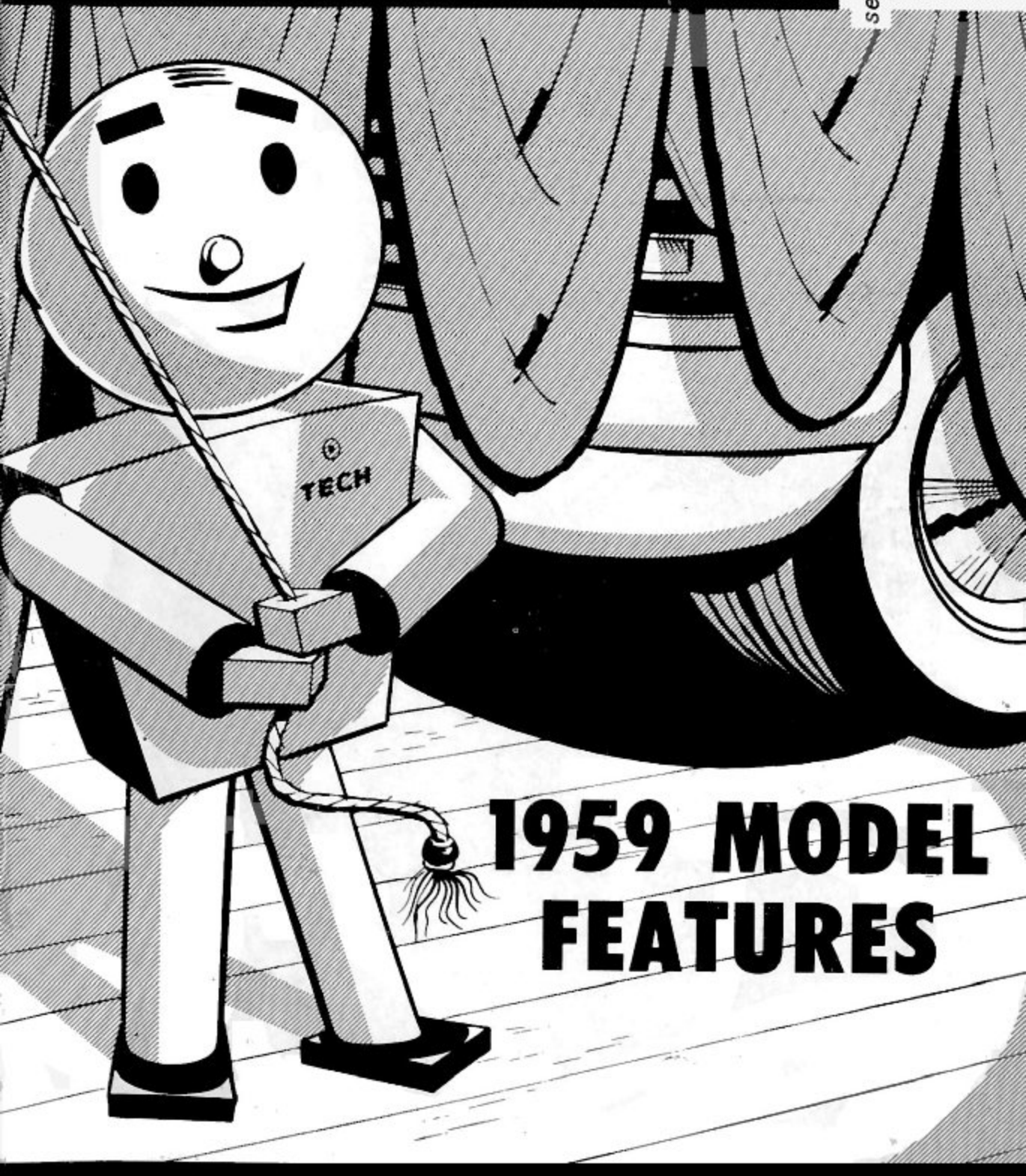
SERVICE REFERENCE BOOK

of the MASTER TECHNICIANS SERVICE CONFERENCE

session no. 130

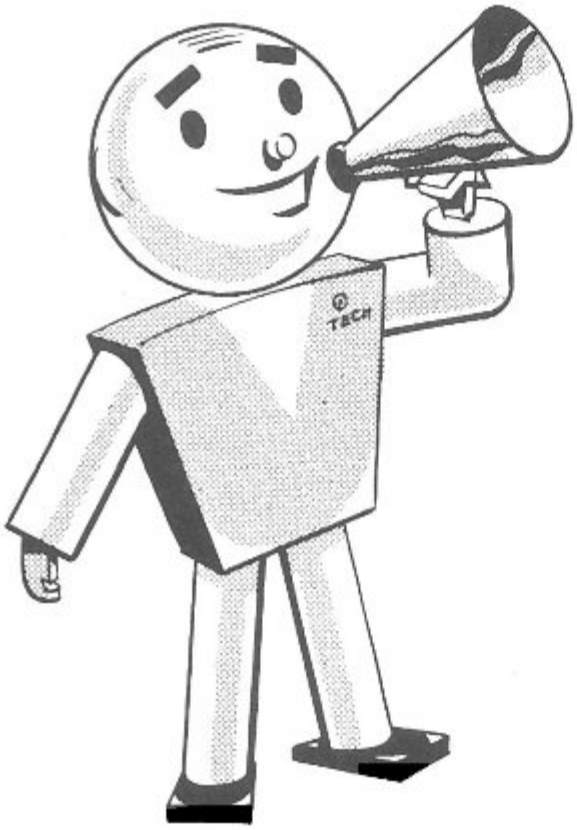


1959 MODEL FEATURES

PREPARED BY CHRYSLER CORPORATION

Plymouth • Dodge • De Soto • Chrysler • Imperial

IT'S NEW MODEL TIME AGAIN!



The new 1959 models, known as the "M" Series, make their bows this month. There's a lot that's new—and this reference book will just hit the highlights so you will get a quick preview of features you'll learn more details about at a later date.

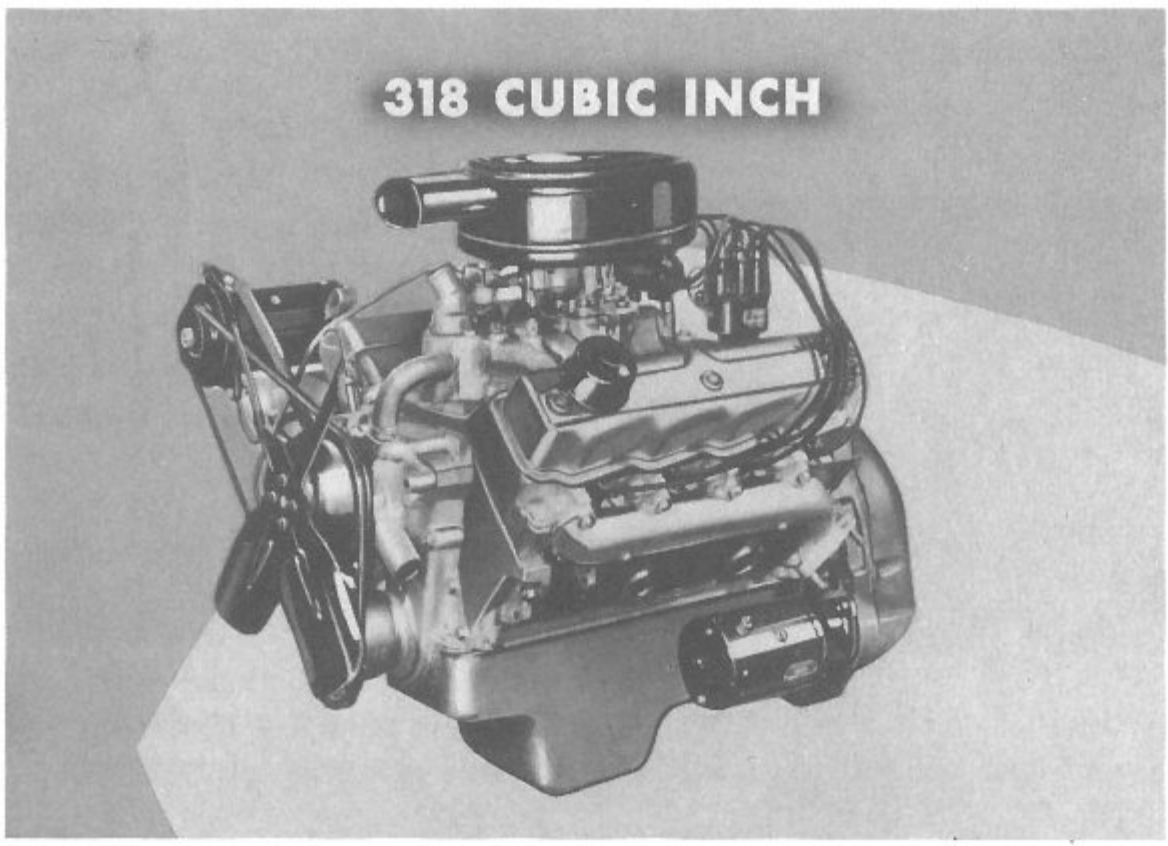
The Table of Contents, below, will give you a quick reference to the pages on which the various features appear.

TABLE OF CONTENTS

ENGINES

Plymouth

PowerFlow Six. Plymouth retains its dependable PowerFlow Six engine, available in all Savoy models and in the Belvedere series 4-door Sedan. A number of mechanical improvements have been made to improve performance and increase engine life. There are new exhaust valves, for instance, made of a new heat-resisting alloy to give added strength at high temperatures, and to offer greater resistance to corrosion. These valves are tulip-shaped, which helps the valve to conform to changes that take place in the valve seat at extreme operating temperature. There's a new timing chain, too.



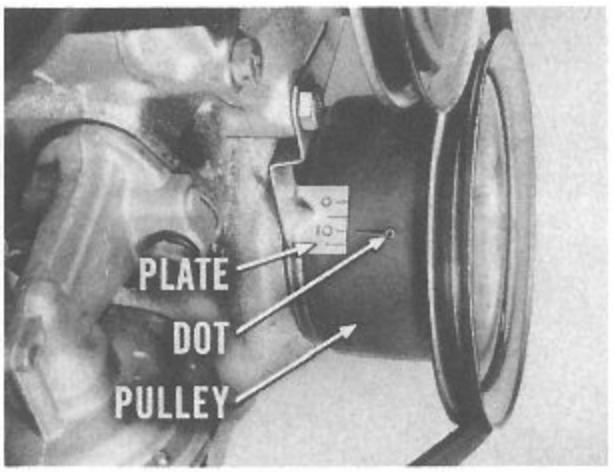
Fury V-800. While the displacement of this engine—318 cubic inches—remains the same as for the "L" Series, there are a number of improvements which will increase its performance. For instance, the high-performance camshaft used in the Super Pak job "L" Series is now standard in this engine. It holds the valves open for 244 degrees,

which improves breathing, and results in better performance. Mechanical tappets are used. Compression ratio is 9 to 1, which means the engine will use regular grade gasoline. This engine is standard equipment when a V-8 is specified for the Savoy and Belvedere models, and for the 2-door and 4-door hardtop and the 4-door sedan of the Fury series.

One of the improvements in this engine is in the method of supplying lubricant to the timing chain. A chamfer has been added to the front of the crankshaft front main bearing, which provides a better supply of oil to the chain.

New synthetic rubber oil pan seals are used. The seals have little rubber tabs which are pulled through the holes in the pan, to position the seals more securely.

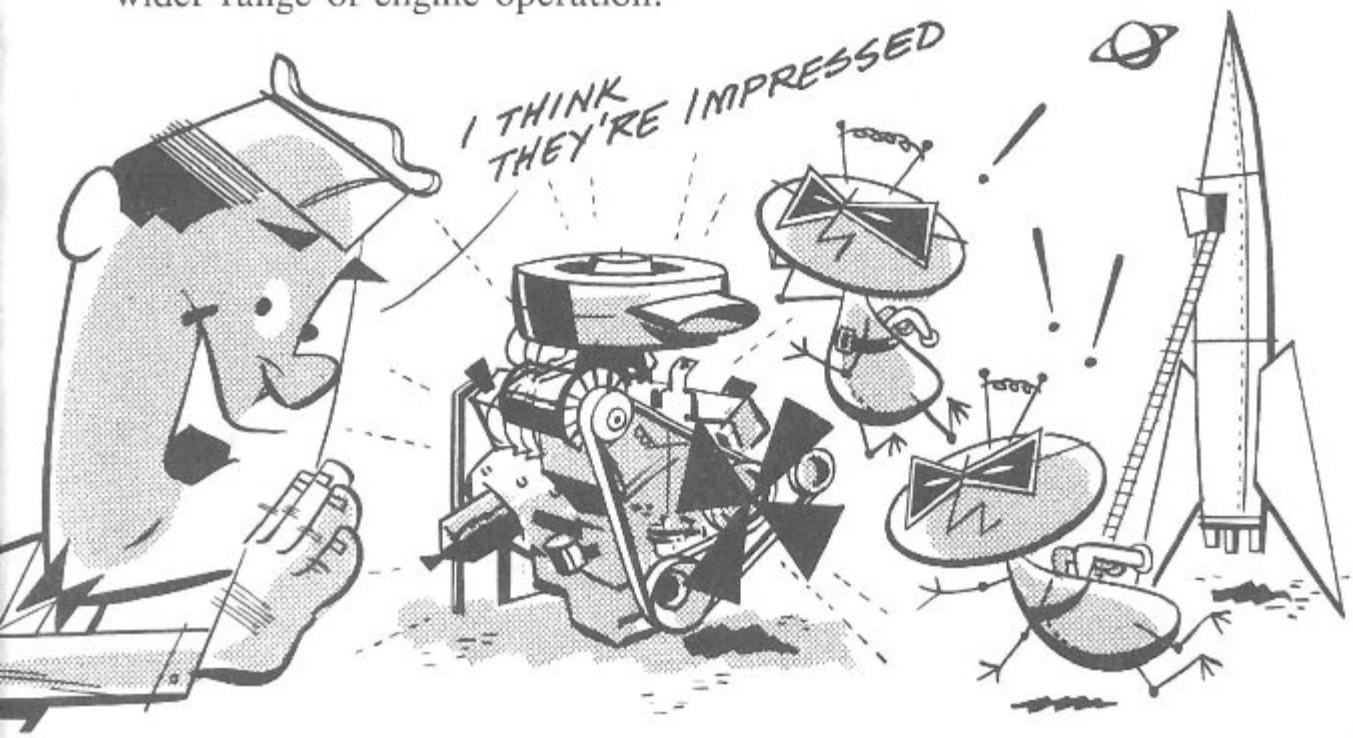
You'll notice a new ignition timing mark on the front of the timing chain cover. Instead of a pointer there is now a plate on which the "D C" mark is shown, and the figure "10", indicating ten degrees before Top Dead Center. No figures or lines indicating "after top center" are shown. The marks on the plate are matched up with a dot in the crankshaft pulley.



Another feature which will contribute to long life is the use of copper-lead connecting rod bearings. These are heavy-duty bearings.

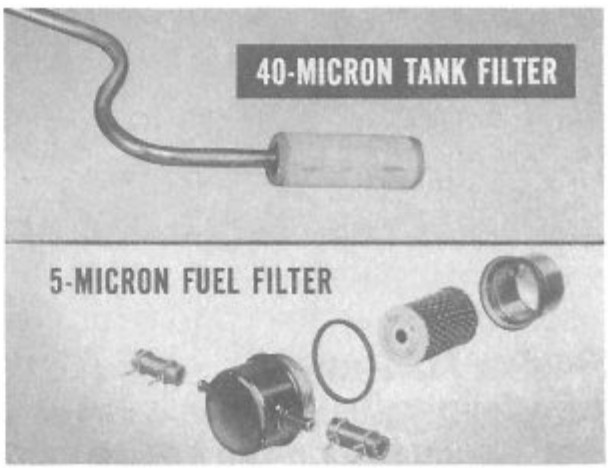
Carburetion has been improved, too, through the use of a new three-stage step-up piston system, new intake manifold, and a new filter in the fuel tank. The new step-up piston system provides closer fuel control, since it tailors the fuel mixture more closely to engine requirements. In addition to the new step-up piston and spring, the piston cylinder has been redesigned, and a two-diameter step-up rod

is used. The new system provides an intermediate range for cruising speed, resulting in better economy and improved performance over a wider range of engine operation.



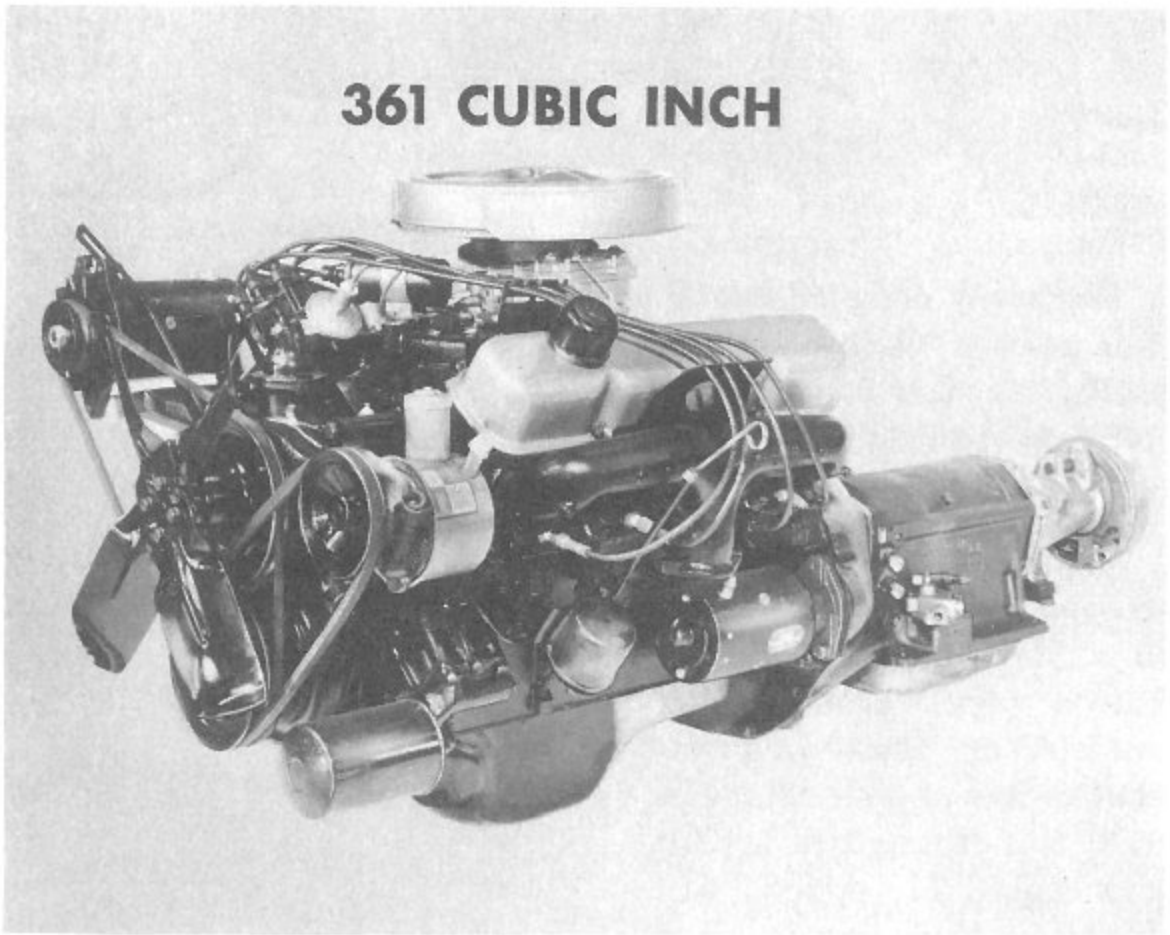
The newly designed intake manifold has an improved heat cross-over passage which places more heat under the carburetor and improves the heat balance between the two halves of the manifold. Baffles in the manifold aid uniform warm-up. These items combine to provide better performance during warm-up.

A new fuel filter in the fuel tank (40-micron filter) more effectively removes foreign matter from the fuel before it reaches the carburetor. In addition, there is a new 5-micron paper element filter available on all except Plymouth engines as optional equipment to further guard against jet clogging. The optional fuel filter is available as a complete package, through the parts depot, under Part Number 1879513.



Fury V-800 With Super Pak. This is a 318-cubic-inch engine available for the Sport Fury 2-door Hardtop and the Convertible. It uses a four-barrel carburetor and dual exhaust system, the exhaust pipes and tailpipes being two inches in diameter to reduce back pressure. A new camshaft increases valve opening from 244 degrees to 248 degrees, providing better breathing.

The new four-barrel carburetor has larger floats, which contribute to more uniform control of the fuel level in the float chambers. There's a new carburetor air cleaner, and an improved cross-over type automatic choke. The improvements mentioned for the Fury V-800 engine also apply to this engine.

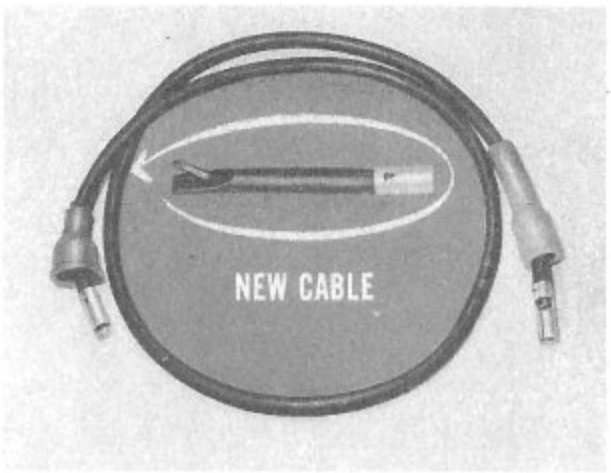


Golden Commando. The Golden Commando V-8 engine is larger than for the "L" Series. It has a displacement of 361 cubic inches, and a compression ratio of 10.1 to 1. The high-output camshaft holds

the valves open for 260 degrees. Another aid to better breathing is the use of a new low-restriction air cleaner.

Cars equipped with this engine are provided with a special radiator, battery, starter, distributor, and an oversize exhaust system. Exhaust pipes are 2¼ inches in diameter.

The resistor-type spark plug formerly used in the Golden Commando engine has been replaced with a non-resistor type, identified as A-32. In place of the resistor in the plug, the high-tension cables are now made of a non-metallic material, and the core is impregnated with a compound of electrical-conducting material. The resistance in these cables suppresses ignition noise in radio reception.

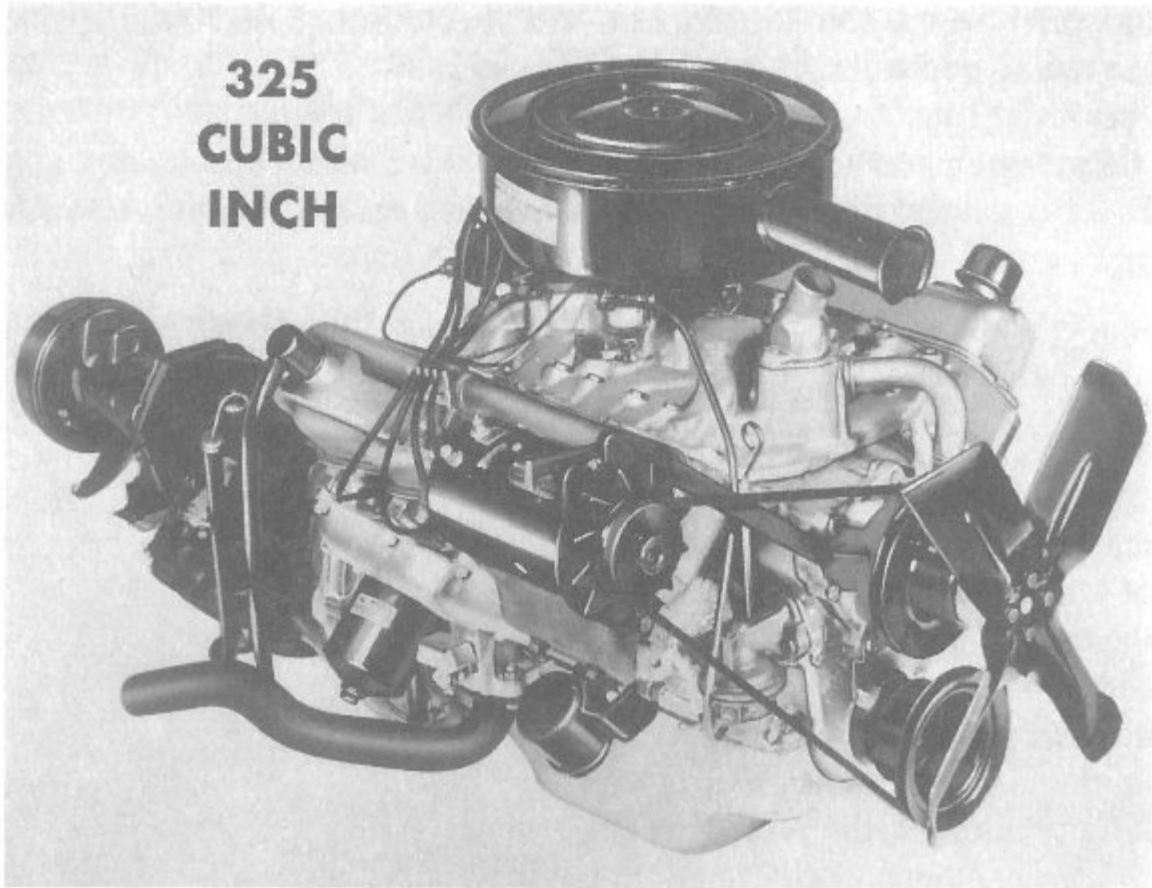


Because of the construction of these cables, care must be exercised in removing the terminals from the spark plugs or from the distributor cap towers. If you yank the cable in an attempt to remove it, you may stretch the cable and thereby increase the built-in resistance—or you may pull the cable out of its terminal. So, disconnect the cable by grasping the terminal boot—not the cable itself.

The oil capacity of this engine is now five quarts, U.S. measure, or one Imperial gallon. An additional quart must be added when replacing the oil filter.

Dodge

Coronet Six. The Coronet Six, 230-cubic-inch engine is available in the "M" Series Coronet 2-door and 4-door Sedan models, and in the 2-door Hardtop model.

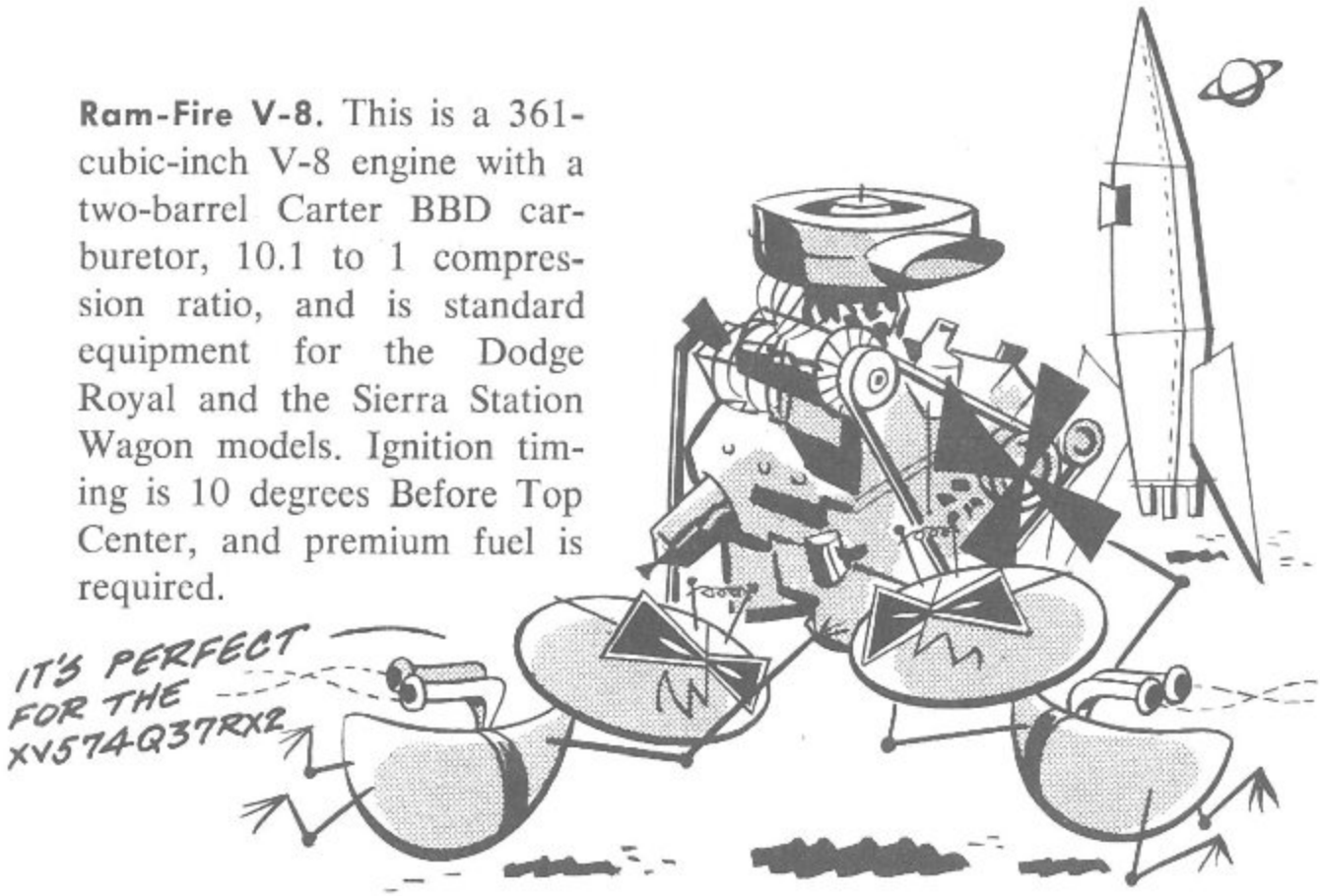


Red Ram V-8. This engine, found in Coronet models, is a new 325-cubic-inch engine. It uses hydraulic tappets. Some of the earlier production engines may have adjustable rocker arms, even though they have the hydraulic tappets. If you'll remember that, you won't be tempted to try adjusting the tappet clearances just because you find adjustable rocker arms.

In case someone *does* attempt to adjust tappet clearance, and thereby upsets the original setting, here's how to correct the difficulty. With the valve closed, bleed down the hydraulic lifter. Then turn the rocker arm adjusting screw in until there is no clearance between the rocker arm and the end of the valve stem. Back the adjusting screw out two complete turns.

This engine uses the Stromberg WW3, two-barrel carburetor. Compression ratio is 9.2 to 1. Ignition timing is 10 degrees BTDC.

Ram-Fire V-8. This is a 361-cubic-inch V-8 engine with a two-barrel Carter BBD carburetor, 10.1 to 1 compression ratio, and is standard equipment for the Dodge Royal and the Sierra Station Wagon models. Ignition timing is 10 degrees Before Top Center, and premium fuel is required.



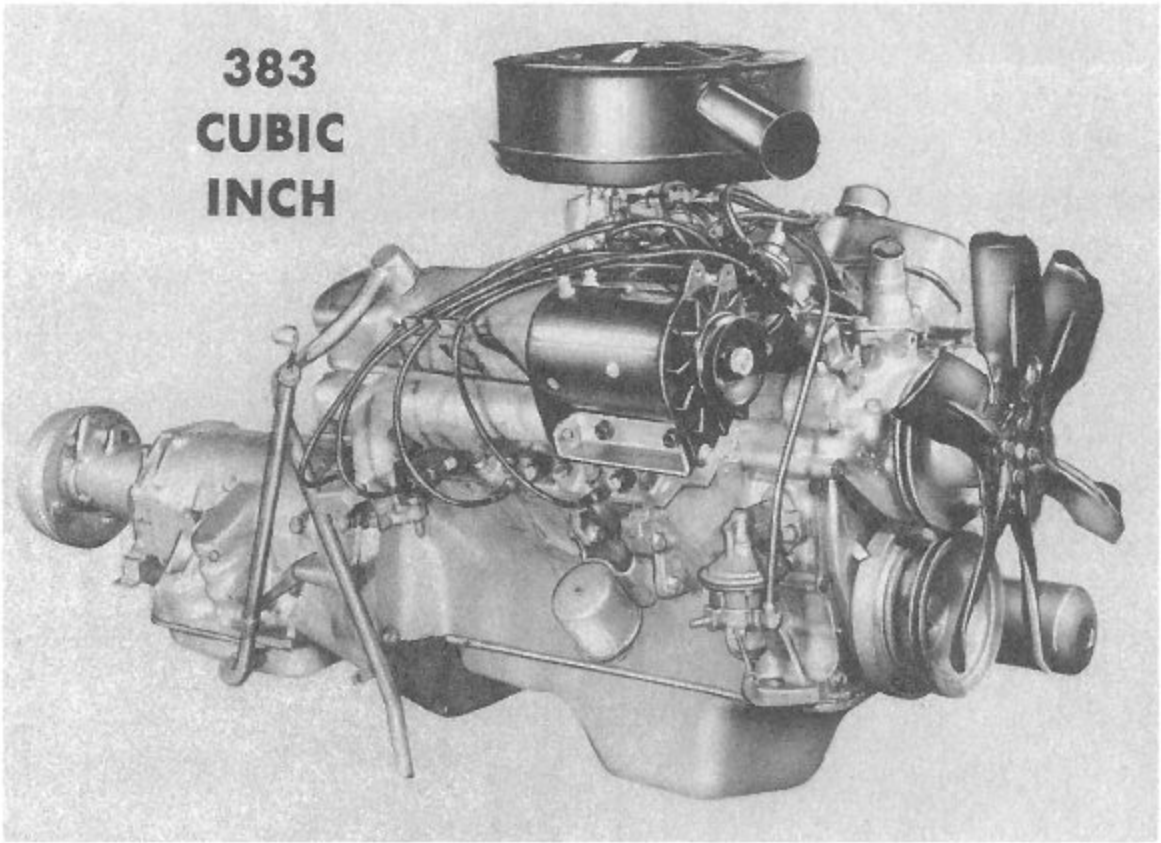
Super Ram-Fire V-8. This is the same 361-cubic-inch engine, but with a four-barrel AFB carburetor, and is standard equipment in the Dodge Custom Royal and Custom Sierra models. Compression ratio and ignition timing are the same as the two-barrel carburetor model.

D-500. This model uses a new 383-cubic-inch engine with a four-barrel carburetor. The bore is 4.250 inches, stroke 3.375 inches. Compression ratio is 10 to 1, and the ignition timing is set 10 degrees Before Top Center.

Super D-500. This model, sometimes called the High-Performance model, uses the same engine as the D-500 but with two four-barrel carburetors.

De Soto

Turboflash 361-cubic-inch V-8. This engine, with a two-barrel carburetor, is standard equipment for the De Soto Firesweep models. It is also available with a four-barrel carburetor as optional equipment. Compression ratio is 10.1 to 1, and ignition timing is 10 degrees Before Top Center.



Turboflash 383-cubic-inch V-8. This is a new V-8 engine, and is used with a two-barrel carburetor as standard equipment on the Firedome models. It has a bore of 4.250 inches and a stroke of 3.375 inches. It has a 10 to 1 compression ratio, and ignition timing is set 10 degrees Before Top Center.

The same engine is used, with a four-barrel carburetor, for the Fireflite models. Compression ratio and ignition timing remain the same.

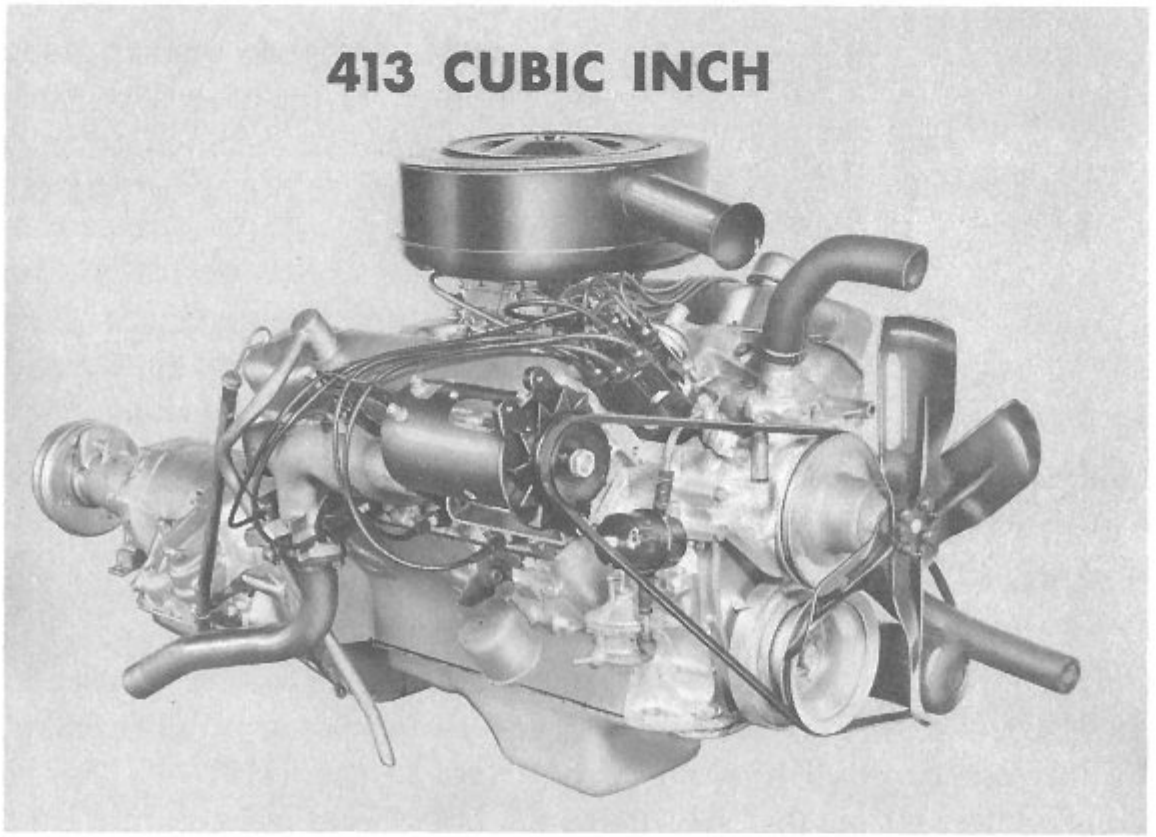
When used in the Adventurer model it is equipped with two four-barrel carburetors, a special camshaft and a special intake manifold. This same equipment is available as optional equipment in either the Firedome or Fireflite models when they are equipped with the TorqueFlite transmission and a dual exhaust system.

Chrysler

Golden Lion 383. This V-8 engine has a displacement of 383 cubic inches, with a bore of 4.031 inches and a stroke of 3.750 inches.

Compression ratio is 10 to 1, and ignition timing is set 10 degrees Before Top Center. Premium fuel is required. This engine, with a two-barrel carburetor, is standard equipment in the Chrysler Windsor models.

The same engine, with a four-barrel carburetor, is standard equipment in the Saratoga models.



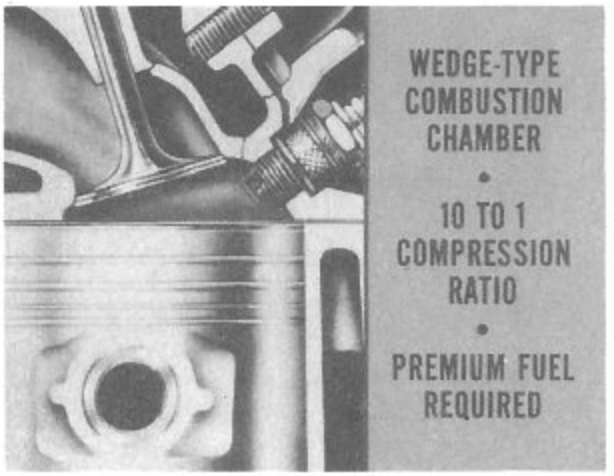
Golden Lion 413. This new V-8 engine, with a displacement of 413 cubic inches, is used with a four-barrel carburetor as standard equipment in the Chrysler New Yorker models. It has a bore of 4.188 inches, and a stroke of 3.750 inches. Compression ratio is 10 to 1, and ignition timing is set 10 degrees Before Top Center. Premium fuel is required.

The same engine, with two four-barrel carburetors, is used in the C-300-E.

Imperial V-8. This is the 413-cubic-inch engine, with a 4-barrel carburetor. It has the same specifications as the Golden Lion 413.

General Engine Information

Combustion Chamber Design. All the V-8 engines of the "M" Series (1959) have the wedge-shaped combustion chamber. The Plymouth 318-cubic-inch engines, and the Dodge 325-cubic-inch engine will operate satisfactorily on regular grade of fuel. All the other V-8s have a compression ratio of 10 to 1, and require premium fuel for best performance.



All V-8 engines of the "M" Series, except the Plymouth Fury V-800, use hydraulic tappets. Distributors and oil filters are located at the front.

Lubrication. All engines of the "M" Series cars, Sixes and Eights, take five quarts (one Imperial gallon) of oil for an oil change; if the oil filter is changed at the time of an oil change, six quarts of oil are required.

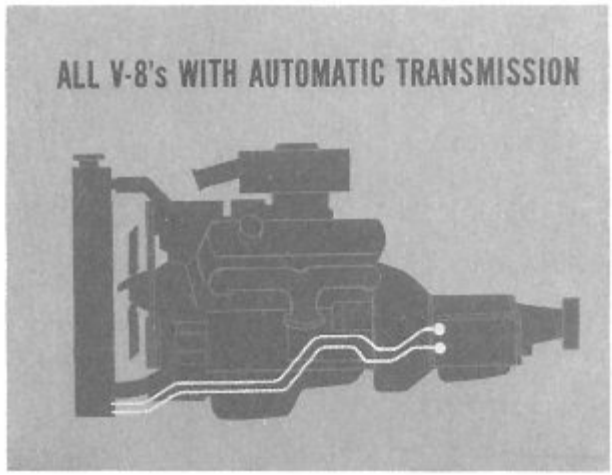
Heavy-duty oil of the "MS" classification should always be used in these engines. If it is necessary to add to the break-in oil installed by the factory in all new engines, be sure to use "MS" oil. This is a high-detergent oil, and safeguards the life of bearings and hydraulic tappets.

Engine Number. You will notice a distinctive numbering system for these 383-cubic-inch engines. On the number pad of the engine you will find the letters "ML" or "MR", followed by the number "383", and this followed by the serial number of the engine. The explanation is that the 383-cubic-inch engine is used in several models, but with a different bore and stroke combination. Using a different stroke means that the distance from the top of the block to the centerline of the crankshaft is different. Therefore, two blocks are used: one for the short-stroke engine and one for the long-stroke engine. All Dodge and De Soto engines of the 383-cubic-inch displacement class will

have the "ML 383" marks preceding the engine serial number. The "M" is for 1959; the "L" is for "low block" or the shorter stroke block. When used for certain Chrysler models the marks "MR 383" preceding the engine number are used. The "R" designates the "raised block", or the longer stroke block.

AUTOMATIC TRANSMISSIONS

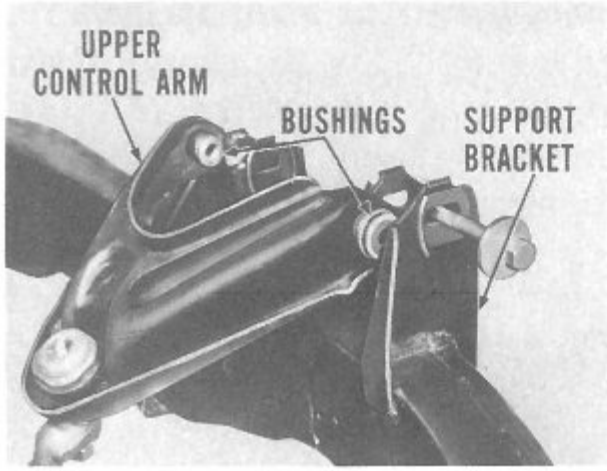
All automatic transmissions, PowerFlite and TorqueFlite, used with eight-cylinder engines, now are equipped for external cooling. That is, the transmission fluid is piped to a cooler located in the bottom tank of the radiator. Fluid is circulated through the cooler by the transmission front pump, and is cooled by the cooling system solution. This method of cooling dissipates heat faster, resulting in better operation of the transmission, and increasing the life of the transmission.



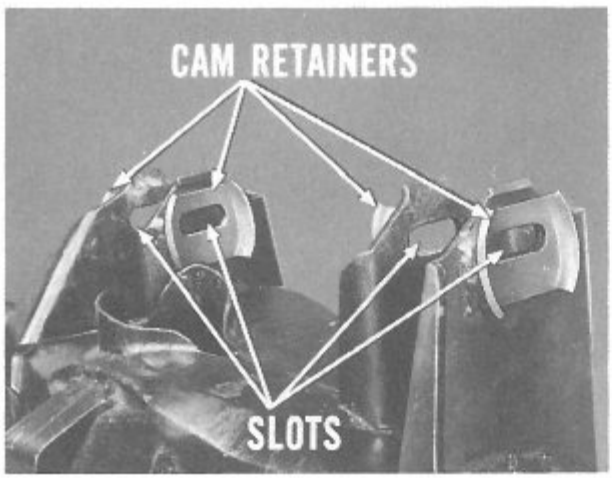
The torque converter housing adapter plate, formerly used on Plymouth, has been eliminated. A new housing with an integral front face is now used. This forms a more rigid mounting, and provides better alignment of the starter drive with the ring gear.

FRONT SUSPENSION

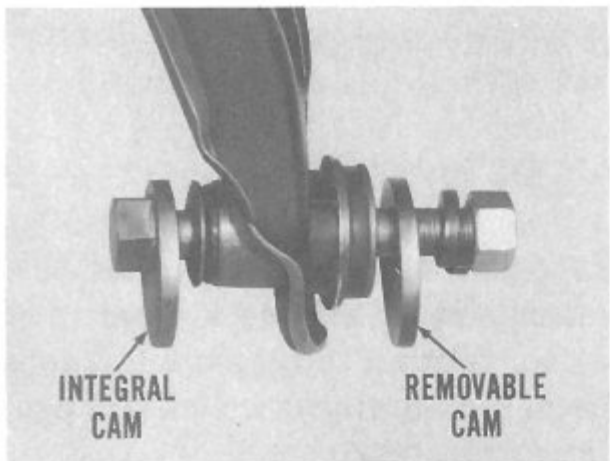
One of the most important changes in the '59 models, as far as the technician is concerned, is in the method of making a caster and camber adjustment. The former method—that of using shims to adjust caster and camber—has been replaced by an eccentric bolt arrangement at the inner ends of the upper control arm.



The upper control arm is new, and its inner ends are mounted in new supports welded to the frame.

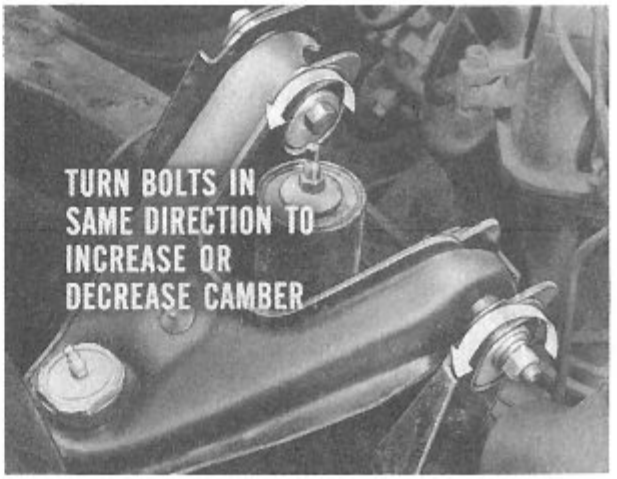


Welded to the outer face of each support bracket is a cam retainer. Horizontal slots are provided in the support brackets to allow for movement of the adjusting bolt.

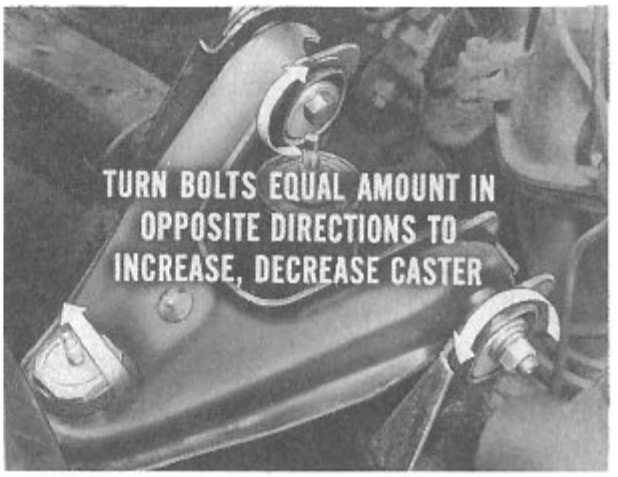


Integral cams are welded under the head of each bolt, and removable cams are installed over a flat section of the bolt at the threaded end. These cams operate in the cam retainers welded to the support brackets.

By turning the front and rear adjusting bolts simultaneously, and in the *same* direction, the upper control arm is moved laterally (in or out with respect to the centerline of the car), thereby increasing or decreasing the camber setting. Since both bolts are turned an equal amount, there is little or no change in the caster setting.

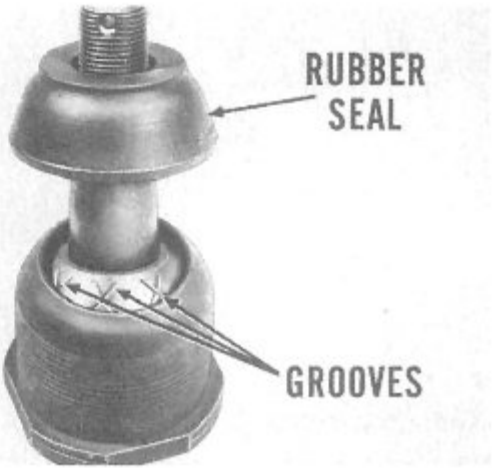


By turning the front and rear bolts an equal amount, but in *opposite* directions, the ball-joint end of the arm is moved toward the front or rear of the car, thereby changing caster. Since bolts are turned an equal amount, there is little or no change in the camber setting.



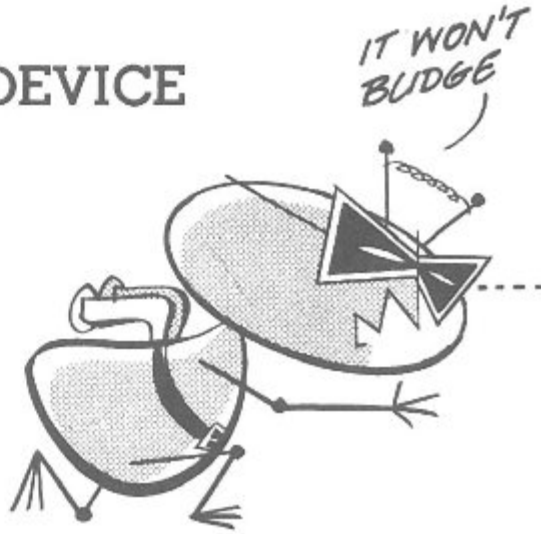
When the proper adjustment has been reached, hold the bolthead with one wrench while you tighten the nut to 65 ft.-lbs. torque. Recheck caster and camber before leaving the job.

The front suspension ball joints are new, too. The spherical bearing now has grooves in its outer surface to retain lubricant. This insures adequate lubrication, resulting in quieter operation and longer life. The new rubber seal is more effective in keeping dirt and water out of the bearing.

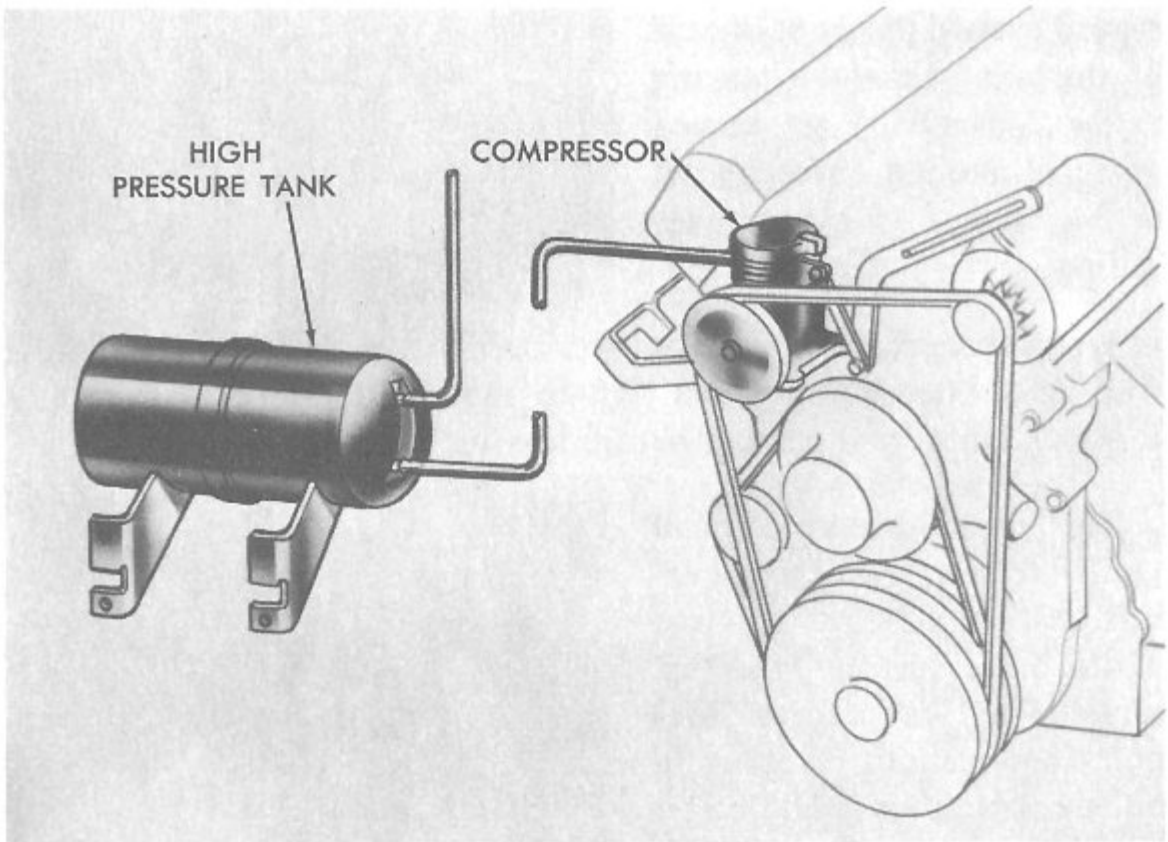


Torsion bars are shorter than on the "L" Series, but the important improvement here is the use of a new rubber collar to keep dirt and moisture out of the anchor at the rear end of the bar.

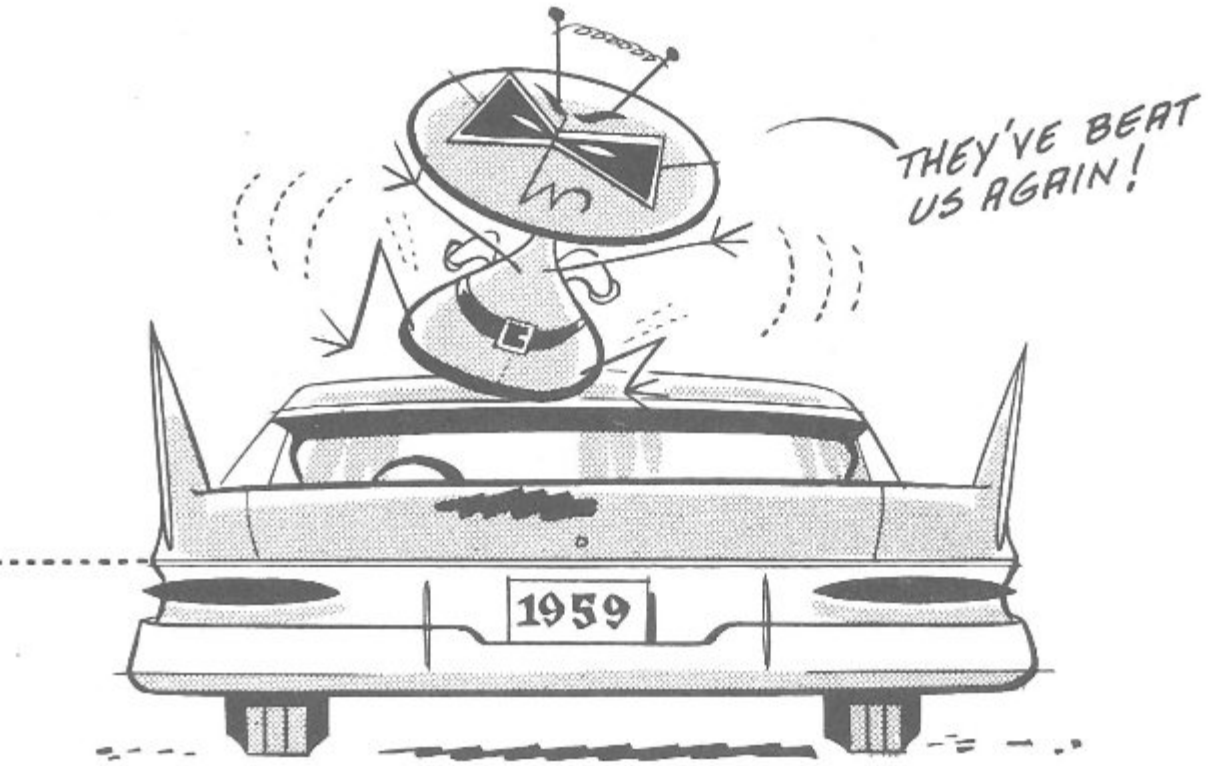
CAR-LEVELING DEVICE

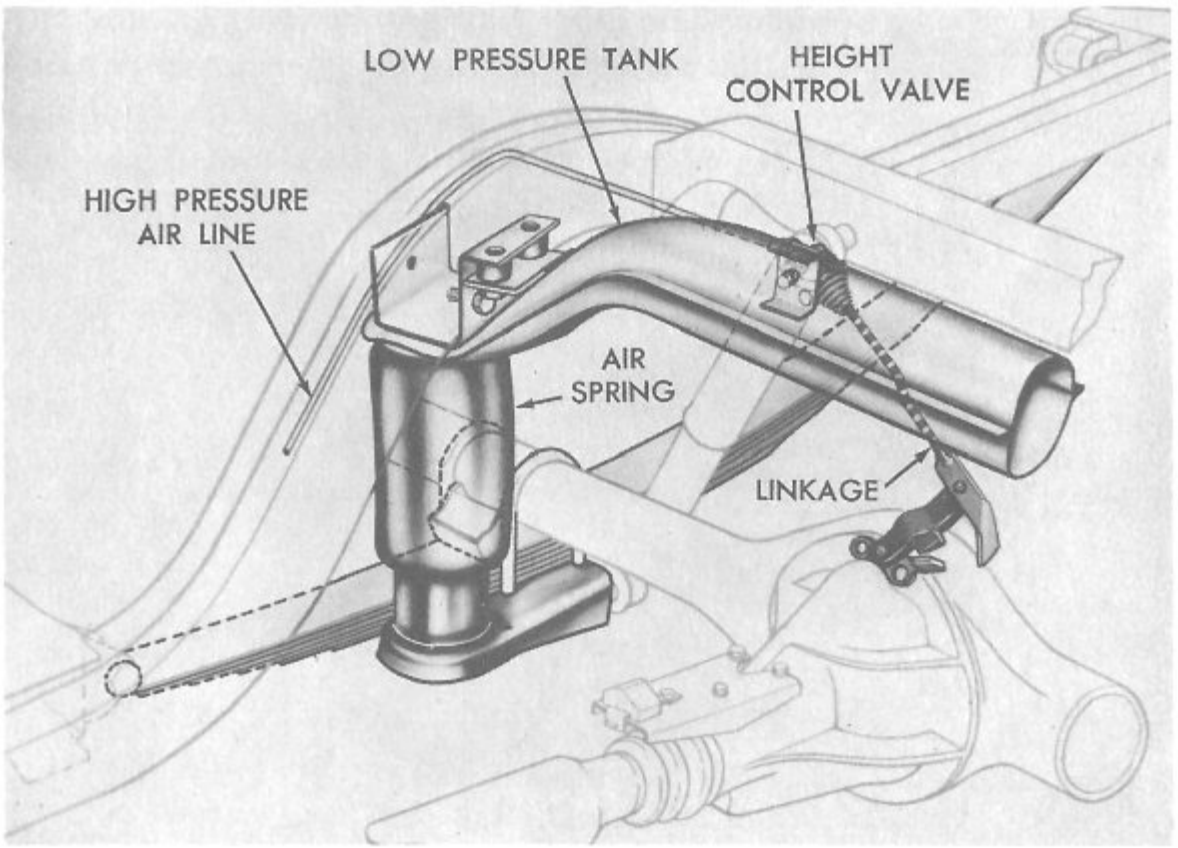


To assist in leveling the car to compensate for the uneven distribution of weight (passenger or luggage) a new system of air auxiliary springs has been made available for installation at the rear of the car.



A belt-driven air compressor is mounted on the engine, and a high-pressure tank is mounted at the right front end of the frame.





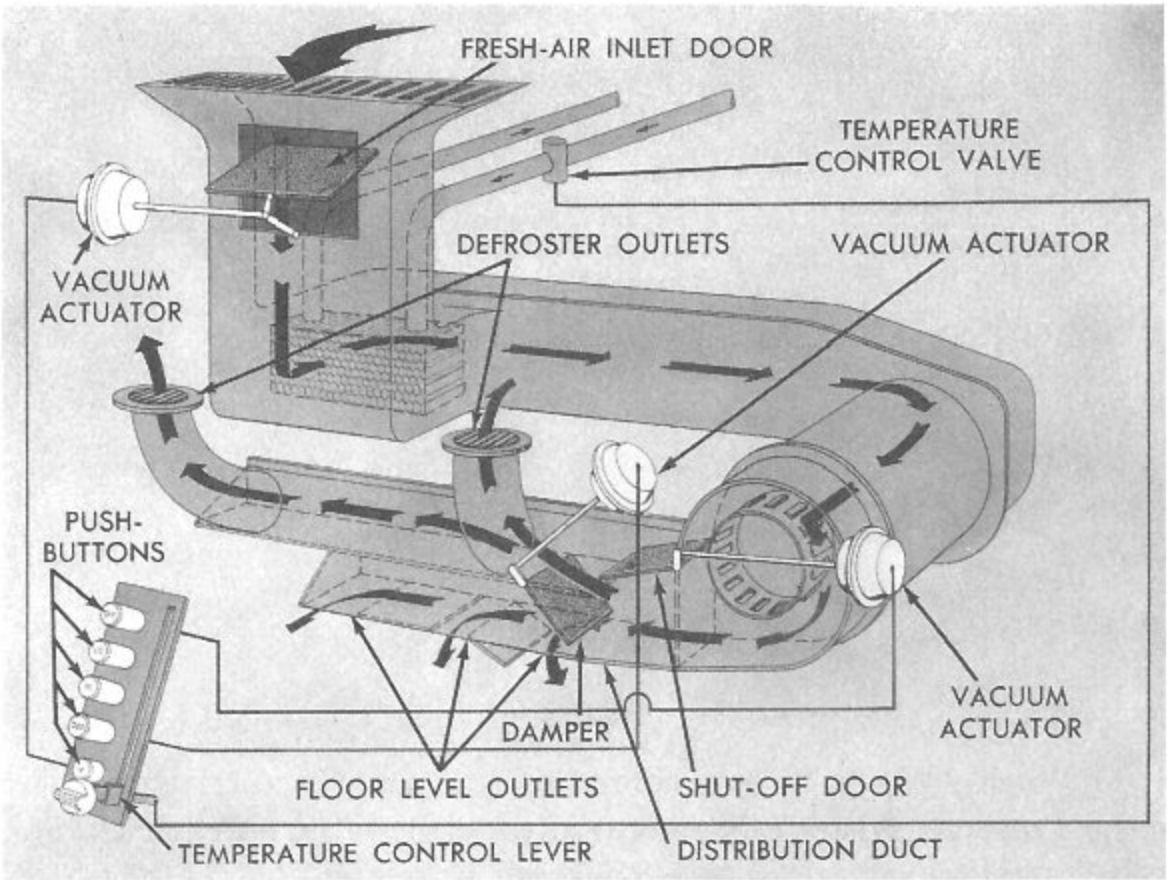
The high-pressure tank is connected to a low-pressure tank at the rear of the car. Also at the rear are two air springs, a height control valve, and the necessary linkage.

Constant height is controlled by the bleed-feed type height control valve. And, since the leveling system is an auxiliary to the leaf springs, there's no serious problem if the air springs get damaged, or if the valves get out of adjustment.

If the device doesn't maintain the proper height, it may be due to an incorrect adjustment of the height control valve. The adjustment consists of shifting the control valve on its mounting. If it is impossible to maintain proper operation of the device, look for leaks in the system.

HOT-WATER HEATER

A completely new hot-water heater system is found on the new "M"-Series cars. It is operated by push buttons located on the instrument panel.

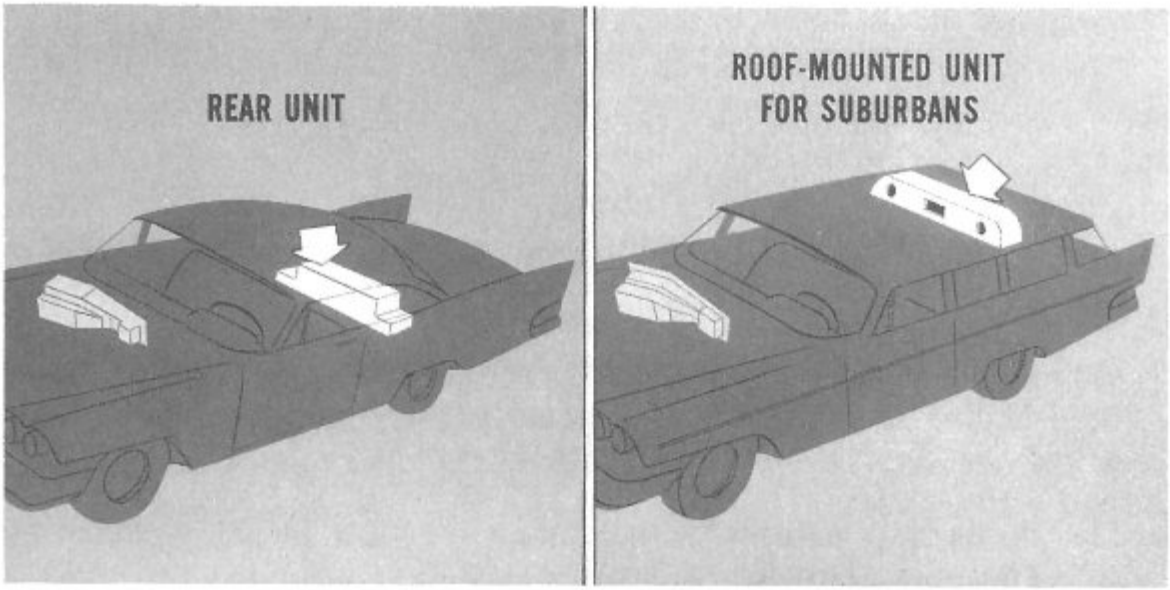


The push buttons select the type of heating desired. A sliding lever controls the temperature by moving a control cable attached to the temperature control valve. Discharge air is directed to the defroster outlets in the instrument panel or to the floor-level outlets by a damper located in the distribution duct. Operation of this damper, as well as operation of the fresh-air inlet door and the distribution duct shut-off door, is by vacuum diaphragm units which get their vacuum from the engine intake manifold.

The push buttons also complete the electrical circuits to the blower, selecting high or low speed, as desired.

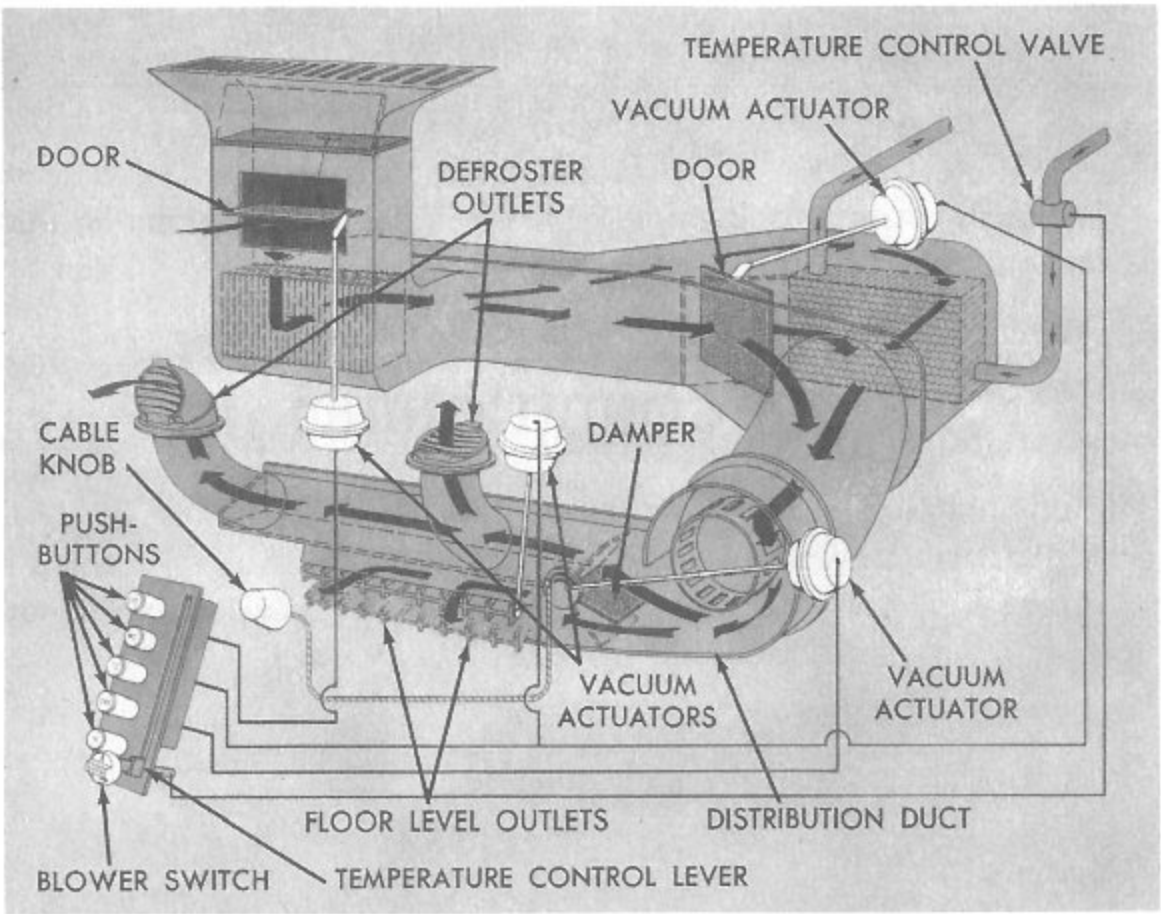
AIR CONDITIONING

The combination heating and air-conditioning system for the "M" Series is completely new. Three separate units are available: there is a dash-mounted or front unit, a rear-mounted (luggage compartment) unit, and a roof-mounted unit for suburban models.



The front unit can be used to operate by itself, or in conjunction with the rear unit, or with the roof-mounted unit. The rear unit can be installed *instead* of the front unit, or *with* it, to supplement the operation of the front unit. The roof-mounted unit for suburban installa-

tion, however, can be obtained only when the front unit also is installed. The increased glass and roof area, plus the greater cubic content of the suburban body, makes it desirable that both units be in operation for maximum cooling.



The air-conditioning unit is operated by push buttons located on the instrument panel. The buttons select the degree of air conditioning desired—Maximum Cooling, Fresh-Air Cooling, Defrosting, etc.—while a sliding lever in the same panel permits selection of the temperature desired. The lever operates the temperature control valve.

The doors and damper which direct air flow in the system are operated by vacuum diaphragm units called vacuum actuators. Vacuum is supplied either directly from the intake manifold or from a vacuum tank.

The push buttons also complete the electrical circuit to the magnetic clutch and to the blower motor. A blower switch in the end of

the temperature control lever controls the speed of the blower—IN for slow speed, center position for OFF, and pulled OUT for high speed.

A damper in the distribution duct directs the air flow up to the defroster outlets in the instrument panel, or down to the floor-level outlet. This damper operates automatically, but the vacuum actuator can be overruled by a cable operated by a knob on the left side of the instrument panel. The automatic setting of this damper directs about 90 percent of the discharged air to the defroster outlets, and 10 percent to the floor-level outlet. This distribution can be changed by operating the cable knob.

If the owner wishes to use the system only for ventilating the car, and does not wish either air conditioning or heating, it can be done by pushing either the DEF button or the H (heat) button, and by leaving the temperature control lever in the OFF position. Under these conditions the only difference between having the DEF button or the H button pushed in is the direction of the discharged air. With the DEF button in, most of the air will be discharged through the defroster outlets; with the H button in, most of the air will be discharged through the floor-level outlet.

BODY FEATURES

Swivel Seats

Swivel front seats are standard on some models, optional on others. This is a three-section seat with a stationary center section. The end sections swivel toward the outside of the car a distance of about 45 degrees. This permits easy entry to and exit from the front seats. A locking lever is provided at the side of the seat.

Center Pillar—Hardtop Models

The short center pillar of the 4-door hardtop models has been redesigned to provide more footroom for the rear seat passengers.

Roof Moldings

A new depressed roof panel design is used on Dodge, De Soto and Chrysler 4-door Hardtop models. The depressed area extends from the rear edge of the windshield upper molding to within about ten inches of the rear edge of the top panel. The depression slopes rearward, and its maximum depth at the rear end is about one-half inch.

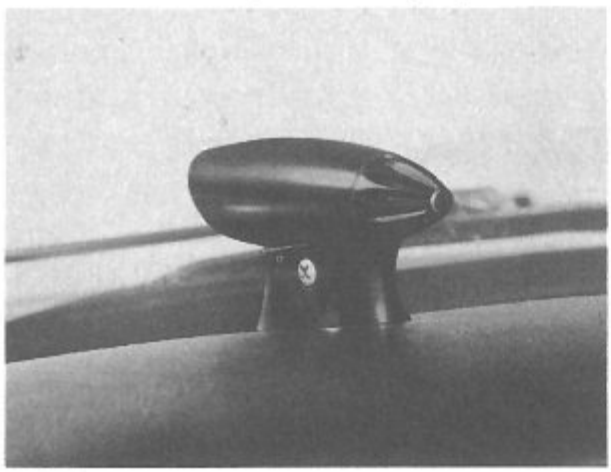
The Chrysler 4-door Hardtop models use a three-piece U-shaped stainless steel molding to finish off the edges of the depressed area. Other models have a flat roof panel design, but use the same type of molding.

Moldings are secured to the roof panel by snap-on, self-sealing clips. The clips are installed in the roof panel, and the molding snapped in place over the clips. The molding can be lifted off the clips without having to remove the clips from the roof panel.

ACCESSORIES

Headlamp Dimmer

An electronic device for automatically dimming the headlamps is available as optional equipment. It consists basically of a photo-switch mounted on the instrument panel, directly ahead of the steering column, and a control unit mounted on the dash panel. Even though the device is automatic in operation, the driver can overrule its action by manually operating the floor-mounted dimmer button.



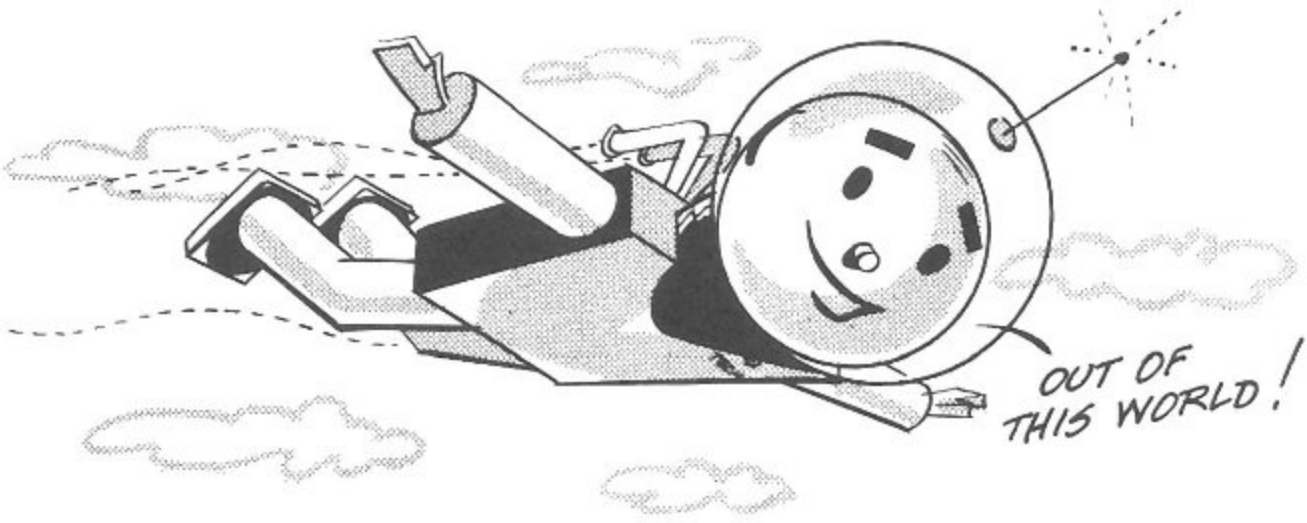
The dimming device will dim the headlamps when the car is 900 to 1200 feet from the lights of the approaching car, and will reset them the instant the cars pass each other. The device will also dim the headlamps when it is brought within 200 feet of the taillights of the car ahead, so your headlamps will not reflect in the rear-view mirror of the car ahead, and blind the driver of that car.

Rear-View Mirror

An electronic rear-view mirror is also available as optional equipment. This mirror is sensitive to the headlamps of the following car, and will automatically tilt the mirror so the lights will not be reflected into the eyes of the driver. As soon as the following car has passed, the mirror automatically returns to its normal position.

SUMMARY

This book has given some of the highlights of the new features to be found in the 1959 models. More details of individual features will be contained in subsequent MTSC kits.



In the meantime, every technician should become familiar with the service angles brought on by the new designs so he will be able to take care of any condition which might come up. He should also become familiar with the benefits enjoyed by the owner as the result of the new improvements, so he can explain them to his customers.

RECORD YOUR ANSWERS TO THESE QUESTIONS ON QUESTIONNAIRE NO. 130

The new, non-metallic spark plug cables must be removed from the spark plug or from the distributor tower carefully, to avoid damaging the cable.	RIGHT	1	WRONG
All "M" Series V-8 engines, except the Plymouth Fury V-800, use hydraulic tappets.	RIGHT	2	WRONG
The Red Ram V-8 engine in the Dodge Coronet series continues to use the Stromberg carburetor.	RIGHT	3	WRONG
All "M" Series V-8 engines except Plymouth and the Dodge Coronet models require premium fuel for best performance.	RIGHT	4	WRONG
All engines of the "M" Series cars, Sixes and Eights, require five quarts of oil for an oil change, and six quarts when the filter is changed.	RIGHT	5	WRONG
High-detergent oil of the classification "MS" should be used in the 1959 V-8 engines.	RIGHT	6	WRONG
Caster and camber adjustment on the "M" Series cars is made the same as on the "L" Series.	RIGHT	7	WRONG
Front suspension torsion bars of the "M" Series cars are interchangeable with those of the "L" Series.	RIGHT	8	WRONG
The roof-mounted air-conditioning unit for Suburban models can be obtained without having to have the front unit also.	RIGHT	9	WRONG
In order to remove the roof moldings from the new depressed roof panel it is necessary to remove the molding clips.	RIGHT	10	WRONG

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