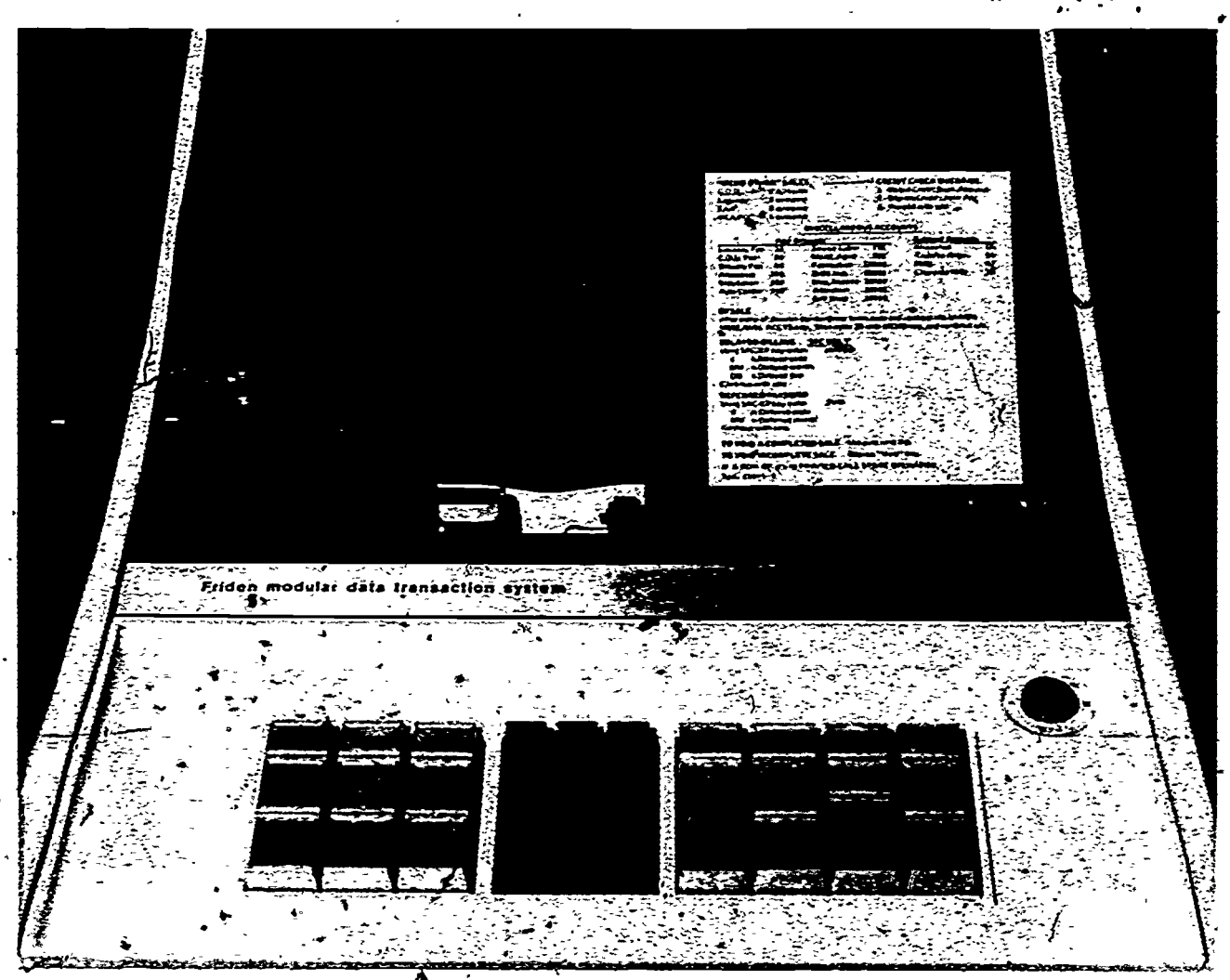



Fig. D-6. Modular data transaction system

with an order pad making emergency orders when out of stock.

When a part number is superseded by another number, the new number should be entered on the card above the old number. The old card should be left in the file, and a new card with the new part number should be posted and placed in proper sequence in the file. When stock under the old number is depleted and the new number is firmly established as replacing the old, the old card should be destroyed.

A guide figure, which is simply the quantity to be kept in stock, is established for each part. By carefully matching the sales against stock received and taking into account the time required for replenishment, it is possible to determine the proper amount of stock to keep on hand. By timely ordering, when the card shows the established minimum number on hand, a shortage of any item can usually be prevented. However, the guide figure should not be viewed as permanent. Over a period of time, sales will increase and decrease, and a periodic adjustment of the guide figure will be necessary.

## Special Orders

Special orders are always a problem for the inventory clerk. More and more special orders are required, because an agency cannot possibly keep all the required parts in stock. A tub-file card system for handling special orders is described below With certain variations, the method may be adapted to other card systems.

When a special order is placed, the inventory clerk should use a suitable form that provides the customer's name, address, phone number, date, and parts ordered. This form may be of company design or may be purchased commercially. If the order originated in the company shop, the repair order number should be shown, along with a complete model description of the vehicle. Special orders from the shop should be approved by the shop supervisor. The completed special order form is then given to the inventory clerk, who in turn makes out a temporary special order inventory card for each part ordered. This special order card should be of a different color than the stock cards and should be flagged, as shown in Fig. D-4, before it is inserted into the card system. The special order card should be keyed to the original order (preferably by name), so that when the part arrives the inventory clerk will know immediately that it is a special order and for whom it is intended. The original special order form, which has been filed in a suitable manner while awaiting receipt of the part, is now consulted and the customer is notified that the part has arrived. A form letter or post card is normally used for notification. When the sale is completed, the order form and the temporary inventory card may be filed or destroyed, as provided by company procedures.

## Study Assignment

1. Read the Service Bureau Company booklet on Automated Inventory Control.
2. Study the advantages of inventory control for good business practices.

## UNIT D — INVENTORY AND CONTROL

## TOPIC 1 — INVENTORY SYSTEMS

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. A card-type inventory system uses a single card for every __1__ or __2__ stocked. — 1. _____ 2. _____
2. In the visible-index system of inventory control the cards are stowed in __3__ __4__. — 3. _____ 4. _____
3. The __5__ type of inventory file has the cards arranged on a large wheel. — 5. _____
4. For large inventories the __6__ system seems to be the most practical. — 6. _____
5. Inventory systems, when properly __7__, supply a complete __8__ of every part or accessory in stock. — 7. _____ 8. _____
6. Every time a part is ordered, an __9__ must be made on the inventory card. — 9. _____
7. The number of items received is __10__ to the number already in stock on the inventory card. — 10. _____
8. From the information on the inventory card, the general __11__ of any item can be determined. — 11. _____
9. Prompt, accurate __12__ is essential if the card system is to be effective. — 12. _____
10. When the quantity of an item reaches a minimum, its card is __13__ for immediate order. — 13. _____

### Test

Circle T if the statement is true; circle F if the statement is false.

1. A satisfactory inventory control system is a "must" for an auto parts business. — 1. T F
2. A satisfactory inventory system must provide accurate and immediate information. — 2. T F
3. Operation of any inventory system is based on regular monthly physical inventories. — 3. T F
4. Most current inventory systems use cards. — 4. T F
5. Most current inventory systems use tub files. — 5. T F
6. In the visible-index systems, each card is identified at the top. — 6. T F
7. Automated inventory control systems are available. — 7. T F

8. No physical inventories are required with the DMS system. 8. T F

9. The establishment of guide figures is based on sales history. 9. T F

10. The guide figure is the quantity ordered each time. 10. T F

## UNIT D — INVENTORY AND CONTROL

### TOPIC 2 — STOCK CONTROL

This topic is planned to provide answers to the following questions:

- What factors and operations does stock control comprise?
- How many of each part should be carried in stock?
- What advance preparations can make physical inventories easier to accomplish?
- Of what significance is total inventory value?

The success or failure of any auto parts organization depends primarily on the operation of its purchasing department. Automotive parts, in a practical sense, are subject to obsolescence. The majority of auto parts and accessories are designed for specific models, and they are limited in interchangeability and seldom can be converted to other uses. When the many factors that depreciate the sales value of replacement parts and equipment are considered, together with the large number of items that must be carried in stock, one can see that a considerable amount of money can be lost by a company that carries many slow-moving or obsolete items. The purchasing department must be well-organized and operated efficiently to ensure stock availability, uniformity, and profit-making turnover.

#### Stock Turnover

A definite stock control plan is necessary to maintain a well-balanced stock of parts. When it is possible to supply most of the items requested without undue delay and without an excessive inventory, the stock of merchandise on hand is considered adequate and balanced. A stock turnover of four to six times a year is considered ideal for the most profitable operation. This turnover rate does not imply that four to six of every item will be sold in the course of a year. Obviously, many parts will sell much more rapidly, while some parts will sell only one or two per year. The turnover refers to total gross sales. A company with a $50,000 parts inventory should have a yearly gross sales of $200,000 to $300,000, which is four to six times the cost of the inventory.

A stock turnover less than four times a year ties up, in slow-moving stock, capital that could be used more profitably. If there is a complete stock turnover more than six times a year, the stock is usually out of balance, and business is probably being lost because of inability to fill orders completely. Too much turnover may result in more costly buying. The turnover should be balanced with the cost of buying. Often, there is an element of false economy in a high turnover rate, which suggests that not enough stock is carried in inventory and that only fast-moving items are being sold. A certain number of average and slow-moving parts must be stocked if orders are to be filled completely and customer goodwill retained. A parts store that is consistently out of needed slow-moving parts will lose favor with its customers.

#### Control by Guide Figures

A properly maintained inventory system is the best guarantee of adequate stock control. With the customary large inventories of today, it is physically impossible for the order clerk to remember the sales activity of every part in stock. The clerk may be conscious of the fact that a part is a slow or fast seller, but he or she can not know how fast or slow unless a definite record of purchases and sales is made. The inventory card can supply such a record.

Normally, the order clerk should try to keep a 90-day supply of every item on hand. This supply will ensure a stock turnover four times a year and will not tie up working capital in too large of an inventory. If a 90-day supply is maintained, there is little danger of shortages, with consequent lost sales.

A 90-day supply is easy to maintain with a good inventory system. The first thing to do is to establish a guide figure equal to the 90-day supply of each item. The guide figure is based on the sales activity shown on the inventory card. If an item shows consistent sales of five or six per month, then a guide figure of approximately 15 should be used. Some items will not show regular sales patterns, but may reflect large sales one month and few the next month. In such cases an average may be taken over a three-month period and used as a guide figure.

Orders must be placed regularly if the guide figure is to be effective. When the quantity of a

certain part drops to approximately two-thirds of the guide figure, the part should be reordered. In the sample guide figure of 15 mentioned above, when the quantity of a part in stock drops to 10, the part should be reordered. By ordering five of that particular item, the order clerk can maintain a balanced stock. If similar guide figures are established for every item in stock, then ordering procedures can be simplified, and adequate stock can be maintained. Consideration should, of course, be given to standard ordering quantities and pricing factors.

Guide figures are not permanent. As sales rates increase and decrease, guide figures must be reappraised and revised. If an item is consistently out of stock, the guide figure is no longer adequate and must be revised upward. Conversely, if the sale of an item slows and there is no regular turnover of the item, a lower guide figure should be used.

### Establishing the Stock

A balanced stock is primarily the maintenance of adequate quantities of every item. But just what parts should be carried in stock? Since this is a subject of very large scope, it can be dealt with only in a very general way.

The order or inventory clerk is often separated from direct sales. He or she can discern from the inventory system the activity of every part in stock, but he or she can not know how many sales are consistently lost because the part is not carried in inventory. This problem is compounded by the fact that each year thousands of new parts are produced, and the inventory clerk must help decide which of these are important to stock. At the same time the inventory clerk must appraise his or her present stock and delete those items which are no longer profitable or necessary. At the beginning of each model year, new car manufacturers supply an initial order which serves to establish an initial stock of new parts to be added to the dealer's inventory. This supply is not a final solution, however, and the inventory clerk or parts manager must ultimately select the items to be regularly stocked. The selection can best be made on the basis of what groups of parts have already proven necessary. Certain items may be assumed to be necessary, such as ignition parts, brake shoes, universal joints, transmission parts, and so forth. Most parts should be selected on the basis of proven requirements from the records and experience of past years.

Regardless of how carefully one may select new parts to stock, some items will be overlooked. One way to correct this situation is to keep a want list posted at the parts counter. Each time the customer requests a part that is not carried in stock, the salesperson should record the part number of the lost sale on the want list. If a certain number repeatedly appears on the list, the inventory clerk should add that part to the inventory.

### Physical Inventory

At least once each year a complete physical inventory must be taken. The annual inventory establishes an accurate inventory cost for purposes of tax assessment, and it also indicates to the owner whether accurate (and honest) records are being kept.

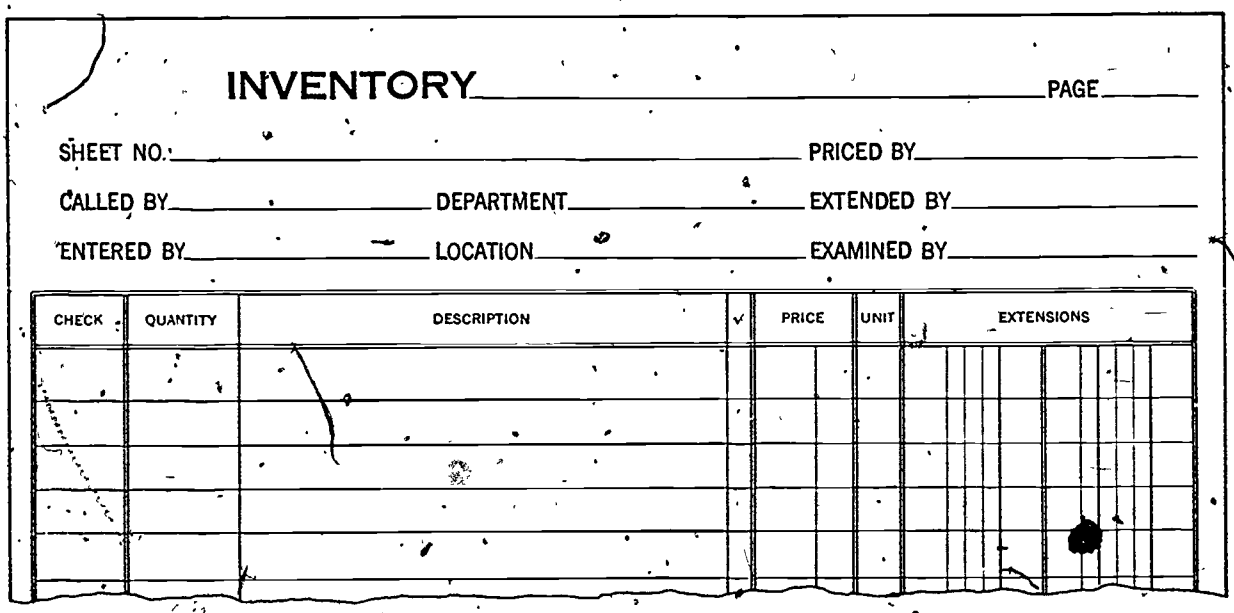
The yearly inventory requires a substantial amount of work, but it is absolutely essential to stock maintenance and control. Employees should begin well in advance to prepare for the physical count. Bins should be cleaned, and open cartons should be examined for their content. If the contents are intact, boxes should be resealed and stacked in an orderly manner to facilitate counting. Kits with missing parts should be broken down and the parts individually binned, or the missing parts replaced and the kit sealed. Overage (extra stock) should be brought from store rooms or taken from the tops of bins and placed in the proper location. All miscellaneous parts must be identified and tagged.

Some smaller companies continue to take inventory by hand (Fig. D-7). Every part in stock is entered on a handwritten list, which shows the group number, part number, noun name, quantity, unit price, and bin location. This tedious job is usually done well in advance, leaving only the quantity of each item to be recorded on the actual day of inventory. After the count, the inventory sheets must be extended (quantity times unit price), and a total cost figure determined. Parts and accessories are usually counted as separate inventory groups.

Larger businesses sometimes employ inventory service companies. A punched card is made up for every part in stock, leaving only the quantity to be written in (Fig. D-8 and D-9). These cards are placed in the proper bins shortly before inventory. On the day of the count, only the quantities of the parts on hand are recorded on the cards. The cards are then machine processed by the inventory company to yield a complete record.

When the inventory record is completed, the inventory clerk should promptly check it against his or her cards and correct the cards as necessary.

Since the clerk must examine each card in the system, this is an excellent time to analyze the record of each part, evaluate the stock, and revise the prescribed stock levels. Parts that are no longer selling should be deleted and disposed of (most automotive manufacturers have a provision for returning unwanted or obsolete merchandise). Quantities that are too large should be reduced. Part number discrepancies often come to light during inventories, and these must be traced out and corrected. In spite of the additional work involved, the annual inventory should be made an opportunity for cleaning and balancing the stock on hand and adjusting the records involved.


INVENTORY _____ PAGE _____

SHEET NO. _____ PRICED BY _____

CALLED BY _____ DEPARTMENT _____ EXTENDED BY _____

ENTERED BY _____ LOCATION _____ EXAMINED BY _____

| CHECK | QUANTITY | DESCRIPTION | ✓ | PRICE | UNIT | EXTENSIONS |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Fig. D-7. Write-in inventory sheet

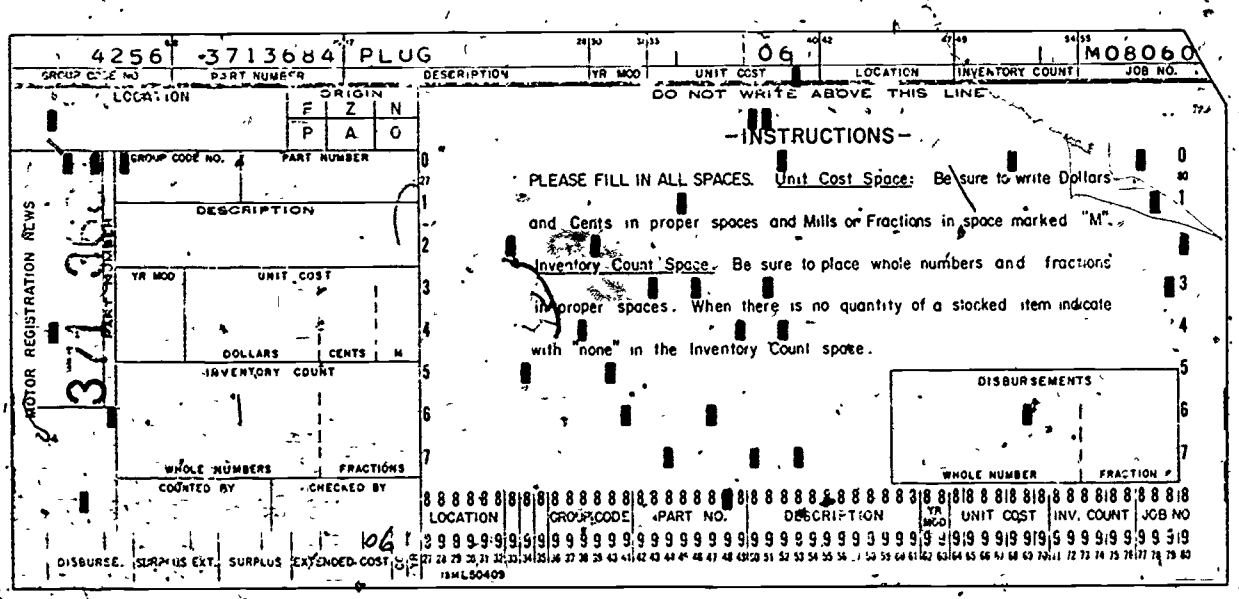



Fig. D-8. Machine-punched card prepared for an annual inventory.

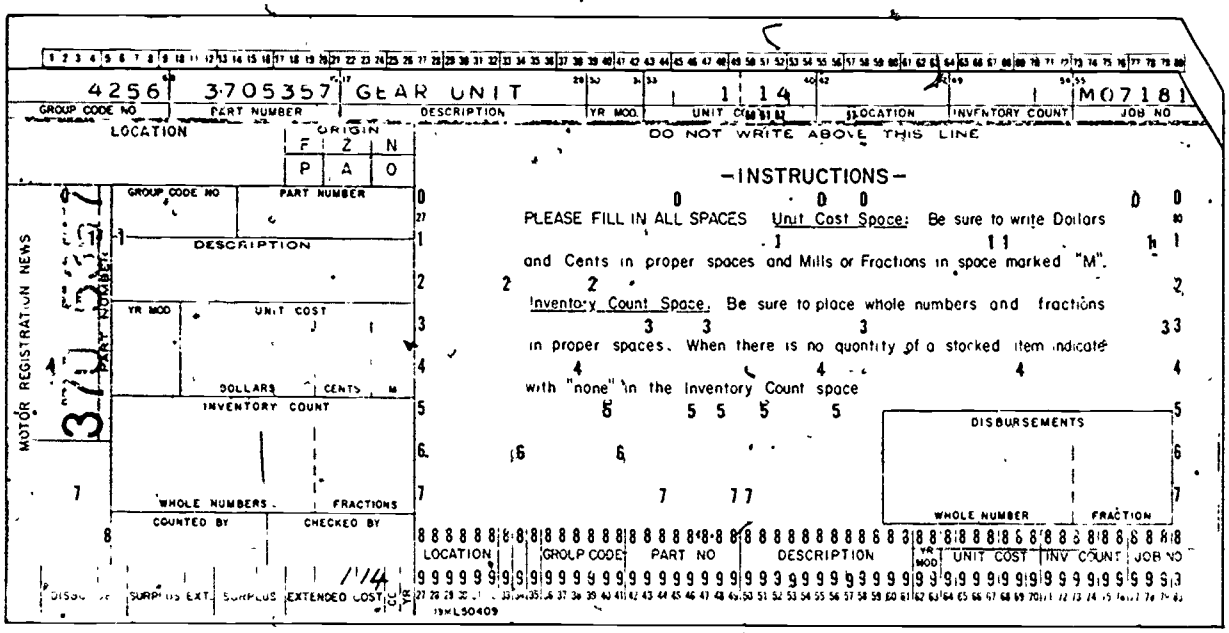



Fig. D 9. Inventory count card superimposed on a blank card. (Numbers on blank card show-through punched openings in inventory card. All pertinent information is represented by the locations of the holes, e.g., part number 3705357 is found in columns 43–49.)

## UNIT D – INVENTORY AND CONTROL

## TOPIC 2 – STOCK CONTROL

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Auto parts, in a practical sense, are __1__ items. 1._____

2. A stock of parts is considered __2__ and __3__ when it is possible to supply most of the items requested without undue delay. 2._____ 3._____

3. A stock turnover of __4__ to __5__ times a year is considered ideal. 4._____ 5._____

4. Stock turnover refers to total __6__. 6._____

5. A parts store that is consistently out of needed parts will lose __7__. 7._____

6. An __8__ system, properly maintained, is the best __9__ of adequate stock control. 8._____ 9._____

7. The order clerk should keep a __10__ supply of every item on hand. 10._____

8. If __11__ figures are established for each item in stock, ordering procedures are simplified and __12__ stock maintained. 11._____ 12._____

9. The inventory clerk or __13__ must ultimately select the items to be stocked. 13._____

10. If a certain item consistently appears on the __14__ __15__, the part should be added to the inventory. 14._____ 15._____

11. At least once each year a complete __16__ inventory must be taken. 16._____

12. Parts and accessories are usually taken as __17__ inventories. 17._____

13. On a punched inventory card, only the __18__ must be recorded. 18._____

14. The annual inventory is an opportunity to __19__ and __20__ the stock. 19._____ 20._____

15. Most automotive manufacturers have a __21__ for returning unwanted or obsolete parts. 21._____

### Test

Circle T if the statement is true; circle F if the statement is false.

1. Some automobile parts soon become obsolete. 1. T F

2. A 180-day stock turnover rate is ideal. 2. T F

3. The stock turnover rate is figured on gross sales. 3. T F

4. Stock turnover is a good indicator of stock balances. 4. T F

5. The primary tool of stock control is the inventory card. 5. T F

6. The guide figure, once established, should never be changed. 6. T F

7. A guide figure may be established from average annual sales. 7. T F

8. The manufacturer's "initial order" of new parts solves the new model problem. 8. T F

9. The value of the inventory on hand may have a bearing on local tax bills. 9. T F

10. To extend an inventory means to add new items. 10. T F

## UNIT D — INVENTORY AND CONTROL

## TOPIC 3 — ORDERING AND PURCHASING

This topic is planned to provide answers to the following questions:

- What are the most common kinds of orders?
- What procedures should be followed in placing orders?
- What governs granting of discounts to buyers?
- What part do manufacturers' representatives play in the parts business?

Ordering merchandise is an important function in the automobile parts business. A good knowledge of the various kinds of orders, as well as of general purchasing procedures, usually is required of the auto parts person. Such knowledge can also pave the way for his or her promotion to jobs of increasing responsibility.

### Kinds of Orders

Four kinds of orders are used to order parts for an automobile parts business: stock order; intermediate order; emergency order; and local buy-outs.

#### Stock Orders

Stock orders are the principal orders used for normal replacement of depleted stock. They are placed regularly on or before a set date, which may be weekly or monthly. These orders are referred to in agencies and dealerships as pad orders. Shipment of most stock orders is prepaid by the manufacturer. Some stock orders carry an additional discount if they are placed before a certain date or for a given quantity or value, but many small independent stores place stock orders every day.

#### Intermediate Orders

Intermediate orders are unscheduled stock orders placed at any time. They are supplementary to the stock orders and are used to replace quickly regularly stocked items that have been depleted through unexpected sales or through some ordering or shipping oversight. They may also serve to obtain a needed new item before the next stock order. The intermediate order usually does not carry any special discount, and shipment is prepaid by the manufacturer only if it reaches a stated dollar amount.

#### Emergency Orders

Emergency orders are special orders used to request the immediate shipment by rapid means of merchandise that is urgently needed. An emergency order may be used for stocking items that are completely exhausted, but is more frequently used for items not normally carried in stock. Among agencies this is called a car-tie-up order. Emergency orders are usually placed by telephone or telegraph to the nearest manufacturer's warehouse. When telegrams are used to place orders or to make inquiries concerning orders, special telegraphic codes are often used (Fig. D-10).

#### Local Buy-outs

Local buy-outs are usually small emergency orders to be filled by local dealer or warehouse. These orders are normally used only for one or two items needed to complete a customer order or a job in the shop. Many dealers try not to use local buy-outs because of the short discounts allowed on such orders. If a price has been quoted on a shop job or on a merchandise order and a local buy-out becomes necessary, most companies consider the item as a special purchase and charge accordingly.

### Order Forms and Ordering

Order blanks are prepared in many forms. The dealer pad order mentioned earlier is a carefully planned, numerically arranged pad of order blanks furnished by the manufacturer and designed to facilitate both ordering and processing. Pad orders, used for placing the regular stock order, normally provide a space for a guide figure to be inserted and may indicate the national sales activity of each item by various symbols.

In addition to the order pad mentioned above, many manufacturers supply order forms for various stock and supplementary orders (Fig. D-11). Orders placed on such forms are subject to all the conditions set forth on the particular form used.

Not all manufacturers furnish ready-to-use forms. In such cases, order forms are usually made up to individual specifications and include, in essence, the information indicated in Fig. D-11.

## G. M. TELEGRAPHIC CODE

Revised telegraph regulations now make it possible to specify actual part number digits at code word cost when ordering parts by telegram. Therefore it will not be necessary to use the G. M. Numerical Code for sending part numbers in telegrams.

The Numerical Code should be used in decoding phrases which are always prefixed XL.

| G | M | P | R | O | D | U | C | T | S |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

### COMMONLY USED PHRASES—CODING TABULATION

| | | | | | |
|---|---|---|---|---|---|
| 101 | Refer order | XLGSG | 303 | Shipped by truck | XLPSP |
| 102 | Refer to our wire of | XLGSM | 306 | Shipped by air mail | XLPSD |
| 103 | Refer to our letter of | XLGSP | 307 | Shipped by air express | XLPSU |
| 105 | Wire answer to our wire of | XLGSO | 308 | Shipped by parcel post | XLPSC |

*Courtesy General Motors Corp.*

Fig. D-10. Telegraphic code used for emergency orders or queries

## PARTS AND ACCESSORIES ORDER
### TO GENERAL MOTORS PARTS DIVISION
GENERAL MOTORS CORPORATION

DATE _____ 19___

CHARGE TO _____ SHIP TO _____

ADDRESS _____ ADDRESS _____

SHIP VIA —

| ACCT | ZONE | DLR NO | TERMS | CLASS OF PURCH | SHIPPING ORDER REFERENCE NO | ZW ITEMS. |
|---|---|---|---|---|---|---|
| | | | | | | MW ITEMS. |
| | | | | | | FACT ITEMS. |

| CARD CODE | DEALER P.O. NUMBER | CONTROL NUMBER | PPD | COLL | DATE RECEIVED | SCHED CODE | OLR ORDER NO |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| | GROUP NUMBER | PART NUMBER | PART NAME (NOUN NAME ONLY REQ'D) | QUANTITY | WHSE CODE | CAR CODE | LOCATION | DEALER PRICE | LIST PRICE |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |

THIS ORDER IS SUBJECT TO THE TERMS AND CONDITIONS OF DEALER'S CURRENT SELLING AGREEMENT AS SUPPLEMENTED AND THE PARTS AND/OR ACCESSORIES ORDERED HEREON WILL BE INVOICED AT DEALER NET PRICES IN EFFECT AT THE TIME OF SHIPMENT.

(FOR WAREHOUSE USE ONLY)

THANK YOU

SIGNED _____ (PURCHASER'S FIRM NAME)

PER _____ (INDIVIDUAL)

PC-66 REV. 10-63

Fig. D-11. Specimen order form

Certain precautions should be taken in placing the actual order. In the case of orders for large quantities of items, care must be taken to maintain a balanced stock. Since there is a continuing element of obsolescence, large quantities are potentially dangerous. Quantities to be ordered should be judged by the recent sales activity of the item. Guide figures should be carefully derived and revised periodically as the sales pattern of an item changes. Accurate guide figures make ordering simpler, allow the order clerk to order only the needed quantity, and preclude the danger of either understocked or overstocked shelves.

Many shipping errors and delays can be avoided if the following rules are observed:

1. Use the correct order form and fill it out completely.
2. Write or print orders clearly and legibly.
3. Fill in all necessary information in regard to the consignee, destination, method and terms of shipment, and the number and description of each item ordered.
4. Have all the orders signed by an authorized person.
5. Furnish a list of authorized signatures to the firms with whom business is regularly done.
6. Make all orders at least in duplicate; retain one copy for record.
7. Place orders on time to ensure timely shipment. Delayed orders mean delayed shipments and lost sales.
8. Take full advantage of discounts. Many manufacturers allow an additional discount for stock orders placed on or before a certain date. On a $5,000 order, a 5 percent extra discount means a $250 clear profit, simply by placing the order on time.
9. Whenever possible, take advantage of ordering standard quantities offered at prices lower than odd lots.

## Pricing and Discounts

An individual firm or corporation from whom purchases are made is a vendor. A vendor can be a manufacturer, a wholesaler, or a commission merchant. The terms *discount* or *vendor's discount* indicate a deduction from the billing price of the merchandise allowed to the buying dealer or wholesaler. This discount is usually allowed to encourage quantity buying and prompt payment of bills.

The four general types of pricing and discounts are retail (or list), trade, cash, and extra dating.

### Retail Prices

Retail prices, or manufacturer's list prices, are those usually paid by the customer who ultimately uses the parts in question. When the customer pays for a repair job on his or her car, or when he or she buys parts directly from the dealer, he or she usually pays retail prices. These prices are more accurately called suggested retail prices and are subject to some differences among various firms.

### Trade Discounts

Trade discounts are given to garage proprietors, service station operators, auto body and fender shops, and auto and truck fleet operators. The trade discount is deducted from the list or retail price, and it varies considerably, depending on the purchaser and the type of material purchased. The range of trade discounts is both very complex and extremely varied throughout the country. Trade discounts range from 10 percent on some major assemblies to 60 percent on fast-moving competitive items. The auto parts apprentice must become acquainted with the pricing policies of the company and of other firms dealt with.

### Cash Discounts

Cash discounts are given to trades people who pay cash at the time of purchase or who pay their bills promptly. Some companies use 2 percent as a premium cash discount. Customers who pay cash receive 2 percent off the net purchase price at the time of the sale. If the customer has a charge account, his or her statement may be marked "2%, 10th prox.," which means that 2 percent may be deducted if the bill is paid on or before the 10th day of the following month.

### Extra Dating

Extra dating means that a discount will be available for items purchased and delivered on a certain date and marked payable in 30, 60, or 90 days. This type of discount is usually given on items that are called *stocking items*. In other words, if a dealer wants to have a stock of parts on hand and does not want to pay for the stock in one payment, he or she may ask for extra dating to spread the payments over a period of time without losing the cash discount saving.

## Manufacturer's Representatives

Many orders are placed with a manufacturer's representative or salesperson. Most large manufacturers and suppliers are represented by such

persons, who call periodically at the customer's place of business. These salespersons can be both a convenience and a nuisance. As a convenience, the manufacturer's representative is able to take merchandise orders directly, often aiding the buyer with timely suggestions as to quantities and choice of merchandise. The salesperson can introduce the buyer to new products and explain their qualities. If problems arise concerning the merchandise, it is possible to obtain immediate and satisfactory adjustments. The representative will often aid in the yearly inventory by helping to count and price the merchandise he or she sells.

Representatives and salespersons can be nuisances in several ways. They may call during the busiest times and take the buyer away from other important work. Some salespersons have a long-winded and elaborate sales pitch which consumes the valuable time of the buyer or order clerk. Some of the merchandise offered by the salesperson is inferior to, or a duplication of, merchandise already stocked. Yet the buyer often feels obligated, in all courtesy, to hear out the salesperson. Some buyers and parts managers have, from necessity, set aside certain hours in which they will see these representatives, some also limit each call to a specific length of time.

### Study Assignment

Submit to your instructor a one page report on the stock order method used where you work. If standard order forms are used, describe the forms and the data they contain.

## UNIT D – INVENTORY AND CONTROL

## TOPIC 3 – ORDERING AND PURCHASING

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. A 1 order is a major order placed on or before a set date. 1. _____
2. Intermediate orders are 2 stock orders. 2. _____
3. Special orders that request immediate shipment of merchandise are called 3 orders. 3. _____
4. When 4 are used to place urgent orders, special 5 are often used. 4. _____ 5. _____
5. The dealer pad order uses a carefully planned, numerically arranged pad of order blanks furnished by the 6 and designed to facilitate both 7 and 8. 6. _____ 7. _____ 8. _____
6. When large quantities are involved, care must be taken to maintain a 9 stock. 9. _____
7. Accurate 10 figures make ordering simpler. 10. _____
8. The four common types of discounts are 11, 12, 13, and 14. 11. _____ 12. _____ 13. _____ 14. _____
9. A 15 16 may introduce the buyer to new products and explain their qualities at first hand. 15. _____ 16. _____
10. Buyers sometimes limit 17 calls to a specified time. 17. _____

### Test

Circle T if the statement is true; circle F if the statement is false.

1. A regular monthly order for stock replacement may be termed a pad order. 1. T F
2. Intermediate orders supplement stock orders. 2. T F
3. Any order not placed on the regular date is treated as an emergency order. 3. T F
4. Local buy-outs enjoy larger discounts than emergency orders. 4. T F
5. Quantities ordered are governed by guide figures. 5. T F
6. Use of guide figures often results in overstocks. 6. T F

7. The signature of any employee on an order will be accepted by the vendor. 7. T F

8. A commission merchant is not a vendor. 8. T F

9. Retail prices are always the same as list prices. 9. T F

10. Extra dating applies to a discount extended for a longer time than usual. 10. T F

# UNIT E Counter Sales

## TOPIC 1 – PARTS TERMINOLOGY

This topic is planned to provide answers to the following questions:

- How are auto parts named?
- How can the thousands of names be learned?
- Is there any system to auto parts names?
- What is a spiral bevel axle gear?

The auto parts apprentice should not be expected to memorize the name, part number, and bin location of each of the several thousand parts that make up the modern automobile and that are commonly carried in stock in a parts business. The terms used to describe the parts, tools, and materials for any trade or occupation are best learned from experience and contact with them during the learning period.

Learning names and locations of parts can be compared to learning names and addresses of people in a community by a newcomer. By repeatedly meeting persons and visiting their homes, the newcomer learns the names, addresses, and perhaps the telephone numbers of the people with whom he or she has most frequent contact. To know the occupation of a person, as well as other pertinent information about him or her, greatly assists the newcomer in learning the person's name.

Similarly, an auto parts apprentice learns the names and locations of the items most frequently called for and eventually will use the card index to locate parts only when an unfamiliar part is sought. To know the function of a certain part and where it fits in an automobile materially aids the apprentice in identifying it.

A person learning auto parts work should not attempt to memorize the part names any more than one should memorize names and addresses from a city directory. He or she should, instead, acquire a basic knowledge of the construction and operation of the various assemblies that make up an automobile and learn the meaning of the many trade terms used in describing and designating parts.

### Formation of Compound Terms

An examination of any parts catalog will reveal that the names of a majority of parts consist of the name of a common mechanical device, prefixed by one or more descriptive words, plus the name of the assembly to which it belongs. The part name *generator brush holder* is a good example. The word *holder* may refer to many types of devices used in an automobile, but if prefixed by the word *brush*, it becomes *brush holder*, of which there are only two kinds on the automobile. The word *generator* denotes the assembly to which it belongs and completely differentiates that part from all others. Most often some of the smallest parts on an automobile have, under this system, the longest names. Other examples of names of parts are given below:

| | Assembly | Descriptive Word | Mechanical Device |
|---|---|---|---|
| 1. | Carburetor | pump | jet |
| 2. | Pitman arm | shaft | bushing |
| 3. | Propeller shaft | coupling | pin |
| 4. | Front wheel | inner | bearing |

### Procedure for Learning Nomenclature

First, the auto parts apprentice must become familiar with the various assemblies and their functions. To understand the meaning of the term *assembly*, the apprentice should know the following definitions, which most automobile manufacturers use:

A *part* is usually a single piece of material such as a casting, shaft, bolt, or gear. However, some parts are composed of more than one piece, such as roller bearing made up of rollers and races. A part

may be thought of as the smallest purchasable item that goes into an automobile.

An *assembly* is made up of two or more parts that perform a single function. For example, the carburetor is composed of a housing, valves, jets, and floats; it serves only one purpose—supplying the proper mixture of gas and air to the cylinders.

A *group*, or *system*, usually consists of two or more assemblies closely associated and dependent upon each other. For example, the fuel group is composed of such assemblies as the carburetor, fuel pump, fuel gauge, and fuel tank. If the auto parts apprentice is unfamiliar with the overall construction and operation of each assembly of an automobile, he or she should make an immediate effort to learn them.

Next, the auto parts apprentice should be sure that he or she understands the meaning of the common, everyday mechanical terms that are used in naming parts. Although the apprentice probably knows the majority of them, such as lever, wheel, crank, gear, and shaft, he or she will have more difficulty in properly identifying a transmission, pinion, or shim. Other terms that are only vaguely familiar to the layperson—trunnion, dowel, grommet, diaphragm, and the like—should be learned.

## Name Group Classifications

The common mechanical terms can be divided into several categories.

1. First, there are those terms whose meanings are not necessarily apparent in the names themselves, but which are known, or must be learned by every mechanic. Their meaning is practically the same whether they apply to automobiles, ships, radios, watches, or buildings. Examples of such terms are as follows:

| | |
|---|---|
| axle | manifold |
| baffle | nozzle |
| bearing | nut |
| bolt | panel |
| boss | pawl |
| bracket | pinion |
| bushing | piston |
| cam | plat |
| chassis | plug |
| clevis | pulley |
| clutch | rod |
| crank | socket |
| dowel | spindle |
| ferrule | spline |
| flange | spring |
| frame | sprocket |
| gasket | strap |
| gage | stud |
| gear | throttle |
| grommet | trunnion |
| hub | universal |
| jet | valve |
| journal | washer |
| lever | |

2. The mechnical devices in the next group are named according to the function that they perform. Examples of these terms, which are usually taken from a verb, are as follows:

| | |
|---|---|
| balancer | guard |
| bleeder | guide |
| brace | hanger |
| bypass | idler |
| carrier | impeller |
| check | keeper |
| choke | muffler |
| clamp | pilot |
| connection | plunger |
| contact | regulator |
| coupling | retainer |
| cover | rocker |
| deflector | roller |
| distributor | rotor |
| driver | seal |
| fastener | spacer |
| filter | support |
| float | |

3. Perhaps the most interesting category of terms is that relating to shape. Human beings have always been inclined to name new or unfamiliar objects after some known objects that they resemble. Examples of this group are as follows:

| | |
|---|---|
| arm | housing |
| ball | jacket |
| band | key |
| bar | knuckle |
| barrel | leaf |
| belt | neck |
| block | needle |
| bowl | nipple |
| brush | pan |
| butterfly | pin |
| cap | pipe |
| case | ring |
| collar | shell |
| column | shoe |

| | |
|---|---|
| coil | skirt |
| core | sleeve |
| disc | spider |
| drum | stem |
| elbow | tee |
| foot | tip |
| fork | U-bolt |
| head | V-belt |
| hood | worm |
| horn | yoke |

4. Another category into which the naming of trade terms falls is that of technical terms, usually of Latin derivation. This category is perhaps the most difficult to learn:

| | |
|---|---|
| armature | solenoid |
| carburetor | synchronizer |
| commutator | thermostat |
| helical gear | venturi |
| hypoid gear | |

5. The last category consists of proper names, which usually include the name of the inventor or patent holder, such as:

| | |
|---|---|
| Alemite | Parker screw |
| Bendix driver | Phillips screw |
| Hotchkiss tube | Pitman arm |

All of the terms listed in the first four groups above can be found in the dictionary; those with which the apprentice is unfamiliar should be looked up and their meanings written down for future study.

## Parts Nomenclature

A brief explanation of some of the most common parts and devices that the auto parts apprentice comes in contact with is given below. These parts have been arranged into groups by nature or function.

Bearing—A support in which a shaft rotates.

*Babbitt*—A poured bearing made of a soft alloy of tin, copper, and antimony.

*Ball*—A bearing in which the rotating shaft or axle is carried on a number of small steel balls that are free to turn in annular paths, called races.

*Insert*—A removable plain bearing.

*Needle*—An antifriction bearing made up of small, needlelike rollers. The needles are laid one against the other until the shaft has been completely surrounded. The shaft rests and turns in the nest of rollers.

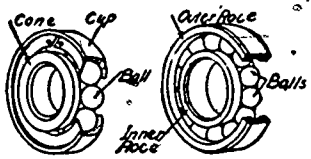
*Radial*—A bearing designed to carry loads from a direction at right angles to the axis of the shaft.

*Roller*—A bearing in which the journal or shaft rests upon and is surrounded by hardened steel rollers that revolve in a channel or race surrounding the shaft.

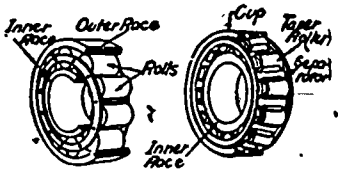
*Sleeve (brushing)*—A removable cylindrical lining of low-friction metal that is used as a bearing for a shaft or similar part.

*Thrust*—A bearing designed to support loads or resist pressure parallel to the shaft.

Babbitt bearing




Ball bearing




Roller bearing

Gasket—A thin sheet of packing material placed between two metallic surfaces to seal against liquid or gas leaks.

*Asbestos and wire*—A joint-sealing device made to withstand intense heat without jeopardizing its sealing abilities.

*Asbestos-lined*—A joint-sealing device made from a combination of copper and asbestos or of brass and asbestos sheets; usually used for cylinder head gaskets.

*Cork*—A sealing device made from cork.

*Fiber*—A gasket made of specially prepared fiber material which may be purchased in large sheets for making up many types of gaskets on the job.

*Paper*—A gasket made of a stiff composition material for use as a sealing device for special joints.

Gear—A wheel with teeth cut into its rim, designed to mesh with and drive another gear.

*Bevel*—A gear with teeth cut in the surface of a conical face.

*Helical*—A gear with teeth cut in the cylindrical surface but not parallel to its axis.

*Hypoid*—A spiral bevel gear with curved teeth.

*Internal*—A gear with teeth that project inward toward the center from the circumference of the gear wheel.

*Miter*—A bevel gear of a 45 degree angle.

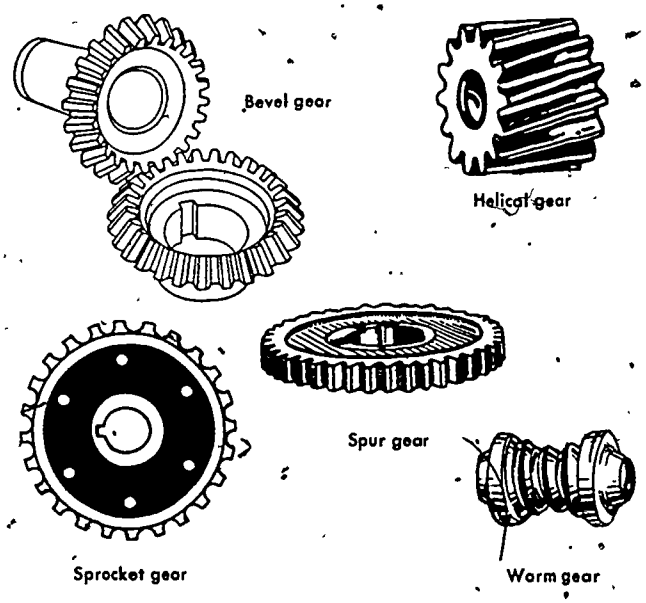
*Spiral*—A gear with curved teeth radiating spirally from its axis.

*Sprocket*—A wheel with teeth around the circumference so shaped that the teeth fit into the links of a chain that drives or is driven by the sprockets.

*Spur*—A gear with teeth cut in a cylindrical surface parallel to its axis.

*Worm*—A helical gear designed to transmit motion at right angles to its axis.

*Worm wheel*—The mating gear to the worm gear.




Joint—A device for connecting parts so that power or motion can be transmitted from one part to another part.

*Ball and socket*—A joint in which a ball is placed in a socket recessed to fit it, permitting free motion in any direction, within design limits.

*Clevis*—A fork on the end of a rod.

*Toggle*—A joint permitting to-and-fro motion only.

*Universal*—A flexible coupling for transmitting power between shafts set at an angle to one another.

Keeper—A device for keeping parts in their proper location.

*Internal*—An internal keeper usually expands into a recess in the inner circumference of a hole.

*External*—An external keeper contracts or slides into a slot in the circumference of a shaft.

Key—A semicircular or oblong piece of metal used to secure a member to a shaft.

*Baldwin*—A key with an oblong section.

*Spline*—A series of ribs that have been machined on the shaft and on to which fits another part having mating slots machined in it.

*Woodruff*—A key with a semicircular section.

Pin—A device designed to hold parts together.

*Clevis*—A pin that passes through the ends of a clevis and through an eye.

*Cotter*—A split metal pin designed to pass through a hole in a bolt and a slot in its nut to prevent the nut from turning.

*Straight*—A cylindrical metal pin used for fastening two parts together.

*Taper*—A conically shaped metal pin, usually tapering ¼ inch per foot.

Plug—A device for sealing or closing a hole.

*Drive-in or press-in*—A plug that is slightly larger than the hole it is to fit and that must be pressed or driven into place.

*Expansion*—A round piece of metal with a slightly curved surface. As the surface is pushed in, the circumference expands.

*Screw (straight and taper)*—A solid piece of metal, such as a pipe plug, with threads so it can be screwed into a hole to close or seal it.

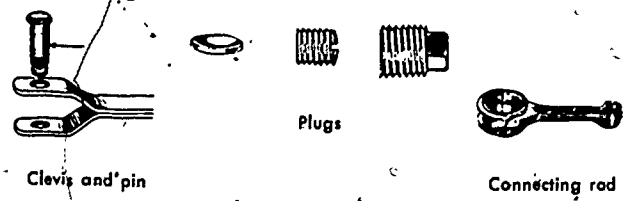
Retainer—A seal that prevents the escape of oil or grease around a shaft. Retainers are made of felt, leather, or metal with felt.

Rod—A device for transmitting motion.

*Connecting*—A rod that transmits motion in two directions.

*Push*—A rod that transmits motion in one direction only.

*Torque*—A rod designed to hold parts in alignment.




Shaft—A rod by which power is transmitted.

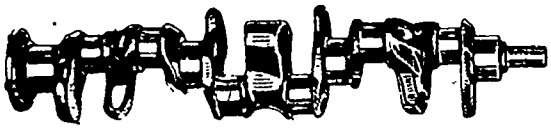
*Cam*—One or more cams mounted on a shaft for the purpose of changing rotary motion into reciprocating motion.

*Crank*—An offset shaft for the purpose of changing reciprocating motion into rotary motion, or vice versa.

*Keyed*—A shaft containing a keyway.

*Pinned*—A shaft containing a straight or tapered hole to receive a pin.

*Spline*—A shaft on which splines have been cut.



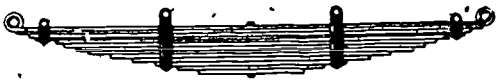
Crankshaft

Spring—Metal that is so shaped and of such resiliency as to bend under strain and return to its original position after the bending force is removed; a mechanical device of many forms used to absorb shock and produce tension.

*Flat*—A spring having an oblong cross section.

*Leaf*—A series of varying lengths of flat springs placed upon each other and held together by means of metal clips.

*Coil*—Usually formed of helically wound wire designed to resist either compression or tension.



Leaf spring

Valve—A device for controlling the flow of liquids or gases.

*Ball or check*—An automatic valve, in the form of a steel ball on a seat, that prevents fluids or gases from flowing through a line.

*Butterfly*—A valve inserted in a pipe, usually circular and nearly the same diameter as the pipe, designed to turn upon a spindle through its diameter to control the flow of gas or liquid.

*Needle*—A valve with a conical seat.

*Poppet*—A disc or drop valve that seats itself by means of a spring or by gravity and is opened by cams or by suction.

The following are some of the parts abbreviations used most often throughout the auto parts industry.

| | |
|---|---|
| Abs. | Absorber |
| A.C. | Automatic Choke Carburetor |
| A.C. Gen. | Alternating Current Generator |
| Acc. | Accessory |
| Accel. | Accelerator |
| A/Cl. | Air Cleaner |
| Adj. | Adjustable Adjusting |
| A.I.R. | Air Injection Reactor |
| Air Equip. | Air Over Hydraulic Brake and Air Brake |
| Air/S | Air Suspension |
| A.M. | Air Meter |
| Amp. | Ampere |
| A.O.H.B. | Air Over Hydraulic Brake |
| A.R. | As Required |
| Assy. | Assembly |
| A.T. | All Automatic Transmissions |
| C.S. | Custom Sport Truck |
| Ctr. | Center |
| Cush. | Cushion |
| Custom | Custom Air Conditioner |
| Cyl. | Cylinder |
| 2 cyc. | 2 cycle |
| 4 cyc. | 4 cycle |
| Dbl. | Double |
| Defl. | Deflector |
| Def. | Defroster |
| Dev. | Developed |
| Diaph. | Diaphragm |
| Dia. | Diameter |
| Diff. | Differential |
| Distr. | Distributor |
| Div. | Division |
| Dr. | Door |
| Drld. | Drilled |
| D-D, Dubl-Duti. | Forward Control Chassis |

## Study Assignment

Crouse, William H. *Automotive Mechanics* (Sixth edition). New York. McGraw-Hill Book Company, 1974. Read Chapter 6 and answer the questions at the end of the chapter.

## UNIT E – COUNTER SALES

### TOPIC 1 – PARTS TERMINOLOGY

#### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. A 1 is usually a single piece of material such as a casting, shaft, bolt, or gear. 1. _____
2. An 2 is composed of two or more parts that perform a single function. 2. _____
3. A 3 , or 4 usually consists of two or more assemblies closely associated and interdependent. 3. _____ 4. _____
4. Some mechanical devices such as balancers and distributors are named according to the 5 they perform. 5. _____
5. Parts such as butterflies and spiders are named according to 6 . 6. _____
6. Phillips and Hotchkiss are proper names of the 7 . 7. _____
7. A 8 is a support in which a shaft rotates. 8. _____
8. A spiral bevel gear with curved teeth is called a 9 gear. 9. _____
9. A worm is a 10 gear designed to transmit motion perpendicular to its axis. 10. _____
10. A 11 is a flexible coupling for transmitting power between shafts set at an 12 to one another. 11. _____ 12. _____
11. Motion is transmitted in two directions by a 13 rod. 13. _____
12. An offset in a shaft for the purpose of changing reciprocating motion into rotary motion is called a 14 . 14. _____
13. A spring is a mechanical device of many forms used to 15 shock or produce 16 . 15. _____ 16. _____
14. A valve is a device for 17 the 18 of liquids and gases. 17. _____ 18. _____
15. A poppet is a disc or drop valve that seats itself by means of a 19 or by 20 . 19. _____ 20. _____

#### Test

Circle T if the statement is true; circle F if the statement is false.

1. Names of auto parts can be learned only from experience. 1. T F
2. An auto part may be one piece or several pieces. 2. T F

3. An assembly may be one part or several parts. 3. T F

4. The fuel group includes the carburetor. 4. T F

5. A grommet is a bushing. 5. T F

6. Many auto part names are derived from functional verbs. 6. T F

7. A venturi is a tube constricted at the ends. 7. T F

8. Alimony is an ingredient of babbitt metal. 8. T F

9. A roller bearing rolls. 9. T F

10. Spiral bevel gears all have curved teeth. 10. T F

11. Miter gears have a 45 degree bevel. 11. T F

12. A Baldwin key is semicircular in section. 12. T F

13. A chassis book refers to sheet metal parts. 13. T F

14. A gasket is most generally composed of metal. 14. T F

15. A group or system usually consists of two or more assemblies. 15. T F

## UNIT E – COUNTER SALES

## TOPIC 2 – DIVISIONS OF COUNTER WORK

This topic is planned to provide answers to the following questions:

- What are the ways in which payment can be made for parts?
- What are open-account purchases?
- How can a parts person estimate an overhaul job?
- What are the problems of warranties?
- Who ultimately bears the cost of defective parts?

Auto parts counter sales are divided into the three conventional categories of payment. cash, COD, and charge. Since a substantial part of the counter person's workday is spent in writing invoices, all of which specify methods of payment, these methods should be clear in his or her mind.

### Payment for Parts

The three general types of cash sales are the retail cash sale, the user cash sale, and the dealer cash sale. The highest profits are made in retail cash sales, because they are on a list price basis, without discount. User cash sales provide the second highest profit, as they only give a small discount. Dealer cash sales are also desirable; they preclude extra bookkeeping procedures and provide available cash funds with which the company can pay manufacturers' and suppliers' bills promptly, thus receiving any added discounts offered for prompt payment. Dealer sales involve discounts from list prices.

In cash sales parts are often paid for by check. The counter person who accepts a check should always make sure it is made out properly, including the date, company name, correct amount, and proper signature. If the customer is a stranger, some reliable identification should be required. The counter person should initial the check and, if possible, put the sales slip number on the check for reference in case the check is returned for any reason.

Collect on delivery (COD) shipments are made for two reasons. Some customers would rather pay for the merchandise at the time of delivery. Their credit may be very good, but by paying for the merchandise on delivery, they have no unpaid bills at the end of the month. Other customers are billed on a COD basis because they have poor credit ratings and are considered poor risks for charge accounts. Some may take so long to pay their bills that the seller actually loses money. A customer who consistently proves to be a poor credit risk should be dealt with only on a cash or COD basis.

A large percent of sales are on an open-account or charge basis. Instead of paying for merchandise or service as it is received, customers who use this type of account pay the accumulated charges at the end of each month. The customer who uses this convenience tends to make all of his or her purchases at the place where he or she has the account. Open-account purchases by dealers are usually considered the same as cash purchases, and the same discounts on parts and services are usually applied. The convenience of a charge account should be offered only to those dealers or companies that are good credit risks, because no interest or finance charge is added to their bill, and the parts dealer does not receive interest for the use of the money involved.

More and more customers are buying on time payment plans. A time payment may be handled as a loan through a bank or handled by the seller. This plan is usually set up only for a large sale, such as expensive equipment or a major overhaul. Even if a customer is not a good enough credit risk for an open account, he or she can be extended a time payment plan, because security is required for the money involved. With an account of this type, a finance charge is made or interest is charged on the unpaid balance, or both.

### Sales Slips and Cash Registers

Writing up sales slips is an important part of the automotive parts salesperson's job. Since most of the items sold are identified by part number, the importance of writing numbers, descriptions, and other information correctly and legibly cannot be overstressed. Customers may have names and addresses that are similar, these also must be written clearly so that one customer will not be charged for something another one received.

In some companies the use of the cash register is limited to one person to expedite sales and free the counter persons for other work. The chance for error is much smaller when only one trained person is using the register. However, other companies use a register with two or more drawers; each salesperson uses a separate drawer and separate record of transactions. This setup allows the company to determine responsibility for mistakes. The register prints a total record of all sales and disbursements, as well as the separate record for each drawer; thus a complete sales record is furnished to the company.

### Pricing and Estimating

Since prices are subject to change without notice, the counter person must keep up to date with all incoming price changes. Some manufacturers supply price pages, revised as necessary, showing list prices and dealer's net after discount. Other manufacturers do not furnish price page revisions for the items they sell, but price the invoice instead. Under these circumstances, the company bookkeeper or price clerk should furnish the counter persons with priced pages for their catalogs. Still other companies or suppliers use a list price page with the discount shown as a percent of the list price. Some items, such as tools and equipment, are listed at net price only. Prices and discounts should be checked periodically against manufacturer's invoices and the latest price information.

The question often arises whether a customer is eligible to receive discounts, particularly when it is uncertain what type of service the customer renders. The following are types of customers who commonly are granted discounts:

- Garage operators who maintain an established business that specializes in the servicing and repairing of automobiles and trucks
- New car and used car dealers who maintain an established business and who employ personnel for servicing and repairing automobiles and trucks
- Paint and body shops that maintain an establishment for repairing and painting automobiles and trucks
- Fleet operators who have five or more cars, trucks, or buses and who employ personnel for the repair of these units
- Service stations that purchase only those parts and accessories that they are equipped to install
- Factories or manufacturers who use the parts for production or maintenance of equipment
- Parts distributors who resell to other dealers or garages

The counter person is occasionally asked to estimate the price of a complete or partial overhaul of some major assembly. This estimate must include the price of the parts used plus the labor or shop charge. The shop charge comprises direct labor and overhead. Most automobile manufacturers publish flat-rate manuals that show the estimated or average time required to repair or replace many common items. By referring to such a manual, it is possible to make up a labor schedule for jobs that come to the parts clerk's attention, this schedule should be included when he or she makes an estimate.

### Returned Merchandise

The customer's privilege of returning merchandise, either new or in warranty, is an expensive but necessary problem for most companies. The return of any article requires time in handling the complaint, tracing the original sale, recording the transaction, and putting the item back in stock or returning it to the supplier. Additional time and effort may have to be spent in soothing an angry or disappointed customer. Nevertheless, the return privilege is an important part of maintaining customer goodwill. Even when the utmost care has been taken to avoid errors, there will be cases when a return is entirely justified. Many companies have adopted a policy of accepting all returns without question. In cases of defective merchandise, the manufacturer or supplier will usually replace the defective part or issue credit for it.

Merchandise that is returned should be inspected carefully. Items that are defective should be sent back to the source for replacement or credit, this will involve filling out applicable forms. When a mistake has been made in ordering or delivering, the customer may exchange the merchandise for the correct items, or a credit memorandum or a cash refund may be issued. When the customer returns merchandise, he or she is expected to present the original sales slip, because the price of the article may have changed since the purchase date. Many companies will not accept new merchandise for refund after 30 days.

Refund slips and credit memorandums should list the customer's name, the part numbers, and description of the material returned, the date and

number of the original sales slip, and the amount to be credited or refunded to the customer.

The warranty on automobile and truck replacement parts will vary, but it is usually based on a 90-day or 4,000-mile period, whichever occurs first. Any defects in material or workmanship that appear within the warranty period will be cause for free replacement by the seller. However, some make a labor charge for any time spent in removing and replacing the defective part. If a part or assembly covered by a warranty has obviously been misused by the customer, it is not unreasonable to ask the customer to share the cost of replacement. Every effort should be made by the employee to convince the customer of the justification of such a charge. Prompt and fair handling of all warranty adjustments is necessary if customer confidence is to be maintained.

Auto parts personnel must be aware of the procedures for handling defective replacement parts, since detailed information is often required before credit can be obtained from the manufacturer. Claims for defective merchandise often must be submitted on a very detailed form.

## UNIT E – COUNTER SALES

## TOPIC 2 – DIVISIONS OF COUNTER WORK

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Three conventional methods of payment for merchandise are 1 , 2 , and 3 . — 1. _____ 2. _____ 3. _____
2. Dealer sales involve 4 . — 4. _____
3. Charge accounts should be offered only to companies that are good 5 risks, because no 6 or finance charge is added. — 5. _____ 6. _____
4. Many customers buy on a 7 8 plan. — 7. _____ 8. _____
5. Eligibility for 9 depends to a degree upon occupation. — 9. _____
6. Most auto manufacturers publish 10 manuals that include the 11 time involved in the repair or replacement of auto parts. — 10. _____ 11. _____
7. The customer's privilege of 12 merchandise is an expensive but 13 problem for most companies. — 12. _____ 13. _____
8. When a part is defective, the manufacturer will usually 14 the defective part or issue a 15 for it. — 14. _____ 15. _____
9. When returning merchandise, the customer should always present his or her 16 17 18 . — 16. _____ 17. _____ 18. _____
10. If a part or an assembly covered under warranty has obviously been 19 , it is not unreasonable to ask the customer to share the cost of 20 . — 19. _____ 20. _____

### Test

Circle T if the statement is true; circle F if the statement is false.

1. Retail cash sales generally provide the highest profits. — 1. T F
2. Invoices specify prices but not methods of payment. — 2. T F
3. Shipments may be made COD to either good or bad credit risks. — 3. T F
4. An open account is evidence of good credit. — 4. T F
5. A time payment plan may bear finance charges, interest, or both. — 5. T F
6. Discounts and finance charges never apply to the same transaction. — 6. T F

7. Most cash registers in current use print a record of transactions. 7. T F

8. Thirty days' notice must be given before manufacturers' list prices are raised. 8. T F

9. The shop charge is strictly a labor charge. 9. T F

10. Independent shops are required to follow the flat-rate manual for any job. 10. T F

## UNIT E — COUNTER SALES

## TOPIC 3 — WHAT IS A CUSTOMER?

This topic is planned to provide answers to the following questions:

- How should a parts person treat outside customers?
- How can a new customer be made a regular customer?
- What facts will help a parts person win most arguments with customers?
- What does the dealer need from each customer?

> What is a Customer?
>
> A customer is the most important person ever in this office . . . in person or by mail.
>
> A customer is not dependent on us . . . we are dependent on the customer.
>
> A customer is not an interruption of our work . . . he or she is the purpose of it. We are not doing the customer a favor by serving him or her . . he or she is doing us a favor by giving us the opportunity to do so.
>
> A customer is not an outsider to our business . . . he or she is a part of it.
>
> A customer is not a cold statistic . . . he or she is a flesh-and-blood human being with feelings and emotions like your own and with biases and prejudices.
>
> A customer is not someone to argue or match wits with. Nobody ever won an argument with a customer.
>
> A customer is a person who brings us his or her wants. It is our job to handle them profitably to him or her and to ourselves.
>
> Author Unknown

"A customer is the most important person ever in your establishment, in person, by phone, or by mail." All of the combined activities of the parts industry are aimed at one final act – the successful sale. Sales can only be to customers, therefore, customers are most important. It is a simple rule, but one that is frequently forgotten. Service to the customer must take precedence over every other activity in the store. This does not mean that other activities are not important. Merchandise must be received, bins stocked, and inventories kept. But these activities are purposeful only if profitable sales are being made. The customer is number one.

"A customer is not dependent on us, we are dependent on the customer." Every commercial organization depends on customer profits for survival. The competition in today's market emphasizes this dependence. On rare occasions a customer may be dependent, temporarily, on one store for a particular item. But even this rare occasion does not alter the fundamental fact that the company depends on the profit from that sale for its existence. Even if an organization had a monopoly on certain parts, the store would still depend on the customers who bought them. Each establishment is totally dependent upon its customers, and the building and maintenance of a clientele is the direct responsibility of all the employees who greet and serve them.

"A customer is not an interruption of our work, he or she is the purpose of it." All other activities must somehow be subordinated to the fact that customers come first! Putting away stock is important, but it must be done between customers. Prolonged or personal telephone conversations must be terminated when customers are waiting. Stock orders, paper work, bin changing, display arranging – anything that can logically be put aside must be deferred until the customer's needs are met.

"A customer is not an outsider to our business; he or she is a part of it." But one wouldn't believe it to see the way many customers are treated at a parts counter. The parts counter frequently becomes a barrier across which only merchandise and payment can pass. Conversations are usually limited to cold facts and bare statistics, there is no sense of a desire to help or of a need to be filled. Personal involvement is avoided in the transaction by either party, which is all the more tragic because human relations, regardless of the environment or setting, are the most rewarding events of life. A customer can not be an outsider to your business, he or she is a participant in it! The customer can be an outsider only if the owner or the customer chooses to make it so. The customer should be made to feel that he or she is a very welcome insider!

"A customer is not a cold statistic – he or she is a flesh-and-blood human being with feelings and emotions like your own and with biases and prejudices." As such he or she must be treated with all the care and consideration that the seller would expect to be shown should he or she suddenly find the positions reversed. One of the quickest ways to

prevent the development of a friendly sales relationship is a superior attitude on the part of the salesperson. He or she should indeed know his or her job and know it well—in fact, competence is stressed throughout this course. But a customer who has no training in the field can not be expected to meet the trained salesperson on even terms. Many customers do not even know automotive nomenclature. All a customer wants is an honest and competent solution to his or her needs, presented in a manner that will not arouse prejudice or bias and that will not make him or her feel inferior in the process. That kind of an approach sounds easy, but in reality it is not; it must be cultivated.

"A customer is not someone to argue or match wits with. Nobody ever won an argument with a customer." Only rarely does a customer come into a store to argue, and that is most often when he or she has a complaint to register. If the customer's complaint is legitimate, then it should be handled by an understanding person who is trying to help. But most customers come to buy something or to seek information. Quarreling is not justified in such a situation, either he or she should be sold what he or she needs or helped with his or her problem. Quarreling and matching wits are egocentric devices which have no place in a simple sales transaction. If a customer wants to quarrel or act superior, the salesperson should not react in the same manner. Tolerance and understanding are keys to good salesmanship.

"A customer is someone who brings us his or her wants." These wants may be physical needs or problems to be solved, but whatever they are, he or she brings them to be filled. The customer does so with a certain legitimate assumption—that the company has, or can supply, the answer to his or her wants.

Herein, of course, lies the essence of successful business relations—a customer with a need and a company with the resources to fill that need, profitably for both parties. But the successful outcome, a satisfied need, is subject to many conditions, some of which have been mentioned above. Others will be discussed in a later topic.

## UNIT E – COUNTER SALES

## TOPIC 3 – WHAT IS A CUSTOMER?

### Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. The most important person in an auto parts store is the 1 . — 1. _____
2. All of the combined activities of the parts industry are aimed at one final act, the 2 3 . — 2. _____ 3. _____
3. The customer is not 4 on the store. — 4. _____
4. To build and maintain a satisfied customer clientele is the direct 5 of the 6 who greet and serve them. — 5. _____ 6. _____
5. A customer is not an 7 of the work; he or she is the 8 of it. — 7. _____ 8. _____
6. The parts counter should never become a barrier across which only 9 and 10 can pass. — 9. _____ 10. _____
7. A customer can not be an outsider to your business; he or she is a 11 in it! — 11. _____
8. A customer is not a cold 12 ; he or she is a flesh-and-blood human being. — 12. _____
9. Only rarely does a customer come into a store to 13 , and that is when he or she has a 14 to register. — 13. _____ 14. _____
10. The salesperson never 15 or matches 16 with the customer in a simple sales transaction. — 15. _____ 16. _____

### Test

Circle T if the statement is true; circle F if the statement is false.

1. The target of the auto parts industry is the customer. — 1. T F
2. Service to the customer should take precedence over inventory. — 2. T F
3. Competition emphasizes the customer's dependence. — 3. T F
4. A monopoly is no good without sales. — 4. T F
5. All phone conversations should be cut short when customers are waiting at the parts counter. — 5. T F
6. A prejudiced customer is an asset to a store. — 6. T F
7. Only the owner should be allowed to argue with a customer. — 7. T F

8. Every customer assumes that the store he or she enters can fulfill his or her need. 8. T F

9. Personal involvement in a parts sale should be avoided. 9. T F

10. Every transaction should end profitably for all parties to it. 10. T F

## UNIT E – COUNTER SALES

## TOPIC 4 – HOW TO SELL

This topic is planned to provide answers to the following questions:

- **What are the traits of a good salesperson?**
- **What is the most effective sales approach?**
- **What must the salesperson get from the customer?**
- **To what extent should the salesperson go to push related sales?**

A popular myth that has prevailed over the years is that a smooth, fast talker, or someone with a "gift of gab," should become a salesperson. This myth is partially true. Many customers are susceptible to a high-pressure, hard-sell appeal, and most salespersons of this character enjoy some financial success. However, this sales technique is not a good foundation upon which to build reliable repeat sales, and the company which tries to do so often finds itself unstably established. Only a certain number of people succumb to the big pitch, and many of them regret later that they were sweet-talked into a sale.

The repeat sales are the backbone of most businesses, and such sales are built on something more than talk. The salesperson's sincerity and willingness to help are crucial to lasting sales. Fairness, honesty, and a willingness on the part of the company to back its merchandise must be evident if customer confidence is to be gained and kept.

In today's complex and competitive automotive world, a few pennies of profit must often be sacrificed for the larger profit of tomorrow. Catering to the needs and wants of the customer, as perhaps he or she has never been catered to before, is called for. Signs often link the words *sales* and *service*. In salesmanship, the two words become almost synonymous.

### The Sales Approach

In first approaching a customer, the salesperson should be interested, honest, and sincere. He or she should remember that the customer is a person with a want or a need, a person who assumes that this particular company is in a position to satisfy that need. If this were not so, it is not likely that the customer would be there in the first place.

A casual approach is not one that borders on indifference. The salesperson should refrain from swooping down on a customer with platitudes and prerecorded sales introductions. Although this kind of approach seems genuine at first, it usually takes on a note of insincerity after repeated performances, and discerning customers are apt to be offended by it. The opening statement should be varied from time to time. By keeping it simple and sincere, the salesperson can avoid the danger of falling into a verbal rut.

Honesty in approaching a customer is more of an attitude than a verbal statement. Somehow the salesperson's attitude must convey to the customer his or her genuine desire to be fair and helpful. The attitude must be an expression of truth, if one does not feel it, he or she cannot express it. The ability to project honesty is a rare quality that is rapidly disappearing beneath a veneer of sophisticated salesmanship. But real honesty in efforts to help the customer will show itself and will prove one of the most powerful tools the salesperson, auto parts, or other, can possess.

Sincerity is like honesty in that it is expressed in the attitude. The salesperson does not do the customer a favor by waiting upon him or her. The salesperson needs to have a genuine desire to help and to serve. Successful sales are the result of a sincere effort to help the customer with his or her various problems. The customer can sense whether a real effort is being made to meet his or her needs. Repeat business may depend upon the customer's opinion as to the element of sincerity in the customer-salesperson relationship.

### Meeting the Customer

The initial customer-salesperson meeting forms the most important relationship to develop in the auto parts store. From this encounter will or will not develop the successful sale, which hinges upon the customer's original need, the company's ability to physically meet that need, and the salesperson's handling of the situation. The original encounter between the auto parts salesperson and the customer deserves serious attention.

Except for the presence of a few generalized accessories, auto parts form a highly specialized body of material that requires specific knowledge

for proper identification. The auto parts salesperson must be prepared, during the original encounter with the customer, to determine the exact nature of the part or parts involved, the exact model for which they are intended, and the presence on the vehicle of certain options that affect the selection of the correct parts. The existence of so many models and options complicates the parts salesperson's job to the extent that frequently even a mechanic or the car owner can not give the correct information.

The selection of even a correct fan belt can lead to a detailed interrogation, and the situation may be much more complicated when certain other parts are needed, for example, parts for an intricate automatic transmission. Questioning the customer is necessary for the proper selection of most modern parts and can be a source of frustration for both customer and salesperson.

The ability to make such interrogations skillfully only comes from long and broad experience in the field. Knowledge of each item is paramount, and the parts person must constantly remind himself or herself that, even though the procedure is often boring and complex, it is a necessary part of his or her vocation. Failure to elicit enough information may result in the wrong part being sold. An antagonistic approach will only frustrate and complicate the whole procedure. Short cuts should be developed to gain the needed information as quickly as possible. One shortcut is to learn the distinctive differences that will identify correctly the model and the needed part. If it is feasible to bring in the old part for identification, replacement is usually simpler.

## Sales Techniques

Sales techniques in the automotive parts field include all of those previously mentioned in this topic—honesty, sincerity, competence, patience, and more. Customers frequently do not know exactly what they want or need, and, certainly for the most part, they are unaware of related needs. For example, it is never a good idea to sell ignition points without suggesting a condenser (and vice versa). If the customer asks for the point gap setting on a particular model, he or she should be told, even though it must be looked up, and then the suggestion made that he or she lubricate the distributor cam lobe lightly with a suitable lubricant. Such constructive suggestions can make steady customers of casual ones.

Suggesting related items for purchase (e.g., clamps with hose, cement with gaskets, or paint supplies with paint) is an important part of the salesperson's repertoire. Not only are such suggestions legitimate but they are often appreciated, and they bring considerable added revenue to the store. Such related items should be suggested at a strategic time, pointing out the potential need for the utility of the related item(s).

The auto parts salesperson must be ready to discuss any item in the store with clarity and competence, setting forth its virtues and comparing it, feature by feature, with other brands and models. This kind of knowledge requires a constant effort by the parts person to remain current by reading service bulletins, trade publications, and advertising media concerning the merchandise he or she sells. Nothing will kill a sale quicker than a salesperson who is not fully informed on the product he or she is showing to the customer.

New items in stock are always a potential sales feature and may be shown legitimately on the strength of their newness. New tools, gages, instruments, accessories, and any items of improved design are particularly good subjects for sales efforts. Garage owners and mechanics are especially interested in new accessories and in simplified parts or replacement kits.

## Closing the Sale

Closing the sale should include a courteous inquiry as to any other items needed and an appraisal as to related parts that might have been overlooked. Tips may be offered on quicker, more satisfactory installation methods that the salesperson has learned. Retail customers are apt to inquire about installation instructions, and these should be supplied quickly and courteously. If the salesperson does not know, the customer should be put in touch with shop personnel who can help.

When the parts person does not have a part that the customer needs, he or she should make an effort to locate it for him or her. A phone call to another store takes only a minute, and the customer will appreciate the effort. Special orders can be handled for the customer by whatever system has been established by the store.

UNIT E – COUNTER SALES

TOPIC 4 – HOW TO SELL

## Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Repeat __1__ are the backbone of most businesses and are built on more than __2__. 1.____ 2.____

2. The salesperson's __3__ and willingness to __4__ are crucial to lasting sales. 3.____ 4.____

3. A company must be willing to back its merchandise if __5__ __6__ is to be built and maintained. 5.____ 6.____

4. A casual approach does not mean a __7__ approach. 7.____

5. Honesty is shown in approaching a customer more by __8__ than by __9__. 8.____ 9.____

6. Repeat business may depend upon the customer's opinion as to the sincerity of the __10__. 10.____

7. Except for a few general __11__, auto parts are a highly __12__ body of material. 11.____ 12.____

8. The presence on the vehicle of certain __13__ will often affect the selection of correct parts. 13.____

9. Proper selection of most current auto parts may require __14__ __15__ of the customer. 14.____ 15.____

10. Failure to elicit complete __16__ may result in the sale of the wrong part. 16.____

11. Nothing will kill a sale quicker than __17__ knowledge of a product being shown. 17.____

12. New items in stock are always a __18__ sales feature. 18.____

13. Retail customers are often interested in new __19__ and simplified replacement __20__. 19.____ 20.____

14. Retail customers are apt to ask about __21__ instructions. 21.____

15. When out of a part needed, the parts person should make an effort to __22__ it for the customer. 22.____

## Test

Circle T if the statement is true; circle F if the statement is false.

1. A glib talker is the best salesperson. 1. T F

2. Some customers can be sweet-talked into buying. 2. T F

3. A sincere, helpful salesperson builds repeat sales. 3. T F

4. In his or her first approach to a difficult customer, the salesperson should seem indifferent rather than avid. 4. T F

5. The customer will be influenced by his or her appraisal of the salesperson's mental attitude. 5. T F

6. Specific knowledge of the customer's needs must sometimes be obtained by lengthy interrogation. 6. T F

7. Frequently, customers do not know just what they need. 7. T F

8. Ignition points should never be sold without suggesting a new point gap setting. 8. T F

9. The more the salesperson knows about his or her wares, the more wares he or she is likely to sell. 9. T F

10. A customer should never be sent to a competitor's store for an item that is not in stock where he or she first seeks it. 10. T F

# UNIT F Displays

## TOPIC 1 — DISPLAY MERCHANDISING

This topic is planned to provide answers to the following questions:

- How have auto parts selling policies changed?
- What are the basic types of merchandising?
- What is critical to walk-in trade?
- What is the purpose of sales promotion?
- What is vital to the economic life of an auto parts store?

The auto parts sales program recently went through a significant change in selling policies. Manufacturers' parts are now on thousands of counters and shelves in the major retail and chain stores throughout the United States. Their sales are aimed at the "do-it-yourselfer." And for this reason the auto parts stores will have to change their approach to selling if they expect to stay in business.

### Forms of Merchandising

In analyzing in-store sales of automotive parts, equipment, and accessory and service items, several basic types of merchandising should be considered.

1. *Exposure of merchandise.* A good merchandiser exposes as much merchandise as possible to the customer. Mass merchandisers, such as Sears and Penneys, know the value of merchandise exposure, and their sales records are proof that it pays off in profitable sales. Auto parts jobbers throughout the country have experienced an increase in sales of 30 to 40 percent as the result of adopting a good display merchandising program.
2. *Point-of-purchase sales information.* Up until now few auto parts and equipment wholesalers have considered pricing and product information as a necessary step in selling merchandise. However, with the recent changes in selling policies, point-of-purchase sales information has become an important selling point with walk-in customers.
3. *Trained sales personnel to encourage customers to buy.* Today, customers want to look around and select merchandise for themselves; therefore, all salespersons should be trained to encourage customers to look around and buy.

After good store planning, layout, and merchandise displays have been established, sales promotion efforts should be directed to getting consistent customer traffic into the store. Some of the tools which can be used to get return customers are as follows:

1. Attention-getting newspaper ads
2. Radio and television commercials
3. Circulars
4. Direct mail
5. Customer discount cards

The merchandiser must think "walk-in" trade, which includes more than just retail trade. Every wholesale customer that comes into the store is subject to impulse buying of well-displayed merchandise.

### Display Factors

Any good merchandising plan is based on a knowledge of past performance, current abilities, and limitations, and the objectives one has for his or her business in the areas of sales, investments, and profits. Before an in-store display merchandising program can be put into effect, the following factors must be taken into consideration.

#### Type of Customer

The type of customer that will be patronizing the store should be determined beforehand—service station operator, garage proprietor, fleet operator, car dealer, recreational vehicle dealer, truck dealer,

and so forth. If, for example, 75 percent of the business is with wholesale trade, and it is the intention of the auto parts store management to keep this kind of trade, the displays should be constructed around the type of merchandise that appeals to the wholesale customer.

### Kinds of Products

The kinds of products and other services offered by the auto parts store should be assessed thoroughly prior to making any display decisions. Products such as engine parts, body supplies, accessories, and service items and services such as tool rental are important factors in determining the character and health of the business. As these factors are reviewed, the strengths and weaknesses of the business can be identified, and plans can be made to capitalize or improve on them through good display programs.

### Store Traffic

Store traffic is vital to the economic health of an auto parts business. Some of the questions that should be resolved before the auto parts person decides on an appropriate display are as follows:

1. What is the in-store traffic?
2. Does the store have contacts that can be used to build traffic?
3. What kind of neighborhood is the store located in?
4. What are the business hours of the store?

### Employees

Employees play an important part in getting and holding in-store business. Therefore, they should be able to do some, if not all, of the following tasks:

1. Address every customer by name
2. Wait on female customers
3. Change and freshen displays
4. Communicate technical knowledge to the customer
5. Learn new customer handling techniques that will encourage browsing and impulse buying.
6. Think profit
7. Give sound advice to the "do-it-yourselfer"
8. Make presentations
9. Participate in sales and product meetings

### Facilities and Equipment

The store location is critical to walk-in trade. If the store is to be relocated, or new branches are to be opened, management should use the warehouse distributor's knowledge, manpower, and expertise to find the best location.

Perhaps one of the most important factors in establishing an auto parts business is the appearance of the building. In assessing the exterior of the store, the following questions should be asked:

1. What image does the exterior of the business convey to the potential customer?
2. Is the building clean, attractive, and inviting to the customer?
3. Are the merchandise displays in the windows inviting?
4. Is there convenient parking?
5. Do the employees look like they want to help the customer?

The delivery truck is used in the auto parts business not only to deliver orders but also to create an image. This vehicle should tell people what the store sells, convey the idea that the store can save them money, and impart an image that will attract prospective customers. The driver of the truck should be neat and clean, polite, and able to encourage new business. In some cases, the driver and the truck are the only contacts that the customer ever has with the store; therefore, both must project the most desirable image.

### Advertising

The main objective of advertising is to attract and hold the attention of the prospective customer. This task is best accomplished by the use of the basic elements of attention such as size, position, contrast, color, sound, movement, illustration, and benefits.

*Size.* In the newpaper and the yellow pages of the telephone directory, the large ad rather than the small ad is more likely to catch the eye of the prospective customer. However, doubling the ad size does not double the results. Psychological studies have shown that a full-page ad has an attention value of 100 percent, that a half-page ad has an attention value of 71 percent, and that a quarter-page ad has an attention value of 50 percent. The general rule is to have as large of an ad or as long of a radio or television commercial as possible to do the best selling job.

*Position.* Advertisers should use prime driving time on the radio. In newspapers the best results are obtained by placing the ads for men on or near the business or sports page and the ads for women on the society or household pages. Ads should be placed under every heading that describes the

store's major products or services in the yellow pages.

The size of the ad will often determine the position it will get in the newspaper. The larger the ad, the better the position. The right-hand page in newspapers gets 5 to 10 percent better readership than the left-hand page. Outside columns catch the eye better than inside columns. Also, the upper half of the page gets better readership than the lower half of the page.

In the yellow pages, the best positions are those closest to the beginning of a heading. People who use this reference are ready to buy and are looking for suppliers. Therefore, ad features such as layout, headlines, content, and illustrations are important.

*Color and contrast.* These elements are extremely important, even in black and white ads. Most ads are printed with black type on a white background; however, reverse type can be used for contrast to other ads. Half tones can be used for color effect. Plenty of white space should be used in ads, particularly if they are small.

*Sound.* Sound is obviously important in radio and television advertising. A quiet, well-modulated voice may be a welcome relief when the advertising is on a rock music station. If the advertising is during a talk show, a music background may attract extra attention.

*Movement and illustration.* These elements can be achieved by using illustrations and type. The illustration should be functional and show the product or its use. The illustration should either show the positive benefits the customer can expect from using the product, or warn them of the consequences if they do not use the product.

*Benefits.* Benefits are the primary feature of the best and most successful ads. Headlines that speak directly to the prospective customer should be used to tell them how the products and services can enhance their lives or solve their problems. Illustrations and other movement elements can also be used to convey benefits.

The auto parts store management should work closely with the warehouse distributor to get the best results from advertising. The warehouse distributor can help with ad mats, supplier advertising funds, cost sharing programs, and so forth. The members of the warehouse distributor management team are real experts in these areas and should be used to the best advantage.

**Sales Promotion**

Sales promotion is the act of furthering the development of the sale after the store and the customer have made contact. This contact may occur when the customer sees a sign, reads a newspaper advertisement, or enters the store for the first time.

In addition to telling the customer where the store is located, what it sells, and when to come in, the sales promotion should offer to sell something at a very low price to improve chances that the customer will visit the store. Some of the sales promotion methods used today are as follows.

1. Special discount on a given item with a minimum dollar purchase
2. Discount on second item with the purchase of two items
3. Free item with a purchase
4. Premiums or free goods with dealer purchase
5. Dealer trip programs
6. Salesperson on the road to promote and sell
7. Signs and point-of-purchase information
8. Customer delivery service
9. Special terms and seasonal billing terms

UNIT F — DISPLAYS

TOPIC 1 — DISPLAY MERCHANDISING

## Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Auto parts sales in the major retail and chain stores are aimed at the 1 . — 1. _____
2. The auto parts store location is critical to 2 trade. — 2. _____
3. Sales promotion is the act of furthering the development of the sale after the 3 and 4 have made contact. — 3. _____ 4. _____
4. The main objective of advertising is to 5 and 6 the attention of the prospective customer. — 5. _____ 6. _____
5. One of the most important factors in establishing an auto parts business is the 7 of the building. — 7. _____
6. In some cases, the 8 and the 9 are the only contacts the customer ever has with the auto parts store. — 8. _____ 9. _____
7. In the newspaper, the 10 ad rather than the 11 ad is more likely to catch the eye of the prospective customer. — 10. _____ 11. _____
8. The economic health of an auto parts business is dependent on 12 13 . — 12. _____ 13. _____
9. A good merchandiser 14 as much 15 as possible to the customer. — 14. _____ 15. _____
10. Special discounts, free items, and customer delivery service are forms of 16 17 . — 16. _____ 17. _____

## Test

1. The new trend in parts merchandising is aimed at the wholesale customer. — 1. T F
2. Sales personnel should not encourage customers to look around. — 2. T F
3. The type of customer has no bearing on the type of inventory to be stocked. — 3. T F
4. The type of customer and kind of product should be similar. — 4. T F
5. Store location is critical to the sales of walk-in trade. — 5. T F
6. Delivery trucks and drivers are not important to parts sales. — 6. T F
7. The image conveyed by the exterior of the auto parts store is not important. — 7. T F

8. Advertising is used to attract and hold the attention of the prospective customer. 8. T F

9. Customery delivery service is a type of sales promotion. 9. T F

10. The warehouse distributor can be of tremendous help with an advertising program. 10. T F

## UNIT F — DISPLAYS

## TOPIC 2 — WHY DISPLAY?

This topic is planned to provide answers to the following questions:

- **What functions are assigned to displays?**
- **What can display do for a new product?**
- **What is the chief function of a seasonal display?**
- **What can displays do for store appearance?**

A display has been described as a silent salesperson to which several functions of the vocal salesperson may be assigned. Displays are aimed at ultimate sales through customer interest, but they reach the target in a variety of ways. Any display that is attractive or interesting has a potential sales appeal, and any passerby who pauses to examine a display is a potential customer.

### Creating Customer Interest

Most displays are designed for direct sales appeal. Others are designed to appeal to the customer in a less direct way through an interest theme.

Direct sales appeal is a theme easily carried out. An item or items which lend themselves to attractive display can be set up in many ways. Accessories, tools, and equipment are especially suited for effective display, although they are by no means the only items that display well. The direct appeal display should be simple, uncluttered, attractively arranged, and prominently placed.

The interest-theme display can be just as effective as a direct appeal display, but in a more subtle way. One of the most effective interest displays was an early Powerglide automatic transmission, completely disassembled, with each component identified by a name card, and with the whole transmission arranged in an exploded fashion in a parts room display case. The display created a great deal of interest. For retail customers it illustrated the concept and complexity of the Powerglide transmission (which was new on the market), and reminded them of the importance of regular transmission service. For mechanics and parts persons alike, it was an excellent reference for identifying needed transmission parts and for suggesting related items.

### Introducing New Products

One of the most frequent and effective uses of display is to introduce new products. The purpose of such displays is to make the customer aware of a new and desirable product and to create within him or her the desire to buy it. Such displays usually follow the direct appeal method, although some items are not restricted to direct sales. Many displays carry both direct sales and interest themes, and an effective blending of both themes can be the most profitable of all.

New products especially need prominent and effective display. The qualities and claims of the new product must be set before the consumer in such a manner that he or she will understand its value and be persuaded to buy. New products represent some new concept or an improvement over an old concept. Effective display must exploit the newness of the improvement that the product offers (Fig. F-1).

### Selling Related Items

Displays frequently sell related items. A related item is a piece of merchandise that can be logically

**Fig. F-1. Self-selling display**

suggested for purchase along with the article or articles requested. By the transmission display previously mentioned the repair person was frequently reminded of related parts he or she might need, such as gaskets, rings, seals, thrust washers, spacers, plates, lock rings, and the like. Many effective displays carry out a mechanical or seasonal theme in which a number of related parts are displayed together. Many automotive assemblies lend themselves to group display.

Related items may be connected with preventive maintenance. The small interior parts of a carburetor, mounted on a velvet-covered display board to enhance their intricate nature, will sell many a gas filter to owners whose cars are not presently equipped with adequate filtering means. If a customer can be shown that such preventive maintenance is not only desirable but economical, he or she will buy the product and be thankful for the suggestion.

A direct relationship exists between preventive maintenance sales and customer goodwill, which is frequently overlooked. Such related sales are legitimate and practical, well-planned displays are an effective way of achieving them.

### Selling Seasonal Items

Seasonal display themes that emphasize groups of items are extremely effective when properly arranged. Summer accessories, cold-weather requirements, wet-weather goods, and spring maintenance items are themes with almost limitless possibilities. These group themes can use all the potential that displays possess, direct sales appeal, interest groups, related sales opportunities, and preventive maintenance.

Summer accessories provide the largest single sales appeal in seasonal merchandise. Each year Americans drive billions of vehicle miles on highways in the United States. A substantial part of this mileage is accumulated during the summer vacation of the motoring public. Comfort and convenience accessories and their maintenance are a large item in the vacationing motorist's budget. Air conditioners, coolers, luggage carriers, trailers, campers, traveling and camping accessories, tires, and so on, plus the mechanical maintenance aids necessary for extended trips, are all items which can be effectively displayed and sold through a summer theme.

Other seasonal needs lend themselves to effective group display. The best ways to plan and arrange displays will be discussed in the next topic.

### Improving Store Appearance

Automotive parts and accessories can be used to make very attractive displays. A little imagination and ingenuity can transform an ordinary parts stockroom into an attractive parts department for little cost. Vacant corners, unused wall space, large window areas, and counter space are all potential display sites (Fig. F-2).

Displays should be designed to enhance the appearance of the customer sales area. People enjoy shopping in an area that is clean and well lighted, and in which merchandise may be viewed. A waiting customer will browse if there are interest centers and attractive displays available.

Displays can be planned to invite attention while generally improving the appearance of the store. Wall space can be equipped with pedestals, shelving clusters, or shadow-box arrangements. Window treatments, while dressing up the window space, should serve as attention-getters to invite the customer inside for potential sales. Unused corners, which tend to collect odds and ends, should instead be fitted with suitable displays. In areas where there is counter space, counter displays will serve as interest centers while breaking up an otherwise drab architectural necessity.

Courtesy Tri-City Auto Supply, Richmond

Fig. F-2. Typical displays in a wholesale-retail auto supply store

UNIT F – DISPLAYS

TOPIC 2 – WHY DISPLAY?

## Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. Displays are aimed at ultimate 1 through 2 . — 1. _____ 2. _____
2. Most displays are designed for 3 sales appeal. — 3. _____
3. Another appeal to the customer can be made in a less direct way through an 4 5 . — 4. _____ 5. _____
4. One of the most frequent and effective uses of display is to 6 7 products. — 6. _____ 7. _____
5. New products represent a new 8 , or an 9 . — 8. _____ 9. _____
6. Effective display of a new product must 10 the newness or the improvement. — 10. _____
7. A related item is one that can be 11 suggested for purchase along with the articles 12 . — 11. _____ 12. _____
8. Related items may include 13 14 items. — 13. _____ 14. _____
9. The largest single sales appeal in seasonal displays are 15 accessories. — 15. _____
10. An ordinary parts stockroom can become an attractive parts department through 16 . — 16. _____

## Test

Circle T if the statement is true; circle F if the statement is false.

1. Most displays appeal to the customer indirectly. — 1. T F
2. Tools and accessories are well suited to display. — 2. T F
3. A complex display of an assembly may serve as a reminder that such assemblies need regular maintenance. — 3. T F
4. New products can best be sold without display. — 4. T F
5. Selling preventive maintenance is one way to obtain customer goodwill. — 5. T F
6. A grouping of snow tires, antifreeze, windshield scrapers, lightweight oil, and wheel chains could be a very effective late autumn display. — 6. T F
7. When displayed, new products usually try to make a direct appeal. — 7. T F

8. When improved items are displayed, the improvements will be self-evident. 8. T F

9. Comfort and convenience accessories provide a small market compared to efficiency and safety items. 9. T F

10. Displays may prove of value not only to customers but also to shop mechanics. 10. T F

## UNIT F – DISPLAYS

## TOPIC 3 – HOW TO DISPLAY

This topic is planned to provide answers to the following questions:

- What qualities of an item should be emphasized when it is placed on display?
- Can more than one quality be emphasized at one time?
- How can each different quality be stressed?
- Can more than one item be effectively displayed at the same point?
- How many different displays should be staged in the salesroom at one time?

A person may do good display work without knowing just what it is that makes his or her work successful. Some people have an intuitive feel for the arrangement of materials into an attractive display. Describing display techniques, however, can be simplified by the use of certain key words. If one has the feel for good display, then the words will reinforce what is already known. Without experience in display work, these words can be helpful toward understanding the aims and purposes of effective display.

### Display Terminology

The following are examples of terminology that is used frequently in display work.

#### Functional Display

A functional display points out the usefulness of the product. The desirability of the item lies in its usefulness, it may do a job better or more easily. The functional display must exploit this aspect of the product.

#### Aesthetic Display

Aesthetic display emphasizes the beauty of the product. Certain shapes or finishes appeal to us in a way which can not always be described. This is an aesthetic appeal. Manufacturers spend millions of dollars in design engineering, trying to create a form or shape that has aesthetic appeal. New car styles are a prime example of this effort.

#### Staged Display

A staged display has a definite plan. It is not just a row of bottled polishes or chemicals, or an array of chrome. It has a plan and a theme. Staged displays are far more effective than random displays.

#### Symmetry of Display

Symmetry means a certain visual balance in the products displayed. Grocery clerks build pyramids of canned goods. This is a form of display symmetry, but it can be achieved in other ways. A display should not be top-heavy or lop-sided, but arranged in a way that gives a feeling of balance.

#### Prominence of Display

Prominence means conspicuousness or striking to the eye. A displayed item should occupy a place that stands out, both in its display setting and in its general location. Visual accessibility is a key to good display.

### Kinds of Merchandise Displays

The most common kinds of interior merchandise displays are open displays, end displays, closed displays, architectural displays, platform displays, and ledge and wall displays.

#### Open Displays

Open displays may present an entire assortment of merchandise from which the customer can select or may present certain items selected from stock to attract the customer's attention. In either case open displays allow the customers to handle the goods. The merchandise may be placed in an orderly fashion on tables, racks, or gondolas. The basket or dump display is also a form of open display. Merchandise is piled into wire baskets or onto bargain tables in a helter-skelter fashion to give the impression of a great volume of merchandise being offered at low prices. Goods in damaged packages or cans are often sold in this manner.

#### End Displays

Stores use end displays (displays placed at the ends of merchandise aisles) to feature advertised merchandise. End displays with arches or canopies are the best displays for focusing attention upon the featured merchandise. Motion in a display attracts more attention and sells more goods than does a stationary display. The larger an end display and the more prominent its location, the greater are the chances of a sale.

### Closed Displays

Closed displays allow the customer to view the merchandise but do not permit them to handle it. Examples of closed displays are glassed-in showcases, interior windows, and niches (often near elevators and escalators). Closed displays protect goods from physical damage and theft and are easy to keep in order.

## Display Techniques

An introduction to display techniques is really an introduction to the five key expressions listed above. Three of these word concepts or display concepts–staging, symmetry, and prominence–should always be sought. The nature of the product will determine whether a functional or aesthetic theme (or both) should be stressed.

Displays must be prominent, but not offensive. The top of the counter should not be cluttered with a lot of miscellaneous material, especially if work space is limited. The customer area should not be cluttered with many displays that make walking about difficult. A few well-planned and well-placed displays will do a better job of selling than many unplanned displays (Fig. F-3).

Displays should be kept simple, but attractive. A single item, rather than a whole pyramid of the same item, can be just as effective if properly posed. Attention can be brought to the item by a prominent setting, appropriate surroundings, and where possible, special lighting. A chrome accessory, highly polished and mounted on a draped pedestal with special lighting, has more sales appeal than a windowful of cluttered and unposed merchandise. This is true for most displays, whether they are on countertops or wall shelves, in display cases or window cases. A display should be simple, uncluttered, attractively posed, and prominently placed.


Courtesy Tri-City Supply, Richmond

**Fig. F-3. Behind the counter displays**

## Display Appropriateness

Before a display is begun, the appeal the merchandise offers should be determined. If it is a functional appeal, a setting should be designed to emphasize this functional quality. If related items will help to emphasize usefulness, they should be arranged together. If a comparison with an older–less useful–product is appropriate, the display should compare them. All signs, placards, and descriptive material should join in carrying out the functional appeal of the product. Function should be the central theme; other rules of good display must also be followed.

Some items display best for their aesthetic appeal. Chrome wheel covers (discs) have no particular functional value, but their beauty of design is attractive. Displays which emphasize the aesthetic qualities of a product should reflect special attention given to the setting. Padded and draped pedestals and backdrops are especially attractive. Rich colors are usually desirable. Special lighting–direct, indirect, or shadowed–can be extremely effective in this kind of display. The beauty of the product is emphasized; the more attractive it can be made to appear, the greater the sales appeal.

Some items lend themselves to both functional and aesthetic display. These items should be treated with all the display skill that the parts person can muster, for they offer the greatest potential sales appeal. Both themes–usefulness and beauty–should be exploited to the fullest.

## Display Staging

Staging a display demands a place and a theme. The place must be prominent; people must be able to see it (but not stumble over it). The theme is a little more complicated. Is it a direct sales appeal or an interest theme? Is it a theme relating several items, such as a seasonal display? What is the selling point, beauty or usefulness?

Once the location and theme are chosen, the job is half-finished. A sketch should be prepared. All the materials should be gathered, and the display area thoroughly cleaned. Any pedestals, stands, drapes, or coverings to be used are arranged first. If the merchandise has no related theme, the

items may be tried in various patterns until balance is achieved. Special lighting is then provided where needed.

Related themes require special attention. Certain items should be grouped. For example, in a spring tune-up theme the spark plugs, ignition wires, ignition coil, distributor cap, condenser, points, and rotor are related components. Interest themes, such as the transmission display mentioned earlier, provide an effective display only if accurately grouped. Balance and sight appeal should always be sought.

### Display Maintenance

Displays must be cleaned regularly and realigned frequently. If displays are open, people are bound to handle them. A display should not be left out too long. When interest begins to fade, the display should be changed.

### Study Assignment

1. Look up the following words in an unabridged dictionary:

   functional — symmetry
   aesthetic — prominent
   staged

   From the dictionary definition of each word formulate a simple, easily remembered definition that applies to displays.

2. Plan and sketch a large display. Use as many of the ideas from this unit as you can in the displays. On the back of the sketch, explain briefly your reasons for staging the display as you did. Show the work to your instructor; then show it to your employer. Discuss with your employer the possibility of actually building the display.

UNIT F – DISPLAYS

TOPIC 2 – HOW TO DISPLAY

## Study Guide

Determine the correct word for each numbered blank in the sentence, and write it in the corresponding blank at the right.

1. The utility and usefulness of a product is pointed out by a __1__ display. 1. _____
2. An __2__ display emphasizes the beauty of the product. 2. _____
3. A __3__ display has a definite plan. 3. _____
4. In the open display the customer __4__ the goods. 4. _____
5. A displayed item should occupy a place of __5__, in both its setting and its __6__. 5. _____ 6. _____
6. The key to good display is __7__ __8__. 7. _____ 8. _____
7. The nature of the product displayed will determine whether a __9__ or __10__ theme, or both, should be stressed. 9. _____ 10. _____
8. The counter top should not be __11__. 11. _____
9. Before a display is begun, the __12__ that the items offer should be determined. 12. _____
10. Staging a display requires a __13__ and a __14__. 13. _____ 14. _____

## Test

Circle T if the statement is true; circle F if the statement is false.

1. Intuition plays a part in making a good display. 1. T F
2. If one has a feel for a good display, words cannot help him or her to understand the subject. 2. T F
3. Aesthetic display stresses beauty of form or finish. 3. T F
4. A staged display should have a random arrangement. 4. T F
5. Symmetry can involve either physical or visual balance. 5. T F
6. Staging, symmetry, and prominence can all be included in the same display. 6. T F
7. Clutter reduces the effectiveness of a display. 7. T F
8. The more displays that can be set up in a store area, the more customers will be persuaded to buy. 8. T F

9. All parts of a display should support its theme. 9. T F

10. Usefulness and beauty can both be exploited in a single display. 10. T F

11. A display can be effectively staged anywhere in the salesroom. 11. T F

12. Displays in open areas should be cleaned and realigned frequently. 12. T F

13. End displays are used to feature advertised merchandise. 13. T F

14. Displays need not be too well planned to be effective. 14. T F

15. In closed displays the customer is not allowed to handle the merchandise. 15. T F

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