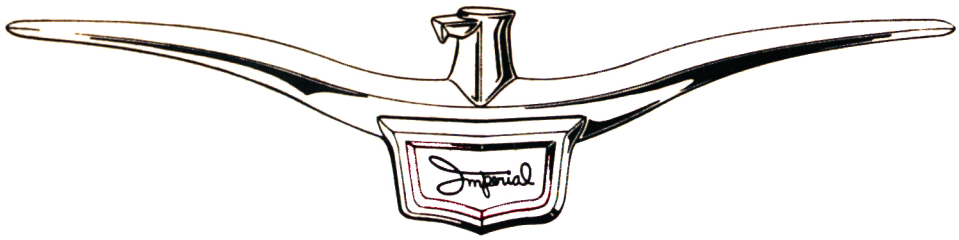
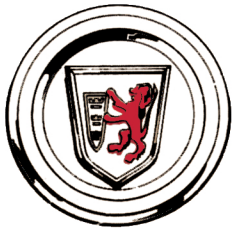


IMPERIAL

1959 SERVICE MANUAL SUPPLEMENT

CHRYSLER





CONTENTS

SERVICING THE 1959 CHRYSLER AND IMPERIAL

This supplement contains advanced service information on the new 1959 Chrysler and Imperial Models. Only changes and improvements affecting the servicing of the new models are included. If the information desired cannot be found in this supplement the servicing procedures will remain the same as those for corresponding models covered in the 1958 Chrysler and Imperial Service Manual D-16350.

In order to use this supplement to best advantage with the previous Chrysler and Imperial Service Manual D-16350, the corresponding or superseding car models must be understood. The supersedence of these models is as follows:

Chrysler Models:	1958	1959
Windsor	LC-1	MC-1
Saratoga	LC-2	MC-2
New Yorker	LC-3	MC-3

Imperial Models	1958	1959
Custom, Crown, and LeBaron	LY-1	MY-1

The service tools referred to in this manual are available through the Miller Manufacturing Company, 17640 Grand River, Detroit 27, Michigan, U.S.A., unless otherwise specified.

Extra copies of this Supplement are available at $2.00 each, under part number D-16798. Order from Chrysler Division, P.O. Box 1658, Detroit 31, Michigan.

CHRYSLER DIVISION

Chrysler Corporation

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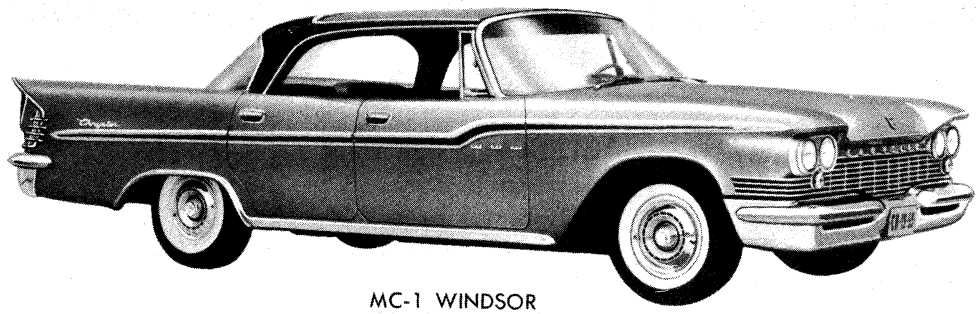
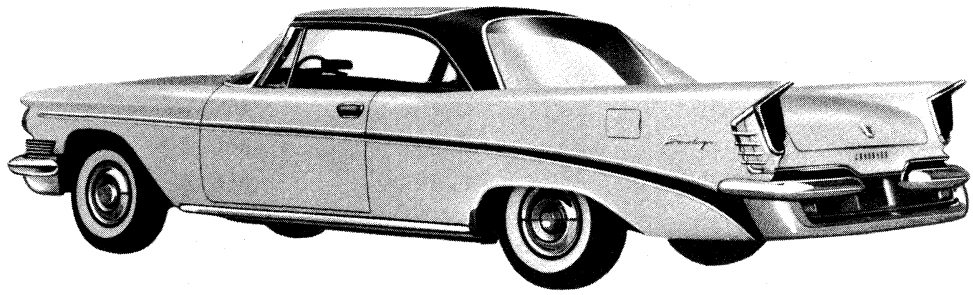
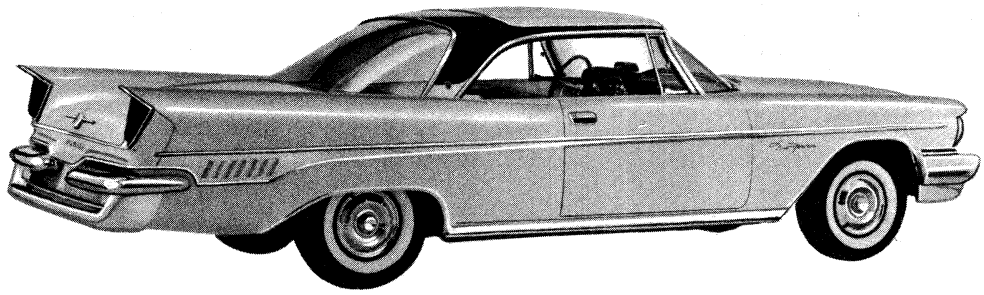
D-16798 12M-SD & TO-10-58



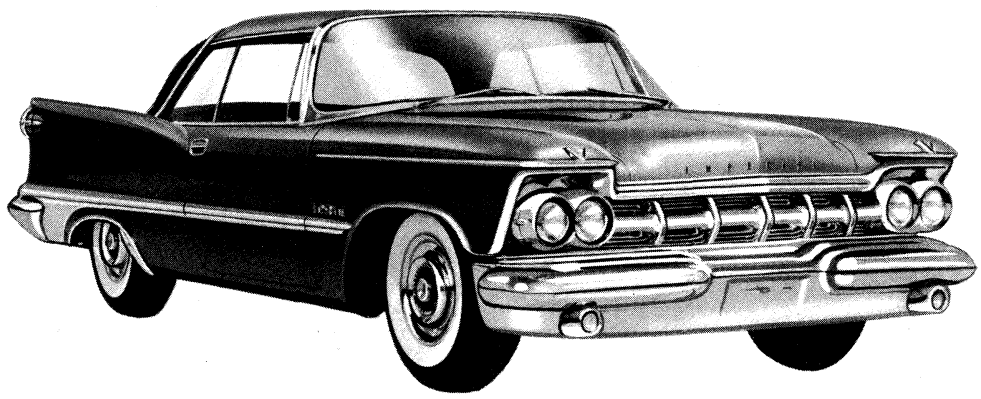
MC-1 WINDSOR



MC-2 SARATOGA



MC-3 NEW YORKER



MY-1 IMPERIAL

59 x 143

1959 Chrysler and Imperial Models

GENERAL DATA AND SPECIFICATIONS

Item	Body Style	Starting Vehicle Numbers		1959 Models			
		Detroit	Los Angeles	MC-1	MC-2	MC-3	MY-1
	Four Door Sedan	M511-100,001	M514-100,001	Windsor	.....	.....	.....
	Four Door Sedan	M531-100,001	M534-100,001	.....	Saratoga	.....	.....
	Four Door Sedan	M551-100,001	M554-100,001	.....	.....	New Yorker	.....
	Four Door Sedan	M617-100,001	.....	.....	.....	.....	Imp. Custom
	Four Door Sedan	M637-100,001	.....	.....	.....	.....	Imp. Crown
	Four Door Sedan	M657-100,001	.....	.....	.....	.....	Imp. Lebaron
Wheelbase	Four Door Sedan	.....	.....	122	126	126	129
	Convertible Coupe	.....	.....	122	.....	126	129
	Two Door (hard top)	.....	.....	122	126	126	129
	Town & Country Wagon	.....	.....	122	.....	126	.....
	Four Door (hard top)	.....	.....	122	126	126	129
Tread	Four Door Sedan	.....	.....	60.9	60.9	61.2	61.8
(Front)	Convertible Coupe	.....	.....	60.9	.....	61.2	61.8
	Two Door (hard top)	.....	.....	60.9	60.9	61.2	61.8
	Town & Country Wagon	.....	.....	60.9	.....	61.2	.....
	Four Door (hard top)	.....	.....	60.9	60.9	61.2	61.8
Tread	Four Door Sedan	.....	.....	59.8	59.8	60.0	62.4
(Rear)	Convertible Coupe	.....	.....	59.8	.....	60.0	62.4
	Two Door (hard top)	.....	.....	59.8	59.8	60.0	62.4
	Town & Country Wagon	.....	.....	59.8	.....	60.0	.....
	Four Door (hard top)	.....	.....	59.8	59.8	60.0	62.4
Length with	Four Door Sedan	.....	.....	216.6	220.6	220.9	226.3
Bumper	Convertible Coupe	.....	.....	216.6	.....	220.9	226.3
	Two Door (hard top)	.....	.....	216.6	220.6	220.9	226.3
	Town & Country Wagon	.....	.....	215.9	.....	220.1	.....
	Four Door (hard top)	.....	.....	216.6	220.6	220.9	226.3
Width with	Four Door Sedan	.....	.....	79.3	79.3	79.5	81.0
Bumper	Convertible Coupe	.....	.....	79.3	.....	79.5	81.0
	Two Door (hard top)	.....	.....	79.3	79.3	79.5	81.0
	Town & Country Wagon	.....	.....	79.3	.....	79.5	.....
	Four Door (hard top)	.....	.....	79.3	79.3	79.5	81.0
Rear Axle	Four Door Sedan	.....	.....	2.93	2.93	2.93	2.93
with Torque-	Convertible Coupe	.....	.....	2.93	.....	2.93	2.93
Flite Trans.	Two Door (hard top)	.....	.....	2.93	2.93	2.93	2.93
	Town & Country Wagon	.....	.....	2.93	.....	2.93	.....
	Four Door (hard top)	.....	.....	2.93	2.93	2.93	2.93
Tire Size	Four Door Sedan	.....	.....	8.00x14	8.50x24	9.00x14	9.50x14
	Convertible Coupe	.....	.....	8.00x14	.....	9.00x14	9.50x14
	Two Door (hard top)	.....	.....	8.00x14	8.50x14	9.00x14	9.50x14
	Town & Country Wagon	.....	.....	8.50x14	.....	9.00x14	.....
	Four Door (hard top)	.....	.....	8.00x14	8.50x14	9.00x14	9.50x14

Section I

SUSPENSION (FRONT SUSPENSION)

DATA AND SPECIFICATIONS

FRONT HEIGHT SPECIFICATIONS

MC-1, MC-2, MC-3 and MY-1	2⅛" + or —⅛"
Town and Country Models and Cars Equipped with Heavy Duty Springs	2½" + or —⅛"

On Cars With True-Level Torsion Aire

MC-1, MC-2, MC-3	1⅞" + or —⅛"
MY-1	2⅛" + or —⅛"

CASTER AND CAMBER WITH MANUAL STEERING

Caster	Camber	Steering Axis Inclination	Toe-In
—¾° ± ¾°	0° ± ¼° (right) + ¼° ± ¼° (left)	5° to 7° At 0° Camber	⅛" ± 1/32" (⅛" Preferred)

WITH POWER STEERING

Caster	Camber	Steering Axis Inclination	Toe-In
+ ¾° ± ¾°	0° ± ¼° (right) + ¼° ± ¼° (left)	5° to 7° At 0° Camber	⅛" ± 1/32" (⅛" Preferred)

REAR SUSPENSION

REAR SPRINGS

	MC-1		MC-2	MC-3		MY-1
	Sedans & Coupes	Town & Country	Sedans & Coupes	Sedans & Coupes	Town & Country	Sedans & Coupes
Type	Semi-Elliptic	Semi-Elliptic	Semi-Elliptic	Semi-Elliptic	Semi-Elliptic	Semi-Elliptic
Length	57"	57"	60"	60"	60"	60"
Width	2.5"	2.5"	2.5"	2.5"	2.5"	2.5"
Number of Leaves—Std. Susp.	5	6	6	7	7	7
Rate—Std. Susp.	95 # per in.	125 # per in.	90 # per in.	90 # per in.	135 # per in.	90 # per in.
Number of Leaves—True-Level	5	5	6	6	7	6
Rate—True-Level	80 # per in.	95 # per in.	75 # per in.	75 # per in.	100 # per in.	83 # per in.

REAR SUSPENSION (Cont'd)

FRONT PIVOT	Silent Block Rubber Bushings
REAR	Shackle with Rubber Bushing

SHOCK ABSORBERS

TYPE	Oriflow, Double Acting Hydraulic

TRUE-LEVEL TORSION AIRE

CAR REAR HEIGHT (Axle Housing to Frame)	
Imperial Models Only	4⅜ + or —⅛ inch
MC-1, MC-2, MC-3 Models Only	4¾ + or —⅛ inch
HEIGHT CONTROL VALVE	
Make	Midland-Ross
Type	Bleed-Feed
AIR PRESSURE	
High Pressure Tank	220 + or —20 psi
Low Pressure Volume Tank (1 pass. load)	20 psi approximately
(6 pass. load)	70 psi approximately
(9 pass. load)	90 psi approximately
COMPRESSOR	
Make	Tecumseh
Type	Balanced Head

TORQUE SPECIFICATIONS

	Pounds Torque
AIR LINE	
Elbow Mounting Screw	100 in. lbs.
High Pressure Tank to Low Pressure Tank Height Control Valve Tube Nuts (4)	85 in. lbs.
Air Hose Assembly to High Pressure Tank Tube Nut	125 in. lbs.
Compressor Check Valve to Air Hose Assembly Tube Nut	90 in. lbs.
Compressor to Air Line Check Valve	130 in. lbs.
AIR SPRING	
Retainer Bolt Nut	10 ft. lbs.
COMPRESSOR	
Adjusting Strap Bolts	30 ft. lbs.
Adjusting Strap to T-Nut Bolt	15 ft. lbs.
Bracket to Support Bolt	30 ft. lbs.
Bracket to Air Conditioning Compressor Bolt Nut	30 ft. lbs.
Cylinder Head Bolt	155 in. lbs.
Front Bearing Housing Bolt	17 in. lbs.
Oil Inlet Connector	130 in. lbs.
Rear Cover Plate Bolt	17 in. lbs.
Strap Bolt Nut	35 ft. lbs.
Suction Muffler Retaining Screw	17 in. lbs.
Support Bracket to Water Pump Body (or Cylinder Block or Cylinder Head Bolt)	30 ft. lbs.
Support to Cylinder Head Bolt	70 ft. lbs.

TORQUE SPECIFICATIONS (Cont'd)

	Pounds Torque
HEIGHT CONTROL VALVE	
Axle Housing Link Bracket Bolt Nut	30 ft. lbs.
Minimum Pressure Valve	130 in. lbs.
Mounting Nuts	100 in. lbs.
HIGH PRESSURE TANK	
Drain and Charging Valve	140 in. lbs.
Mounting Bolts (5/16)	10 ft. lbs.
Mounting Bolts (1/4)	100 in. lbs.
LOW PRESSURE VOLUME TANK	
Mounting Bracket Screw	100 in. lbs.

TOOL LIST

C-3128	Snap Ring Pliers
C-3293	300 lb. Pressure Gauge
C-3569	Detector Torch
C-3670	Air Spring Height Gauge
C-3677	Crankshaft Support Stand
C-3680	Front Oil Seal Protector
C-3693	Adapter—used with Tool C-3293, 300 lb. pressure gauge
C-3694	Hold-Down Straps (Pr.)
PO-11	Pulley Puller

Section I

SUSPENSION (FRONT SUSPENSION)

The new upper control arm and frame brackets simplify the method of adjusting caster and camber. Tool C-3669 is required for installation of upper control arm bushings.

OPERATION (FIG. 1)

The upper control arms attach to brackets which are welded to the frame. Each bracket has cam retainers welded to its front and rear faces, around the slotted openings for the attaching bolts. Each of the four bolts have an integral cam **at the head of the bolt.** A matching removable cam is installed at the threaded end.

Cams can be adjusted only by turning the head end of the bolt. Turning one bolt will move the upper ball joint fore or aft to affect the caster (more than camber). Turning both bolts on one side an equal amount in the same direction will move the upper ball joint in or out to affect camber. Full bolt travel is 180°, therefore it may be necessary to reverse the direction of rotation of the bolts in order to attain specifications on both caster and camber.

ADJUSTMENT

Apply MoPar solvent, Part No. 1879318, after wire brushing dirt to expose bolt threads. In addition to

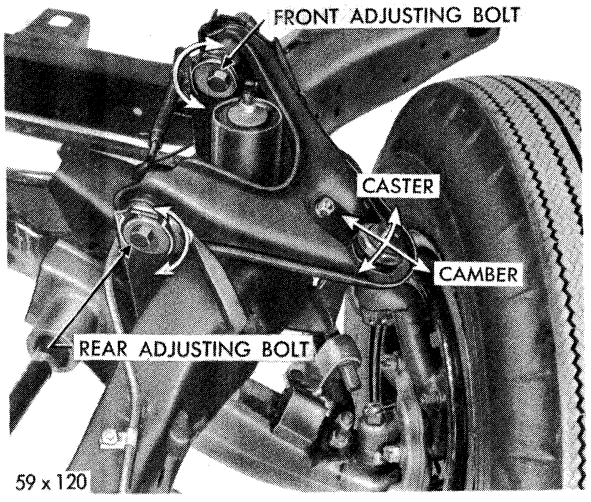


Fig. 1 — Caster and Camber Adjusting Bolts

the regular checks of tire size, tread wear, air pressure, car loading, looseness and wear before measuring car height, caster and camber, the car must be kept at one level whenever measurements are made. Do this operation the same way every time a measurement is to be made: bounce the car, front first, then rear, several times by grasping the center of the bumpers. Release the bumpers on the down stroke each time after the same number of bounces.

All Chrysler Models with True-Level Torsion Aire must maintain the specified rear height of 4¾ inches + or — ⅛ inch, the Imperial (MY-1), rear height if 4⅜ + or — ⅛ inch while setting the front end, with engine running (see True-Level Torsion Aire).

CASTER AND CAMBER

Front suspension height must be correct before measuring caster and camber.

After Solvent No. 1879318 has loosened any rust, carefully loosen the upper control arm attaching nuts while holding the bolts from turning. Once caster and camber has been adjusted, a very small turn of the bolts will affect the gauge readings.

Turning one bolt affects caster more than camber. By bringing caster to approximate specifications, then turning both bolts an equal amount in the same direction to bring camber to the preferred specification, will usually bring caster to the preferred setting. Tighten nuts to 60-70 foot pounds torque using Tools C-3675 and C-3696. However, due to length of Tools C-3675 and C-3696 used with torque wrenches Tool C-524 or Tool C-3005 a recalibration will be necessary in order to obtain proper torque. Using Tool C-3675, the torque reading on wrench must show 45 foot-pounds torque, which is equivalent to 60-70 foot-pounds torque; and using wrench C-3696, torque reading must be 55 foot-pounds torque, which again is equivalent to 60-70 foot-pounds torque. Recheck gauge readings.

NOTE: Turning both cams in the same direction an equal amount will change camber with little or no change of caster. Turning both cams an equal amount in opposite directions will change the caster with little or no change of camber.

REAR SUSPENSION

REAR SPRINGS

The rear springs remain the same with the following exception: the springs have a rubber pad between the springs and the axle housing. The "U" bolt nut torque is 70 + or — 15 foot-pounds.

SHOCK ABSORBERS

The 1959 model cars are equipped with Oriflow shock absorbers of the same type as used on the 1958 models. Refer to the 1958 Chrysler and Imperial Manual, D-16350, for information on the removal and installation of the Oriflow shock absorbers.

CAUTION

When car is equipped with True-Level Torsion Aire, do not use a frame contact type hoist when removing shock absorbers, as the air springs will become unseated from the upper spring seat.

TRUE-LEVEL TORSION AIRE

The True-Level Torsion Aire System (Figs 2 and 3) available as optional equipment on the 1959 Chrysler and Imperial cars consists of an engine driven balanced head compressor, compressor drive belt, check valve, high pressure air lines, high pressure reservoir tank, low pressure volume tank, height control valve assembly, air springs and valve (actuating) rubber linkage.

On cars equipped with True-Level Torsion Aire System, conventional steel semi-elliptic leaf springs and shock absorbers are used, however, spring load and rate have been reduced approximately ten per cent.

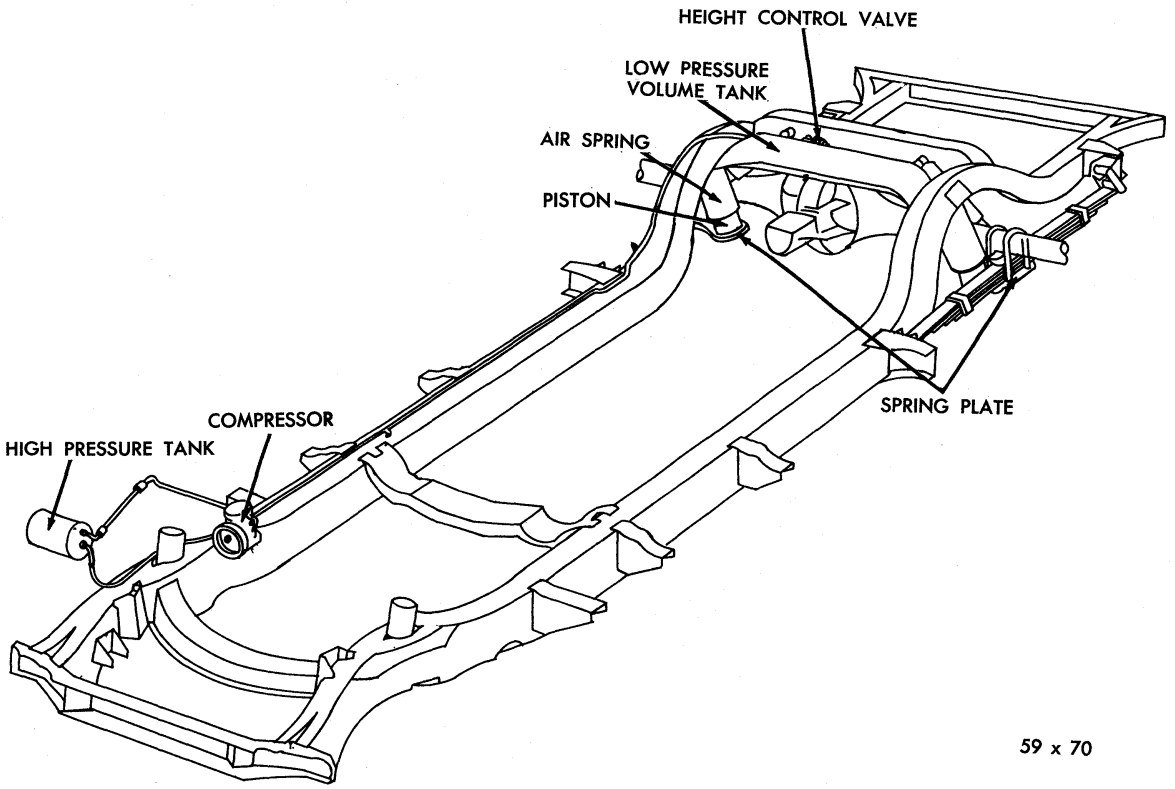


Fig. 2 — True-Level Torsion Aire System (Models MC-1, 2 and 3)

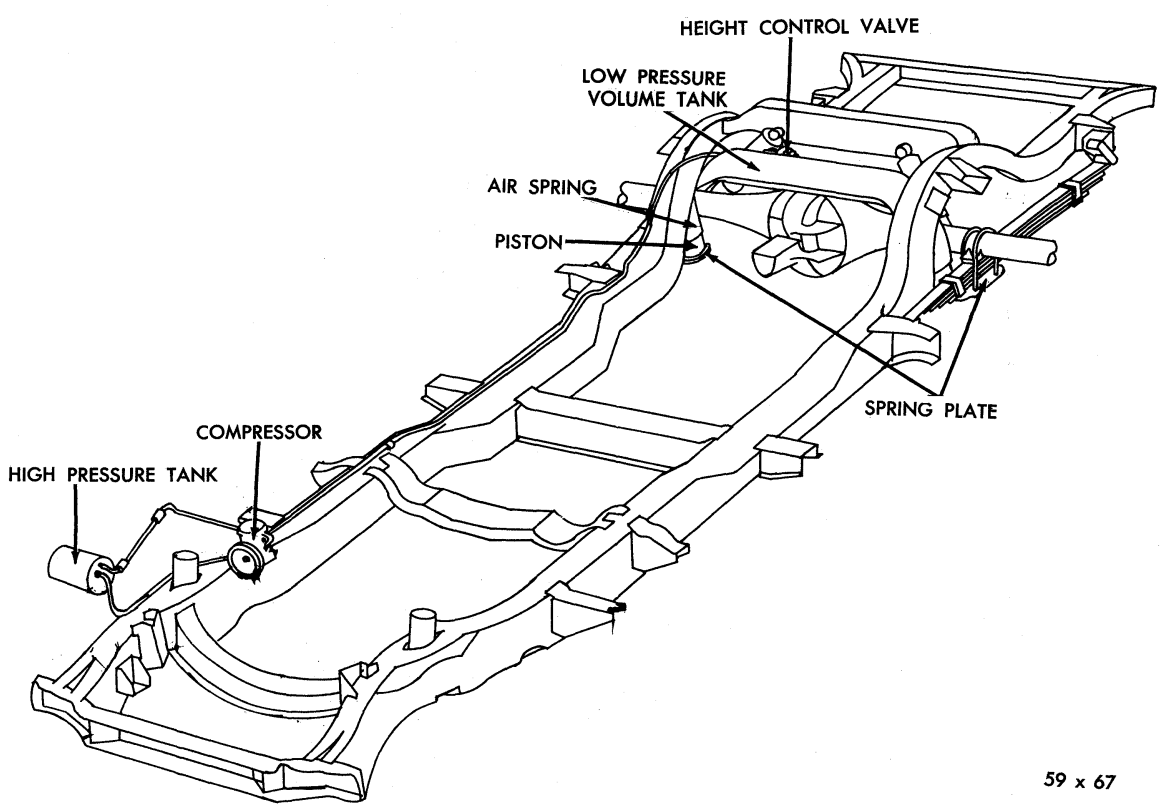


Fig. 3 — True-Level Torsion Aire System (Model MY-1)

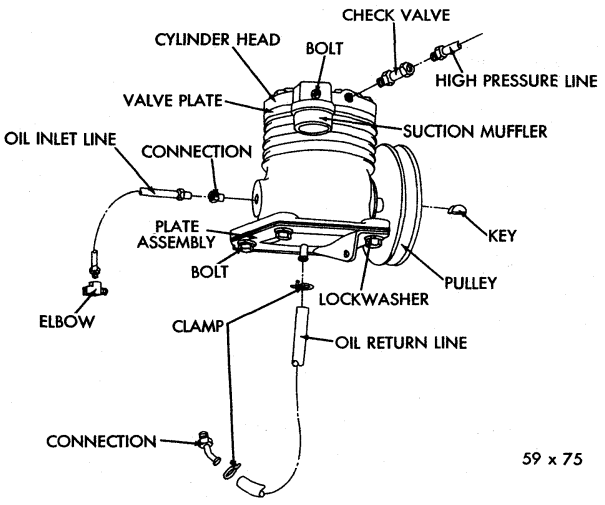


Fig. 4 — Compressor Assembly

True-Level Torsion Aire produces a better quality ride as well as maintaining a constant rear height. The rear height is comparable to that of a car without True-Level Torsion Aire and with a three passenger load.

The compressor (depending on car model) (Fig. 4) is located either at the front of the engine or above the fuel pump. The check valve is located in the compressor head. A high pressure line from the check valve is connected to the high pressure reservoir tank under the right front fender. A second high pressure line connects the high pressure tank to the height control valve (Fig. 5) on the low pressure volume tank. The low pressure volume tank is mounted between the frame side rails above the rear axle. Two air springs from the low pressure volume tank are connected to the two air spring pistons on the rear spring plates. The height control valve actuator arm is connected to the rear axle assembly by a rubber link.

OPERATION

With the engine running, the compressor maintains 220 + or — 20 psi air pressure through the air lines and high pressure tank to height control valve end cap. (The amount of pressure is determined in the design of the balanced head.) The check valve at the compressor and the control valve confine the high pressure when the engine is stopped.

The operating pressure in the low pressure volume tank and air springs is controlled by the height control valve. The pressure varies with the load, from approximately 20 psi with or without a driver only load, through 70 psi with six passenger load to approximately 90 psi for the Town and Country models with a nine passenger load. Pressures within

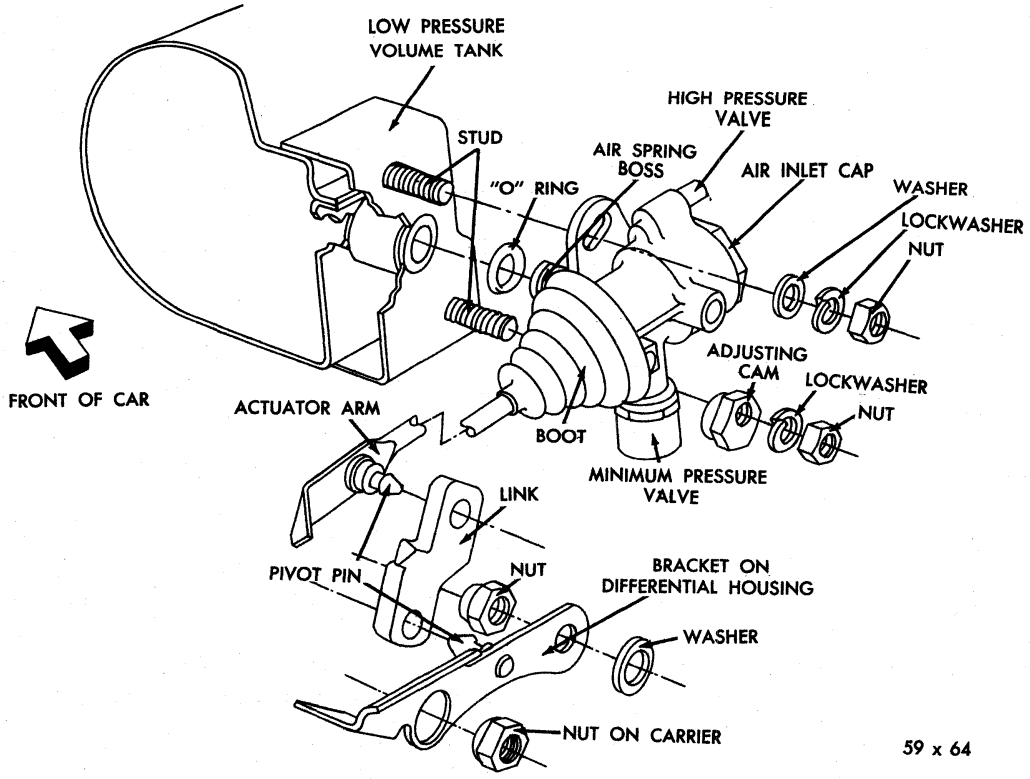


Fig. 5 — Height Control Valve

this range vary instantly as the car moves over chuck holes and expansion strips in the road surface, in order to maintain the constant rear height. Since these pressures are variable, it is not necessary to test them.

The height control valve contains a minimum pressure valve to maintain 8-15 psi in the air springs during a no-load operation as in changing tires by use of a bumper jack. This pressure prevents damage to the air spring as the jack is lowered and a load condition restored to the system.

The height control valve also contains a high pressure relief valve (150 psi) to protect the system under extreme heavy load conditions.

SERVICE PROCEDURES

MAINTENANCE

The high pressure air tank (located under the right front fender) should be drained at least once a month. Depress the non-removable core in the drain valve. (Should it ever be necessary to remove the valve, remove the high pressure line at the check valve FIRST.)

TESTING FOR LEAKS (Liquid Soap Method)

With the engine running, apply a diluted liquid soap solution at the following locations where leaks would cause bubbles: air springs and seats, height control valve mounting, air line connections, high pressure air tank, drain valve connection and outlet.

Stop the engine and remove the air line and check valve from the compressor. Connect the air line and check valve. Apply air pressure through the tank drain valve. Coat check valve with soap solution. If no leak is evident, wipe off soap solution before reinstallation.

Refrigerator Method (Refrigerant 12)

Add 150 pounds of weight to the center area of the luggage compartment and raise car on a hoist. Discharge the high pressure tank by depressing the valve core in the valve. Remove the minimum pressure valve from the height control valve. Disconnect the rubber linkage from the differential housing bracket and move the actuator arm manually to discharge all air from the low pressure volume tank. With all air removed from the system, connect the rubber linkage and install the minimum pressure valve.

Install adaptor Tool C-3693 between the high pressure air line and the compressor check valve. Connect manifold gauge set, Tool C-3627 (used with air conditioning) on adaptor, Tool C-3693, using the gauge set suction hose. Attach the refrigerant tank to the gauge set. Open the suction side of the gauge set and charge the system with 40 psi of refrigerant 12. Shut off the gauge set and start the car engine. Operate the car engine until normal operating pressure of 200 + or — 20 psi is obtained.

Using leak detector, Tool C-3659, (used with air conditioning) check the entire True-Level Torsion Aire System for leaks and make all necessary repairs.

CAUTION

Be sure no gasoline is leaking from the car system when checking the True-Level Torsion Aire System with Tool C-3659.

With the car engine running, purge the refrigerant from the system by disconnecting the rubber linkage from the differential housing and manually operating the height control valve actuator arm. With the refrigerant purged from the system, connect the rubber linkage to its bracket. Shut off the car engine and again discharge all air from the high pressure tank. Remove adaptor Tool C-3693 from the air line and check valve. Connect the air line to the check valve. Lower the hoist and remove the weight from the luggage compartment. Operate the car engine approximately three minutes before removing the car from the hoist.

CHECKING AND ADJUSTING SUSPENSION HEIGHT

The vehicle must have recommended tire pressures, full tank of fuel (or equivalent weight added to luggage compartment over the tank). (Gasoline weighs approximately 6½ pounds per gallon.) The front suspension height should be correct and equal on both sides before placing car on level floor with no passenger load.

The rear suspension height must be set to a specified vertical distance between the top of the axle housing and highest part under the axle bumper straps, to the rear of the rubber bumpers on both sides of the car (Fig. 6). Clean the bumper straps and axle housing tubes before measuring.

Rear suspension height is measured (both sides) twice, once with load and again without load. Both pairs of figures are compared as well as averaged.

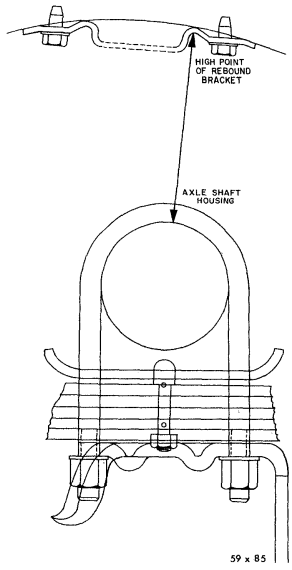


Fig. 6 — Checking Rear Suspension Heights

The four figures are also averaged. Run the engine three to five minutes to assure proper pressure in the system and proceed as follows:

a. With engine running, add 150 to 200 pounds of load to center of luggage compartment. The height control valve should feed additional air to the low pressure system, causing car to return to original height.

Measure height at both sides using Tool C-3670, and record the figures. The difference should not exceed ½ inch. If greater than ½ inch, recheck the front suspension height, particularly the difference between the two sides, and reset if necessary. If rear height difference still exceeds ½ inch, inspect rear springs. (for spring specifications in this supplement). When difference is under ½ inch, average the two figures for use later. This is Step (a).

b. Remove added weight from compartment and allow height control valve to bleed the system for approximately three minutes. The engine may be shut off during this operation.

Measure rear heights and average the two figures. The difference between this average and the average obtained in step (a) above should not exceed ½ inch. (This difference is called the height control valve correction error.) Adjust valve if necessary.

Average the four measurements. (Do not average the two averages.) The average should be 4¾ inches + or — ⅛ inch on Models MC-1, MC-2, MC-3 and 4⅜ inches + or — ⅛ inch on Model MY-1. Adjust valve if necessary.

To adjust height control valve: Loosen both attaching nuts. Rotate cam on lower attaching stud to adjust to correct car height. DO NOT BOTTOM CAM TIGHTLY AGAINST VALVE BODY. (LOW PRESSURE VOLUME TANK PORT COULD BE DAMAGED.) Tighten attaching nuts to 100 inch pounds torque. Recheck rear suspension heigths.

DISCHARGING THE SYSTEM

CAUTION

Do not use a frame contact type hoist when discharging system.

Discharge the high pressure system by depressing the valve core in the high pressure air tank drain and charging valve. DO NOT REMOVE VALVE FROM TANK.

Discharge low pressure system by pulling the height control valve actuator arm off the pivot pin on the rubber linkage at the axle housing and moving the arm down.

AIR SPRINGS AND PISTONS

CAUTION

During jacking operations, the minimum pressure valve must retain pressure in air springs to prevent buckling.

Removal and Disassembly (Fig. 7)

With car on hoist, refer to paragraph "Discharge the System." Remove nut holding air spring piston to spring plate. Raise piston off spring plate and remove air spring from low pressure volume tank by pulling it outward and down.

Remove piston mounting bolt and retainer assembly from piston using a soft mallet. Push piston out of air spring by inserting hammer handle (or equivalent) into the air spring.

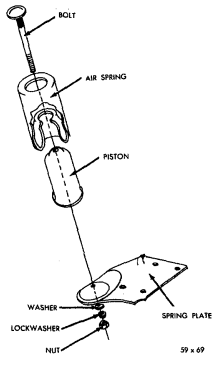


Fig. 7 — Air Spring and Piston Assembly

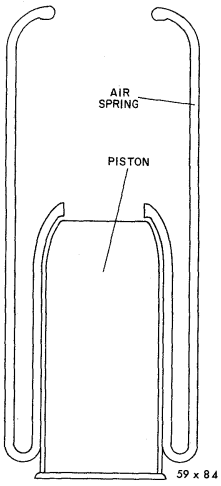


Fig. 8 — Installing Air Spring on Piston

CAUTION

Under no circumstances should the small end of the air spring be pulled out to a fully extended position, as special tools are required to place in correct position.

Cleaning and Inspection

Clean all parts with clean, dry cloth. Inspect piston and mounting bolt assembly for nicks, burrs or cracks. Remove burrs with crocus cloth. Replace a cracked piston with a new piston.

Mounting bolt assembly must be a snug fit in piston and retainer section must seat solidly against piston. If necessary, peen piston around bolt hole to obtain snug fit.

Inspect air spring for cuts, cracks, holes and excessive carcass wear. Install a new air spring if necessary, however, small surface cracks in outer rubber cover are permissible provided there is no leak.

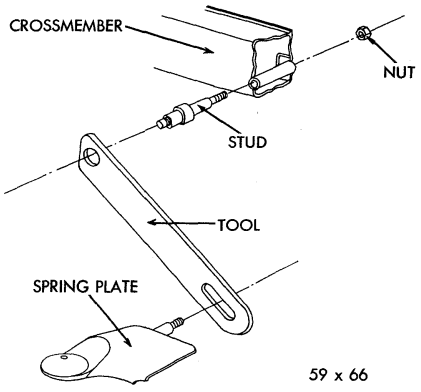


Fig. 9 — Body to Frame Hold Down Straps

Reassembly and Installation

With piston upright on bench, place small end of air spring over rounded end. Roll spring down to cover piston completely (Fig. 8). Insert retainer bolt assembly and examine for snug fit in piston.

Remove rear shock absorbers. Make hold down straps or use Tool C-3694 straps (Fig. 9) and install them in place of shock absorbers. Strap will hold weight of body on leaf springs and assist in seating air spring.

Position piston and air spring assembly on spring plate. Install retainer bolt, washer and nut (Fig. 10). Tighten to 5 foot-pounds torque temporarily. Coat mounting rim of air spring with diluted liquid soap. If both springs were removed from the low pressure volume tank, it will be necessary to install both simultaneously.

Start the engine. Hold air spring (s) tightly in position against tank seat (s) and operate control valve manually. Air pressure entering air spring (s) will force spring up on its seat.

Check seating of air spring on tank flange and seating of piston on spring plate. Align piston and tighten nut to 100 inch-pounds torque. Piston alignment can be checked by depressing around wall of air spring and noting if piston is properly centered. Remove hold down straps and install shock absorbers. Connect actuator arm to rubber linkage. Check for air leaks paragraph "Testing for Leaks." Check car heights.

RUBBER LINKAGE

The rubber linkage which connects pivot pins on the valve actuator arm and the bracket on the axle housing is removed by pulling the linkage off the pivot pins.

Before installing, apply water or soap solution

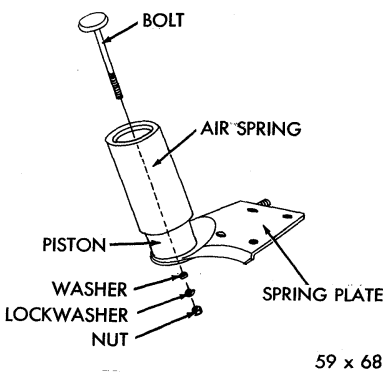


Fig. 10 — Installing Air Spring and Piston Assembly

around pivot pin holes. Position linkage with rounded end up toward actuator arm and stop boss to the left side of car. Push linkage on pivot pins.

HEIGHT CONTROL VALVE (Fig. 5)

a. Removal

Refer to paragraph "Discharging the System." Remove high pressure line from valve end cap. Remove valve mounting nuts and remove valve assembly.

NOTE: Height control valves are serviced only as an assembly.

The "O" ring valve to low pressure volume tank seal is serviced separately.

b. Installation

Apply diluted liquid soap to "O" ring on housing boss. Install valve assembly on low pressure volume tank, inserting the boss in tank without damaging the "O" ring. Install adjusting cam in housing at the lower mounting stud.

Install mounting nuts finger tight. Connect air line to valve end cap. Start the engine and check the valve for operation.

Tighten mounting nuts to 100 inch pounds torque. Connect actuator arm to rubber linkage. Check for leaks, refer to paragraph "Testing for Leaks." Check car height, paragraph "Checking and Adjusting Suspension Height" and adjust as necessary.

LOW PRESSURE VOLUME TANK (Fig. 11)

a. Removal

Discharge the system. Remove air springs from tank by pulling top of springs downward and outward. Disconnect air line at valve end cap. Disconnect actuator arm at rubber linkage. Loosen and lower

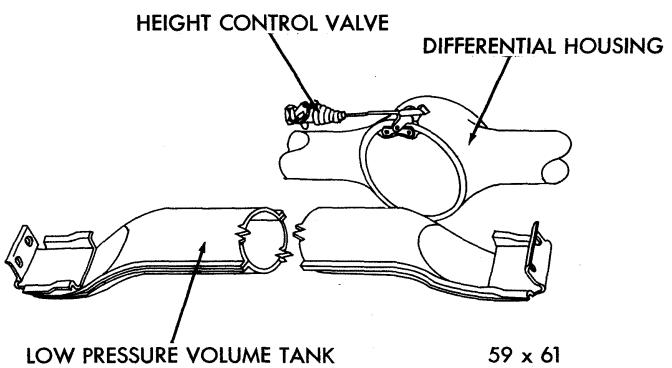


Fig. 11 — Low Pressure Volume Tank

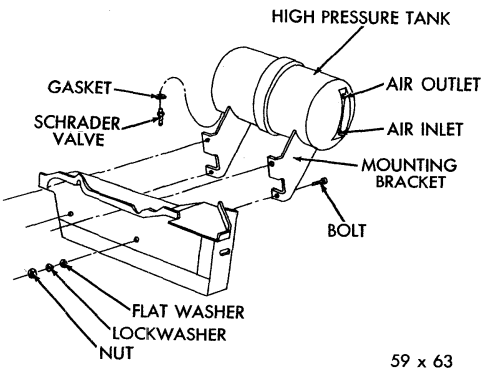


Fig. 12 — High Pressure Tank (Models MC-1, 2 and 3)

right tail pipe only.

Support axle and remove right rear wheel. Remove self-tapping screws (two each side) holding tank to frame side rails. Remove tank from right side of car. Remove height control valve assembly and adjusting cam.

b. Installation

Install new "O" ring on height control valve air spring boss. Coat ring with diluted liquid soap solution. Install valve assembly and adjusting cam. Tighten nuts to 100 inch pounds torque. Install tank making sure that insulating pads are in position between frame and tank mounting flanges. Tighten mounting screws to 100 inch pounds torque.

Connect air line to control valve. Install air springs paragraph "Air Springs and Pistons." Position and tighten right tail pipe. Install right rear wheel. Check system for leaks. Adjust car rear height.

HIGH PRESSURE AIR TANK (Figs. 12 and 13)

a. Removal

Discharge the system. Disconnect both air lines at tank. Remove bolts holding tank cradle to the car. Remove tank and bracket assembly.

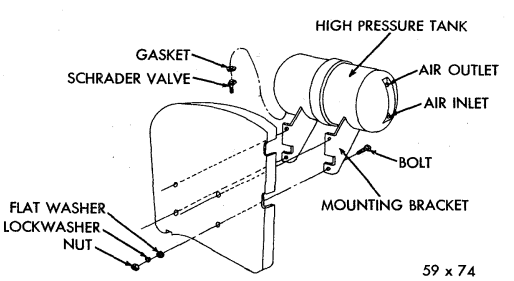


Fig. 13 — High Pressure Tank (Model MY-1)

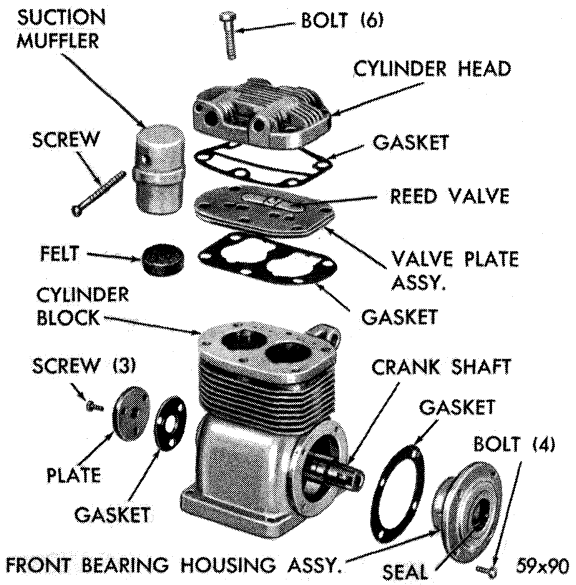


Fig. 14 — Air Compressor (Disassembled View)

b. Installation

Position tank and bracket assembly and install bolts. Tighten ¼ inch bolts to 100 inch pounds torque, and 5/16 inch bolts to 130 inch pounds torque. Connect air lines to tank. Check for leaks.

AIR COMPRESSOR (Fig. 14)

a. Testing Compressor

Discharge the system. Disconnect air line from compressor check valve. Connect adapter, Tool C-3693, used with Tool C-3293, 300 lb. pressure gauge, to check valve.

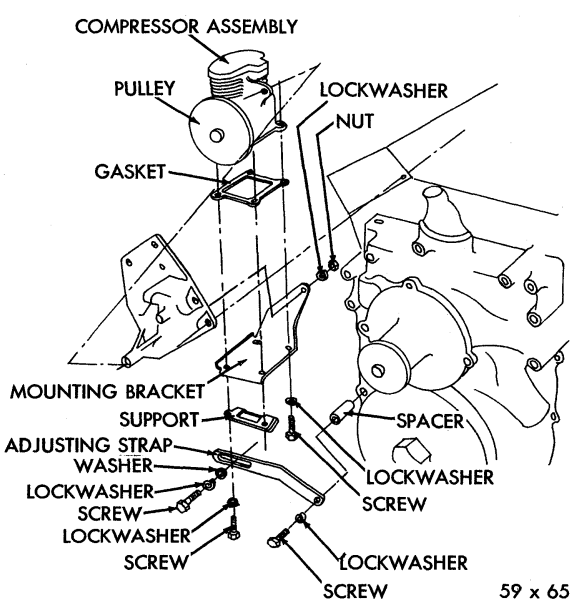


Fig. 15 — Compressor Mounting (with Air Conditioning — Model MC-1)

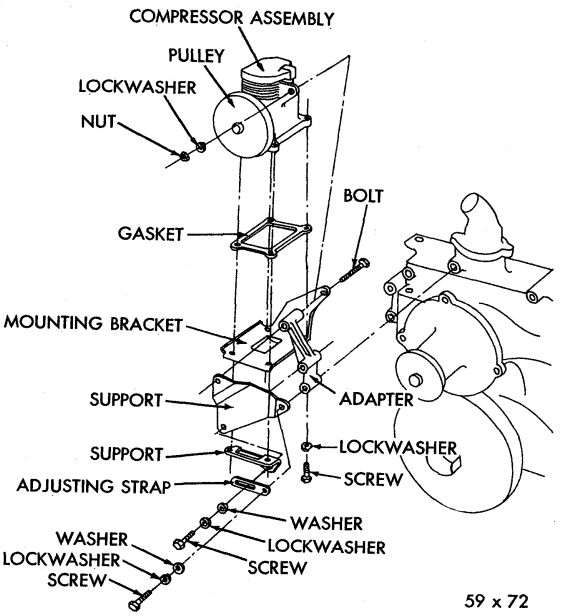


Fig. 16 — Compressor Mounting (with Air Conditioning (Models MC-2, 3 and MY-1)

With engine running at 1800-2000 rpm, gauge reading should be 220 psi + or — 20 psi. Remove gauge and install air line.

b. Removal

Remove oil pressure line at rear of compressor. Remove air line from check valve. Remove oil return line at engine end. Loosen belt adjusting bolt in generator and remove belt from compressor. Remove compressor bracket bolt. Remove bolts holding compressor support to engine and remove compressor assembly from car.

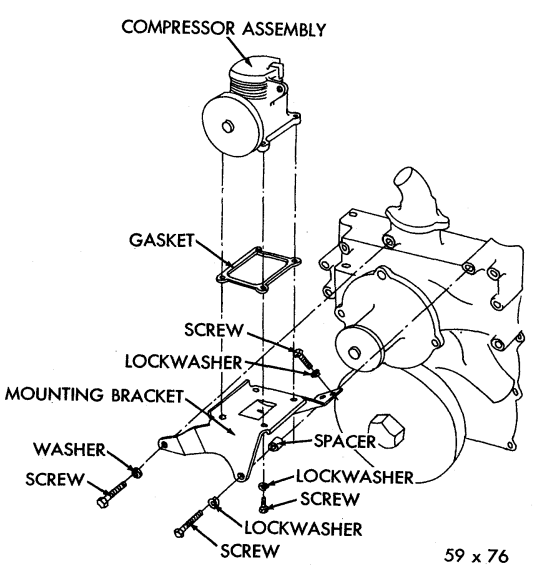


Fig. 17 — Compressor Mounting (without Air Conditioning — All Models)

c. Installation (Figs. 15, 16 and 17)

With compressor attached to support, attach support to engine, tightening bolts to 30 foot pounds torque. Install compressor bracket. Tighten bolt to 30 foot pounds torque.

Install belt (see "Accessory Belt Drives" in this supplement for adjustment). Connect oil pressure line, air line and oil return line. Start engine and check lines for leaks. Test air pressure.

COMPRESSOR RECONDITIONING

The following components parts are available for service:

(1) Cylinder head and gasket

(2) Valve plate assembly and gasket

(3) Pulley and key

(4) Bottom plate, mounting plate and gasket

(5) Front bearing, housing and oil seal assembly

(6) Check valve assembly

(7) Suction muffler felt

CYLINDER HEAD AND/OR VALVE PLATE ASSEMBLY

Discharge the system. Remove air line from check valve. Remove cylinder head bolts. Remove cylinder head and valve plate assembly. If the plate does not separate from the head, tap the plate lightly with a soft mallet. Do not pry apart.

Clean piston heads, top of the cylinder block and head bolt holes, cylinder head and valve plate, using mineral spirits. Do not use scraper. Inspect pistons and cylinder walls. If damaged, replace the compressor. If valve plate or cylinder head is damaged, replace. Remove check valve only if replacement is necessary.

Use new gaskets when installing valve plate and cylinder head. Tighten bolts to 155 inch pounds torque. Connect air line to check valve. Check for leaks and test compressor.

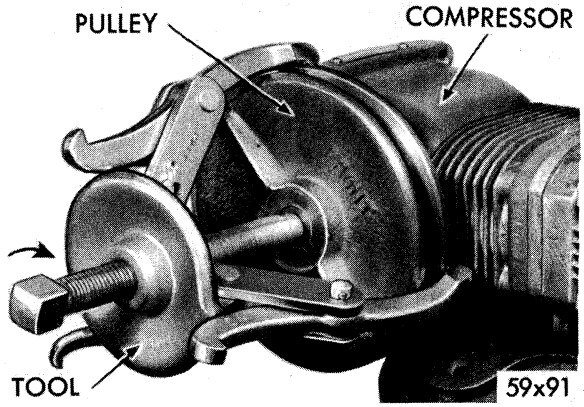


Fig. 18 — Removing Air Compressor Pulley

PULLEY AND/OR FRONT BEARING, HOUSING AND OIL SEAL ASSEMBLY

Remove compressor. Original pulley is a .002 press fit on crankshaft. A replacement pulley, in addition, is pinned to the crankshaft. Remove pin before removing pulley. Remove pulley with Tool PO-11 (Fig. 18).

Remove front bearing, housing and oil seal assembly. Clean and inspect bearing and housing assembly. If any component is damaged, replace the assembly. Install front bearing housing, using Tool C-3680 to protect oil seal. Tighten bolts to 17 inch pounds torque.

Remove crankshaft rear cover plate and install Tool C-3677 to support crankshaft while pressing pulley on crankshaft. Using an arbor press, press pulley into contact with flange on crankshaft. Remove tool. Install rear cover plate. Tighten bolts to 17 inch pounds torque.

A new replacement pulley has a hole through one side of the hub. Use this hole as a guide to drill 5/32 inch hole in the crankshaft and the opposite side of hub of pulley. Install the roll pin. Install compressor.

TRUE-LEVEL TORSION AIR SERVICE DIAGNOSIS

CAR DOES NOT MAINTAIN CORRECT HEIGHT

POSSIBLE CAUSES

a. Leaks in System

b. Incorrect Rear Height Adjustment

c. Incorrect Front Height Adjustment

UNABLE TO OBTAIN CORRECT HEIGHT

POSSIBLE CAUSES

a. Broken or Pinched Air Line

b. Leak in Air Spring

c. Leak in Height Control Valve

d. Fast Leak in Low Pressure Volume Tank
e. Height Control Valve Out of Adjustment
f. Rubber Linkage Loose or Broken at Differential
g. Broken Height Control Actuator Arm

LOW AIR PRESSURE
POSSIBLE CAUSES

a. Leak in Air Line
b. Compressor Belt Broken or Out of Adjustment
c. Slipping Drive Belt
d. Plugged Check Valve
e. Leaking Cylinder Head Gasket
f. Leaking Valve Plate Gasket
g. Cracked Cylinder Head
h. Worn Reed Valves
i. Excessive Cylinder Wall Wear
j. Excessive Piston Ring Wear

EXCESSIVE AIR PRESSURE
POSSIBLE CAUSES

a. Carbon Build Up on Cylinder Head
b. Carbon Build Up on Pistons
c. Excessive Oil on Top of Piston

Section II
REAR AXLE
DATA AND SPECIFICATIONS

MODELS	MC-1, MC-2, MC-3, MY-1
TYPE	Semi-Floating
GEAR TYPE	Hypoid
RINIG GEAR DIAMETER	8.75 inch
PINON BEARING	2
TYPE	Tapered Roller
ADJUSTMENT	Shim Pack
DIFFERENTIAL BEARINGS	2
TYPE	Tapered Roller
ADJUSTMENT	Threaded Adjuster
DRIVE GEAR AND PINION	Matched Sets
DRIVE GEAR RUNOUT	.005 inch Maximum
DRIVE GEAR AND PINION BACKLASH	.006 to .008 inch
DIFFERENTIAL SIDE GEAR CLEARANCE	.001 to .012 inch

MODELS	MC-1, MC-2, MC-3, MY-1 Including Town & Country Models
AXLE RATIO	
Standard Ratio	2.93 to 1
Ratio with Air Conditioning	2.93 to 1
No. of Drive Gear Teeth	41
No. of Drive Pinion Teeth	14
WHEEL BEARINGS	
Type	Tapered Roller
Adjustment	Select Shims
Axle End Play	.013 to .018 inch

REAR AXLE

There is no basic design change in the rear axle and sure grip differential except the larger diameter pinion shaft is now used on all models for 1959. The Service Procedures will remain the same on the Rear Axle and Sure Grip Differential as specified in the 1958 Chrysler and Imperial Service Manual, D-16350.

Section III

BRAKES

DATA AND SPECIFICATIONS

MODELS	MC-1	MC-2, MC-3, MY-1
TYPE	Total Contact (Floating Shoe) Hydraulic	
DRUM DIAMETER	11 in.	12 in.
LINING		
Type	Moulded Asbestos	
Attachment	Cyclebond	
Width	2½ in.	
Thickness	13/64 in.	
BRAKE SHOE RETURN SPRING TENSION USING FISH SCALE HOOKED AT TOE OF SHOE	35 to 45 lbs. required to break contact between shoe and push rod	
BRAKE PEDAL FREE PLAY	1/32 in. to 1/8 in. (in models with Power Brakes)	
WHEEL CYLINDER BORE		
Front—Upper and Lower	1⅛ in.	
Rear	1⅛ in.	
MASTER CYLINDER BORE	1⅛ in.	
PISTON CLEARANCE	.003 in. to .0065 in.	

HAND BRAKE

MODELS	MC-1, MC-2, MC-3, MY-1
TYPE	Internal Expanding
LOCATION	Propeller Shaft at Rear of Transmission
DRUM DIAMETER	7 inch
LINING TYPE	Moulded and Compressed Asbestos
Length	13.06 inch
Width	2 in.
Thickness	5/32 in.
Clearance	.015 in. to .020 in.

TOTAL CONTACT SERVICE BRAKES (Figs. 19 and 20)

Servicing procedures outlined in the 1958 Chrysler and Imperial Service Manual, D-16350, will apply to the 1959 models with the exception of the removal and installation of the new brake shoe retainer.

All brake shoes have a coil spring type guide. The guide retainer pin extends through the dust shield, the web of the shoe, a flat washer, the coil spring and the cupped retainer.

Removal — While holding retainer pin in dust shield, push retainer toward brake shoe, turning the retainer to unlock it from the pin.

Remove retainer, spring and washer from pin. Remove retainer pin from dust shield.

Installation — Insert retainer pin through the dust shield and brake shoe. Install washer, spring and retainer on retainer pin.

While holding retainer pin in dust shield, push retainer toward brake shoe, turning the retainer to lock it on the pin.

MASTER CYLINDER

The master cylinder used with power brakes has an adjustable pushrod. A new master cylinder assembly is used on Chrysler Models without power brakes.

The new master cylinder has a non-adjustable push rod-and-piston stop which is permanently attached to the piston. The boot retainer is also a part of the assembly. The assembly is attached to the mounting face of the master cylinder body with two

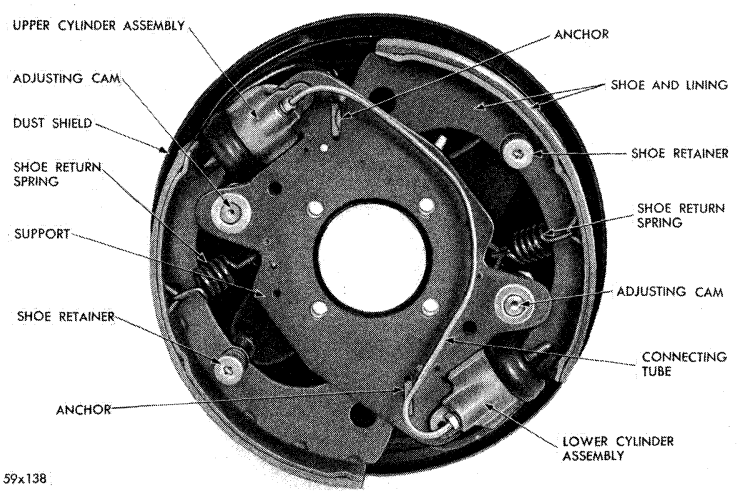


Fig. 19 — Total Contact Brake Assembly (Front)

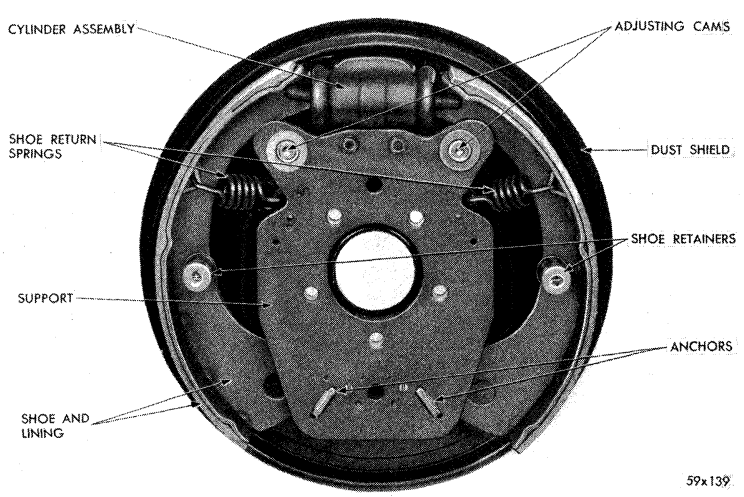


Fig. 20 — Total Contact Brake Assembly (Rear)

screws. No attempt should be made to disassemble this push rod and piston.

The combined action of the piston return spring and the pressure in the master cylinder is sufficient to hold the brake pedal in the "off" position, without a pedal return spring and pedal stop. The brake pedal should never be pulled back beyond the limit controlled by the piston stop. A minimum pull of 50 pounds could pull the piston off the push rod.

PISTON TYPE POWER BRAKE UNIT

The 1959 Chrysler and Imperial Models will have both the "Bellows Type" Power Brake as well as the "Piston Type." The servicing procedure for the "Bellows Type" is the same as that in the 1958 Chrysler and Imperial Service Manual. The servicing procedure for the "Piston Type" is outlined below:

The piston type power brake is an oval-shaped air-vacuum unit (Fig. 21) mounted on the engine side of the dash panel and is connected mechanically to the brake pedal linkage through the power unit push rod.

A yoke at the end of the piston rod is in contact with the power lever pin of the reactionary linkage. The valve operating rod is located at the center of piston rod and is always in contact with a ramp at the upper end of the valve trigger arm of pedal linkage. A control valve operating rod (Fig. 21) moves within the piston rod to actuate the vacuum valve and poppet.

The mechanical contact between the power unit and the brake linkage exists only when the power unit is assisting in a brake application. In the event there is a loss of engine vacuum, the brake pedal is free to function independent of the power unit to apply the brakes in the conventional manner.

PEDAL LINKAGE ADJUSTMENTS (ON CAR)

It should seldom be necessary to adjust the brake pedal trigger arm. Adjustment, however, may be necessary, occasionally, to eliminate the following conditions:

If the pedal pressure releases slowly, adjust by rotating the adjustment screw in a counter-clockwise direction. A time delay (noted during a fast brake application), can usually be corrected by making a clockwise adjustment on the adjusting screw. Should the pedal vibrate (booster chatter), turn the adjusting screw in a counter-clockwise direction.

NOTE: Rotation of adjustment screw should be limited to plus or minus 90 degrees about original setting.

ASSEMBLY OF PEDAL LINKAGE IN PEDAL BRACKET

CAUTION

Use extreme care during assembly or handling of the linkage as the power brake pedal trigger arm is easily damaged.

After reinstalling the brake pedal linkage in the pedal bracket, a wooden wedge should be placed between the power brake lever and the forward edge of the triangular hole in the pedal bracket (if power

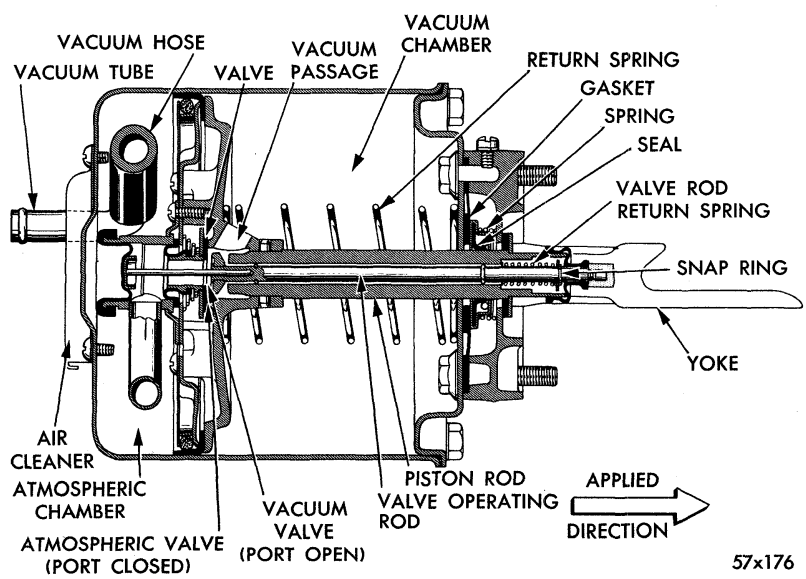


Fig. 21 — Power Brake Unit (Sectional View)

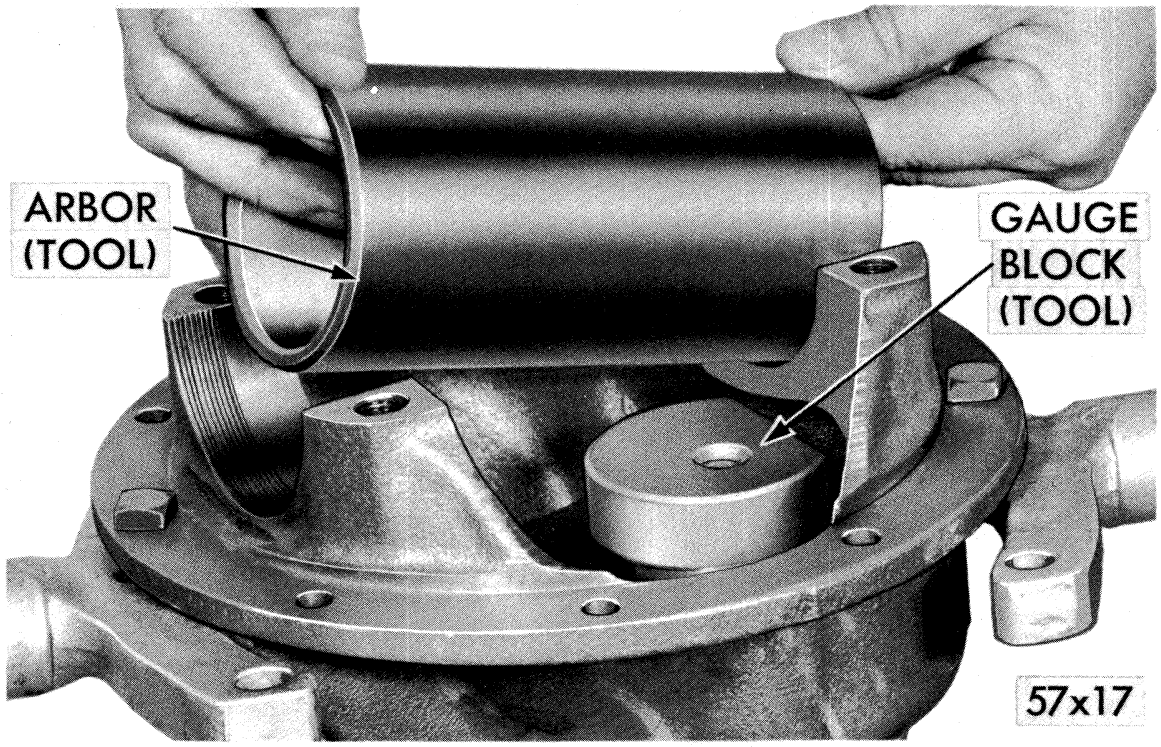


Fig. 22 — Power Brake Unit (Exploded View)

unit has been removed). This will prevent the trigger arm from extending beyond the extremities of the bracket.

LUBRICATION

Except for an occasional few drops of SAE 10W Engine Oil on the power brake lever pin bushings, the brake pedal linkage requires no further lubrication. The power unit will require no lubrication under normal usage.

PEDAL FREE PLAY ADJUSTMENT

After the master cylinder, booster, and pedal linkage are completely installed (and wooden wedge removed), a free play adjustment check should be made at **no vacuum** as follows:

NOTE: Removing vacuum hose and pressing the brake pedal several times will aid in obtaining the no vacuum condition.

Insert the blade of a screw driver between the rubber collar of the power brake trigger pivot and the rear side of elongated hole in the power brake lever, forcing them apart.

NOTE: If the brake pedal and the power brake lever are not wedged apart, a false free play setting (which includes booster valve travel) will be measured at the pad end of the pedal.

Check free play with linkage in this position by pushing lightly at the pad end of the brake pedal. Pedal free play travel should be between 1/32 and 1/8 inch. If pedal free play movement does not come within the required limits, adjustment is made by lengthening or shortening the push rod as required.

ALTERNATE METHOD OF MEASURING PEDAL FREE PLAY

Remove master cylinder push rod end pin. Using light finger pressure, move push rod forward until contact is made with the master cylinder piston. Attempt to insert the push rod pin through the power lever and push rod end hole. If the push rod must be pulled back to allow passage of the push rod end pin, free play is present.

If the push rod must be pushed further into the master cylinder to allow passage of push rod end pin, no free play is present and an adjustment must be made at the push rod.

POWER BRAKE

a. Removal (Fig. 22)

Place a wood wedge between power brake lever and

forward edge of triangular hole in pedal bracket, to prevent trigger arm from extending beyond extremities of bracket.

NOTE: If pedal linkage is allowed to extend through hole in dash panel the trigger arm may be damaged.

Disconnect vacuum hose at power unit. Remove attaching bolts at dash panel and carefully remove power unit assembly.

NOTE: Use care to prevent loss of the pedal linkage cross pin.

b. Disassembly

Scribe across flange of cylinder and end plate as a guide to correct assembly (Fig. 23).

NOTE: Do not clamp yoke in vise during any operation.

Remove the cylinder shell and gasket, disconnecting the vacuum hose from the air cleaner cover.

CAUTION

The vacuum tube must be in the lowest quadrant (Fig. 4). Make certain the bead at outer diameter of diaphragm is in the annular groove of the tube and plate assembly.

Install valve rod poppet and applying diaphragm.

NOTE: Before installing the vacuum cylinder, make the following test.

Depress the valve rod and at the same time, try to blow through the vacuum hose. Failure to blow through the hose indicates the poppet assembly is properly seated.

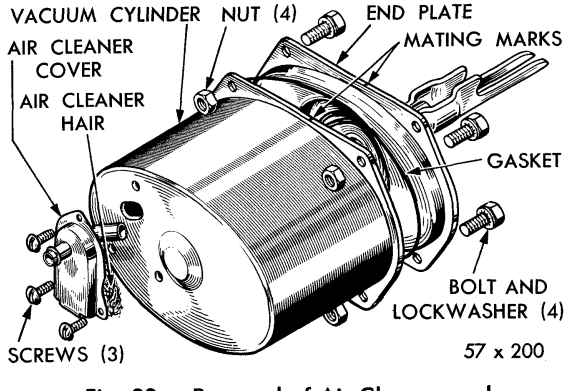


Fig. 23 — Removal of Air Cleaner and Vacuum Cylinder)

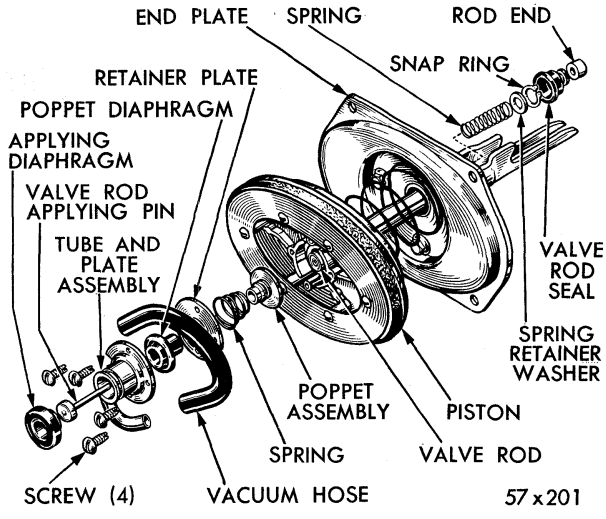


Fig. 24 — Disassembly of Tube and Plate Assembly

Install a new vacuum cylinder gasket and connect vacuum hose. Align vacuum cylinder and end plate scribe marks and assembly.

c. Installation

Position the power brake unit on dash panel of car so that its axis inclines down toward front of car. (Fig. 28)

NOTE: As yoke passes through dash panel, be sure that it engages pedal linkage correctly by sliding over nylon bushings on power brake lever cross pin. Install and connect master cylinder.

Replace four hex nuts and lockwashers, tighten nuts securely, and release pedal. Install vacuum hose and hose clips, operate engine and check pedal free play. Refer adjustment on "pedal free play."

d. Lubrication

The power unit will require no lubrication under normal use. If the unit is disassembled for overhaul or repair, all oil seals and "O" rings must be suitably coated with silicone grease before assembly.

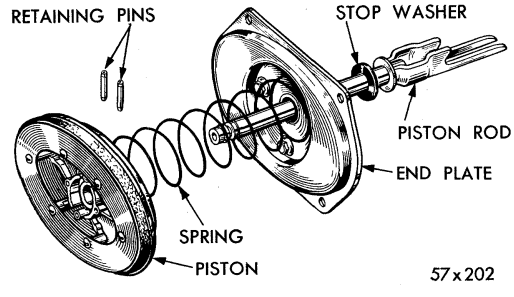


Fig. 25 — Removal of Vacuum Piston, Spring and Piston Rod

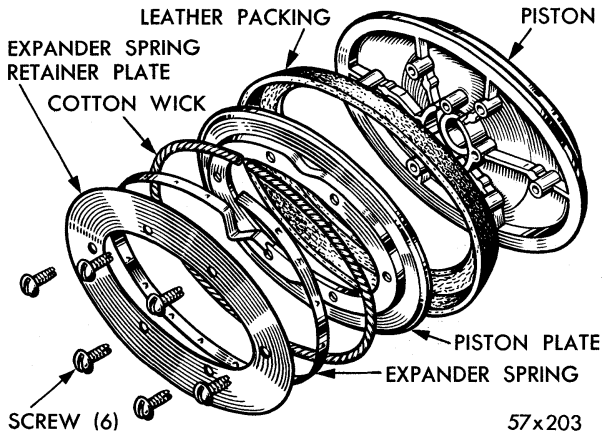


Fig. 26 — Disassembly of Vacuum Piston

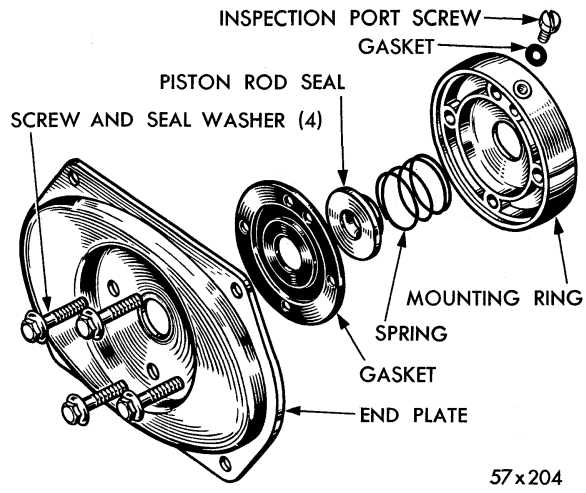


Fig. 27 — Removal of Mounting Ring, Seal and Washer

PEDAL LINKAGE

a. Removal from Pedal Bracket (Power Unit Installed)

Remove pedal return spring, master cylinder push rod end pin and power brake pedal lever shaft.

Rotate pedal linkage assembly counter-clockwise while withdrawing power lever cross pin from booster unit yoke.

Scribe across the tube plate and piston plate to insure correct assembly. Remove the vacuum rod applying pin, and tube and plate assembly (Fig. 24). Remove the retainer plate, spring and valve as an assembly. Remove the nylon button and the valve rod seal. Remove the valve rod snap ring and remove the washer and spring. Remove the valve rod from the piston rod end.

Remove the piston rod retaining pins from the piston and separate the piston and piston rod. Remove the piston rod and rubber stop washer (Fig. 25).

Refer to Figure 26 and disassemble the piston.

Separate the mounting ring from the end plate (Fig. 27). Remove the retaining spring, seal retainer, piston seal and rubber gasket. Remove the inspection port screw from the mounting ring.

b. Cleaning and Inspection

Clean all rubber parts in alcohol. Thoroughly wash all metal parts. If inspection reveals nicks or scratches on the piston rod, valve seat at end of valve rod,

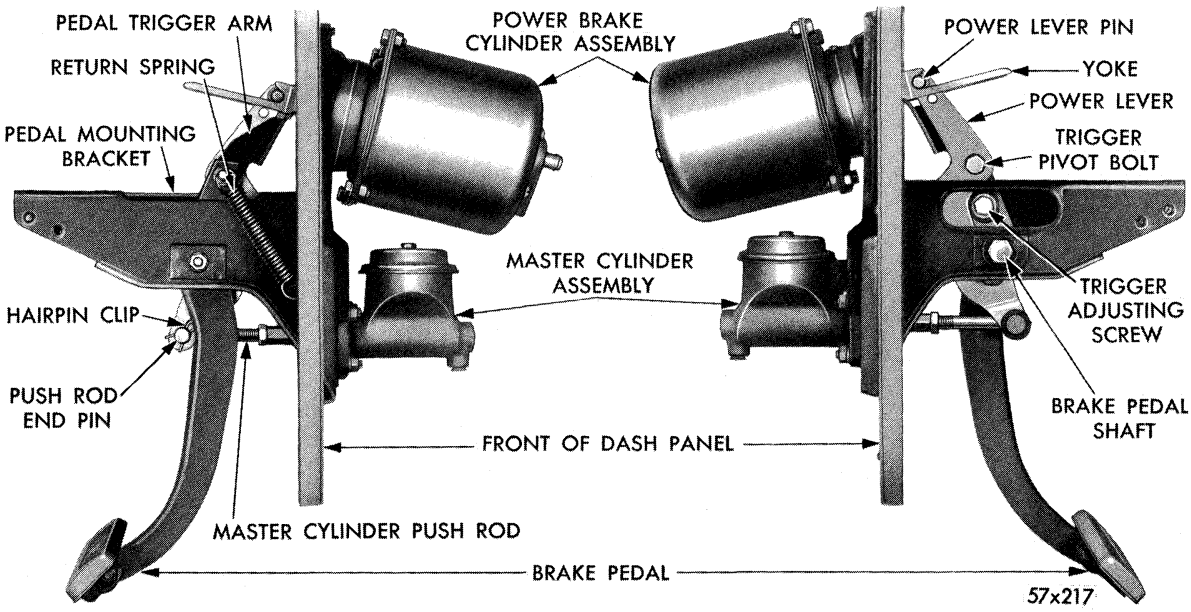


Fig. 28 — Power Brake Unit Installed

or valve seat at center of piston plate, replace parts.

Replace an excessively worn leather packing or piston rod leather seal.

c. Assembly

Be sure all metal parts are clean and thoroughly dry. Refer to Figure 26 and assemble piston plate as follows: With ribbed portion up, position the leather packing and piston plate. Install the wick, expander spring and wick retainer plate.

NOTE: Dip the wick in vacuum cylinder oil prior to installation.

Refer to Figure 27 and assemble the mounting ring and end plate as follows:

Insert the end plate mounting plate screws in the end plate and install the rubber gasket. Apply silicone grease to outer face of gasket around center hole. Position the piston rod seal and retainer and retaining spring. Coat the bearing surface of mounting ring with silicone grease and install the mounting ring (ribbed portion up).

Slide the piston rod stop washer on the piston rod.

CAUTION

Before inserting the piston rod through the leather seal, cover approximately 1¼ inches of the piston rod with scotch tape to prevent the sharp edges of the piston rod from damaging the seal.

Insert the piston rod through the seal and position the piston spring on the end plate. Insert the piston rod into the piston and install the retaining pins (Fig. 25).

Insert the valve rod in the piston and install the valve rod spring, washer and snap ring. Install the valve rod seal and valve rod nylon button.

Position the retainer plate, spring, and poppet on the piston. Install the tube and plate assembly.

NOTE: Pedal is slotted to provide clearance for removal of brake pedal assembly.

d. Installation of Pedal Linkage in Pedal Bracket

CAUTION

Use extreme care during assembly or handling of the linkage, as the power brake pedal trigger arm is easily damaged.

After reinstalling brake pedal linkage in pedal bracket, a wooden wedge should be placed between power brake lever and forward edge of triangular hole in pedal bracket (if power unit has been removed). This will prevent trigger arm from extending beyond extremities of bracket.

SERVICE DIAGNOSIS

PEDAL RELEASES SLOWLY AFTER APPLICATION OR BRAKE PEDAL VIBRATES (BOOSTER CHATTER)

Pedal trigger arm improperly adjusted. Rotate linkage adjusting screw in counter-clockwise direction. See paragraph "Adjustments."

DELAY IN APPLICATION (NOTED DURING FAST BRAKE APPLICATION)

Pedal trigger arm improperly adjusted. Rotate the linkage adjusting screw in a clockwise direction. See paragraph "Adjustments."

LACK OF POWER ASSISTANCE (WHEN COLD)

NOTE: This condition only occurs when the car has been setting for a long period of time (storage). Unit must be disassembled, cleaned of all old lubricants, seals and diaphragm must be softened with silicone grease before unit will function properly.

LEAKS IN BOOSTER (Whistle when Brake is Applied)

a. Air leaks in vacuum lines.

b. Leaks in power cylinder. Recondition complete power cylinder assembly.

Section IV

ACCESSORY BELT DRIVES

The satisfactory performance of the belt driven accessories depends on the maintenance of the proper belt tension. If the specified tensions are not maintained, belt slippage may cause engine overheating, lack of power steering assist, loss in air conditioning capacity, air suspension height control failure, re-

or valve seat at center of piston plate, replace parts.

Replace an excessively worn leather packing or piston rod leather seal.

c. Assembly

Be sure all metal parts are clean and thoroughly dry. Refer to Figure 26 and assemble piston plate as follows: With ribbed portion up, position the leather packing and piston plate. Install the wick, expander spring and wick retainer plate.

NOTE: Dip the wick in vacuum cylinder oil prior to installation.

Refer to Figure 27 and assemble the mounting ring and end plate as follows:

Insert the end plate mounting plate screws in the end plate and install the rubber gasket. Apply silicone grease to outer face of gasket around center hole. Position the piston rod seal and retainer and retaining spring. Coat the bearing surface of mounting ring with silicone grease and install the mounting ring (ribbed portion up).

Slide the piston rod stop washer on the piston rod.

CAUTION

Before inserting the piston rod through the leather seal, cover approximately 1¼ inches of the piston rod with scotch tape to prevent the sharp edges of the piston rod from damaging the seal.

Insert the piston rod through the seal and position the piston spring on the end plate. Insert the piston rod into the piston and install the retaining pins (Fig. 25).

Insert the valve rod in the piston and install the valve rod spring, washer and snap ring. Install the valve rod seal and valve rod nylon button.

Position the retainer plate, spring, and poppet on the piston. Install the tube and plate assembly.

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d. Installation of Pedal Linkage in Pedal Bracket

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Use extreme care during assembly or handling of the linkage, as the power brake pedal trigger arm is easily damaged.

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SERVICE DIAGNOSIS

PEDAL RELEASES SLOWLY AFTER APPLICATION OR BRAKE PEDAL VIBRATES (BOOSTER CHATTER)

Pedal trigger arm improperly adjusted. Rotate linkage adjusting screw in counter-clockwise direction. See paragraph "Adjustments."

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NOTE: This condition only occurs when the car has been setting for a long period of time (storage). Unit must be disassembled, cleaned of all old lubricants, seals and diaphragm must be softened with silicone grease before unit will function properly.

LEAKS IN BOOSTER (Whistle when Brake is Applied)

a. Air leaks in vacuum lines.

b. Leaks in power cylinder. Recondition complete power cylinder assembly.

Section IV

ACCESSORY BELT DRIVES

The satisfactory performance of the belt driven accessories depends on the maintenance of the proper belt tension. If the specified tensions are not maintained, belt slippage may cause engine overheating, lack of power steering assist, loss in air conditioning capacity, air suspension height control failure, re-

duced generator charging rates, and greatly reduced belt life. To avoid any such adverse effects, the following service procedure should be followed:

1. Adjust all belts "in use"* to the specified belt tension at new car preparation.

2. Readjust all belts at the 2,000 mile inspection and service.

3. Check all belts by the deflection method at servicing and readjust if needed.

4. The new belt tension specifications should be used on all new belt installations and the above procedure followed thereafter.

There are two methods by which belt tensions can be properly established:

Torque Method — All generator and power steering pump belts can be tightened to the specified tension (see Tension Specifications that follow), by use of a torque wrench. The generator belts are tensioned by using a special tool C-3379, and torque wrench. The power steering belts are tightened by inserting the torque wrench in the square hole provided in the bracket. Other belts can also be tightened by this method if the adjusting bracket has a square hole.

To tighten belts by the torque method, loosen all mounting bolts and apply the specified torque to the accessory or idler. Tighten all mounting bolts while the torque is applied to the accessory. If it is not possible to use the torque wrench because of clearance, use an extension.

Belt Deflection Method — All belts can also be adjusted by measuring the deflection of the belt at the mid-point between two pulleys under a five-pound push or pull. A small spring scale can be used to establish the five-pound load. See Figure 29 for correct location at which to measure deflection.

This method should be used only when it is not possible to use the torque method, as it is a less accurate method. To tension the belts by the deflection method, loosen all mounting bolts and use a bar to apply tension to the belts being careful not to damage the accessory. A Johnson bar can be used if the accessory has a square hole. Tighten the mounting bolts and check the deflection. (see Belt Tension specifications). It may be necessary to repeat this procedure several times to establish the correct tension.

* Any belt that has operated for a minimum of a half-hour is considered to be "in use."

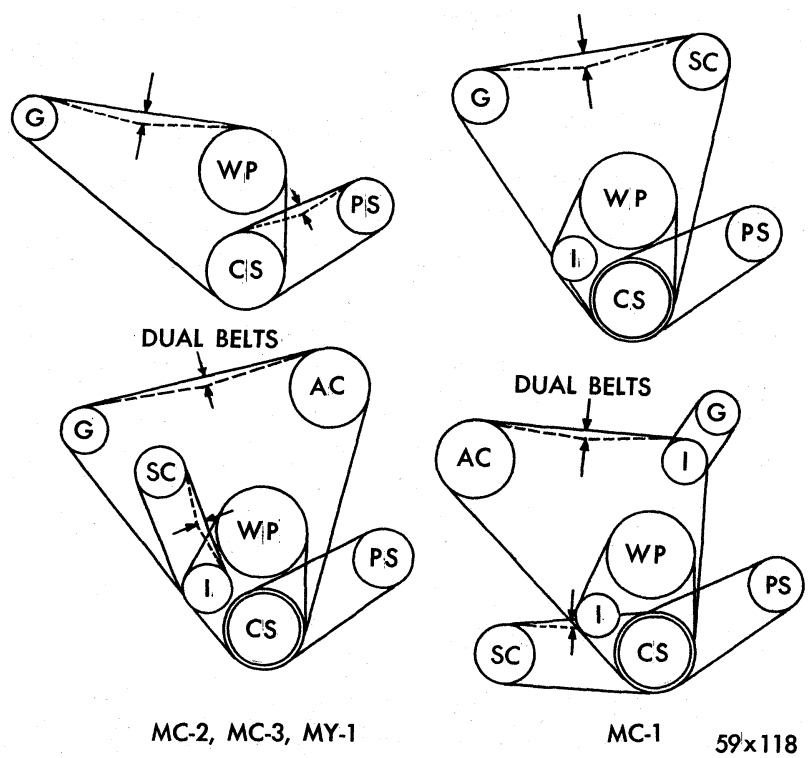

Fig. 29 — Belt Deflection Location

1. CS—Crankshaft
2. WP—Water Pump
3. G—Generator
4. PS—Power Steering
5. I—Idler
6. AC—Air Conditioning
7. SC—Suspension Compressor

BELT TENSION SPECIFICATIONS
TORQUE METHOD

Torque (Ft. Lbs.) to be Applied to Components

ACCESSORY	BELT IN USE	NEW BELT
POWER STEERING BRACKET	55	90
GENERATOR—WITHOUT AIR CONDITIONING	20	30
MC-1 WITH AIR CONDITIONING	10	15
MC-2, MC-3, MY-1 WITH AIR CONDITIONING	35	65
WITH SUSPENSION COMPRESSOR	30	40
FAN IDLER BRACKET	35	50
AIR CONDITIONING IDLER BRACKET (MC-1)	50	85

BELT DEFLECTION METHOD

Deflection (inches) to be Applied at Mid-Point of Belt Segment Under a 5 pound Load—See Figure 29

ACCESSORY	BELT IN USE	NEW BELT
POWER STEERING	3/16	1/8
FAN BELT—IDLER	1/8	1/16
GENERATOR—WITHOUT AIR CONDITIONING	1/4	1/8
WITH SUSPENSION COMPRESSOR	9/16	5/16
MC-1 WITH AIR CONDITIONING	1/4	1/8
MC-2, MC-3, MY-1—WITH AIR CONDITIONING	3/8	1/4
SUSPENSION COMPRESSOR BELT MC-1 WITH AIR CONDITIONING	1/4	1/8
SUSPENSION COMPRESSOR BELT MC-2, MC-3, MY-1 WITH AIR CONDITIONING	1/8	1/16

SERVICE DIAGNOSIS

Insufficient Accessory Output Due to Belt Slippage
Check belt tension and belt condition. If belt is excessively glazed or worn, install new belts and adjust as specified.

Belt Squeal when Accelerating Engine

a. Belts too loose—retighten.

b. Belts glazed—install new belts.

Belt Squeak at Idle

a. Misaligned pulleys—align accessories (file brackets or use spacers as required).

b. Non-uniform groove or eccentric pulley—replace pulley.

c. Non-uniform belt—replace belt.

d. Dirt and paint imbedded in belt—replace belt.

e. Belt too loose—retighten.

f. Belts glazed—install new belts and tighten to specified tension.

Belt Rolled Over in Groove

Broken cord in belt—replace belt.

Belt Jumps Off

a. Belt too loose—retighten.

b. Misaligned pulleys—align accessories.

Section V
COOLING SYSTEM
DATA AND SPECIFICATIONS

MODELS	MC-1, MC-2, MC-3, MY-1
COOLING	
Type	Pressure Vent
Capacity	
With Heater	17 qts.
Without Heater	16 qts.
Radiator Cap Relief	
Valve Pressure—psi	14
With Air Conditioning—psi	16
WATER PUMP	
Type	Centrifugal
Bearing Type	Ball Bearing
THERMOSTAT	
Type	Choke (Permanent By-Pass)
Starts to Open (up to)	177° to 182° F.
Fully Open	202° F.
FAN BELT	
Number Used (Standard Steering)	One
Power Steering	Two
Type	V
Tension	See Accessory Belt Drive, Section IV
FAN	
Number of Blades	*Four
Diameter	18 inches
MC-3, MY-1 with Air Conditioning	18½ inches
RADIATOR-TO-BLADE	
Clearance	Top—¾ inch Bottom—¾ inch

	MC-1 & MC-2	MC-3 & MY-1
RADIATOR		
Type (Standard)	Cellular Tubular	Cellular Tubular or Fin and Tube
Thickness	1½ inch	2 inch
Type (Air Conditioning)	Cellular Tubular	Fin and Tube
Thickness	2¼ inch	2¼ inch

*MC-1 with Air Conditioning have box shroud six blade fan with 2¼ inch radiator.

*MC-2, MC-3, MY-1 with Air Conditioning have a box type fan shroud, five blade Silent Flite fan and the fan to engine ratio is 1.20 to 1.

*On MC-1, five blade Silent Flite fan is not available.

COOLING SYSTEM

The cooling system servicing is the same for 1959 with the exception of the following: The capacity of the radiator cooling system is 17 quarts with a heater and 16 quarts without a heater.

The radiator oil cooler located in the bottom of the pan in the radiator tank has a new service procedure.

Testing for Leaks

Remove the two oil cooler lines at the radiator. Connect a pressure gauge to one cooler outlet. Connect a source of air pressure with a shut-off valve (closed position) to the other outlet. **Do not use pipe sealers since the sealer may get into transmission oil circuit.** Open valve slightly and admit air pressure not to exceed 50 psi gauge reading, then close valve. If the cooler and all fittings are leak proof, the gauge reading will remain constant.

When a leak is detected, remove radiator from car. Remove radiator lower tank (soft solder). Test the cooler with 50 psi air pressure in water to locate leak. Repair the leak using silver solder. If necessary, have a competent radiator repair shop repair the leak or install a new cooler.

Section VI

ELECTRICAL SYSTEM

DATA AND SPECIFICATIONS

BATTERY

	MC-1, MC-2, MC-3, MY-1
Voltage	12
Capacity	78 Plate 70 Amp Hour
Terminal Ground	Negative

STARTER

	MC-1, MC-2, MC-3, MY-1
Car Model Usage	MDT-6002-1770712
Starter Model	MDT-6002
Voltage	12
No. of Fields	4
No. of Poles	4
Brushes	4
Spring Tension	32 to 48 Ounces
Drive	Solenoid Shift Overrunning Clutch
End Play	.005″ Minimum
Free Running Test	
Voltage	11
Amperage Draw	80 Amps Minimum
Minimum Speed rpm	3800 Minimum
Stall Torque Test	
Torque Foot-Pounds	8.5
Voltage	4
Amperage Draw	350
Pinion to Housing	.070″ to .120″
Clearance	Between Pinion Stop (with Armature End Play removed)

COOLING SYSTEM

The cooling system servicing is the same for 1959 with the exception of the following: The capacity of the radiator cooling system is 17 quarts with a heater and 16 quarts without a heater.

The radiator oil cooler located in the bottom of the pan in the radiator tank has a new service procedure.

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When a leak is detected, remove radiator from car. Remove radiator lower tank (soft solder). Test the cooler with 50 psi air pressure in water to locate leak. Repair the leak using silver solder. If necessary, have a competent radiator repair shop repair the leak or install a new cooler.

Section VI

ELECTRICAL SYSTEM

DATA AND SPECIFICATIONS

BATTERY

	MC-1, MC-2, MC-3, MY-1
Voltage	12
Capacity	78 Plate 70 Amp Hour
Terminal Ground	Negative

STARTER

	MC-1, MC-2, MC-3, MY-1
Car Model Usage	MDT-6002-1770712
Starter Model	MDT-6002
Voltage	12
No. of Fields	4
No. of Poles	4
Brushes	4
Spring Tension	32 to 48 Ounces
Drive	Solenoid Shift Overrunning Clutch
End Play	.005″ Minimum
Free Running Test	
Voltage	11
Amperage Draw	80 Amps Minimum
Minimum Speed rpm	3800 Minimum
Stall Torque Test	
Torque Foot-Pounds	8.5
Voltage	4
Amperage Draw	350
Pinion to Housing	.070″ to .120″
Clearance	Between Pinion Stop (with Armature End Play removed)

STARTER (Cont'd)

Solenoid Switch	
Pull-in Coil	28.6 to 32.9 Amps at 6 Volts
Hold-in Coil	10.2 to 11.8 Amps at 6 Volts

LIGHT BULBS

	Number Required	Mazda Number	C.P. or Watts	Chrysler Part No.
Headlights Inner (High Beam Only)	2	4001	37½ W	1753435
Headlights Outer (High and Low Beam)	2	4002	50-37½ W	1753436
Headlight Beam Indicator Light	1	57	2	127934
Parking and Front Turn Signal	2	1034	32-4	151567
Rear Tail, Stop and Turn Signal Light	2	1034	32-4	151567
License Plate Light	2	67	3	142450
Glove Box Light	1	57	2	127934
Instrument Lights	4	57	2	127934
Map Light	1	1004	15	151578
Turn Signal Indicator Light	2	57	2	127934
Dome Light	1 or 2	1004	15	151578
Hand Brake Warning Light	1	90	6	142453
Back Up Light	2	1073	32	142456
Transmission Push Button Light	1	57	2	127934
Radio Dial Light	2	1891		
Clock Light	1	57	2	127934
Trunk Light	1	1003	15	151577

CIRCUIT PROTECTORS

Circuit	Type	Rated Capacity	Location
Lighting System	Circuit Breaker	22½ Ampere	Integral with Headlight Switch
Clock	Fuse	1 Ampere	At Fuse Block*
Windshield Wiper	Circuit Breaker	6 Ampere	At Fuse Block*
Radio	Fuse	7½ Ampere	At Fuse Block*
Dome Lamp	Fuse	6 Ampere	At Fuse Block*
Window Lifts	Circuit Breaker	20 Amp-30 Amp	At Terminal Block Behind Left Front Kick Panel
Back-Up Light	Fuse	6 Ampere	At Fuse Block*
Cigar Lighter	Fuse	14 Ampere	At Fuse Block*
Six-Way Seat	Circuit Breaker	40 Ampere	At Terminal Block Behind Left Front Kick Panel
Rear Defroster	Fuse	6 Ampere	At Fuse Block*
Heater	Circuit Breaker	20 Ampere	At Fuse Block*
Air Conditioner (front)	Circuit Breaker	30 Ampere	At Fuse Block*
Air Conditioner (rear)	Circuit Breaker	20 Ampere	At Fuse Block*
Air Conditioner (dual)	Circuit Breaker	30 Ampere	At Fuse Block*

*Fuse block is located at instrument panel (driver's compartment) to the left of radio.

GENERATORS

Car Model	MC-1		MC-2, MC-3	MY-1	
Generator Model					
Standard	GJM-8001A; 1842801		GJM-8001A; 1842801	GHM-8005A; 1842778	
With Air Conditioning Front Unit Only	GJM-8001A; 1842801		GJM-8002A; 1842797	GHM-8001A; 1842774	
Dual Air Conditioning Front and Rear	GHM-8005B; 1889400		GHM-8001A; 1842774	GHM-8001A; 1842774	
Gas Heater			GHM-8005A; 1842778	GHM-8005A; 1842778	
Heavy Duty	GGA-6003E; 1842603		GGA-6003E; 1842603	GGA-6003E; 1842603	
Heavy Duty True-Level Torsion Aire			GGA-6001N; 1658863	GGA-6001N; 1658863	
Generator Model	GGA-6001N GGA-6003E	GHM-8001A	GHM-8005A GHM-8006B	GJM-8001A	GJM-8002A
Rotation	Clockwise at Drive End	Clockwise at Drive End	Clockwise at Drive End	Clockwise at Drive End	Clockwise at Drive End
Voltage	12	12	12	12	12
Rated Output	40 Amperes	30 Amperes	30 Amperes	35 Amperes	35 Amperes
Control	Vibrating Regulator	Vibrating Regulator	Vibrating Regulator	Vibrating Regulator	Vibrating Regulator
Ground Polarity	Negative	Negative	Negative	Negative	Negative
Poles	2	2	2	2	2
Brushes	2	2	2	2	2
Brush Spring Tension	34 to 41 ounces	35 to 53 ounces	35 to 53 ounces	18 to 36 ounces	18 to 36 ounces
Bearings	Ball—Both Ends	Ball—Both Ends	Ball & Sleeve	Ball & Sleeve	Ball—Both Ends
End Play	.003″-.010″	.003″-.010″	.003″-.010″	.003″-.010″	.003″-.010″
Field Coil Draw (Arm. to field term.)	1.2 to 1.3 Amps at 10 Volts	1.2 to 1.3 Amps at 10 Volts	1.2 to 1.3 Amps at 10 Volts	1.4 to 1.7 Amps at 10 Volts	1.6 to 1.7 Amps at 10 Volts
Motoring Draw	2.9 to 3.4 Amps at 10 Volts	3.3 to 3.8 Amps at 10 Volts	3.3 to 3.8 Amps at 10 Volts	3.8 to 4.3 Amps at 10 Volts	3.8 to 4.3 Amps at 10 Volts
Output Tests (at 70° F.)	10 Amps, 13.4 Volts at 1020 max. rpm 40 Amps, 15 Volts at 1800 max. rpm	10 Amps, 13.5 Volts at 1040 max. rpm 30 Amps, 15 Volts at 1800 max. rpm	10 Amps, 13.5 Volts at 1040 max. rpm 30 Amps, 15 Volts at 1800 max. rpm	10 Amps, 13.4 Volts at 1480 max. rpm 35 Amps, 15 Volts at 2400 max. rpm	10 Amps, 13.4 Volts at 1480 max. rpm 35 Amps, 15 Volts at 2400 max. rpm

REGULATOR

Car Model	MC-1, MC-2, MC-3, MY-1		
Regulator Model	VRX-6301A-1842798 (For 35 Amp Generators)	VRX-6201A-1642333 (For 30 Amp Generators)	VAT-6201-1662137 (For 40 Amp Generators)
Volts	12	12	12
Ground Polarity	Negative	Negative	Negative
Resistors			
Marked 60		55.0 to 70.0 ohms	
Marked 38	34.5 to 45 ohms	34.5 to 42.0 ohms	
Marked 30		28.0 to 34.5 ohms	
Voltage Regulator			
Voltage Winding Resistance	44.0 to 49.0 ohms		
Armature Air Gap	.048 to .052 inch Contacts closed with high limit gauge installed. Contacts open with low limit gauge installed. Gauge on contact side and next to brass stop pin.		

Voltage Setting (operating voltage)
After 15 minutes run at 7 amperes

Temperature in degrees F.	50°	60°	70°	80°	90°	100°	110°	120°
Maximum Setting	15.04	14.97	14.90	14.83	14.76	14.69	14.01	14.54
Minimum Setting	14.42	14.36	14.30	14.23	14.16	14.09	14.62	13.94

Current Limiting Regulator
Armature Air Gap: .048 to .052 inch
Contacts closed with high limit gauge installed.
Contacts open with low limit gauge installed.
Gauge on contact side and next to brass stop pin.

Current Setting (After voltage Regulator Setting)
Operating Amperage after 15 minutes at 7 amperes. Then followed with a 15 minute run at rated current regulator setting below 13.5 volts).

	Temperature (F)	50°	60°	70°	80°	90°	100°
Model VRX-6201A (1642333) 30 Amp.	Max. Setting	35	33	32	31	30	29
	Min. Setting	31	29	28	27	26	25
Model VRX-6301A (1842798) 35 Amp.	Max. Setting	39	38	37	36	35	34
	Min. Setting	35	34	33	32	31	30
Model VAT-6201 (1662137) 40 Amp.	Max. Setting	46	45	44	43	42	41
	Min. Setting	42	41	40	39	38	37

Cut-Out Relay:
Voltage Winding Resistance: 107 to 121 ohms
Air Gap (contacts open): .031 to .034 inch
(Measure gap as near to hinge as possible)

Point Gap (Minimum): .015 inch

Contacts Close (Volts): 12.6 to 13.6 Volts

Contacts Open (after charge of 10 amperes): 8.2 to 9.3 Volts
Discharge Amperes: 0 to 6 amperes (discharge)

DISTRIBUTOR

Car Model	MC-1, MC-2	MC-3, MY-1
Distributor Model	IBP-4006-1842804	IBS-4010A-1842805
Contact Gap	.015 to .018 inch	.015 to .018 inch
Dwell	27° to 32°	(one set points 27° to 32°) (both sets points 34° to 40°)
Condenser Capacity	.25 to .285 Microfarad	.25 to .285 Microfarad
Breaker Arm Tension	17 to 20 ounces	17 to 20 ounces
Drive	Camshaft	Camshaft
Side Play (shaft)	.005 inch Max.	.005 inch Max.
End Play (after assembly)	.003 to .010 inch	.003 to .010 inch
Firing Order	18436572	18436572
Rotation	Counter-clockwise	Counter-clockwise
Timing	10° BTC	10° BTC
Automatic Advance		
Distributor Degrees and rpm	0°@ 270 to 540 0° to 2°@ 540 2° to 4°@ 800 4° to 6°@ 1500 6.5° to 8.5°@ 2350	0°@ 310 to 490 0° to 2°@ 490 3.5° to 5.5°@ 800 6° to 8°@ 1550 8.5° to 10.5°@ 2300
Vacuum Advance		
Distributor Degrees and Inches of Vacuum	0° to 7.2 to 9.1″ 4.5° to 7.5°@ 12″ 9.5° to 12.5°@ 16.5″	0°@ 7.5 to 9.1″ 6.0° to 9°@ 13″ 11.5° to 14.5°@ 18.2″

SPARK PLUGS AND COIL

CAR MODEL	MC-1, MC-2	MC-3, MY-1
Spark Plugs		
Type	A-42	A-42
Size	14 mm	14 mm
Gap	.035 inch	.035 inch

HIGH TENSION CABLES WITH BUILT-IN RESISTANCE

No. 1 Cable 8,300 to 16,600 Ohms
No. 2 Cable 5,500 to 11,000 Ohms
No. 3 Cable 8,100 to 16,200 Ohms
No. 4 Cable 6,000 to 12,000 Ohms
No. 5 Cable 8,800 to 17,600 Ohms
No. 6 Cable 6,300 to 12,600 Ohms
No. 7 Cable 9,400 to 18,800 Ohms
No. 8 Cable 7,200 to 14,400 Ohms

SPARK PLUGS AND COIL (Cont'd)

CAR MODEL	MC-1, MC-2, MC-3, MY-1
Coil	
Model	CAH-4001
Ballast Resistor	PU-5001
Amperes	
Engine Stopped	3.1 Amperes
Engine Idling	2.5 Amperes

HORNS

	All Models
Make	Auto-Lite, Spartan
Current draw at 12.4 volts	9 to 10 amps

ELECTRIC WINDSHIELD WIPER

	All Models
Variable Speed Motor	
Rated Volts	12
Resistor (ohms) (Variable speed wiper)	17-40
Field Current Draw at 13.5 volts	1½ to 2 amps
Motor Current Draw (with dry glass)	
High Speed	1½ amps at 66 to 75 rpm
Low Speed	3 amps at 35 to 40 rpm

POWER SEAT LIFTS

	All Models		
Type Motor	Series Wound		
Rated Voltage	12		
Current Draw with Passenger Load	Pounds	Amps	Volts
Vertical Lift	500	50-60	10.5
	200	40-45	10.6
Horizontal Lift	600	60	10.4
	150	35	11.0

WINDOW LIFTS

	All Models
Type Motor	Series Wound
Rated Voltage	12
Maximum Stall Current	25 amps at 8.9 volts

ELECTRICAL SYSTEM

Servicing the electrical system for the 1959 Chrysler and Imperial Models is the same as for the 1958 models with the following added information.

SPEEDOMETER REMOVAL

Chrysler—Disconnect battery. Disconnect speedometer cable housing. Remove the two nuts and washers from the rear of the speedometer. Slide speedometer out the rear of panel.

Imperial—Disconnect battery. Disconnect speedometer cable housing. Remove 7 screws from the rear of speedometer and pull out speedometer from rear of panel.

SIX-WAY ELECTRIC POWER SEAT — OPTIONAL

The six-way electric power seat is driven by a two-way electric motor which operates through a solenoid and clutch assembly that supplies power through flexible cables to slave units located in the seat tracks.

The control switch is located on the left side of the front seat and is wired through relay to a 40 amp circuit breaker which is located behind the left front kick panel.

CONTROL CIRCUITS

Power is supplied to the motor relay from the circuit breaker. Three wires go to the switch from the motor relay.

One wire (red) is used for power and two wires (white and blue) are used for directional control of the motor.

Three additional wires go from the switch (yellow, green and brown) to the solenoid and clutch assembly which control movement of front, rear and horizontal risers. (See chart below.)

For Forward Horizontal	For Forward Tilt	For Straight Up
Connect Wires: Red, White, Green	Connect Wires: Red, White, Yellow	Connect Wires: Red, White, Yellow, Brown
For Rearward Horizontal	**For Rearward Tilt**	**For Straight Down**
Connect Wires: Red, Blue, Green	Connect Wires: Red, White, Brown	Connect Wires: Red, Blue, Yellow, Brown

REMOVAL AND INSTALLATION OF FLEXIBLE CABLES — POWER SEAT

Refer to the Chrysler Service Manual D-16350 for removing and installing the power seat flexible cables.

CAUTION:

Seat guides should be in the up and forward position when installing cables. Make sure guides are at the same position (in alignment).

REMOVAL AND INSTALLATION OF MOTOR — POWER SEATS

Removal—Disconnect the motor wires at relay. Remove the two nuts holding the motor to the drive unit. Remove the motor from drive unit and rubber coupling.

Installation—Install rubber coupling on motor shaft. Align rubber coupling with the slot on the slave unit shaft. Install motor and reconnect wires to relay.

DRIVE UNIT AND SOLENOID ASSEMBLY — POWER SEATS

Disassembly—Remove the drive unit from the seat assembly. Remove the two screws holding plate and solenoids to the drive unit. Remove the plate and solenoid assembly. Be careful not to lose the three springs under the solenoid when removing the solenoid coils. Bend back the tabs of the solenoid cover. Unsolder the coil ground wire at the cover tab. Remove the cover from the coil. Remove the screws holding the cover on the drive unit. Remove the cover and lift out the clutch lever and shaft.

Assembly—Install the clutch lever and shaft. Make sure the lever is properly seated on the drive collar.

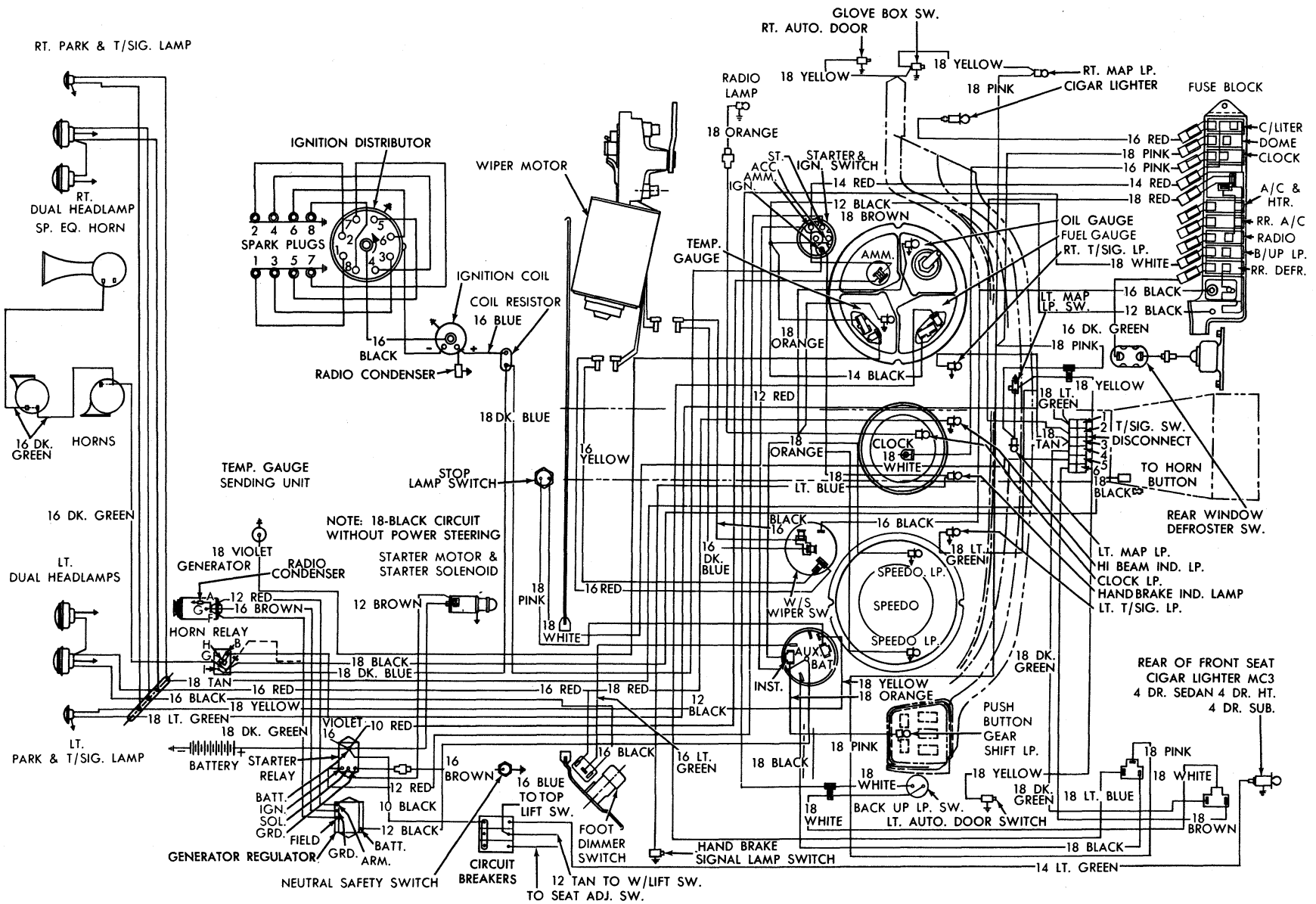


Fig. 30 — Chassis and Instrument Panel Wiring Diagram — Models MC-1, 2 and 3

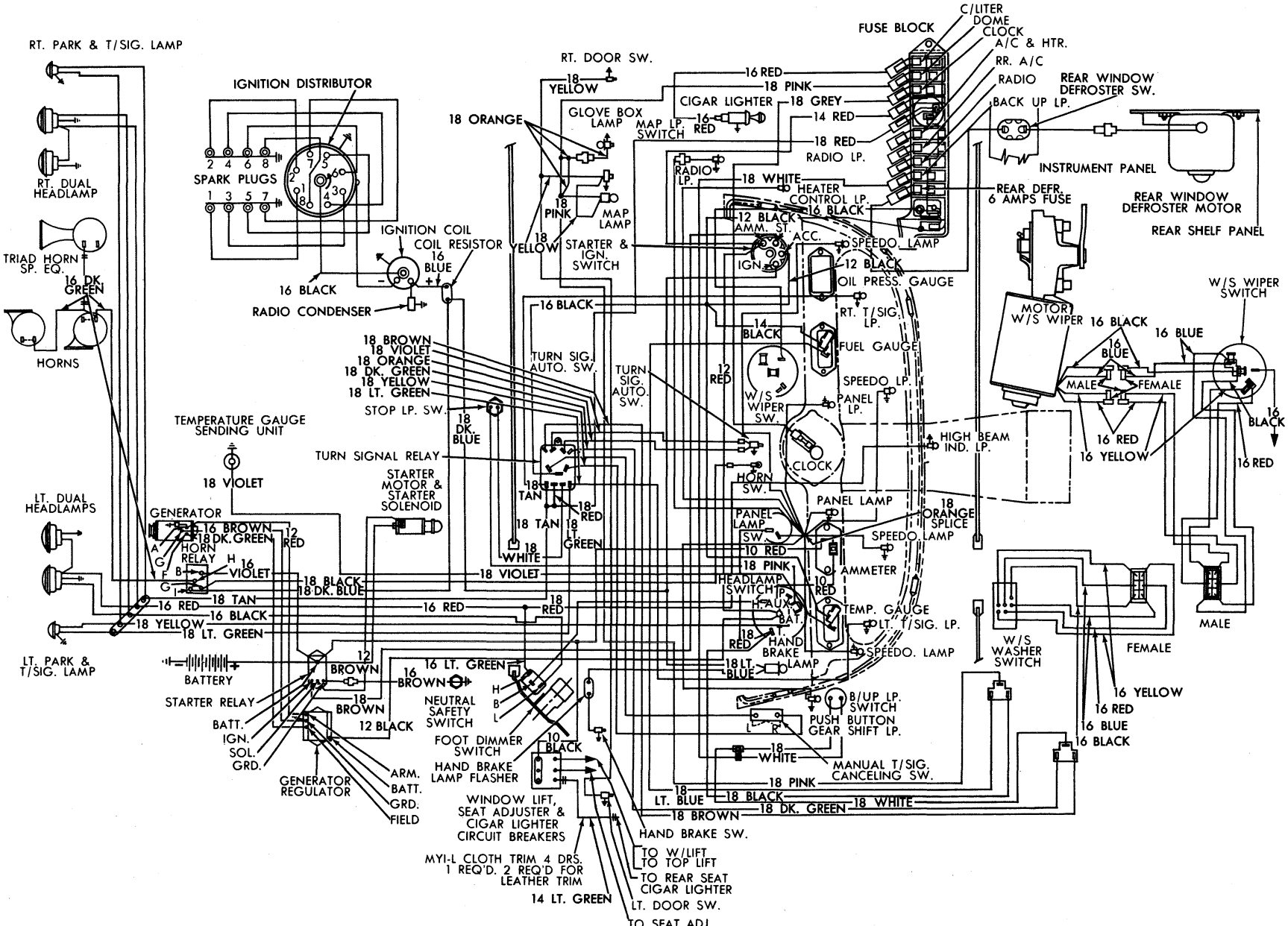


Fig. 31 — Chassis and Instrument Panel Wiring Diagram — Model MY-1

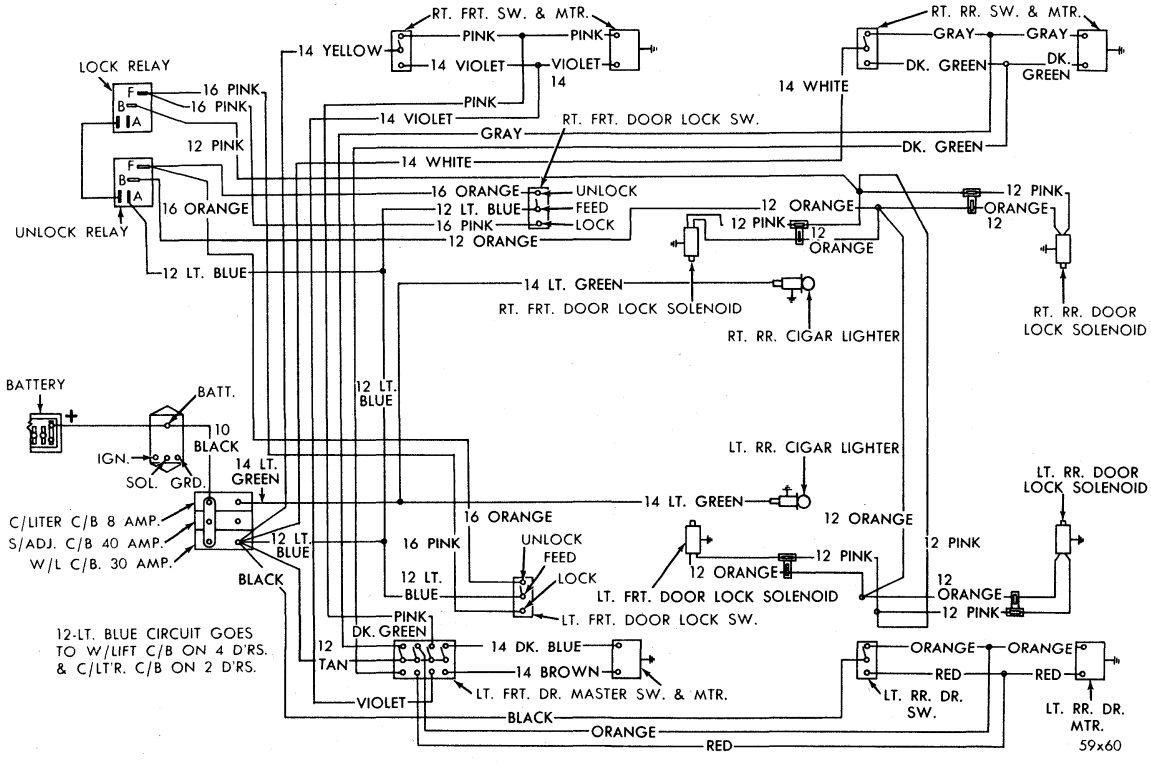


Fig. 32 — Window Lifts, Cigar Lighter and Electric Door Locks Wiring Diagram

Install the cover and screws. Install the coil in the coil cover with the coil ground wire next to one of the tabs. Position the cover tabs in the slots on the coil plate. Bend over the tabs and solder the coil ground wire to the tab and plate.

Install the three solenoid springs and position the solenoids over the springs. Fasten the solenoids to the drive unit. Install the drive unit.

REMOVAL AND INSTALLATION OF SLAVE UNIT — POWER SEATS

Remove the drive unit and cables. With the seat guide in the up and forward position, remove the long clevis pin from the front of the guide.

Remove the front rack clevis pin. To facilitate the removal of the slave unit, remove the slave unit cap. Do not lose the springs under the cap. The springs are between the racks and slave cap. Remove the nuts holding the slave unit to the guide. Remove unit.

Installation—Position the slave unit over the studs on the guide base. Position the racks in the slave unit so they will be in the up and forward position. Fasten the racks to the guide assembly. Position the springs on the rack and install slave unit cap. Install the slave unit mounting nuts. Install the front guide clevis pin. Install cables in slots and check the operation of power seats. Install drive unit and cables.

Figures 30, 31 and 32 show new wiring diagrams for Chrysler and Imperial cars for 1959.

POWER SEAT SERVICE DIAGNOSIS

ENTIRE UNIT INOPERATIVE

Remove all wires from seat switch and connect together as shown in the chart for the six various controls operations, if the operation is normal, by connecting wires. Replace switch.

MOTOR INOPERATIVE

Check red wire at relay with test light. If test light does not light, check for continuity in #10 red feed wire, faulty circuit breaker or poor connection between circuit breaker and starter relay. If test light lights, connect #10 red feed wire with red and black or red and green wires from motor. If motor runs, relay was faulty, replace relay. If motor does not run, the motor is faulty, replace motor.

SEAT INOPERATIVE (MOTOR RUNS)

Jump wire from #10 feed wire to each solenoid terminal on clutch assembly. Solenoids should each "click" as jumper is connected. If solenoid does not click:

(a) Check wire in harness for open circuit. Repair.

(b) Possible seized solenoid armature in coil. Replace coil.

(c) Possible burned-out solenoid. Replace solenoid.

SEAT INOPERATIVE (MOTOR RUNS & SOLENOIDS CLICK)

Check drive unit for stripped or broken gear. Replace drive unit if necessary.

SLAVE UNIT INOPERATIVE (MOTOR, SOLENOIDS & DRIVE UNIT O. K.)

Check for broken drive cable and replace as necessary.

SEAT HAS ROCKING MOTION

Excessive movement between slide and base of track assembly. This condition is possible due to roller being out of position.

(a) Remove power seat assembly from vehicle.

(b) Remove seat drive tubes from slave unit.

CAUTION:

Do not run motor with drive cables and tubes disassembled or unit will be placed out of synchronization.

(c) Remove seat support (B).

(d) Remove seat slave unit from seat track slide (C).

(e) Remove horizontal stops located on slide at (D).

(f) Separate seat slide (C) from base (N) by pressing slide rearward which will allow rollers (A) to jump retaining rivets (E, F, G, H) thereby separating slide from base.

(g) Remove rivet (F) and replace with 5/16-18 x 1/2" cap screw (1) to retain proper position.

NOTE: A frayed drive cable may be repaired by applying light coating of solder and then grinding to cable size.

SEAT TRACK EXCESSIVELY LOOSE

Due to loose rivet joints.

(a) Disassemble upper track seat support (B) by removing cotter keys and pins.

(b) Remove seat support and tighten all riveted joints (J) by peening with a ball peen hammer.

LOOSE FRONT LEVERS

Arc weld front levers (K) to prevent movement between the two sections comprising the front lever assembly.

SEAT CHUCK FORE AND AFT

Due to loose horizontal rack support arm to lower track base.

(a) Remove seat track assembly from vehicle and arc weld.

(b) Tighten rack attaching pins (M) by arc welding.

(c) Check for loose horizontal rack in slave unit gear train. If loose, replace slave unit.

RESISTANCE TYPE SPARK PLUG CABLES

All 1959 Chrysler and Imperial engines incorporate conventional spark plugs (without resistors), along with resistance type spark plug cables to eliminate radio interference.

For identification purposes, this new cable has "RADIO" printed on it.

The new cable uses a graphite or composition type conducting core replacing the copper wire found in the center of conventional spark plug cable. Full contact is made between the core and terminals by means of a short wire pin pushed into the ends of the cable.

Precautions must be observed in handling to prevent damage to the core. The cable should be removed from the spark plug by grasping the cable cover and pulling **straight off** with a steady, even

pull. Pulling sideways could jam the terminal on the spark plug and cause the cable to separate from the terminal. The cable terminal should not be crimped to the point that excessive force is required to remove it from the spark plug.

The cables should never be removed by giving them a quick jerk. Doing so can stretch the core and cause a high resistance or open circuit. If a damaged core is suspected, a resistance check with an ohmmeter should be made. The resistance of the various plug cables will vary because of the different lengths, see chart below:

SPARK PLUG CABLES WITH BUILT-IN RESISTANCE

No. 1 Cable 8,300 to 16,600 Ohms
No. 2 Cable 5,500 to 11,000 Ohms
No. 3 Cable 8,100 to 16,200 Ohms
No. 4 Cable 6,000 to 12,000 Ohms
No. 5 Cable 8,800 to 17,600 Ohms
No. 6 Cable 6,300 to 12,600 Ohms
No. 7 Cable 9,400 to 18,800 Ohms
No. 8 Cable 7,200 to 14,400 Ohms

If any cable has appreciably more resistance than specified, check to be sure the terminals are in contact with the pin and the pins is in full contact with the core. If the terminals and pins are properly installed and the cable resistance is still more than specified, the cable should be replaced with a new resistance type cable.

A new terminal should never be attached to the resistance core cables unless the wire pin is in place; otherwise, contact will not be maintained with the core. This will result in arcing and burning of the core which will cause engine malfunctioning and radio interference.

CAUTION

Resistor type spark plugs are never to be used with the new resistance type cable. The added resistance of the spark plugs may cause malfunctioning of the ignition system. When replacing a spark plug, be sure to use the correct type specified for the particular engine.

SERVICE DIAGNOSIS

If the radio develops excessive noise or if there is a pronounced engine miss, check for faulty or broken cables.

THE AUTOMATIC BEAM CHANGER

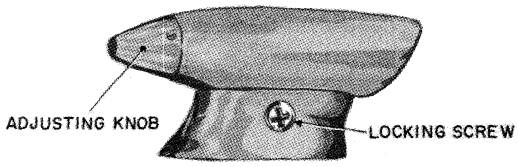
The automatic beam changer is an automatic headlight control unit which senses the headlight intensity from other vehicles and automatically adjusts the headlights (of the vehicle in which it is mounted,) to the upper or lower beam position.

A scanner and base assembly (Fig. 33), is mounted on top of the instrument panel, directly in front of the steering column. The control unit Fig. 33 is mounted on a convenient structural part (grounding purposes) of the vehicle's body. (Figure 34).

OPERATION

The Automatic Beam Changer will change the headlight to the "lower beam" when an oncoming car is approached at a distance of approximately 1200 feet. The unit will reset the headlights to the "high beam" position within ½ second after the approaching car has passed.

The headlight beam setting can be interrupted by using the conventional dimmer switch. If the unit has an "upper beam" setting and the driver feels that



SCANNER

CONTROL UNIT 59X144

Fig. 33 — Scanner and Control Unit

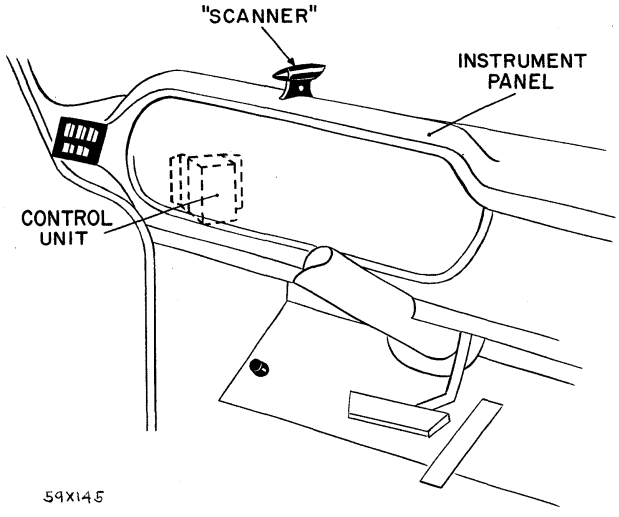


Fig. 34 — Location of Beam Changer Control Unit

the "lower beam" is required, he can override the automatic control by depressing the dimmer switch to obtain the "lower beam" condition. Automatic operation is restored when the driver again depresses the dimmer switch.

DRIVER ADJUSTMENTS

A knob, located at the rear of the scanner unit (Fig. 33), provides a sensitivity adjustment. If the headlights do not change beam quickly enough upon approaching another car, it is an indication that sensitivity is set too low and correction is made by turning the scanner knob clockwise (to the right).

If the headlights "change beam" too soon, the sensitivity can be decreased by turning the scanner knob counter-clockwise (to the left).

AIMING THE AUTOMATIC BEAM CHANGER

PRE-AIMING INSTRUCTIONS

Before attempting to aim the automatic beam changer, complete the following pre-aiming instructions.

Place vehicle on a level floor.

If the vehicle is placed in an area in which the floor is not level, it will be necessary to take this condition into consideration when "aiming" the "scanner" unit. **Refer to aiming the "scanner" unit.**

Check front spring height. Adjust to specifications —if necessary.

Check tire inflation. Tire pressure should not vary more than 3-5 pounds among tires.

Rock vehicle sideways to allow spring shackles, et cetera to assume a normal position.

If gasoline tank is not full, place a 100 pound weight in trunk of vehicle.

There should be no other load in the vehicle, other than the driver.

AIMING THE "SCANNER" UNIT

Vertical alignment of the "scanner" unit is critical. Mount "scanner" aimer, Tool C-3697, on the "scanner" unit, as shown in Figure 35. Make sure that all conditions listed under "pre-aiming instructions" have been performed, before proceeding with the aiming operation.

Loosen the cross-recess head locking screw (Fig. 33) just enough to permit free movement of the "scanner" through its arc, as controlled by the mounting base. (Total angular deflection of the "scanner" unit is six degrees).

Using headlamp aimer kit, Tool C-3674, use the split image transit and target assembly to determine slope of floor, as outlined in the directions contained in the aimer kit.

Move "scanner" forward or backwards on base (through arc) to bring the **leading edge** of the bubble of "scanner" aimer, Tool C-3697, in alignment with the proper "plus" or "minus" value (on level dial) which was obtained from the transit of aimer kit, Tool C-3674.

Example: If transit indicates that a minus 2 correction for slope is necessary, bring **leading edge,** of bubble of aimer Tool, C-3697, to the minus 2 index

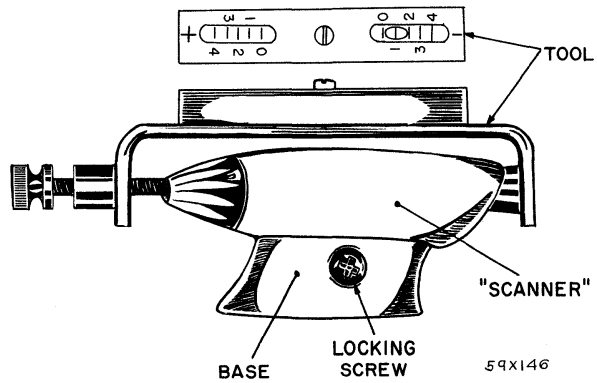


Fig. 35 — Mounting Scanner Aimer Tool

line. (Figure 35). Tighten locking screw (Fig. 33) securely and then recheck position of bubble. If position of bubble has changed, loosen locking screw slightly and make necessary correction to bring bubble once more into desired position. Retighten locking screw securely and remove "scanner" aimer Tool.

THE ELECTRONIC REAR VIEW MIRROR ("MIRROR-MATIC")

The electronically operated rear view mirror (mirror-matic), as shown in Fig. 36 is a self-dimming rear view mirror which provides maximum rearward vision at night, since the bright reflection surface of the mirror is in use except when glaring light strikes its surface.

The electronic glare detecting mechanism is housed entirely within the mirror case. Sensitivity is selected by a three-position switch on the front of the mirror bezel (Fig. 36). "Off" locks the mirror in the normal "bright" position. Selection of either "City" or "Hi-way" switch position permits the mirror to respond to glare conditions. It is less light-sensitive when "City" has been selected and therefore response to neon signs, streetlights, etc. is held to a minimum.

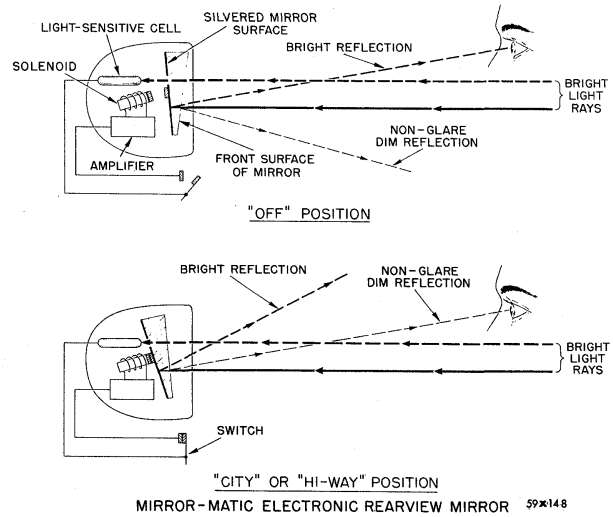


Fig. 37 — Positioning Mirror in Operation

OPERATION (FIG. 37)

The heart of the automatic tripping mechanism is a tiny photo-electric cell which "sees" through a small aperture in the silvered mirror surface (Fig. 36). Light striking the cell generates a small voltage which increases with increasing light intensity. When the light intensity becomes high enough to cause annoying glare, the voltage is enough to activate a miniature amplifier and solenoid assembly which pulls the prism mirror a few degrees upward to reflect a dim image off the front surface of the glass and into the driver's eyes. As long as glare is present, the mirror will remain in its "dim" position, returning immediately to its normal "bright" position when the glare drops below a pre-set level.

DRIVER ADJUSTMENT (POSITIONING MIRROR)

When adjusting the position of mirror-matic for best visibility, first turn off the headlights (headlight circuit energizes mirror system) and set the mirror for brightest image.

When adjustment for best visibility is obtained, lock mirror in position by turning lock nut (clockwise) at the mirror support base.

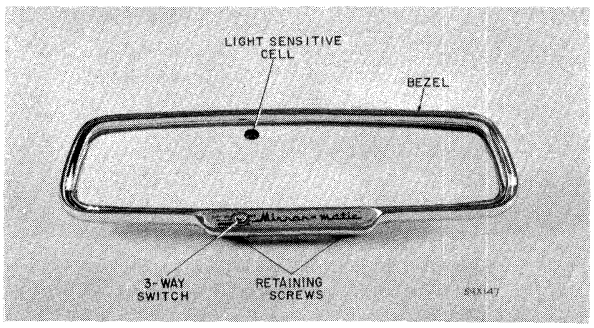


Fig. 36 — Mirror-Matic Rear View Mirror

SERVICE ADJUSTMENTS

If a glare condition exists with the switch (Fig. 37) set either in the "City" or "Hi-way" position, it is an indication that the sensitivity in either or both of these positions is too **low.**

Sensitivity can be raised by making an internal adjustment at the mirror assembly as follows:

(a) Remove plastic knob from 3-position switch (Fig. 36) by carefully pulling outward on plastic knob.

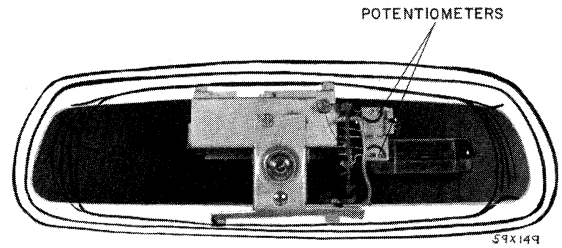


Fig. 38 — Mirror-Matic Back Cover

(b) Remove the two screws and remove bezel by lifting bezel outward and upward (to clear metal retaining tabs).

(c) Expose internal mechanism of mirror assembly by lifting top portion of back cover upward (to clear metal retaining tabs) and moving back cover rearward over mirror support. Move back cover rearward only far enough to provide access to potentiometer adjusters (Fig. 38).

(d) To increase sensitivity of the "City" position, turn the arm of the potentiometer marked "City" in the direction indicated by the arrow.

(e) To increase sensitivity for "Hi-way" driving, turn the arm of the potentiometer marked "Hi-way" in the direction indicated by the arrow.

NOTE: To decrease sensitivity of either or both the potentiometers, turn potentiometer arms in the direction opposite to direction indicated by arrow.

(f) Replace back cover by positioning back cover over the two metal tabs and aligning screw holes in bottom of cover with threaded holes in mirror support.

(g) Install bezel by aligning slots at top of bezel with metal tabs and aligning screw holes in bottom of bezel with threaded holes in mirror support replace screws (Fig. 36) and tighten securely.

(h) Replace plastic switch knob.

(i) Adjust mirror to desired position and test operation of unit.

Section VII
ENGINE
DATA AND SPECIFICATIONS

ENGINE	
Type	90° V
Number of Cylinders	8
Bore—MC-1, MC-2	4.031″
MC-3, MY-1	4.188″
Stroke	3.750″
Piston Displacement—MC-1, MC-2	383 cu. in.
MC-3, MY-1	413 cu. in.
Compression Ratio	10.0 to 1
Compression Pressure at 150 rpm (plugs removed) Wide Open Throttle	150 to 180 lbs.
Maximum Variation Between Cylinders (any one engine)	25 lbs.
Firing Order	1-8-4-3-6-5-7-2
CYLINDER NUMBERING	
Left Bank	1-3-5-7
Right Bank	2-4-6-8
CRANKSHAFT	
Type	Fully Counter-Balanced
Bearings	Steel Backed Babbitt
Journal Diameter	2.7495 to 2.7505″
Crank Pin Diameter	2.374 to 2.375″
Maximum Out-of-Round Permissible	.001″
Number Main Bearings	5
Diametral Clearance Desired	.0005 to .0015″
End Play	.002 to .007″
Thrust Taken By	No. 3 Main Bearing
Finish at Rear Seal Surface	Diagonal Knurling
Interchangeability of Bearings	Upper Nos. 1, 2, 4, 5 Lower Nos. 1, 2, 4, 5

ENGINE (Cont'd)

MAIN BEARINGS (Service) All Available in Standard and the following Undersizes	.001, .002, .003, .010, .012″
CONNECTING RODS AND BEARINGS	
Type	Drop Forged "I" Beam
Length (Center to Center)	6.766—.770″
Weight (less bearing shells)	29.4 oz.
Bearings	Steel-Backed Babbitt
Diameter and Length	2.375 x .927″
Diametral Clearance Desired	.0005 to .0015″
Maximum Allowable before Reconditioning	.0025″
Side Clearance	.009 to .017″
Bearings for Service	Standard .001, .002, .003, .010, .012″ U.S.
Piston Pin Bore Diameter	1.0925 to 1.0928″
CAMSHAFT	
Drive	Chain
Bearings	Steel Backed Babbitt
Number	5
Thrust Taken by	Cylinder Block
Diametral Clearance	.001 to .003″
Maximum Allowable before Reconditioning	.005″
CAMSHAFT BEARING JOURNALS	
Diameter	
No. 1	1.998 to 1.999″
No. 2	1.982 to 1.983″
No. 3	1.967 to 1.968″
No. 4	1.951 to 1.952″
No. 5	1.748 to 1.749″
CAMSHAFT BEARINGS	
Diameter (after reaming)	
No. 1	2.000 to 2.001″
No. 2	1.984 to 1.985″
No. 3	1.969 to 1.970″
No. 4	1.953 to 1.954″
No. 5	1.750 to 1.751″
TIMING CHAIN	
Adjustment	None
Number of Links	50
Pitch	.50″
Width	.88″
TAPPETS	
Type	Hydraulic
Clearance in Block	.0005 to .0015″
Body Diameter	.9040 to .9045″
Clearance Between Valve Stem and Rocker Arm Pad	Dry Lash .060 to .210″
PISTONS	
Type	Horizontal Slot w/Steel Struts
Material	Aluminum Alloy Tin Coated

ENGINE (Cont'd)

Land Clearance (diametral)	.041 to .047″
Clearance at Top of Skirt	.0005 to .0010″
Weight (std. through .040 oversize)	
MC-1, MC-2	724 gms.
MC-3, MY-1	780 gms.
Piston Length (overall)	3.95″
Ring Groove Depth	
No. 1—MC-1 & MC-2	.213″
MC-3 & MY-1	.216″
No. 2—MC-1 & MC-2	.213″
MC-3 & MY-1	.216″
No. 3—MC-1 & MC-2	.195″
MC-3 & MY-1	.200″
Pistons for Service	Std. .005, .020, .040″ O.S.
PISTON PINS	
Type	Press Fit in Rod
Diameter	1.0935 to 1.0937″
Length	3.4440 to 3.450″
Clearance in Piston	.00045 to .00075″
Interference in Rod	.0007 to .0012″
Piston Pins for Service	Standard Only
Direction Offset in Piston	Toward Right Side of Engine
PISTON RINGS	
Number of Rings per Piston	3
Compression	2
Oil	1
Width of Rings	
(Compression)	.0775 to .0780″
(Oil)	.1860 to .1865″
Piston Ring Gaps (all)	.013 to .025″
RING SIDE CLEARANCE	
(Compression)	
Upper	.0015 to .0030″
Intermediate	.0015 to .0030″
(Oil)	.0010 to .0030″
VALVES—Intake	
Material	Silicon—Chromium Steel
Head Diameter—MC-1, MC-2	1.95″
MC-3, MY-1	2.08″
Length (to top of valve face)	4.79″
Stem Diameter	.372 to .373″
Stem to Guide Clearance	.001 to .003″
Maximum Allowable Before Reconditioning	.004″
Angle of Seat	45°
Adjustment	None
Lift	.389″
VALVES—Exhaust	
Material	Nitrogen Treated Manganese Chromium—Nickel Steel
Head Diameter	1.60″

ENGINE (Cont'd)

Length (to top of valve face)	4.79″
Stem Diameter	.371 to .372″
Stem to Guide Clearance	.002 to .004″
Maximum Allowable Before Reconditioning	.006″
Angle of Seat	45°
Adjustment	None
Lift	.389″
VALVE SPRINGS	
Number	16
Free Length	2.34″
Load when Compressed to (valve closed)	1.860″ @ 95 —105 lbs.
Load when Compressed to (valve open)	1.470″ @ 188—252 lbs.
Valve Springs I.D.	1.010 to 1.030″
CYLINDER HEAD	
Number Used	2
Combustion Chamber	Wedge Type
Valve Seat Runout (maximum)	.002″
Intake Valve Seat Angle	45°
Seat Width (finished)	.060 to .085″
Exhaust Valve Seat Angle	45°
Seat Width (finished)	.040 to .060″
Cylinder Head Gasket Compressed (thickness)	.022″
ENGINE LUBRICATION	
Pump Type	Rotary, Full Pressure
Capacity (qts.)	5*
Pump Drive	Camshaft
Operating Pressure at 40 to 50 mph	45 to 70 lbs.
Pressure Drop Resulting from Clogged Filter	7 to 9 lbs.

*When Filter Element is Replaced, add 1 qt.

TIGHTENING REFERENCE

	Torque Foot-Pounds	Thread Size
Connecting Rod Nut—Plain	45	3/8–24
Connecting Rod Nut—CST (Black)	40	3/8–24
Cylinder Head Bolt	70	7/16–14
Main Bearing Cap Bolt	85	1/2–13
Spark Plug	30	14 mm
Camshaft Lockbolt	35	7/16–14
Carburetor to Manifold Nut	7	5/16–24
Chain Case Cover Bolt	15	5/16–18
Torque Converter Housing Bolt	30	3/8–16
Clutch Housing Bolt	30	3/8–16
Crankshaft Rear Bearing Seal Retainer	30	3/8–16
Crankshaft Bolt	135	3/4–16
Cylinder Head Cover Stud and Nut	40 in.-lbs.	1/4–28
Distributor Vacuum Line Tube Nut	95 in.-lbs.	3/8–24
Distributor Clamp Bolt	15	5/16–18

TIGHTENING REFERENCE (Cont'd)

Engine Front Mounting to Frame Nut	85	1/2–20
Engine Front Mounting to Block Nut	45	7/16–20
Exhaust Manifold Bolt	30	3/8–16
Exhaust Pipe Flange Nut	40	7/16–20
Exhaust Pipe Clamp Bolt	20	3/8–24
Exhaust Pipe Support Clamp Bolt	20	3/8–24
Fan Attaching Bolt	15–18	5/16–18
Fan Belt Idler Pulley Nut	45	7/16–20
Fan Belt Idler Pulley Bracket Bolt	30	3/8–16
Flywheel Housing to Cylinder Block Bolt	50	7/16–14
Flywheel Housing Cover Bolt	7	1/4–20
Fuel Pump Attaching Bolt	30	3/8–16
Generator Bracket Bolt	50	7/16–14
Generator Mounting Nut	20	5/16–24
Generator Adjusting Strap Bolt	15	5/16–18
Generator Adjusting Strap Mounting Bolt	30	3/8–16
Intake Manifold Bolt	40	3/8–16
Manifold Heat Control Counterweight Bolt	50 in.-lbs.	#10–32
Oil Pan Drain Plug	35	5/8–14
Oil Pan Bolt	15	5/16–18
Oil Pump Cover Bolt	15	5/16–18
Oil Pump Attaching Bolt	35	3/8–16
Oil Filter Attaching Stud	30	3/4–16
Rocker Shaft Bracket Bolt	30	3/8–16
Starter Mounting Bolt	50	7/16–14
Vibration Damper Bolt	15	5/16–18
Valve Tappet Cover End Bolt	8	1/4–20
Water Pump to Housing Bolt	30	3/8–16
Water Pump Housing to Cylinder Block Bolt	30	3/8–16
A/C Compressor to Engine Bolt	30	3/8–16

ENGINE

The new V-8 Engine, as shown in Figure 39, 40 and 41, is one of the finest, most efficient engines to be designed by Chrysler Engineering. It contains many weight reducing features.

Some of the new features, as shown in Figures 42, 43 and 44, are in-line overhead valves, wedge shaped combustion chambers, full length cylinder water jackets, rigid crankshaft and series flow cooling system. In addition, the volume of coolant in the engine has been reduced to improve engine warm up. The ignition distributor is located at the upper front end of the engine for easier servicing.

The lubrication system consists of an externally mounted rotor type oil pump of greater capacity, full flow oil filter and a series of passages where the oil is delivered to the engine. The oil filter can be installed by hand.

The engine has 10:1 compression ratio, is equipped with a dual carburetor on the Windsor Model (MC-1), and a 4-barrel carburetor on all other models, and uses premium fuel. The engine has exceptional smoothness and performance throughout the entire speed range.

MINOR TUNE UP

A periodic engine tune up will assure maximum engine performance and fuel economy. The following procedures should be followed when performing minor engine tune up.

Check battery specific gravity, add water if necessary and clean and tighten battery connections. Clean and adjust the spark plugs (.035 inch gap). Tighten to 30 foot-pounds torque with Tool C-3054. Adjust the distributor contact points (.015 to .018

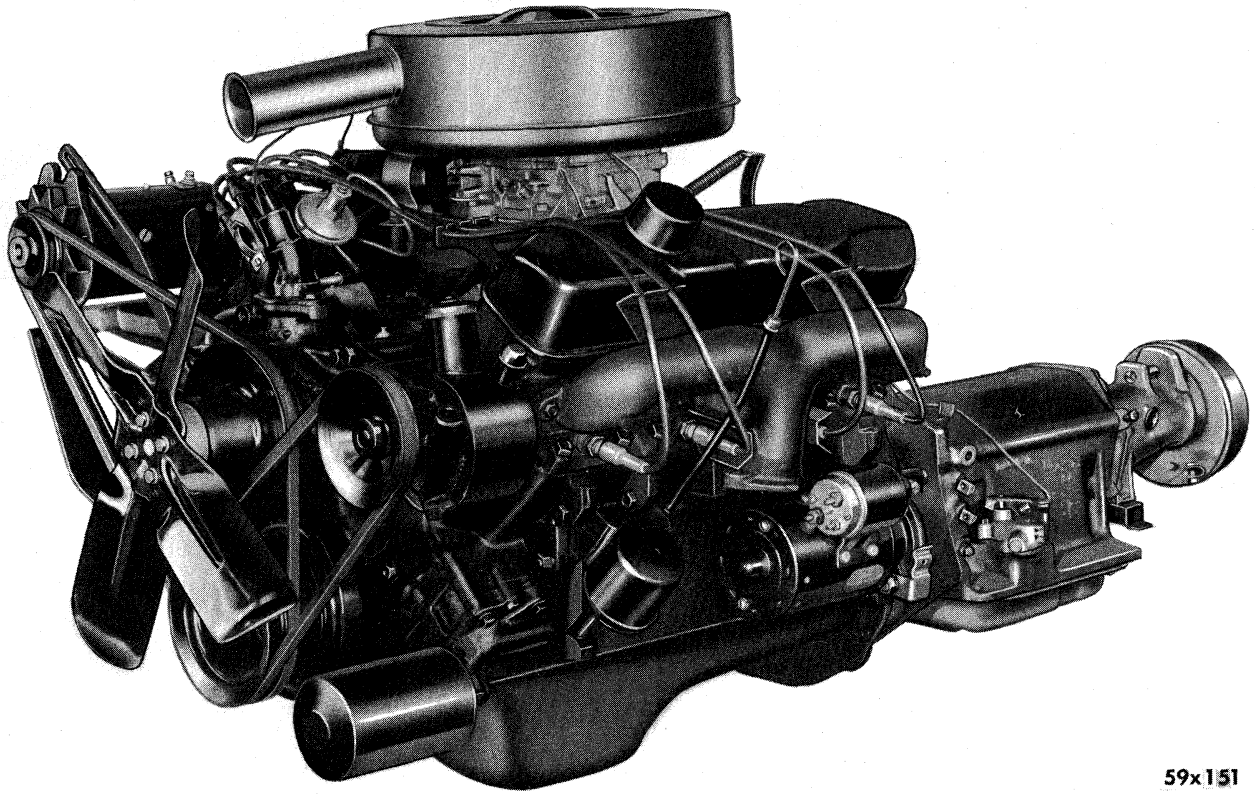


Fig. 39 — Chrysler Engine Assembly

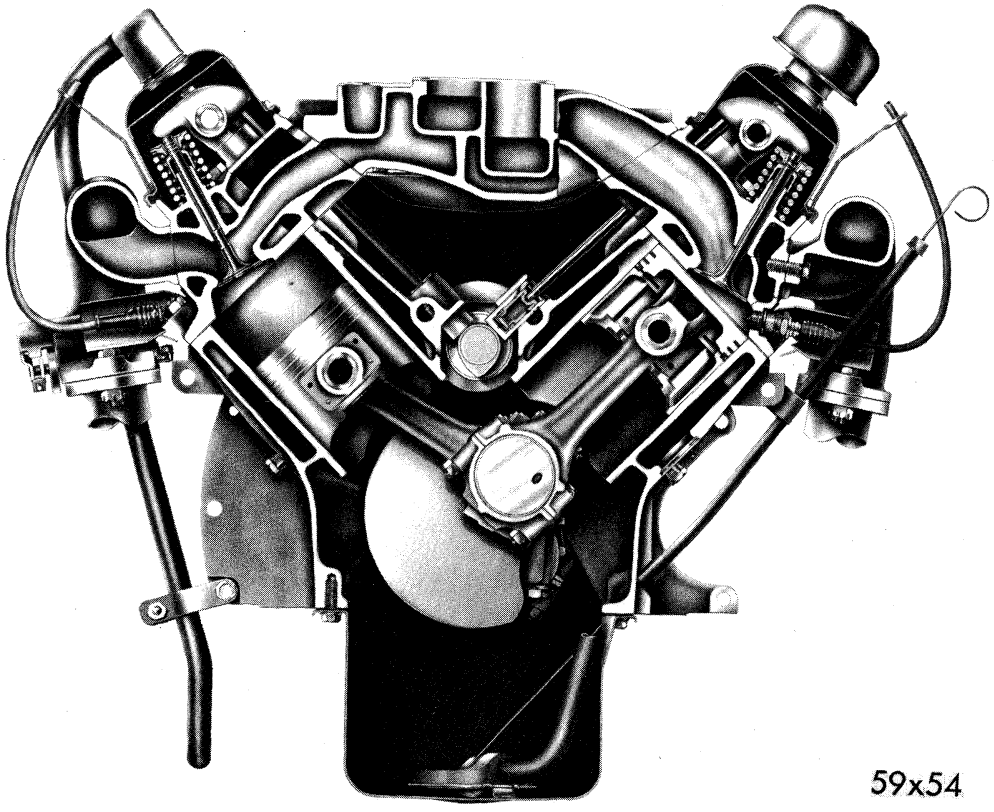


Fig. 40 — Engine End Sectional View

inch gap). Install new points if necessary. Check the distributor cap for cracks and corrosion. Inspect the rotor, rotor spring and plunger. Inspect the distributor to spark plug wires for brittle, cracked or frayed insulation. Inspect small lead wires for tightness, or damaged insulation. Check for excessive play in distributor vacuum advance plate bearing. Install a new plate if necessary. Reset the ignition timing. Inspect accessory belt drives referring to "Accessory Belt Drives," for proper adjustments. Tighten the carburetor flange nuts to **7 foot-pounds torque.** Set carburetor idle mixture adjustment. Adjust the throttle stop screw so engine idles at 450 to 500 rpm. Check manifold heat control valve in the right exhaust manifold for proper operation and apply Manifold Heat Control Valve Solvent Part Number 1879318 to the bushing and shaft, as shown in Lubrication Section.

MAJOR TUNE UP

Perform all the steps of a "Minor Tune Up" and in addition, the following procedures should be followed when performing Major Engine Tune Up. Tighten the manifold nuts. Perform the cylinder compression test. Compression pressures can be read from the top side of engine without interference using a 30 degree bend extension on the gauge. The compression should not vary more than 25 pounds between cylinders.

Refer to specifications for compression pressures. Test the coil, and condenser. Inspect the primary and secondary wires. Service the air cleaner — DO NOT WASH OR OIL. Service more frequently under severe dusty conditions. Replace air cleaner filter cartridge every 15,000 miles. Test fuel pump for pressure and vacuum. Refer to Fuel Section Specifications. Perform a combustion analysis. Adjust the carburetor. Road test the car as a final check.

REMOVAL OF THE ENGINE ASSEMBLY (From Car)

Drain the cooling system and remove the battery. Remove the fan shroud and radiator. Scribe the outline of hinge brackets on hood to assure proper adjustment when installing. Remove the hood. Disconnect fuel lines and wires attached to engine units.

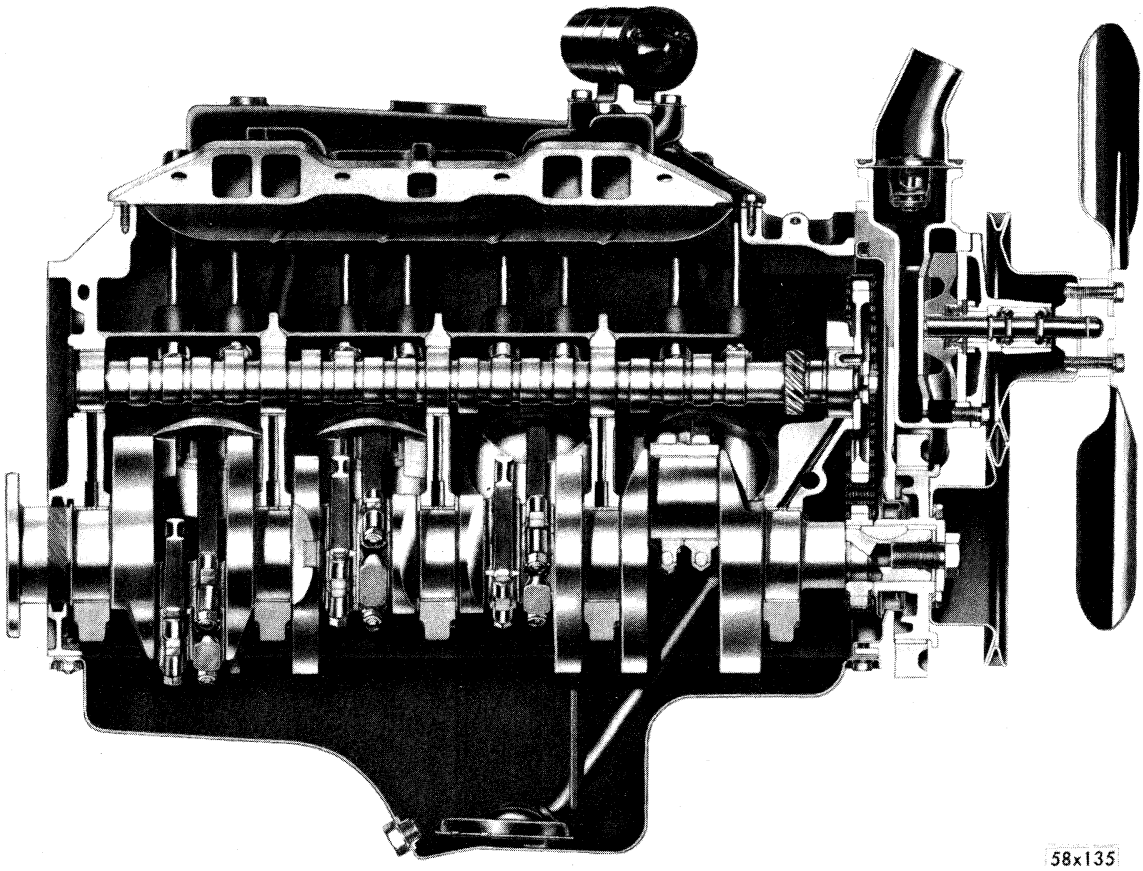


Fig. 41 — Engine Side Sectional View

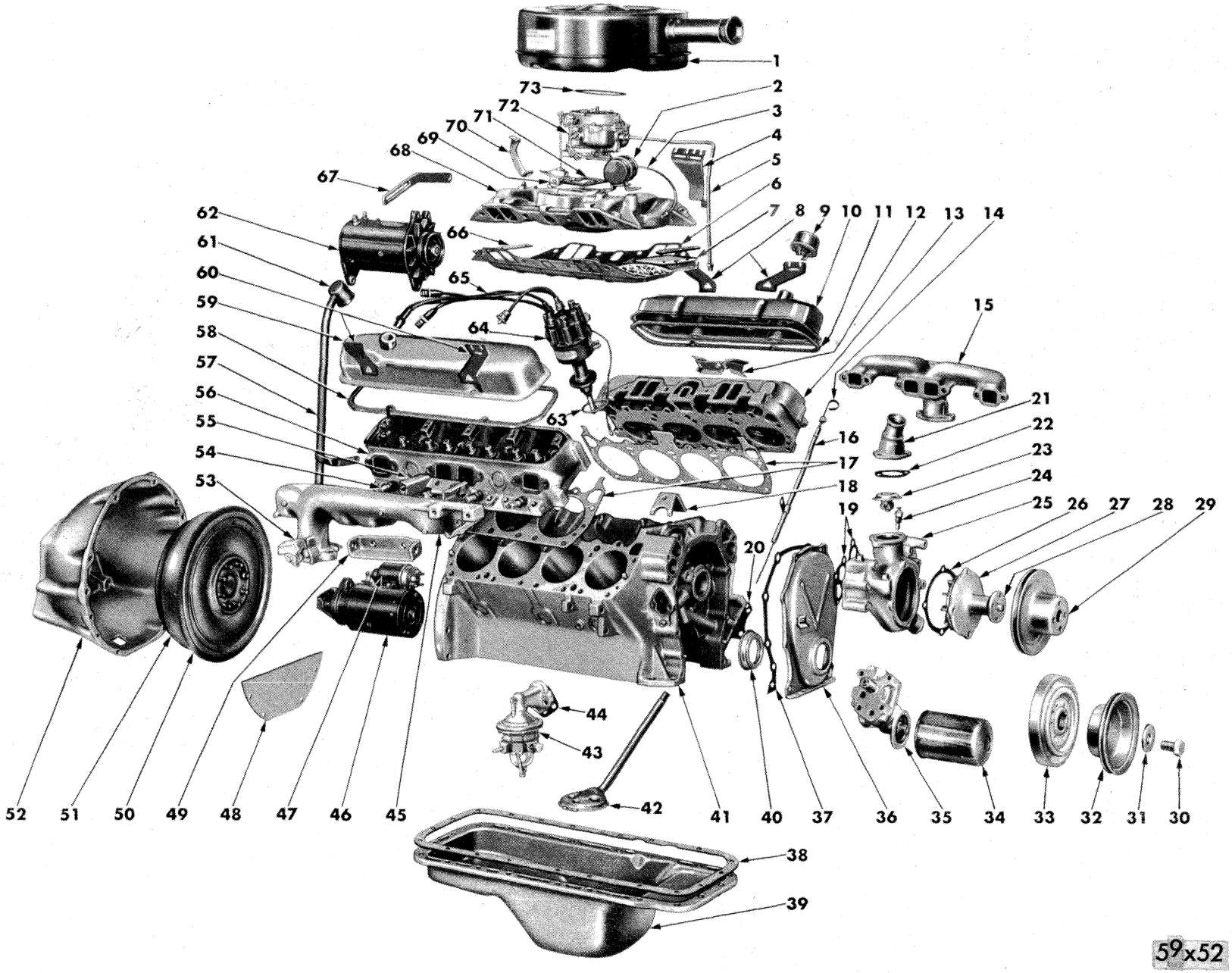


Fig. 42 — Engine External Parts

Fig. 42 — Engine External Parts

1. Carburetor Air Cleaner
2. Coil
3. Vacuum Line
4. Wiring Harness (bracket)
5. Fuel Line
6. Tappet Chamber Cover and Intake Manifold Gasket
7. Reinforcement, silencer and Retainer
8. Wiring Harness (brackets)
9. Oil Filler Cap
10. Rocker Cover L
11. Rocker Cover Gasket L
12. Spark Plug Heat Shield
13. Cylinder Head L
14. Oil Level Indicator
15. Exhaust Manifold L
16. Oil Level Indicator Tube
17. Cylinder Head Gasket
18. Distributor Clamp
19. Water Pump Housing Gasket
20. Oil Pump Housing Gasket
21. Outlet Elbow
22. Outlet Elbow Gasket
23. Thermostat
24. Temperature Sending Unit
25. Water Pump Housing
26. Water Pump Body Gasket
27. Water Pump Body
28. Hub
29. Water Pump Pulley
30. Bolt
31. Washer
32. Crankshaft Pulley
33. Vibration Damper
34. Oil Filter
35. Oil Pump
36. Chain Case Cover
37. Chain Case Cover Gasket
38. Oil Pan Gasket
39. Oil Pan
40. Chain Case Cover Oil Seal
41. Cylinder Block
42. Oil Screen Suction Pipe
43. Fuel Pump
44. Fuel Pump Gasket
45. Exhaust Manifold R
46. Starter
47. Solenoid
48. Torque Converter Housing Dust Shield
49. Generator Bracket
50. Ring Gear
51. Torque Converter
52. Torque Converter Housing
53. Manifold Heat Control Valve
54. Spark Plug
55. Spark Plug Heat Shield
56. Cylinder Head R
57. Crankcase Vent Tube
58. Rocker Cover Gasket R
59. Rocker Cover R
60. Wiring Harness (brackets)
61. Crankcase Vent Tube Cap
62. Generator
63. Distributor Gasket
64. Distributor
65. Wires
66. Reinforcement
67. Generator Adjusting Strap
68. Intake Manifold
69. Automatic Choke
70. Control Spring Bracket
71. Carburetor Gasket
72. Carburetor
73. Carburetor Air Cleaner Gasket

Remove the air cleaner and carburetor. Attach the engine lifting fixture Tool C-3466 to carburetor flange studs on the intake manifold and attach a chain hoist to the fixture eyebolt. Disconnect the propeller shaft, wires and linkage at transmission. Disconnect exhaust pipes at manifolds. Be sure the exhaust system is sufficiently supported while the engine is removed. Remove rear crossmember to transmission support attaching bolts.

NOTE: Place a rollaway jack under the transmission to relieve weight from the crossmember. Place a wood block between jack and transmission to avoid damaging transmission oil pan.

The jack supports the weight of rear of engine and must be able to roll with the power plant as it is removed from the chassis. Remove rear crossmember engine support. Remove front engine mounting nuts. Raise the engine with chain hoist and work the engine out of the chassis. Remove transmission. Place the engine in repair stand C-3167 and Adapter

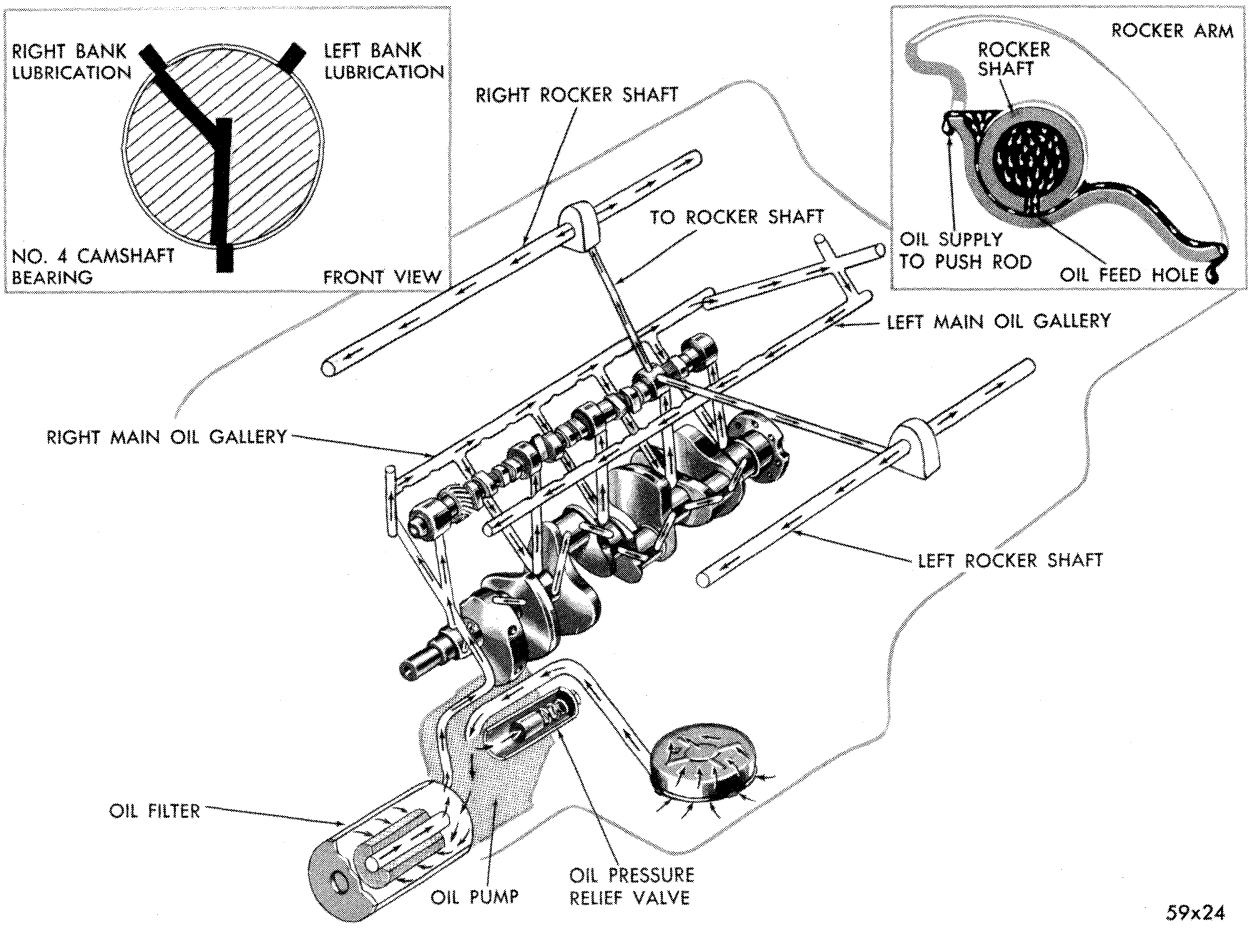


Fig. 43 — Engine Oiling System

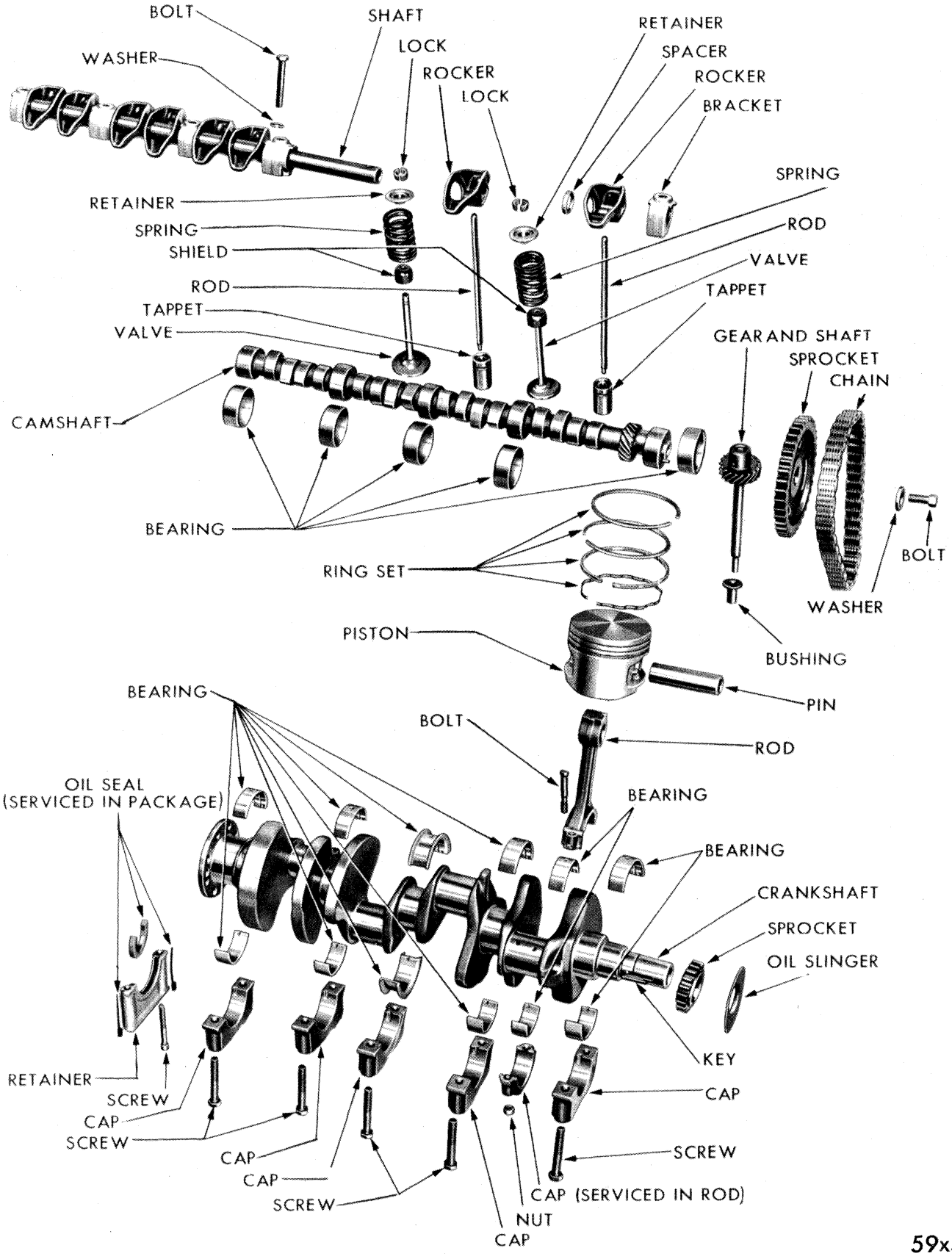


Fig. 44 — Engine Internal Parts

3662 for disassembly using the transmission mounting bolts.

INSTALLING THE ENGINE ASSEMBLY (In Car)

Remove the engine from repair stand and install transmission. Install the engine lifting fixture Tool C-3466 and attach the chain hoist to fixture eyebolt. Raise the engine. Lower the engine carefully into the car until front and rear of engine are approximately positioned. Place a rollaway jack under the transmission to support the weight of rear of the engine. Install the engine rear support crossmember. Position the engine and install the nuts at front engine mounts. Position and install rear engine support bolts and remove the jack, hoist and engine lifting fixture.

Install the carburetor, fuel lines, wiring and linkage. Install the radiator, fan shroud and radiator hoses. Connect exhaust pipes, using new gaskets. Install the hood, being sure to align hood by the scribe marks placed on the inside of hood at disassembly. Connect the propeller shaft at the transmission. Connect linkage and wires. Be sure all drain cocks are closed, and fill cooling system. Fill the engine crankcase and transmission. Refer to the lubrication Section for quantities and lubricants to use. Check the entire system for leaks and correct as necessary.

NOTE: Whenever an engine has been rebuilt and a new camshaft and/or new tappets have been installed, add one quart of factory recommended oil additive to engine oil to aid break-in (MoPar Engine Oil Additive, Part No. 1643234). The oil mixture should be left in engine for a minimum of 500 miles, and drained at the next normal oil change.

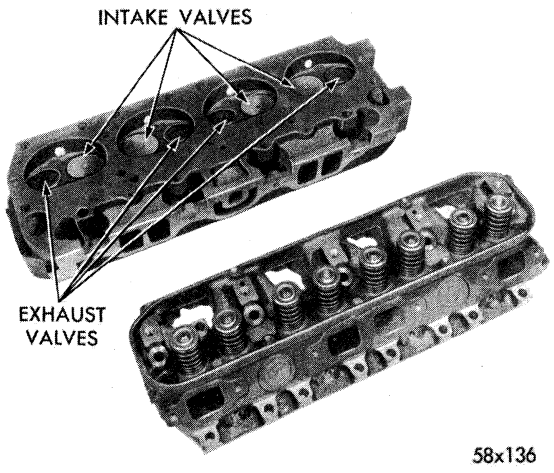


Fig. 45 — Cylinder Heads

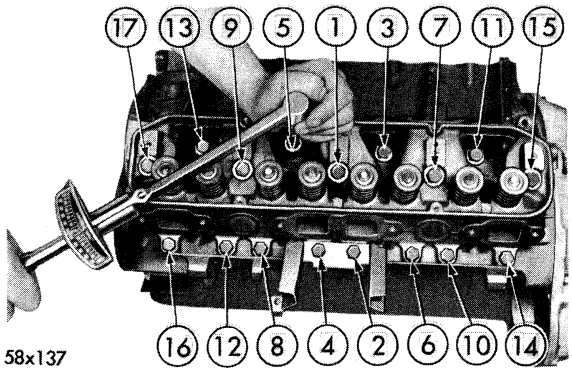


Fig. 46 — Tightening Sequence

Start the engine and run until normal operating temperature is reached. Check the timing and adjust carburetor as necessary. Road test the car.

CYLINDER HEADS

The chrome alloy cast iron cylinder heads as shown in Figure 45 are held in place by 17 bolts. The spark plugs enter the cylinder head horizontally and are located at the wide edge of the combustion chambers.

a. Removal

Drain the cooling system. Remove generator, carburetor air cleaner and fuel line. Disconnect the accelerator linkage. Remove the vacuum control tube at carburetor and distributor. Disconnect the distributor cap, coil wires and heater hose. Disconnect the heat indicator sending unit wire. Remove spark plugs located under the manifolds. Remove the intake manifold, ignition coil and carburetor as an assembly. Remove the tappet chamber cover. Remove cylinder head covers and gaskets.

NOTE: On air conditioned cars, number eight cylinder exhaust valve must be open to allow clearance between the right bank cylinder head cover and the heater housing.

Remove the generator. Remove exhaust manifolds. Remove the rocker arms and shaft assembly. Remove the push rods and place them in their respective slots in holder Tool C-3068. Remove the 17 head bolts from each cylinder head and remove cylinder heads. Place cylinder head in holding fixture Tool C-3626.

b. Installation

Clean the gasket surfaces of cylinder block and cylinder head. Check all surfaces with a straight edge if there is any reason to suspect leakage. Coat the

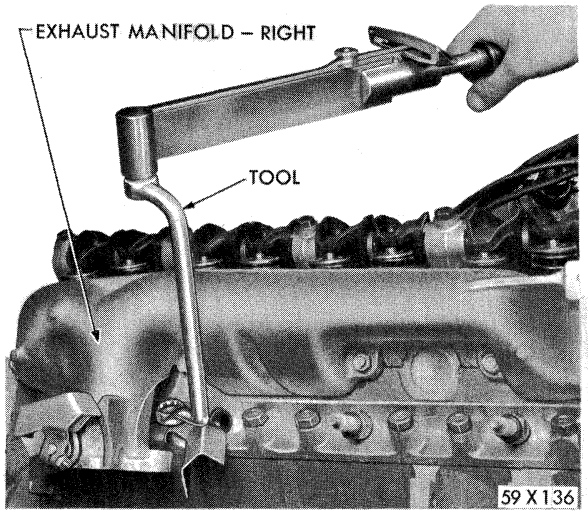


Fig. 47 — Checking Cylinder Head Bolt Torque

new gaskets with a suitable sealer, MoPar Part Number 1122893. Install the gaskets and cylinder heads. Install cylinder head bolts. Starting at top center, tighten all cylinder head bolts to 70 foot-pounds torque in sequence, as shown in Figure 46, and using Tool C-3666 to check torque, as shown in Figure 47.

Repeat the procedure, retightening all head bolts to 70 foot-pounds torque. Inspect push rods and replace worn or bent rods. Install push rods with the small ends in tappets maintaining alignment using rod, as shown in Figure 48.

Install the rocker arm and shaft assembly starting each push rod into its respective rocker arm socket.

NOTE: Use extreme care in tightening bolts 30 foot-pounds torque, so the tappets have time to bleed down to their operating length. Bulged tappet bodies,

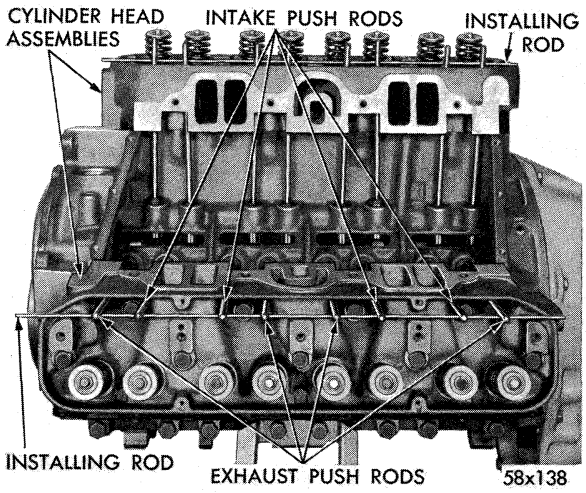


Fig. 48 — Push Rods Installed

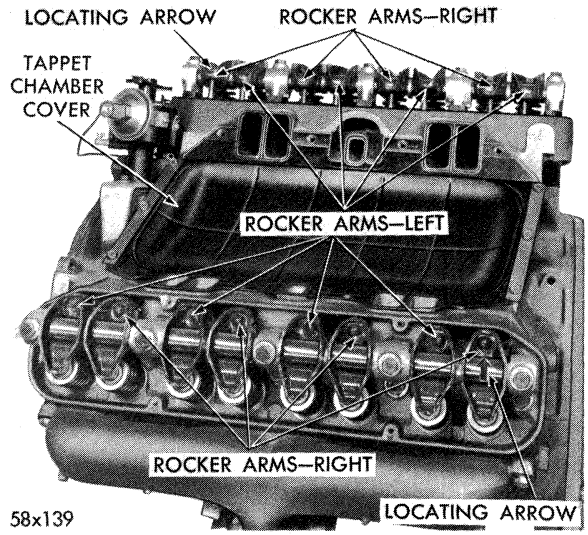


Fig. 49 — Rocker Arms Installed

bent push rods, and permanently noisy operation may result if the tappets are forced down too rapidly.

Place the new cylinder head cover gaskets in position and install cylinder head covers. Tighten the bolts to 40 inch-pounds torque. Install exhaust manifolds and tighten the bolts to 30 foot-pounds torque. Adjust spark plugs to .035 inch gap and install the plugs, and tighten to 30 foot-pounds torque with Tool C-3054. Install the tappet chamber cover and tighten end bolts to 8 foot-pounds torque (Fig. 49).

Install intake manifold, carburetor and ignition coil as an assembly and tighten manifold bolts to 40 food-pounds torque. Install the distributor cap. Connect the coil wire, heat indicator sending unit wire, accelerator linkage, spark plug cables and insulators. Install the vacuum tube from carburetor to distributor. Install generator and tighten generator bracket bolts to 50 foot-pounds torque, and generator mounting nut to 20 foot-pounds torque. Install the fuel line and carburetor air cleaner. Fill the cooling system. Adjust belt tensions as outlined in "Accessory Belt Drives" in this supplement.

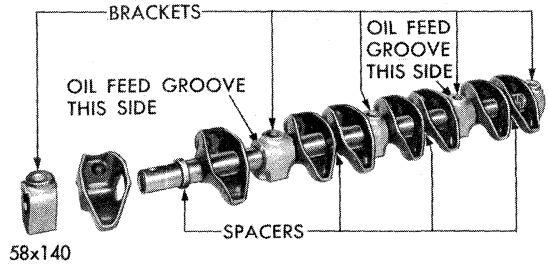


Fig. 50 — Rocker Arms & Shaft Assembly

ROCKER ARMS AND SHAFT ASSEMBLY

The rocker arms are of stamped steel and are arranged on one rocker arm shaft, per cylinder head. The push rod angularity tends to force the pairs of rocker arms toward each other where oilite spacers carry the side thrust at each rocker arm. Five brackets attach each rocker shaft to the cylinder head.

a. Removal

Remove cylinder head cover and gasket. Remove the bolts that attach rocker arm support brackets to cylinder head and remove the rocker arms, brackets and shaft as an assembly.

If the rocker arm assemblies have been disassembled for cleaning, inspection, or replacement, refer to Figure 49 and 50 for proper reassembly.

b. Installation

NOTE: The right and left rocker arms must be installed on rocker shaft, as shown in Figure 49. The stamped arrow on rocker shaft must be on top and the arrow must point toward the push rod socket of the rocker arm. This is necessary to provide proper lubrication to the rocker assemblies. The two wide brackets must be installed with the oil feed grooves facing the push rod side of rocker arm, as shown in Figures 49 and 50.

Install the rocker arms, brackets, and shaft assembly.

NOTE: Use extreme care in tightening the bolts so that tappets have time to bleed down to their operating length. Bulged tappet bodies, bent push rods and permanent noisy operation may result if the tappets are forced down too rapidly.

Tighten the bolts to 30 foot-pounds torque.

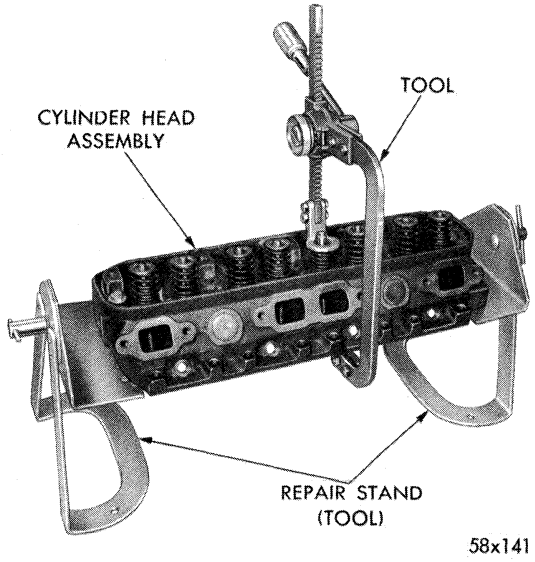


Fig. 51 — Compressing Valve Spring

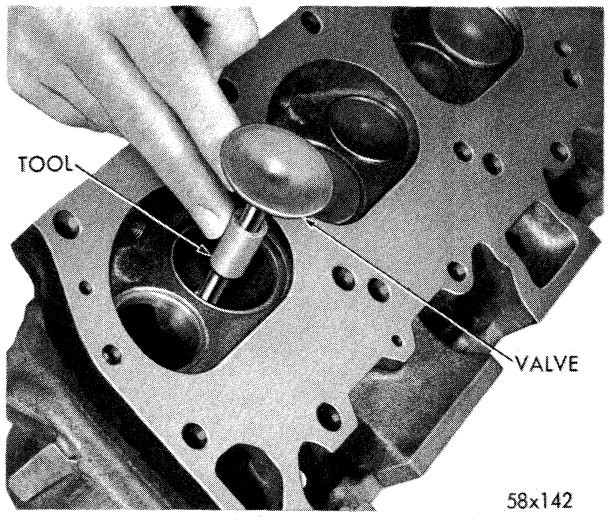


Fig. 52 — Using Sleeve Tool in Checking Wear

VALVES AND VALVE SPRINGS

Valves are arranged in-line in the cylinder heads and inclined 30° outward from vertical. Intake and exhaust valves operate in guides that are integral with the heads.

a. Removal

With the cylinder head removed, compress valve springs using Tool C-3422, as shown in Figure 51.

Remove the valve retaining locks, valve spring retainers, valve stem cup seals and valve springs. Remove the burrs from valve stem lock grooves to prevent damage to the valve guide when valves are removed.

b. Valve Inspection

Clean the valves thoroughly, and discard burned, warped and cracked valves. Measure valve stems for wear. Intake valve stem diameter should measure .372 to .373 inch and exhaust valve stem diameter should measure .371 to .372 inch. If the wear exceeds .002 inch, replace the valve. Remove carbon and varnish deposits from the inside of valve guides with cleaner, Tool C-756.

Measure the valve stem guide clearance as follows: Install sleeve Tool C-3026 over the valve stem, as shown in Figure 52, and install valve.

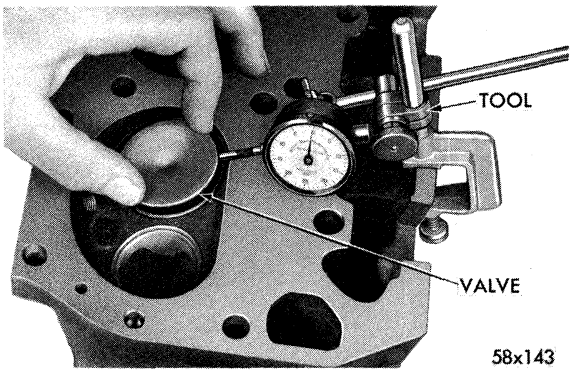


Fig. 53 — Measuring Guide Wear

The special sleeve places the valve at the correct height for checking with a dial indicator. Attach the dial indicator Tool C-3339 to cylinder head and set it at right angle of the valve stem being measured (Fig. 53).

Move valve to and from the indicator. The total dial indicator reading should not exceed .010 inch on intake valves, and .014 inch on exhaust valves. Ream the guides for valves with oversize stems if dial indicator reading is excessive or if the stems are scuffed or scored.

Service valves with oversize stems are available in .005, .015 and .030 inch oversizes. Reamers to accommodate the oversize valve stem are as follows: Reamer Tool C-3433 (.379 to .380 inch) Reamer Tool C-3427 (.404 to .405 inch). Slowly turn reamer by hand and clean guide thoroughly before installing new valve.

CAUTION

Do not attempt to ream the valve guides from standard directly to .030 inch. Use step procedure of .005, .015 and .030 inch so the valve guides may be reamed true in relation to the valve seat.

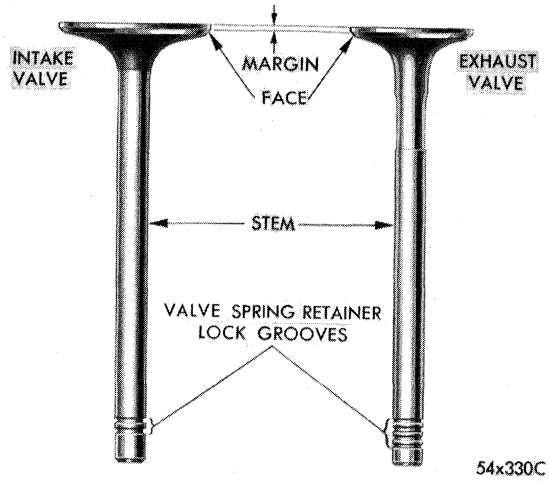


Fig. 54 — Intake and Exhaust Valve

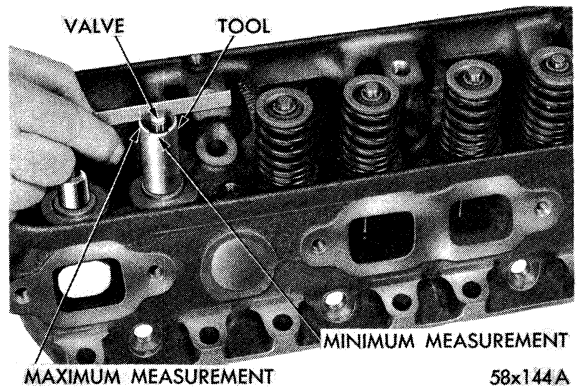


Fig. 55 — Measuring Valve Stem Length

c. Refacing valves and valve seats

The intake and exhaust valve faces have a 45° degree angle. Always inspect the remaining margin after the valves are refaced (Fig. 54). Valves with less than 3/64 inch margin should be discarded.

The angle of both valve and seat should be identical. When refacing the valve seats with Tool MTH-80, it is important that the correct size valve guide pilot be used for reseating stones. A true and complete surface must be obtained. Measure the concentricity of valve seat using a dial indicator. The total runout should not exceed .002 inch (total indicator reading). When the seat is properly positioned, the width of intake seats should be 1/16 to 3/32 inch. The width of exhaust seats should be 3/64 to 1/16 inch.

When the valves and seats are reground, the position of the valve in the cylinder head is changed, shortening the operating length of hydraulic tappet. This means that the plunger is operating closer to its bottomed position, and less clearance is available for thermal expansion of valve mechanism during

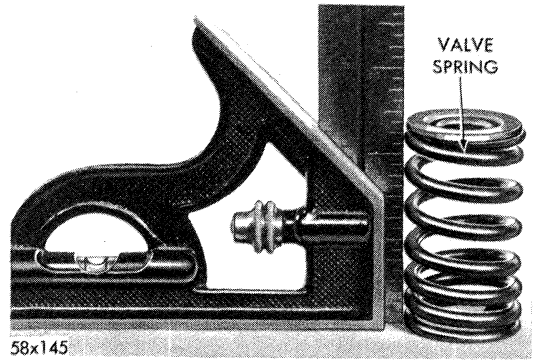


Fig. 56 — Checking Valve Spring Squareness

high speed driving. The design of the valve mechanism includes a safety factor to allow for a limited amount of wear, and the refacing of valves and seats.

To insure that the limits have not been exceeded, the dimension from valve spring seat in head to valve tip should be measured with Gauge, Tool C-3648, as shown in Figure 55.

The end of the cylindrical gauge and the bottom of slotted area represent the maximum and minimum allowable extension of valve stem tip beyond the spring seat. If the tip exceeds maximum, grind the stem tip to within gauge limits. Clean tappets if tip grinding is required.

d. Testing Valve Springs

Whenever the valves have been removed for inspection, reconditioning or replacement, the valve springs should be tested. To test a spring, first determine the length at which the spring is to be tested. As an example, the compressed length of the spring to be tested is 1-15/32 inches. Turn the table of Tool C-647 until surface is in line with the 1-15/32 inch mark on the threaded stud and the zero mark to the front. Place spring over stud on table and lift the compressing lever to set the tone device. Pull on torque wrench until a ping is heard. Take the reading on torque wrench at this instant. Multiply this reading by two. This will give the spring load at the test length. Fractional measurements are indicated on the table for finer adjustments. The valve springs should test 183 to 202 lbs. when compressed to 1-15/32 inch. Discard springs that do not meet these specifications.

Inspect each valve spring for squareness with a steel square and surface plate, as shown in Figure 56.

If the spring is more than 1/16 inch out of square, install a new spring.

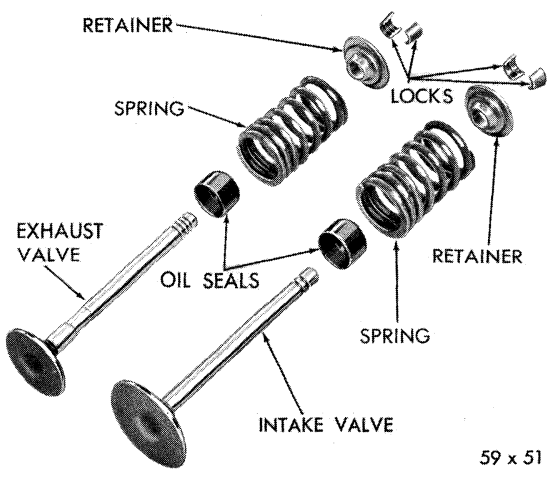


Fig. 57 — Valve Assembly

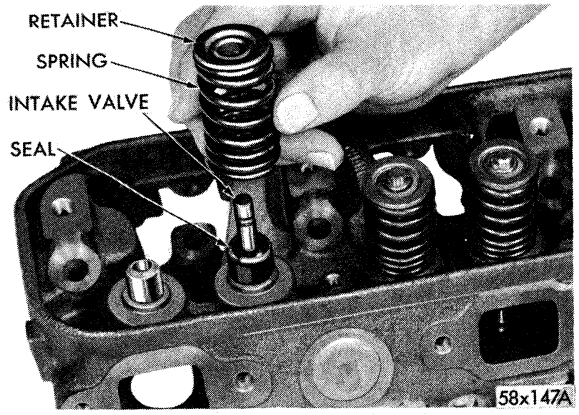


Fig. 58 — Installing Valves and Cup Seals

e. Installation

Coat the valve stems with lubricating oil and insert them in position in cylinder head. Install the cup seals on intake and exhaust valve stems and over valve guides, as shown in Figure 57 and 58 and install valve springs and retainers.

Compress the valve springs with Tool C-3422. Install locks and release tool.

NOTE: If the valves and/or seats are reground, measure the installed height of springs. Make sure measurement is taken from the bottom of the spring seat in cylinder head to the bottom surface of spring retainer. (If spacers are installed, measure from the top of spacer.) If height is greater than 1-57/64 inches, install a 1/16 inch spacer in head counterbore to bring spring height back to normal 1-53/64 to 1-57/64 inch.

HYDRAULIC TAPPETS

a. Preliminary to Checking Hydraulic Tappets

Before disassembling any part of engine to correct tappet noise, read the oil pressure at gauge and check the oil level in the oil pan. The pressure should be between 45 and 70 pounds at 2000 rpm. The oil level in the pan should never be above "full" mark on dip stick, or below "add oil" mark. Either of these two conditions could be responsible for noisy tappets.

Oil Level Too High — If oil level is above "full" mark on dip-stick, it is possible for the connecting

rods to dip into oil while the engine is running and create foam. Foam in the oil pan would be fed to the hydraulic tappets by the oil pump causing them to go flat and allowing the valves to seat noisily.

Oil Level Too Low — Low oil level may allow the oil pump to take in air which, when fed to tappets, causes them to lose length and allows the valves to seat noisily. Any leaks on intake side of the pump through which air can be drawn will create the same tappet action. When tappet noise is due to aeration, it may be intermittent or constant, and usually more than one tappet will be noisy. When oil level and leaks have been corrected, the engine should be operated at fast idle for sufficient time to allow all of air inside of tappets to be bled out.

b. Tappet Noises

To determine the source of tappet noise, operate the engine at idle with the cylinder head covers removed. Feel each valve spring or rocker arm to detect the noisy tappet. The noisy tappet will cause the affected spring and/or rocker arm to vibrate or feel rough in operation.

NOTE: Worn valve guides or cocked springs are sometimes mistaken for noisy tappets. If such is the case, noise may be dampened by applying side thrust on valve spring. Inspect rocker arm push rod sockets and push rod ends for wear. If noise is not appreciably reduced, it can be assumed the noise is in the tappet.

Valve tappet noise ranges from a light noise to a heavy click. A light noise is usually caused by excessive leakdown around the unit plunger, or by the plunger partially sticking in the tappet body cylinder. A heavy click is caused either by a tappet check valve not seating, or by foreign particles becoming wedged between the plunger and tappet body, causing plunger to stick in the down position. This heavy click will be accompanied by excessive clearance between valve stem and rocker arm as valve closes. In either case, the tappet assembly should be removed for inspection and cleaning.

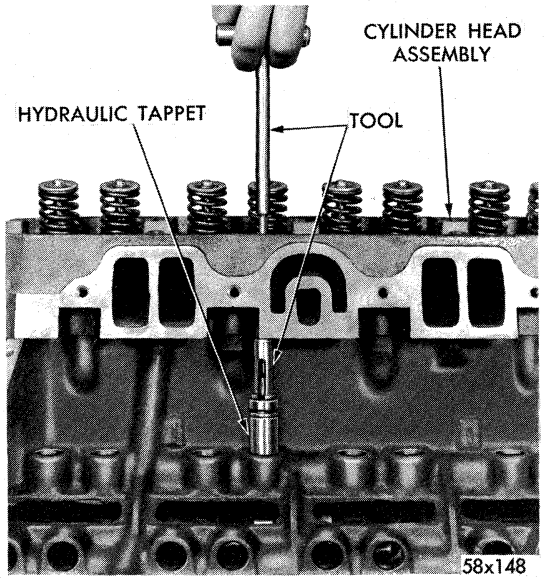


Fig. 59 — Removing Tappet

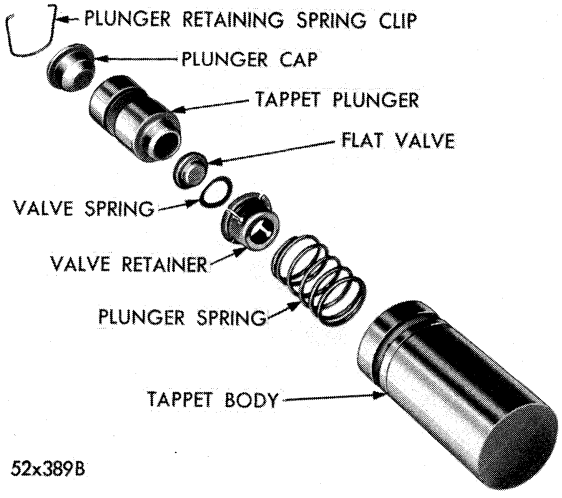


Fig. 60 — Hydraulic Tappet Assembly

c. Removal of Tappets

Tappets can be removed without removing the intake manifold by following this recommended procedure: remove the cylinder head covers. Remove rocker arms and shaft assembly. Remove the push rods and place them in their respective holes in Tool C-3068. Slide puller Tool C-3661 through push rod opening in cylinder head and seat tool firmly in the head of tappet. Pull tappet out of bore with a twisting motion, as shown in Figure 59.

If all tappets are to be removed, remove the hydraulic tappets and place them in their respective holes in tappet and push rod holder, Tool C-3068. This will insure installation of the tappets in their original locations.

NOTE: A diamond shaped marking stamped on the engine numbering pad indicates that all tappet bodies are .008 inch oversize, see Figure 84.

CAUTION

Do not disassemble a tappet on a dirty work bench. The plunger and tappet bodies are not interchangeable. The plunger and valve must always be fitted to the original body. It is advisable to work on one tap-

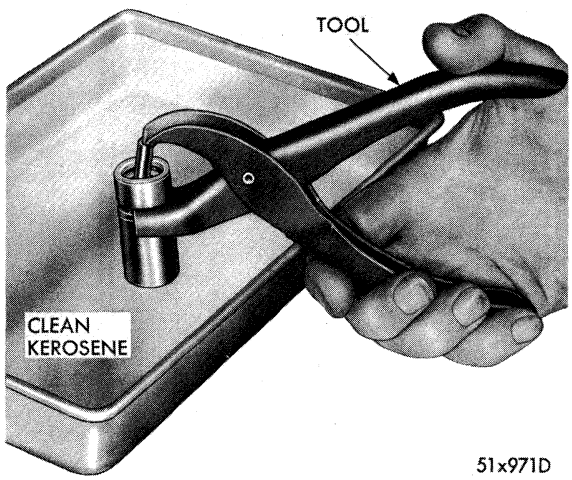


Fig. 61 — Testing Tappet

pet at a time to avoid mixing of parts. Mixed parts are not compatable.

d. Disassembly (Fig. 60)

Pry out plunger retainer spring clip. Clean the varnish deposits from the inside of tappet body above the plunger cap. Invert the tappet body and remove plunger cap, plunger, flat check valve, check valve spring, check valve retainer and plunger spring. Separate the plunger, check valve retainer and check valve spring. Place all parts in their respective place in the tappet holder Tool C-3068.

e. Cleaning and Assembly

Clean all tappet parts in a solvent that will remove all varnish and carbon. Replace the tappets that are unfit for further service with new assemblies. Assemble the tappets, as shown in Figure 56.

f. Inspection

If the tappet or bore in cylinder block is scored, scuffed, or shows signs of sticking, ream the bore to next oversize, using Tool C-3028. If plunger shows signs of scoring or wear and valve is pitted, or if the valve seat on end of plunger indicates any condition that would prevent valve from seating, install a new tappet assembly.

g. Testing

Fill a pan with clean kerosene. Remove cap from plunger and completely submerge the tappet in an upright position.

Allow tappet to fill with kerosene, remove tappet, and replace the cap. Hold the tappet in an upright position and insert the lower jaw of pliers, Tool C-3160, in the groove of tappet body (Fig. 61).

Engage jaw of pliers with top of the tappet plunger. Check leakdown by compressing pliers. If plunger collapses almost instantly as pressure is applied, disassemble tappet, clean and test again. If the tappet still does not operate satisfactorily after cleaning, install a new tappet assembly.

h. Installation

Lubricate the tappets. Install tappets and push rods in their original positions. Install the rocker arm and shaft assembly. Start and operate the engine. Warm up to normal operating temperature.

NOTE: To prevent damage to valve mechanism, the engine must not be run above fast idle until all of hydraulic tappets have filled with oil and have become quiet.

CHECKING VALVE TIMING

Turn crankshaft until the No. 1 exhaust valve is full open and the No. 1 piston is on TDC.

Insert a ¼ inch spacer between the rocker arm pad and the stem tip of the No. 1 intake valve (second valve on the left bank). Install a dial indicator so that the plunger contacts the valve spring retainer as nearly perpendicular as possible. Allow the spring load to bleed the tappet down giving in effect a solid tappet. Zero the indicator.

Turn the crankshaft clockwise (normal running direction) until intake valve has lifted .013 inch. The timing on the timing indicator, located on the chain case cover, should read from 10° BTDC to 2° ATDC. If the reading is not within the specified limits: Check the sprocket index marks, inspect the timing chain for wear, and check the accuracy of the DC mark on the timing indicator. Turn crankshaft counter-clockwise until the valve is closed and remove the spacer.

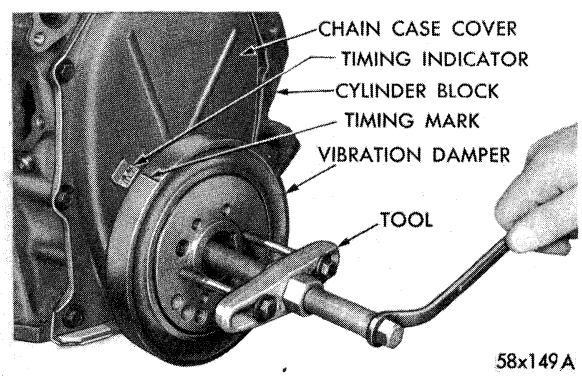


Fig. 62 — Removing Vibration Damper Assembly

CAUTION

Do not turn crankshaft any further clockwise as the valve spring might bottom and result in serious damage.

TIMING SPROCKETS AND CHAIN

The timing chain has 50 links of ½ inch pitch and is ⅞ inch wide. Chain stretch is reduced because of fewer joints to wear.

a. Removal

Drain the cooling system. Remove the radiator and water pump assembly. Remove the bolt holding vibration damper on crankshaft. Remove two of the pulley bolts, install Tool C-3033, and pull the damper assembly off the end of crankshaft, as shown in Figure 62.

Remove the chain cover and gasket. Slide the crankshaft oil slinger off end of crankshaft. Remove the camshaft sprocket attaching bolt. Remove timing chain with crankshaft and camshaft sprockets.

b. Installation

Place both the camshaft sprocket and crankshaft sprocket on the bench with timing marks on exact imaginary center line through both camshaft and crankshaft bores. Place the timing chain around both sprockets. Turn the crankshaft and camshaft to line up with the keyway location in crankshaft sprocket and the dowel holes in the camshaft sprocket. Lift the sprockets and chain, (keep sprockets tight against the chain in position as described). Slide both sprockets evenly over their respective shafts. Use a straight edge to check alignment of the timing marks (Fig. 63). Install the washer and camshaft sprocket bolt and tighten to 35 foot-pounds torque.

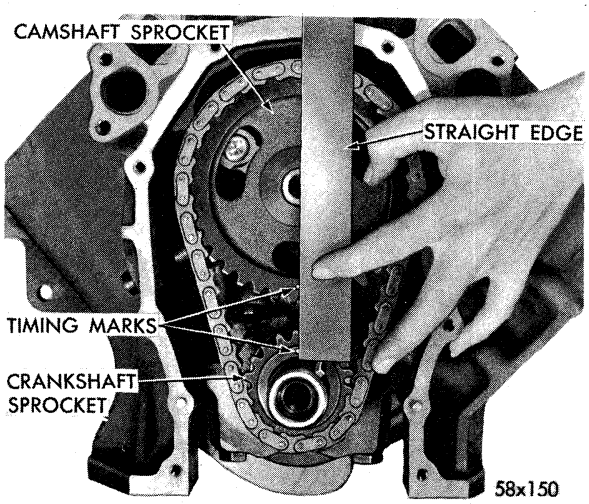


Fig. 63 — Alignment of Timing Marks

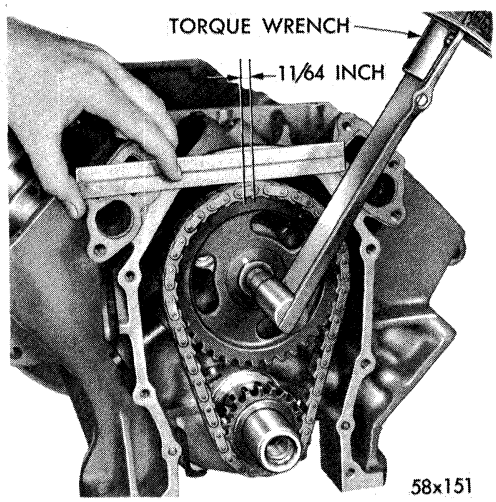


Fig. 64 — Measuring Chain Stretch

c. Checking Timing Chain for Stretch

Place a scale next to timing chain so that any movement of the chain may be measured. Place a torque wrench and socket over the camshaft sprocket attaching bolt and apply torque in the direction of crankshaft rotation to take up the slack; 30 foot-pounds torque (with cylinder heads installed) or 15 foot-pounds torque (cylinder heads removed). Holding a scale with dimensional reading even with edge of a chain link, apply torque in the reverse direction 30 foot-pounds (with cylinder heads installed) or 15 foot-pounds (cylinder heads removed), and note the amount of chain movement, as shown in Figure 64. Install a new timing chain, if its movement exceeds 11/64 inch.

NOTE: With a torque applied to camshaft sprocket bolt, the crankshaft should not be permitted to move. It may be necessary to block the crankshaft to prevent rotation.

If chain is satisfactory, slide the crankshaft oil slinger over shaft and up against the sprocket (flange away from sprocket.)

TIMING CHAIN CASE COVER OIL SEAL REPLACEMENT

a. Removal

Position puller screw of Tool C-3506 through case cover, the inside of case cover up. Position the puller blocks directly opposite each other, and force the angular lip between neoprene and flange of the seal retainer. Place washer and nut on puller screw.

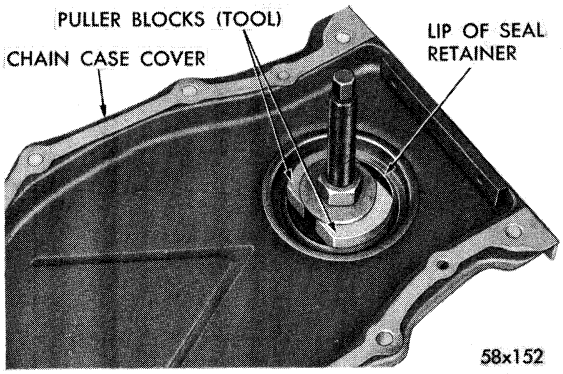


Fig. 65 — Puller Blocks Expanded to Pulling Position

Tighten the nut as tight as possible by hand, forcing blocks into gap to a point of distorting the seal retainer lip (Fig. 65). This is important (puller is only positioned at this point). Place sleeve over the retainer and place removing and installing plate into sleeve. Place the flat washer and nut on puller screw. Hold the center screw and tighten lock nut to remove seal (Fig. 66).

b. Installation of Oil Seal

Insert puller screw through removing and installing plate so that the thin shoulder will be facing up.

Insert puller screw with plate through the seal opening (inside of chain case cover facing up). Place the seal in cover opening, with neoprene down. Place the seal installing plate into the new seal, with protective recess toward lip of seal retainer (Fig. 67). Install the flat washer and nut on puller screw, hold screw and tighten the nut (Fig. 68).

The seal is properly installed when neoprene is tight against the face of cover. Try to insert a .0015 inch feeler gauge between neoprene and cover (Fig. 69). If the seal is installed properly, the feeler gauge cannot be inserted.

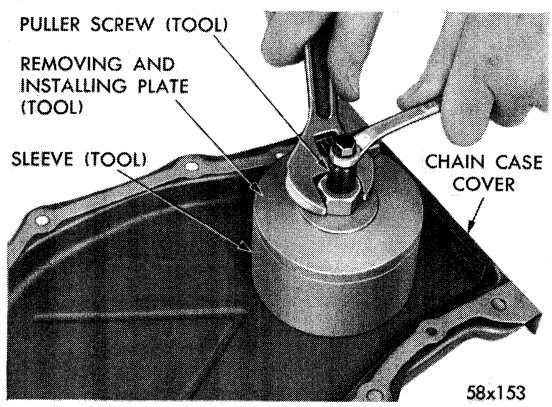


Fig. 66 — Removing Oil Seal

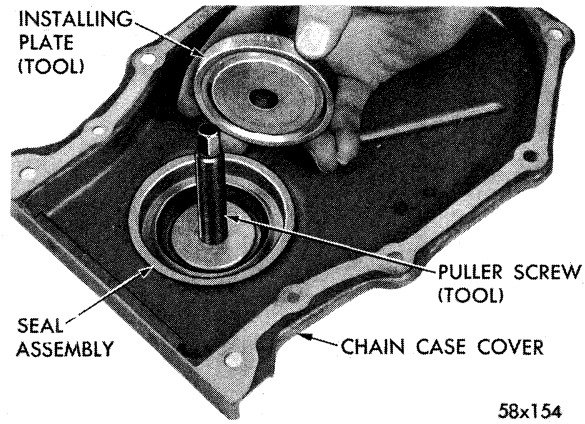


Fig. 67 — Positioning Installer Plate on New Seal

NOTE: It is normal to find particles of neoprene collected between the seal retainer and crankshaft oil slinger after the seal has been in operation.

c. Installing Chain Case Cover

Be sure the mating surfaces of chain case cover and cylinder block are clean and free from burrs. Using

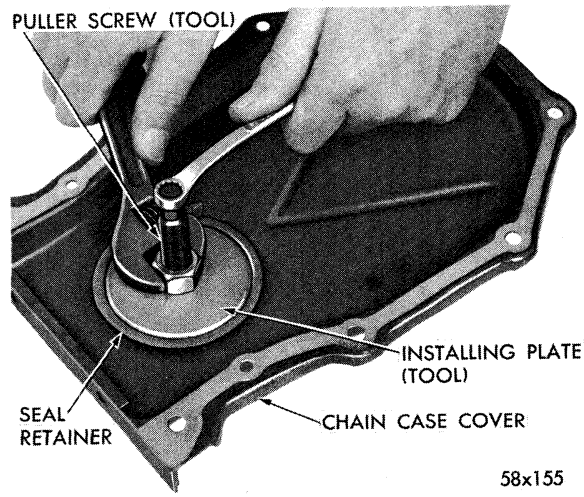


Fig. 68 — Installing New Seal

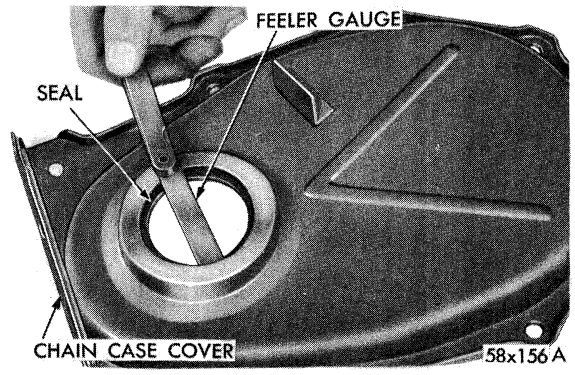


Fig. 69 — Checking Seal for Proper Seating

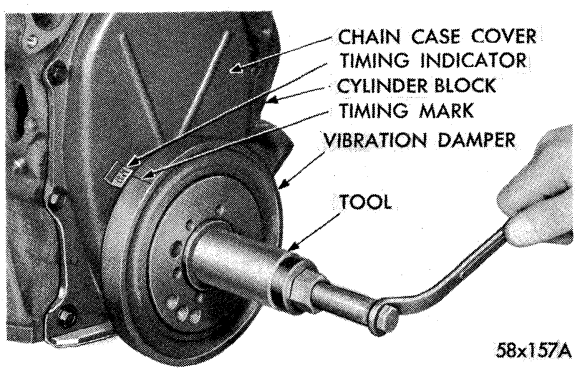


Fig. 70 — Installing Vibration Damper Assembly

a new gasket slide the chain case cover over the locating dowels and tighten bolts to 15 foot-pounds torque.

d. Installing Vibration Damper

Place the damper hub key in slot in crankshaft, and slide hub on crankshaft. Place the installing tool, part of Puller set Tool C-3033 in position and press damper hub on the crankshaft (Fig. 70). Slide the pulley over the shaft and attach with bolts and lockwashers. Tighten the bolts to 15 foot-pounds torque. Install damper hub retainer washer and bolts. Tighten to 135 foot-pounds torque.

CAMSHAFT

The camshaft has an integral oil pump and distributor drive gear and fuel pump eccentric, as shown in Figure 71.

Rearward camshaft thrust is taken by the rear face of the cast iron camshaft sprocket hub, bearing directly on the front of the cylinder block, eliminating the need for a thrust plate. The helical oil pump and distributor drive gear and the camshaft lobe taper both tend to produce only a rearward thrust.

Removal

With the tappets and timing sprockets removed, remove distributor and lift out oil pump and distributor drive shaft. Remove the fuel pump to allow the push rod to drop away from the cam eccentric. Remove the camshaft being careful not to damage the cam bearings with the cam lobes.

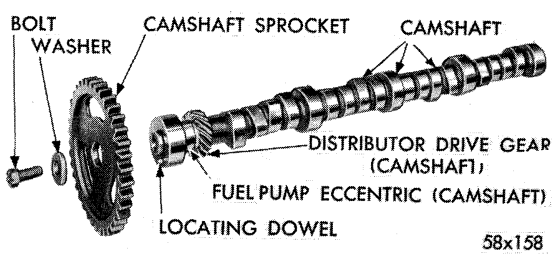


Fig. 71 — Camshaft and Sprocket Assembly

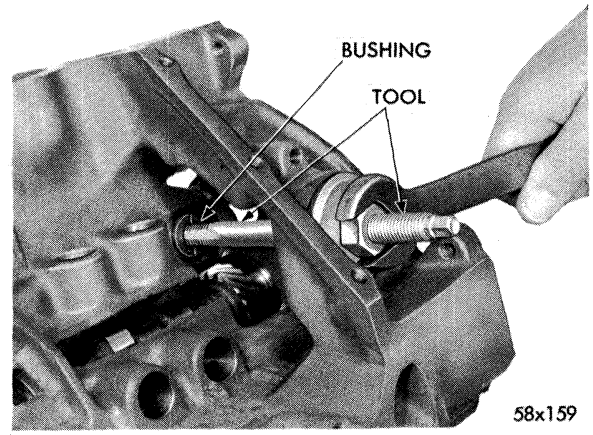


Fig. 72 — Removing Distributor Drive Shaft Bushing

DISTRIBUTOR DRIVE SHAFT BUSHINGS

a. Removal

Insert Tool C-3052 into old bushing and thread down until a tight fit is obtained (Fig. 72). Hold the puller screw and tighten puller nut until bushing is removed.

b. Installation

Slide new bushing over burnishing end of Tool C-3053 and insert the tool and bushing into bore, as shown in Figure 73.

Drive bushing and tool into position, using a soft hammer. As the burnisher is pulled through bushing by tightening puller nut, the bushing is expanded tight in block and burnished to correct size, as shown in Figure 74. DO NOT REAM THIS BUSHING.

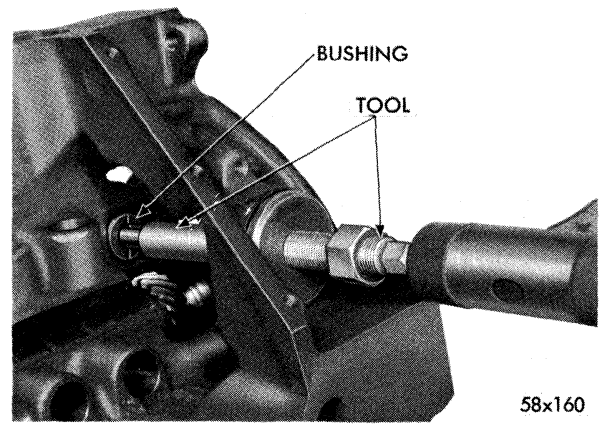


Fig. 73 — Installing Distributor Drive Shaft Bushing

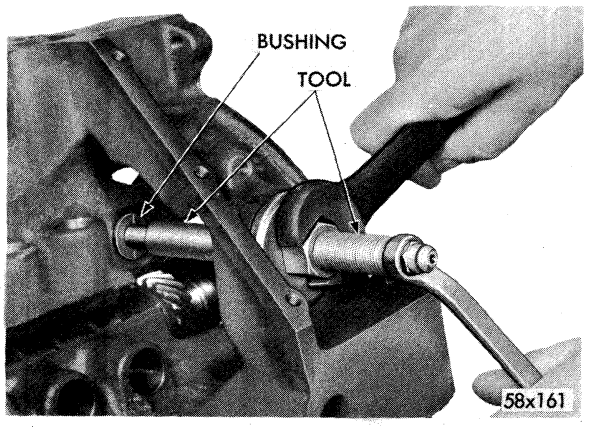


Fig. 74 — Burnishing Distributor Drive Shaft Bushing

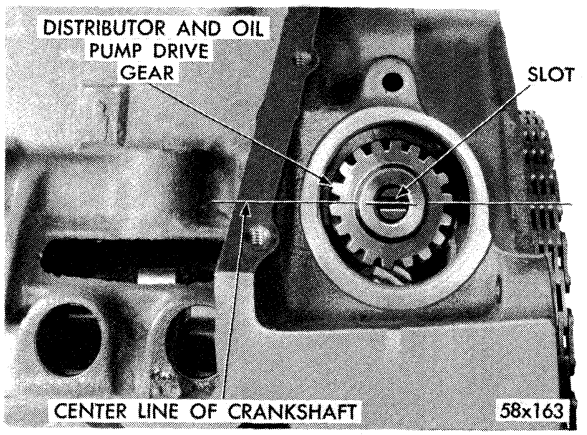


Fig. 76 — Distributor Drive Gear Installation

c. Camshaft Installation

Lubricate the camshaft lobes and camshaft bearing journals and insert the camshaft to within 2 inches of its final position in the cylinder block. Modify Tool C-3509 by grinding off the index lug holding upper arm on the tool and rotate arm 180°. Install Tool C-3509 in place of distributor drive gear and shaft, as shown in Figure 75. Hold the tool in position with distributor lock plate screw. This tool will restrict the camshaft from being pushed in too far and prevent knocking out the welch plug in the rear of the cylinder block. **The tool should remain installed until the camshaft and crankshaft sprockets and timing chain have been installed.**

NOTE: Whenever an engine has been rebuilt and a new camshaft and/or new tappets have been installed, one quart of factory recommended oil additive should be added to the engine oil to aid in break-in. The oil mixture should be left in the engine for a minimum of 500 miles. Drain the oil mixture at the next normal oil change.

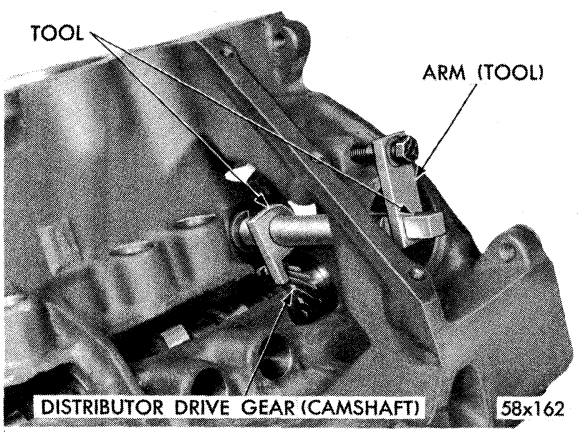


Fig. 75 — Camshaft Holding Tool

NOTE: Whenever the camshaft is replaced, all of the tappet faces must be inspected for crown with a straight edge. If any negative crown (dish) is observed, the tappet must be replaced.

d. Distributor (Basic) Timing

Before installing the distributor and oil pump drive shaft, time engine as follows: Rotate the crankshaft until No. 1 cylinder is at top dead center on firing stroke. When in this position, the straight line on the vibration damper should be under (DC) on the timing indicator. Coat shaft and drive gear with engine oil. Install the shaft so that after the gear spirals into place, it will index with oil pump shaft, so that the slot in top of drive gear will be parallel with center line of crankshaft as shown in Figure 76.

e. Installation of Distributor

Hold distributor over the mounting pad on cylinder block with the vacuum chamber pointing toward the center of engine. Turn the rotor until it points forward and to the approximate location of the No. 1 tower terminal in the distributor cap. Place distributor gasket in position. Lower distributor and en-

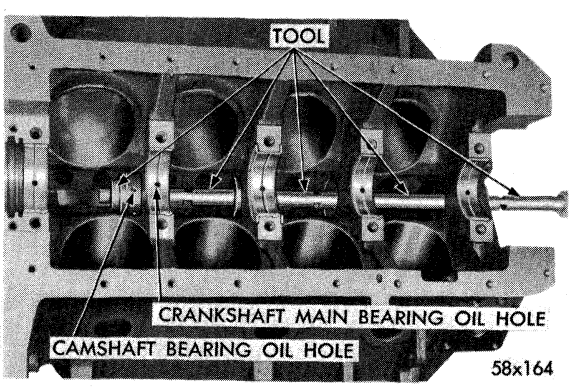


Fig. 77 — Removing Camshaft Bearing

gage shaft in slot of distributor drive shaft gear. Turn distributor clockwise until the breaker contacts are just separating and install hold down clamp.

REMOVAL AND INSTALLATION OF CAMSHAFT BEARINGS (Engine Removed from Car)

a. Removal

With the engine completely disassembled, drive out the rear cam bearing welch plug. Install proper size adapters and horse shoe washers (part of Tool C-3132A) at back of each bearing shell to be removed and drive out the bearing shells.

b. Installation

Install the new camshaft bearings with Tool C-3132-A by sliding the new camshaft bearing shell over the proper adapter. Position bearing in the tool. Install horse shoe lock and by reversing removal procedure, carefully drive bearing shell into place, as shown in Figure 77. Install remaining shells in like manner.

NOTE: Install the No. 1 camshaft bearing 1/32" inward from front face of the cylinder block.

The oil holes in camshaft bearings and cylinder block must be in exact alignment to insure proper lubrication (Fig. 77).

Camshaft bearing index can be checked after installation by inserting a pencil flashlight in the bearing shell. The camshaft bearing oil hole should be perfectly aligned with the drilled oil passage from the main bearing. Another oil hole in the camshaft bearings should be visible by looking down on the left bank oil hole above and between No. 6 and No. 8 cylinders to No. 4 camshaft bearing and on the right bank above and between No. 5 and 7 cylinders to No. 4 camshaft bearings. If the camshaft bearing shell oil holes are not in exact alignment, remove and reinstall them correctly. Use Tool C-897 to install a new welch plug at the rear of camshaft. **Be sure this plug does not leak.**

CYLINDER BLOCK

The cylinder block is of the deep block design which eliminates the need for a torque converter housing adapter plate. Its sides extend three inches below the crankshaft centerline.

Cleaning and Inspection

Clean cylinder block thoroughly and check all core hole plugs for evidence of leaking. If new core hole plugs are installed, coat the edges of plug and core hole with a suitable sealer and drive plugs in place with driver, Tool C-897. Examine block for cracks or fractures. Remove the top ridge of cylinder bores with a reliable ridge rearmer before removing the pistons from cylinder block. **Be sure to keep the tops of pistons covered during this operation.**

NOTE: Pistons and connecting rods must be removed from the top of cylinder block. When removing piston and connecting rod assemblies from the engine, rotate crankshaft so each connecting rod is centered in the cylinder bore.

Remove connecting rod cap. Install Tool C-3221 on one connecting rod bolt and protector over the other bolt and push each piston and rod assembly out of the cylinder bore. After removal, install bearing cap on mating rod.

a. Checking Cylinder Bores

The cylinder bores should be checked for out-of-round and taper with Tool CM-119. If the cylinder bores show more than .005 inch out-of-round or a taper of more than .010 inch the cylinder block should be rebored and honed, and new pistons and rings fitted.

b. Honing Cylinder Bores

To remove light scoring, scuffing, or scratches from the cylinder walls, use Tool C-823. Usually a few strokes will clean up a bore and maintain the required limits. The cylinder walls should be deglazed, using cylinder surfacing hone Tool C-3501 equipped with 280 grit stones, prior to installation of the new rings or to smooth down the cylinder walls after rough honing. A satisfactory finish can be obtained by

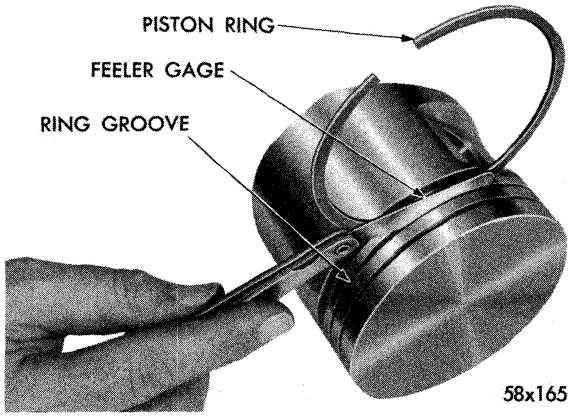


Fig. 78 — Measuring Piston Ring Clearance

giving each cylinder wall 20 strokes in 20 seconds with the hone so that a cross hatch pattern will be obtained.

After honing, it is necessary that the block be cleaned again to remove all traces of abrasives, and to prevent excessive wear of engine parts. **The hone may be safely used for removal of metal up to .005 inch and as high as .010 to .015 inch by an experienced operator.**

CAUTION

Be sure all abrasives are removed from engine parts after honing. It is recommended that a solution of soap and water be used with a brush and then thoroughly dried. If this is impossible, use SAE 10 engine oil and CLEAN cloth. When the bore can be wiped with a clean white cloth and be withdrawn clean, the bore is clean.

c. Cylinder Walls

Cylinder walls which are badly scored, scuffed, scratched, or worn beyond specified limits should be rebored. Whatever type of boring equipment is used, boring operation should be closely coordinated with the fitting of pistons and rings in order that specified clearance may be maintained.

d. Fitting Pistons

The piston and cylinder wall must be clean and dry. The specified clearance between the piston and the cylinder wall is .0005 to .0010 inch.

The piston diameter should be measured at the top of skirt 90° to the piston pin axis. The cylinder bores on used engines should be measured halfway down the cylinder bore and transverse to the engine crankshaft centerline.

NOTE: Pistons and cylinder bores should be measured at normal room temperature 70° F.

All service pistons include pins, and are available in standard and the following oversizes, .005, .020 and .040 inch.

e. Fitting Rings

Measure the piston ring gap about two (2) inches from bottom of cylinder bore in which it is to be fitted. (An inverted piston can be used to push the rings down to insure positioning rings squarely in the cylinder wall before measuring.) Insert the feeler stock in gap (Fig. 78).

The ring gap should be between .013 to .025 inch.

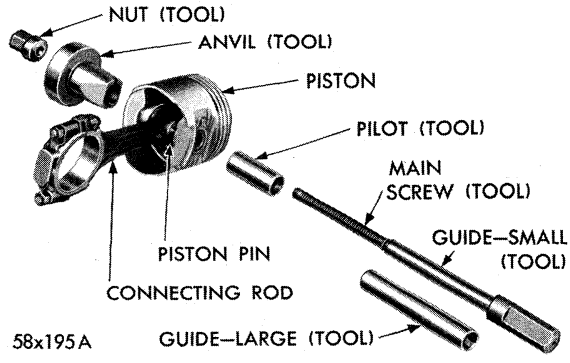


Fig. 79 — Tool Arrangement of Removing Piston Pin

This measurement is the same for all rings. Measure the side clearance between piston ring and ring land. The clearance should be .0015 to .003 inch for the top compression ring, .001 to .0025 inch for the intermediate ring, and .001 to .003 for the oil control ring. Starting with the oil ring expander, place expander ring in the lower ring groove and install oil control ring. Install the compression rings in middle and top grooves. Use ring installer, Tool C-3629 for the MC-1 and MC-2 engine and Tool C-3628 for the MC-3 and MY-1 engine.

NOTE: Be sure the mark "Top" on each compression ring is to the top of piston when the ring is installed.

REMOVAL OF PISTON PIN

Arrange Tool C-3624 parts for the removal of piston pin, as shown in Figure 79. Install pilot on the main screw. Install the screw through piston pin. Install anvil over the threaded end of the main screw with small end of anvil against the piston boss.

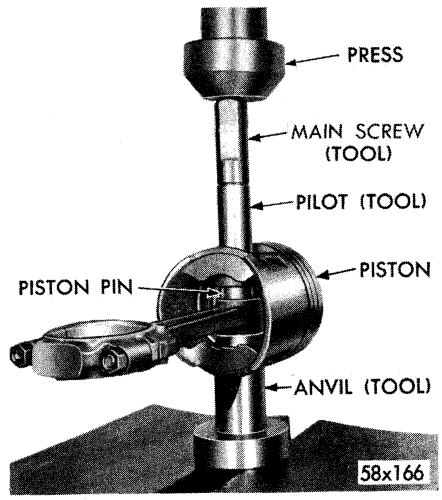


Fig. 80 — Removing Piston Pin

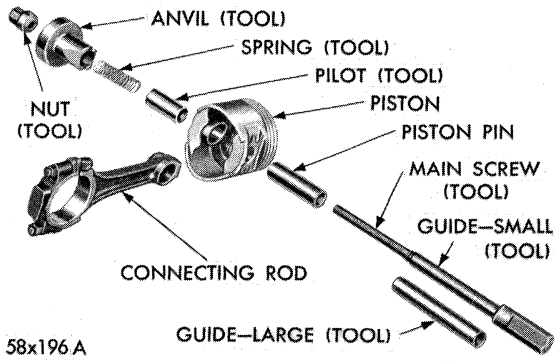


Fig. 81 — Tool Arrangement for Installing Piston Pin

NOTE: Be sure spring is removed from the anvil.

Install nut loosely on the main screw and place the assembly on a press, as shown in Figure 80. Press the piston pin out of connecting rod.

NOTE: When the pin falls free from connecting rod, stop the press to prevent damage to bottom of the anvil.

Remove the tool from the piston.

INSTALLATION OF PISTON PIN

Check the piston pin fit in the piston. It should be a sliding fit in the piston at 70°F. Piston pins are supplied in standard sizes only. Lubricate piston pin holes in the piston and connecting rod.

Arrange the tool parts for installation of piston pin, as shown in Figure 81. Install the spring inside the pilot and install the spring and pilot in the anvil. Install the piston pin over main screw. Place piston, with "front" up, over pilot so that the pilot extends through the piston pin hole. Position connecting rod over the pilot which extends through the piston hole.

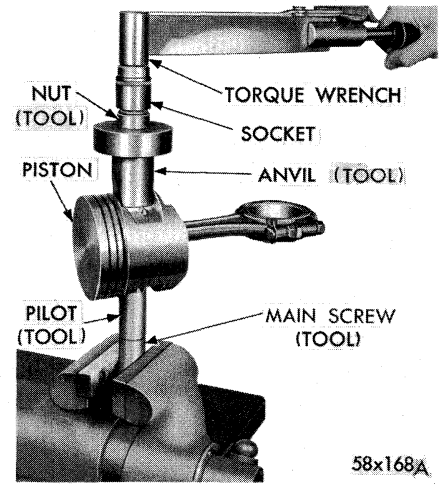


Fig. 83 — Testing Fit on Piston Pin in Connecting Rod

NOTE: Assemble rods to pistons of the right cylinder bank (2, 4, 6, and 8) with the indent on the piston head opposite to the larger chamfer on the large bore end of connecting rod. Assemble the rods to pistons of the left cylinder bank (1, 3, 5, and 7) with the indent on the piston head on the same side as the large chamfer on the large bore end of connecting rod.

Install the main screw and piston pin in the piston, as shown in Figure 81.

Install the nut on puller screw to hold assembly together. Place assembly on a press, as shown in Figure 82. Press in the piston pin until piston pin bottoms on the pilot properly positioning the pin in the connecting rod. Remove the tool and arrange tool parts and piston assembly in the same manner, as shown in Figure 79.

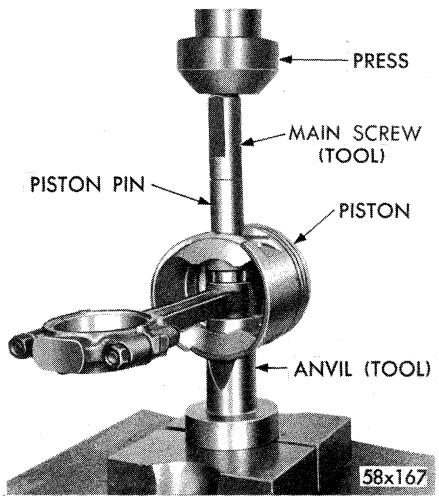


Fig. 82 — Installing Piston Pin

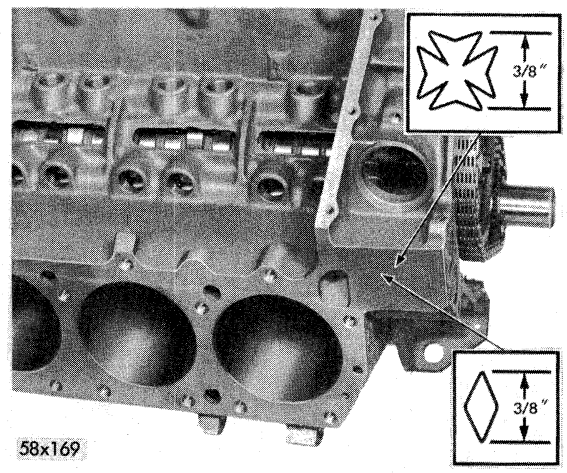


Fig. 84 — External Identification

Place the assembly in a vise, as shown in Figure 83.

Attach the torque wrench to nut and check torque up to 15 foot-pounds torque. If the connecting rod moves downward on piston pin, reject this connecting rod and piston pin combination. Obtain a connecting rod with proper small end bore diameter and repeat the installation and checking procedure.

If connecting rod does not move under 15 foot-pounds torque, the piston pin and connecting rod interference is satisfactory, the tool may be removed.

CONNECTING RODS

IMPORTANT

A Maltese Cross stamped on the engine numbering pad (Fig. 84) indicates that engine is equipped with a crankshaft which has one or more connecting rods and main bearing journals finished .001 inch undersize. The position of the undersize journal or journals will be stamped on machined surface of No. 3 counterweight (Fig. 85).

Connecting rod journals will be identified by the letter "R" and main bearing journals by the letter "M." Thus "M-1" indicates that No. 1 main bearing is .001 inch undersize.

INSTALLING CONNECTING ROD BEARINGS

NOTE: Fit all rods on one bank until completed. Do not alternate from one bank to another, because when the rods are assembled to pistons correctly, they are not interchangeable from one bank to another.

Each bearing cap has a small "V" groove across the parting face. When installing the lower bearing shell, make certain that the "V" groove in shell is in line with "V" groove in cap. This allows lubrication of the cylinder wall. The bearing shells should always be installed so that small formed tang fits into machined grooves of rods. The side play should be from .009 to .017 inch (two rods).

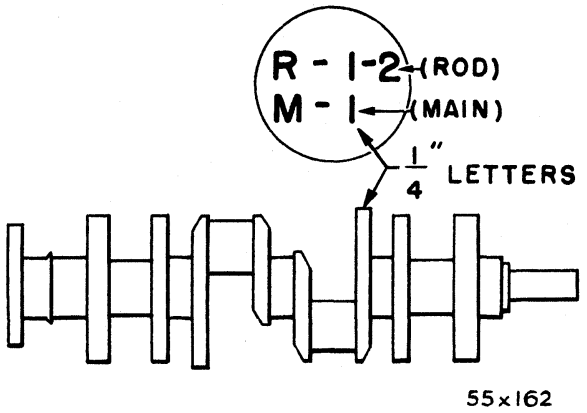


Fig. 85 — Internal Identification

Limits of taper or out-of-round on any crankshaft journals should be held to .001 inch. Bearings are available in .001, .002, .003, .010 and .012 inch undersize.

NOTE: Install the bearings in pairs. Do not use a new bearing half with an old bearing half. Do not file the rods or bearing caps.

CHECKING THE CONNECTING ROD BEARING CLEARANCE (PLASTIGAGE METHOD)

Connecting rod bearing clearance measurements can be made by the use of Plastigage with the engine in the chassis. After removing the connecting rod cap, wipe off the oil from the journal and inserts. Place the Plastigage on bearing parallel with crankshaft. Reinstall the cap and tighten attaching nuts alternately to specified torque.

Remove cap and measure the width of the compressed material with the graduated scale to determine the bearing clearance. Allowable clearance is from .0005 to .0015 inches. If taper of the compressed material is evident, measure with the graduated scale. If the taper appears to exceed .005 inch, the journal should be checked with micrometers.

INSTALLING PISTON AND CONNECTING ROD ASSEMBLY IN CYLINDER BLOCK

Before installing the pistons, rods, and rod assemblies in bore, be sure that compression ring gaps are diametrically opposite one another and not in line with oil ring gap. The oil ring expander gap should be toward the outside of the "V" of the engine. The oil ring gap should be turned toward the inside of the "V" of engine. Immerse the piston head and rings in clean engine oil, slide the ring compressor, Tool C-385, over the piston and tighten with the special wrench (part of Tool C-385). Be sure the position of rings does not change during this operation. Screw the connecting rod bolt protector (part of Tool C-3221) on one rod bolt, and insert the rod and piston into cylinder bore.

NOTE: Rotate the crankshaft so that connecting rod journal is on center of the cylinder bore.

Attach the puller part of Tool C-3221 on the other bolt, and guide the rod over the crankshaft journal, as shown in Figure 86.

Tap piston down in the cylinder bore, using the

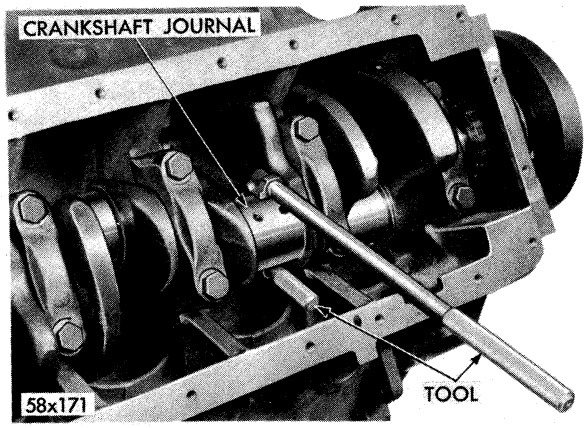


Fig. 86 — Removing and Installing Connecting Rod

handle of a hammer. At the same time, guide connecting rod into position on crankshaft journal. The notch or groove on the top of the piston must be pointing toward front of the engine and the larger chamfer of the connecting rod bore must be installed toward crankshaft journal fillet. Install the rod caps, tighten nuts to 45 foot-pounds torque.

CRANKSHAFT MAIN JOURNALS

The crankshaft journals should be checked for excessive wear, taper and scoring. Journal grinding should not exceed .012 inch under the standard journal diameter. DO NOT grind the thrust faces of No. 3 main bearing. **DO NOT** nick the crankpin or main bearing fillets. After regrinding, remove the rough edges from crankshaft oil holes and clean out all oil passages.

CRANKSHAFT MAIN BEARINGS

The lower main bearing halves of 1, 2, 4 and 5 numbers are interchangeable, as shown in Figure 87. The upper main bearing halves of 1, 2, 4 and 5 numbers are interchangeable. Upper and lower bearing halves are not interchangeable because the upper bearing is grooved and the lower is not.

The upper and lower No. 3 bearing halves are flanged to carry the crankshaft thrust loads and are not interchangeable with any other bearing halves in the engine.

NOTE: Bearings that are not badly worn or pitted must be reinstalled in the same position.

The bearing caps are not interchangeable and should be marked at removal to insure correct assembly. Bearing shells are available in standard and the following undersizes: .001, .002, .003, .010 and .012 inch. Never install an undersize bearing shell that will reduce the clearance below specifications.

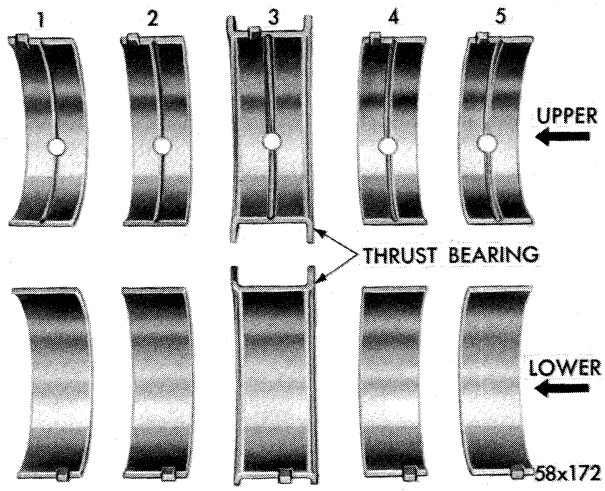


Fig. 87 — Main Bearing Identification

REMOVAL AND INSTALLATION OF THE MAIN BEARINGS

a. Removal

Remove the oil pan and mark bearing caps before removal. Remove bearing caps one at a time. Remove upper half of bearing by inserting Tool C-3059 (Fig. 88) into the oil hole of crankshaft. Slowly rotate crankshaft clockwise, forcing out upper half of bearing shell.

Checking the Main Bearing Clearance

Plastigage Method. Use the same technique as described in "Checking the Connecting Rod Bearing Clearance."

CAUTION

If bearings are measured with the engine in the chas-

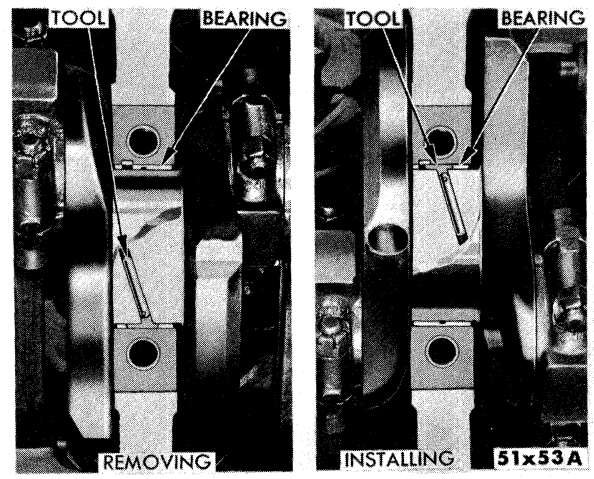


Fig. 88 — Removing and Installing Main Bearing Upper Shell

sis, the crankshaft must be supported in order to take up clearance between the upper bearing insert and the crankshaft journal. This can be done by snugging bearing caps of the adjacent bearings with .005 to .015 inch cardboard between lower bearing shell and journal. Use extreme caution when this is done to avoid unnecessary strain on the crankshaft or bearings, or false reading may be obtained. Do not rotate crankshaft while plastigage is installed. Be sure to remove cardboard before reinstalling oil pan.

It is permissible to use one .001 inch undersize bearing shell with one standard bearing shell or one .002 inch bearing shell. Always use the smaller diameter bearing half as the upper. Never use a new bearing with a used bearing and never use an upper bearing half more than .001 inch smaller than the lower bearing half.

b. Installation of the Upper Main Bearing

NOTE: When installing a new upper bearing shell, slightly chamfer the sharp edge from the plain side.

Start bearing in place, and insert Tool C-3059 into the oil hole of crankshaft (Fig. 88). Slowly rotate the crankshaft counter-clockwise sliding the bearing into position. After all bearings have been fitted, tighten all caps to 85 foot-pounds torque. The crankshaft end play should be .002 to .007 inch.

OIL PAN (ALL MODELS)

a. Removal

Drain the oil and remove dipstick. Disconnect the steering linkage from steering arm to allow the steering linkage to be lowered. On single exhaust system, the exhaust crossover pipe must be removed. Be sure the rest of exhaust system is sufficiently supported. It may be necessary to pull the brake line located across the crossmember slightly forward to allow enough clearance for pan removal. Remove oil pan attaching bolts and lower the oil pan on MC-1 only. Disconnect throttle linkage at transmission and at carburetor. Rotate the crankshaft until the centerline of the front counterweight is in the 10 o'clock position. Remove the front engine mounting nuts and raise the engine one inch. Remove the oil pan.

b. Installation

NOTE: Check the alignment of the oil strainer. The bottom of strainer must be on a horizontal plane machined surface of the cylinder block. The foot of strainer should touch bottom of the oil pan. Clean pan thoroughly and install new gasket, oil pan and attaching bolts. Tighten bolts to 15 foot-pounds torque. Lower the engine and install front engine mounting nuts and tighten to 85 foot-pounds torque.

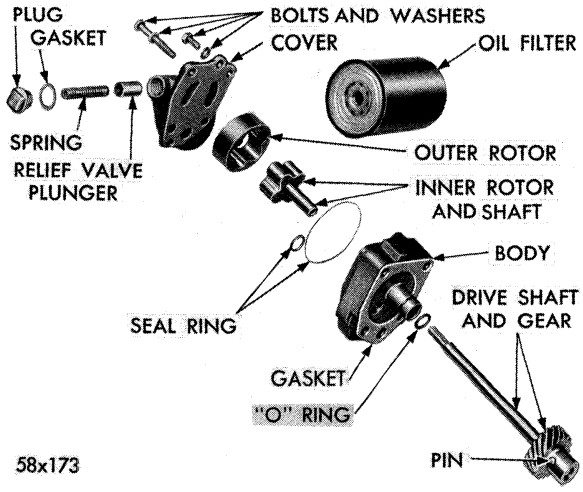


Fig. 89 — Oil Pump and Filter Assembly

Connect exhaust pipes (if removed) and steering, throttle and carburetor linkage. Refer to Transmission Section in this manual. Refill the crankcase.

OIL PUMP

a. Removal

Remove oil pump attaching bolts and remove pump and filter assembly from bottom side of the engine.

b. Disassembly

Remove the filter base and oil seal ring. Remove pump rotor and shaft and lift out the outer pump rotor. Remove oil pressure relief valve plug and lift out spring and plunger (Fig. 89).

c. Inspection and Repair

Clean all parts thoroughly. The mating face of oil

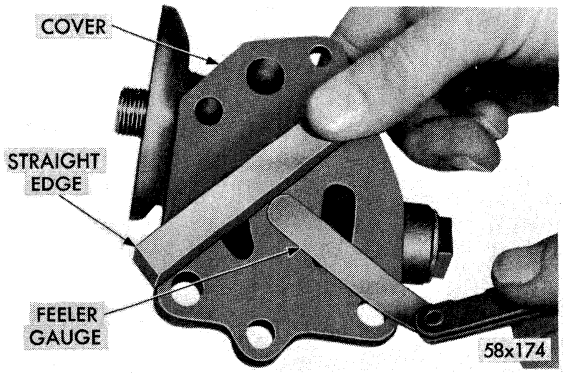


Fig. 90 — Checking Oil Pump Cover Flatness

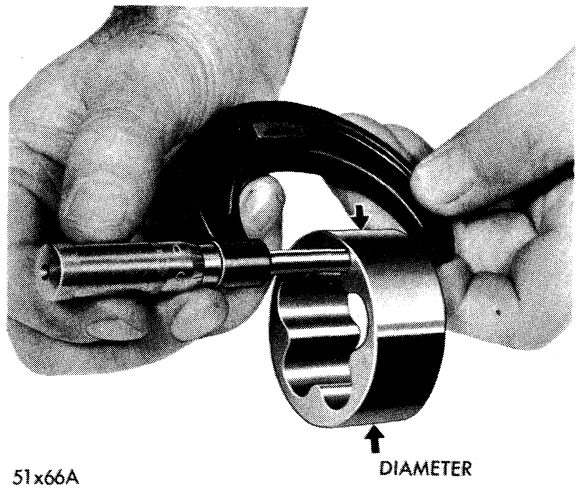


Fig. 91 — Measuring Outer Rotor Thickness

pump cover should be smooth. Replace cover if it is scratched or grooved.

Lay a straight edge across the oil pump cover surface (Fig. 90). If a .0015 inch feeler gauge can be inserted between the cover and straight edge, the cover should be replaced. If outer rotor length measures less than .943 inch (Fig. 91), and diameter less than 2.469 inches, replace outer rotor.

If the pump inner rotor length measures less than .943 inch (Fig. 92) a new pump rotor should be installed.

Slide outer rotor and inner rotor into pump body and place a straight edge across the face (between the bolt holes), as shown in Figure 93.

If a feeler gauge of more than .004 inch can be inserted between rotors and straight edge, replace pump body. Remove pump inner rotor and shaft leaving the outer rotor in pump cavity. Press the outer rotor body to one side with fingers and measure the clearance between outer rotor and pump body (Fig. 94). If measurement is more than .012

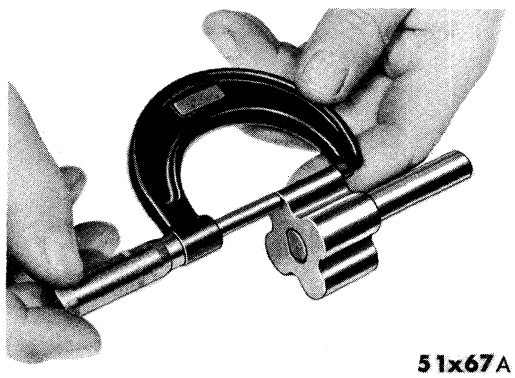


Fig. 92 — Measuring Inner Rotor Thickness

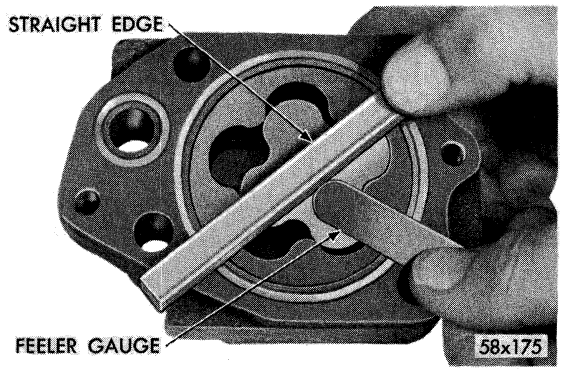


Fig. 93 — Measuring Clearance over Rotors

inch replace the oil pump body. If clearance between inner rotor and outer rotor (Fig. 95) is more than .010 inch, replace the inner and outer rotors.

Check the oil pump relief valve plunger for scoring and for free operation in its bore. If the plunger is scored, replace the plunger. The spring should conform to specifications on chart. If, for any reason, the spring has to be replaced, the same color spring should be used. An exception is where oil pressure is either above or below specifications. **When assembling oil pump, be sure to use new oil seal rings between filter base and body.** Tighten the attaching bolts to 35 foot-pounds torque.

Installation

Install the oil pump on engine.

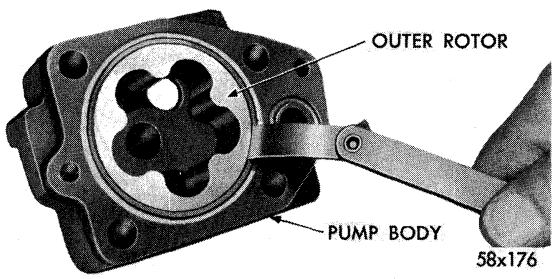


Fig. 94 — Measuring Outer Rotor Clearance

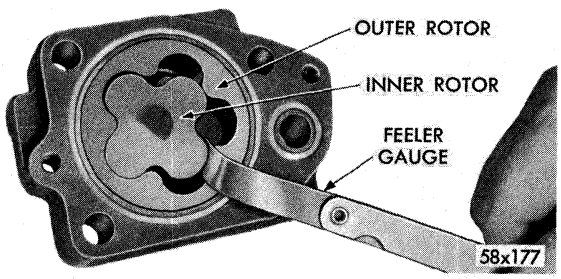


Fig. 95 — Measuring Clearance Between Rotors

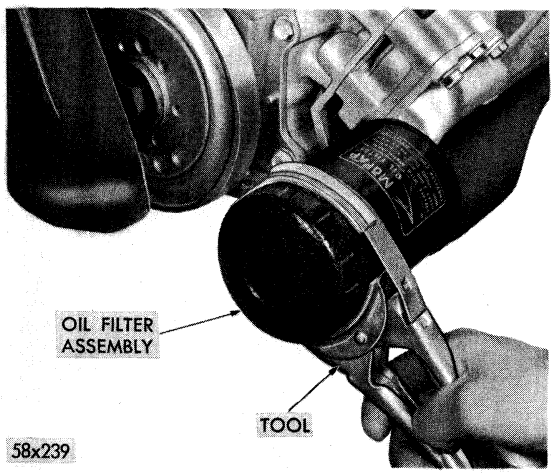


Fig. 96 — Removing Oil Filter with Tool

RELIEF VALVE SPRING CHART

Color	Free Length	Loaded Length	Compression Pounds
Gray (Lt.).....	2.19	1.60	11.85 to 12.85
Red (Std.).....	2.29	1.60	14.85 to 15.85
Brown (Hvy.)....	2.39	1.60	17.9 to 18.9

REMOVAL AND INSTALLATION OF OIL FILTER

The oil filter should be replaced every 5,000 miles to coincide with an engine oil change as follows:

Use care so as not to damage transmission oil cooler lines. Using Tool C-3654, unscrew the filter from base on bottom side on engine and discard. Wipe the base clean. Screw new filter on base, as shown in Figure 96, until gasket on filter contacts base. Tighten ½ turn more by hand. Start engine and check for leaks.

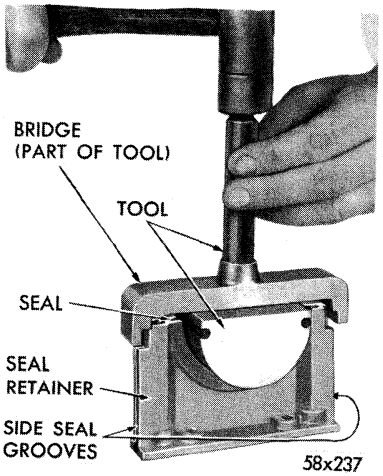


Fig. 97 — Installing Rear Main Bearing Lower Oil Seal

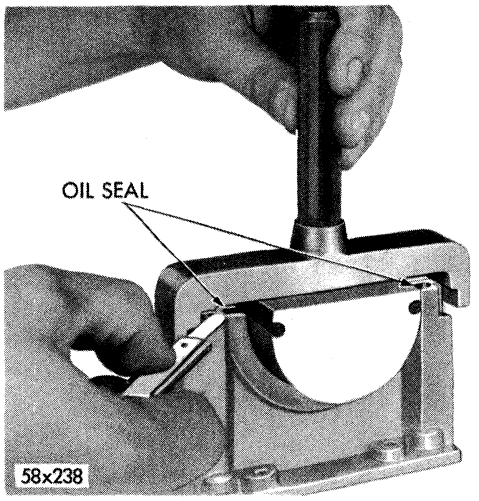


Fig. 98 — Trimming Rear Main Bearing Lower Oil Seal

REPLACEMENT OF THE REAR MAIN BEARING OIL SEAL (Crankshaft Removed)

Remove Allen screws and seal retainer. Install a new rear main bearing oil seal in the cylinder block so that both ends protrude. Tap seal down into position, using Tool C-3625 until the tool is seated in bearing bore. Hold tool in this position and cut off portion of seal that extends above the block on both sides.

NOTE: Be sure the bridge is removed from tool.

Install a new seal in the seal retainer so that the ends protrude (Fig. 97). Install bridge on tool and tap the seal down into position with Tool C-3625 until tool is seated. Trim off the portion of the seal that protrudes above the cap (Fig. 98). Install the two side seals in grooves in seal retainer. Install seal retainer and tighten screws to 30 foot-pounds torque.

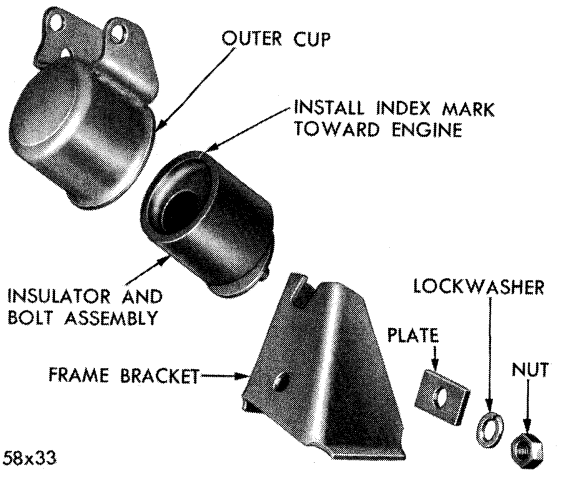


Fig. 99 — Right Front Engine Support

FRONT ENGINE MOUNTS

a. Removal

Disconnect throttle linkage at transmission and at carburetor. Remove the nuts, washers, plates from front engine mounts and raise the engine sufficiently enough to remove the insulator and stud assembly.

b. Installation

Install the insulator and stud assembly with the index mark on the insulator facing toward the engine, as shown in Figure 99.

Lower the engine aligning the stud with the slots in frame brackets.

CAUTION

Be sure the insulator stud does not interfere with the bottom of the slot in the frame bracket.

Install plates, washers and nuts. Neutralize the engine, and tighten nuts to 85 foot-pounds torque. Connect throttle linkage to transmission and to carburetor. Refer to Transmission Section in this manual for adjustment.

Section VIII

FUEL AND EXHAUST SYSTEM

DATA AND SPECIFICATIONS

Model	MC-1
FUEL PUMP	
Make	Carter
Model	M-2769S
Type	Mechanical
Driven By	Camshaft
Pump Pressure (pounds)	5 to 7
CARBURETOR	
Type	Dual Throat Downdraft
Model	BBD-2795S-2872S
ADJUSTMENTS	
Idle Mixture (both screws)	One full turn open
Idle Speed	500 rpm
Fast Idle	.017″
Fast Idle Cam	On Index
Choke Unloader	¼ inch
Accelerator Pump Travel	1 in. + or —1/64
Float Setting	9/32 + or —1/64
CHOKE	
Control	Cross over type
Setting	On Index
Fast Idle Speed Setting	1375 to 1425 rpm

Model	MC-2, MC-3 and MY-1
FUEL PUMP	
Make	Carter
Model	M-2769S
Type	Mechanical
Driven By	Camshaft
Pump Pressure (pounds)	5 to 7

(b) Remove the two screws and remove bezel by lifting bezel outward and upward (to clear metal retaining tabs).

(c) Expose internal mechanism of mirror assembly by lifting top portion of back cover upward (to clear metal retaining tabs) and moving back cover rearward over mirror support. Move back cover rearward only far enough to provide access to potentiometer adjusters (Fig. 38).

(d) To increase sensitivity of the "City" position, turn the arm of the potentiometer marked "City" in the direction indicated by the arrow.

(e) To increase sensitivity for "Hi-way" driving, turn the arm of the potentiometer marked "Hi-way" in the direction indicated by the arrow.

NOTE: To decrease sensitivity of either or both the potentiometers, turn potentiometer arms in the direction opposite to direction indicated by arrow.

(f) Replace back cover by positioning back cover over the two metal tabs and aligning screw holes in bottom of cover with threaded holes in mirror support.

(g) Install bezel by aligning slots at top of bezel with metal tabs and aligning screw holes in bottom of bezel with threaded holes in mirror support replace screws (Fig. 36) and tighten securely.

(h) Replace plastic switch knob.

(i) Adjust mirror to desired position and test operation of unit.

Section VII
ENGINE
DATA AND SPECIFICATIONS

ENGINE	
Type	90° V
Number of Cylinders	8
Bore—MC-1, MC-2	4.031″
MC-3, MY-1	4.188″
Stroke	3.750″
Piston Displacement—MC-1, MC-2	383 cu. in.
MC-3, MY-1	413 cu. in.
Compression Ratio	10.0 to 1
Compression Pressure at 150 rpm (plugs removed) Wide Open Throttle	150 to 180 lbs.
Maximum Variation Between Cylinders (any one engine)	25 lbs.
Firing Order	1-8-4-3-6-5-7-2
CYLINDER NUMBERING	
Left Bank	1-3-5-7
Right Bank	2-4-6-8
CRANKSHAFT	
Type	Fully Counter-Balanced
Bearings	Steel Backed Babbitt
Journal Diameter	2.7495 to 2.7505″
Crank Pin Diameter	2.374 to 2.375″
Maximum Out-of-Round Permissible	.001″
Number Main Bearings	5
Diametral Clearance Desired	.0005 to .0015″
End Play	.002 to .007″
Thrust Taken By	No. 3 Main Bearing
Finish at Rear Seal Surface	Diagonal Knurling
Interchangeability of Bearings	Upper Nos. 1, 2, 4, 5 Lower Nos. 1, 2, 4, 5

ENGINE (Cont'd)

MAIN BEARINGS (Service) All Available in Standard and the following Undersizes	.001, .002, .003, .010, .012″
CONNECTING RODS AND BEARINGS	
Type	Drop Forged "I" Beam
Length (Center to Center)	6.766—.770″
Weight (less bearing shells)	29.4 oz.
Bearings	Steel-Backed Babbitt
Diameter and Length	2.375 x .927″
Diametral Clearance Desired	.0005 to .0015″
Maximum Allowable before Reconditioning	.0025″
Side Clearance	.009 to .017″
Bearings for Service	Standard .001, .002, .003, .010, .012″ U.S.
Piston Pin Bore Diameter	1.0925 to 1.0928″
CAMSHAFT	
Drive	Chain
Bearings	Steel Backed Babbitt
Number	5
Thrust Taken by	Cylinder Block
Diametral Clearance	.001 to .003″
Maximum Allowable before Reconditioning	.005″
CAMSHAFT BEARING JOURNALS	
Diameter	
No. 1	1.998 to 1.999″
No. 2	1.982 to 1.983″
No. 3	1.967 to 1.968″
No. 4	1.951 to 1.952″
No. 5	1.748 to 1.749″
CAMSHAFT BEARINGS	
Diameter (after reaming)	
No. 1	2.000 to 2.001″
No. 2	1.984 to 1.985″
No. 3	1.969 to 1.970″
No. 4	1.953 to 1.954″
No. 5	1.750 to 1.751″
TIMING CHAIN	
Adjustment	None
Number of Links	50
Pitch	.50″
Width	.88″
TAPPETS	
Type	Hydraulic
Clearance in Block	.0005 to .0015″
Body Diameter	.9040 to .9045″
Clearance Between Valve Stem and Rocker Arm Pad	Dry Lash .060 to .210″
PISTONS	
Type	Horizontal Slot w/Steel Struts
Material	Aluminum Alloy Tin Coated

ENGINE (Cont'd)

Land Clearance (diametral)	.041 to .047″
Clearance at Top of Skirt	.0005 to .0010″
Weight (std. through .040 oversize)	
MC-1, MC-2	724 gms.
MC-3, MY-1	780 gms.
Piston Length (overall)	3.95″
Ring Groove Depth	
No. 1—MC-1 & MC-2	.213″
MC-3 & MY-1	.216″
No. 2—MC-1 & MC-2	.213″
MC-3 & MY-1	.216″
No. 3—MC-1 & MC-2	.195″
MC-3 & MY-1	.200″
Pistons for Service	Std. .005, .020, .040″ O.S.
PISTON PINS	
Type	Press Fit in Rod
Diameter	1.0935 to 1.0937″
Length	3.4440 to 3.450″
Clearance in Piston	.00045 to .00075″
Interference in Rod	.0007 to .0012″
Piston Pins for Service	Standard Only
Direction Offset in Piston	Toward Right Side of Engine
PISTON RINGS	
Number of Rings per Piston	3
Compression	2
Oil	1
Width of Rings	
(Compression)	.0775 to .0780″
(Oil)	.1860 to .1865″
Piston Ring Gaps (all)	.013 to .025″
RING SIDE CLEARANCE	
(Compression)	
Upper	.0015 to .0030″
Intermediate	.0015 to .0030″
(Oil)	.0010 to .0030″
VALVES—Intake	
Material	Silicon—Chromium Steel
Head Diameter—MC-1, MC-2	1.95″
MC-3, MY-1	2.08″
Length (to top of valve face)	4.79″
Stem Diameter	.372 to .373″
Stem to Guide Clearance	.001 to .003″
Maximum Allowable Before Reconditioning	.004″
Angle of Seat	45°
Adjustment	None
Lift	.389″
VALVES—Exhaust	
Material	Nitrogen Treated Manganese Chromium—Nickel Steel
Head Diameter	1.60″

ENGINE (Cont'd)

Length (to top of valve face)	4.79″
Stem Diameter	.371 to .372″
Stem to Guide Clearance	.002 to .004″
Maximum Allowable Before Reconditioning	.006″
Angle of Seat	45°
Adjustment	None
Lift	.389″
VALVE SPRINGS	
Number	16
Free Length	2.34″
Load when Compressed to (valve closed)	1.860″ @ 95 —105 lbs.
Load when Compressed to (valve open)	1.470″ @ 188—252 lbs.
Valve Springs I.D.	1.010 to 1.030″
CYLINDER HEAD	
Number Used	2
Combustion Chamber	Wedge Type
Valve Seat Runout (maximum)	.002″
Intake Valve Seat Angle	45°
Seat Width (finished)	.060 to .085″
Exhaust Valve Seat Angle	45°
Seat Width (finished)	.040 to .060″
Cylinder Head Gasket Compressed (thickness)	.022″
ENGINE LUBRICATION	
Pump Type	Rotary, Full Pressure
Capacity (qts.)	5*
Pump Drive	Camshaft
Operating Pressure at 40 to 50 mph	45 to 70 lbs.
Pressure Drop Resulting from Clogged Filter	7 to 9 lbs.

*When Filter Element is Replaced, add 1 qt.

TIGHTENING REFERENCE

	Torque Foot-Pounds	Thread Size
Connecting Rod Nut—Plain	45	3/8–24
Connecting Rod Nut—CST (Black)	40	3/8–24
Cylinder Head Bolt	70	7/16–14
Main Bearing Cap Bolt	85	1/2–13
Spark Plug	30	14 mm
Camshaft Lockbolt	35	7/16–14
Carburetor to Manifold Nut	7	5/16–24
Chain Case Cover Bolt	15	5/16–18
Torque Converter Housing Bolt	30	3/8–16
Clutch Housing Bolt	30	3/8–16
Crankshaft Rear Bearing Seal Retainer	30	3/8–16
Crankshaft Bolt	135	3/4–16
Cylinder Head Cover Stud and Nut	40 in.-lbs.	1/4–28
Distributor Vacuum Line Tube Nut	95 in.-lbs.	3/8–24
Distributor Clamp Bolt	15	5/16–18

TIGHTENING REFERENCE (Cont'd)

Engine Front Mounting to Frame Nut	85	1/2–20
Engine Front Mounting to Block Nut	45	7/16–20
Exhaust Manifold Bolt	30	3/8–16
Exhaust Pipe Flange Nut	40	7/16–20
Exhaust Pipe Clamp Bolt	20	3/8–24
Exhaust Pipe Support Clamp Bolt	20	3/8–24
Fan Attaching Bolt	15–18	5/16–18
Fan Belt Idler Pulley Nut	45	7/16–20
Fan Belt Idler Pulley Bracket Bolt	30	3/8–16
Flywheel Housing to Cylinder Block Bolt	50	7/16–14
Flywheel Housing Cover Bolt	7	1/4–20
Fuel Pump Attaching Bolt	30	3/8–16
Generator Bracket Bolt	50	7/16–14
Generator Mounting Nut	20	5/16–24
Generator Adjusting Strap Bolt	15	5/16–18
Generator Adjusting Strap Mounting Bolt	30	3/8–16
Intake Manifold Bolt	40	3/8–16
Manifold Heat Control Counterweight Bolt	50 in.-lbs.	#10–32
Oil Pan Drain Plug	35	5/8–14
Oil Pan Bolt	15	5/16–18
Oil Pump Cover Bolt	15	5/16–18
Oil Pump Attaching Bolt	35	3/8–16
Oil Filter Attaching Stud	30	3/4–16
Rocker Shaft Bracket Bolt	30	3/8–16
Starter Mounting Bolt	50	7/16–14
Vibration Damper Bolt	15	5/16–18
Valve Tappet Cover End Bolt	8	1/4–20
Water Pump to Housing Bolt	30	3/8–16
Water Pump Housing to Cylinder Block Bolt	30	3/8–16
A/C Compressor to Engine Bolt	30	3/8–16

ENGINE

The new V-8 Engine, as shown in Figure 39, 40 and 41, is one of the finest, most efficient engines to be designed by Chrysler Engineering. It contains many weight reducing features.

Some of the new features, as shown in Figures 42, 43 and 44, are in-line overhead valves, wedge shaped combustion chambers, full length cylinder water jackets, rigid crankshaft and series flow cooling system. In addition, the volume of coolant in the engine has been reduced to improve engine warm up. The ignition distributor is located at the upper front end of the engine for easier servicing.

The lubrication system consists of an externally mounted rotor type oil pump of greater capacity, full flow oil filter and a series of passages where the oil is delivered to the engine. The oil filter can be installed by hand.

The engine has 10:1 compression ratio, is equipped with a dual carburetor on the Windsor Model (MC-1), and a 4-barrel carburetor on all other models, and uses premium fuel. The engine has exceptional smoothness and performance throughout the entire speed range.

MINOR TUNE UP

A periodic engine tune up will assure maximum engine performance and fuel economy. The following procedures should be followed when performing minor engine tune up.

Check battery specific gravity, add water if necessary and clean and tighten battery connections. Clean and adjust the spark plugs (.035 inch gap). Tighten to 30 foot-pounds torque with Tool C-3054. Adjust the distributor contact points (.015 to .018

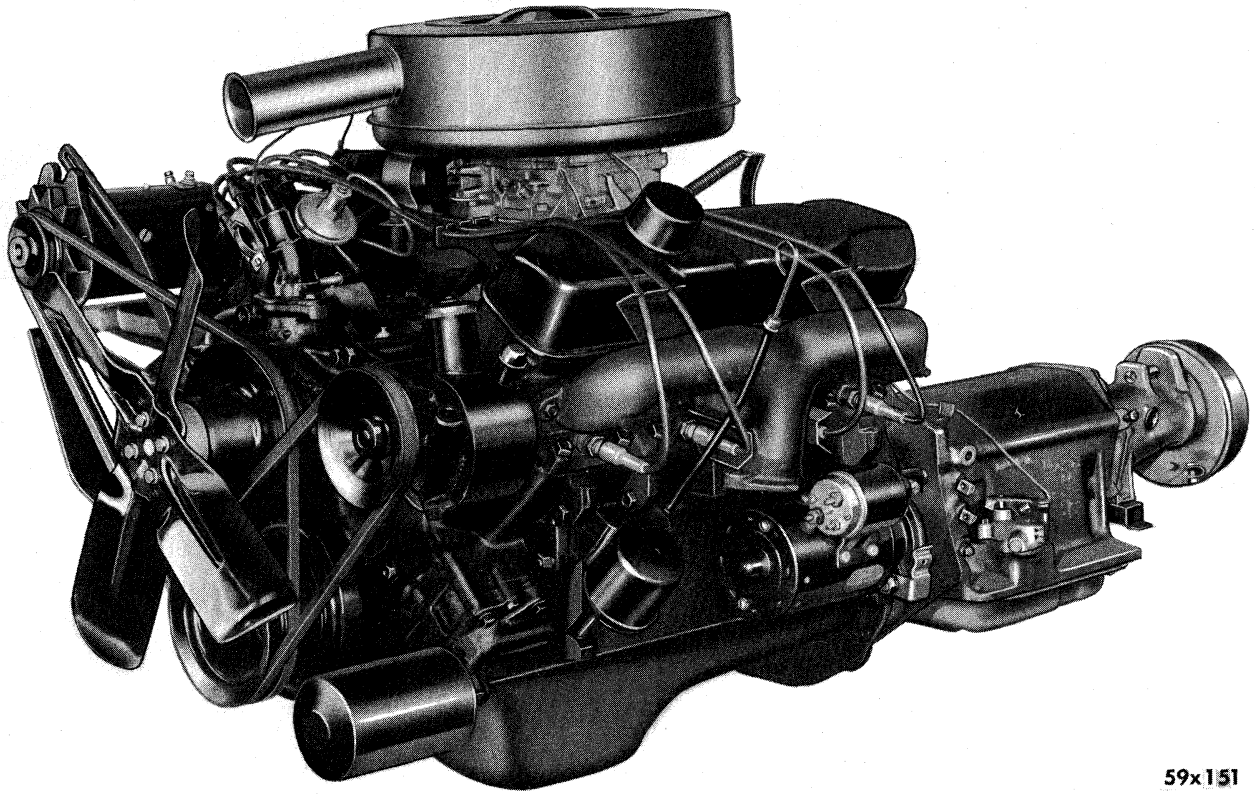


Fig. 39 — Chrysler Engine Assembly

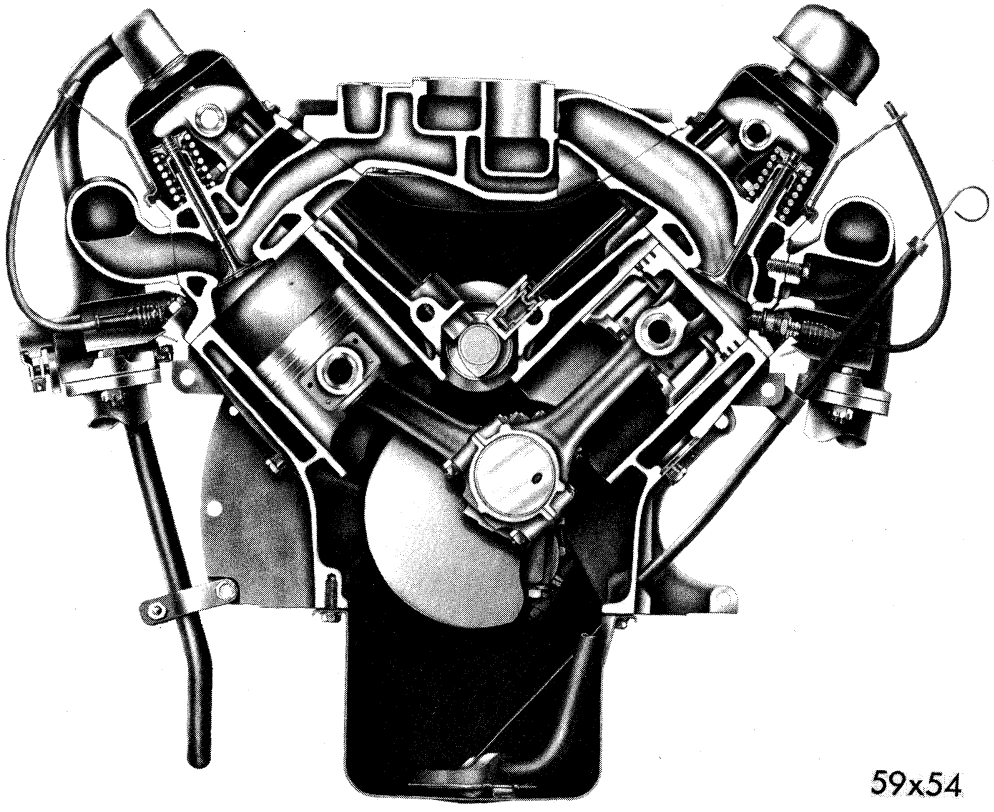


Fig. 40 — Engine End Sectional View

inch gap). Install new points if necessary. Check the distributor cap for cracks and corrosion. Inspect the rotor, rotor spring and plunger. Inspect the distributor to spark plug wires for brittle, cracked or frayed insulation. Inspect small lead wires for tightness, or damaged insulation. Check for excessive play in distributor vacuum advance plate bearing. Install a new plate if necessary. Reset the ignition timing. Inspect accessory belt drives referring to "Accessory Belt Drives," for proper adjustments. Tighten the carburetor flange nuts to **7 foot-pounds torque.** Set carburetor idle mixture adjustment. Adjust the throttle stop screw so engine idles at 450 to 500 rpm. Check manifold heat control valve in the right exhaust manifold for proper operation and apply Manifold Heat Control Valve Solvent Part Number 1879318 to the bushing and shaft, as shown in Lubrication Section.

MAJOR TUNE UP

Perform all the steps of a "Minor Tune Up" and in addition, the following procedures should be followed when performing Major Engine Tune Up. Tighten the manifold nuts. Perform the cylinder compression test. Compression pressures can be read from the top side of engine without interference using a 30 degree bend extension on the gauge. The compression should not vary more than 25 pounds between cylinders.

Refer to specifications for compression pressures. Test the coil, and condenser. Inspect the primary and secondary wires. Service the air cleaner — DO NOT WASH OR OIL. Service more frequently under severe dusty conditions. Replace air cleaner filter cartridge every 15,000 miles. Test fuel pump for pressure and vacuum. Refer to Fuel Section Specifications. Perform a combustion analysis. Adjust the carburetor. Road test the car as a final check.

REMOVAL OF THE ENGINE ASSEMBLY (From Car)

Drain the cooling system and remove the battery. Remove the fan shroud and radiator. Scribe the outline of hinge brackets on hood to assure proper adjustment when installing. Remove the hood. Disconnect fuel lines and wires attached to engine units.

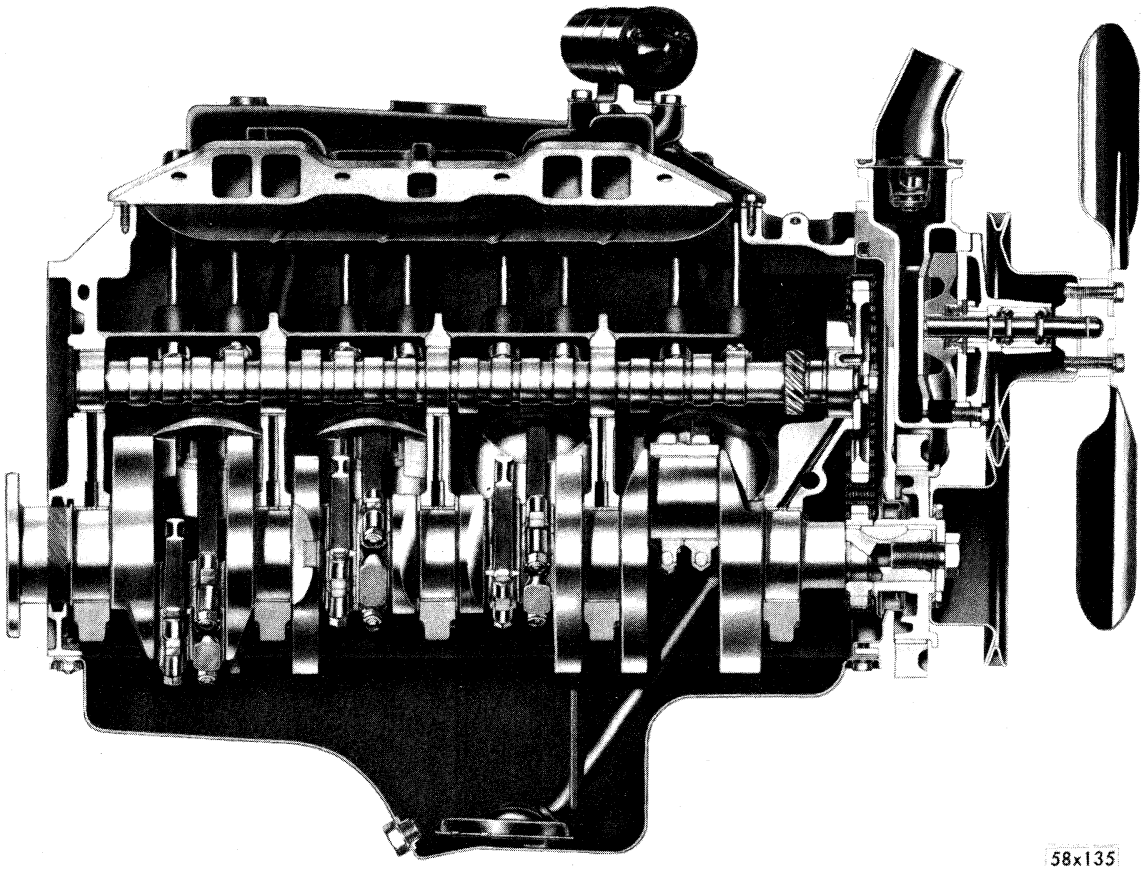


Fig. 41 — Engine Side Sectional View

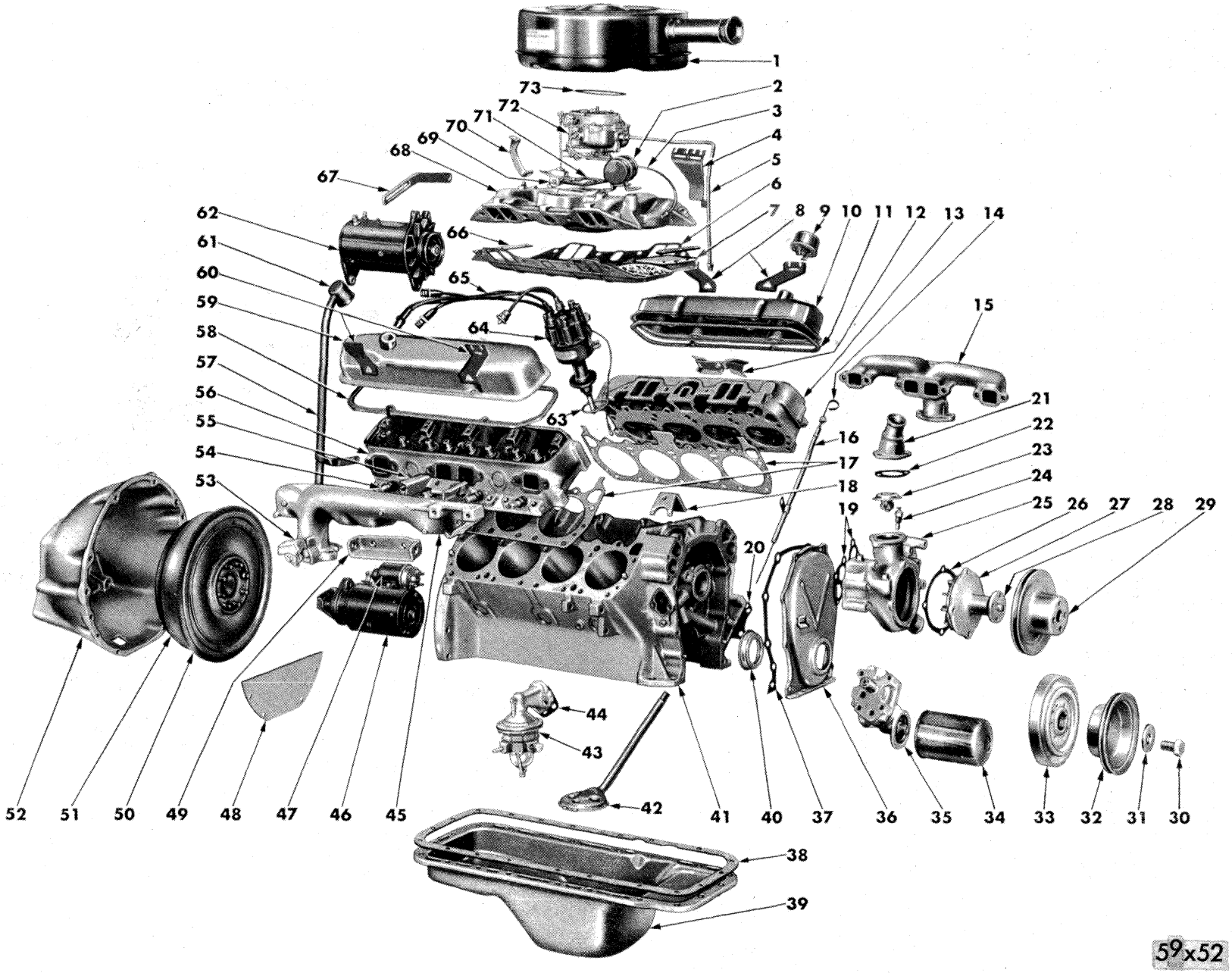


Fig. 42 — Engine External Parts

Fig. 42 — Engine External Parts

1. Carburetor Air Cleaner
2. Coil
3. Vacuum Line
4. Wiring Harness (bracket)
5. Fuel Line
6. Tappet Chamber Cover and Intake Manifold Gasket
7. Reinforcement, silencer and Retainer
8. Wiring Harness (brackets)
9. Oil Filler Cap
10. Rocker Cover L
11. Rocker Cover Gasket L
12. Spark Plug Heat Shield
13. Cylinder Head L
14. Oil Level Indicator
15. Exhaust Manifold L
16. Oil Level Indicator Tube
17. Cylinder Head Gasket
18. Distributor Clamp
19. Water Pump Housing Gasket
20. Oil Pump Housing Gasket
21. Outlet Elbow
22. Outlet Elbow Gasket
23. Thermostat
24. Temperature Sending Unit
25. Water Pump Housing
26. Water Pump Body Gasket
27. Water Pump Body
28. Hub
29. Water Pump Pulley
30. Bolt
31. Washer
32. Crankshaft Pulley
33. Vibration Damper
34. Oil Filter
35. Oil Pump
36. Chain Case Cover
37. Chain Case Cover Gasket
38. Oil Pan Gasket
39. Oil Pan
40. Chain Case Cover Oil Seal
41. Cylinder Block
42. Oil Screen Suction Pipe
43. Fuel Pump
44. Fuel Pump Gasket
45. Exhaust Manifold R
46. Starter
47. Solenoid
48. Torque Converter Housing Dust Shield
49. Generator Bracket
50. Ring Gear
51. Torque Converter
52. Torque Converter Housing
53. Manifold Heat Control Valve
54. Spark Plug
55. Spark Plug Heat Shield
56. Cylinder Head R
57. Crankcase Vent Tube
58. Rocker Cover Gasket R
59. Rocker Cover R
60. Wiring Harness (brackets)
61. Crankcase Vent Tube Cap
62. Generator
63. Distributor Gasket
64. Distributor
65. Wires
66. Reinforcement
67. Generator Adjusting Strap
68. Intake Manifold
69. Automatic Choke
70. Control Spring Bracket
71. Carburetor Gasket
72. Carburetor
73. Carburetor Air Cleaner Gasket

Remove the air cleaner and carburetor. Attach the engine lifting fixture Tool C-3466 to carburetor flange studs on the intake manifold and attach a chain hoist to the fixture eyebolt. Disconnect the propeller shaft, wires and linkage at transmission. Disconnect exhaust pipes at manifolds. Be sure the exhaust system is sufficiently supported while the engine is removed. Remove rear crossmember to transmission support attaching bolts.

NOTE: Place a rollaway jack under the transmission to relieve weight from the crossmember. Place a wood block between jack and transmission to avoid damaging transmission oil pan.

The jack supports the weight of rear of engine and must be able to roll with the power plant as it is removed from the chassis. Remove rear crossmember engine support. Remove front engine mounting nuts. Raise the engine with chain hoist and work the engine out of the chassis. Remove transmission. Place the engine in repair stand C-3167 and Adapter

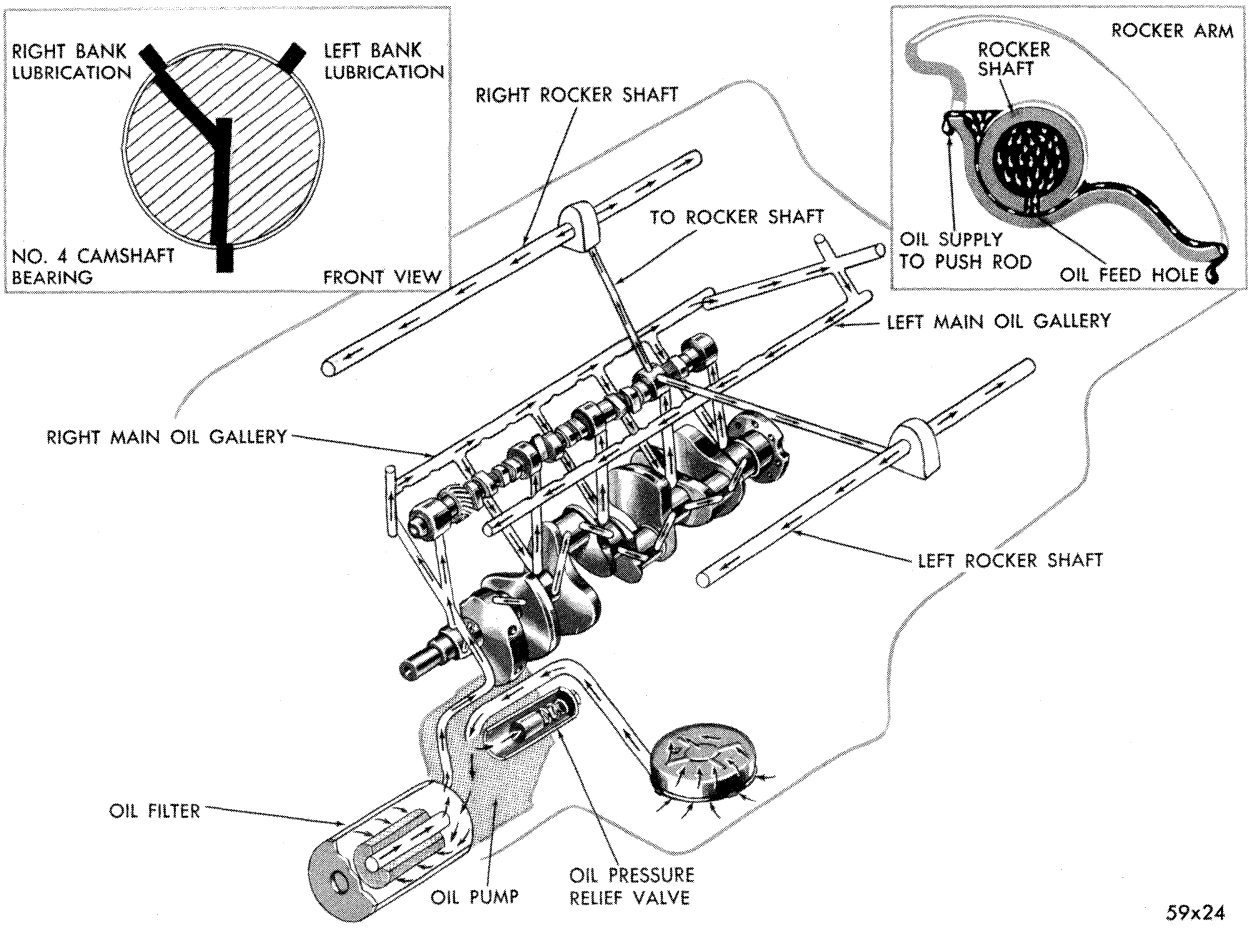


Fig. 43 — Engine Oiling System

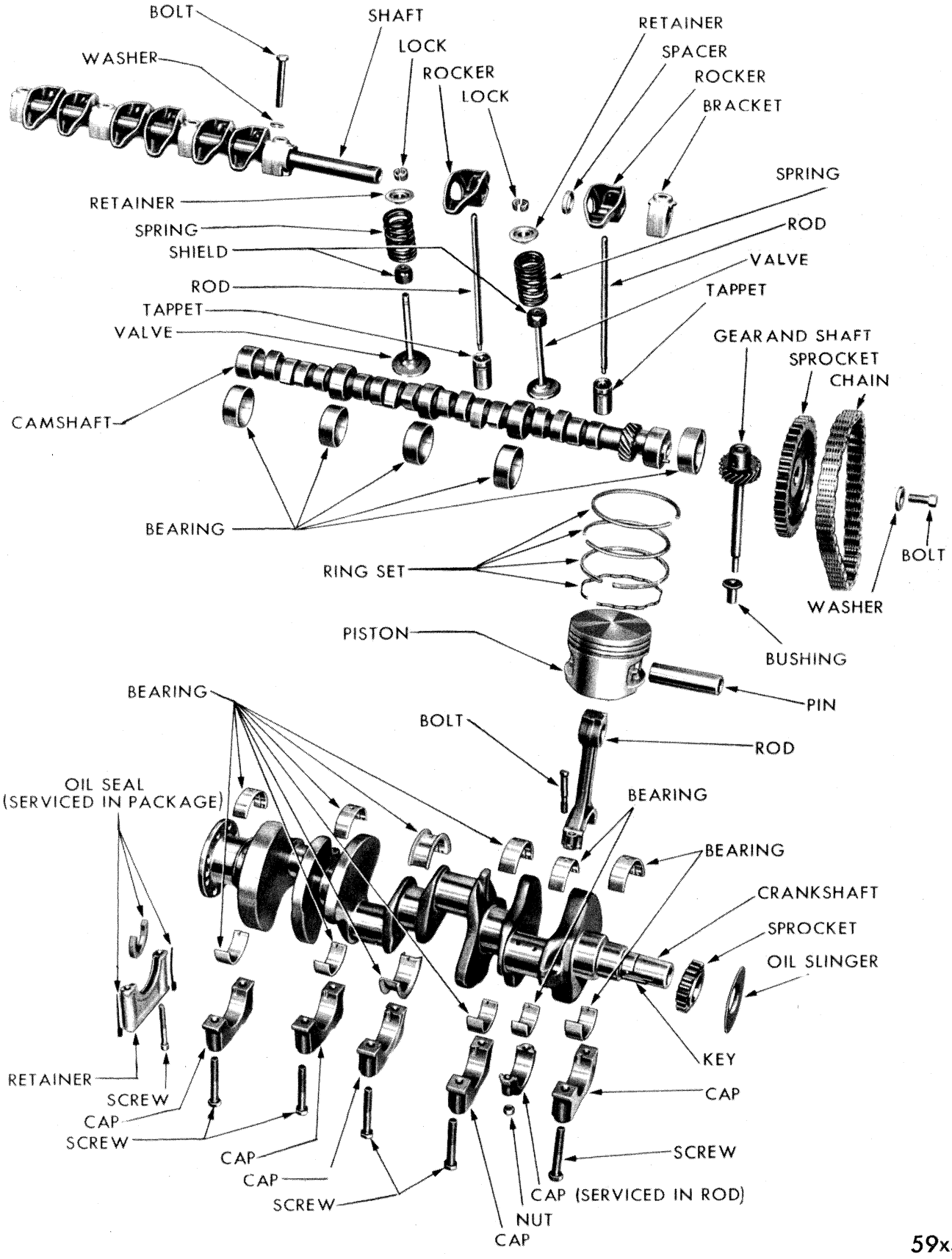


Fig. 44 — Engine Internal Parts

3662 for disassembly using the transmission mounting bolts.

INSTALLING THE ENGINE ASSEMBLY (In Car)

Remove the engine from repair stand and install transmission. Install the engine lifting fixture Tool C-3466 and attach the chain hoist to fixture eyebolt. Raise the engine. Lower the engine carefully into the car until front and rear of engine are approximately positioned. Place a rollaway jack under the transmission to support the weight of rear of the engine. Install the engine rear support crossmember. Position the engine and install the nuts at front engine mounts. Position and install rear engine support bolts and remove the jack, hoist and engine lifting fixture.

Install the carburetor, fuel lines, wiring and linkage. Install the radiator, fan shroud and radiator hoses. Connect exhaust pipes, using new gaskets. Install the hood, being sure to align hood by the scribe marks placed on the inside of hood at disassembly. Connect the propeller shaft at the transmission. Connect linkage and wires. Be sure all drain cocks are closed, and fill cooling system. Fill the engine crankcase and transmission. Refer to the lubrication Section for quantities and lubricants to use. Check the entire system for leaks and correct as necessary.

NOTE: Whenever an engine has been rebuilt and a new camshaft and/or new tappets have been installed, add one quart of factory recommended oil additive to engine oil to aid break-in (MoPar Engine Oil Additive, Part No. 1643234). The oil mixture should be left in engine for a minimum of 500 miles, and drained at the next normal oil change.

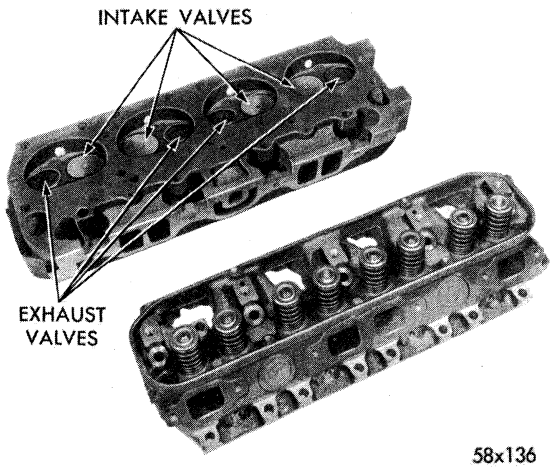


Fig. 45 — Cylinder Heads

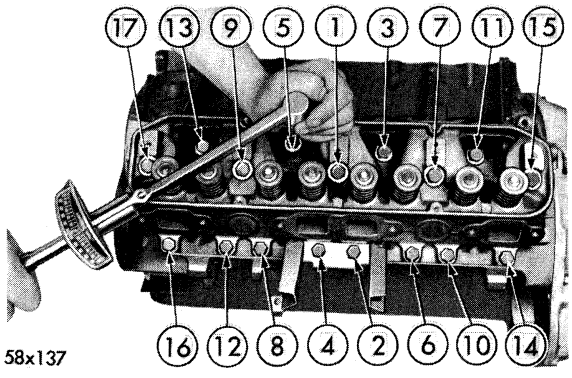


Fig. 46 — Tightening Sequence

Start the engine and run until normal operating temperature is reached. Check the timing and adjust carburetor as necessary. Road test the car.

CYLINDER HEADS

The chrome alloy cast iron cylinder heads as shown in Figure 45 are held in place by 17 bolts. The spark plugs enter the cylinder head horizontally and are located at the wide edge of the combustion chambers.

a. Removal

Drain the cooling system. Remove generator, carburetor air cleaner and fuel line. Disconnect the accelerator linkage. Remove the vacuum control tube at carburetor and distributor. Disconnect the distributor cap, coil wires and heater hose. Disconnect the heat indicator sending unit wire. Remove spark plugs located under the manifolds. Remove the intake manifold, ignition coil and carburetor as an assembly. Remove the tappet chamber cover. Remove cylinder head covers and gaskets.

NOTE: On air conditioned cars, number eight cylinder exhaust valve must be open to allow clearance between the right bank cylinder head cover and the heater housing.

Remove the generator. Remove exhaust manifolds. Remove the rocker arms and shaft assembly. Remove the push rods and place them in their respective slots in holder Tool C-3068. Remove the 17 head bolts from each cylinder head and remove cylinder heads. Place cylinder head in holding fixture Tool C-3626.

b. Installation

Clean the gasket surfaces of cylinder block and cylinder head. Check all surfaces with a straight edge if there is any reason to suspect leakage. Coat the

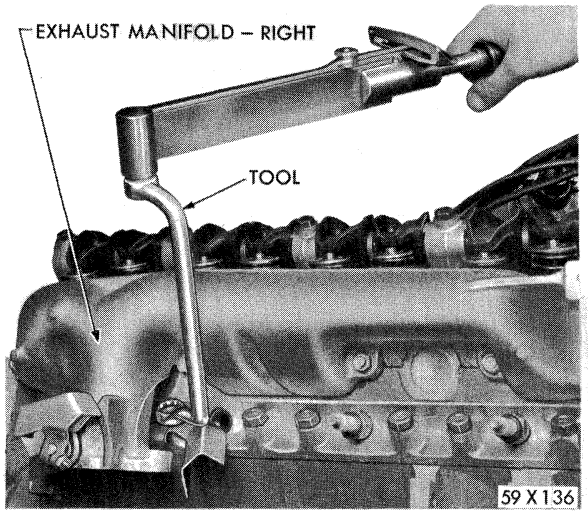


Fig. 47 — Checking Cylinder Head Bolt Torque

new gaskets with a suitable sealer, MoPar Part Number 1122893. Install the gaskets and cylinder heads. Install cylinder head bolts. Starting at top center, tighten all cylinder head bolts to 70 foot-pounds torque in sequence, as shown in Figure 46, and using Tool C-3666 to check torque, as shown in Figure 47.

Repeat the procedure, retightening all head bolts to 70 foot-pounds torque. Inspect push rods and replace worn or bent rods. Install push rods with the small ends in tappets maintaining alignment using rod, as shown in Figure 48.

Install the rocker arm and shaft assembly starting each push rod into its respective rocker arm socket.

NOTE: Use extreme care in tightening bolts 30 foot-pounds torque, so the tappets have time to bleed down to their operating length. Bulged tappet bodies,

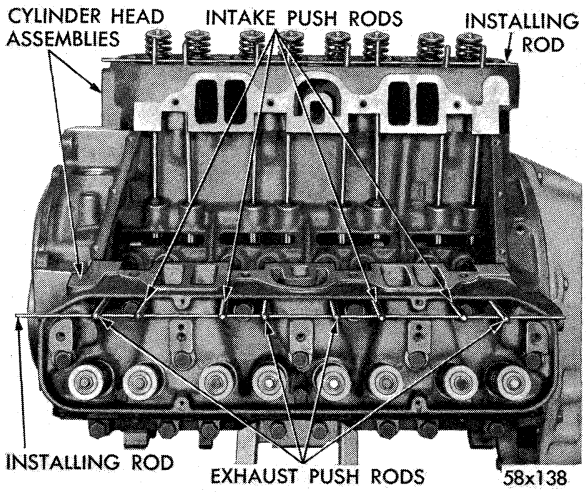


Fig. 48 — Push Rods Installed

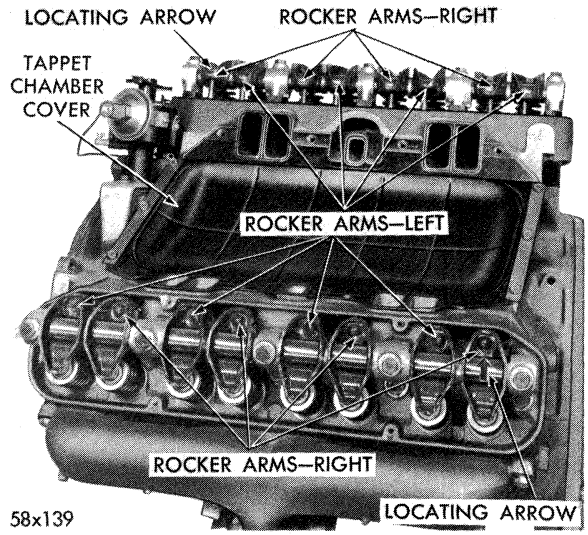


Fig. 49 — Rocker Arms Installed

bent push rods, and permanently noisy operation may result if the tappets are forced down too rapidly.

Place the new cylinder head cover gaskets in position and install cylinder head covers. Tighten the bolts to 40 inch-pounds torque. Install exhaust manifolds and tighten the bolts to 30 foot-pounds torque. Adjust spark plugs to .035 inch gap and install the plugs, and tighten to 30 foot-pounds torque with Tool C-3054. Install the tappet chamber cover and tighten end bolts to 8 foot-pounds torque (Fig. 49).

Install intake manifold, carburetor and ignition coil as an assembly and tighten manifold bolts to 40 food-pounds torque. Install the distributor cap. Connect the coil wire, heat indicator sending unit wire, accelerator linkage, spark plug cables and insulators. Install the vacuum tube from carburetor to distributor. Install generator and tighten generator bracket bolts to 50 foot-pounds torque, and generator mounting nut to 20 foot-pounds torque. Install the fuel line and carburetor air cleaner. Fill the cooling system. Adjust belt tensions as outlined in "Accessory Belt Drives" in this supplement.

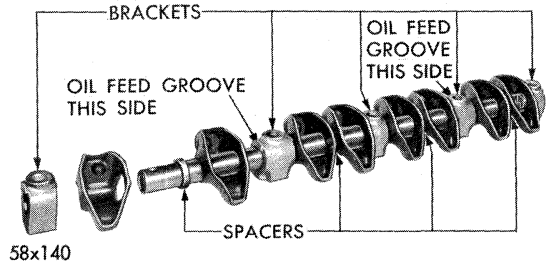


Fig. 50 — Rocker Arms & Shaft Assembly

ROCKER ARMS AND SHAFT ASSEMBLY

The rocker arms are of stamped steel and are arranged on one rocker arm shaft, per cylinder head. The push rod angularity tends to force the pairs of rocker arms toward each other where oilite spacers carry the side thrust at each rocker arm. Five brackets attach each rocker shaft to the cylinder head.

a. Removal

Remove cylinder head cover and gasket. Remove the bolts that attach rocker arm support brackets to cylinder head and remove the rocker arms, brackets and shaft as an assembly.

If the rocker arm assemblies have been disassembled for cleaning, inspection, or replacement, refer to Figure 49 and 50 for proper reassembly.

b. Installation

NOTE: The right and left rocker arms must be installed on rocker shaft, as shown in Figure 49. The stamped arrow on rocker shaft must be on top and the arrow must point toward the push rod socket of the rocker arm. This is necessary to provide proper lubrication to the rocker assemblies. The two wide brackets must be installed with the oil feed grooves facing the push rod side of rocker arm, as shown in Figures 49 and 50.

Install the rocker arms, brackets, and shaft assembly.

NOTE: Use extreme care in tightening the bolts so that tappets have time to bleed down to their operating length. Bulged tappet bodies, bent push rods and permanent noisy operation may result if the tappets are forced down too rapidly.

Tighten the bolts to 30 foot-pounds torque.

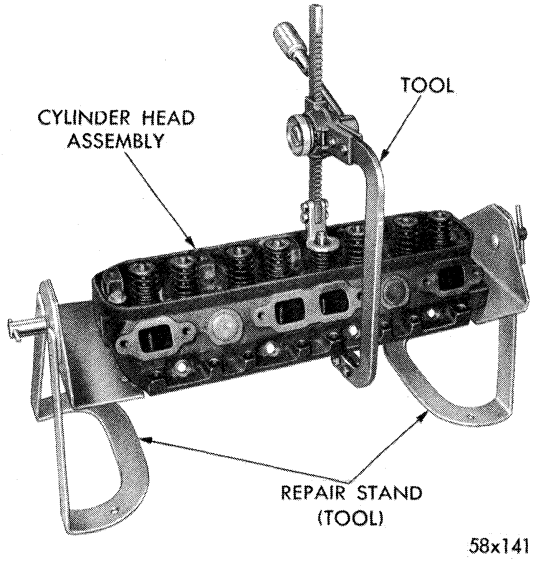


Fig. 51 — Compressing Valve Spring

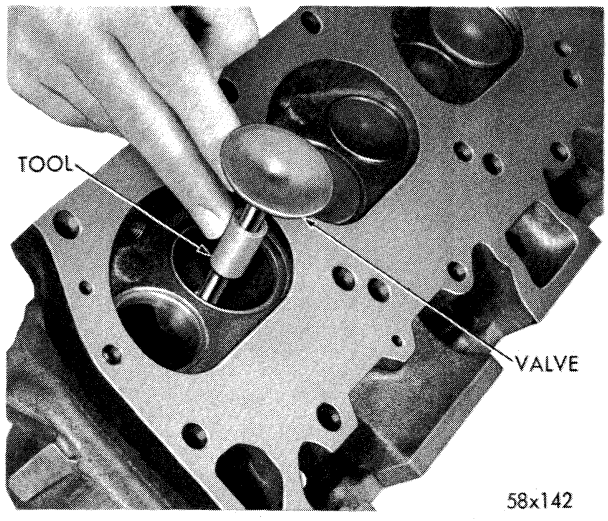


Fig. 52 — Using Sleeve Tool in Checking Wear

VALVES AND VALVE SPRINGS

Valves are arranged in-line in the cylinder heads and inclined 30° outward from vertical. Intake and exhaust valves operate in guides that are integral with the heads.

a. Removal

With the cylinder head removed, compress valve springs using Tool C-3422, as shown in Figure 51.

Remove the valve retaining locks, valve spring retainers, valve stem cup seals and valve springs. Remove the burrs from valve stem lock grooves to prevent damage to the valve guide when valves are removed.

b. Valve Inspection

Clean the valves thoroughly, and discard burned, warped and cracked valves. Measure valve stems for wear. Intake valve stem diameter should measure .372 to .373 inch and exhaust valve stem diameter should measure .371 to .372 inch. If the wear exceeds .002 inch, replace the valve. Remove carbon and varnish deposits from the inside of valve guides with cleaner, Tool C-756.

Measure the valve stem guide clearance as follows: Install sleeve Tool C-3026 over the valve stem, as shown in Figure 52, and install valve.

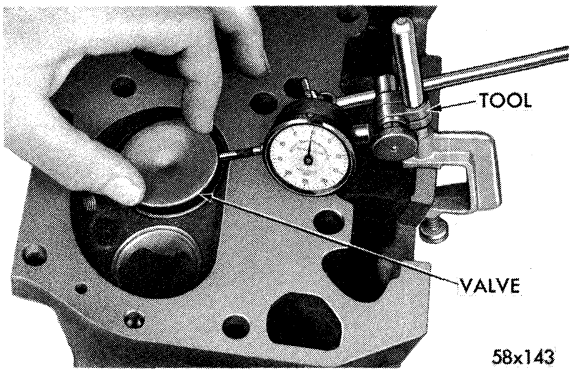


Fig. 53 — Measuring Guide Wear

The special sleeve places the valve at the correct height for checking with a dial indicator. Attach the dial indicator Tool C-3339 to cylinder head and set it at right angle of the valve stem being measured (Fig. 53).

Move valve to and from the indicator. The total dial indicator reading should not exceed .010 inch on intake valves, and .014 inch on exhaust valves. Ream the guides for valves with oversize stems if dial indicator reading is excessive or if the stems are scuffed or scored.

Service valves with oversize stems are available in .005, .015 and .030 inch oversizes. Reamers to accommodate the oversize valve stem are as follows: Reamer Tool C-3433 (.379 to .380 inch) Reamer Tool C-3427 (.404 to .405 inch). Slowly turn reamer by hand and clean guide thoroughly before installing new valve.

CAUTION

Do not attempt to ream the valve guides from standard directly to .030 inch. Use step procedure of .005, .015 and .030 inch so the valve guides may be reamed true in relation to the valve seat.

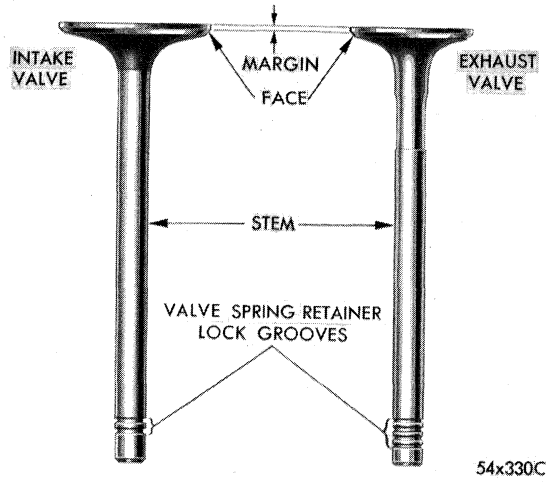


Fig. 54 — Intake and Exhaust Valve

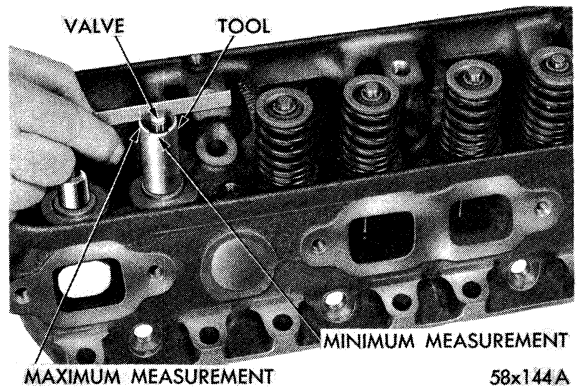


Fig. 55 — Measuring Valve Stem Length

c. Refacing valves and valve seats

The intake and exhaust valve faces have a 45° degree angle. Always inspect the remaining margin after the valves are refaced (Fig. 54). Valves with less than 3/64 inch margin should be discarded.

The angle of both valve and seat should be identical. When refacing the valve seats with Tool MTH-80, it is important that the correct size valve guide pilot be used for reseating stones. A true and complete surface must be obtained. Measure the concentricity of valve seat using a dial indicator. The total runout should not exceed .002 inch (total indicator reading). When the seat is properly positioned, the width of intake seats should be 1/16 to 3/32 inch. The width of exhaust seats should be 3/64 to 1/16 inch.

When the valves and seats are reground, the position of the valve in the cylinder head is changed, shortening the operating length of hydraulic tappet. This means that the plunger is operating closer to its bottomed position, and less clearance is available for thermal expansion of valve mechanism during

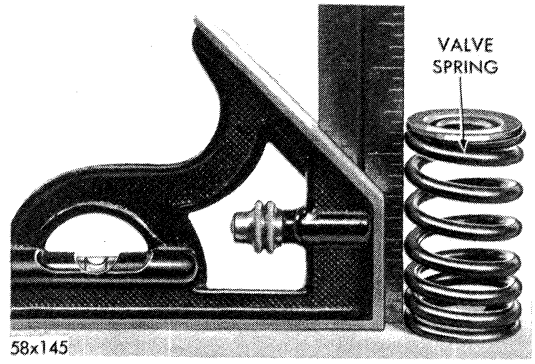


Fig. 56 — Checking Valve Spring Squareness

high speed driving. The design of the valve mechanism includes a safety factor to allow for a limited amount of wear, and the refacing of valves and seats.

To insure that the limits have not been exceeded, the dimension from valve spring seat in head to valve tip should be measured with Gauge, Tool C-3648, as shown in Figure 55.

The end of the cylindrical gauge and the bottom of slotted area represent the maximum and minimum allowable extension of valve stem tip beyond the spring seat. If the tip exceeds maximum, grind the stem tip to within gauge limits. Clean tappets if tip grinding is required.

d. Testing Valve Springs

Whenever the valves have been removed for inspection, reconditioning or replacement, the valve springs should be tested. To test a spring, first determine the length at which the spring is to be tested. As an example, the compressed length of the spring to be tested is 1-15/32 inches. Turn the table of Tool C-647 until surface is in line with the 1-15/32 inch mark on the threaded stud and the zero mark to the front. Place spring over stud on table and lift the compressing lever to set the tone device. Pull on torque wrench until a ping is heard. Take the reading on torque wrench at this instant. Multiply this reading by two. This will give the spring load at the test length. Fractional measurements are indicated on the table for finer adjustments. The valve springs should test 183 to 202 lbs. when compressed to 1-15/32 inch. Discard springs that do not meet these specifications.

Inspect each valve spring for squareness with a steel square and surface plate, as shown in Figure 56.

If the spring is more than 1/16 inch out of square, install a new spring.

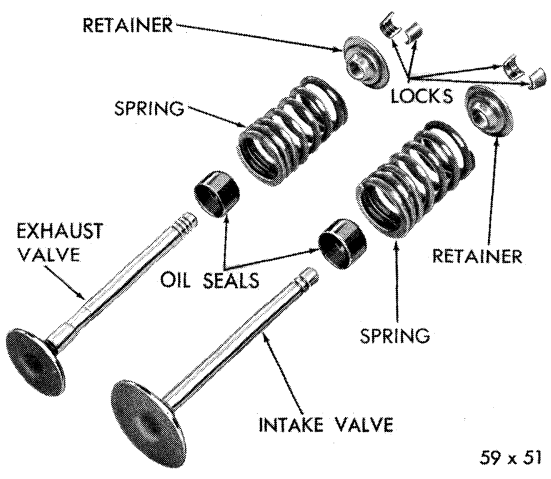


Fig. 57 — Valve Assembly

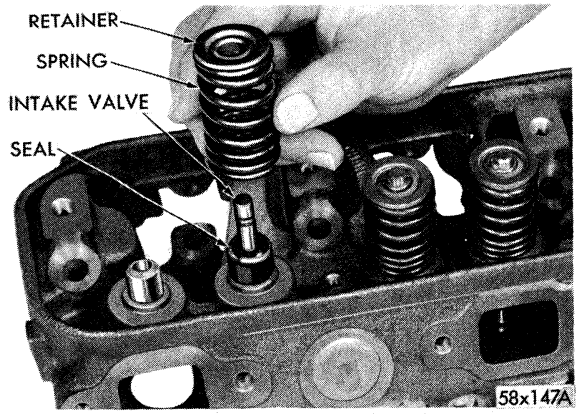


Fig. 58 — Installing Valves and Cup Seals

e. Installation

Coat the valve stems with lubricating oil and insert them in position in cylinder head. Install the cup seals on intake and exhaust valve stems and over valve guides, as shown in Figure 57 and 58 and install valve springs and retainers.

Compress the valve springs with Tool C-3422. Install locks and release tool.

NOTE: If the valves and/or seats are reground, measure the installed height of springs. Make sure measurement is taken from the bottom of the spring seat in cylinder head to the bottom surface of spring retainer. (If spacers are installed, measure from the top of spacer.) If height is greater than 1-57/64 inches, install a 1/16 inch spacer in head counterbore to bring spring height back to normal 1-53/64 to 1-57/64 inch.

HYDRAULIC TAPPETS

a. Preliminary to Checking Hydraulic Tappets

Before disassembling any part of engine to correct tappet noise, read the oil pressure at gauge and check the oil level in the oil pan. The pressure should be between 45 and 70 pounds at 2000 rpm. The oil level in the pan should never be above "full" mark on dip stick, or below "add oil" mark. Either of these two conditions could be responsible for noisy tappets.

Oil Level Too High — If oil level is above "full" mark on dip-stick, it is possible for the connecting

rods to dip into oil while the engine is running and create foam. Foam in the oil pan would be fed to the hydraulic tappets by the oil pump causing them to go flat and allowing the valves to seat noisily.

Oil Level Too Low — Low oil level may allow the oil pump to take in air which, when fed to tappets, causes them to lose length and allows the valves to seat noisily. Any leaks on intake side of the pump through which air can be drawn will create the same tappet action. When tappet noise is due to aeration, it may be intermittent or constant, and usually more than one tappet will be noisy. When oil level and leaks have been corrected, the engine should be operated at fast idle for sufficient time to allow all of air inside of tappets to be bled out.

b. Tappet Noises

To determine the source of tappet noise, operate the engine at idle with the cylinder head covers removed. Feel each valve spring or rocker arm to detect the noisy tappet. The noisy tappet will cause the affected spring and/or rocker arm to vibrate or feel rough in operation.

NOTE: Worn valve guides or cocked springs are sometimes mistaken for noisy tappets. If such is the case, noise may be dampened by applying side thrust on valve spring. Inspect rocker arm push rod sockets and push rod ends for wear. If noise is not appreciably reduced, it can be assumed the noise is in the tappet.

Valve tappet noise ranges from a light noise to a heavy click. A light noise is usually caused by excessive leakdown around the unit plunger, or by the plunger partially sticking in the tappet body cylinder. A heavy click is caused either by a tappet check valve not seating, or by foreign particles becoming wedged between the plunger and tappet body, causing plunger to stick in the down position. This heavy click will be accompanied by excessive clearance between valve stem and rocker arm as valve closes. In either case, the tappet assembly should be removed for inspection and cleaning.

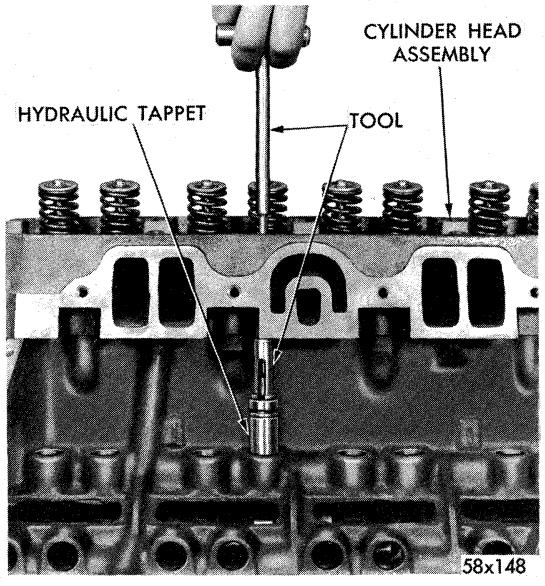


Fig. 59 — Removing Tappet

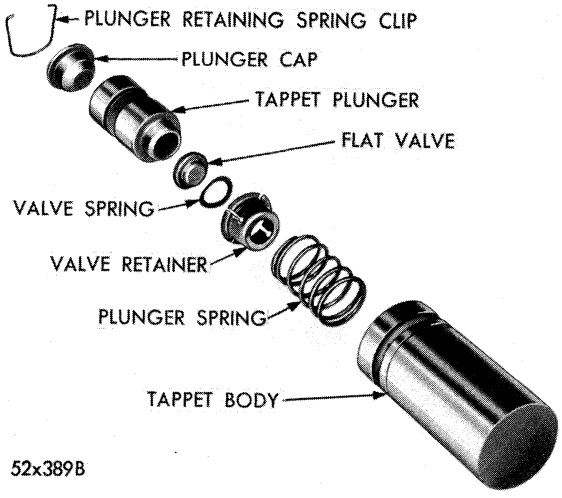


Fig. 60 — Hydraulic Tappet Assembly

c. Removal of Tappets

Tappets can be removed without removing the intake manifold by following this recommended procedure: remove the cylinder head covers. Remove rocker arms and shaft assembly. Remove the push rods and place them in their respective holes in Tool C-3068. Slide puller Tool C-3661 through push rod opening in cylinder head and seat tool firmly in the head of tappet. Pull tappet out of bore with a twisting motion, as shown in Figure 59.

If all tappets are to be removed, remove the hydraulic tappets and place them in their respective holes in tappet and push rod holder, Tool C-3068. This will insure installation of the tappets in their original locations.

NOTE: A diamond shaped marking stamped on the engine numbering pad indicates that all tappet bodies are .008 inch oversize, see Figure 84.

CAUTION

Do not disassemble a tappet on a dirty work bench. The plunger and tappet bodies are not interchangeable. The plunger and valve must always be fitted to the original body. It is advisable to work on one tap-

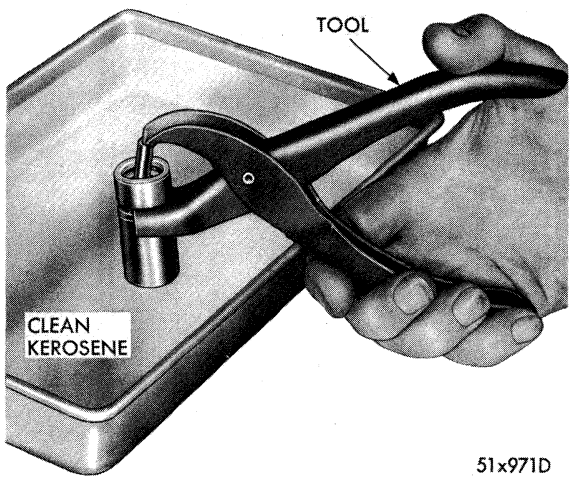


Fig. 61 — Testing Tappet

pet at a time to avoid mixing of parts. Mixed parts are not compatable.

d. Disassembly (Fig. 60)

Pry out plunger retainer spring clip. Clean the varnish deposits from the inside of tappet body above the plunger cap. Invert the tappet body and remove plunger cap, plunger, flat check valve, check valve spring, check valve retainer and plunger spring. Separate the plunger, check valve retainer and check valve spring. Place all parts in their respective place in the tappet holder Tool C-3068.

e. Cleaning and Assembly

Clean all tappet parts in a solvent that will remove all varnish and carbon. Replace the tappets that are unfit for further service with new assemblies. Assemble the tappets, as shown in Figure 56.

f. Inspection

If the tappet or bore in cylinder block is scored, scuffed, or shows signs of sticking, ream the bore to next oversize, using Tool C-3028. If plunger shows signs of scoring or wear and valve is pitted, or if the valve seat on end of plunger indicates any condition that would prevent valve from seating, install a new tappet assembly.

g. Testing

Fill a pan with clean kerosene. Remove cap from plunger and completely submerge the tappet in an upright position.

Allow tappet to fill with kerosene, remove tappet, and replace the cap. Hold the tappet in an upright position and insert the lower jaw of pliers, Tool C-3160, in the groove of tappet body (Fig. 61).

Engage jaw of pliers with top of the tappet plunger. Check leakdown by compressing pliers. If plunger collapses almost instantly as pressure is applied, disassemble tappet, clean and test again. If the tappet still does not operate satisfactorily after cleaning, install a new tappet assembly.

h. Installation

Lubricate the tappets. Install tappets and push rods in their original positions. Install the rocker arm and shaft assembly. Start and operate the engine. Warm up to normal operating temperature.

NOTE: To prevent damage to valve mechanism, the engine must not be run above fast idle until all of hydraulic tappets have filled with oil and have become quiet.

CHECKING VALVE TIMING

Turn crankshaft until the No. 1 exhaust valve is full open and the No. 1 piston is on TDC.

Insert a ¼ inch spacer between the rocker arm pad and the stem tip of the No. 1 intake valve (second valve on the left bank). Install a dial indicator so that the plunger contacts the valve spring retainer as nearly perpendicular as possible. Allow the spring load to bleed the tappet down giving in effect a solid tappet. Zero the indicator.

Turn the crankshaft clockwise (normal running direction) until intake valve has lifted .013 inch. The timing on the timing indicator, located on the chain case cover, should read from 10° BTDC to 2° ATDC. If the reading is not within the specified limits: Check the sprocket index marks, inspect the timing chain for wear, and check the accuracy of the DC mark on the timing indicator. Turn crankshaft counter-clockwise until the valve is closed and remove the spacer.

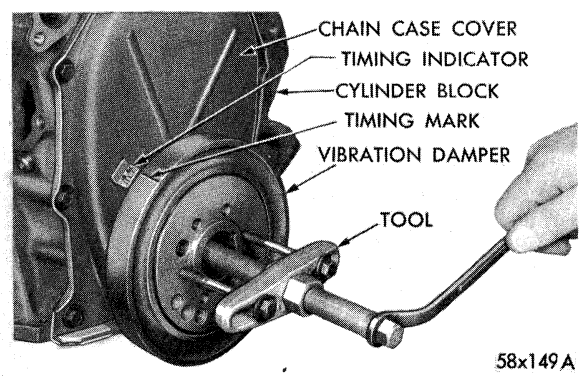


Fig. 62 — Removing Vibration Damper Assembly

CAUTION

Do not turn crankshaft any further clockwise as the valve spring might bottom and result in serious damage.

TIMING SPROCKETS AND CHAIN

The timing chain has 50 links of ½ inch pitch and is ⅞ inch wide. Chain stretch is reduced because of fewer joints to wear.

a. Removal

Drain the cooling system. Remove the radiator and water pump assembly. Remove the bolt holding vibration damper on crankshaft. Remove two of the pulley bolts, install Tool C-3033, and pull the damper assembly off the end of crankshaft, as shown in Figure 62.

Remove the chain cover and gasket. Slide the crankshaft oil slinger off end of crankshaft. Remove the camshaft sprocket attaching bolt. Remove timing chain with crankshaft and camshaft sprockets.

b. Installation

Place both the camshaft sprocket and crankshaft sprocket on the bench with timing marks on exact imaginary center line through both camshaft and crankshaft bores. Place the timing chain around both sprockets. Turn the crankshaft and camshaft to line up with the keyway location in crankshaft sprocket and the dowel holes in the camshaft sprocket. Lift the sprockets and chain, (keep sprockets tight against the chain in position as described). Slide both sprockets evenly over their respective shafts. Use a straight edge to check alignment of the timing marks (Fig. 63). Install the washer and camshaft sprocket bolt and tighten to 35 foot-pounds torque.

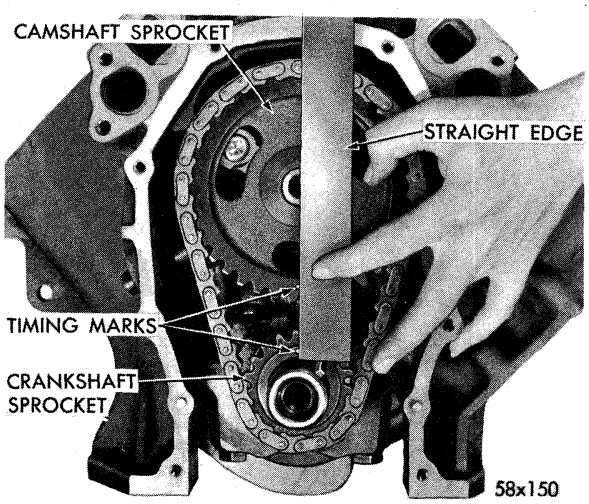


Fig. 63 — Alignment of Timing Marks

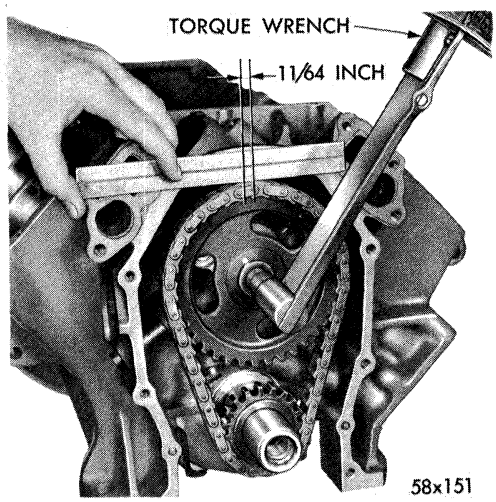


Fig. 64 — Measuring Chain Stretch

c. Checking Timing Chain for Stretch

Place a scale next to timing chain so that any movement of the chain may be measured. Place a torque wrench and socket over the camshaft sprocket attaching bolt and apply torque in the direction of crankshaft rotation to take up the slack; 30 foot-pounds torque (with cylinder heads installed) or 15 foot-pounds torque (cylinder heads removed). Holding a scale with dimensional reading even with edge of a chain link, apply torque in the reverse direction 30 foot-pounds (with cylinder heads installed) or 15 foot-pounds (cylinder heads removed), and note the amount of chain movement, as shown in Figure 64. Install a new timing chain, if its movement exceeds 11/64 inch.

NOTE: With a torque applied to camshaft sprocket bolt, the crankshaft should not be permitted to move. It may be necessary to block the crankshaft to prevent rotation.

If chain is satisfactory, slide the crankshaft oil slinger over shaft and up against the sprocket (flange away from sprocket.)

TIMING CHAIN CASE COVER OIL SEAL REPLACEMENT

a. Removal

Position puller screw of Tool C-3506 through case cover, the inside of case cover up. Position the puller blocks directly opposite each other, and force the angular lip between neoprene and flange of the seal retainer. Place washer and nut on puller screw.

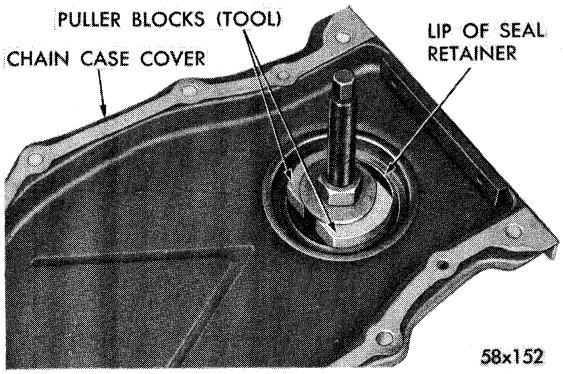


Fig. 65 — Puller Blocks Expanded to Pulling Position

Tighten the nut as tight as possible by hand, forcing blocks into gap to a point of distorting the seal retainer lip (Fig. 65). This is important (puller is only positioned at this point). Place sleeve over the retainer and place removing and installing plate into sleeve. Place the flat washer and nut on puller screw. Hold the center screw and tighten lock nut to remove seal (Fig. 66).

b. Installation of Oil Seal

Insert puller screw through removing and installing plate so that the thin shoulder will be facing up.

Insert puller screw with plate through the seal opening (inside of chain case cover facing up). Place the seal in cover opening, with neoprene down. Place the seal installing plate into the new seal, with protective recess toward lip of seal retainer (Fig. 67). Install the flat washer and nut on puller screw, hold screw and tighten the nut (Fig. 68).

The seal is properly installed when neoprene is tight against the face of cover. Try to insert a .0015 inch feeler gauge between neoprene and cover (Fig. 69). If the seal is installed properly, the feeler gauge cannot be inserted.

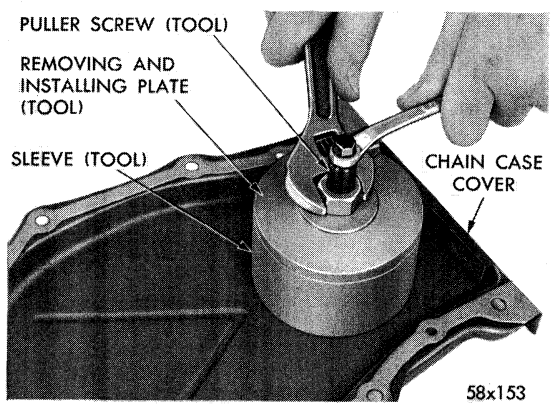


Fig. 66 — Removing Oil Seal

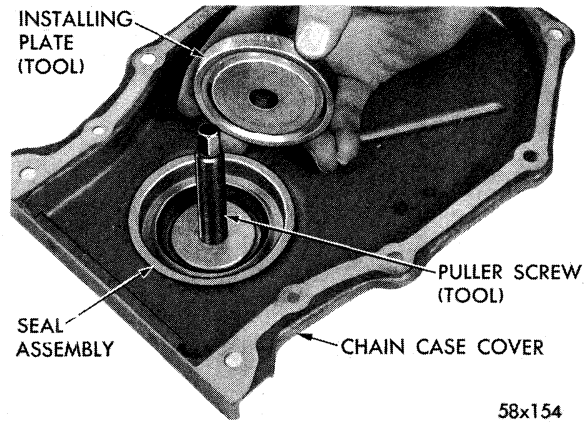


Fig. 67 — Positioning Installer Plate on New Seal

NOTE: It is normal to find particles of neoprene collected between the seal retainer and crankshaft oil slinger after the seal has been in operation.

c. Installing Chain Case Cover

Be sure the mating surfaces of chain case cover and cylinder block are clean and free from burrs. Using

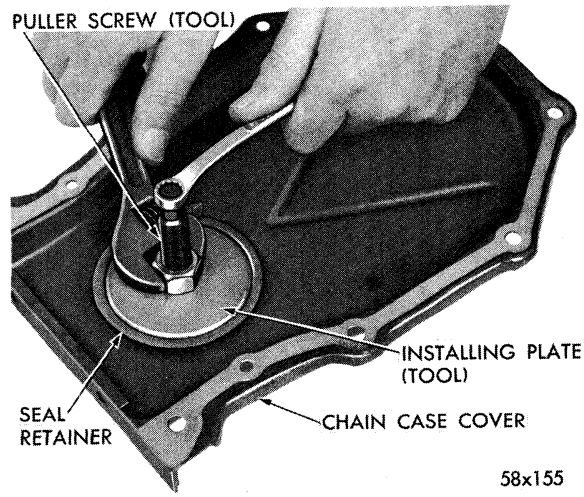


Fig. 68 — Installing New Seal

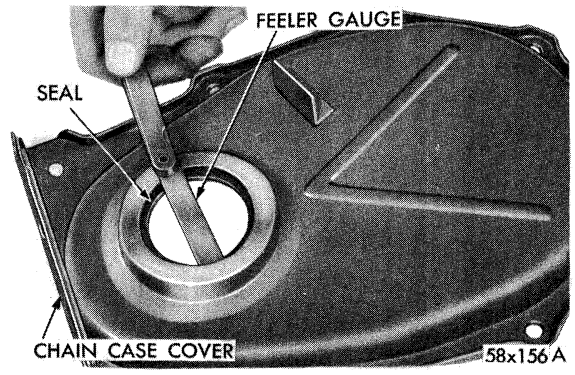


Fig. 69 — Checking Seal for Proper Seating

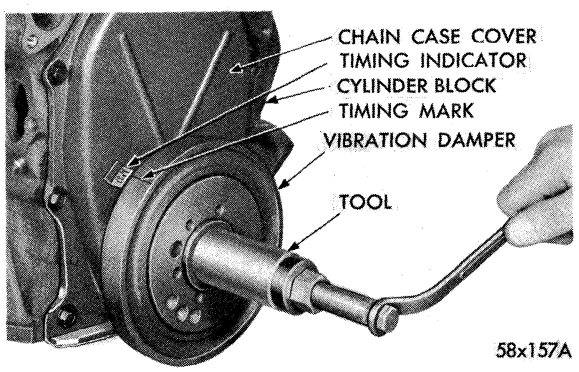


Fig. 70 — Installing Vibration Damper Assembly

a new gasket slide the chain case cover over the locating dowels and tighten bolts to 15 foot-pounds torque.

d. Installing Vibration Damper

Place the damper hub key in slot in crankshaft, and slide hub on crankshaft. Place the installing tool, part of Puller set Tool C-3033 in position and press damper hub on the crankshaft (Fig. 70). Slide the pulley over the shaft and attach with bolts and lockwashers. Tighten the bolts to 15 foot-pounds torque. Install damper hub retainer washer and bolts. Tighten to 135 foot-pounds torque.

CAMSHAFT

The camshaft has an integral oil pump and distributor drive gear and fuel pump eccentric, as shown in Figure 71.

Rearward camshaft thrust is taken by the rear face of the cast iron camshaft sprocket hub, bearing directly on the front of the cylinder block, eliminating the need for a thrust plate. The helical oil pump and distributor drive gear and the camshaft lobe taper both tend to produce only a rearward thrust.

Removal

With the tappets and timing sprockets removed, remove distributor and lift out oil pump and distributor drive shaft. Remove the fuel pump to allow the push rod to drop away from the cam eccentric. Remove the camshaft being careful not to damage the cam bearings with the cam lobes.

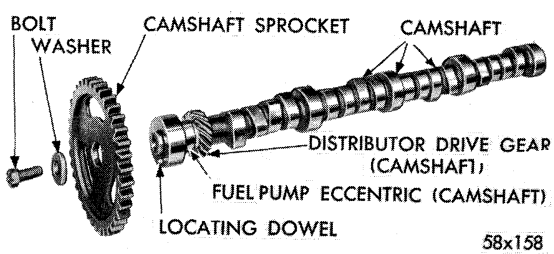


Fig. 71 — Camshaft and Sprocket Assembly

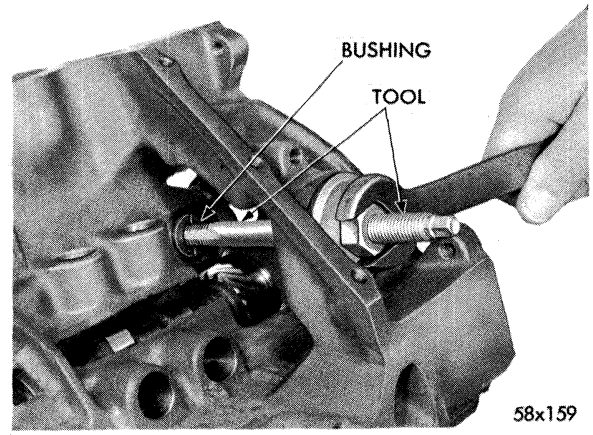


Fig. 72 — Removing Distributor Drive Shaft Bushing

DISTRIBUTOR DRIVE SHAFT BUSHINGS

a. Removal

Insert Tool C-3052 into old bushing and thread down until a tight fit is obtained (Fig. 72). Hold the puller screw and tighten puller nut until bushing is removed.

b. Installation

Slide new bushing over burnishing end of Tool C-3053 and insert the tool and bushing into bore, as shown in Figure 73.

Drive bushing and tool into position, using a soft hammer. As the burnisher is pulled through bushing by tightening puller nut, the bushing is expanded tight in block and burnished to correct size, as shown in Figure 74. DO NOT REAM THIS BUSHING.

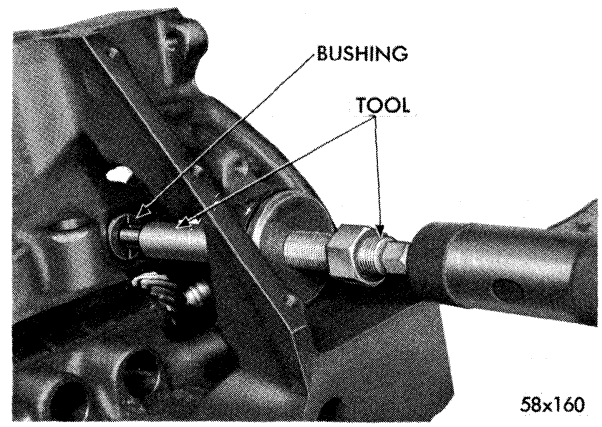


Fig. 73 — Installing Distributor Drive Shaft Bushing

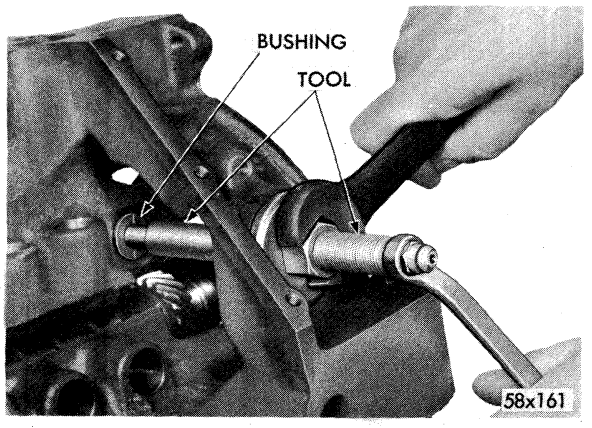


Fig. 74 — Burnishing Distributor Drive Shaft Bushing

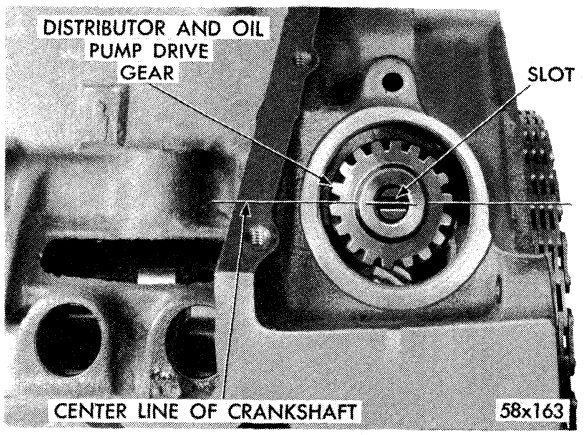


Fig. 76 — Distributor Drive Gear Installation

c. Camshaft Installation

Lubricate the camshaft lobes and camshaft bearing journals and insert the camshaft to within 2 inches of its final position in the cylinder block. Modify Tool C-3509 by grinding off the index lug holding upper arm on the tool and rotate arm 180°. Install Tool C-3509 in place of distributor drive gear and shaft, as shown in Figure 75. Hold the tool in position with distributor lock plate screw. This tool will restrict the camshaft from being pushed in too far and prevent knocking out the welch plug in the rear of the cylinder block. **The tool should remain installed until the camshaft and crankshaft sprockets and timing chain have been installed.**

NOTE: Whenever an engine has been rebuilt and a new camshaft and/or new tappets have been installed, one quart of factory recommended oil additive should be added to the engine oil to aid in break-in. The oil mixture should be left in the engine for a minimum of 500 miles. Drain the oil mixture at the next normal oil change.

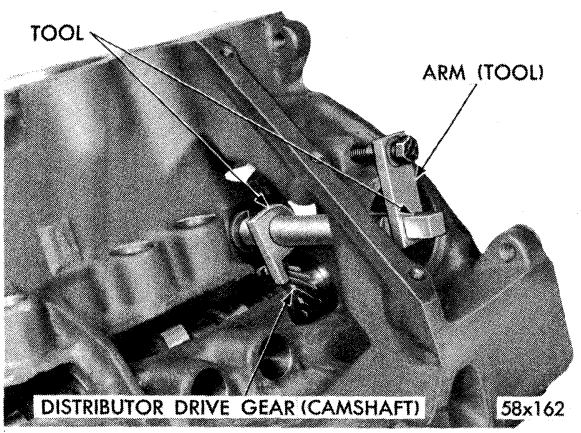


Fig. 75 — Camshaft Holding Tool

NOTE: Whenever the camshaft is replaced, all of the tappet faces must be inspected for crown with a straight edge. If any negative crown (dish) is observed, the tappet must be replaced.

d. Distributor (Basic) Timing

Before installing the distributor and oil pump drive shaft, time engine as follows: Rotate the crankshaft until No. 1 cylinder is at top dead center on firing stroke. When in this position, the straight line on the vibration damper should be under (DC) on the timing indicator. Coat shaft and drive gear with engine oil. Install the shaft so that after the gear spirals into place, it will index with oil pump shaft, so that the slot in top of drive gear will be parallel with center line of crankshaft as shown in Figure 76.

e. Installation of Distributor

Hold distributor over the mounting pad on cylinder block with the vacuum chamber pointing toward the center of engine. Turn the rotor until it points forward and to the approximate location of the No. 1 tower terminal in the distributor cap. Place distributor gasket in position. Lower distributor and en-

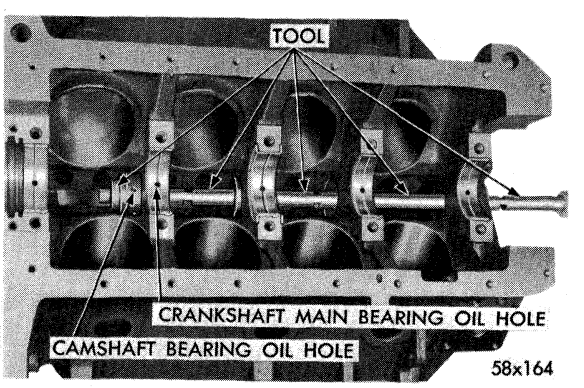


Fig. 77 — Removing Camshaft Bearing

gage shaft in slot of distributor drive shaft gear. Turn distributor clockwise until the breaker contacts are just separating and install hold down clamp.

REMOVAL AND INSTALLATION OF CAMSHAFT BEARINGS (Engine Removed from Car)

a. Removal

With the engine completely disassembled, drive out the rear cam bearing welch plug. Install proper size adapters and horse shoe washers (part of Tool C-3132A) at back of each bearing shell to be removed and drive out the bearing shells.

b. Installation

Install the new camshaft bearings with Tool C-3132-A by sliding the new camshaft bearing shell over the proper adapter. Position bearing in the tool. Install horse shoe lock and by reversing removal procedure, carefully drive bearing shell into place, as shown in Figure 77. Install remaining shells in like manner.

NOTE: Install the No. 1 camshaft bearing 1/32" inward from front face of the cylinder block.

The oil holes in camshaft bearings and cylinder block must be in exact alignment to insure proper lubrication (Fig. 77).

Camshaft bearing index can be checked after installation by inserting a pencil flashlight in the bearing shell. The camshaft bearing oil hole should be perfectly aligned with the drilled oil passage from the main bearing. Another oil hole in the camshaft bearings should be visible by looking down on the left bank oil hole above and between No. 6 and No. 8 cylinders to No. 4 camshaft bearing and on the right bank above and between No. 5 and 7 cylinders to No. 4 camshaft bearings. If the camshaft bearing shell oil holes are not in exact alignment, remove and reinstall them correctly. Use Tool C-897 to install a new welch plug at the rear of camshaft. **Be sure this plug does not leak.**

CYLINDER BLOCK

The cylinder block is of the deep block design which eliminates the need for a torque converter housing adapter plate. Its sides extend three inches below the crankshaft centerline.

Cleaning and Inspection

Clean cylinder block thoroughly and check all core hole plugs for evidence of leaking. If new core hole plugs are installed, coat the edges of plug and core hole with a suitable sealer and drive plugs in place with driver, Tool C-897. Examine block for cracks or fractures. Remove the top ridge of cylinder bores with a reliable ridge rearmer before removing the pistons from cylinder block. **Be sure to keep the tops of pistons covered during this operation.**

NOTE: Pistons and connecting rods must be removed from the top of cylinder block. When removing piston and connecting rod assemblies from the engine, rotate crankshaft so each connecting rod is centered in the cylinder bore.

Remove connecting rod cap. Install Tool C-3221 on one connecting rod bolt and protector over the other bolt and push each piston and rod assembly out of the cylinder bore. After removal, install bearing cap on mating rod.

a. Checking Cylinder Bores

The cylinder bores should be checked for out-of-round and taper with Tool CM-119. If the cylinder bores show more than .005 inch out-of-round or a taper of more than .010 inch the cylinder block should be rebored and honed, and new pistons and rings fitted.

b. Honing Cylinder Bores

To remove light scoring, scuffing, or scratches from the cylinder walls, use Tool C-823. Usually a few strokes will clean up a bore and maintain the required limits. The cylinder walls should be deglazed, using cylinder surfacing hone Tool C-3501 equipped with 280 grit stones, prior to installation of the new rings or to smooth down the cylinder walls after rough honing. A satisfactory finish can be obtained by

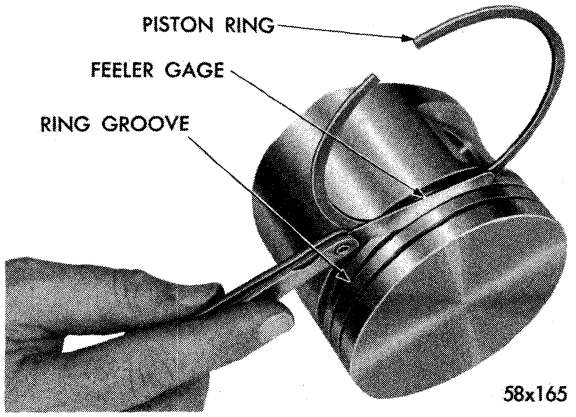


Fig. 78 — Measuring Piston Ring Clearance

giving each cylinder wall 20 strokes in 20 seconds with the hone so that a cross hatch pattern will be obtained.

After honing, it is necessary that the block be cleaned again to remove all traces of abrasives, and to prevent excessive wear of engine parts. **The hone may be safely used for removal of metal up to .005 inch and as high as .010 to .015 inch by an experienced operator.**

CAUTION

Be sure all abrasives are removed from engine parts after honing. It is recommended that a solution of soap and water be used with a brush and then thoroughly dried. If this is impossible, use SAE 10 engine oil and CLEAN cloth. When the bore can be wiped with a clean white cloth and be withdrawn clean, the bore is clean.

c. Cylinder Walls

Cylinder walls which are badly scored, scuffed, scratched, or worn beyond specified limits should be rebored. Whatever type of boring equipment is used, boring operation should be closely coordinated with the fitting of pistons and rings in order that specified clearance may be maintained.

d. Fitting Pistons

The piston and cylinder wall must be clean and dry. The specified clearance between the piston and the cylinder wall is .0005 to .0010 inch.

The piston diameter should be measured at the top of skirt 90° to the piston pin axis. The cylinder bores on used engines should be measured halfway down the cylinder bore and transverse to the engine crankshaft centerline.

NOTE: Pistons and cylinder bores should be measured at normal room temperature 70° F.

All service pistons include pins, and are available in standard and the following oversizes, .005, .020 and .040 inch.

e. Fitting Rings

Measure the piston ring gap about two (2) inches from bottom of cylinder bore in which it is to be fitted. (An inverted piston can be used to push the rings down to insure positioning rings squarely in the cylinder wall before measuring.) Insert the feeler stock in gap (Fig. 78).

The ring gap should be between .013 to .025 inch.

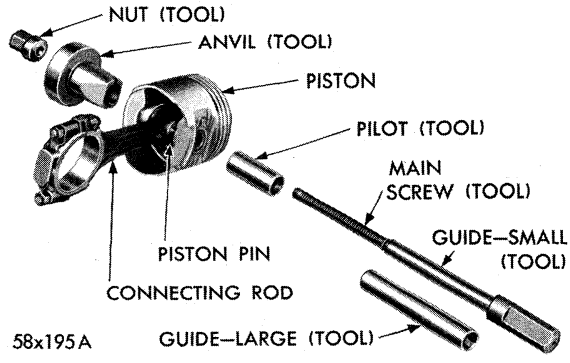


Fig. 79 — Tool Arrangement of Removing Piston Pin

This measurement is the same for all rings. Measure the side clearance between piston ring and ring land. The clearance should be .0015 to .003 inch for the top compression ring, .001 to .0025 inch for the intermediate ring, and .001 to .003 for the oil control ring. Starting with the oil ring expander, place expander ring in the lower ring groove and install oil control ring. Install the compression rings in middle and top grooves. Use ring installer, Tool C-3629 for the MC-1 and MC-2 engine and Tool C-3628 for the MC-3 and MY-1 engine.

NOTE: Be sure the mark "Top" on each compression ring is to the top of piston when the ring is installed.

REMOVAL OF PISTON PIN

Arrange Tool C-3624 parts for the removal of piston pin, as shown in Figure 79. Install pilot on the main screw. Install the screw through piston pin. Install anvil over the threaded end of the main screw with small end of anvil against the piston boss.

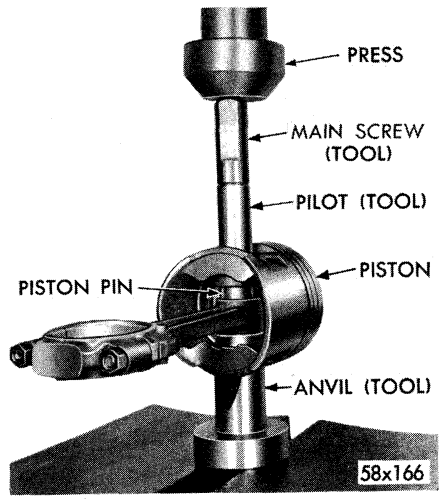


Fig. 80 — Removing Piston Pin

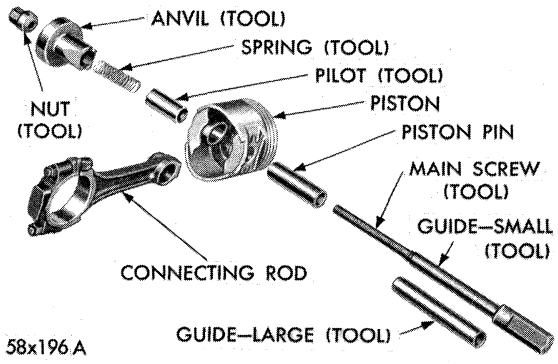


Fig. 81 — Tool Arrangement for Installing Piston Pin

NOTE: Be sure spring is removed from the anvil.

Install nut loosely on the main screw and place the assembly on a press, as shown in Figure 80. Press the piston pin out of connecting rod.

NOTE: When the pin falls free from connecting rod, stop the press to prevent damage to bottom of the anvil.

Remove the tool from the piston.

INSTALLATION OF PISTON PIN

Check the piston pin fit in the piston. It should be a sliding fit in the piston at 70°F. Piston pins are supplied in standard sizes only. Lubricate piston pin holes in the piston and connecting rod.

Arrange the tool parts for installation of piston pin, as shown in Figure 81. Install the spring inside the pilot and install the spring and pilot in the anvil. Install the piston pin over main screw. Place piston, with "front" up, over pilot so that the pilot extends through the piston pin hole. Position connecting rod over the pilot which extends through the piston hole.

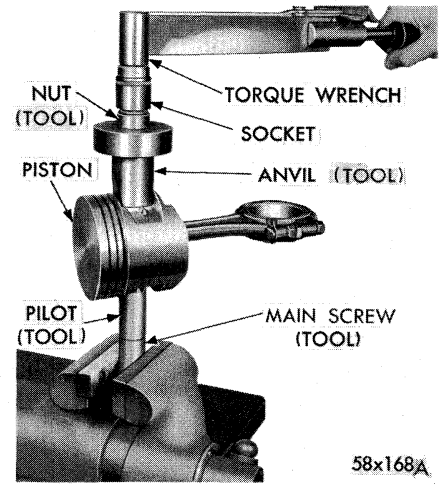


Fig. 83 — Testing Fit on Piston Pin in Connecting Rod

NOTE: Assemble rods to pistons of the right cylinder bank (2, 4, 6, and 8) with the indent on the piston head opposite to the larger chamfer on the large bore end of connecting rod. Assemble the rods to pistons of the left cylinder bank (1, 3, 5, and 7) with the indent on the piston head on the same side as the large chamfer on the large bore end of connecting rod.

Install the main screw and piston pin in the piston, as shown in Figure 81.

Install the nut on puller screw to hold assembly together. Place assembly on a press, as shown in Figure 82. Press in the piston pin until piston pin bottoms on the pilot properly positioning the pin in the connecting rod. Remove the tool and arrange tool parts and piston assembly in the same manner, as shown in Figure 79.

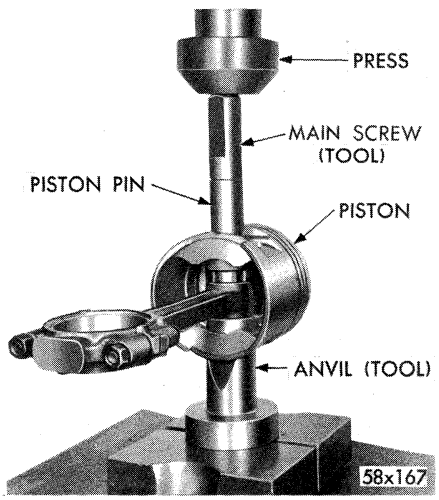


Fig. 82 — Installing Piston Pin

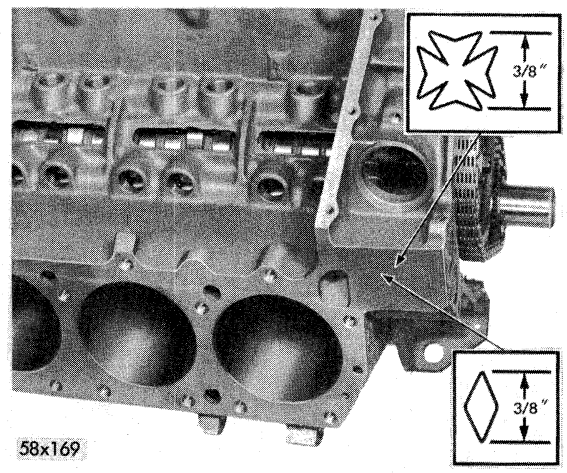


Fig. 84 — External Identification

Place the assembly in a vise, as shown in Figure 83.

Attach the torque wrench to nut and check torque up to 15 foot-pounds torque. If the connecting rod moves downward on piston pin, reject this connecting rod and piston pin combination. Obtain a connecting rod with proper small end bore diameter and repeat the installation and checking procedure.

If connecting rod does not move under 15 foot-pounds torque, the piston pin and connecting rod interference is satisfactory, the tool may be removed.

CONNECTING RODS

IMPORTANT

A Maltese Cross stamped on the engine numbering pad (Fig. 84) indicates that engine is equipped with a crankshaft which has one or more connecting rods and main bearing journals finished .001 inch undersize. The position of the undersize journal or journals will be stamped on machined surface of No. 3 counterweight (Fig. 85).

Connecting rod journals will be identified by the letter "R" and main bearing journals by the letter "M." Thus "M-1" indicates that No. 1 main bearing is .001 inch undersize.

INSTALLING CONNECTING ROD BEARINGS

NOTE: Fit all rods on one bank until completed. Do not alternate from one bank to another, because when the rods are assembled to pistons correctly, they are not interchangeable from one bank to another.

Each bearing cap has a small "V" groove across the parting face. When installing the lower bearing shell, make certain that the "V" groove in shell is in line with "V" groove in cap. This allows lubrication of the cylinder wall. The bearing shells should always be installed so that small formed tang fits into machined grooves of rods. The side play should be from .009 to .017 inch (two rods).

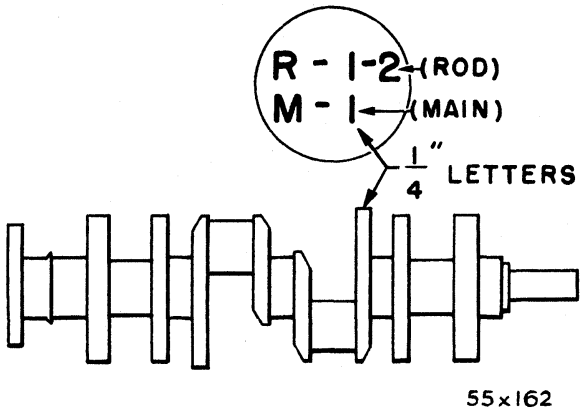


Fig. 85 — Internal Identification

Limits of taper or out-of-round on any crankshaft journals should be held to .001 inch. Bearings are available in .001, .002, .003, .010 and .012 inch undersize.

NOTE: Install the bearings in pairs. Do not use a new bearing half with an old bearing half. Do not file the rods or bearing caps.

CHECKING THE CONNECTING ROD BEARING CLEARANCE (PLASTIGAGE METHOD)

Connecting rod bearing clearance measurements can be made by the use of Plastigage with the engine in the chassis. After removing the connecting rod cap, wipe off the oil from the journal and inserts. Place the Plastigage on bearing parallel with crankshaft. Reinstall the cap and tighten attaching nuts alternately to specified torque.

Remove cap and measure the width of the compressed material with the graduated scale to determine the bearing clearance. Allowable clearance is from .0005 to .0015 inches. If taper of the compressed material is evident, measure with the graduated scale. If the taper appears to exceed .005 inch, the journal should be checked with micrometers.

INSTALLING PISTON AND CONNECTING ROD ASSEMBLY IN CYLINDER BLOCK

Before installing the pistons, rods, and rod assemblies in bore, be sure that compression ring gaps are diametrically opposite one another and not in line with oil ring gap. The oil ring expander gap should be toward the outside of the "V" of the engine. The oil ring gap should be turned toward the inside of the "V" of engine. Immerse the piston head and rings in clean engine oil, slide the ring compressor, Tool C-385, over the piston and tighten with the special wrench (part of Tool C-385). Be sure the position of rings does not change during this operation. Screw the connecting rod bolt protector (part of Tool C-3221) on one rod bolt, and insert the rod and piston into cylinder bore.

NOTE: Rotate the crankshaft so that connecting rod journal is on center of the cylinder bore.

Attach the puller part of Tool C-3221 on the other bolt, and guide the rod over the crankshaft journal, as shown in Figure 86.

Tap piston down in the cylinder bore, using the

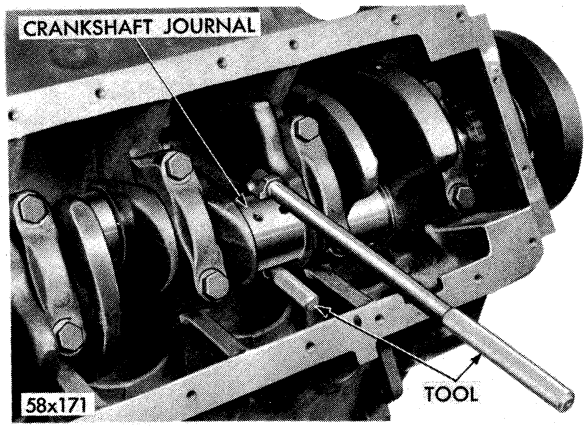


Fig. 86 — Removing and Installing Connecting Rod

handle of a hammer. At the same time, guide connecting rod into position on crankshaft journal. The notch or groove on the top of the piston must be pointing toward front of the engine and the larger chamfer of the connecting rod bore must be installed toward crankshaft journal fillet. Install the rod caps, tighten nuts to 45 foot-pounds torque.

CRANKSHAFT MAIN JOURNALS

The crankshaft journals should be checked for excessive wear, taper and scoring. Journal grinding should not exceed .012 inch under the standard journal diameter. DO NOT grind the thrust faces of No. 3 main bearing. **DO NOT** nick the crankpin or main bearing fillets. After regrinding, remove the rough edges from crankshaft oil holes and clean out all oil passages.

CRANKSHAFT MAIN BEARINGS

The lower main bearing halves of 1, 2, 4 and 5 numbers are interchangeable, as shown in Figure 87. The upper main bearing halves of 1, 2, 4 and 5 numbers are interchangeable. Upper and lower bearing halves are not interchangeable because the upper bearing is grooved and the lower is not.

The upper and lower No. 3 bearing halves are flanged to carry the crankshaft thrust loads and are not interchangeable with any other bearing halves in the engine.

NOTE: Bearings that are not badly worn or pitted must be reinstalled in the same position.

The bearing caps are not interchangeable and should be marked at removal to insure correct assembly. Bearing shells are available in standard and the following undersizes: .001, .002, .003, .010 and .012 inch. Never install an undersize bearing shell that will reduce the clearance below specifications.

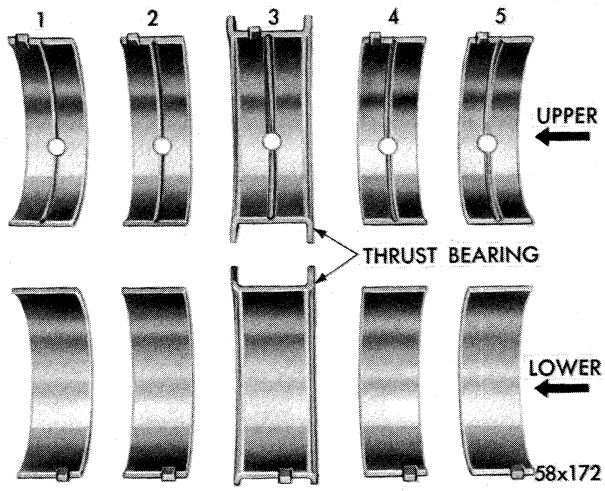


Fig. 87 — Main Bearing Identification

REMOVAL AND INSTALLATION OF THE MAIN BEARINGS

a. Removal

Remove the oil pan and mark bearing caps before removal. Remove bearing caps one at a time. Remove upper half of bearing by inserting Tool C-3059 (Fig. 88) into the oil hole of crankshaft. Slowly rotate crankshaft clockwise, forcing out upper half of bearing shell.

Checking the Main Bearing Clearance

Plastigage Method. Use the same technique as described in "Checking the Connecting Rod Bearing Clearance."

CAUTION

If bearings are measured with the engine in the chas-

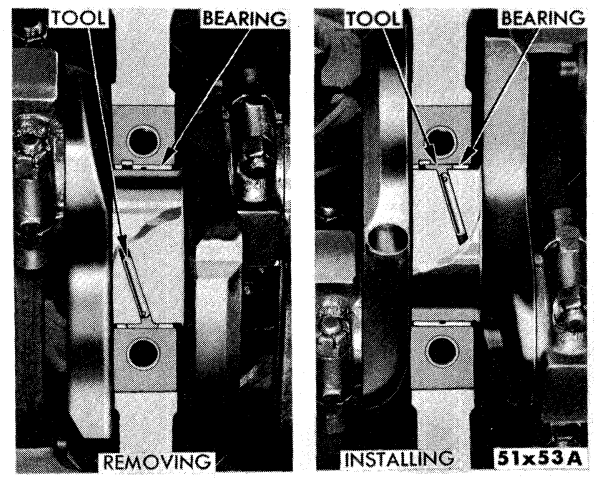


Fig. 88 — Removing and Installing Main Bearing Upper Shell

sis, the crankshaft must be supported in order to take up clearance between the upper bearing insert and the crankshaft journal. This can be done by snugging bearing caps of the adjacent bearings with .005 to .015 inch cardboard between lower bearing shell and journal. Use extreme caution when this is done to avoid unnecessary strain on the crankshaft or bearings, or false reading may be obtained. Do not rotate crankshaft while plastigage is installed. Be sure to remove cardboard before reinstalling oil pan.

It is permissible to use one .001 inch undersize bearing shell with one standard bearing shell or one .002 inch bearing shell. Always use the smaller diameter bearing half as the upper. Never use a new bearing with a used bearing and never use an upper bearing half more than .001 inch smaller than the lower bearing half.

b. Installation of the Upper Main Bearing

NOTE: When installing a new upper bearing shell, slightly chamfer the sharp edge from the plain side.

Start bearing in place, and insert Tool C-3059 into the oil hole of crankshaft (Fig. 88). Slowly rotate the crankshaft counter-clockwise sliding the bearing into position. After all bearings have been fitted, tighten all caps to 85 foot-pounds torque. The crankshaft end play should be .002 to .007 inch.

OIL PAN (ALL MODELS)

a. Removal

Drain the oil and remove dipstick. Disconnect the steering linkage from steering arm to allow the steering linkage to be lowered. On single exhaust system, the exhaust crossover pipe must be removed. Be sure the rest of exhaust system is sufficiently supported. It may be necessary to pull the brake line located across the crossmember slightly forward to allow enough clearance for pan removal. Remove oil pan attaching bolts and lower the oil pan on MC-1 only. Disconnect throttle linkage at transmission and at carburetor. Rotate the crankshaft until the centerline of the front counterweight is in the 10 o'clock position. Remove the front engine mounting nuts and raise the engine one inch. Remove the oil pan.

b. Installation

NOTE: Check the alignment of the oil strainer. The bottom of strainer must be on a horizontal plane machined surface of the cylinder block. The foot of strainer should touch bottom of the oil pan. Clean pan thoroughly and install new gasket, oil pan and attaching bolts. Tighten bolts to 15 foot-pounds torque. Lower the engine and install front engine mounting nuts and tighten to 85 foot-pounds torque.

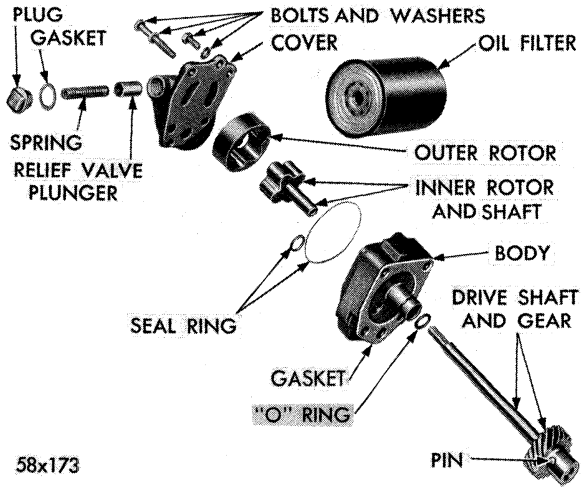


Fig. 89 — Oil Pump and Filter Assembly

Connect exhaust pipes (if removed) and steering, throttle and carburetor linkage. Refer to Transmission Section in this manual. Refill the crankcase.

OIL PUMP

a. Removal

Remove oil pump attaching bolts and remove pump and filter assembly from bottom side of the engine.

b. Disassembly

Remove the filter base and oil seal ring. Remove pump rotor and shaft and lift out the outer pump rotor. Remove oil pressure relief valve plug and lift out spring and plunger (Fig. 89).

c. Inspection and Repair

Clean all parts thoroughly. The mating face of oil

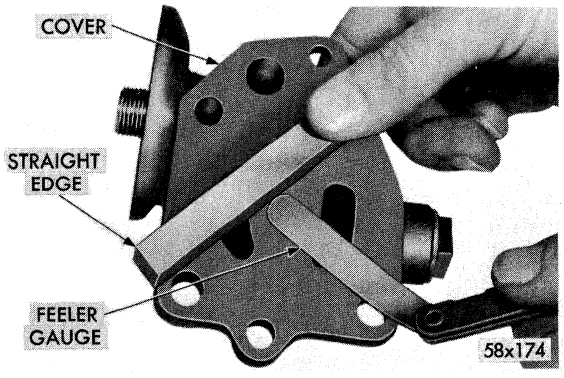


Fig. 90 — Checking Oil Pump Cover Flatness

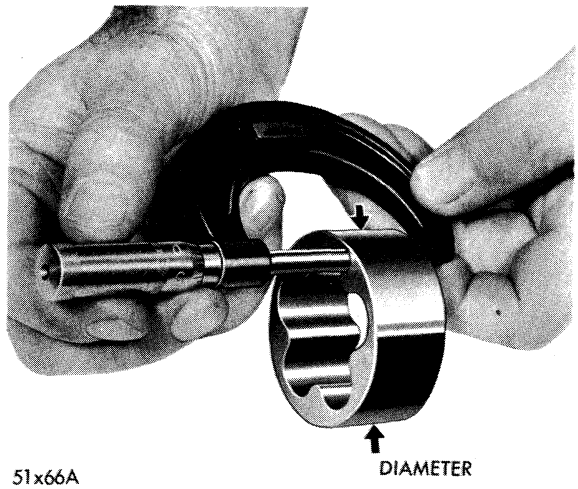


Fig. 91 — Measuring Outer Rotor Thickness

pump cover should be smooth. Replace cover if it is scratched or grooved.

Lay a straight edge across the oil pump cover surface (Fig. 90). If a .0015 inch feeler gauge can be inserted between the cover and straight edge, the cover should be replaced. If outer rotor length measures less than .943 inch (Fig. 91), and diameter less than 2.469 inches, replace outer rotor.

If the pump inner rotor length measures less than .943 inch (Fig. 92) a new pump rotor should be installed.

Slide outer rotor and inner rotor into pump body and place a straight edge across the face (between the bolt holes), as shown in Figure 93.

If a feeler gauge of more than .004 inch can be inserted between rotors and straight edge, replace pump body. Remove pump inner rotor and shaft leaving the outer rotor in pump cavity. Press the outer rotor body to one side with fingers and measure the clearance between outer rotor and pump body (Fig. 94). If measurement is more than .012

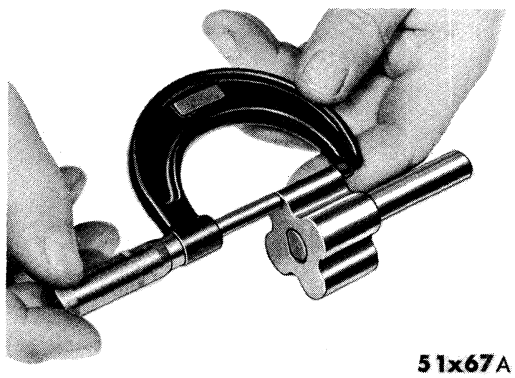


Fig. 92 — Measuring Inner Rotor Thickness

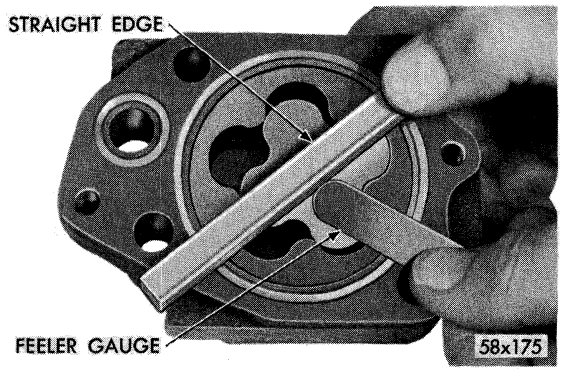


Fig. 93 — Measuring Clearance over Rotors

inch replace the oil pump body. If clearance between inner rotor and outer rotor (Fig. 95) is more than .010 inch, replace the inner and outer rotors.

Check the oil pump relief valve plunger for scoring and for free operation in its bore. If the plunger is scored, replace the plunger. The spring should conform to specifications on chart. If, for any reason, the spring has to be replaced, the same color spring should be used. An exception is where oil pressure is either above or below specifications. **When assembling oil pump, be sure to use new oil seal rings between filter base and body.** Tighten the attaching bolts to 35 foot-pounds torque.

Installation

Install the oil pump on engine.

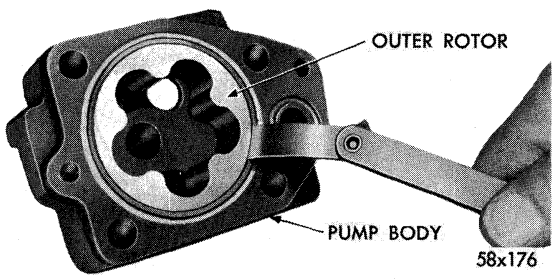


Fig. 94 — Measuring Outer Rotor Clearance

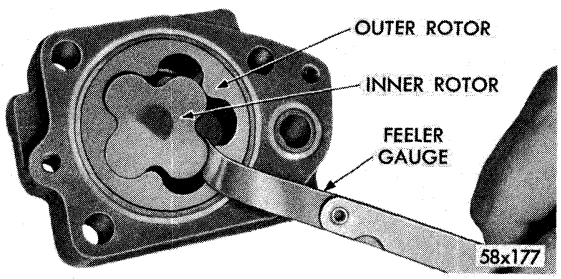


Fig. 95 — Measuring Clearance Between Rotors

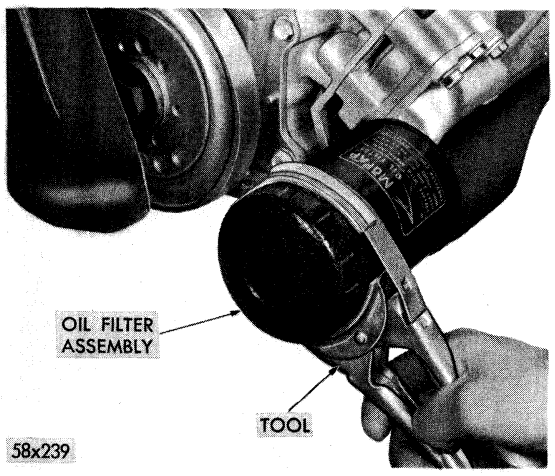


Fig. 96 — Removing Oil Filter with Tool

RELIEF VALVE SPRING CHART

Color	Free Length	Loaded Length	Compression Pounds
Gray (Lt.).....	2.19	1.60	11.85 to 12.85
Red (Std.).....	2.29	1.60	14.85 to 15.85
Brown (Hvy.)....	2.39	1.60	17.9 to 18.9

REMOVAL AND INSTALLATION OF OIL FILTER

The oil filter should be replaced every 5,000 miles to coincide with an engine oil change as follows:

Use care so as not to damage transmission oil cooler lines. Using Tool C-3654, unscrew the filter from base on bottom side on engine and discard. Wipe the base clean. Screw new filter on base, as shown in Figure 96, until gasket on filter contacts base. Tighten ½ turn more by hand. Start engine and check for leaks.

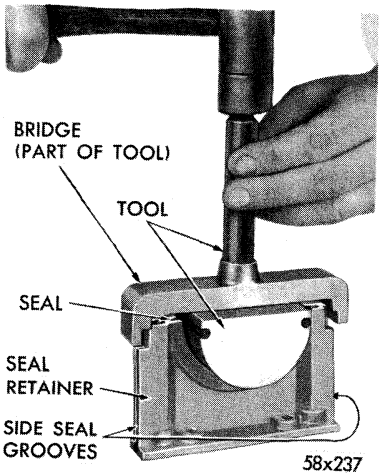


Fig. 97 — Installing Rear Main Bearing Lower Oil Seal

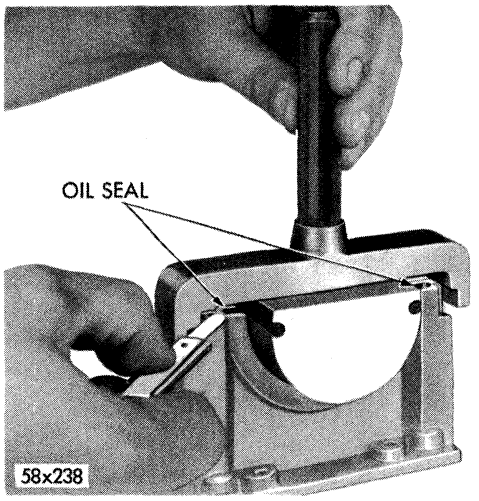


Fig. 98 — Trimming Rear Main Bearing Lower Oil Seal

REPLACEMENT OF THE REAR MAIN BEARING OIL SEAL (Crankshaft Removed)

Remove Allen screws and seal retainer. Install a new rear main bearing oil seal in the cylinder block so that both ends protrude. Tap seal down into position, using Tool C-3625 until the tool is seated in bearing bore. Hold tool in this position and cut off portion of seal that extends above the block on both sides.

NOTE: Be sure the bridge is removed from tool.

Install a new seal in the seal retainer so that the ends protrude (Fig. 97). Install bridge on tool and tap the seal down into position with Tool C-3625 until tool is seated. Trim off the portion of the seal that protrudes above the cap (Fig. 98). Install the two side seals in grooves in seal retainer. Install seal retainer and tighten screws to 30 foot-pounds torque.

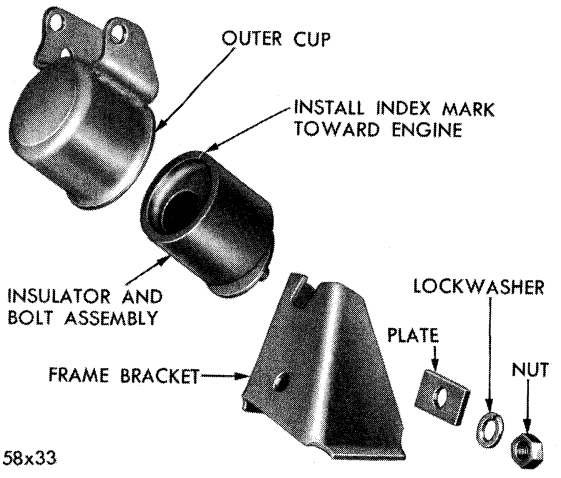


Fig. 99 — Right Front Engine Support

FRONT ENGINE MOUNTS

a. Removal

Disconnect throttle linkage at transmission and at carburetor. Remove the nuts, washers, plates from front engine mounts and raise the engine sufficiently enough to remove the insulator and stud assembly.

b. Installation

Install the insulator and stud assembly with the index mark on the insulator facing toward the engine, as shown in Figure 99.

Lower the engine aligning the stud with the slots in frame brackets.

CAUTION

Be sure the insulator stud does not interfere with the bottom of the slot in the frame bracket.

Install plates, washers and nuts. Neutralize the engine, and tighten nuts to 85 foot-pounds torque. Connect throttle linkage to transmission and to carburetor. Refer to Transmission Section in this manual for adjustment.

Section VIII

FUEL AND EXHAUST SYSTEM

DATA AND SPECIFICATIONS

Model	MC-1
FUEL PUMP	
Make	Carter
Model	M-2769S
Type	Mechanical
Driven By	Camshaft
Pump Pressure (pounds)	5 to 7
CARBURETOR	
Type	Dual Throat Downdraft
Model	BBD-2795S-2872S
ADJUSTMENTS	
Idle Mixture (both screws)	One full turn open
Idle Speed	500 rpm
Fast Idle	.017″
Fast Idle Cam	On Index
Choke Unloader	¼ inch
Accelerator Pump Travel	1 in. + or —1/64
Float Setting	9/32 + or —1/64
CHOKE	
Control	Cross over type
Setting	On Index
Fast Idle Speed Setting	1375 to 1425 rpm

Model	MC-2, MC-3 and MY-1
FUEL PUMP	
Make	Carter
Model	M-2769S
Type	Mechanical
Driven By	Camshaft
Pump Pressure (pounds)	5 to 7

FRONT ENGINE MOUNTS

a. Removal

Disconnect throttle linkage at transmission and at carburetor. Remove the nuts, washers, plates from front engine mounts and raise the engine sufficiently enough to remove the insulator and stud assembly.

b. Installation

Install the insulator and stud assembly with the index mark on the insulator facing toward the engine, as shown in Figure 99.

Lower the engine aligning the stud with the slots in frame brackets.

CAUTION

Be sure the insulator stud does not interfere with the bottom of the slot in the frame bracket.

Install plates, washers and nuts. Neutralize the engine, and tighten nuts to 85 foot-pounds torque. Connect throttle linkage to transmission and to carburetor. Refer to Transmission Section in this manual for adjustment.

Section VIII

FUEL AND EXHAUST SYSTEM

DATA AND SPECIFICATIONS

Model	MC-1
FUEL PUMP	
Make	Carter
Model	M-2769S
Type	Mechanical
Driven By	Camshaft
Pump Pressure (pounds)	5 to 7
CARBURETOR	
Type	Dual Throat Downdraft
Model	BBD-2795S-2872S
ADJUSTMENTS	
Idle Mixture (both screws)	One full turn open
Idle Speed	500 rpm
Fast Idle	.017″
Fast Idle Cam	On Index
Choke Unloader	¼ inch
Accelerator Pump Travel	1 in. + or —1/64
Float Setting	9/32 + or —1/64
CHOKE	
Control	Cross over type
Setting	On Index
Fast Idle Speed Setting	1375 to 1425 rpm

Model	MC-2, MC-3 and MY-1
FUEL PUMP	
Make	Carter
Model	M-2769S
Type	Mechanical
Driven By	Camshaft
Pump Pressure (pounds)	5 to 7

DATA AND SPECIFICATIONS (Cont'd)

CARBURETOR	
Make	Carter
Type	4 Barrel Downdraft
Model	AFB-2797S
THROTTLE BORE	
Primary	1 7/16 inch
Secondary	1 9/16 inch
MAIN VENTURI	
Primary	1 3/16 inch
Secondary	1 1/4 inch
LOW SPEED JET PRIMARY ADJUSTMENTS	
Idle Mixture (both screws)	One full turn open
Idle Speed	500 rpm
Accelerator Pump	Middle hole of arm
Pump Setting (top of plunger to air horn)	.429 or 7/16 inch
Float Setting (casting to top of floats)	7/32 inch
Float Drop	23/32 inch
Choke Unloader	1/4 inch
Choke Setting	On Index
Fast Idle	.012 inch
CHOKE	
Control	Cross Over type
Setting	On Index
Fast Idle Speed Setting	1375 to 1425 rpm

SPECIAL TOOLS – CARBURETOR

C-3411	Gauge
C-3400	Repair Stand
C-3582	Wrench
C-3584	Puller
T-109-22	Bending Tool
T-109-29	Gauge (.020 to .030 inch)
T-109-31	Float Gauge (1/4 inch)
T-109-41	Bending Tool
T-109-43	Plug Removing Tool
T-109-58	Screw Driver Bit (1/4 inch)
T-109-106	Float Gauge (7/32 inch)
T-109-200	Gauge (.010 to .012 inch)
T-109-213	Bending Tool
T-109-280	Float Gauge
T-109-289U	Set of 5 Elevating Legs

CARBURETOR

The carburetor is similar to that used in the 1958 Models except for the new cross over type automatic choke and also on the 1959 Windsor Models the BBD carburetor has a new large air horn. Servicing procedures are basically the same as the 1958 Models except for the Data and Specifications, Carburetor Adjustments, and servicing of the new cross-over type automatic choke.

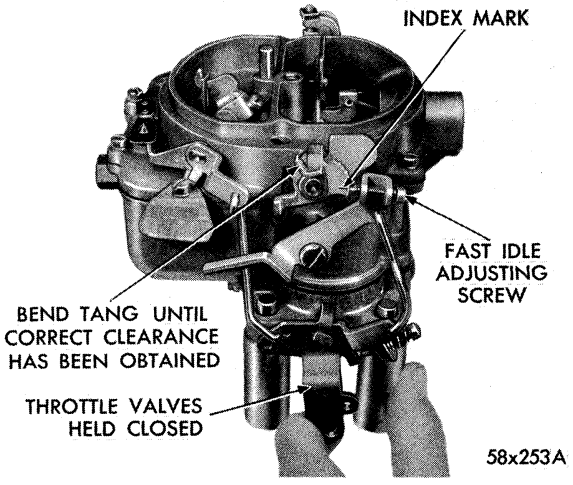


Fig. 100 — Checking Fast Idle Cam Indexing

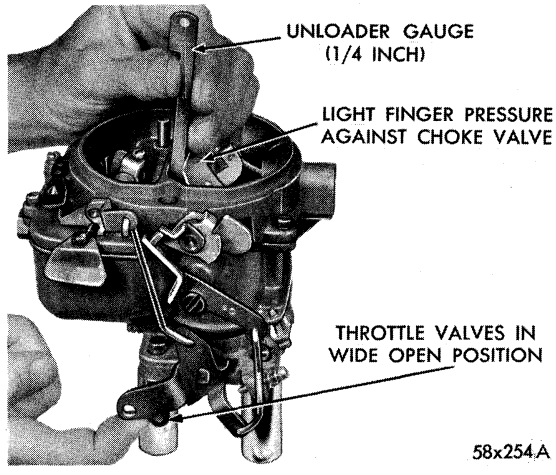


Fig. 102 — Choke Unloader Adjustment (wide open kick)

CARBURETOR ADJUSTMENTS (BBD)

FAST IDLE ADJUSTMENT

The index mark on the fast idle cam should be in direct line with the fast idle screw shank. Now, invert the carburetor and open the throttle valves to wide open position. Close the choke valve tightly and then close the throttle valves. Open the choke valve. This will position the fast idle cam to fast idle. The index mark on the cam should split the center of the fast idle adjusting screw, as shown in Figure 100. If an adjustment is necessary, bend the tang on the fast idle lever using Tool T-109-22 until mark on cam indexes fast idle screw.

With the choke valve held tightly closed, tighten the fast idle adjusting screw (on the high step of fast idle cam), until wire gauge T-109-29 (.020 inch) can be inserted between the throttle valve and the bore (side opposite port), as shown in Figure 101.

CHOKE UNLOADER ADJUSTMENT

(Wide Open Kick)

To make the choke unloader adjustment, lightly hold the choke valve closed, then open the throttle valves to wide open position. The choke valve should open sufficiently to allow unloader gauge T-109-31 (¼ inch) to be inserted between choke valve and wall of air horn, as shown in Figure 102. Adjust if necessary, by bending the arm on the fast idle lever using T-109-213, until correct clearance has been obtained (Fig 104).

ACCELERATOR PUMP TRAVEL ADJUSTMENT

To check the accelerator pump travel, backoff the idle speed (curb idle) adjusting screw until the throttle valves are fully seated in their bores. (Make sure the fast idle adjusting screw is off the fast idle cam.) With the throttle valves seated, the distance from the top of the plunger shaft down to the top

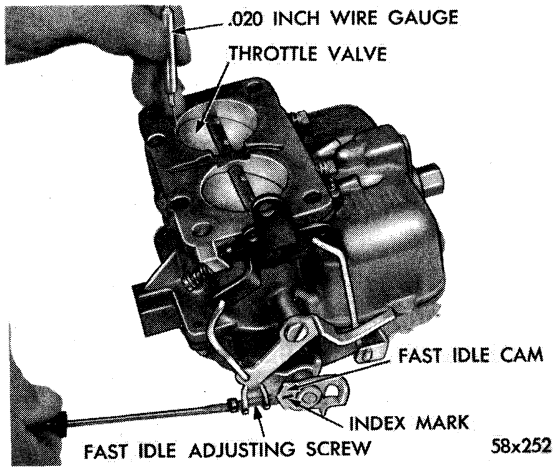


Fig. 101 — Setting Fast Idle

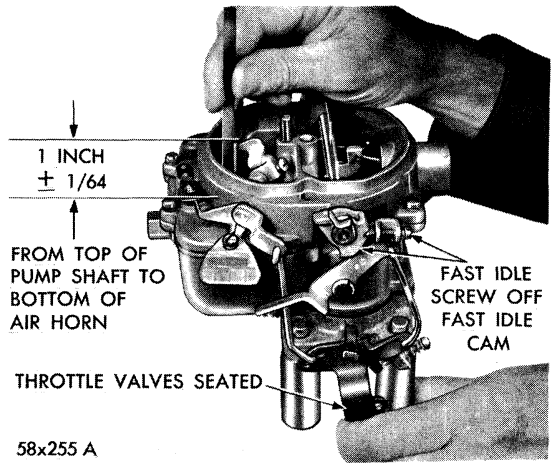


Fig. 103 — Checking Accelerator Pump Travel

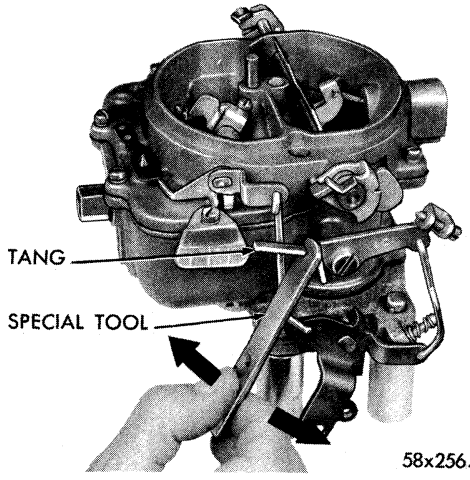


Fig. 104 — Bending Tang on Fast Idle Lever

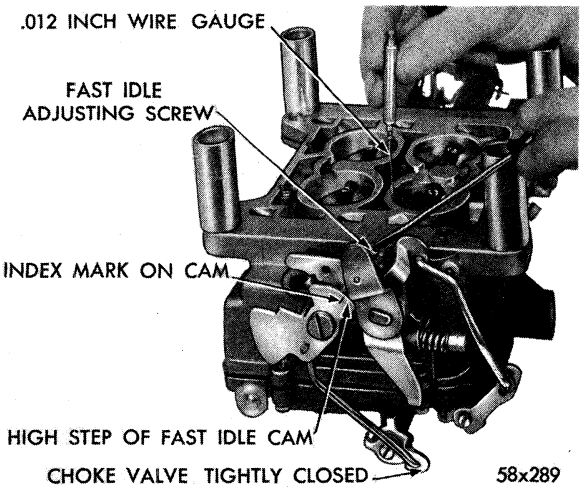


Fig. 106 — Setting Fast Idle

of the air horn, should be 1 inch + or — 1/64 inch when measured with a steel scale, as shown in Figure 103. To adjust pump setting, bend accelerator pump connecting rod until correct pump travel has been obtained.

CARBURETOR ADJUSTMENTS (AFB)

FAST IDLE ADJUSTMENT

Invert the carburetor and open the throttle valves to wide open position. Close the choke valve tightly and then close the throttle valves. Release the choke valve. This will position the fast idle cam to fast idle. The index mark on the cam should split the center of the last idle adjusting screw, (Fig. 105). If an adjustment is necessary, bend the fast idle connector rod at the angle, using Tool T-109-213, until the index mark on the cam indexes the fast idle adjusting screw.

With the choke valve held tightly closed and carburetor inverted, tighten the fast idle adjusting screw (on the high step of the fast idle cam), until wire gauge, Tool T-109-200 (.012 inch) can be inserted between the primary throttle valve and the bore (side opposite idle port), (Fig. 106). The index mark on the fast idle cam should be in direct line with the fast idle screw shank.

CHOKE UNLOADER ADJUSTMENT

With the throttle valves in the wide open position, it should be possible to insert Tool T-109-31 (1/4 inch) gauge between the upper edge of the choke valve and the inner wall of the air horn (Fig. 107).

If an adjustment is necessary, bend the unloader lip on the throttle shaft lever, using Tool T-109-41, until correct opening has been obtained.

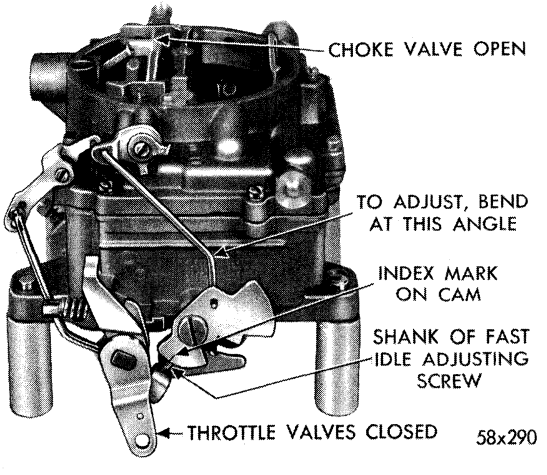


Fig. 105 — Checking Fast Idle Cam Indexing

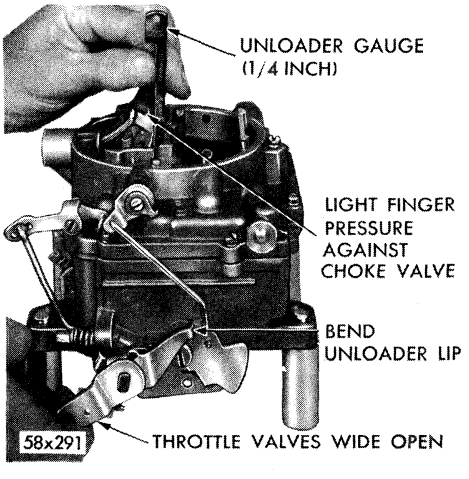


Fig. 107 — Checking Choke Unloader Adjustment (wide open kick)

SERVICING THE AUTOMATIC CHOKE (CROSS-OVER TYPE)

To function properly, it is important that all parts be clean and move freely. Other than the occasional cleaning, the automatic choke control requires no servicing. It is very important that the choke control unit works freely at the thermostatic coil spring housing and at the choke shaft. Move the choke rod up and down to check for free movement of the coil housing on the pivot. If unit binds, a new unit should be installed. The Cross-Over Choke Control Unit is serviced only as a complete unit. (Fig. 108). Do not attempt to repair.

When installing the cross-over choke unit, make certain that the coil housing does not contact the sides of the wall in the intake manifold. Any contact at this point will affect choke operation.

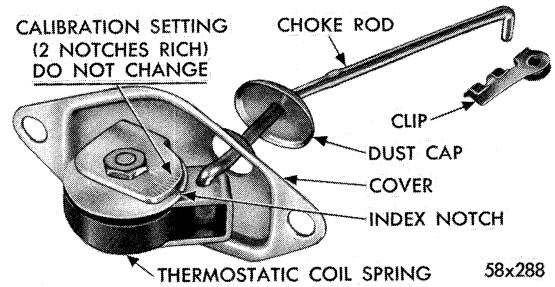


Fig. 108 — Cross-Over Choke Control Unit

Do not lubricate any parts of the choke or control unit since this causes dirt accumulation which would result in binding of the choke mechanism.

Do not attempt to change the calibration setting (2 notches rich). This is predetermined and should it be changed, improper choke action would result.

Section IX
FRAME

The shape and contour of the 1959 Chrysler frames remain the same as the 1958 with the exception of the following modification:

The upper control arm pivot brackets are changed and relocated to provide a better means of adjusting front wheel alignment.

The front portion of the Chrysler frame (Figs. 109, 110) has been modified to accept a newly designed front bumper mounting.

The 1959 Imperial frame includes the above change and in addition the following modifications:

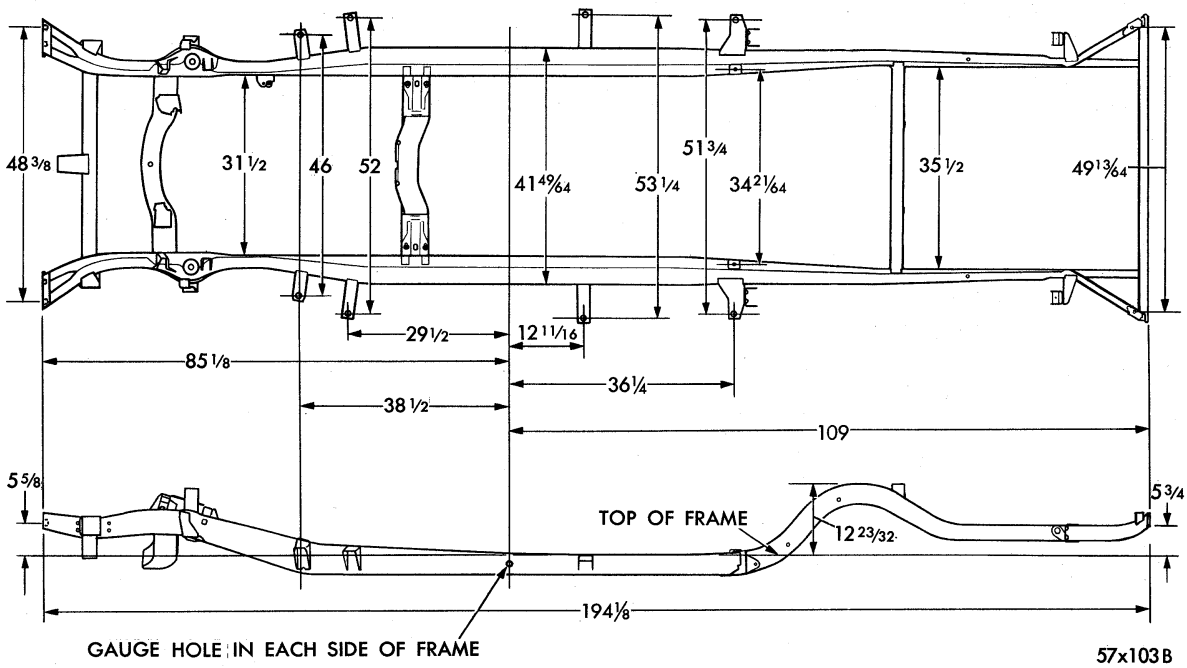


Fig. 109 — Frame Dimensions (Windsor)

SERVICING THE AUTOMATIC CHOKE (CROSS-OVER TYPE)

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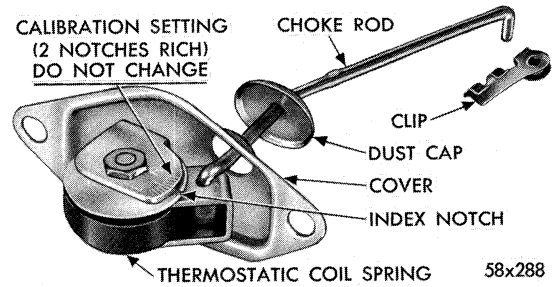

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Do not attempt to change the calibration setting (2 notches rich). This is predetermined and should it be changed, improper choke action would result.

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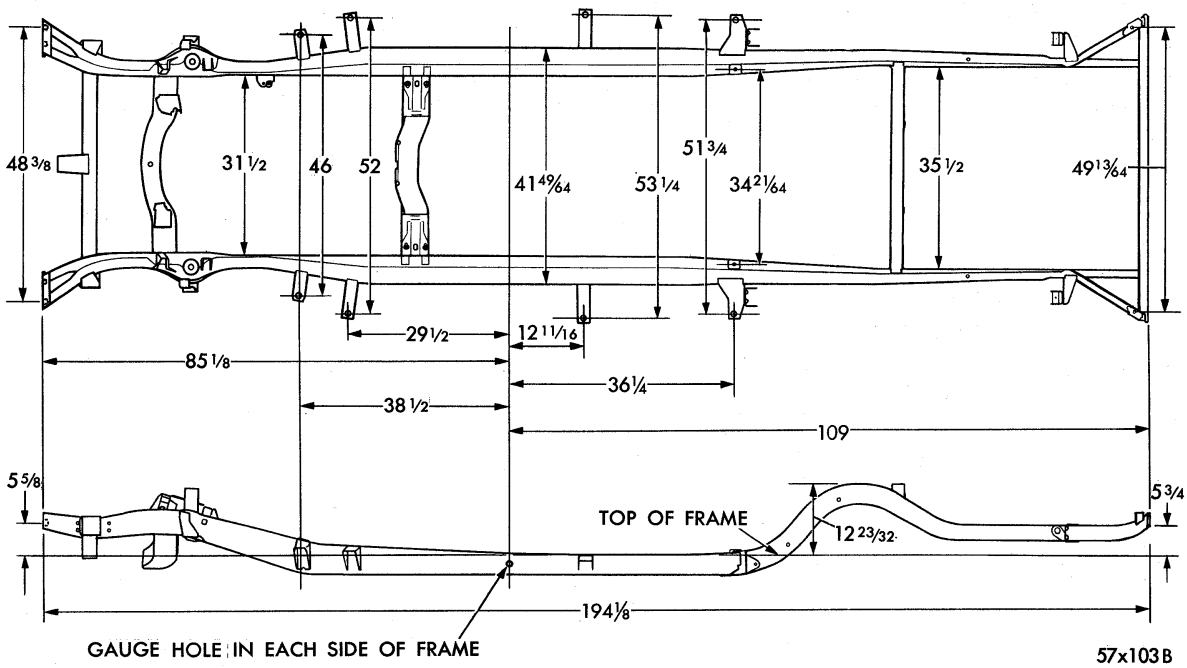


Fig. 109 — Frame Dimensions (Windsor)

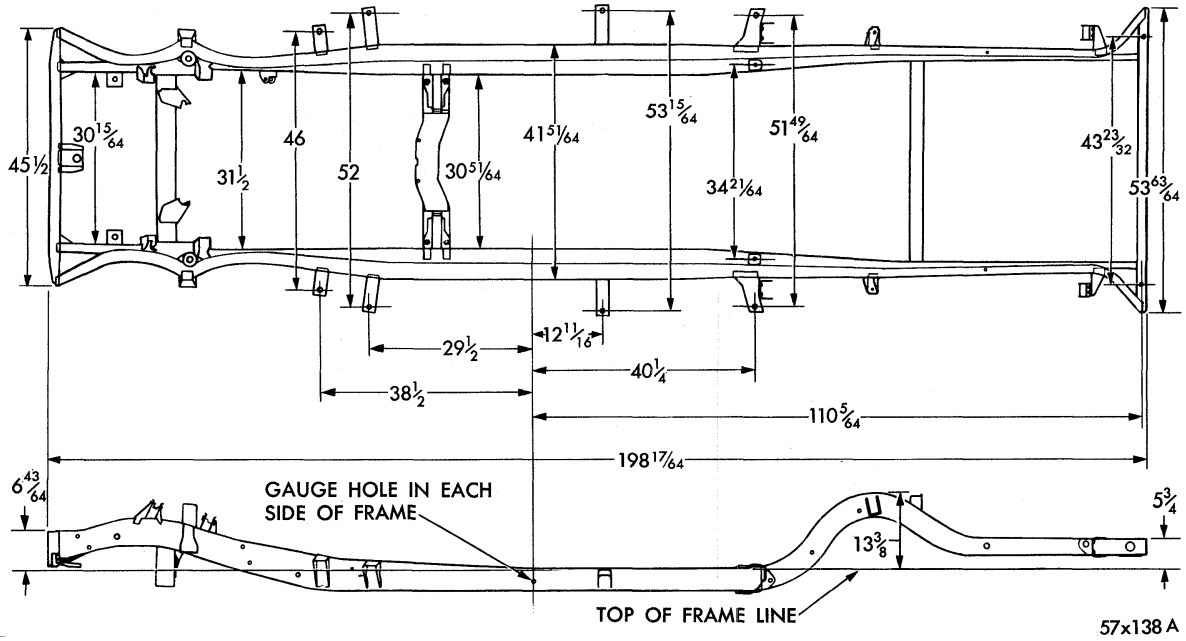


Fig. 110 — Frame Dimensions Saratoga and New Yorker

The body mounts have been relocated and redesigned to include dual solid mounting points at the Numbers 1, 2, 3 and 4 body mounts. This provides a more effective tie of the body to the frame. (Fig. 111).

The center bearing crossmember has also been redesigned to accommodate a smaller drive shaft tunnel in the floor pan.

The frame side rails have been depressed which permits the use of a new lower floor pan for increased leg room.

The "X" member frames are used only on Convertible Models.

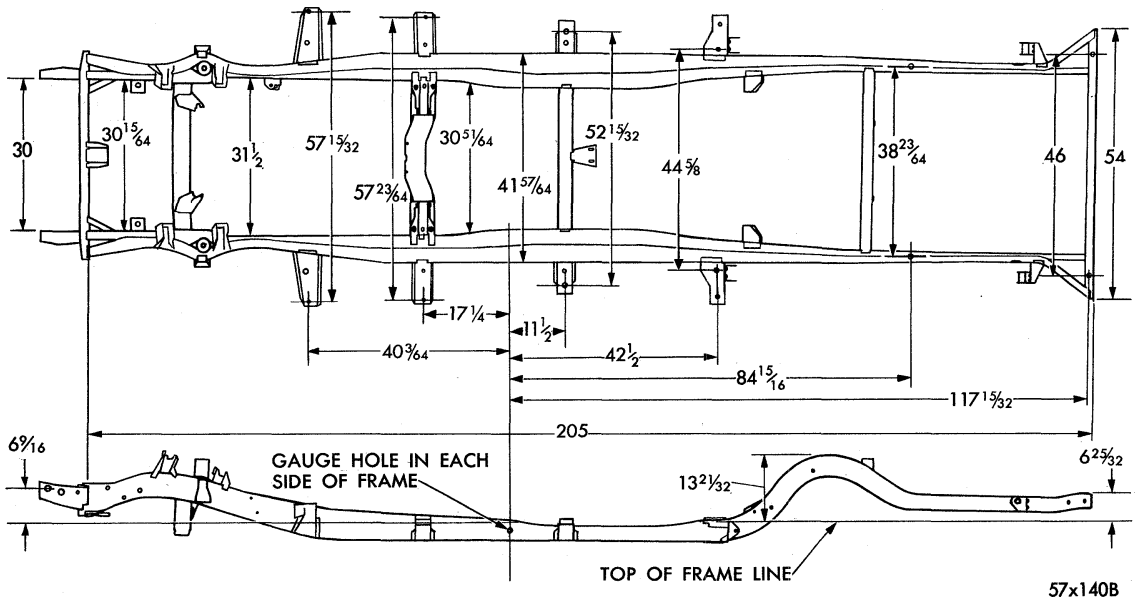


Fig. 111 — Frame Dimensions — Imperial

Section X
STEERING
DATA AND SPECIFICATIONS

MODELS	MC-1	MC-2	MC-3	MY-1
Steering Type				
Manual	Worm and Three Tooth Roller	None	None	None
Power	Rack and Gear Sector, Recirculating Ball Nut			
Ratio				
Manual	20.4	....	....	....
Power	16.1	16.1	16.1	16.1
Turning Radius (Curb to Curb)	42.3	45.4	45.4	49.5
Number Wheel Turns				
Manual	5.6	....	....	....
Power	3.5	3.5	3.5	3.5
Tread—Front	61.0	61.0	61.2	61.8
Rear	59.8	59.8	60.0	62.4
Wheel Base	122.0	126.0	126.0	129.0
Camber				
Left	+ ¼ degree + or —¼ degree			
Right	0 degrees + or —¼ degree Preferred Left + ⅜ degree, right 0 degree			
*Caster				
Manual	—¾ degree + or —¾ degree			
Power	+ ¾ degree + or —¾ degree			
Toe-in (outside thread inches)	⅛ + or —1/32 in. (⅛ in. preferred)			
Toe-Out on Turns	21 degrees 45 minutes + or —1 degree (inner wheel when outer wheel is 20 degrees)			
Steering Axis Inclination at Camber (Degree)	5 to 7 degrees at 0 degrees camber			
Steering Knuckle Type	Ball and Socket			
Front Wheel Bearing Type	Tapered Roller Bearing			
Inner Bearing Size	1.25	1.25	1.25	1.375
Outer Bearing Size	.75	.75	.75	.844
Spindle Thread Size	¾–16 (NF)			
Steering Linkage Type	Symmetric Idler Arm (Equal Length Tie Rods)			

*Caster should be equalized as near as possible on Left and Right wheel.

POWER STEERING PUMP SPECIFICATIONS

MODELS	Slipper Type
Fluid Capacity of Hydraulic System	64 Fluid ounces

POWER STEERING PUMP SPECIFICATIONS (Cont'd)

Type of Fluid	Automatic Transmission Fluid Type "A"
Maximum Pump Pressure—MC-1, MC-2, MC-3	850 to 950 psi
MY-1	950 to 1050 psi
Maximum Fluid Flow at 3,000 rpm	2.25 gal.

NEW ADDED SPECIAL TOOLS

Tool Number	Tool Name
C-3676	Worm Piston Ring—Remover and Installer

TIGHTENING REFERENCE

	Foot-Pounds Torque
Steering Wheel Nut	40
Steering Arm Nut	120
Steering Gear Housing to Frame Bolt	50
Steering Valve End Plug	50
Steering Valve Body Attaching Bolts	15
Steering Column Support Nut	135
Steering Gear Shaft Cover Nut	100
Steering Gear Shaft Adjusting Screw Lock Nut	50
Pressure Control Valve Body Screws	10

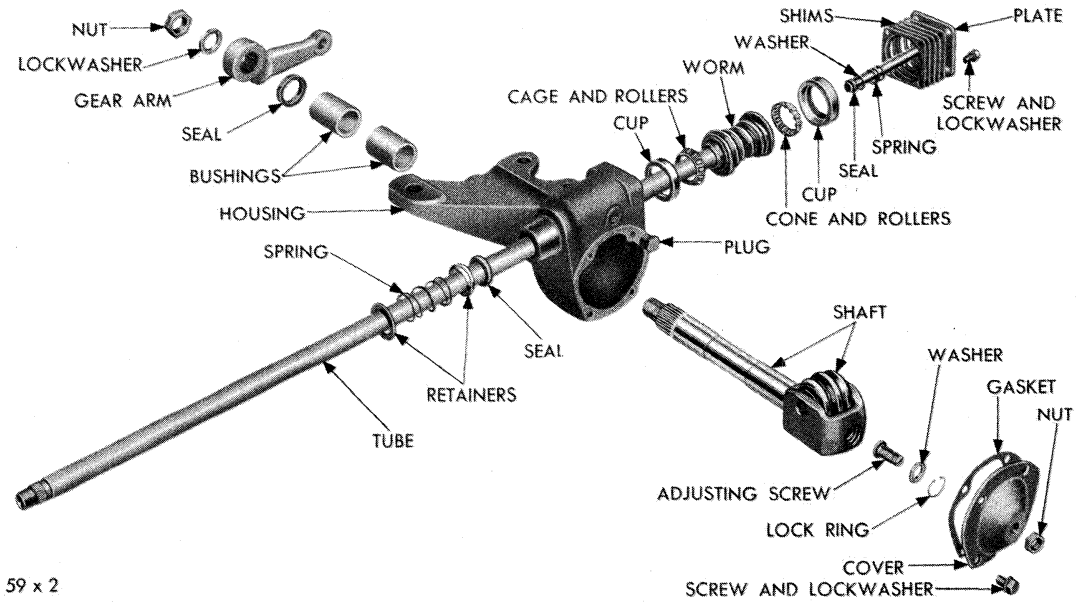


Fig. 112 — Manual Steering Gear Assembly (Disassembled View)

STEERING

MANUAL

The Manual Steering gear is somewhat different in appearance, as shown in Figure 112, however, the service procedures will remain the same as described in the 1958 Chrysler and Imperial Service Manual D-16350.

CONSTANT CONTROL FULL TIME POWER STEERING

The Constant Control Full Time Power Steering (Fig. 113) is the same as used on the 1958 Models with the following exceptions: The wormshaft is knurled for more positive locking of the wormshaft bearing adjusting nut. The piston is fitted with a cast iron ring backed up by a rubber "O" ring. These rings separate and seal the power chambers of the housing. The valve lever is held firmly seated in the center race and center race spacer by the lever spring load. A new steering column bearing and conical spacer are used to keep the bearing inner race tight on the steering tube.

The servicing procedure for the 1959 Constant Control Power Steering is the same as that described in the 1958 Chrysler and Imperial Service Manual except for the following operations:

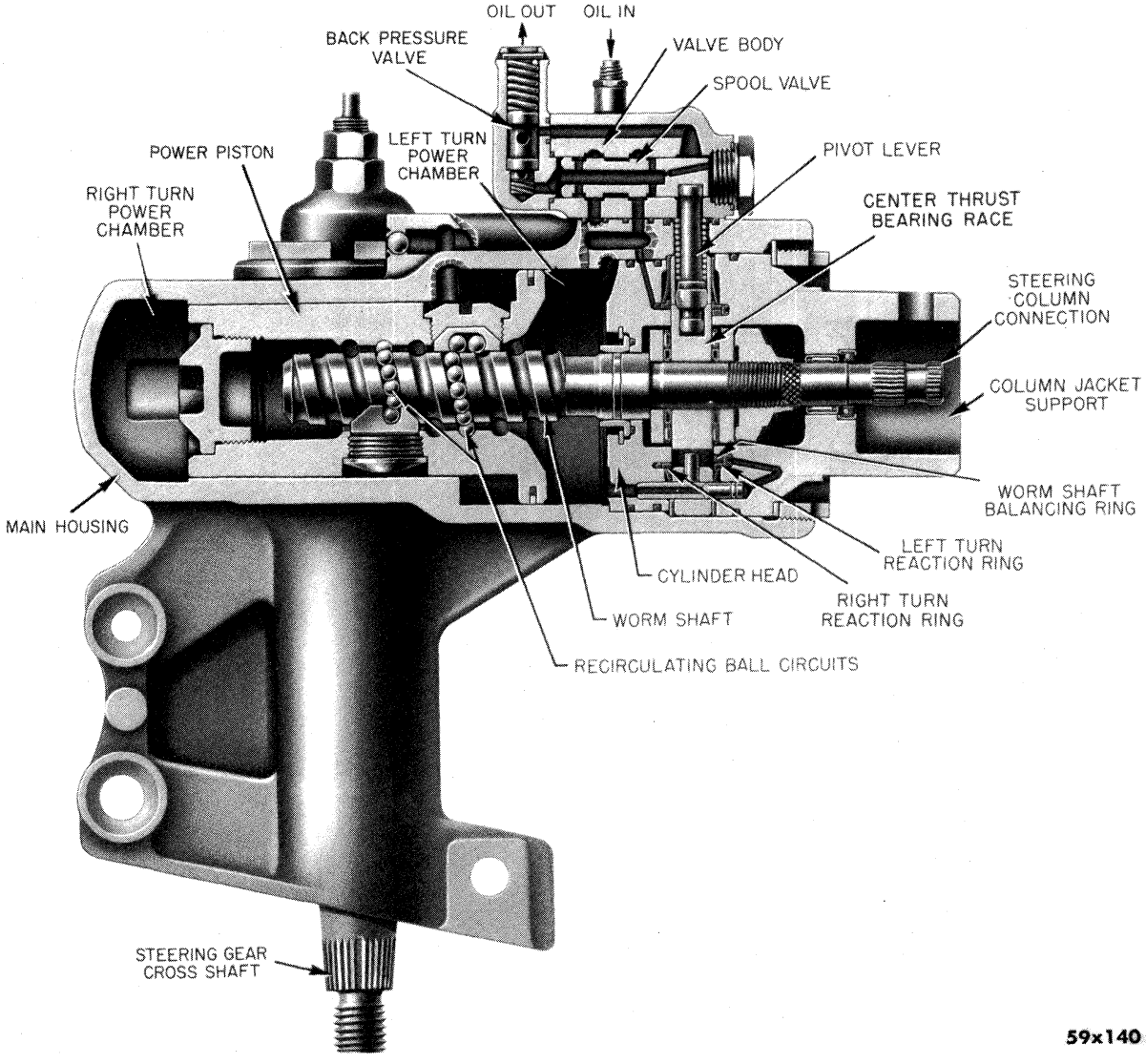


Fig. 113 — Power Steering Gear (Sectional View)

Installation of the Piston Ring:

Install the synthetic rubber "O" ring from the ring package in the piston ring groove. Install the cast iron piston ring in the ring groove. Locate the ring gap in line with the center of the recirculating ball guide hole plug nearest the piston flange. (The gap location will reduce pressure leakage to a minimum.)

Carefully hook the ends of the iron ring using Tool C-3676.

OPERATION 17—ASSEMBLY OF POWER TRAIN

Refer to Figure 30 in the Steering Section of the 1958 Chrysler and Imperial Service Manual and proceed as follows:

Place the piston assembly on the bench in a vertical position (worm shaft up).

Slide the cylinder head assembly (with ferrule up) on the worm shaft, check the worm shaft seal ring making sure the gap is closed to avoid breaking the ring as the cylinder head moves against the piston flange.

Lubricate and install the following components in order:

(a) Install the lower thrust bearing race (thick).

(b) Install the lower thrust bearing.

(c) Install the lower reaction spring (With small hole over ferrule).

(d) Install the lower reaction ring (flange up so ring protrudes through reaction spring).

(e) Install the center bearing race.

(f) Install the upper thrust bearing.

(g) Install the upper thrust bearing race (thin).

(h) Start the new worm shaft thrust bearing nut. (Do not tighten.)

Turn the worm shaft counter-clockwise one-half turn. **Caution, shaft must not be turned out more than one-half turn or the cylinder head seal will clear the oil ring on the worm shaft.** Hold the worm shaft in this position while tightening the nut to 10 foot-pounds torque.

Rotate the worm center bearing race several times to position the parts.

When installing a new nut, or reinstalling the old nut, the following procedure is recommended:

(a) Tighten the nut to 50 foot-pounds to pre-seat and stretch the threads.

(b) Loosen the nut and retighten to give a preload torque on center race of 8 to 16 inch ounces.

(c) Using a standard drift, having a flat point ¼" in diameter and with a sharp blow of a hammer, force the flanged section of the nut into the knurled section of the worm, as shown in Figure 114. The drift should be held on the centerline of the worm and perpendicular to the worm, but at a slight angle to the flange of the nut. The operation of seating the flange of the nut into the knurled section of the worm should be performed at a minimum of four locations spaced at approximately 90°. It is the first crimp that establishes the preload. It is advisable to check the 8 to 16 inch ounces preload after the first crimping operation is performed. If the preload has changed and is either too tight or too loose, it may be corrected by striking the No. 1 crimp a glancing blow in the right direction to either tighten or loosen the nut. When the center race torque is correct after the No. 1 crimp, the other 3 crimps may be completed with very little effect on the preload. The adequacy of the crimping should be checked by torquing the nut in either direction to 20 foot-pounds. If the center race torque remains unchanged, the crimping operation is considered satisfactory.

Install the center bearing spacer with the dowel pin in the slot of the center bearing race and the valve lever hole in the center bearing spacer and race aligned.

Install the inner and outer reaction rings (flange down). Install the upper reaction spring with cylinder head ferrule through the small hole and outer reaction ring protruding through the large hole.

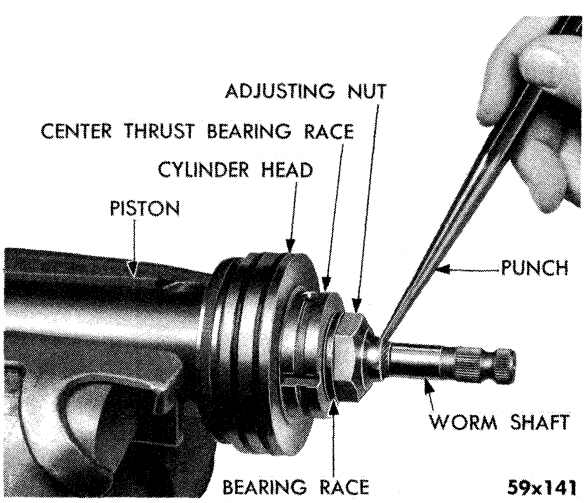


Fig. 114 — Staking Worm Shaft Bearing Adjusting Nut

Install the new "O" ring in the ferrule groove. Lubricate the small bore of the column jacket support (for cylinder head ferrule).

Install the jacket support assembly over the worm shaft carefully engaging the cylinder head ferrule and "O" ring, making sure the reaction rings enter the groove in the jacket support assembly.

Align the parts on power train so the valve lever hole in the center bearing spacer is 90° counterclockwise from the piston rack teeth and lock all parts to the worm shaft by entering a suitable drift through the jacket support and worm shaft groove.

Continue with Operation 18 — Reassembly of the Steering Gear as described in the Steering Section of the 1958 Chrysler and Imperial Service Manual, D-16350.

Section XI

TORQUEFLITE TRANSMISSION

The servicing of the 1959 TorqueFlite Transmission is the same as that of the 1958 Models as described in the 1958 Chrysler and Imperial Service Manual, with the following exceptions.

FRONT CLUTCH (8-LEVER) DISASSEMBLY (REFER TO FIG. 115)

Remove the input shaft fiber thrust washer (A). Remove snap ring (B). Remove input shaft (C) from retainer (R). Invert retainer (R), remove driving discs (D), plates (E), pressure plate (F) and hub (G).

Install spring compressor, Tool C-3533 and compress spring retainer (I). Using pliers, Tool C-3301, remove spring retainer snap ring (H).

After removing compressor, Tool C-3533, remove spring retainer (I), spring (J), levers (L), lever retainer (K), cushion spring washer (M), and cushion spring (N) from retainer (R). With a twisting motion, remove piston (Q) from retainer (R).

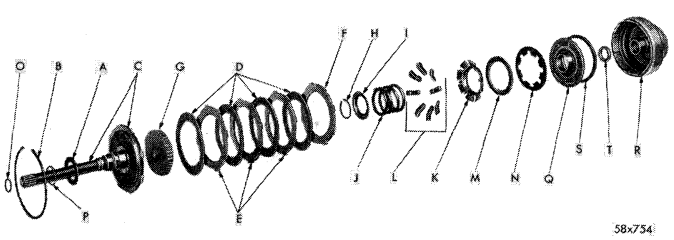


Fig. 115 — Front Clutch Assembly

1. Thrust Washer
2. Snap Ring—Large
3. Input Shaft
4. Driving Discs
5. Clutch Plates
6. Pressure Plate
7. Driving Disc Hub
8. Snap Ring—Small
9. Piston Return Spring Retainer
10. Piston Return Spring
11. Piston Lever Retainer
12. Piston Lever (8)
13. Cushion Spring Washer
14. Cushion Spring
15. Oil Seal Ring—Small
16. Oil Seal Ring—Large
17. Piston
18. Piston Retainer
19. Piston Seal Ring—Large
20. Piston Seal Ring—Small

Inspection (Fig. 115)

The inspection procedure is the same as for the 1958 model transmissions.

Assembly (Fig. 115)

Lubricate and install inner (rubber) seal ring (T) on hub of retainer (R). **Make sure lip of seal is facing rear of retainer and seal is seated in groove.**

Lubricate and install outer seal ring (S) on piston (Q) with lip of seal towards rear of piston.

Place piston assembly in retainer (R) using a twisting motion to seat piston in bottom of retainer.

Install cushion spring (N) with dished side (concave) facing piston (Q). (Fig. 116).

Place washer (M) with chamfer towards front of

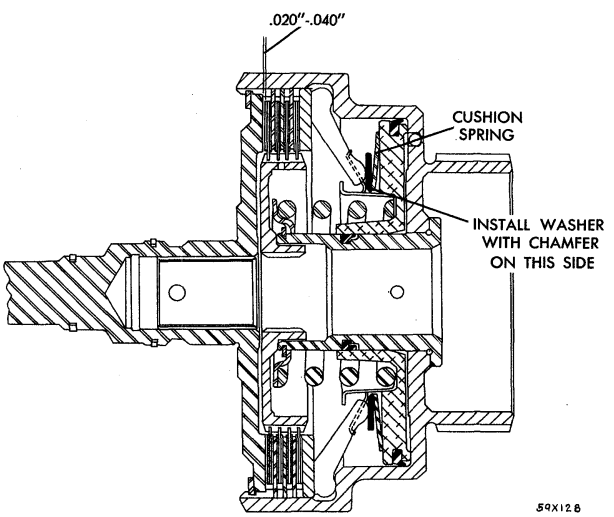


Fig. 116 — Installing Cushion Spring

Install the new "O" ring in the ferrule groove. Lubricate the small bore of the column jacket support (for cylinder head ferrule).

Install the jacket support assembly over the worm shaft carefully engaging the cylinder head ferrule and "O" ring, making sure the reaction rings enter the groove in the jacket support assembly.

Align the parts on power train so the valve lever hole in the center bearing spacer is 90° counterclockwise from the piston rack teeth and lock all parts to the worm shaft by entering a suitable drift through the jacket support and worm shaft groove.

Continue with Operation 18 — Reassembly of the Steering Gear as described in the Steering Section of the 1958 Chrysler and Imperial Service Manual, D-16350.

Section XI

TORQUEFLITE TRANSMISSION

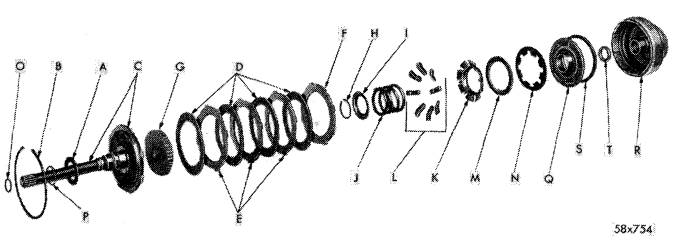
The servicing of the 1959 TorqueFlite Transmission is the same as that of the 1958 Models as described in the 1958 Chrysler and Imperial Service Manual, with the following exceptions.

FRONT CLUTCH (8-LEVER) DISASSEMBLY (REFER TO FIG. 115)

Remove the input shaft fiber thrust washer (A). Remove snap ring (B). Remove input shaft (C) from retainer (R). Invert retainer (R), remove driving discs (D), plates (E), pressure plate (F) and hub (G).

Install spring compressor, Tool C-3533 and compress spring retainer (I). Using pliers, Tool C-3301, remove spring retainer snap ring (H).

After removing compressor, Tool C-3533, remove spring retainer (I), spring (J), levers (L), lever retainer (K), cushion spring washer (M), and cushion spring (N) from retainer (R). With a twisting motion, remove piston (Q) from retainer (R).



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2. Snap Ring—Large
3. Input Shaft
4. Driving Discs
5. Clutch Plates
6. Pressure Plate
7. Driving Disc Hub
8. Snap Ring—Small
9. Piston Return Spring Retainer
10. Piston Return Spring
11. Piston Lever Retainer
12. Piston Lever (8)
13. Cushion Spring Washer
14. Cushion Spring
15. Oil Seal Ring—Small
16. Oil Seal Ring—Large
17. Piston
18. Piston Retainer
19. Piston Seal Ring—Large
20. Piston Seal Ring—Small

Inspection (Fig. 115)

The inspection procedure is the same as for the 1958 model transmissions.

Assembly (Fig. 115)

Lubricate and install inner (rubber) seal ring (T) on hub of retainer (R). **Make sure lip of seal is facing rear of retainer and seal is seated in groove.**

Lubricate and install outer seal ring (S) on piston (Q) with lip of seal towards rear of piston.

Place piston assembly in retainer (R) using a twisting motion to seat piston in bottom of retainer.

Install cushion spring (N) with dished side (concave) facing piston (Q). (Fig. 116).

Place washer (M) with chamfer towards front of

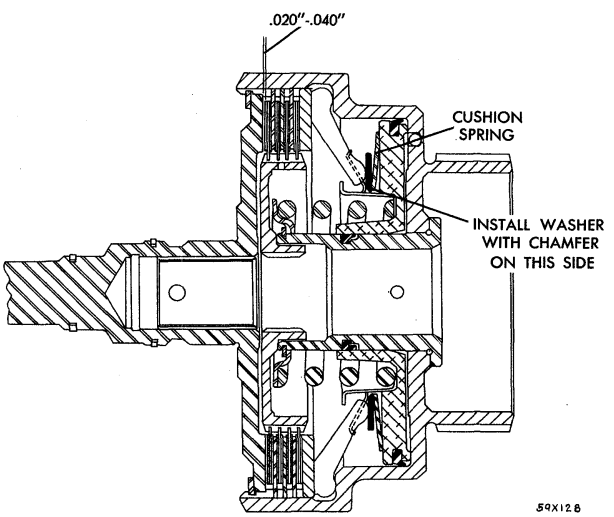

Fig. 116 — Installing Cushion Spring

retainer (R).

Place lever retainer (K) over hub of piston and install levers (L), as shown in Figures 116 and 117.

Install return spring (J) over hub of retainer (R) and position spring retainer (I) and snap ring (H) on spring (J). Using compressor, Tool C-3533, compress return spring (J) sufficiently to seat snap ring (H) with pliers, Tool C-3301. Remove compressor tool.

Install pressure plate (F) (smooth side up) in retainer (R). Install discs (D) and plates (E) by first placing one of the discs (D) in retainer (R) followed by a steel plate (E). Repeat this procedure until all discs and plates have been installed.

CHECKING CLUTCH CLEARANCE

Clutch clearance can be measured as described in the 1958 Chrysler and Imperial Service Manual.

NOTE: If Part No. 1732114 or Part No. 1824319 are not available, clearance can be adjusted by using the front clutch cushion spring retaining plate (used in four lever clutch assembly) Part No. 1736393, and following the same procedure as previously outlined for obtaining clearance with the following important exception: Inasmuch as the front clutch cushion spring retaining plate (Part No. 1736393) is thinner and considerable less rigid, care must be exercised when checking clearance with the feeler gauge to prevent springing the plate and hereby obtaining a false reading on pack clearance.

Install hub (G). Install input shaft (C) by placing input shaft and retainer assemblies in an arbor press with the rear of retainer (R) resting on a suitable support. **Make certain ball check (at rear of retainer) does not contact support during pressing operation.**

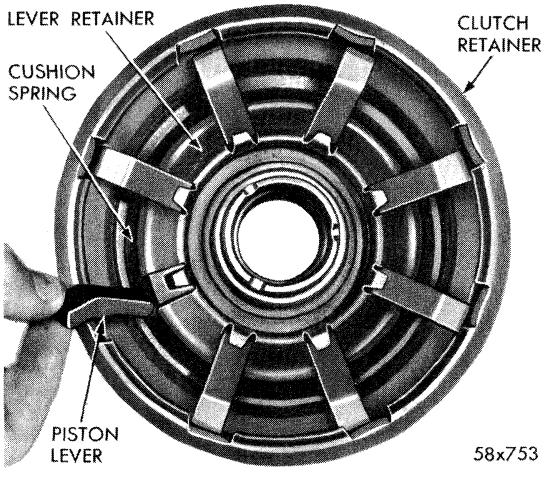

Fig. 117 — Clutch Retainer

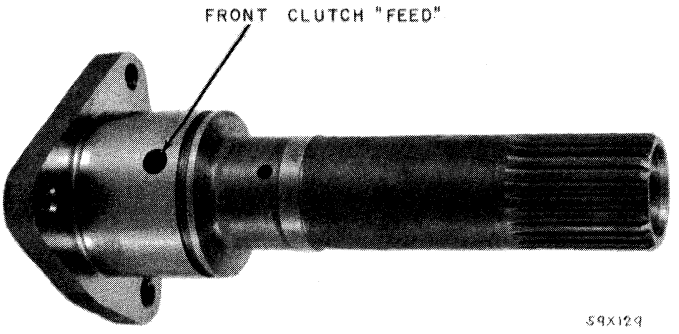

Fig. 118 — Reaction Shaft

Press input shaft (C) into retainer until snap ring (B) can be installed. Remove assembly from arbor press (or remove "C" clamps — if used) and place thrust washer (A) over input shaft (C) and against thrust surface on input shaft flange.

REACTION SHAFT (CAST IRON) (FIG. 118)

The reaction shaft, formerly made of aluminum, is now made of cast iron.

Transmissions equipped with the new reaction shaft have the letter "R" (or letters following alphabetically) on the rightside pan rail.

The cast iron reaction shaft can be used in early model transmissions provided the late production input shaft assembly is installed at the same time.

EXTENSION HOUSING (FIG. 119)

The extension housing has been redesigned to accommodate the bronze bushing, which has replaced the ball bearing, and also the smaller oil seal.

SERVICING THE OIL SEAL

The oil seal can be serviced with the transmission

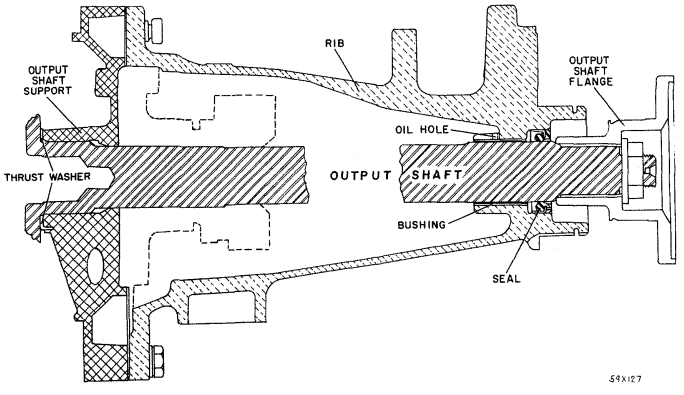

Fig. 119 — Extension Housing

installed in the vehicle.

Removal

Disconnect the front universal joint. Apply the hand brake (or use wrench, Tool C-3281) and remove the propeller shaft flange nut and flat washer. Release hand brake (or remove wrench) and install puller, Tool C-452 (if necessary). Remove the propeller shaft flange and brake drum assembly. Remove the transmission brake support grease shield spring (small one). Remove brake support grease shield from extension. **If screwdriver or sharp instrument is used in performing this operation, care must be exercised not to damage the neoprene sealing surface at bottom of shield.** Install puller, Tool C-3690, and remove the oil seal.

Installation

Using driver, Tool C-3691, install seal (metal portion of seal facing in) until driver bottoms on extension. Install brake support grease shield on extension. **Indent on grease shield must match groove in extension for correct positioning. Also, shield must be located on extension far enough to permit installation of spring.** Install brake support grease shield spring (opening in spring toward adjusting sleeve). Make sure spring is properly seated in groove. Install propeller shaft flange and drum assembly. Install propeller shaft flange, flat washer and nut. Apply hand brake (or use wrench, Tool C-3281) and torque the propeller shaft flange nut to 175 foot-pounds torque. Connect front universal joint and torque tighten the nuts from 33 to 37 foot-pounds.

EXTENSION BUSHING

Removal

Drain approximately two quarts of fluid from transmission. Disconnect front universal joint. Apply hand brake (or use wrench, Tool C-3281) and remove propeller shaft flange nut and flat washer. Release hand brake (or remove wrench, C-3281). Using puller, Tool C-452, remove the brake drum and flange assembly.

Remove the brake support grease shield spring and remove grease shield from extension housing. **If screwdriver or sharp instrument is used in performing this operation, care must be exercised not to damage the neoprene sealing surface at bottom of shield.** Install puller, Tool C-3690, and remove the oil seal.

Remove brake adjusting screw cover plate and loosen cable clamp bolt on hand brake support. Disengage the ball end of the cable from operating lever and remove cable from brake support.

Disconnect speedometer cable and housing from extension and remove speedometer drive pinion and sleeve assembly. Proceed to remove extension housing assembly from transmission case as outlined in the Chrysler and Imperial service manual. If care is exercised, it is not necessary to remove hand brake support and shoe assemblies from extension to replace the bushing or seal.

With the large diameter end of the extension housing resting on a smooth, clean surface, proceed to drive the bushing from the housing using driver, Tool C-3689.

Installation

Place a new bushing on installing Tool C-3692.

NOTE: When positioning bushings and tool on extension housing prior to the driving operation, make definitely sure that lubrication hole in bushing will index properly with lubrication hole in extension housing, when bushing has been driven into position.

Pulling the tool out of the bushing seats the bushing and removes any slight irregularities. The installed bushing should not be removed.

Using driver, Tool C-3691, install oil seal (metal portion of seal facing in) until driver bottoms on extension. Install brake support grease shield. Indent on shield must match groove in extension for correct positioning. Also, shield must be located on extension far enough to permit installation of spring. Install brake support grease shield spring (opening on spring toward adjusting sleeve).

Install the extension housing assembly as described in the 1958 Chrysler and Imperial Service Manual.

HAND BRAKE DRUM—FLANGE ASSEMBLY

The hand brake drum and flange assembly now contacts a shoulder (Fig. 119) on the output shaft instead of the race of a ball bearing. The flange assembly has been slightly modified.

This modification now provides for a straight (instead of a bevel as formerly used counterbore within the flange assembly.

OUTPUT SHAFT SUPPORT

To provide lubrication for the new tabbed thrust

washer (Fig. 119) which must be used in conjunction with the new design output shaft and extension housing, a redesigned output shaft support is also required.

The new output shaft support (Fig. 120) has redesigned webs which serve to act as locating guides for the tabs of the thrust washer.

NOTE: When installing the tabbed thrust washer, install with tabs facing output shaft support. The proper positioning of tabs, in relationship to webs, is obtained when minimum clearance exists between tabs of washer and output shaft support webs. This means that it may be necessary to rotate the washer to find the location which provides minimum tab-to-web clearance.

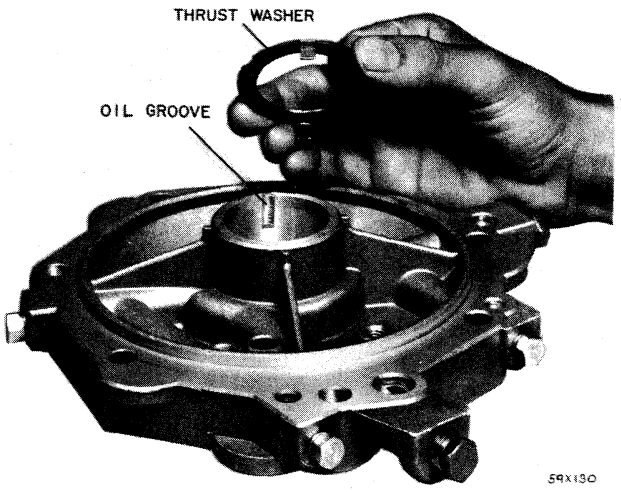

Fig. 120 — Output Shaft Support

MAINTENANCE, ADJUSTMENTS—TESTS

In investigating any transmission malfunction, first make certain that all external adjustments have been made correctly.

Check fluid level on any transmission complaint.

Erratic performance of the transmission, particularly its shifting performance, can often be traced to incorrect fluid level. Fluid level can be checked with fluid either hot or cold (oil pan is hot to touch), the engine running at normal idle speed, the transmission in neutral, and the hand brake applied. Make sure cap on dipstick is not loose. Cap acts as a stop and if loose, will give a false reading on dipstick. All five push buttons should be operated slowly, returning to the neutral button each time. The fluid level should be as follows:

(a) Transmission **hot;** engine idling in neutral. Fluid should be between the "F" and the "add 1 pint" marks. Fluid should be added or removed to bring the level between these two marks.

(b) Transmission **cold** (100°F or below) ; engine idling in neutral. Fluid should be between the "add 1 pint" and a point "½ inch" below the "add 1 pint" mark. Fluid should be added or removed to bring the level between these two positions.

CAUTION: Do not add oil unless the level is below the specified range. Only automatic transmission fluid (type A) should be used. Overfilling leads to foaming, and loss of pressure, resulting in erratic shift performance. **The addition of special compounds to transmission fluids for which improved performance, elimination of sludge, or reduction of fluid leakage may be claimed IS NOT RECOMMENDED.**

CAUTION

To prevent dirt from entering the transmission, make sure the oil level indicator cap is seated properly on the filler tube.

THROTTLE LINKAGE ADJUSTMENTS

Throttle linkage adjustment remains essentially the same as for 1958 model vehicles, with the following exception:

Placing a pin through an appropriate slot and hole (in lever and bracket) will set the correct angle of the lever for easier adjusting of the entire throttle linkage.

BAND ADJUSTMENTS

The band adjustments are performed in the same manner as described in the 1958 Chrysler and Imperial Service Manual, except the kickdown band adjusting screw is backed off 2¼ turns, and the low and reverse band adjusting screw is backed off 2⅝ turns.

UNIVERSAL JOINTS AND PROPELLER SHAFT

The universal joints and propeller shaft servicing procedure will remain the same as outlined in the 1958 Chrysler and Imperial Service Manual, D-16350.

Section XII
UNIVERSAL JOINTS AND PROPELLER SHAFTS
DATA AND SPECIFICATIONS

MODELS	MC-1, MC-2	MC-3	MY-1
Propeller Shaft			
Number used	1	1	*2
Diameter—All Cars			
With TorqueFlite Transmission	2.75 in.	2.75 in.	2.75 in.
Diameter with Air Conditioning and TorqueFlite Transmission	2.75 in.	2.75 in.	2.75 in.
Length			
Centerline to Centerline of "U Joints with TorqueFlite Trans.	58.96	58.96	63.64
Flange to Flange Length			
With TorqueFlite Transmission	60.69	60.69	63.56
Lubrication		**Prepack	
Universal Joints			
Type	(Front) Ball and Trunion (Rear) Cross Type		Cross Type (3 Joints)
Bearing			
Type		Anti-Friction Roller	

*Rear propeller shaft tube is rubber insulated.
**Every 20,000 miles.

Section XIII
WHEELS AND TIRES
DATA AND SPECIFICATIONS

MODELS	MC-1	MC-2	MC-3	MY-1
WHEELS				
Type		Steel Disc		
Rim		Drop Center—Safety Wheel		
Size	14 x 5½	14 x 6	14 x 6½	14 x 7
Flange Type	K	K	K	K
No. of Nuts to Attach Wheel	5	5	5	5
Stud Hole Circle (Diameter)	4½	4½	4½	5½
Stud Size	½ x 20	½ x 20	½ x 20	9/16 x 18
TIRES				
Type		Super Soft Cushion Tubeless		
Cord Material	Rayon	Rayon	Rayon	Rayon
Size	8.00 x 14	8.50 x 14	9.00 x 14	9.50 x 14
TIRE PRESSURE—Cold				
Pounds—Front	24	22	22	22
Rear	22	22	22	20

Section XII
UNIVERSAL JOINTS AND PROPELLER SHAFTS
DATA AND SPECIFICATIONS

MODELS	MC-1, MC-2	MC-3	MY-1
Propeller Shaft			
Number used	1	1	*2
Diameter—All Cars			
With TorqueFlite Transmission	2.75 in.	2.75 in.	2.75 in.
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Length			
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Lubrication		**Prepack	
Universal Joints			
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Bearing			
Type		Anti-Friction Roller	

*Rear propeller shaft tube is rubber insulated.
**Every 20,000 miles.

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Rim		Drop Center—Safety Wheel		
Size	14 x 5½	14 x 6	14 x 6½	14 x 7
Flange Type	K	K	K	K
No. of Nuts to Attach Wheel	5	5	5	5
Stud Hole Circle (Diameter)	4½	4½	4½	5½
Stud Size	½ x 20	½ x 20	½ x 20	9/16 x 18
TIRES				
Type		Super Soft Cushion Tubeless		
Cord Material	Rayon	Rayon	Rayon	Rayon
Size	8.00 x 14	8.50 x 14	9.00 x 14	9.50 x 14
TIRE PRESSURE—Cold				
Pounds—Front	24	22	22	22
Rear	22	22	22	20

WHEELS AND TIRES

OPTIONAL TIRE SIZES:
To provide the utmost in riding comfort through the use of the optional large size tires the following inflation pressures are recommended:

MODELS	MC-1	MC-2	MC-3	MY-1
TIRE SIZE	9.20 x 14	9.80 x 14	10.40 x 14	11.00 x 14
TIRE PRESSURE				
Front	18 psi	16 psi	16 psi	17 psi
Rear	16 psi	16 psi	16 psi	14 psi

TOWN AND COUNTRY MODELS

MODELS	Two Seat MC-1	Three Seat MC-1	Two Seat MC-3	Three Seat MC-3
WHEELS				
Type		Steel Disc		
Rim		Drop Center—Safety Wheel		
Size	14 x 6	14 x 6½	14 x 6½	14 x 6½
Flange Type	K	K	K	K
No. of Nuts to Attach Wheels	5	5	5	5
Stud Hole Circle (Dia.)	4½	4½	4½	4½
Stud Size	½ x 20	½ x 20	½ x 20	½ x 20
TIRES				
Type	Super Soft Cushion Tubeless	**Captive Air	Super Soft Cushion Tubeless	**Captive Air
Cord Material	Rayon	Nylon	Rayon	Nylon
Size	8.50 x 14	8.50 x 14	9.00 x 14	9.00 x 14
TIRES PRESSURE—Cold				
Pounds—Front	24	24	22	22
Rear	*24	*24	*22	*24

*28 pounds when carrying heavy load on rear only, on Tubeless Rayon and Captive Air Nylon Tires.
**The captive-air safety tire is used on the three seat Town and Country Models only. They are special equipment on all other cars.

All tire pressures should be adjusted while cold (at ambient temperature) before any amount of driving.

NOTE: Large size tires are not available on True-Level Torsion Aire equipped cars, convertible models, and Town and Country models.

The wheels and tires servicing procedure is the same as prescribed in the 1958 Chrysler and Imperial Service Manual, D-16350.

Section XIV

BODY AND SHEET METAL

While the sheet metal is somewhat changed due to styling changes, all servicing remains the same as outlined in the 1958 Chrysler and Imperial Service Manual, D-16350 with the exception for adjusting rear deck lid locks, sealing roof mouldings in the Chrysler Models for 1959 and the new Swivel Seats.

Section XII
UNIVERSAL JOINTS AND PROPELLER SHAFTS
DATA AND SPECIFICATIONS

MODELS	MC-1, MC-2	MC-3	MY-1
Propeller Shaft			
Number used	1	1	*2
Diameter—All Cars			
With TorqueFlite Transmission	2.75 in.	2.75 in.	2.75 in.
Diameter with Air Conditioning and TorqueFlite Transmission	2.75 in.	2.75 in.	2.75 in.
Length			
Centerline to Centerline of "U Joints with TorqueFlite Trans.	58.96	58.96	63.64
Flange to Flange Length			
With TorqueFlite Transmission	60.69	60.69	63.56
Lubrication		**Prepack	
Universal Joints			
Type	(Front) Ball and Trunion (Rear) Cross Type		Cross Type (3 Joints)
Bearing			
Type		Anti-Friction Roller	

*Rear propeller shaft tube is rubber insulated.
**Every 20,000 miles.

Section XIII
WHEELS AND TIRES
DATA AND SPECIFICATIONS

MODELS	MC-1	MC-2	MC-3	MY-1
WHEELS				
Type		Steel Disc		
Rim		Drop Center—Safety Wheel		
Size	14 x 5½	14 x 6	14 x 6½	14 x 7
Flange Type	K	K	K	K
No. of Nuts to Attach Wheel	5	5	5	5
Stud Hole Circle (Diameter)	4½	4½	4½	5½
Stud Size	½ x 20	½ x 20	½ x 20	9/16 x 18
TIRES				
Type		Super Soft Cushion Tubeless		
Cord Material	Rayon	Rayon	Rayon	Rayon
Size	8.00 x 14	8.50 x 14	9.00 x 14	9.50 x 14
TIRE PRESSURE—Cold				
Pounds—Front	24	22	22	22
Rear	22	22	22	20

WHEELS AND TIRES

OPTIONAL TIRE SIZES:
To provide the utmost in riding comfort through the use of the optional large size tires the following inflation pressures are recommended:

MODELS	MC-1	MC-2	MC-3	MY-1
TIRE SIZE	9.20 x 14	9.80 x 14	10.40 x 14	11.00 x 14
TIRE PRESSURE				
Front	18 psi	16 psi	16 psi	17 psi
Rear	16 psi	16 psi	16 psi	14 psi

TOWN AND COUNTRY MODELS

MODELS	Two Seat MC-1	Three Seat MC-1	Two Seat MC-3	Three Seat MC-3
WHEELS				
Type		Steel Disc		
Rim		Drop Center—Safety Wheel		
Size	14 x 6	14 x 6½	14 x 6½	14 x 6½
Flange Type	K	K	K	K
No. of Nuts to Attach Wheels	5	5	5	5
Stud Hole Circle (Dia.)	4½	4½	4½	4½
Stud Size	½ x 20	½ x 20	½ x 20	½ x 20
TIRES				
Type	Super Soft Cushion Tubeless	**Captive Air	Super Soft Cushion Tubeless	**Captive Air
Cord Material	Rayon	Nylon	Rayon	Nylon
Size	8.50 x 14	8.50 x 14	9.00 x 14	9.00 x 14
TIRES PRESSURE—Cold				
Pounds—Front	24	24	22	22
Rear	*24	*24	*22	*24

*28 pounds when carrying heavy load on rear only, on Tubeless Rayon and Captive Air Nylon Tires.
**The captive-air safety tire is used on the three seat Town and Country Models only. They are special equipment on all other cars.

All tire pressures should be adjusted while cold (at ambient temperature) before any amount of driving.

NOTE: Large size tires are not available on True-Level Torsion Aire equipped cars, convertible models, and Town and Country models.

The wheels and tires servicing procedure is the same as prescribed in the 1958 Chrysler and Imperial Service Manual, D-16350.

Section XIV

BODY AND SHEET METAL

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WHEELS AND TIRES

OPTIONAL TIRE SIZES:
To provide the utmost in riding comfort through the use of the optional large size tires the following inflation pressures are recommended:

MODELS	MC-1	MC-2	MC-3	MY-1
TIRE SIZE	9.20 x 14	9.80 x 14	10.40 x 14	11.00 x 14
TIRE PRESSURE				
Front	18 psi	16 psi	16 psi	17 psi
Rear	16 psi	16 psi	16 psi	14 psi

TOWN AND COUNTRY MODELS

MODELS	Two Seat MC-1	Three Seat MC-1	Two Seat MC-3	Three Seat MC-3
WHEELS				
Type		Steel Disc		
Rim		Drop Center—Safety Wheel		
Size	14 x 6	14 x 6½	14 x 6½	14 x 6½
Flange Type	K	K	K	K
No. of Nuts to Attach Wheels	5	5	5	5
Stud Hole Circle (Dia.)	4½	4½	4½	4½
Stud Size	½ x 20	½ x 20	½ x 20	½ x 20
TIRES				
Type	Super Soft Cushion Tubeless	**Captive Air	Super Soft Cushion Tubeless	**Captive Air
Cord Material	Rayon	Nylon	Rayon	Nylon
Size	8.50 x 14	8.50 x 14	9.00 x 14	9.00 x 14
TIRES PRESSURE—Cold				
Pounds—Front	24	24	22	22
Rear	*24	*24	*22	*24

*28 pounds when carrying heavy load on rear only, on Tubeless Rayon and Captive Air Nylon Tires.
**The captive-air safety tire is used on the three seat Town and Country Models only. They are special equipment on all other cars.

All tire pressures should be adjusted while cold (at ambient temperature) before any amount of driving.

NOTE: Large size tires are not available on True-Level Torsion Aire equipped cars, convertible models, and Town and Country models.

The wheels and tires servicing procedure is the same as prescribed in the 1958 Chrysler and Imperial Service Manual, D-16350.

Section XIV

BODY AND SHEET METAL

While the sheet metal is somewhat changed due to styling changes, all servicing remains the same as outlined in the 1958 Chrysler and Imperial Service Manual, D-16350 with the exception for adjusting rear deck lid locks, sealing roof mouldings in the Chrysler Models for 1959 and the new Swivel Seats.

Adjusting the Deck Lid Striker Plate (Fig. 121)

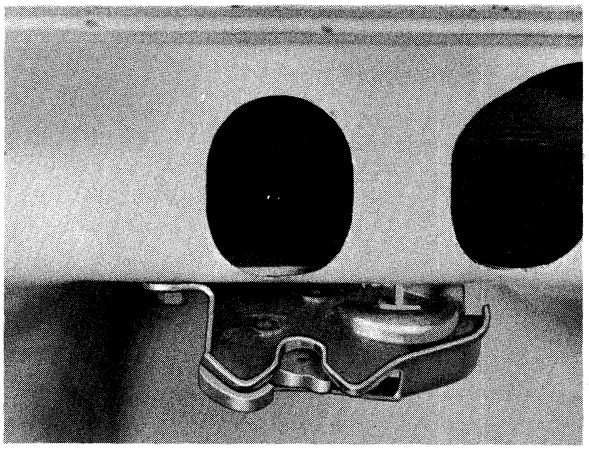
Loosen the striker plate mounting screws and move the striker plate either left or right until the locking bar is positioned under the latch rotor. Tighten the mounting screws securely.

Adjusting the Deck Lid Latch

With the striker plate correctly positioned, loosen the latch mounting screws and move the latch either upward or downward to obtain a firm locking of the deck lid. Tighten the mounting screws securely.

SEALING ROOF MOULDINGS

Should it ever be necessary to reseal the roof moulding retainers on the 1959 Chrysler Models, they can be sealed by snapping off the roof moulding and sealing around each retainer with a liquid sealer or mastic. Use white mastic for light colored roofs and black mastic for dark colored roofs.



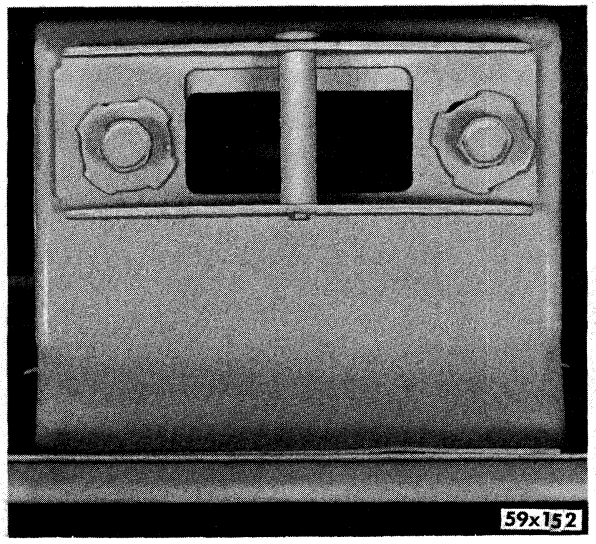


Fig. 121 — Rear Deck Lid Latch and Striker Plate

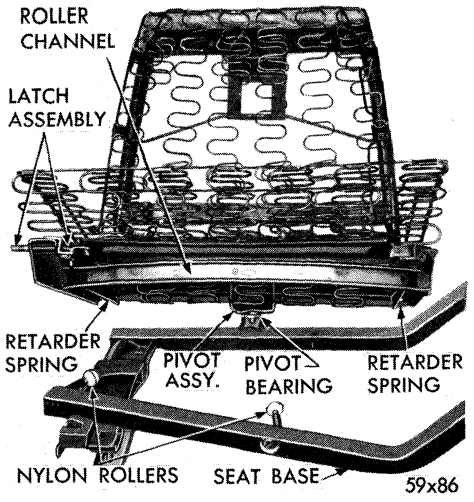


Fig. 122 — Removing Swivel Seat Assembly

SWIVEL SEAT ASSEMBLY

The swivel seat is offered on some models as optional equipment. The swivel seat assembly operates on a swivel bolt assembly located at the center rear portion of the seat frame. A curved channel located on the front portion of the seat rides on two nylon rollers to insure a smooth, easy turning of the seat.

OPERATION

The latch for releasing the seat or for holding it in the straight ahead position is located on the side of the seat assembly, next to the door. To release the latch, turn the handle up.

SEAT ASSEMBLY (FIG. 122)

a. Removal

Remove the nut securing the swivel seat pivot assembly to the seat base. Release the seat latch assembly and swing seat outward. Raise the pivot out of the seat base and pull the seat straight back to remove the channel from the nylon rollers. Disconnect the anti-rattle spring from the seat frame. Remove the seat assembly.

b. Installation

Position the swivel channel on the nylon rollers and insert the pivot assembly in its mounting hole in the seat base. Install the pivot retaining nut and tighten securely. Connect the anti-rattle spring to the seat frame. Check the operation of the seat for smoothness.

SEAT BACK

a. Removal

Remove the pivot seat assembly. Remove the retard-

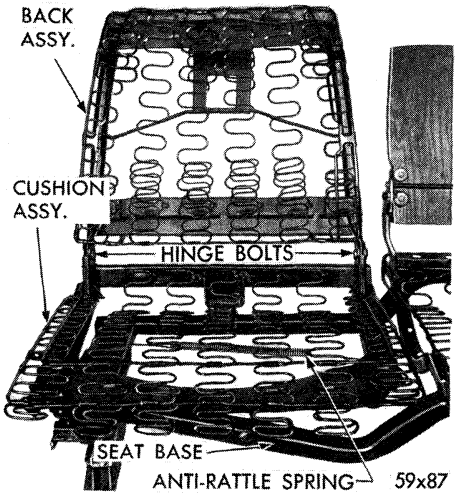


Fig. 123—Swivel Seat Installed

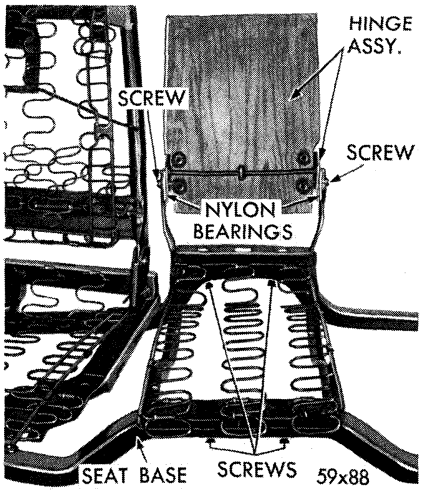


Fig. 124 — Swivel Seat Arm Rest Assembly

er springs from the bottom of the seat assembly. Remove the two hinge bolts, Figure 123, and lift the seat back assembly straight up to remove.

b. Installation

Insert the seat back support arms in the seat base assembly and insert the hinge bolts. Install the retarder springs. Install the seat back and cushion assembly.

NYLON ROLLERS (FIG. 122)

a. Removal

Remove the seat assembly. Slide the rollers off their mountings and check for excessive wear or flat spots.

b. Installation

Lubricate the surfaces of the nylon roller mountings with Lubriplate. Insert the nylon rollers on their mountings. Install the seat assembly, and check operation of the seat.

PIVOT NYLON BEARING REPLACEMENT (FIG. 122)

When replacing the nylon bearing on the pivot assembly, it is necessary to remove the seat assembly.

ANTI-RATTLE SPRING REPLACEMENT (FIG. 123)

To replace the anti-rattle spring, it is necessary to remove the swivel seat assembly.

SEAT BACK RETARDER SPRING REPLACEMENT

Remove the pivot seat assembly and invert seat. Remove the screws, Figure 122, holding the retarder springs in place. The screws are located on the bottom of the seat frame and under the seat back hinges. Remove the retarder springs.

ARM REST HINGE ASSEMBLY (FIG. 124)

a. Removal

Remove the allen head pivot screws. Lift the hinge assembly straight up to remove. Remove the nylon bearings from the hinge rod.

b. Installation

Position the nylon bearings on the hinge rod. Place the hinge in position and install the allen screws. Check the hinge operation.

ARM REST ASSEMBLY (FIG. 124)

a. Removal

Swing the swivel seats to the outward position. From the back portions of the seat frame assembly, remove the four phillips head screws attaching the arm rest to the seat frame assembly.

b. Installation

Position the arm rest assembly on the seat base assembly and install the four phillips head screws. Turn the swivel seats to the straight ahead position.

SERVICE DIAGNOSIS

SEAT DOES NOT SWIVEL

a. Pivot assembly broken.
b. Obstruction in the roller channel.
c. Worn nylon rollers

SEAT SWIVELS HARD

a. Broken pivot nylon bearing.
b. Worn nylon rollers.
c. Nylon rollers binding on mountings.

Section XV
LUBRICATION

The lubrication procedure for the 1959 Chrysler and Imperial Models is the same as the 1958 Models except that the engine crankcase capacities are five quarts for refill on all Models. Add an additional quart when the oil filter element is changed. The oil level indicator is located on the left side of the engine.

MANIFOLD HEAT CONTROL VALVE

Every 1000 miles or 30 days whichever occurs first, apply Mopar Manifold Heat Control Valve Solvent Part No. 1879318 to shaft and bushings and allow to stand several minutes, working shaft from closed to open position several times until shaft can be turned very easily with fingers.

TorqueFlite Transmission

Use Automatic Transmission Fluid, Type "A". To drain, remove the filler tube connector at the oil pan. Pull back on tube to drain. Retighten connector when drained. Remove access plate from bottom of housing and rotate torque converter until drain plug is accessible. Remove the plug and drain the fluid. Install drain plug and tighten. Install access plate on housing and tighten screws. To refill, apply parking brake. Add 5 quarts of Automatic Transmission Fluid, Type "A" through transmission oil pan filler tube. Start engine and add approximately 3 more quarts while engine is running. Allow engine to idle for 2 minutes. Operate the TorqueFlite Transmission drive selector push buttons through all speed ranges and push in the Neutral (N) push button. Add sufficient fluid to bring fluid level to a level between the "add 1 pint" mark and a point "½ inch" below the "add 1 pint" mark on transmission dipstick.

Certain types of service subject the fluids to more severe operating conditions. Therefore, it is recommended that the change interval for transmissions subjected to these conditions be reduced to 10,000 miles.

It is recommended that the TorqueFlite transmission and torque converter be drained and refilled with Type A MoPar Automatic Transmission Fluid at 10,000 miles if the vehicle usage includes the following types of driving:

Police car or Turnpike Patrol car

Frequent towing of trailers

Frequent heavy traffic operation in hot weather

Airport transportation

Continuous operation at higher than normal loading

Continuous operation in mountainous areas.

CAUTION

To prevent dirt from entering transmission, make sure dipstick is properly seated in filler tube.

Special Low Temperature Recommendation

If difficult starting is encountered when average temperatures consistently range below 10°F, replace one (1) quart of fluid with refined kerosene. This service should be performed only once during low-temperature season. Thereafter, necessary replenishment of TorqueFlite should be Automatic Transmission Fluid Type A.

NOTE: The factory does not recommend the addition of any fluid materials to the transmission other than Automatic Transmission Fluid Type "A".

Type "A" Transmission Oil is specifically designed for use in automatic transmissions and therefore, has sufficient cleaning, lubricating and cooling qualities to render the need for additional special additive compounds unnecessary.

Section XVI
RADIO AND HEATER

RADIO

Three new radios are used on the 1959 Chrysler and Imperial Models, Model 928 (Fig. 125), 929 (Fig. 126) and 858 (Fig. 127). The servicing procedures are changed as follows:

Section XV
LUBRICATION

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TorqueFlite Transmission

Use Automatic Transmission Fluid, Type "A". To drain, remove the filler tube connector at the oil pan. Pull back on tube to drain. Retighten connector when drained. Remove access plate from bottom of housing and rotate torque converter until drain plug is accessible. Remove the plug and drain the fluid. Install drain plug and tighten. Install access plate on housing and tighten screws. To refill, apply parking brake. Add 5 quarts of Automatic Transmission Fluid, Type "A" through transmission oil pan filler tube. Start engine and add approximately 3 more quarts while engine is running. Allow engine to idle for 2 minutes. Operate the TorqueFlite Transmission drive selector push buttons through all speed ranges and push in the Neutral (N) push button. Add sufficient fluid to bring fluid level to a level between the "add 1 pint" mark and a point "½ inch" below the "add 1 pint" mark on transmission dipstick.

Certain types of service subject the fluids to more severe operating conditions. Therefore, it is recommended that the change interval for transmissions subjected to these conditions be reduced to 10,000 miles.

It is recommended that the TorqueFlite transmission and torque converter be drained and refilled with Type A MoPar Automatic Transmission Fluid at 10,000 miles if the vehicle usage includes the following types of driving:

Police car or Turnpike Patrol car

Frequent towing of trailers

Frequent heavy traffic operation in hot weather

Airport transportation

Continuous operation at higher than normal loading

Continuous operation in mountainous areas.

CAUTION

To prevent dirt from entering transmission, make sure dipstick is properly seated in filler tube.

Special Low Temperature Recommendation

If difficult starting is encountered when average temperatures consistently range below 10°F, replace one (1) quart of fluid with refined kerosene. This service should be performed only once during low-temperature season. Thereafter, necessary replenishment of TorqueFlite should be Automatic Transmission Fluid Type A.

NOTE: The factory does not recommend the addition of any fluid materials to the transmission other than Automatic Transmission Fluid Type "A".

Type "A" Transmission Oil is specifically designed for use in automatic transmissions and therefore, has sufficient cleaning, lubricating and cooling qualities to render the need for additional special additive compounds unnecessary.

Section XVI
RADIO AND HEATER

RADIO

Three new radios are used on the 1959 Chrysler and Imperial Models, Model 928 (Fig. 125), 929 (Fig. 126) and 858 (Fig. 127). The servicing procedures are changed as follows:

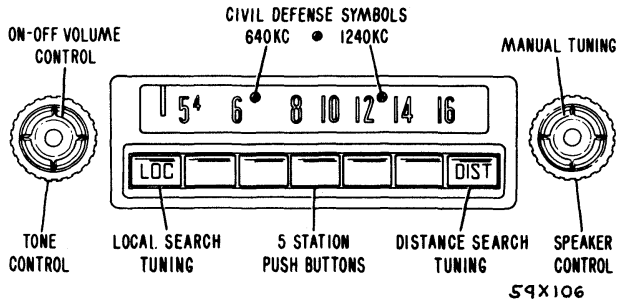


Fig. 125 — Operating Controls (Model 928)

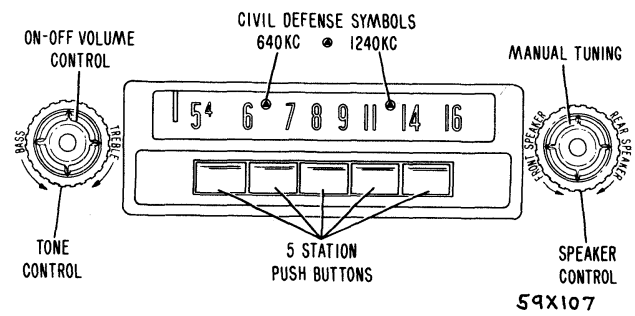


Fig. 127 — Operating Controls (Model 858)

REMOVAL—Models MC-1, 2 and 3

Remove the vent deflector at heater housing. Disconnect antenna, rear seat speaker plug, "A" lead to the radio terminal of fuse block, and dial lamp lead to the orange wire at harness. Remove the clutch nut, screw and washer from radio support bracket Figs. 128, 129, 130). Remove the control knobs. Remove the two nuts that attach radio to panel and remove the radio and mounting bracket from under neath the instrument panel. Remove the speaker from grille. Remove the grille if necessary.

CAUTION

Do not operate the radio with speaker detached, since damage to the transistor will result. If the rear seat speaker is disconnected from the radio, insert a jumper wire in rear seat speaker, socket or the receiver will not operate.

INSTALLATION

Install the speaker and grille if removed. Enter the radio from underneath instrument panel and install the spacers and the two control shaft mounting nuts. Install bracket support screw, washer and clutch nut. Connect the antenna, rear seat speaker plug, "A" lead to radio terminal of the fuse block and dial lamp lead wire to the harness connector. Install the radio control knobs. Install the vent deflector at heater housing.

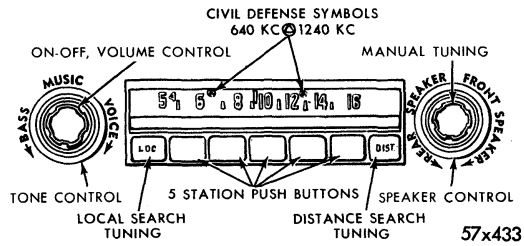


Fig. 126 — Operating Controls (Model 929)

CAUTION

The antenna compensator must be properly adjusted for satisfactory operation of radio.

REMOVAL—Model MY-1

Disconnect the antenna, and the dial lamp lead from the orange lead of harness. Disconnect the two wire lead from speaker. Disconnect the "A" lead from radio terminal at fuse block. Remove the rear seat speaker wire plug. Remove mounting nut from the lower instrument panel to bracket on the radio. Remove the radio control knobs. Remove the radio from underneath instrument panel. Remove the speaker assembly.

INSTALLATION—Model MY-1

Install the speaker grille and speaker. Mount the radio to panel. Install control knobs. Attach the radio mounting bracket and nut to panel.

Connect the "A" lead to accessory terminal on the temperature gauge. Connect the rear seat speaker wire plug. Connect dial lamp lead to orange wire at the harness. Plug in the antenna lead.

INTERFERENCE

Install the suppression equipment for the elimination of interference and tire static.

CAUTION

The antenna compensator must be properly adjusted for satisfactory operation of radio.

ANTENNA COMPENSATOR ADJUSTMENT (FIG. 131)

The antenna compensator is provided for aligning the receiver to the particular antenna on the car. This adjustment must always be made after the installation of receiver and antenna, or after any repairs to these units. The adjustment should also be

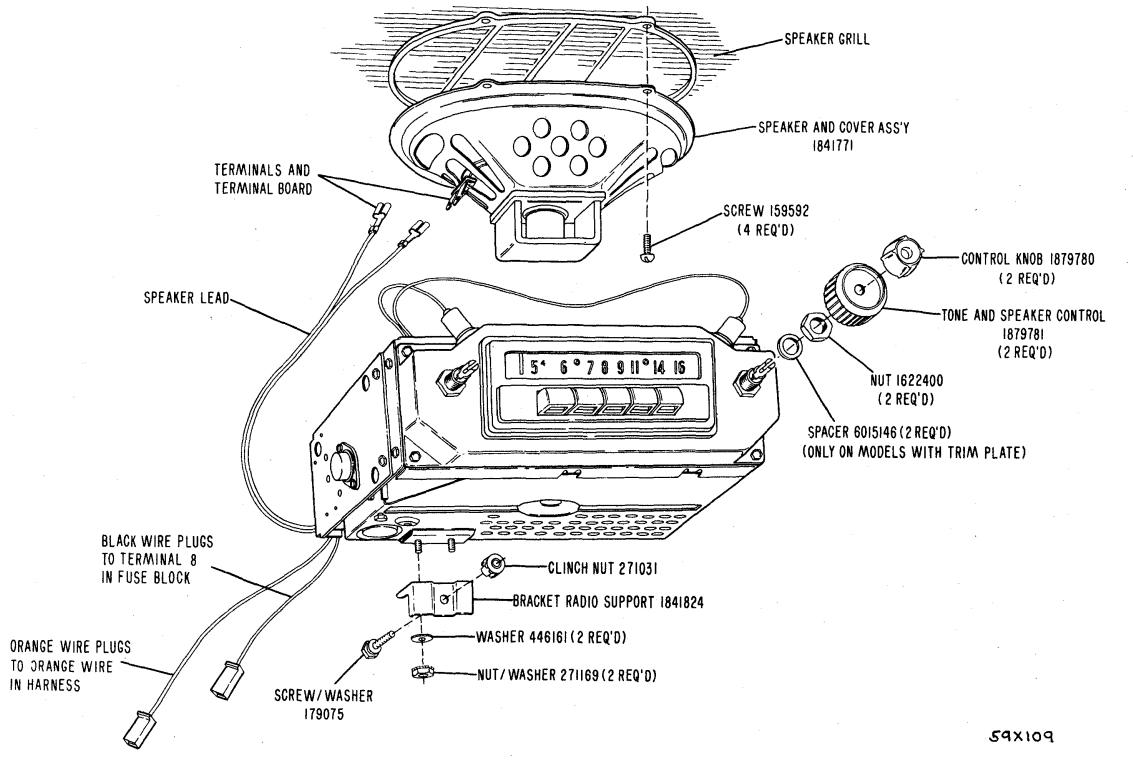


Fig. 128 — Radio (Model 858)

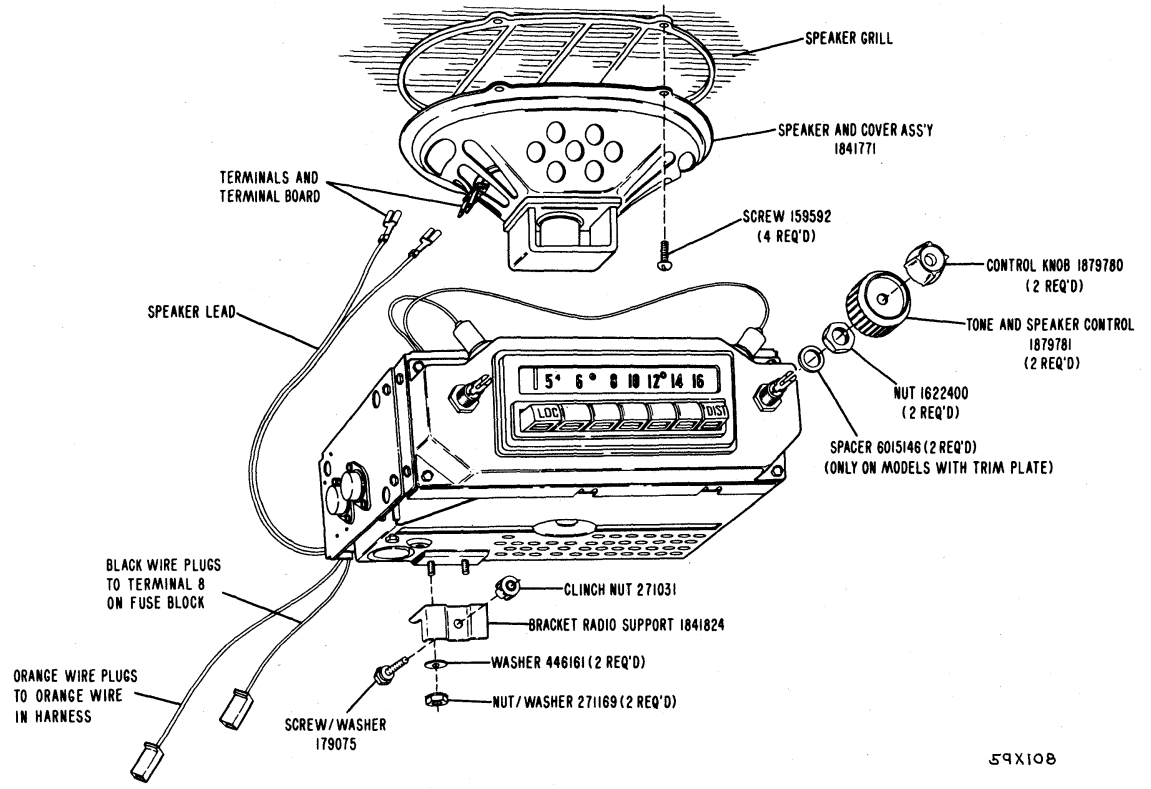


Fig. 129 — Radio (Model 928)

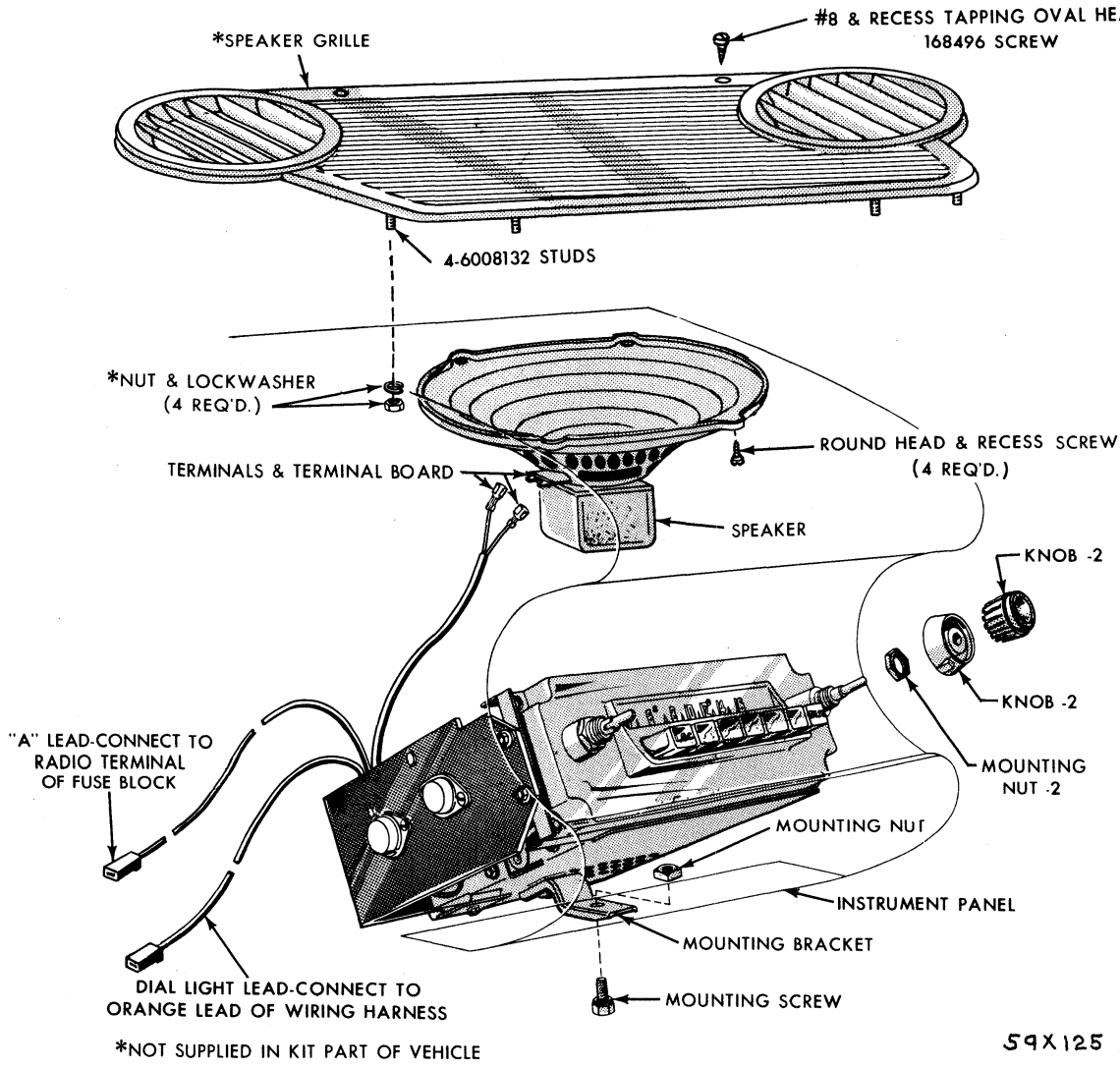


Fig. 130 — Radio (Model 929)

checked whenever the radio reception is unsatisfactory.

(a) Raise the antenna to maximum height.

(b) Turn radio to a station between 1400 and 1600 kc that can barely be heard with the volume turned on full.

(c) Adjust the antenna compensator (located on the rear of receiver chassis) by carefully rotating it back and forth until a position is found that gives peak response and maximum volume. Unless the receiver is properly aligned to the antenna, best performance cannot be obtained. This is particularly true in the case of the touch-tuner where the signal strength materially affects the overall efficiency of the radio receiver.

FADER CONTROL PERFORMANCE

This control is used only when car is equipped with a rear seat speaker. Full "counter-clockwise" posi-

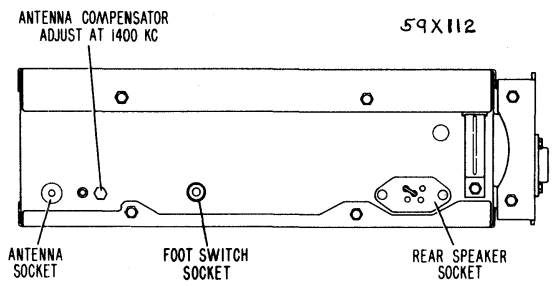
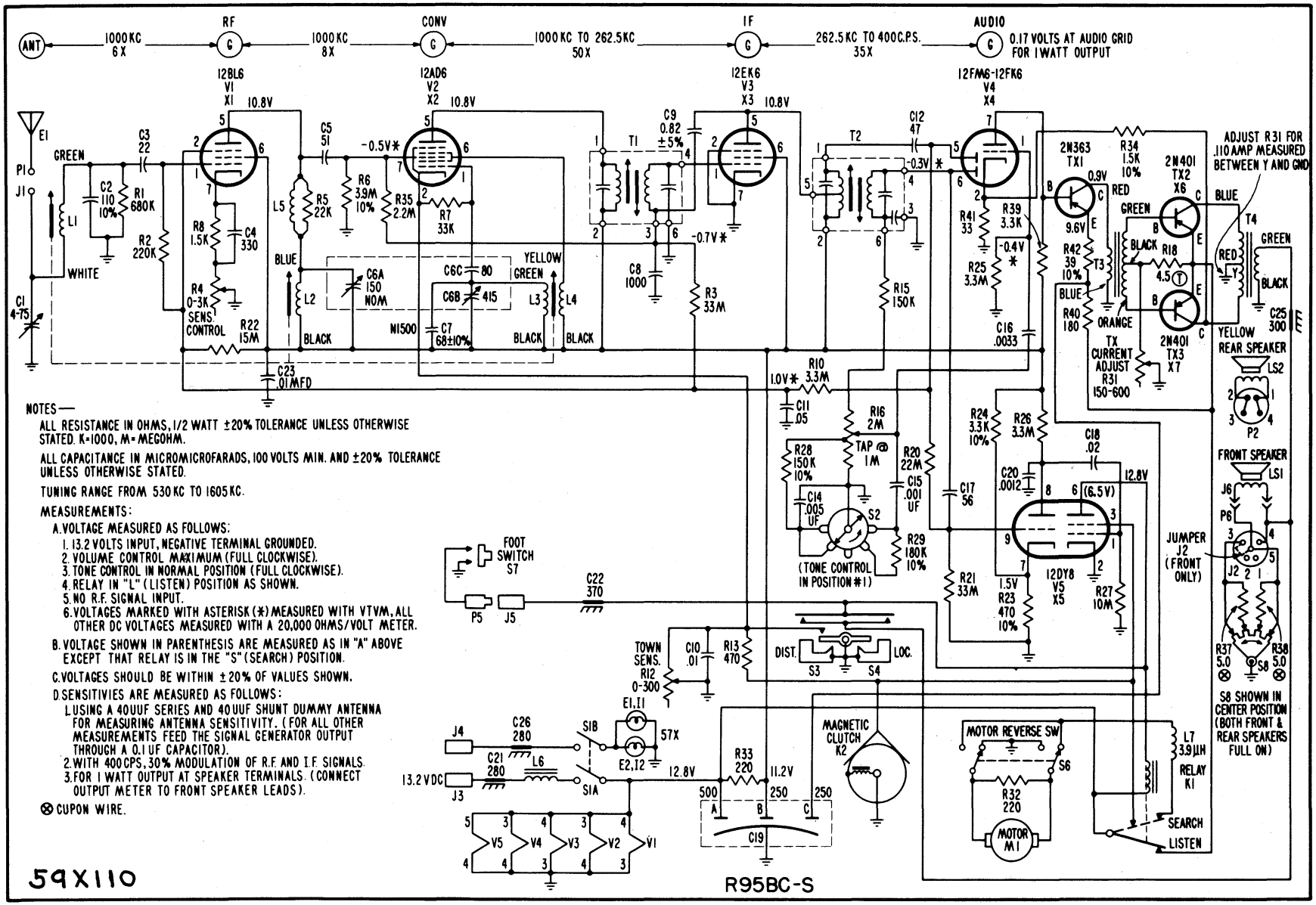


Fig. 131 — Antenna Compensator Adjustment (Model 928)



Model 132 — Wiring Diagram (Model 928)
(Schematic)

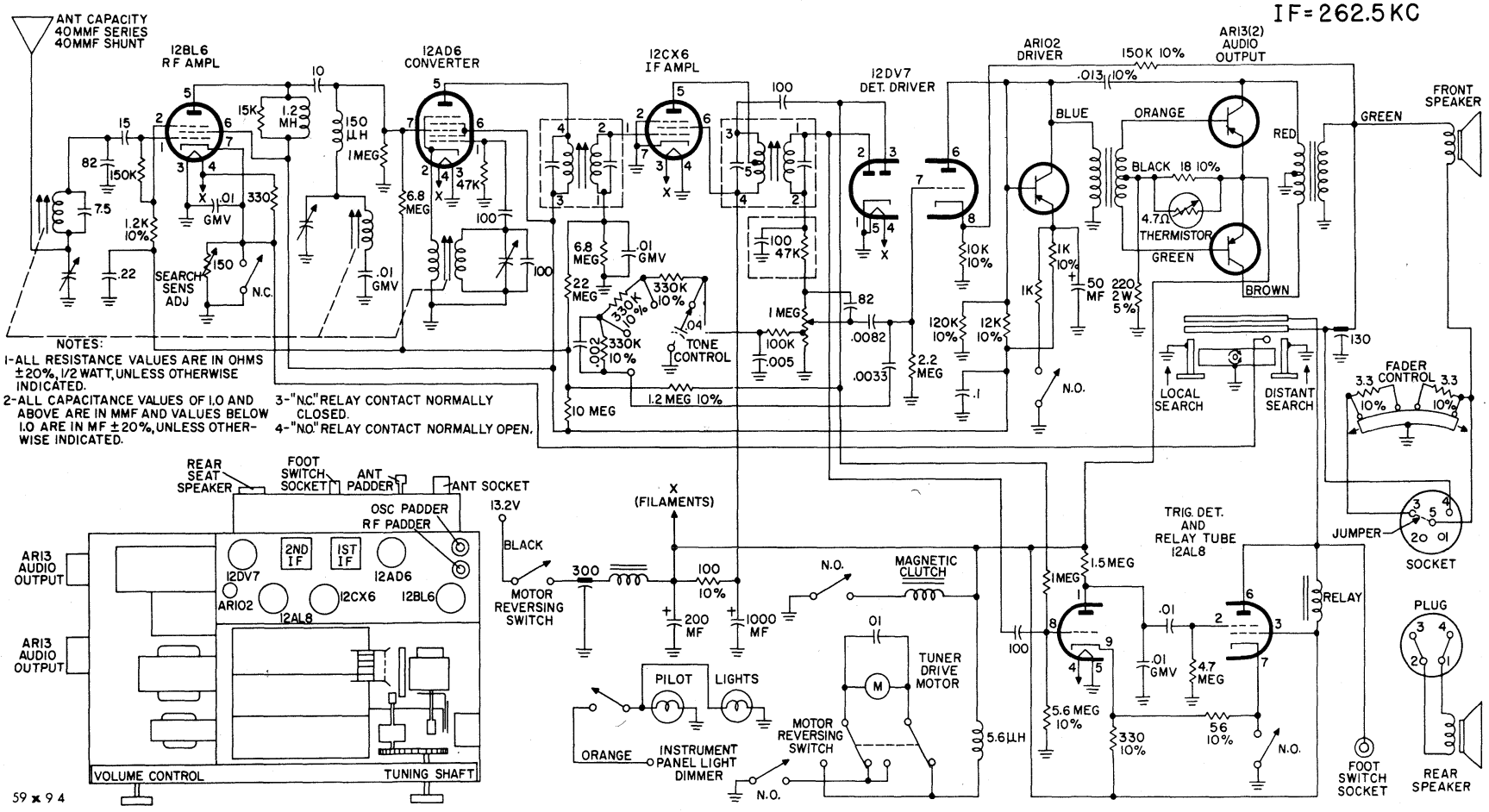


Fig. 133 — Wiring Diagram (Model 929)
(Schematic)

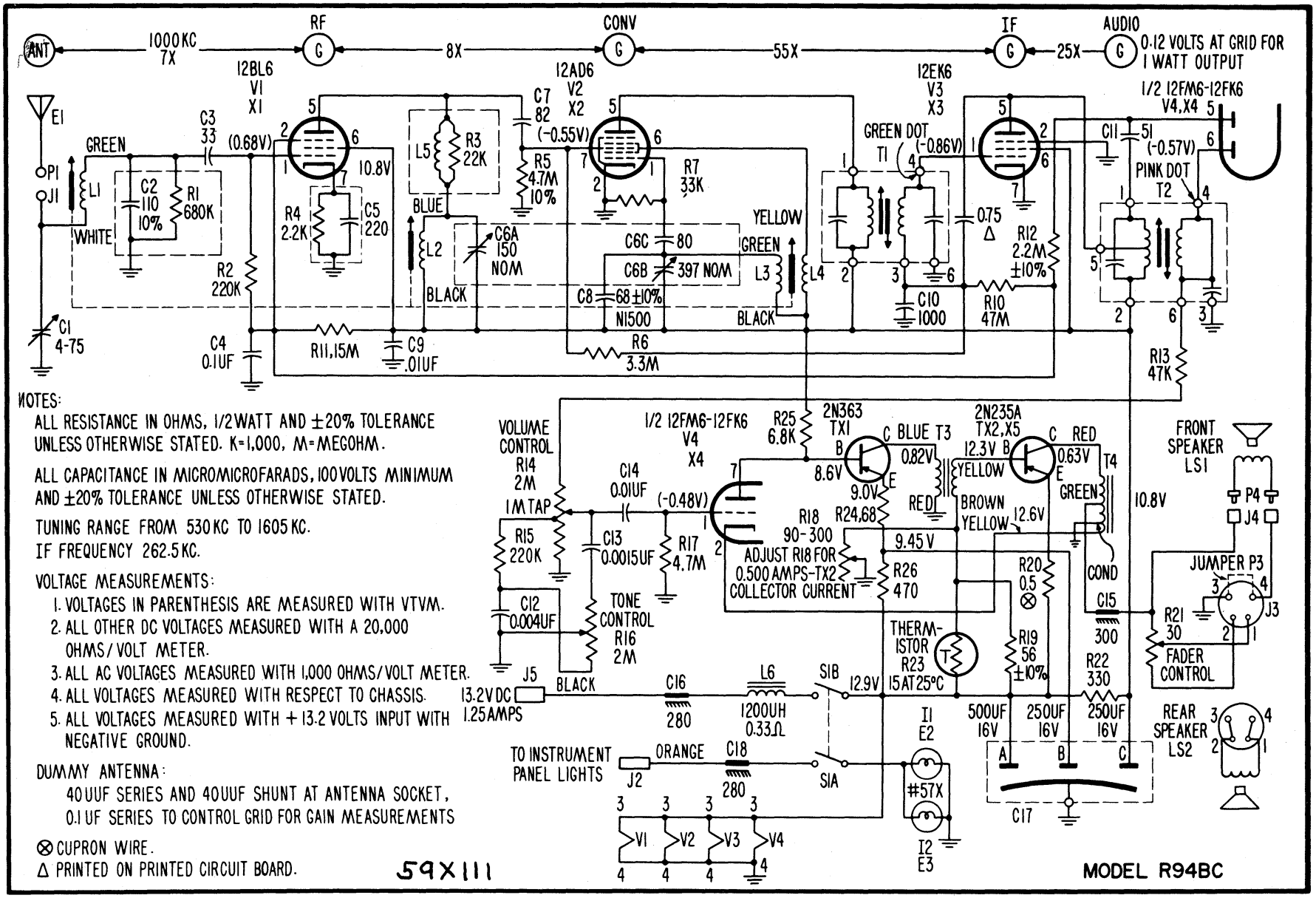


Fig. 134 — Wiring Diagram (Model 858)
(Schematic)

tion allows operation of front speaker. Full "clockwise" position allows operation of the rear seat speaker. Rotation between either extreme position will allow both speakers to operate with varying volume as desired, or with equal volume at mid-position.

PUSH BUTTON ADJUSTMENT—Radio Models 928, 929 and 858

Extend the antenna fully and turn radio on for fifteen minutes. Unlock the push buttons by pulling them out. Manually turn in desired station and relock the push button. Repeat the operation on other push buttons.

LOCAL AND DISTANT PUSH BUTTONS

Local push button will tune only the strong signal stations. Distant push button will tune all the stations within range of the radio.

NOTE: Do not set end push buttons.

In order to obtain the best performance from search tuning, the antenna should be fully extended.

FOOT SWITCH SEARCH TUNER

The foot switch search tuner, on Models 928 and 929, is located on the left forward end of the floor panel. By depressing the foot switch, it will select a station on the radio.

The foot switch activates the touch-tuner mechanism in the same manner as the search-tuning buttons (LOC and DIST) except that the search sensitivity of the touch-tuner buttons was last depressed. Therefore, the foot switch will cause the search-tuner to operate at a sensitivity determined by which of the two search-tuning buttons last depressed.

See Figures 132, 133, 134 for Radio Wiring.

HOT WATER HEATER

An entirely new hot water heating system is used on the 1959 Models. Heating, defrosting and ventilating are controlled by five push-buttons and a temperature control lever (Fig. 135).

Temperature Control Lever—Selects the temperature of the air discharged through the lower and upper outlets. When the lever is to the left, air is not being heated. Air temperature is increased by moving the lever toward "WARM" position. Pushing "in" on the "Control Lever" will make the blower operate at low speed, and pulling "out" on the lever will make the blower operate at full speed, provided the "off" button is not pushed in.

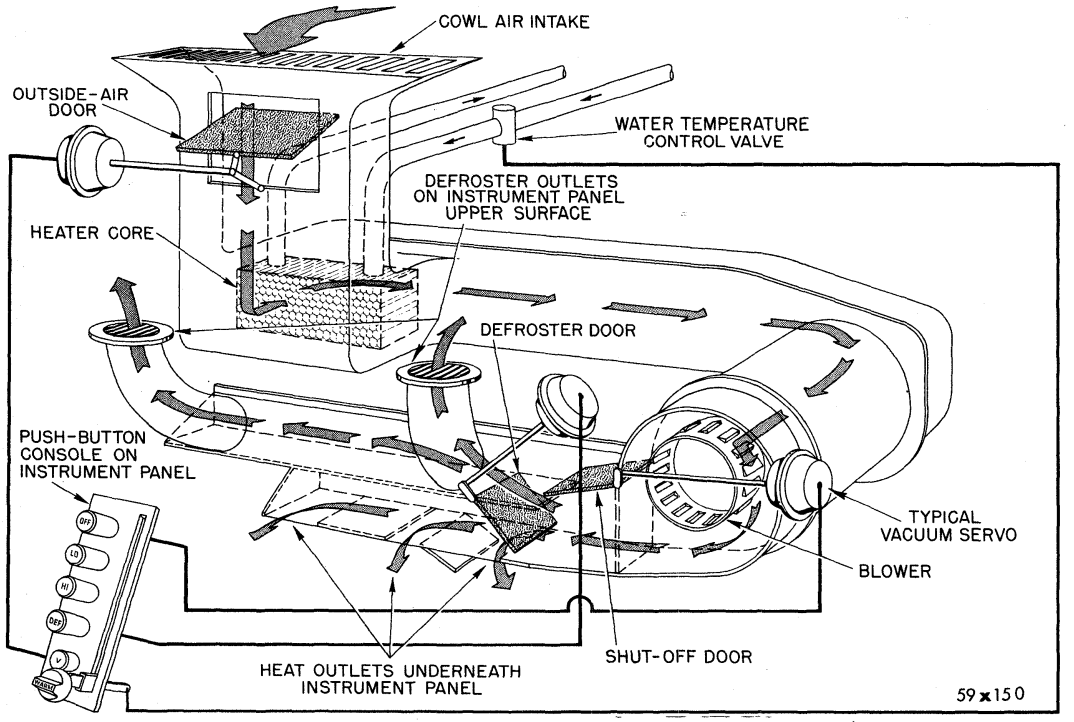


Fig. 135 — Push-Button Operated Heater (Schematic)

OFF Button—When the "OFF" button is pushed in, the system will not operate. The "OFF" button cuts off the current from the control lever switch and blower motor. The ventilation doors are closed, preventing outside air from entering car.

VENT Button—Opens the ventilation door to allow outside air to enter the car directly. It does not operate the blower.

DEF Button—Causes a major portion of the air to be forced onto the windshield through air outlets on top of instrument panel for defrosting or defogging.

HEAT Button—Causes major portion of air to be directed toward the car floor.

Heating the Car

Until the engine warms up, make sure the "OFF" button is pushed in and the temperature control lever is in the "WARM" position. Then, push in the "HEAT" button and leave the temperature control lever in the "WARM" position for fast initial car warm-up. After warm-up, use the control lever knob to adjust the speed as desired, and adjust the position of the temperature control lever to maintain comfortable condition.

NOTE: When the "HEAT" button is pushed in, sufficient warm air will be forced onto windshield through the upper air outlets for adequate defogging during average driving conditions.

Defrosting or defogging the Windshield

Push in the "DEF" button for maximum defrosting, move the temperature control lever to the "WARM" position.

Summer Ventilation

Push in the "VENT" button to open the ventilation door. Move the temperature control lever to the extreme left. The ventilation door may be left open during rain.

Rear Window Defroster (when so equipped)

A toggle switch (at left and under the instrument panel) operates a blower which circulates air over the rear window to prevent fogging.

HEATER BLOWER—REMOVAL AND INSTALLATION

Removal

Disconnect the battery ground cable. Disconnect the heater ground wire at windshield wiper motor mounting bracket and disconnect the heater wires from harness connectors.

Disconnect the vacuum hoses at each vacuum unit and remove hoses from their attaching clips. Remove heater valve capillary coil from the opening in heater housing (driver's compartment, passenger side). Remove the clip from housing.

Remove the three screws attaching the heater chamber to dash panel, (one is located to the left of vent door and to the right of brake pedal bracket; one below the heater at passenger side and one screw is located at the windshield wiper motor right link pivot).

NOTE: To facilitate removal, disconnect the windshield wiper right link at pivot to expose the housing screw.

Remove the housing and blower by pulling down and out of driver's compartment. Remove the blower, mounting plate and motor.

Installation

NOTE: If the blower motor was removed from the mounting plate; be sure the mounting grommets are installed at the attaching bolts.

Install the blower motor and mounting plate to the heater housing. Be sure the blower wheel is free and does not rub. Position the housing on dash panel and install the three attaching screws.

CAUTION

There is a spacer at each attaching screw, be sure these spacers are installed between the heater housing and the dash panel when installing housing; otherwise, the housing could be damaged when tightening the screws.

Reposition the heater water valve capillary coil in the heater housing and install attaching clips. Connect the vacuum hoses at vacuum unit and install the attaching clips. Connect the heater wire at harness connectors and install the ground wire at windshield wiper motor bracket.

Attach the windshield wiper motor pivot link (if disconnected). Connect the battery ground cable.

HEATER VACUUM UNITS REPLACEMENT

To replace a vacuum unit, disconnect the vacuum hoses. Remove the two nuts and lockwashers attach-

ing the vacuum unit to housing, and the one clip attaching the vacuum unit rod to the actuated unit.

VENT DEFLECTOR—REPLACEMENT

The vent deflector is held to the heater housing by three screws. This deflector should be removed whenever the radio is to be removed.

HEATER CORE—REMOVAL AND INSTALLATION

Removal

Disconnect the battery ground strap. Drain the cooling system as necessary. Disconnect the heater hoses at heater. Remove the screws attaching the heater core housing to the dash panel and remove the housing and core as an assembly.

Remove the gasket to expose rivets (if used). Remove the heater core from outer housing.

NOTE: The core is held in position in the outer housing with plastic rivets. Care should be used when pressing out these rivets to avoid damaging the housing or the rivets.

Installation

Place the heater core in the heater outer housing and install plastic rivets. Install the gasket. Position the heater housing and core assembly on the dash panel. Install all screws before tightening to insure proper alignment.

Connect the heater hoses at heater. Refill the cooling system as necessary.

INSTANT HEAT CONDITIONAIRE MODEL 805 HEATER

While the Instant Heat Conditionaire Model 805 Heater is different in construction and appearance, the operation of the heater controls is the same as that of the hot water heater. The servicing of the 1959 Instant Heat Conditionaire Model 805 is the same as that described in the 1958 Chrysler and Imperial Service Manual except for the following operation.

THERMOSTAT

If the thermostat fails to control the duct outlet temperature, it is usually an indication that the cam is loose on the helix shaft, or the end of the helix has dropped out of the slot in the control shaft. To correct this condition, adjust the thermostat as follows:

Remove the thermostat cover at blower housing. Disconnect the control cable and the two lead wires. Remove the two sheet metal screws and remove the thermostat. Inspect the helix to make sure it is crimped tightly in the end of the control shaft. Fit the helix in the slot and crimp the shaft with pliers if necessary. With the helix at room temperature, loosen the Allen set screw in the plastic cam on the base end of the control shaft, making sure the shaft is completely free to revolve and take its normal position at room temperature (about 75° to 85°F.)

With the plastic cam free on the shaft and the micro-switch down, move the control cable linkage as far as it will go to the left and hold in this position. While holding the linkage, turn the plastic cam in a counter-clockwise direction until the micro-switch just clicks, then tighten the set screw in the cam.

Section XVII

HEATER – AIR CONDITIONING

The Heater-Air Conditioning Unit (Fig. 136) on the 1959 Chrysler and Imperial Models is a dual purpose unit combining the functions of both heating and cooling the air for winter and summer air conditioning.

The new unit is controlled by vacuum actuators which are controlled by push buttons (Fig. 137). The heating and cooling cycle is similar to the 1958 Models. A water valve and capillary tube (Fig. 138) is used to control water temperature regulated by a sliding temperature control lever designed integral with the push button assembly to increase or decrease temperature.

During the operation of the new unit on the cooling cycle, 75 per cent of the air drawn in through the fresh air door, (Fig. 139), is passed around the heater core. The remaining 25 percent passes through the heater core, and is used for temperature control of the unit.

OPERATING CONTROLS

The blower switch (Figs. 140 and 141) is an integral

ing the vacuum unit to housing, and the one clip attaching the vacuum unit rod to the actuated unit.

VENT DEFLECTOR—REPLACEMENT

The vent deflector is held to the heater housing by three screws. This deflector should be removed whenever the radio is to be removed.

HEATER CORE—REMOVAL AND INSTALLATION

Removal

Disconnect the battery ground strap. Drain the cooling system as necessary. Disconnect the heater hoses at heater. Remove the screws attaching the heater core housing to the dash panel and remove the housing and core as an assembly.

Remove the gasket to expose rivets (if used). Remove the heater core from outer housing.

NOTE: The core is held in position in the outer housing with plastic rivets. Care should be used when pressing out these rivets to avoid damaging the housing or the rivets.

Installation

Place the heater core in the heater outer housing and install plastic rivets. Install the gasket. Position the heater housing and core assembly on the dash panel. Install all screws before tightening to insure proper alignment.

Connect the heater hoses at heater. Refill the cooling system as necessary.

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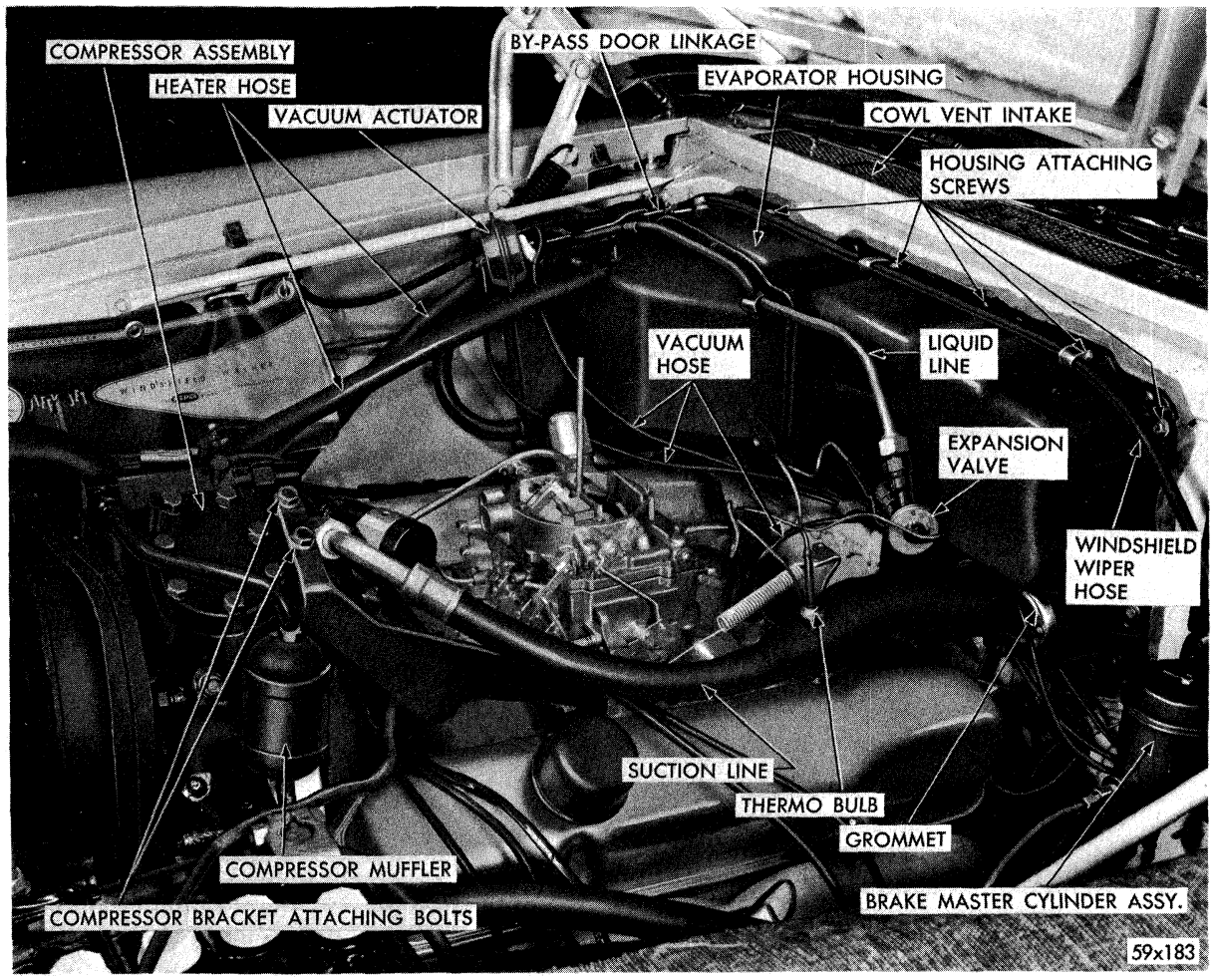


Fig. 136 — Air Conditioning Unit Installed

part of the temperature control lever. The temperature control lever is pushed in for low speed and pulled out for high speed.

The blower will be off only when the "OFF" button is depressed.

Either half of the lower distribution doors, (Fig. 142) can be operated manually to override the automatic setting of the actuator.

The main damper door is operated by a vacuum actuator. Air is directed to the upper or lower air outlets depending on whether the cooling or heating push button is depressed. In addition, the percentage of air up or down may be selected as desired by rotating the manual main damper door control knob, (Fig. 139).

On cars equipped with thumb screw main door control, the percentage of air flowing to the lower or upper outlets can be selected by changing the thumb screw location on the main-door adjusting lever (Fig. 142).

NOTE: Locating the thumb screw in number one hole will allow 10 per cent of the air to be deflected to the lower distribution door deflectors. Rotating the adjusting lever counter-clockwise will increase the percentage of air flowing through the distribution door deflectors.

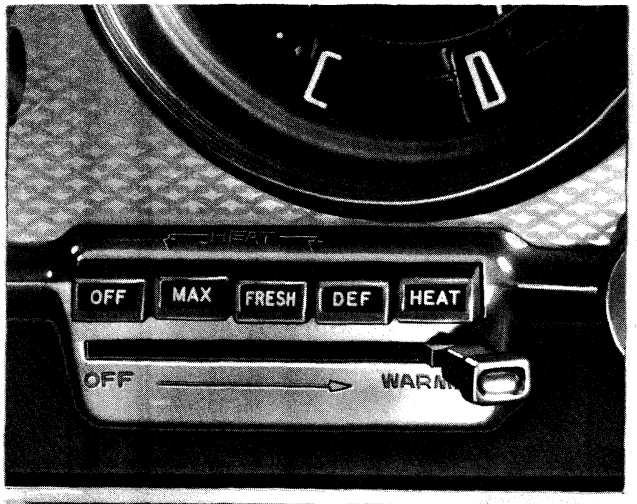
"OFF" Button Depressed

"The fresh-air door will be closed.

The compressor clutch is disengaged.

The blower motor and Heater-Air Conditioner are made inoperative.

NOTE: To close the fresh-air door, the "OFF" button is depressed and it is recommended that the engine be allowed to operate for approximately ten seconds before shutting off the ignition switch to permit the actuators to complete the cycle.



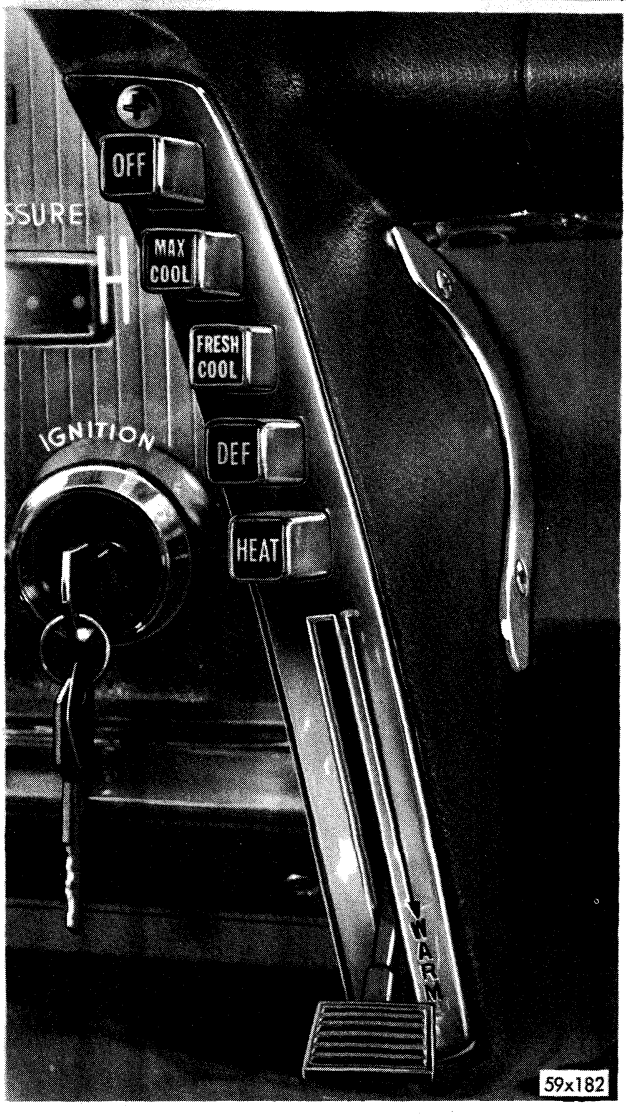


Fig. 137 — Air Conditioning Push Button Controls

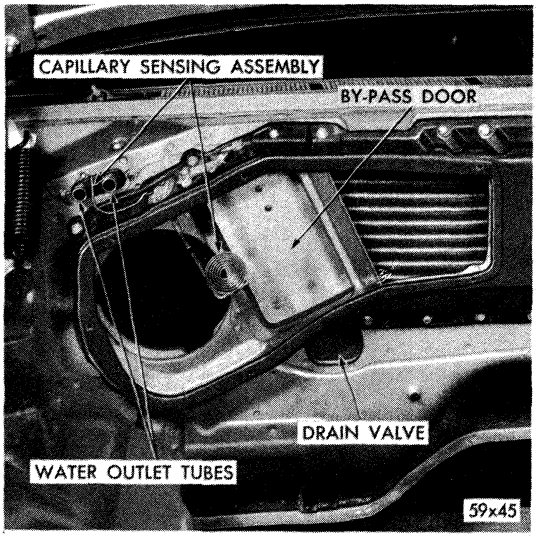


Fig. 138 — Water Valve and Capillary Tube

"MAX" Button Depressed

The compressor clutch will be energized.

The blower is operating.

The fresh-air damper door is closed.

The recirculating door opens.

The main door is positioned to the preset manual control cable stop.*

The distribution door is positioned to direct the air upward in the passenger compartment.

"FRESH" Button Depressed

The temperature control lever can be adjusted to the desired temperature.

The compressor clutch will be energized.

The blower is operating.

The fresh-air damper door is open.

The recirculating door is closed.

The main door is positioned to the preset manual control cable stop.*

The distribution door is positioned to direct the air upward in the passenger compartment.

"HEAT" Button Depressed

The temperature control lever can be adjusted to the desired temperature.

The fresh air door opens and the by-pass door closes allowing outside fresh air to pass through the evaporator coils and heater core.

The main door is positioned according to the preset manual control cable stop.*

The blower is operating.

The lower distribution doors are positioned so as to direct all of the air downward.

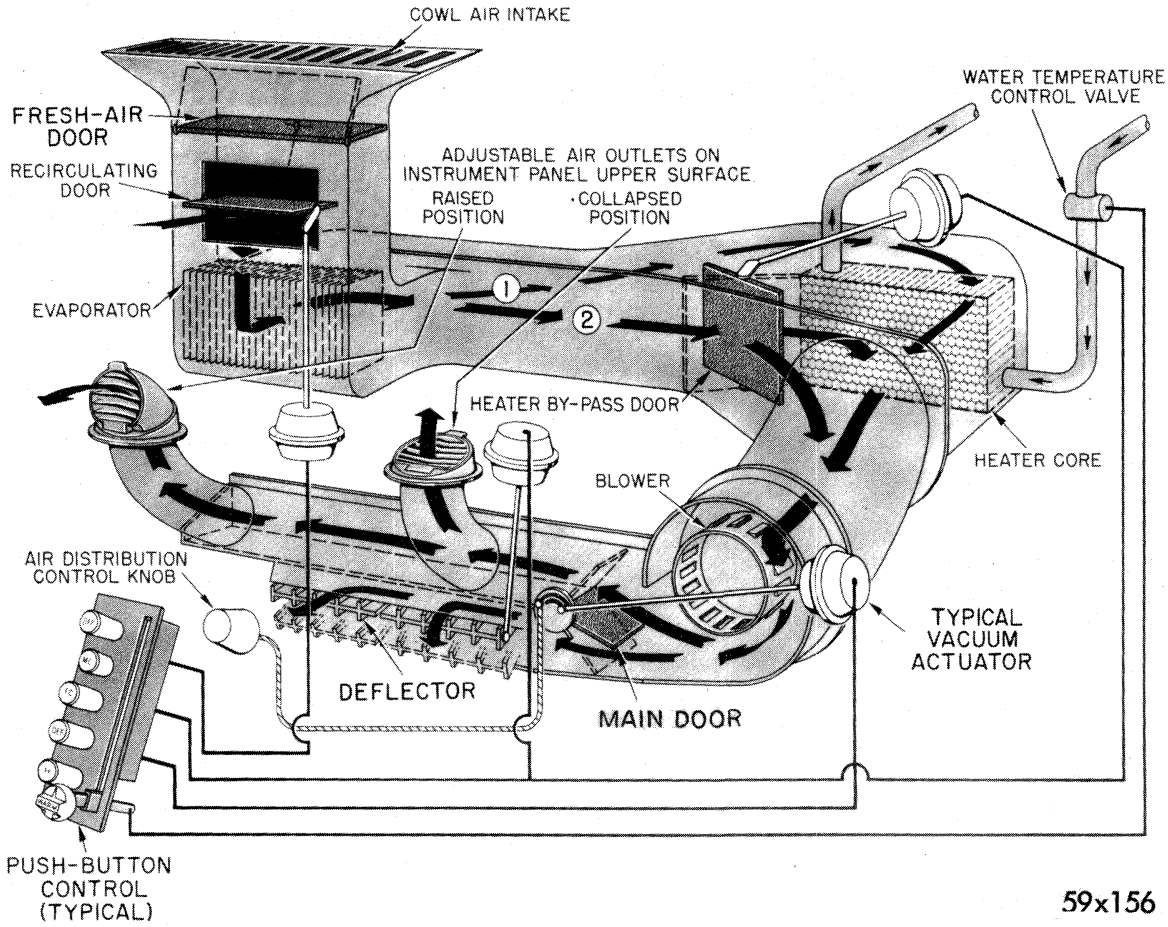


Fig. 139 — Heater Air Conditioning Air Circulation

"DEF" Button Depressed

The fresh-air door opens.

The by-pass door is closed.

The air passes through the heater core.

The main door will direct air to the upper defroster outlets according to the preset manual control cable stop.*

On cars not equipped with manual main door control, 90 per cent of the air is directed through the upper control outlets and 10 per cent through the lower outlets. The opposite condition exists during the heating cycle.

On cars with the thumb screw main door control (Fig. 142) selects a percentage of air between the upper defroster outlets and the lower distribution door, by locating the thumb screw in one of the four holes of the defroster door adjusting lever.

DEHUMIDIFYING THE PASSENGER COMPARTMENT

"FRESH" Button depressed:

The temperature control lever is set to the temperature desired.

NOTE: The heater by-pass door is designed to allow approximately 25 per cent of the incoming air to pass through the heater core in the "Maximum Cooling" and "Fresh Cooling" position of the push buttons.

Outside air dehumidifies as it passes over the evaporator coil. Cool air from the evaporator coils passes through the heater core, which raises the temperature to the desired comfort condition by decreasing the dampness of the air inside the vehicle.

REMOVAL, INSTALLATION AND SERVICING

The procedures for servicing of the unit including discharging, charging, removal and installation of the engine side housing, evaporator coils, expansion valve, refrigerant strainer drier, condenser and other components remain the same as outlined in the 1958 Chrysler and Imperial Service Manual. How-

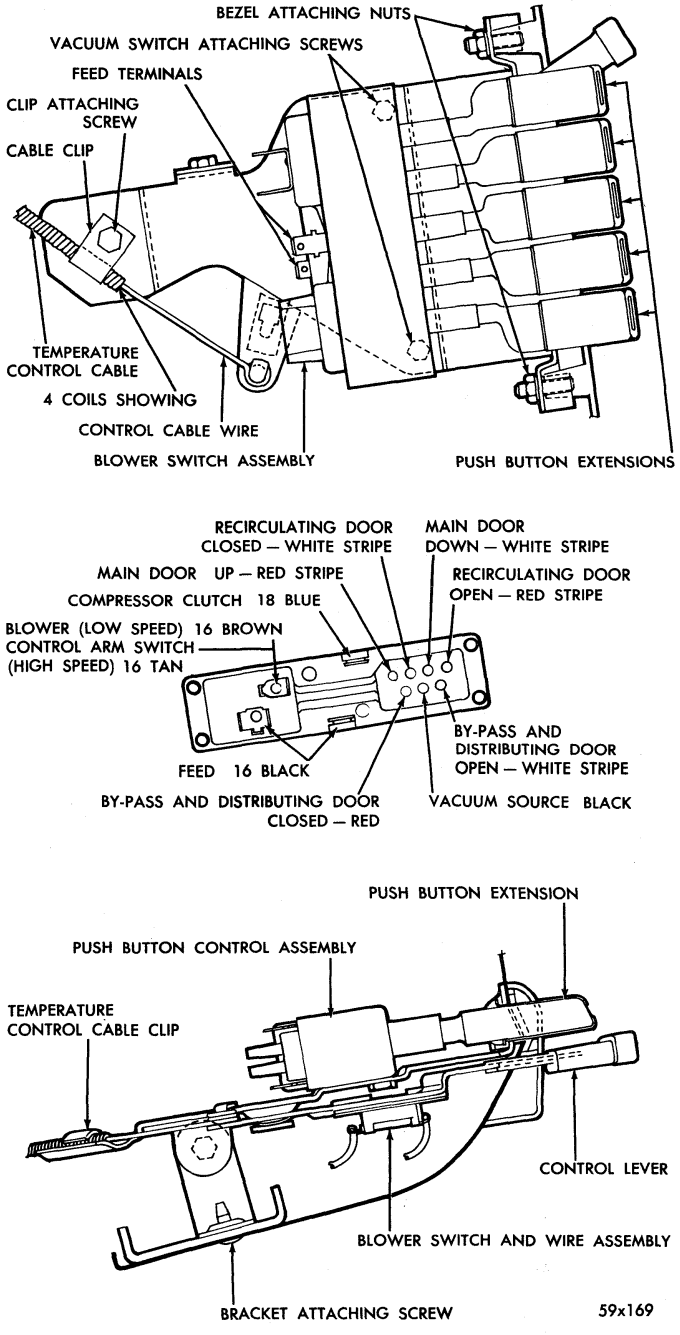


Fig. 140 — Blower Switch and Push Button Assembly (Windsor) (Schematic)

ever, caution must be emphasized when making a compressor capacity test not to exceed a total of five minutes of continuous compressor operation tests to avoid damage to the compressor from overheating.

WARNING

When replacing compressor assembly, the crankshaft should be rotated at least two complete revolutions, to clear oil accumulation from compressor head before the clutch is energized to avoid damaging the compressor reed valves.

Whenever it is necessary to add refrigerant 12 to the system, the refrigerant should be added while operating at a head pressure of 225 to 250 psi until the sight glass in the dry-eye unit is completely clear of bubbles, then add an additional ½ pound (EXACTLY) of refrigerant 12 to complete the charging operation.

WARNING

Compressor head pressures should not exceed 225 to 250 psi when charging the unit.

NOTE: Individual refrigerant 12 containers have been developed and are available for servicing the air-conditioning unit and can be interconnected or used individually, as shown in Figure 143.

In the new Air Conditioning Unit it will not be necessary to remove the engine side housing except to seal or replace the evaporator coil assembly. The heater core can be removed from the engine side housing by removing the heater core housing attaching bolts and remove the assembly, as shown in Figure 144.

NOTE: The core is assembled and held in the housing by two plastic rivets which must be removed before the core can be removed from housing.

Refer to the Heater Section for removal and installation of the heater assembly.

NOTE: When replacing the evaporator coil, extreme care must be taken to see that the fresh air door (Fig. 145) is completely closed before any attempt is made to remove or install the unit. Damage to the door seal and the distortion of vent and recirculating doors may result if this precaution is not taken.

Servicing of the centrifugal fan assembly can be accomplished by the removal of the distribution duct assembly as shown in Figure 146.

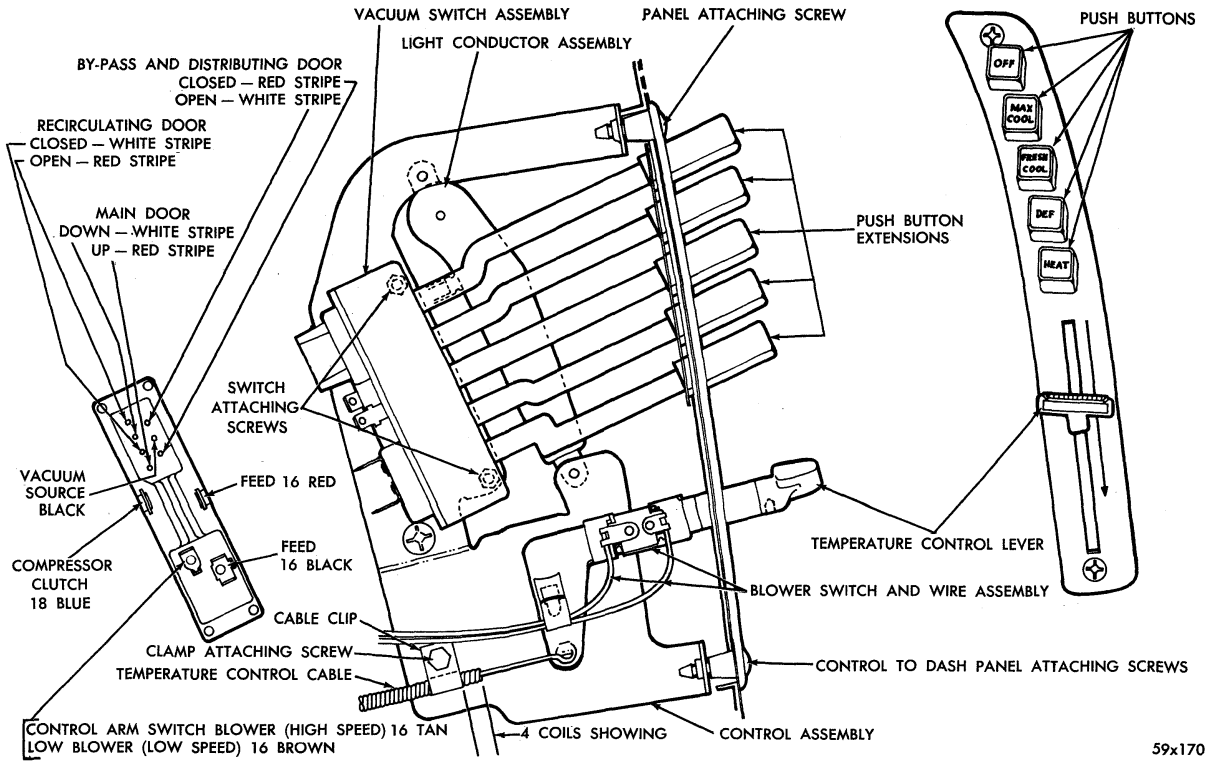


Fig. 141 — Vacuum Actuator and Push Button Assembly (Imperial) (Schematic)

REMOVAL AND INSTALLATION OF PUSH BUTTON CONTROL ASSEMBLY

Remove the vacuum line plug, clutch and blower motor leads from the control assembly. Disconnect the water valve control cable. Remove the push button assembly attaching screws from the push button bracket and remove the assembly.

NOTE: Whenever the push-button control unit is replaced, care must be taken to align the assembly properly within the instrument panel opening so that buttons will operate without binding. The vacuum hoses must be aligned and protected, so they will not be pinched or damaged by clips or other movable attachments.

ADJUSTING VACUUM ACTUATED DOORS

Recirculating Door (Fig. 147)

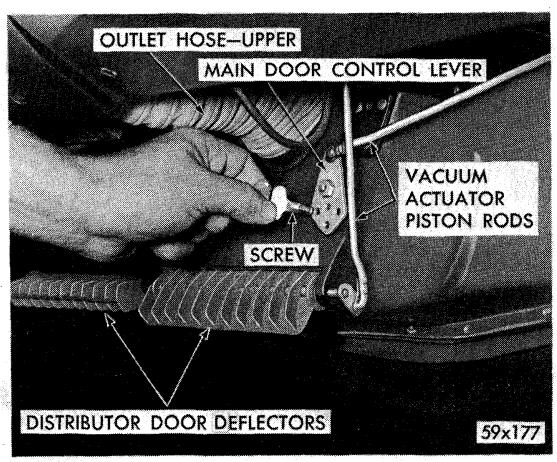


Fig. 142 — Locating Main Door Adjusting Screw (Imperial)

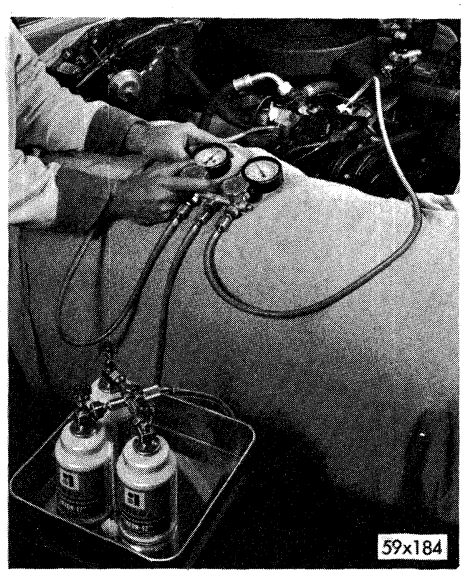


Fig. 143 — Servicing the Air Conditioning System

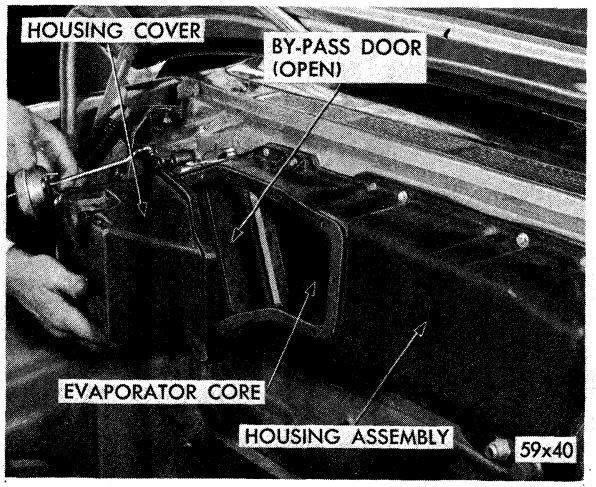


Fig. 144 — Removing or Installing Heater Core Housing Assembly

NOTE: These recirculating and fresh air doors are interconnected for unified operation and should be adjusted accordingly.

(a) Cycle the opening and closing of doors several times to make sure that the door hinges are not sticking and that the doors are operating freely without binding.

(b) Remove the operating rod to recirculating door bracket clip.

(c) Remove the rod from the bracket. Check the actuator rod for full travel against the full travel of the recirculating door bracket.

(d) Close the recirculating door by hand and make sure the (overcenter) toggle force of the links exert enough pressure on the door to completely close and seal the door. If the door is not sealing, loosen the "L" bracket adjusting screws. Adjust and tighten the screws. Recheck the rod to linkage travel and install the rod and clip. Recheck the door seal.

Fig. 145 — Removing or Installing Evaporator Assembly

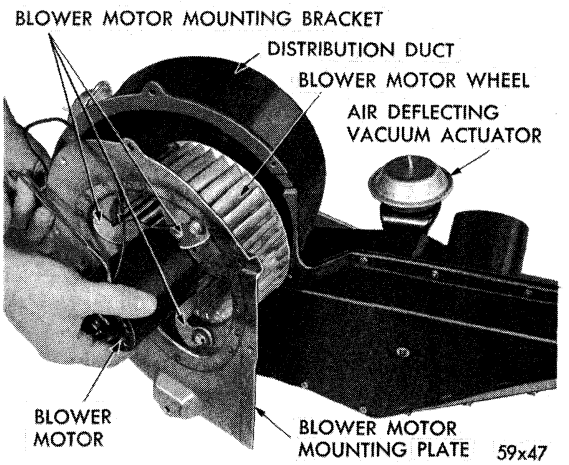


Fig. 146 — Removing or Installing Blower Motor Assembly

Fresh Air Door

(e) Cycle the opening and closing of the doors several times to make sure the hinges are not sticking and that doors are operating freely without binding.

(f) Check the recirculating door for proper sealing and adjust if necessary as outlined in a, b and c.

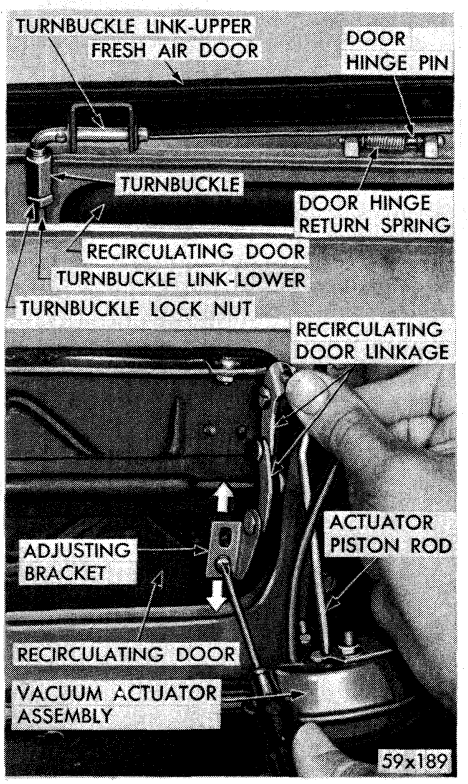


Fig. 147 — Adjusting Fresh Air and Recirculating Door

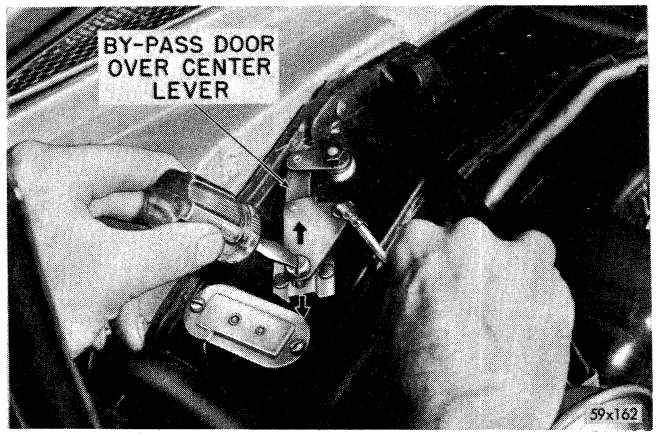


Fig. 148 — Adjusting By-Pass Door

(g) With the engine operating and with a beam of light projecting through the cowl opening, look up through the recirculating door opening carefully to see if light is showing through the seal around the door.

NOTE: The rear edge of fresh air door will not seal completely without vacuum source.

(h) If adjustment is to be made, remove the cowl vent intake screen and adjust the fresh air door link turnbuckle through the intake screen opening, so that the door will completely close with engine operating.

Adjusting Heater By-Pass Door

Refer to Figure 148 and proceed as follows:

Remove the vacuum actuator piston rod clip and rod from by-pass actuator lever assembly. Operate the engine. Remove vacuum lines from the actuator. Check the vacuum source and for proper actuator operation. Check the by-pass door for full travel by moving the levers to open and closed position without vacuum.

Install the actuator rod and clip assembly to the by-pass door. Adjust the door and tighten screw in closed position, as shown in Figure 148.

Adjusting Main Door on Cars Equipped with Manual Control

Refer to Figure 142 and proceed as follows:

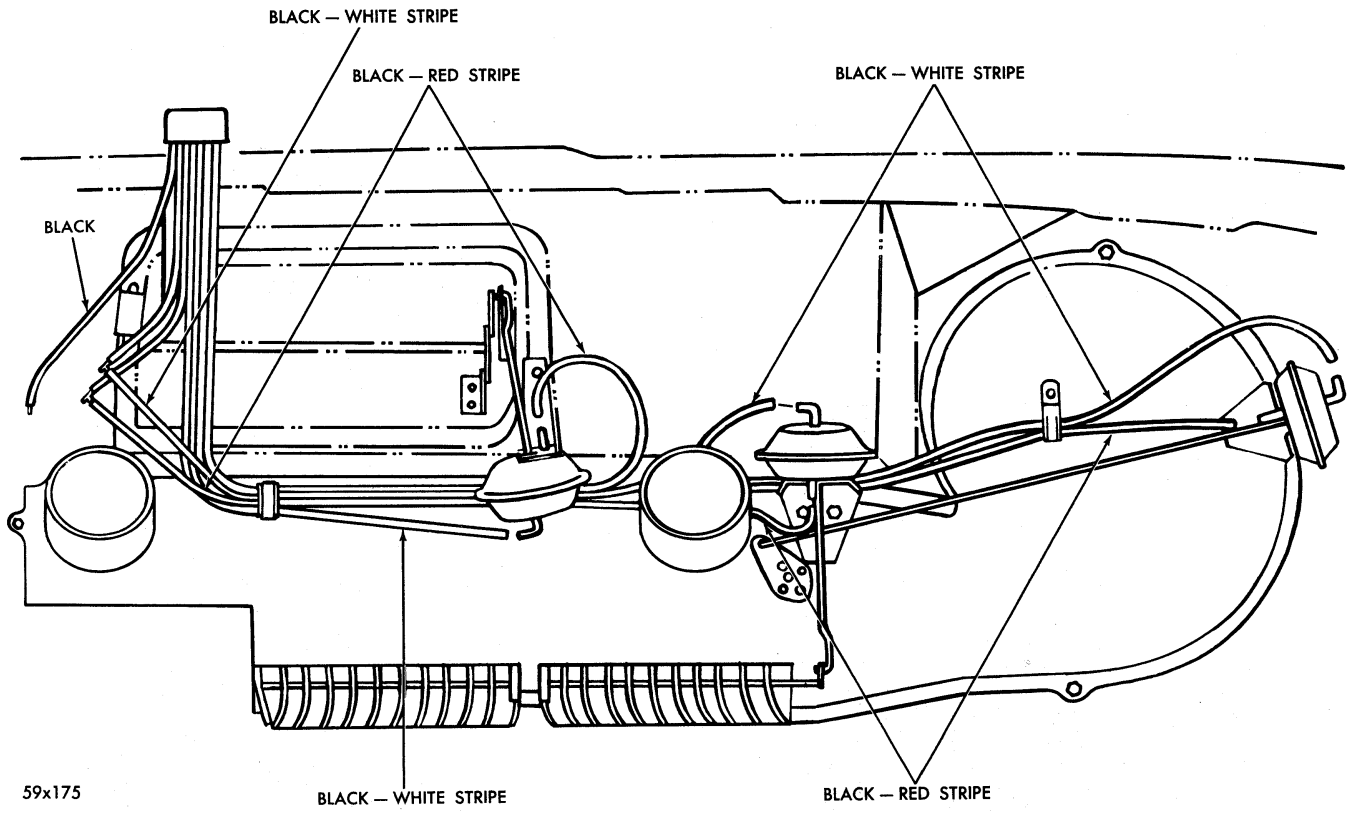


Fig. 149 — Vacuum Hose Alignment (Passenger Compartment)

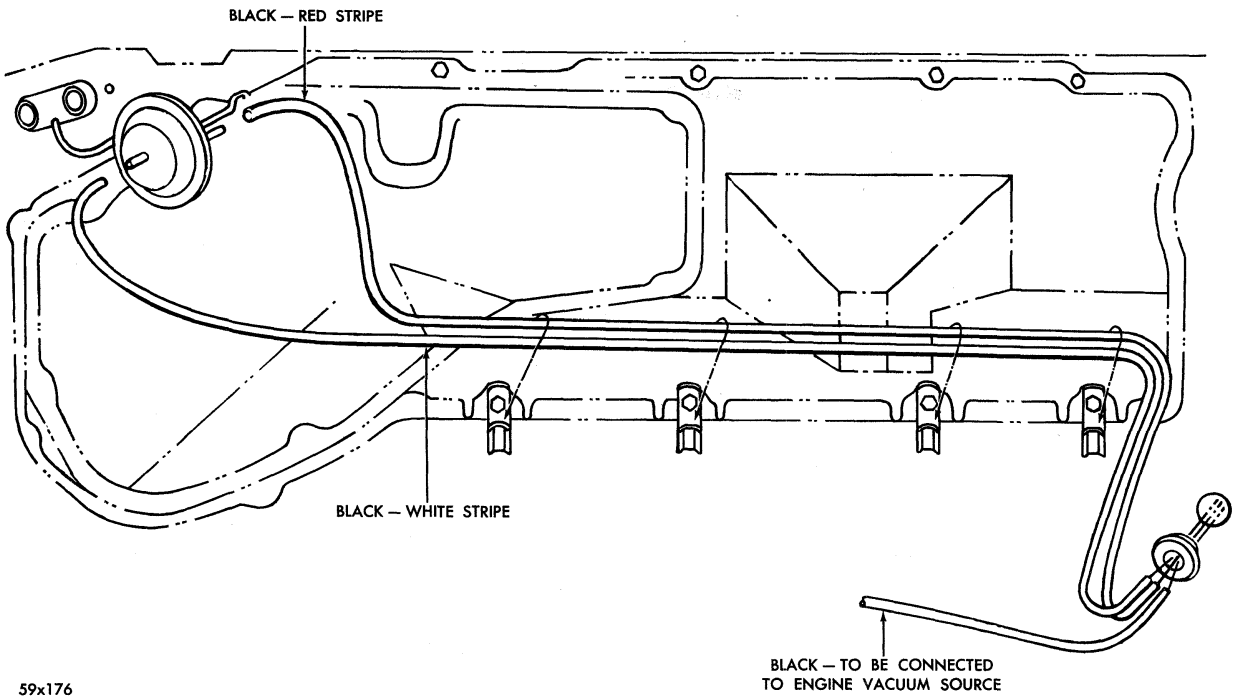


Fig. 150 — Vacuum Hose Alignment (Engine Compartment)

Remove the control cable, actuator rod clip (and thumb screw if so equipped) from the main door control lever assembly.

Remove the vacuum actuator and distributor door rods from the lever control assembly. Check for proper operation of the main door by cycling lever to full open and closed positions.

Rotate the control knob to the closed position. Adjust control cable to full travel of defroster door in the closed position. Reinstall the actuator rods. Tighten lever screw, and check for proper operation.

Adjusting Distribution Door

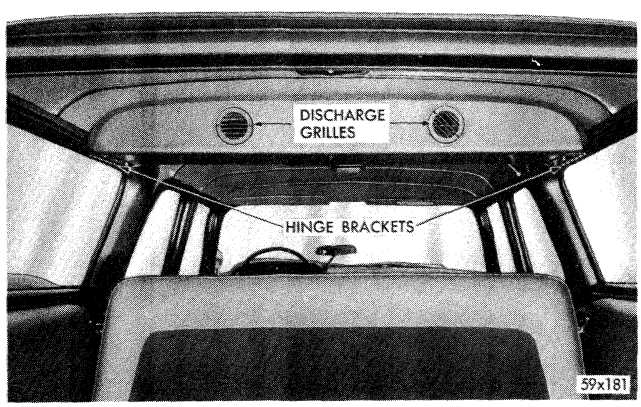


Fig. 151 — Roof Air Conditioning Unit Installed.

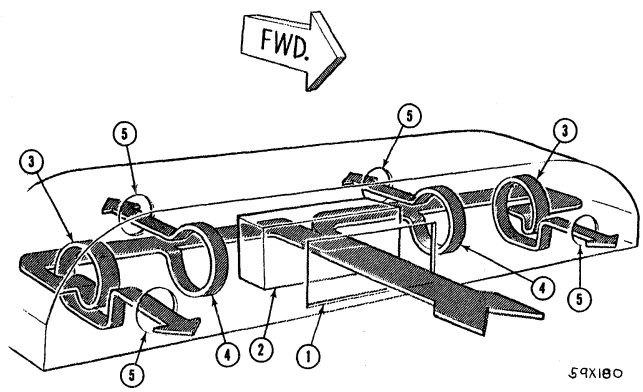


Fig. 152 — Air Conditioning Unit Air Flow (Roof Unit)

NOTE: The distribution door will automatically adjust itself by the travel of vacuum actuators to distribute the air flow to passenger compartment as desired.

Deflector Removal

Remove the vacuum actuator rod clip and rod from control lever. Remove the deflector shaft lock screw. Remove shaft from lower distribution duct housing. Remove the deflectors.

Deflector Installation

Install the deflectors, shaft, lock and screw. Install

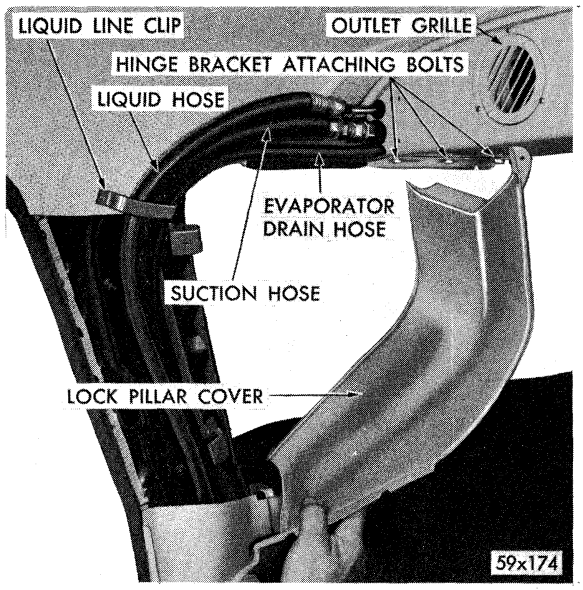


Fig. 153 — Removing or Installing Pillar Cover

actuator rod and clip. Check the assembly for individual deflector operation. Adjust the deflector control lever for full travel of vacuum actuators.

DISTRIBUTION DUCT

Removal

Remove the deflector outlet tubes. Remove manual control cable to duct attaching clip. Remove the cable wire from main door control bracket. Disconnect the vacuum hoses from actuators.

Disconnect the blower motor ground and feed wires. Remove the duct to dash attaching bolts and remove the duct.

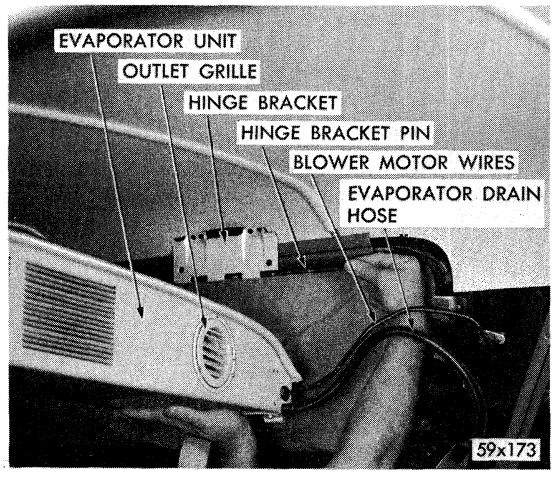


Fig. 154 — Removing or Installing Air Conditioning (Roof Unit)

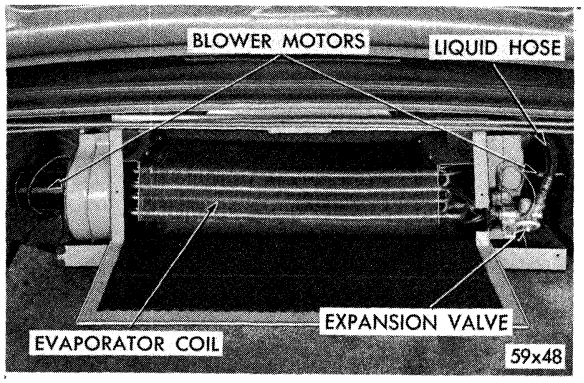


Fig. 155 — Rear Deck Compartment Unit Installed

Installation

Install the distribution duct assembly. Make sure the assembly is located properly up against the dash panel and that the tubes, cables, and electrical wires will not be pinched between the duct and dash panel, before completely tightening the assembly. Install the attaching bolts, ground wires and clips (Figs. 149 and 150).

TOWN AND COUNTRY ROOF MOUNTED AIR CONDITIONING UNIT (FIG. 151)

A new roof mounted evaporator has been developed and is available for Town and Country Models. This unit employs centrifugal cage type blowers to draw air through the evaporator (Fig. 152) for distribution through adjustable discharge grilles. A switch located on the instrument panel controls the two speed blower motor.

Removal (Refer to Fig. 153)

Discharge the refrigerant in the system (preferable in open area). Remove the pillar cover garnish mouldings. Remove liquid lines and clips. Remove the drain hoses. Disconnect the blower motor wires. Remove the hinge pins and remove assembly.

Installation (Fig. 154)

Mount the roof unit to one side of the hinge bracket, and install hinge pin. Raise the assembly up to the contour of roof panel and install the other hinge pin.

Install the refrigerant lines, drain hoses, and connect the blower motor wires. Recharge the unit. Check the entire system for leaks.

REAR COMPARTMENT AIR CONDITIONING UNIT (FIG. 155)

A combination rear air conditioning unit is avail-

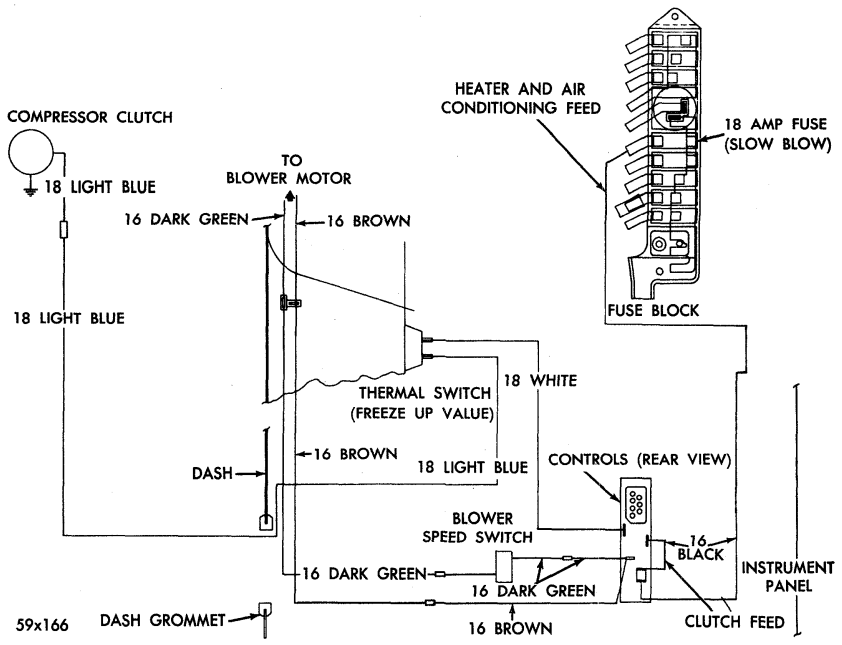


Fig. 156 — Heater Air-Conditioning Wiring Diagram (Dash Unit)

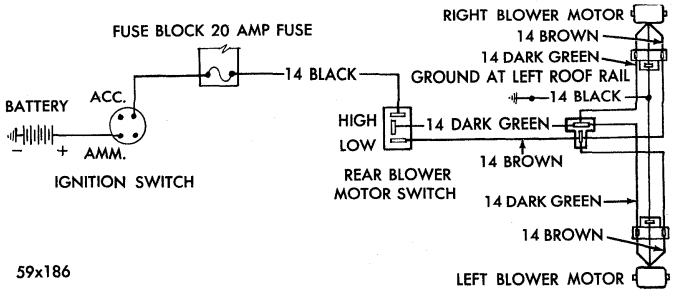


Fig. 157 — Heater Air-Conditioning Wiring Diagram (Roof Unit)

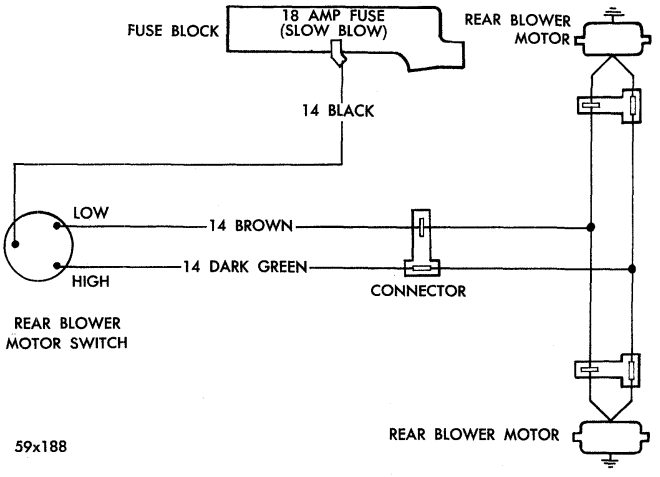


Fig. 158 — Heater Air Conditioning Wiring Diagram (Rear Deck Unit)

able for all models except the Town and Country. This unit operates in conjunction with the front unit. In addition, the rear unit air conditioning is available with a heater only at the front.

The rear air conditioning unit operates exclusively on the recirculation principle. The rear unit utilizes the same compressor and condenser as is used by the front unit.

Refer to figures 156, 157, and 158 for wiring diagrams applicable to the dash, roof, and rear deck mounted unit installation.

The rear unit is mounted in the luggage compartment on the stepped up area above the rear axle, with the liquid lines located along the left side of car.

Figure 159 shows the newly developed tools required to service the 1959 Air Conditioning Unit.

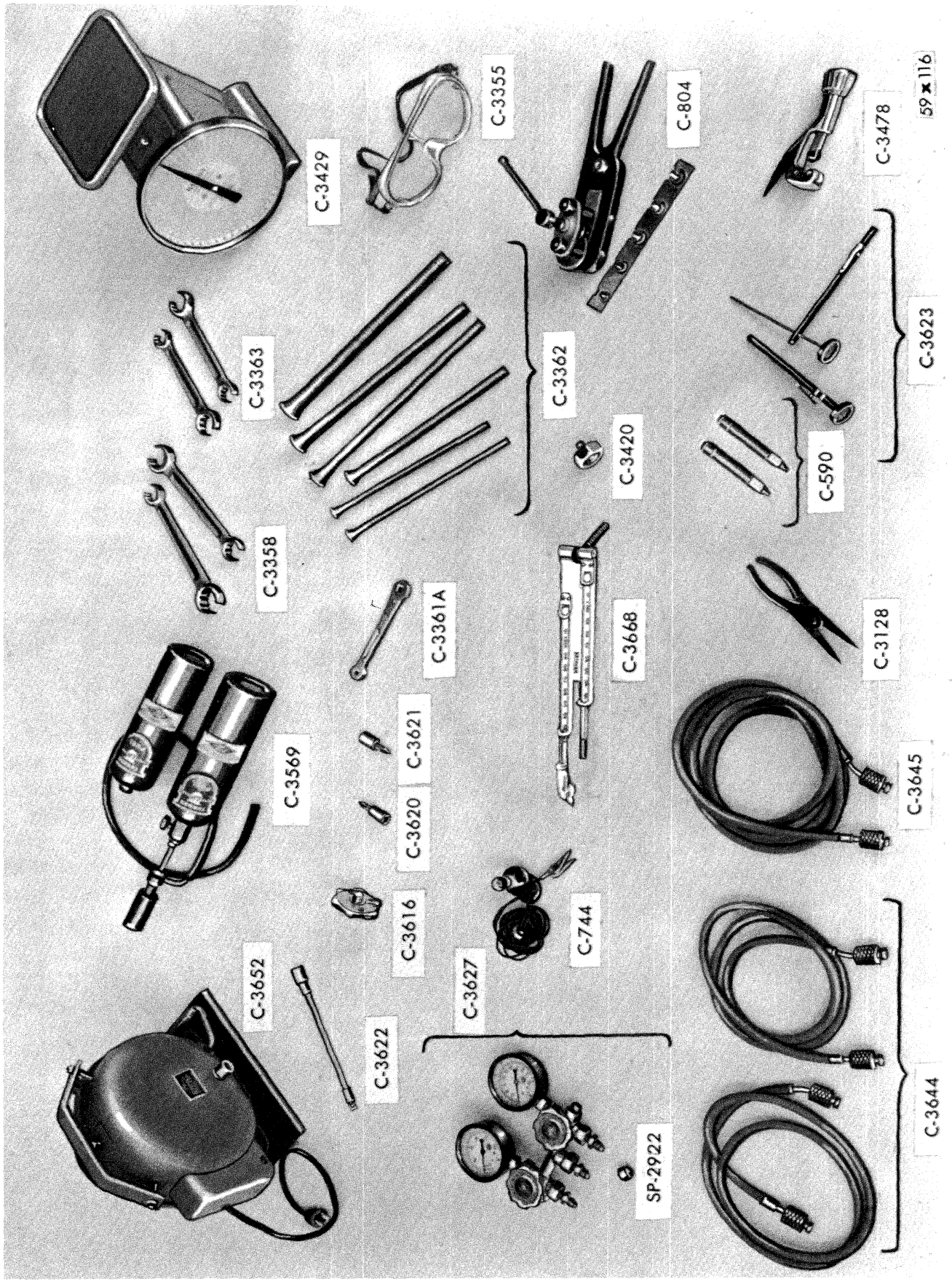


Fig. 159 — Heater Air Conditioning Tools

SERVICE DEPARTMENT
CHRYSLER DIVISION
CHRYSLER CORPORATION

Service Bulletin

CHRYSLER APPROVED SERVICE IMPERIAL

Information for ☐ Service Mgr. ☐ Shop Foreman ☐ Parts Mgr. ☐ Mechanics

JAN. 29, 1959

NO. 59-33

MISCEL-LANEOUS

DATA AND

SPECIFICA-TIONS

CHRYSLER

ALL 1959

300-E

MODELS

1312

TO ALL CHRYSLER AND IMPERIAL DEALERS:

The enclosed bulletin covers the data and specifications of the 1959 Chrysler 300-E.

The information contained in this bulletin supplements the general service information in the 1959 Chrysler and Imperial Service Manual Supplement. This information covers in detail the specific data and specifications of the 1959 Chrysler 300-E engine and in particular the two 4-barrel carburetors, full race camshaft, special intake manifold, low restriction air cleaners, heavy duty valve springs and dampers, as well as other features exclusive with the 1959 Chrysler 300-E.

C. T. McCLURE
Director of Service
CHRYSLER DIVISION

IMPORTANT: This bulletin contains valuable information and was prepared at considerable expense to be of service to you. Failure to use this information may cost you good will and money. We suggest that you insure it is read by all those concerned, and then filed for future reference in your Service Bulletin binder.

CONTENTS

59x208

Fig. 1 - C-300E Sport Coupe Two Door Hardtop

1959 CHRYSLER - 300-E

GENERAL DATA AND SPECIFICATIONS

Item	Body Style
	Sports Coupe Two-Door Hardtop and Convertible Coupe
Wheelbase	126 inches
Tread (Front)	61.2 inches
Tread (Rear)	60.0 inches
Length with Bumper	220.9 inches
Width with Bumper	79.5 inches
Height	55.2 inches
Rear Axle Ratio	3.31
Tire Size	9.00 x 14

SUSPENSION

FRONT SUSPENSION

The Front Wheel Suspension System is of the same basic design as used in Model MC-3, with the following exception:

THE FRONT SUSPENSION HEIGHT

The difference in the height between the floor and the two measuring points on each lower control arm (lowest point on ball joint housing and underside of bushing housing between flanges of arm) should be 1 7/8". This height must be maintained + or - 1/8 inch with a maximum differential from right to left of 1/8 inch.

REAR SUSPENSION

The Rear Springs differ from the MC-3 only in the rate of deflection.

TRUE-LEVEL TORSION-AIRE

The Air Suspension System is identical with the system used in Model MC-3.

SHOCK ABSORBERS

The shock absorbers are of the heavy-duty type.

For servicing, refer to the Suspension Section of the 1958 Chrysler and Imperial Service Manual and 1959 Supplement.

2. REAR AXLE

The Rear Axle is of the same basic design as used on the Model MC-3. Standard and "Sure-Grip" axle ratio is 3.31, (43-13). For servicing, refer to the Rear Axle Section of the 1958 Chrysler and Imperial Service Manual.

3. BRAKES

The Brake System is of the same basic design as used on Model MC-3. For servicing the brakes, refer to the Brake Section of the 1958 Chrysler and Imperial Service Manual and 1959 Supplement.

4. ACCESSORY BELT DRIVES

The belt deflections remain the same as outlined in Accessory Belt Drives, Section 4, of the 1959 Chrysler and Imperial Service Manual Supplement with the exception of the fan pulley ratio which is as follows:

Standard - .95 to 1

Air Conditioning - 1.20 to 1

5. COOLING SYSTEM

The Cooling System is the same design as used on Model MC-3 except the Silent Flite Fan Drive, as shown in Figure 2, is standard equipment. A box shroud is used on cars equipped with Air Conditioning.

Adjust the carburetor for proper idle as indicated in the Fuel System Section to obtain satisfactory idle cooling. For servicing, refer to the Cooling System Section of the 1958 Chrysler and Imperial Service Manual and 1959 Supplement.

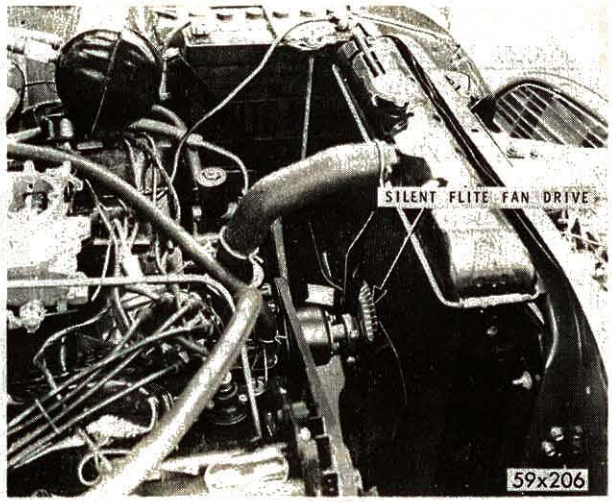


Fig. 2 - Silent Flite Fan Drive

6. ENGINE

The Chrysler 300-E is powered by a high performance version of the new 413 cubic inch engine. Some of the new features are two four-barrel carburetors, as shown in Figures 3 and 4, a special intake manifold, high performance camshaft, high load valve springs with a spiral type surge damper as shown in Figure 5, and new low reduction dual air cleaners as shown in Figure 6.

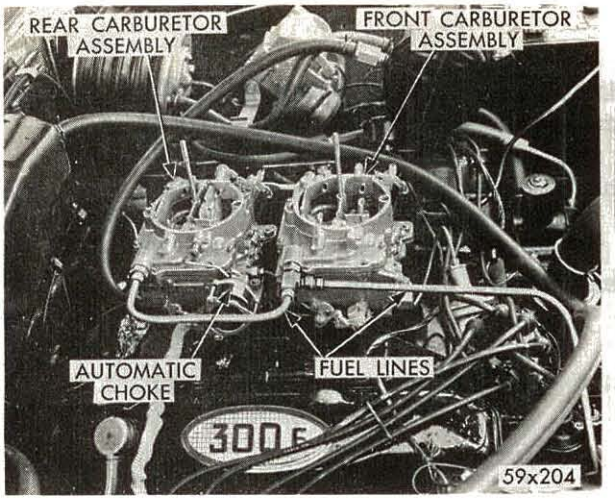


Fig. 3 - C-300E Engine (Right Side View)

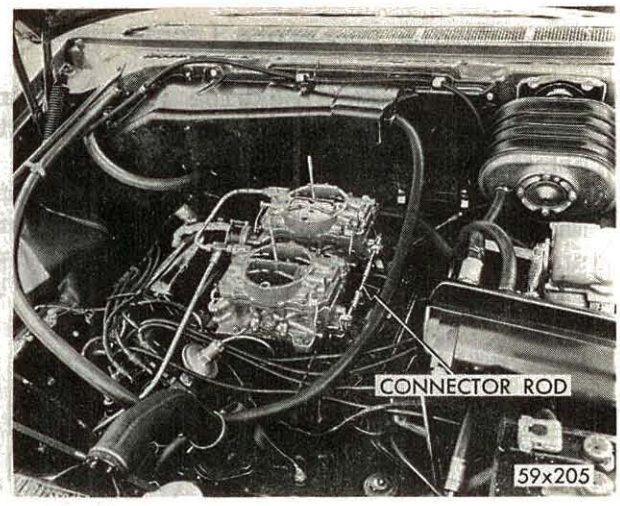


Fig. 4 - C-300E Engine (Left Side View)

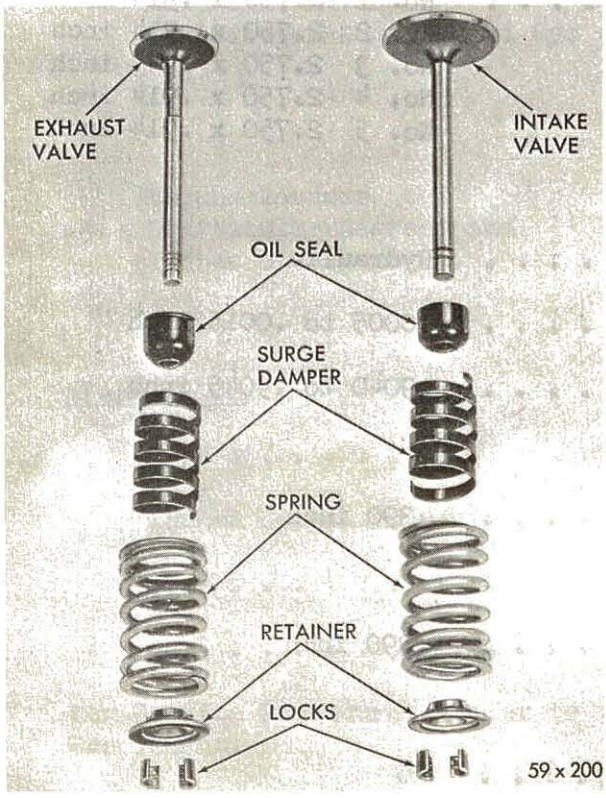


Fig. 5 - Intake and Exhaust Valves (Disassembled View)

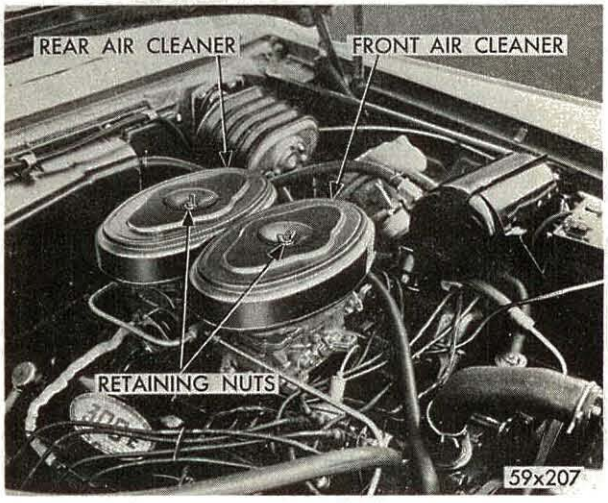


Fig. 6 - Carburetor Air Cleaners Installed

Engine Idle Setting - Set idle adjustment to obtain a smooth idle at 650 rpm, as outlined in the Fuel Section of this bulletin.

Ignition Timing - Disconnect distributor vacuum line, set ignition at 10 degrees BTDC and reset engine idle back to 650 rpm if necessary.

Valve Timing Procedure - Turn the crankshaft until the No. 1 exhaust valve is full open and No. 1 piston is on TDC (following the compression stroke). Insert a 1/4 inch spacer between the rocker arm pad and the stem tip of the No. 1 intake valve (second valve on the left bank). Install a dial indicator so that the pointer contacts the valve spring retainer as nearly perpendicular as possible. Allow the spring load to bleed the tappet down, giving in effect, a solid tappet.

Valve Timing Procedure (continued)

Turn crankshaft clockwise (normal running direction) until valve has lifted .025 inch. The timing on the indicator (located on the chain case cover) should read from 10° BTC to 2° ATC. If the reading is not within specified limits: Check accuracy of the DC mark on the Timing Indicator, the index marks, and check the timing chain for wear. Turn crankshaft counter-clockwise until valve is reseated and remove spacer. Do not turn crankshaft any further clockwise as the valve spring might bottom and cause serious damage.

DATA AND SPECIFICATIONS

MAIN BEARINGS

Diametral Clearance (desired).	.001 to .002 inch

MAIN BEARING SIZES

Diameter and Length	No. 1 2.750 x .914 inch No. 2 2.750 x .914 inch No. 3 2.750 x .943 inch No. 4 2.750 x .914 inch No. 5 2.750 x .914 inch

TAPPETS

Type	Hydraulic
Clearance in Block	.0005 to .0015 inch
Body Diameter.	.9040 to .9045 inch

VALVES - INTAKE

Lift	.390 inch

VALVES - EXHAUST

Lift	.390 inch

VALVE SPRINGS

Number	16
Free Length.	2.38 inch
Load when compressed to (valve closed)	1.860 inch - 95 to 105 lbs.
Load when compressed to (valve open)	1.470 inch - 187 to 203 lbs.
Valve Springs I.D.	1.070 to 1.090 inch

VALVE SPRINGS (continued)

Valve Spring installed Height (Spring Seat to Retainer).	1.830 to 1.890 inch
Recondition at	1.910 inch
Surge Damper	Spiral Type

7. ELECTRICAL SYSTEM

Electrical units are identical with those used on Model MC-3, with the exceptions listed as follows:

DISTRIBUTOR

AutoLite IBS-4010 - 1842811

Automatic Advance Distributor Degrees and rpm	0° @ 325 to 475 0 to 5° @ 475 3.0 to 5.0° @ 550 5.5 to 7.5° @ 1050
Vacuum Advance Distributor Degrees and Inches of Vacuum	0° @ 7.5 to 9.2 inches 6.0 to 9.0° @ 13 inches 11.5 to 14.5° @ 18.2 inches

SPARK PLUGS

Type	A32
Thread Length.	3/8 inch
Size	14 MM
Gap.	.035 inch

For Service Procedures, refer to the 1959 Chrysler and Imperial Service Manual Supplement.

8. FUEL AND EXHAUST SYSTEMS

Two 4-barrel carburetors are used on the 1959 Chrysler 300-E models, as shown in Figures 7 and 8. The choke system is incorporated in the rear carburetor only. Front and rear carburetors are not interchangeable. These carburetors are basically the same as the carburetor used on the MC-2 and 3 engine except for the operation of the secondary throttle valves and the choke system.

The secondary throttle valves are mechanically connected to the primary valves and open with the primary after an approximate 3/8" lag. Velocity valves are located above the secondary throttle valves and operate when air velocity

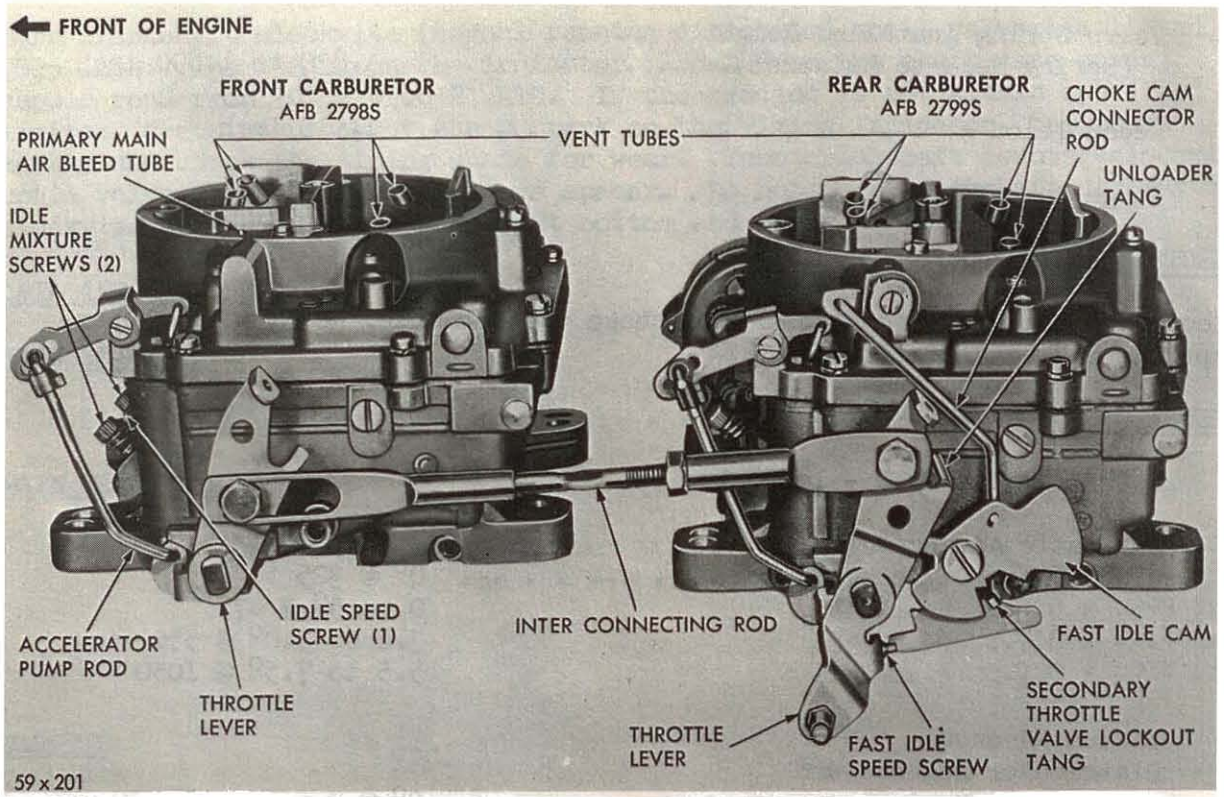


Fig. 7 - Front and Rear Carburetors (Left Side View)

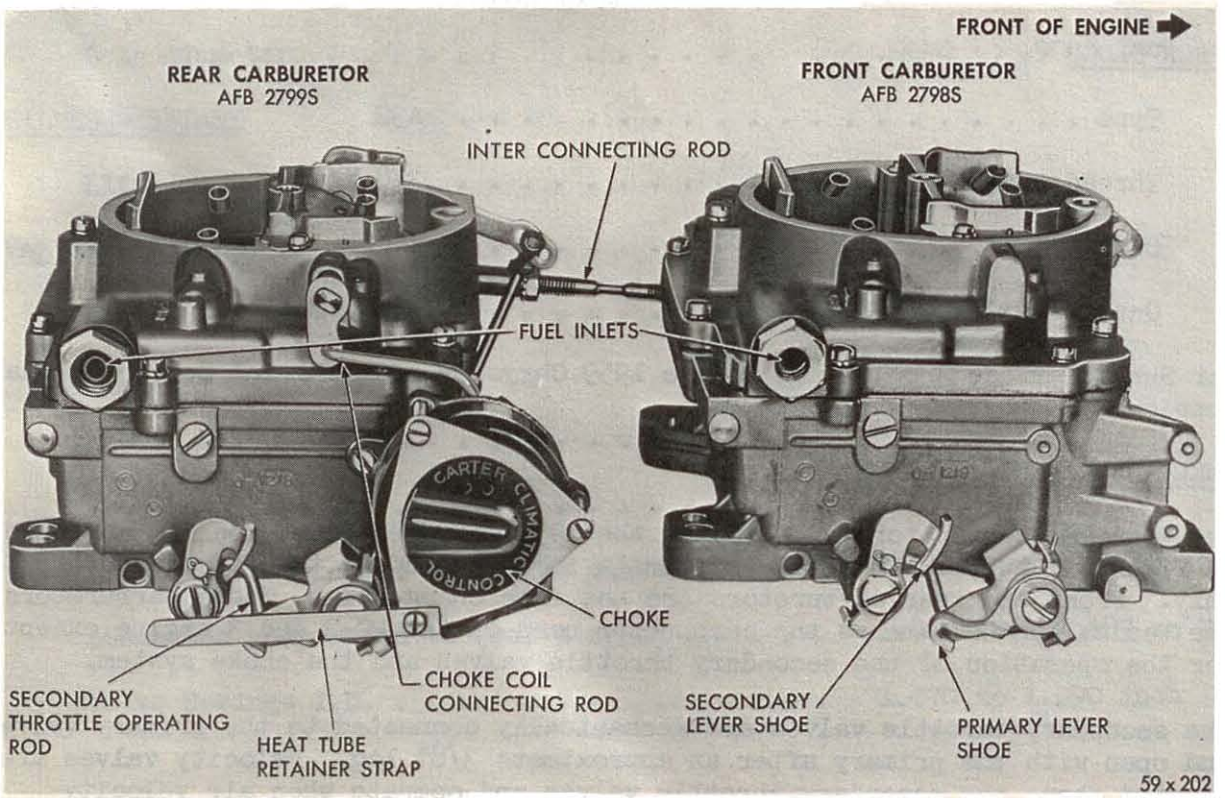


Fig. 8 - Front and Rear Carburetors (Right Side View)

8. FUEL AND EXHAUST SYSTEMS (continued)

overcomes the counterweight attached to the valve shaft, permitting the offset velocity valves to position themselves according to engine requirements. No external parts of the velocity valves can be seen from outside the carburetor.

When the engine is cold and the choke is in closed position, a mechanical latch prevents the secondary valves from opening. (This applies to rear carburetor only.) After the choke is opened fully, the latch is released, allowing operation of the secondary valves.

SERVICE PROCEDURES

In disassembling the C 300E carburetors for cleaning, inspection or overhaul, follow the same sequence of operations as outlined in your 1958 Chrysler and Imperial Service Manual and 1959 Supplement for the AFB series carburetor.

CARBURETOR ADJUSTMENTS

The following information covers only those adjustments that differ from the MC-3 and MY-1 AFB carburetor. Refer to carburetor specifications for adjustment data.

CHOKE UNLOADER ADJUSTMENT (Rear Carburetor Only)

With the primary throttle valves held in wide open position, insert 1/4 inch gauge, Tool T-109-31 between upper edge of choke valve and inner dividing wall of air horn. With finger pressing against upper part of choke valve, slight drag should be felt on gauge as it is being withdrawn.

If no drag is felt, or if too much drag is apparent, bend unloader tang on throttle lever, using Tool T-109-41.

FAST IDLE ADJUSTMENT (On bench - Rear Carburetor Only)

Insert a .013 inch wire gauge, Tool T-109-44 or drill between primary throttle valves and side of bore opposite idle adjusting screws. Move choke valve to fully closed position and adjust fast idle screw to give a slight drag on gauge when screw is resting on high step of fast idle cam at index mark on cam. Bend connecting rod at bend to correct index if necessary.

SECONDARY THROTTLE LEVER ADJUSTMENTS

Primary and secondary throttle valves should reach wide open position at the same time. To adjust, bend throttle operating rod at upper angle. With primary and secondary valves in tightly closed position, there should be a .020 inch clearance, Tool T-109-29, between positive closing shoes on primary and secondary throttle levers. To adjust, bend shoe on primary throttle lever.

SECONDARY VALVE LOCKOUT ADJUSTMENT (Rear Carburetor Only)

Make this adjustment after completing fast idle adjustment and secondary throttle lever adjustments. With the choke valve in the closed position, the tang on secondary valve shaft lever should fully engage in notch of lockout dog. Bend

SECONDARY VALVE LOCKOUT ADJUSTMENT (Rear Carburetor Only) - (continued)

tang on secondary valve shaft lever to obtain desired contact. Slowly open the choke valve. The secondary valves should become unlocked a few degrees before the choke valve reaches the wide open position.

FAST IDLE ADJUSTMENT (On Car)

Before setting fast idle, engine should be fully warmed and idling at 650 rpm (transmission in neutral). Remove the air cleaners. Stop engine and open throttle halfway. Close choke valve fully while holding throttles partially open. Let throttle close, making certain fast idle adjusting screw contacts high step of fast idle cam at index mark. Bend choke rod as necessary for indexing. Start engine without touching throttle and check engine rpm. Adjust fast idle adjusting screw until the desired 1375 to 1425 rpm has been obtained. Install Air Cleaners.

CHOKE PISTON INDEX

The choke piston can be indexed properly to improve warm-up performance. The ignition system should be in good working order and the timing checked to insure satisfactory performance. The manifold heat control valve should also be inspected carefully for proper functioning as this operation is extremely important for satisfactory warm-up performance.

With the above items checked and working properly and fully-warmed-up engine performance good, proceed as follows:

1. Remove choke housing retainer ring, heat tube cap and choke coil housing.

2. Remove throttle return spring so throttle can be set one quarter turn open.

3. Let choke blade go wide open.

4. Insert an .026 inch wire gauge* into choke piston slot so that hook on the end goes into slot in cylinder, as shown in Figure 9.

   *This gauge can be made by bending a piece of .026 inch wire as shown on the attached sketch. If this size wire is not readily available, .026 inch step up wire used in BBD carburetors can be bent to shape and used for this purpose.

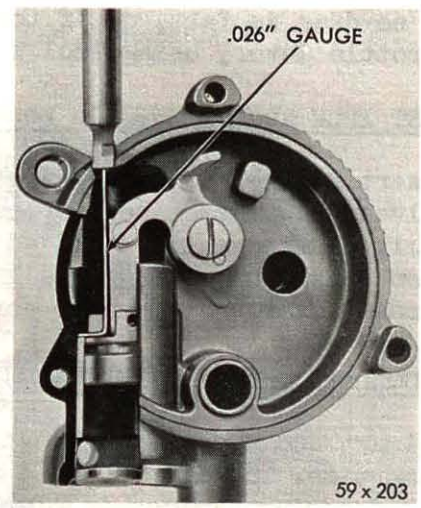


Fig. 9 - Choke Piston Index

5. Push on choke lever (clockwise) tapping the wire gauge between piston and cylinder slots with linkage hanging free.

6. Adjust the link connecting the choke shaft to the choke piston lever by bending the link at an angle to give 5/64" opening between choke valve and wall of air horn.

CHOKE PISTON INDEX (continued)

7. Reassemble choke, setting the coil one notch rich and install the throttle return spring.

IDLE SPEED AND MIXTURE ADJUSTMENTS (Carburetor on Engine)

CARBURETORS INTER-CONNECTING ROD

Before proceeding with carburetor adjustments, check for proper assembly and adjustment of inter-connecting rod to carburetor throttle levers. Both front and rear carburetor throttle levers should operate freely and in the same plane. If levers are bent or damaged, correct as necessary. Install the inter-connecting rod with the slotted end connected at the lower hole in the throttle lever of front carburetor and the other end connected at the top hole of rear carburetor throttle lever. To adjust, hold rear carburetor throttle in wide open position (choke in off position) and adjust rod at slotted end so front carburetor throttle valves will also be in wide open position; then tighten locknut and check operation in linkage. Make sure that the inter-connecting rod can rotate slightly on the pivots and not bind in any throttle position.

IDLE SPEED AND MIXTURE ADJUSTMENTS

Connect tachometer and warm engine to normal operating temperature so choke will be fully off and carburetor on slow idle.

CAUTION: Do not let engine become excessively warm while setting idle speeds carburetor adjustments.

Remove the inter-connecting rod at rear carburetor throttle lever. Set idle mixture screws 1 to 2 turns open. Set idle by-pass air screws 1 turn open and adjust idle speed to 650 rpm by opening or closing by-pass screw, keeping the openings equal.

NOTE: The idle by-pass air screw is located at the front of each carburetor body flange between the two idle mixture screws. It has a 7/16" slotted hex head. Adjust idle mixture screws on front carburetor for maximum rpm. Repeat on rear carburetor and readjust front carburetor if necessary. During the adjustment period, should idle speed at any time exceed 675 RPM, the idle by-pass screw must be readjusted to 650 RPM.

Before attaching the inter-connecting rod at rear carburetor, check transmission throttle linkage adjustments so that idle position is not disturbed.

EXHAUST SYSTEM

Larger exhaust pipes and low restriction mufflers are used on the C 300E.

CARBURETOR SPECIFICATIONS

Model	4 Barrel Downdraft
Front Carburetor	AFB 2798S
Rear Carburetor	AFB 2799S
Nominal Size	1 1/4 in. bore 4 bolt
Adjustments	
Float Setting (casting to top of floats)	
Front Carburetor	9/32 inch
Rear Carburetor	7/32 inch
Float Drop	15/16 inch
Choke Unloader	1/4 inch
Pump Setting (top of plunger to air horn)	7/16 inch
Fast Idle	.013 inch on rear carburetor
Fast Idle Speed	1400 rpm
Idle Speed	650 rpm
Idle Mixture (both screws, both carburetors)	Approximately 1 full turn open Set for Best Idle
Accelerator Pump	Middle Stroke (both carburetors)
Choke	
Control	Integral Automatic
Choke Setting	1 Notch Rich

9. FRAME

The frame is of the same basic construction as used in the MC-3 Models. For servicing of the frame, refer to Section 9 of the 1958 Chrysler and Imperial Service Manual and 1959 Supplement.

10. STEERING

The "Constant Control Full Time" Power Steering gear assemblies are of the same basic design as used on Model MC-3. For servicing of the assemblies, refer to Section 10 of the 1958 Chrysler and Imperial Service Manual and 1959 Supplement.

11. TORQUEFLITE TRANSMISSION

Servicing procedures for the TorqueFlite transmission remain essentially the same as outlined in the 1958 Chrysler and Imperial Service Manual and 1959 Supplement, with the following Exceptions:

TRANSMISSION THROTTLE LINKAGE ADJUSTMENT (Refer to Figure 10)

Run engine until normal operating temperature is reached. Remove rear carburetor air cleaner and check that the choke is in a fully opened position. Connect tachometer to coil and ground. Adjust and set engine idle as described under "Idle Speed and Mixture Adjustment" and set carburetors inter-connecting rod as described under "Carburetors Inter-Connecting Rod Adjustment", of this bulletin.

Unsnap accelerator shaft to carburetor rod assembly from ball joint on rear carburetor throttle lever. Move the rod rearward until rod is stopped by the idle stop on the transmission idle cam. With rod lightly preloaded against transmission idle cam stop, ball joint (on rear carburetor throttle lever) should be in alignment with ball joint clip on accelerator shaft to carburetor rod. If not in alignment, lengthen or shorten rod adjustable end (threaded) until alignment is obtained, then engage ball joint with rod end clip.

Start engine and recheck setting (600-650 rpm) with N (Neutral) push button engaged and handbrake applied. Check the accelerator pedal angle to make sure

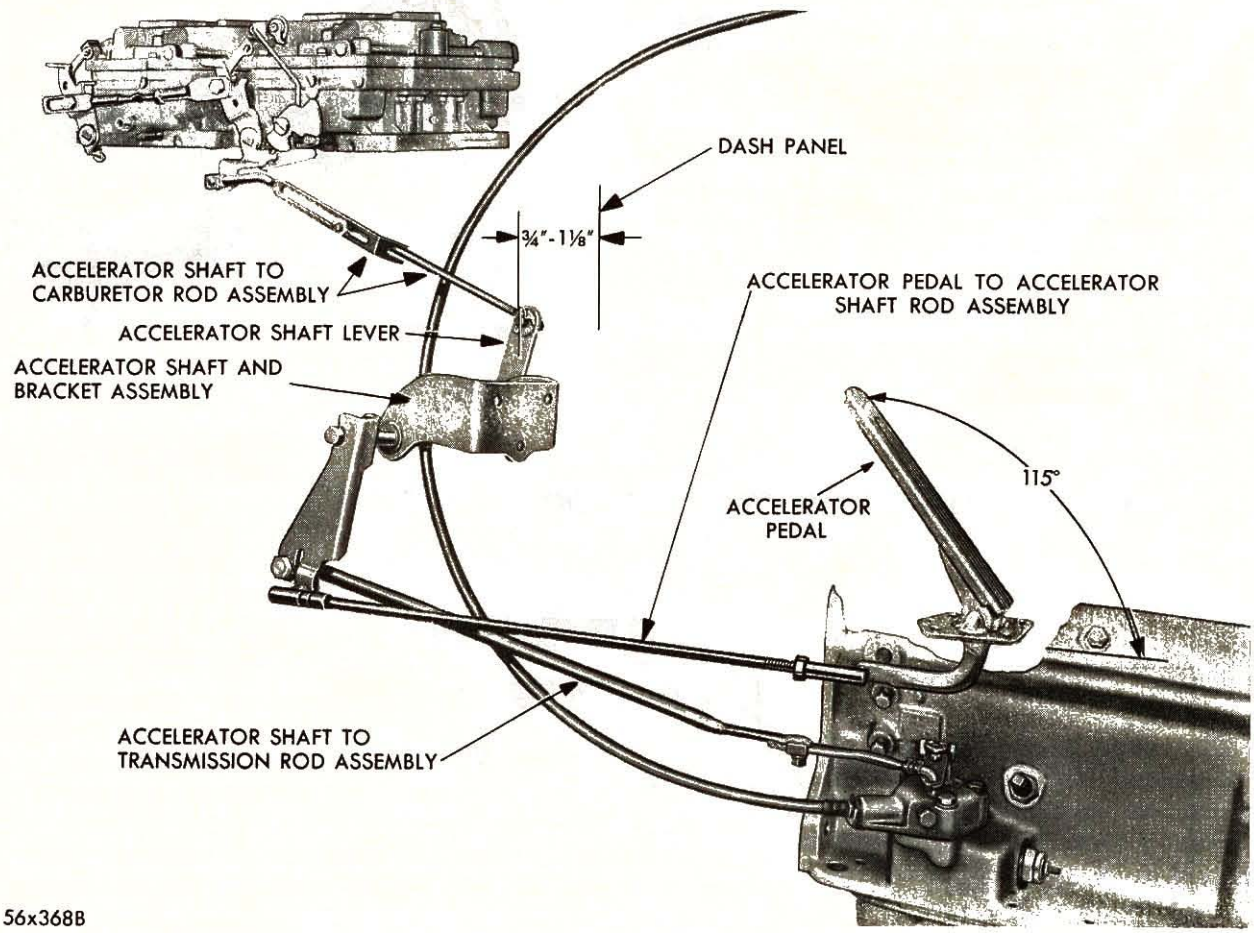


Fig. 10 - Transmission Throttle Linkage

TRANSMISSION THROTTLE LINKAGE ADJUSTMENT (continued)

it is 115 degrees to the horizontal, as shown in Figure 9. Proper pedal angle is obtained by adjusting the accelerator pedal to accelerator shaft rod length at the ball joint located on the accelerator pedal end. Check for any binding in the throttle linkage and correct if present. All TorqueFlite transmission equipped cars have a throttle linkage adjustment at the transmission throttle operating lever. The purpose of this adjustment is to allow for permissible variations between body and engine locations in manufacturing and should not be used for making the throttle linkage adjustment.

If, after making adjustment, satisfactory performance is still not obtained, check to see if the correct accelerator shaft lever assembly has been used. The shaft lever must be 3 1/4 inches in length between center line of hole diameters (2 7/8 inches when used with two barrel carburetor).

When linkage is correctly installed, a clearance of 3/4 - 1 1/8 inch should exist between dash panel and center of accelerator shaft to carburetor rod pin as shown in Figure 10.

GOVERNOR ASSEMBLY

Should it ever become necessary to replace either the governor weights (inner or outer) and/or weight spring (Figure 11), it is essential that the following parts be used:

Part Name	Part Number
Outer Weight	1823726
Inner Weight	1636462
Spring	1823709

Be sure to recheck governor pressure. See Governor Pressure Chart - Next Paragraph.

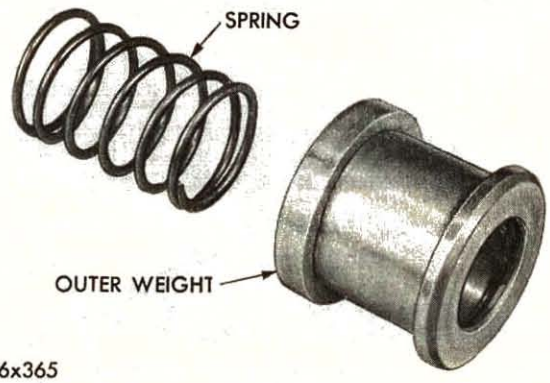


Fig. 11 - Transmission Governor Outer Weight and Spring

PRESSURE CHECKS

Pressure check procedures remain unchanged, except for governor values which are given in the following chart:

GOVERNOR PRESSURE CHART

Governor Pressure	(3.31:1 AXLE RATIO) Vehicle Speed (in miles per hour)
15 psi.	21-23
50 psi.	48-53
75 psi.	71-77

NOTE: All shift speeds may vary somewhat due to production tolerances and rear axle ratios - which is not too important, however, the quality of the shifts is very important. All shifts should be smooth, responsive, and with no noticeable engine runaway. Slight variations in above pressures are permissible, and no corrective action should be taken unless a definite problem exists with shift pattern or shift quality, assuming that no speedometer error exists.

1. Adjustments and inspection recommended during warranty period.

   a. Kickdown band adjustment.

   b. Throttle linkage adjustment.

   c. Check and adjust transmission oil level.

2. Adjustments and inspection recommended every 10,000 miles.

   a. Remove oil pan and clean intake screen.

   b. Adjust kickdown band.

   c. Adjust low-reverse band.

   d. Change transmission fluid.

   e. Check and if necessary, adjust torqueflite line pressure. It should be 89 to 91 psi at 1200 engine rpm.

12. UNIVERSAL JOINTS AND PROPELLER SHAFT

The universal joint is of the same basic design as used in the MC-3.

A heavier ribbed front universal joint dust cover boot is used to prevent boot collapsing due to higher speed.

For Service Procedures, refer to 1958 Chrysler and Imperial Service Manual, D-16350.

13. WHEELS AND TIRES

The Hi-Speed Super Cushion Nylon Special Blue Streak tubeless tires (white - sidewall) (9.00 x 14) are standard equipment on the 300 E.

For Service Procedures, refer to the 1958 Chrysler and Imperial Service Manual and 1959 Supplement.

14. BODY AND SHEET METAL

The basic body to frame assemblies are similar to the MC-3 standard body. The hood panel, hood lock, front fender assembly and radiator grille are entirely different from other Chrysler Models, and the front bumper and chrome moulding have also been modified. The roof panel, compound windshield and rear glass, for the Special Club Coupe are the same as used on Chrysler Special Club Models. The convertible windshield, folding top and rear curtain are the same as used on the MC-3 convertibles.

14. BODY AND SHEET METAL (continued)

The door and quarter glass and panels are the same as used on the MC-3 Special Club Coupe and Convertibles, respectively, except that new chrome moulding attaching holes must be drilled in panels to correspond with the body trim mouldings, therefore, doors and quarter panels should be obtained without moulding holes. The rear deck lid has been modified with standard deck latch and lock assembly. Use deck lid less holes, drill to suit.

Swivel seats are standard equipment on the Chrysler 300-E. Installation, removal and servicing of body components are similar to the procedures in the 1959 Chrysler and Imperial Service Supplement.

15. LUBRICATION

Follow the same recommendations as used on Model MC-3. Refer to the 1959 Chrysler and Imperial Service Manual Supplement.

16. RADIO AND HEATER

Radio and heater models are identical with those used on the MC-3.

For Service Procedures, refer to the 1959 Chrysler and Imperial Service Manual Supplement.

17. HEATER - AIR CONDITIONING

The Heater-Air Conditioning Unit used in the C 300-E is identical with the unit used in Model MC-3.

Service Procedures are the same as outlined in the 1959 Chrysler and Imperial Service Manual Supplement.