1963

FORD FALCON

and

1962-63

MERCURY COMET

SHOP MANUAL

SUPPLEMENT

This page is blank

1963

FORD FALCON and MERCURY COMET

SUPPLEMENT

GROUP INDEX

This page is blank

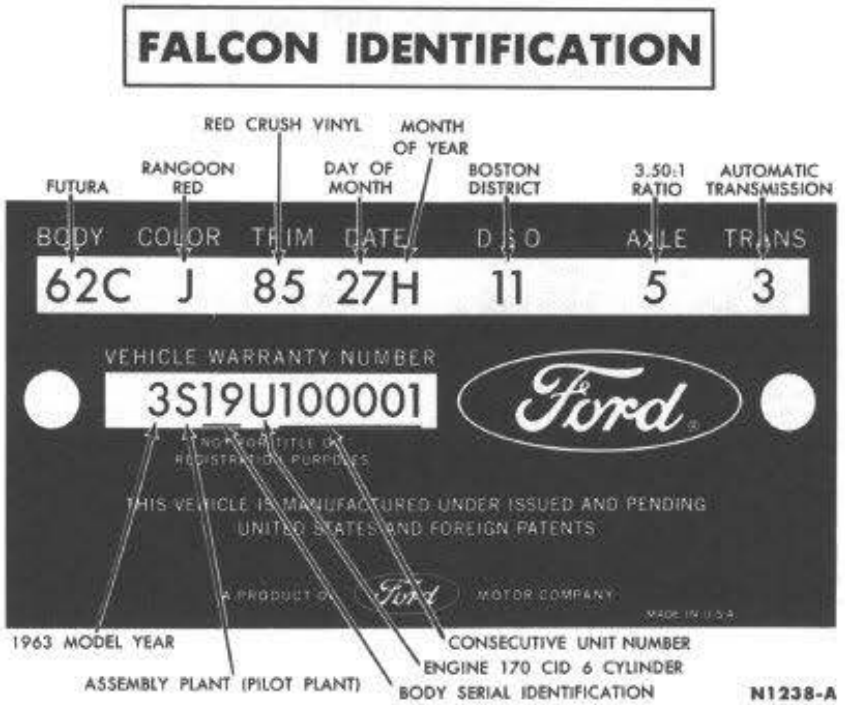


FIG. 1—1963 Falcon Warranty Plate

Figure 1 illustrates the 1963 Falcon Warranty plate. The plate is located on the rear face of the left front door panel.

The 1963 warranty plate is similar to the one used for 1962. However, the SERIAL NUMBER has been changed to VEHICLE WARRANTY NUMBER. Also, shown in the 1963 DSO space is a two-digit code number of the district which ordered the vehicle.

The official Vehicle Identification Number for title and registration purposes is stamped on the left cowl-to-front-spring pocket strut (Fig. 2). Do not use the "Vehicle Warranty Number" which appears on the Warranty plate for title or registration purposes.

MODEL YEAR CODE

The first numeral (3) of the Vehicle Warranty Number identifies the model year 1963.

FIG. 2—1963 Falcon Vehicle Identification Number Location

ASSEMBLY PLANT CODES

Code Letter	Assembly Plant
A	Atlanta
H	Lorain
J	Los Angeles
R	San Jose
S	Pilot Plant
T	Metuchen

MODEL AND BODY STYLE CODES

The two-digit numeral, which follows the assembly plant code letter, identifies the body series. This two-digit number is used in conjunction with the BODY type code which consists of a two-digit number with a letter suffix. The following chart lists the model, serial and body type identification codes.

Serial Code	Body Code	Body Type	Model
01	62A	2-Door Sedan	Std. Sedan
02	54A	4-Door Sedan	
19	62B	2-Door Sedan (Bench Seat)	Futura
19	62C	2-Door Sedan (Bucket Seat)	
15	76A	2-Door Convert. (Bench Seat)	
15	76B	2-Door Convert. (Bucket Seat)	
16	54B	4-Door Sedan (Bench Seat)	
21	59A	2-Door Sta. Wag.	Station Wagons
22	71A	4-Door Sta. Wag.	
23	59B	2-Door Deluxe Sta. Wag.	
24	71B	4-Door Deluxe Sta. Wag.	
26	71C	4-Door Squire	
26	71D	4-Door Squire (Bucket Seat)	
27	66A	2-Door Ranchero	Ranchero
27	66B	2-Door Deluxe Ranchero	
29	78A	2-Door Sedan Delivery	Sedan Delivery
29	78B	2-Door Deluxe Sedan Delivery	

ENGINE IDENTIFICATION CODES

Code	Engine
S	144 Six
U	170 Six
*2	144 Six
*4	170 Six

*Low Compression

CONSECUTIVE UNIT NUMBER

Each assembly plant begins production with the number 100001 and continues on for each car built.

COLOR CODES

A single letter code designates a solid body color and two letters denote a two-tone—the first letter, the lower color and the second letter, the upper color.

Code	Color	*"M" Number
A	Raven Black	M-30-J-1724
D	Ming Green (Met.)	M-30-J-1451
E	Viking Blue (Met.)	M-30-J-1448
H	Oxford Blue (Met.)	M-30-J-1447
I	Champagne	M-30-J-1459
J	Rangoon Red	M-30-J-1515
M	Corinthian White	M-30-J-1238
P	Silver Moss (Met.)	M-30-J-1454
T	Sandshell Beige	M-30-J-1543
W	Rose Beige	M-30-J-1555
X	Heritage Burgundy	M-30-J-1444
Y	Glacier Blue	M-30-J-1553

*"M-32-J" alternate with "M-30-J"

TRIM CODES

A two-digit number indicates the type of trim and trim color.

If, due to unavailability or other difficulties in production, a particular trim set is not intended for service (minor deviation from intended trim), the warranty plate code will be followed with a numerical designation. For example: 52-1, 52-2.

If the deviation trim set is serviced directly, the warranty plate code will bear an alphabetical suffix. For example: 52-A, 52-B.

Code	Trim Scheme	
	Crush Vinyl and Bar Line Body Cloth	
22	Lt. Blue Met.	Med. Blue
24	Pearl Beige	Med. Beige
25	Red	Red
27	Lt. Turquoise Met.	Med. Turquoise
28	Lt. Gold Met.	Gold
	Crush Vinyl	
52	Lt. Blue D/L	Med. Blue D/L
55	Red	
56	Black	
57	Lt. Turquoise D/L	Med. Turqouise D/L
58	Lt. Gold D/L	Pearl Gold
72	Lt. Blue Met.	Med. Blue Met.
75	Red	
77	Lt. Turquoise	Med. Turquoise
78	Lt. Gold Met.	Pearl Gold
82	Lt. Blue D/L	Med. Blue D/L
85	Red	
86	Black	
87	Lt. Turquoise D/L	Med. Turquoise D/L
88	Lt. Gold D/L	Pearl Gold
	Crush Vinyl and Ladder Body Cloth	
18	Lt. Gold Met.	Gold
92	Lt. Blue	Med. Blue
95	Red	Red
98	Lt. Gold Met.	Gold

DATE CODES

A number signifying the date precedes the month code letter. A second-year code letter will be used if the model exceeds 12 months.

Month	Code First Year	Code Second Year
January	A	N
February	B	P
March	C	Q
April	D	R
May	E	S
June	F	T
July	G	U
August	H	V
September	J	W
October	K	X
November	L	Y
December	M	Z

DSO AND DISTRICT CODES

Units built on a Domestic Special Order, Foreign Special Order, or other special orders will have the complete order number in this space. Also to appear in this space is the two-digit code number of the District which ordered the unit. If the unit is a regular production unit, only the District code number will appear.

Code	District	Code	District
11	Boston	45	Davenport
12	Buffalo	51	Denver
13	New York	52	Des Moines
14	Pittsburgh	53	Kansas City
15	Newark	54	Omaha
21	Atlanta	55	St. Louis
22	Charlotte	61	Dallas
23	Philadelphia	62	Houston
24	Jacksonville	63	Memphis
25	Richmond	64	New Orleans
26	Washington	65	Oklahoma City
31	Cincinnati	71	Los Angeles
32	Cleveland	72	San Jose
33	Detroit	73	Salt Lake City
34	Indianapolis	74	Seattle
35	Lansing	81	Ford of Canada
36	Louisville	83	Government
41	Chicago	84	Home Office Reserve
42	Fargo	85	American Red Cross
43	Rockford	89	Transportation Services
44	Twin Cities	90-99	Export

REAR AXLE RATIO CODES

Code	Ratio	Code	Ratio
2	3.10 to 1	5	3.50 to 1
3	3.20 to 1	9	4.00 to 1

TRANSMISSION CODES

Code	Type
1	3-Speed Manual
3	2-Speed Automatic
5	4-Speed Manual

COMET IDENTIFICATION

Fig. 3 illustrates the 1963 Comet warranty plate. The plate is located on the rear face of the left front door panel.

The 1963 warranty plate is similar to the one used for 1962. However, the SERIAL NUMBER has been changed to VEHICLE WARRANTY NUMBER. Also, shown in the 1963 DSO space is the two-digit code number of the district which ordered the vehicle.

The official Vehicle Identification Number for title and registration purposes is stamped on the left cowl-to-front-spring pocket strut (Fig. 4). Do not use the Vehicle Warranty Number which appears on the warranty plate for title or registration purposes.

MODEL YEAR CODE

Code	Year
3	1963

ASSEMBLY PLANT CODES

Code Letter	Assembly Plant	Code Letter	Assembly Plant
J	Los Angeles	R	San Jose
K	Kansas City	S	Pilot Plant
H	Lorain	T	Metuchen

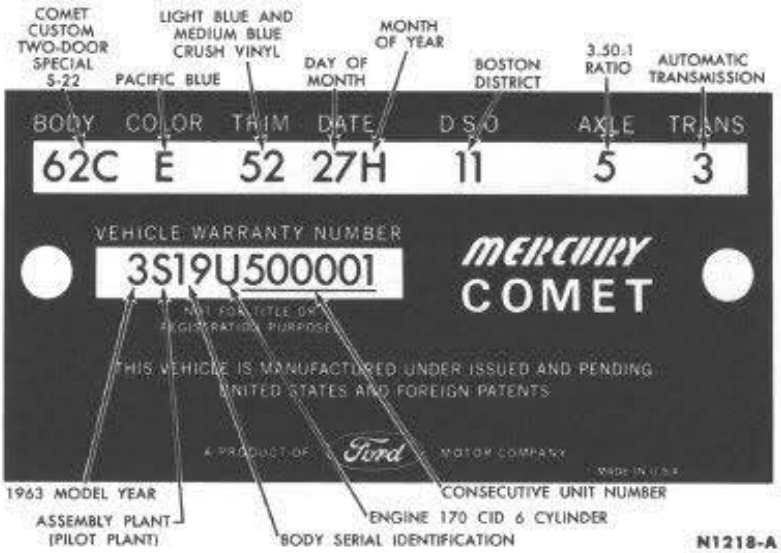


FIG. 3—1963 Comet Warranty Plate

MODEL AND BODY STYLE CODES

The two-digit numeral which follows the assembly plant code letter identifies the body series. This two-digit numeral is used in conjunction with the BODY type code which consists of a two-digit numeral with a letter suffix. The chart lists the model, serial and body type identification codes.

Serial Code	Body Code	Body Type	Model
01	62A	2-Door Sedan	
02	54A	4-Door Sedan	Mercury
21	59A	2-Door Station Wagon	Comet
22	71A	4-Door Station Wagon	
11	62B	2-Door Sedan	
12	54B	4-Door Sedan	
15	76A	2-Door Convertible	
17	63B	2-Door Hardtop	
17	63C	2-Door S-22 Hardtop	Mercury
19	62C	2-Door S-22 Sedan	Comet
23	59B	2-Door Station Wagon	Custom
24	71B	4-Door Station Wagon	
26	71C	4-Door Station Wagon - Wood Rail	
26	71D	4-Door Station Wagon - Bucket Seat, Wood Rail	

FIG. 4—1963 Comet Vehicle Identification Number Location

ENGINE IDENTIFICATION CODES

Code	Engine
S	144 Six
U	170 Six
*2	144 Six
*4	170 Six

*Low Compression

CONSECUTIVE UNIT NUMBER

Each model year, each assembly plant begins production with the number 500001 and continues on for each car built.

COLOR CODES

A single-letter code designates a solid body color and two letters denote a two-tone—the first letter, the lower color and the second letter, the upper color.

Code	Color	*"M" Number
A	Presidential Black	M-30-J-1724
B	Peacock Turquoise	M-30-J-1613
D	Ocean Turquoise (met.)	M-30-J-1451
E	Pacific Blue (met.)	M-30-J-1448
H	Blue Satin (met.)	M-30-J-1447
I	Castilian Gold	M-30-J-1459
J	Carnival Red	M-30-J-1515
M	Sultana White	M-30-J-1238
P	Scotch Green	M-30-J-1454
T	Champagne	M-30-J-1543
W	Pink Frost	M-30-J-1555
X	Black Cherry (met.)	M-30-J-1444
Y	Cascade Blue	M-30-J-1553
Z	Desert Frost (met.)	M-30-J-1427

*"M-32-J" alternate with "M-30-J"

TRIM CODES

A two-digit number indicates the type of trim and trim color.

If, due to unavailability or other difficulties in production, a particular trim set is not intended for service (minor deviation from intended trim), the warranty plate code will be followed with a numerical designation—For example: 52-1, 52-2.

If the trim set is serviced directly, the warranty plate code will bear an alphabetical suffix—For example: 52-A, 52-B.

Code	Trim Scheme	
	Stripe Pattern Cloth and Vinyl	
12	Med. Blue	Lt. Blue Met.
14	Med. Beige	Pearl Beige
15	Black	Red
16	Black	White
17	Med. Turquoise	Lt. Turquoise Met.
	Metallic Rib Cloth and Vinyl	
42	Blue	Lt. Blue Met.
44	Beige	Beige
45	Black	Red
46	Black	White
47	Turquoise	Lt. Turquoise Met.
	Crush Vinyl and Crush Vinyl	
52	Lt. Blue D/L	Med. Blue D/L
54	Lt. Beige D/L	Pearl Beige
55	Red	
56	Black	Pearl Beige
57	Lt. Turquoise D/L	Med. Turquoise D/L
58	Lt. Gold D/L	Lt. Gold Pearl

TRIM CODES (Cont.)

Code	Trim Scheme Crush Vinyl and Vachette Vinyl	
72	Lt. Blue Met.	Med. Blue Met.
74	Pearl Beige	Lt. Beige Met.
75	White	Red
76	White	Black
77	Lt. Turquoise Met.	Med. Turquoise Met.
78	Lt. Gold Met.	Pearl Gold Met.
82	Lt. Blue	Med. Blue
84	Pearl Beige	Lt. Beige
85	Red	Red
86	White Pearl	Black

DSO AND DISTRICT CODES

Units built on a Domestic Special Order, Foreign Special Order, or other special orders will have the complete order number in this space. Also to appear in this space is the two-digit code number of the District which ordered the unit. If the unit is a regular production unit, only the District code number will appear.

Code	District	Code	District
11	Boston	35	Pittsburgh
12	Philadelphia	41	Chicago
13	New York	43	Kansas City
14	Washington	44	St. Louis
21	Atlanta	45	Twin Cities
22	Dallas	51	Denver
24	Jacksonville	52	Los Angeles
25	Memphis	53	Oakland
31	Buffalo	54	Seattle
32	Cincinnati	81	Ford of Canada
33	Cleveland	84	Home Office Reserve
34	Detroit	90-99	Export

DATE CODES

A number signifying the date precedes the month code letter. A second-year code letter will be used if the model exceeds 12 months.

Month	Code First Year	Code Second Year
January	A	N
February	B	P
March	C	Q
April	D	R
May	E	S
June	F	T
July	G	U
August	H	V
September	J	W
October	K	X
November	L	Y
December	M	Z

REAR AXLE RATIO CODES

Code	Ratio	Code	Ratio
2	3.10 to 1	5	3.50 to 1
3	3.20 to 1	9	4.00 to 1

TRANSMISSION CODES

Code	Type
1	3-Speed Manual
3	2-Speed Automatic
5	4-Speed Manual

GROUP 1—ENGINES AND EXHAUST SYSTEM

The 1963 maintenance recommendations are in Group 13 and the 1963 specifications are in Group 14 of this manual.

All the service procedures in Group 1 of the 1960-1961-1962 Falcon Shop Manual remain the same for 1963 except as described herein. All the service procedures in Section 6 of the 1961 Comet Maintenance Manual and the 1962 portion of this manual remain the same for 1963 with the following exceptions.

DESCRIPTION

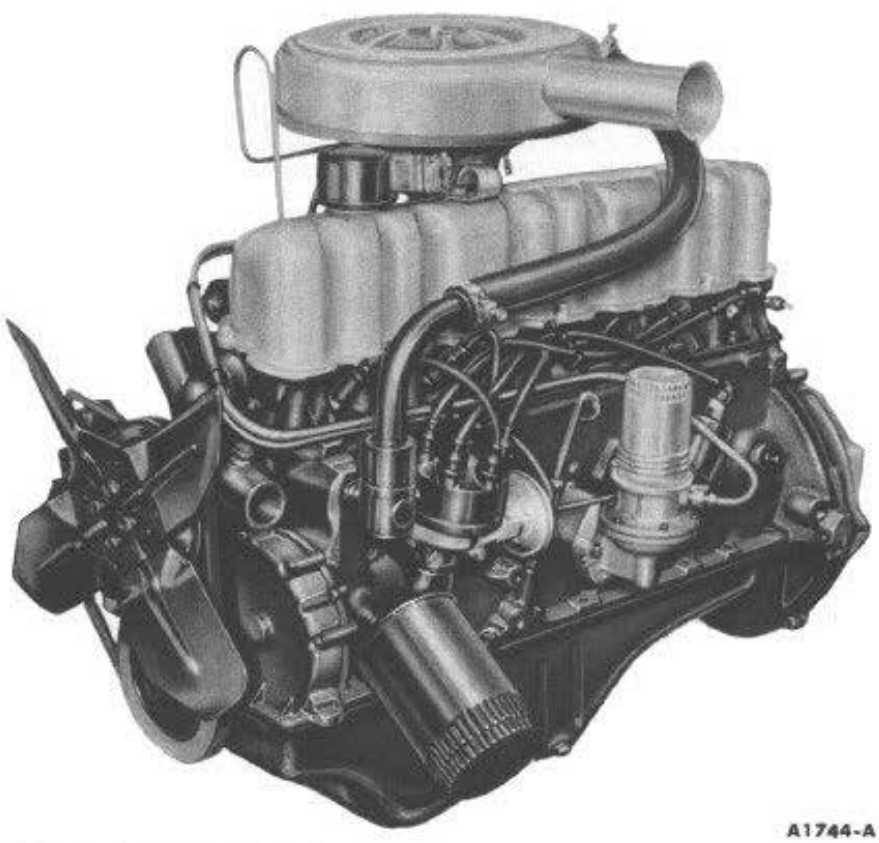
The 1963 144 and 170 Six engines have the same basic design as the 1962 144 and 170 Six engines. The Warranty Plate identification symbol for the 144 Six engine is "S" and the 170 Six engine Warranty Plate identification symbol is "U".

The exterior appearance of the engine is changed (Fig. 5) due to the revised mounting of engine accessories; i.e., fuel pump, fuel filter, and crankcase ventilation system.

Other changes in the engine are described herein.

VALVE TRAIN

The 1963 144 and 170 engines



A1744-A

FIG. 5—¾ Left Front View—Typical

utilize hydraulic valve lifters to provide zero lash. The operation and parts identification of the hydraulic valve lifters are shown in Fig. 6. When the valve is closed, the lifter assembly is on the base circle of the camshaft lobe and the valve push rod is in its lowest position. With the lifter assembly in this position, the plunger spring expands, forcing the plunger upward. This action is transmitted to the valve rocker arm via the valve push rod until there is solid contact between the valve and the valve end of valve rocker arm (zero valve lash). In this position, the oil hole in the lifter and plunger is indexed with the lifter oil gallery and oil is forced under pressure into the plunger. This creates a pressure differential above and below the check valve (disc or ball check). The high pressure above the check valve forces it open and the oil fills the area below the plunger, equalizing the pressure on each side of the check valve.

Whenever clearance between the valve and the valve rocker arms tends to be present, the plunger spring expands, pushing the plunger until there is solid contact between all parts of the valve train mechanism.

As the camshaft rotates (valve opening), the valve lifter is raised and the sudden increase in oil pressure below the plunger forces the check valve closed, and the lifter becomes a hydraulic ram. During this period, a slight leakage of oil occurs from below the plunger. As the high point on the camshaft lobe rotates past the lifter, the push rod forces the valve lifter down and seats the valve. The pressure on the oil below the plunger is relieved and the check valve opens so that the chamber can be filled again. This cycle is repeated for each revolution of the camshaft.

POSITIVE CRANKCASE VENTILATION SYSTEM

The positive crankcase ventilation system (crankcase emission reduction system) on the 1963 144 and 170 engines is new and different from that used on these engines in 1962.

The new positive crankcase ventilation system does not require a regulator valve (Fig. 7). Air and crankcase vapors (fumes) are drawn from the crankcase and timing chain housing through an adapter and connecting hose to the air inlet side of the air cleaner. The vacuum action (manifold vacuum) of the induction system and the crankcase pressure maintain a positive flow of ventilating air and crankcase vapors through the air cleaner and into the carburetor. A baffle in the inlet side of the air cleaner aids in mixing the crankcase fumes with ambient air before passing through the air cleaner element into the carburetor. The adapter, located at the front of the engine on the left side of the crankcase, incorporates suitable orifices to aid in regulating the air flow through it. Air enters the crankcase through the oil filler tube cap to replace the air and vapors emitted from the crankcase through the positive crankcase ventilation system.

ENGINE TROUBLE DIAGNOSIS GUIDE

NOISY HYDRAULIC VALVE LIFTER

A noisy hydraulic valve lifter can be located by operating the engine at idle speed and placing a finger on the face of the valve spring retainer. If the lifter is not functioning properly, a shock will be felt when the valve seats.

Another method of identifying a noisy lifter is by the use of a piece of hose. With the engine operating at idle speed, place one end of the hose near the end of the valve stem and the other end to the ear and listen for a metallic noise. Repeat this procedure on each intake and exhaust valve until the noisy lifter(s) has been located.

When the noisy lifter is located, it must be determined that the lifter is directly at fault and not noisy because of a problem in some other area of the engine. The following engine components should be checked before the lifter is removed for corrective action:

Bent push rod.

Scored or badly worn rocker arm and/or rocker arm shaft.

Broken or out-of-square valve spring.

Badly scored valve stem tip, rocker arm contact pad, or push rod socket.

Improper lifter (collapsed) operating clearance.

Badly scored or worn valve stem or guide.

The most common causes of hydraulic valve lifter troubles are foreign material, oil contamination, and oil aeration.

Dirt in the lifter assembly can prevent the check valve from seating, or it may become lodged between the plunger and body surfaces. In either case, the lifter becomes inoperative due to failure to "pump-up", or because the internal parts are no longer free to function properly. When dirt is found to be responsible

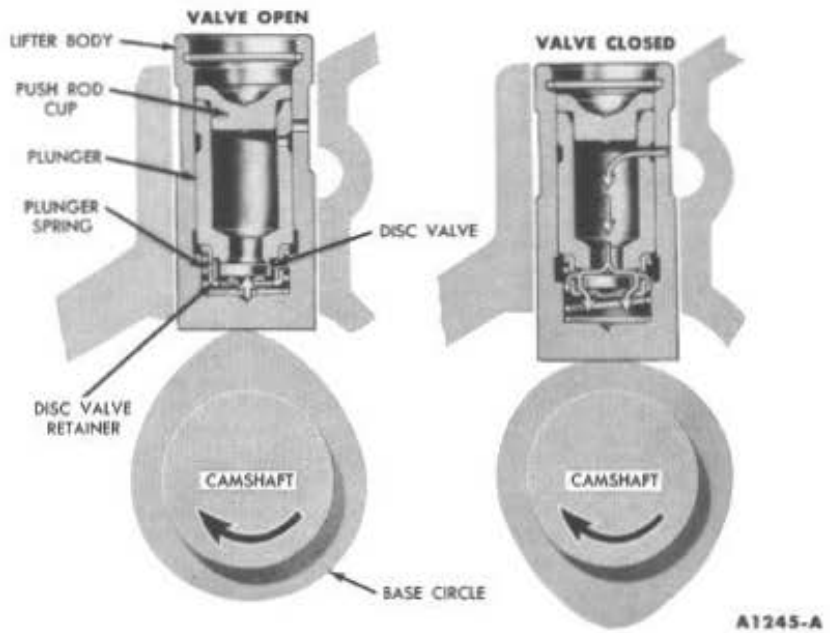


FIG. 6—Hydraulic Valve Lifter Operation

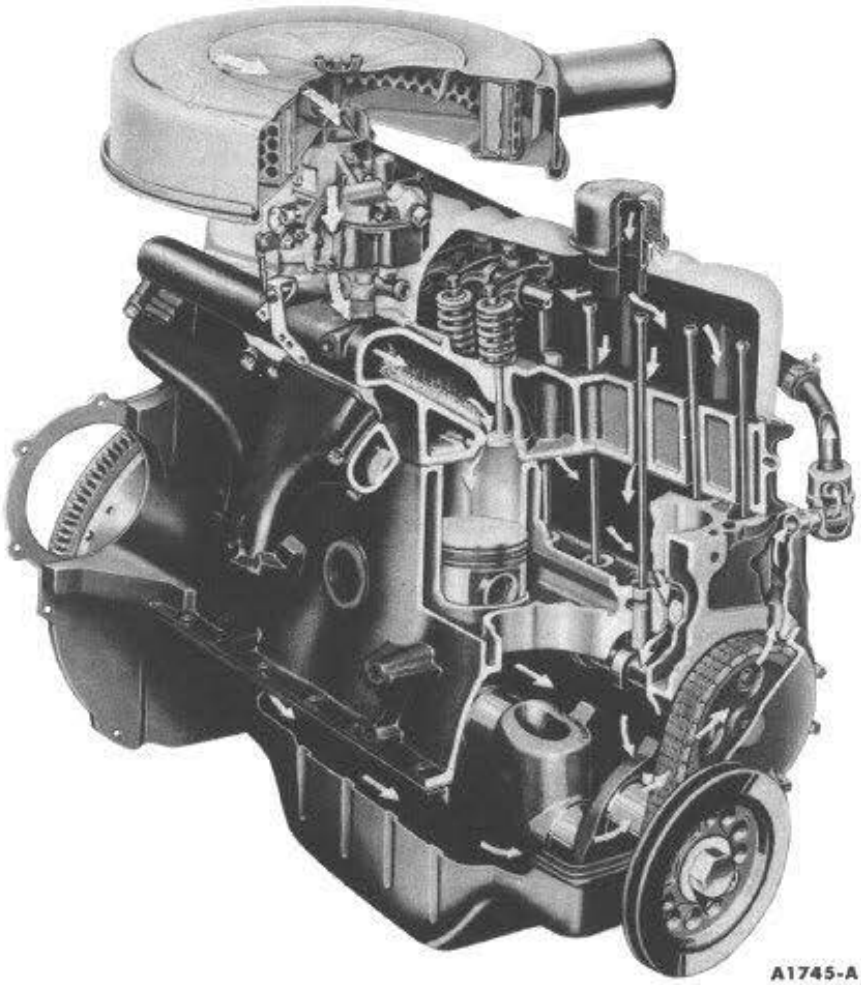


FIG. 7—Positive Crankcase Ventilation System

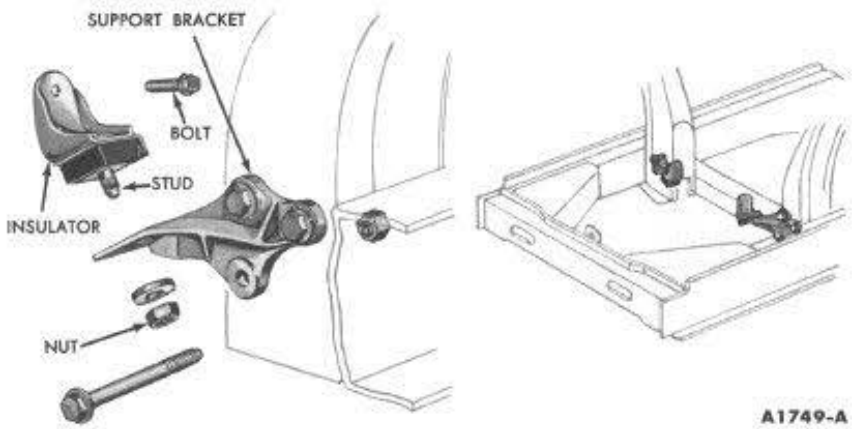


FIG. 8—Engine Front Support

for lifter malfunction, remove the lifter assembly and thoroughly clean it. Recommended engine oil and filter change intervals should be followed to minimize problems caused by dirt.

Deposits of gum and varnish cause similar conditions to exist which may result in lifter malfunction. If these conditions are found to be present, the lifter should be disassembled and cleaned in solvent to remove all traces of deposits.

Air bubbles in the lubricating oil, caused by an excessively high or low oil level, low engine oil pressure, and incorrect engine oil viscosity, may likewise cause lifter malfunction. Damaged oil pump components, such as a pick-up tube, may allow air to be drawn into the lubricating system. To check for the presence of air, remove a valve rocker arm cover and note the condition of the oil as it flows from the valve rocker arm. Perform corrective action as required to remove air from the lubricating oil.

INTERMITTENT NOISE AT IDLE SPEED

Intermittent noise at idle speed only and disappearing with increased engine speed may be caused by:

Incorrect oil viscosity and/or excessive oil dilution.

Oil aeration.

Defective lifter check valve and/or valve actuating spring.

Excessive lifter leak-down rate.

Dirt between check valve and seat.

Low engine oil pressure.

CONTINUOUS NOISE AT IDLE SPEED

Continuous noise at idle speed only and disappearing with increased engine speed may be caused by:

Incorrect oil viscosity and/or excessive oil dilution.

Excessive lifter leak-down rate.

Low engine oil pressure.

NOISE AT HIGH ENGINE SPEED

High crankcase oil level.

Low crankcase oil level.

IN-CHASSIS REPAIR OPERATIONS

ENGINE SUPPORTS

The engine front supports are located on each side of the crankcase (Fig. 8), and the cantilever leaf-spring rear support is located at the transmission extension housing (Fig. 9).

Engine Front Support. The procedures given apply to either a right or left installation.

REMOVAL

1. Remove the insulator to support bracket nuts and washers from both insulators (Fig. 8).

2. Raise the engine with a jack and wood block placed under the oil pan.

3. Remove the insulator to engine

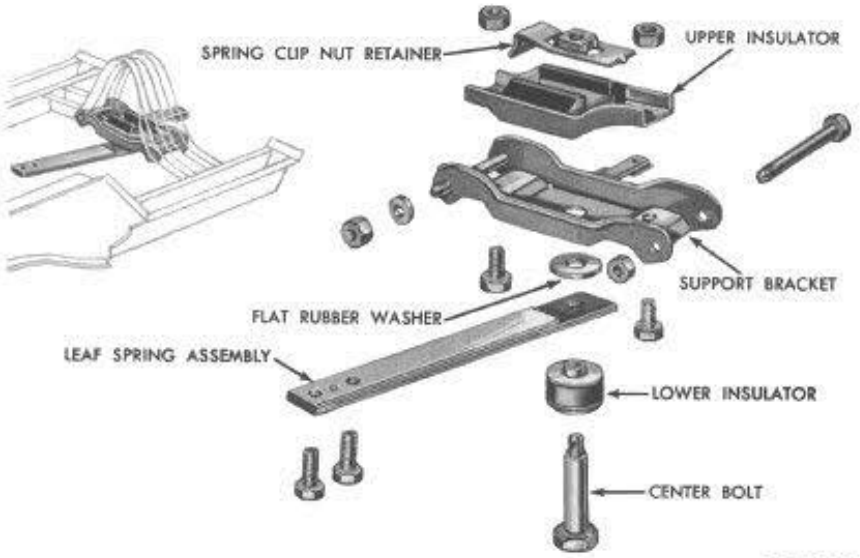


FIG. 9—Engine Cantilever Leaf-Spring Rear Support

bolts and washers and remove the insulator.

INSTALLATION

1. Position the insulator assembly (Fig. 8) on the engine and install the insulator to engine bolts and washers finger-tight.

2. Lower the engine carefully to make sure the insulator stud engages the hole in the support bracket.

3. Install the insulator to support bracket washer and nut on both engine front mounts. Tighten the insulator bolts and nuts to specifications.

Engine Cantilever Leaf-Spring Rear Support

REMOVAL

1. Disconnect the parking brake equalizer lever from the support bracket.

2. Support the transmission with a floor jack. Remove the leaf-spring center bolt and lower insulator (Fig. 9). Remove the leaf-spring to transmission extension housing attaching bolts. Remove the leaf-spring and flat rubber washer.

3. Remove the support bracket to body cross member bolts, and remove the support bracket and upper insulator assembly and spring clip nut retainer.

4. Remove two bolts to disassemble the support bracket and upper insulator.

INSTALLATION

1. Assemble the support bracket and upper insulator (Fig. 9) and tighten the bolts and nuts to specifications.

2. Position the spring clip nut retainer on the upper insulator and support bracket assembly, and install the support bracket assembly on the body cross member. **Make sure there is a minimum clearance of 0.20 inch between the transmission extension housing and the upper insulator.** Tighten the support bracket to body cross member bolts to specifications.

3. Position the flat rubber washer on top of the leaf-spring and install the leaf-spring on the transmission extension housing. Torque the bolts to specifications.

4. Install the lower insulator and center bolt, and tighten the center bolt to specifications. Remove the transmission jack.

5. Connect the parking brake equalizer lever to the support bracket.

CYLINDER HEAD

Cylinder head gasket sealer is no longer required when installing a new cylinder head gasket.

POSITIVE CRANKCASE VENTILATION SYSTEM

Cleaning and Replacement

1. To remove the system for cleaning or replacement, loosen the hose clamps and slide the hose off the adapter and air cleaner.

2. The adapter is a press-fit in the cylinder block. To remove the adapter, tap it lightly with a soft (rubber) hammer on each side while pulling outward on the adapter.

3. Clean the positive crankcase ventilation system at the specified interval. Clean the adapter with clean carburetor solvent. Clean the hose in a low-volatility, petroleum-base solvent. Dry the hose and adapter with compressed air.

4. Position the adapter in the cylinder block and tap it lightly with a soft hammer until it is firmly seated in the cylinder block. Install the hose and clamps.

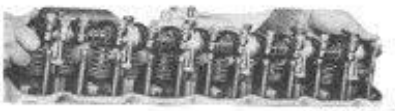

A1375-A

FIG. 10—Valve Rocker Arm Shaft Removal

VALVE ROCKER ARM SHAFT ASSEMBLY

Removal

1. Remove the valve rocker arm cover and discard the gasket.

2. Remove the rocker arm shaft support retaining bolts by loosening the bolts two turns at a time in sequence. Remove the rocker arm shaft assembly (Fig. 10).

Installation

1. Apply Lubriplate to both ends of the push rods and to the valve stem tip.

2. Position the valve rocker arm shaft assembly on the cylinder head.

3. Install and tighten all valve rocker arm shaft support bolts, two turns at a time in sequence, until the supports fully contact the cylinder head. Torque the bolts to specifications.

4. Adjust the valve clearance, following the procedure outlined under "Valve Clearance—Hydraulic Valve Lifters".

5. Clean the valve rocker arm cover and cylinder head gasket surface. Coat one side of a new gasket with an oil resistant sealer and lay the cemented side of the gasket in place on the cover (Fig. 11). Install the cover making sure the gasket seats evenly around the head. Tighten the cover retaining bolts in two steps. First, torque the bolts to specifica-


A1376-A

FIG. 11—Valve Rocker Arm Cover Gasket Installation

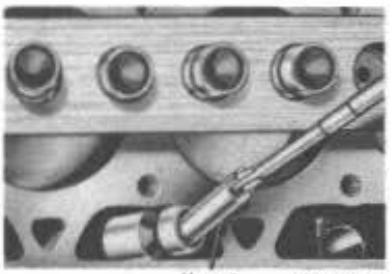


FIG. 12—Valve Lifter Removal

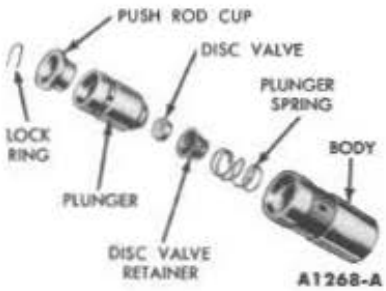


FIG. 13—Typical Hydraulic Valve Lifter Assembly

tions then, retorque to the same specifications two minutes after initial tightening.

HYDRAULIC VALVE LIFTER

Replacement

1. Remove the air cleaner by following the procedure in Group 3.
2. Remove the cylinder head and related parts following the procedure under "Cylinder Head Removal" (page 1-15 of 1960-1961-1962 Falcon Shop Manual or page 6-34 of 1961 Comet Maintenance Manual).
3. Using a magnet, remove the valve lifters (Fig. 12). Place the lifters in a rack so that they can be installed in their original positions.
4. Dip the tappet foot in Lubriplate and coat the remainder of the tappet with engine oil. Install the new (or cleaned) hydraulic valve lifters through the push rod openings with a magnet (Fig. 12).
5. Refer to the pertinent maintenance manual for instructions, and install the cylinder head and related parts, except—follow the procedures in this supplement for "Installation of the Rocker Arm Assembly" and "Valve Clearance Adjustment".

Disassembly. Each valve lifter is a matched assembly; therefore, the parts are not interchangeable. Disassemble and assemble each lifter

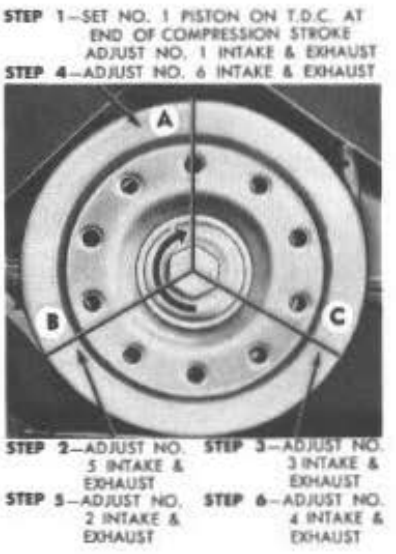


FIG. 14—Preliminary Valve Clearance Adjustment—Typical

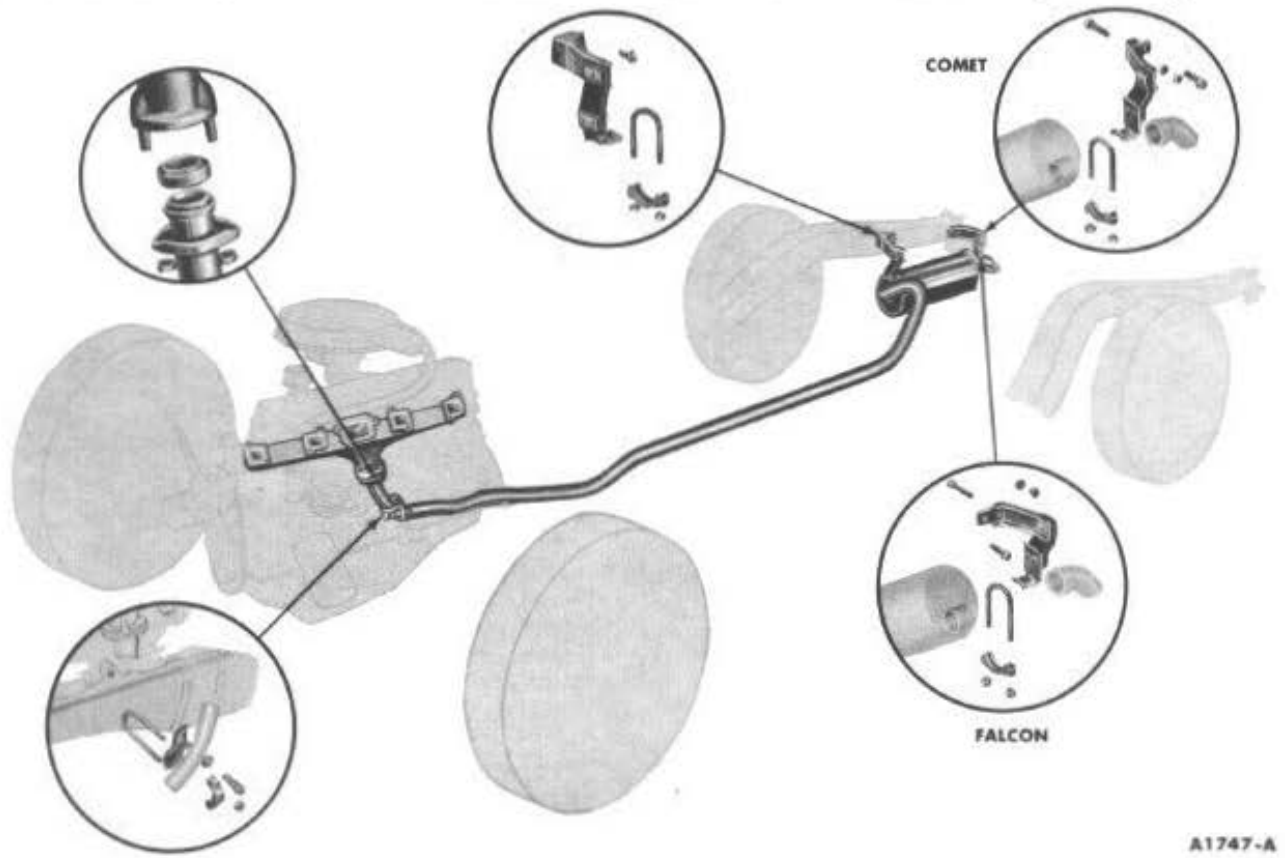
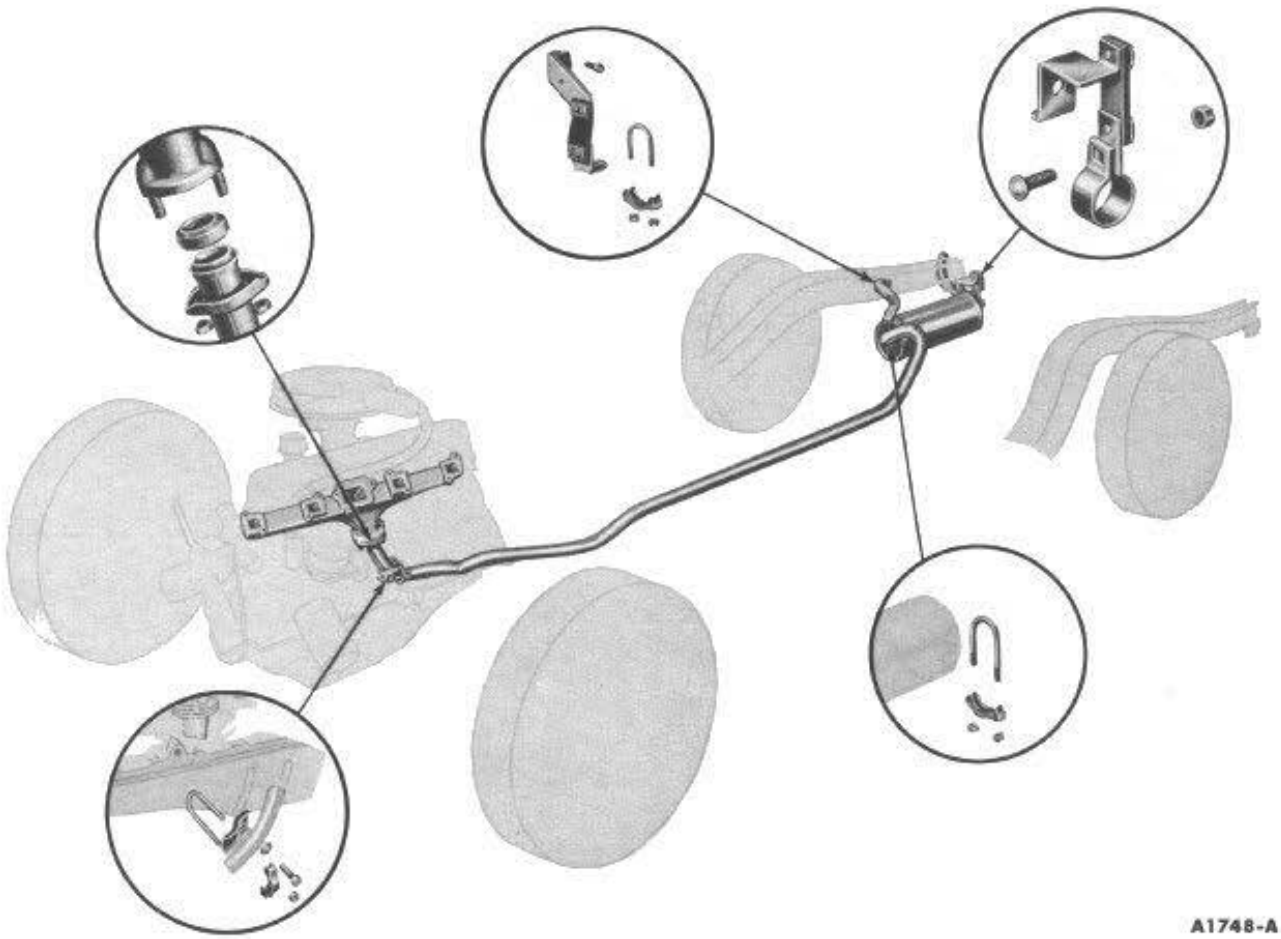


FIG. 15—Typical Passenger Car Exhaust System



A1748-A

FIG. 16—Typical Station Wagon Exhaust System

carefully, keeping the assemblies in proper sequence so they will be installed in their original bores.

1. Grasp the lock ring with needle nose pliers to release it from the groove. It may be necessary to depress the plunger to fully release the lock ring.

2. Remove the push rod cup, plunger, and spring.

3. Invert the plunger assembly and remove the check valve retainer by carefully prying up on it with a screwdriver. Remove the check valve and spring.

Assembly. A typical hydraulic valve lifter assembly is shown in Fig. 13.

1. Place the plunger upside down on a clean work bench.

2. Place the check valve in position over the oil hole on the bottom of the plunger. Set the check valve spring on top of the check valve.

3. Position the check valve retainer over the check valve and spring and push the retainer down into place on the plunger.

4. Place the plunger spring and and then the plunger (open end up) into the tappet body.

5. Place the push rod seat in the plunger.

6. Depress the plunger and position the closed end of the lock ring in the lifter body groove. Release the plunger; then depress it again to fully seat the lock ring.

Cleaning and Inspection. Thoroughly clean all the parts in clean solvent and wipe them with a clean, lint-free cloth.

Inspect the parts and discard the entire lifter assembly if any part shows signs of pitting, scoring, or galling or evidence of non-rotation. Replace the entire assembly if the plunger is not free in the body.

Assemble the lifter assembly and check for freeness of operation by pressing down on the push rod cup. The lifters can also be checked with a hydraulic tester to check the leakdown rate. Follow the instructions of the test unit manufacturer.

VALVE CLEARANCE— HYDRAULIC VALVE LIFTERS

Lifter Extended Method

The valve clearance may be adjusted by either of the following methods.

1. Make two chalk marks on the crankshaft pulley or damper (Fig. 14). Space the marks approximately 120° apart so that with the timing mark, the pulley or damper is divided into three equal parts (120° represents ⅓ of the distance around the pulley or damper circumference).

2. Rotate the crankshaft until No. 1 piston is approximately at T.D.C. at the end of the compression stroke. Adjust the No. 1 cylinder intake and exhaust valve lash. Turn the rocker arm adjusting screw clockwise (tighten) to remove all the push rod to rocker arm end clearance. This may be determined by rotating and/or moving the push rod with the fingers as the adjusting screw is tightened.

3. When all the push rod end clearance has been eliminated, tight-

en the adjusting screw an additional 2½ turns to place the hydraulic lifter plunger at the approximate center of its travel. **If the torque required to turn the self-locking adjusting screw is less than 3 ft-lbs, install a new standard or 0.002-inch oversize adjusting screw. If unable to obtain a minimum torque of 7 ft-lbs with the oversize adjusting screw, replace the rocker arm and adjusting screw assembly.**

4. Repeat this procedure (steps 2 and 3) for the remaining sets of valves, positioning each piston at approximately T.D.C. in the firing order sequence by turning the crankshaft ⅓ turn at a time in the direction of rotation. **The engine should not be cranked or rotated until the hydraulic lifters have had an opportunity to leak down to their normal operating positions or a bent valve may result. The leak-down rate may be accelerated by applying pressure on the push rod end of the rocker arm using Tool T58P-6565-A.**

Lifter Collapsed Method

1. Follow steps 2 and 3 of the "Lifter Extended Method".

2. Using tool T58P-6565-A, apply pressure to the push rod end of the rocker arm to slowly bleed down the valve lifter until the plunger is completely bottomed. Hold the lifter in this position and check the available clearance between the rocker arm and valve stem tip.

If clearance is not within specifications, turn the adjusting screw clockwise to decrease or counterclockwise to increase the clearance. Normally, one turn of the adjusting screw will alter the clearance by 0.075 inch at the valve stem tip.

EXHAUST SYSTEMS (Part 1-2)

Figure 15 shows a typical passenger car exhaust system, and a typical exhaust system for a Station Wagon is shown in Fig. 16.

REPLACEMENT

When replacing exhaust system components, coat the muffler inlet and outlet pipes with M-4G33-A sealer before assembly.

GROUP 2—IGNITION SYSTEM

The 1963 maintenance recommendations are in Group 13, and the 1963 specifications are in Group 14 of this manual.

The ignition system service procedures outlined in Group 2 of the 1960 - 1961 - 1962 Falcon Shop Manual apply to the 1963 Falcon. All the service procedures in Section 9 of the 1961 Comet Maintenance Manual and the 1962 portion of this manual remain the same for 1963.

GROUP 3 — FUEL SYSTEM

The 1963 maintenance recommendations are in Group 13 and the 1963 specifications are in Group 14 of this manual.

All the service procedures in Group 3 of the 1960 - 1961 - 1962 Falcon Shop Manual remain the same for 1963 except as described herein. All the service procedures in Section 8 of the 1961 Comet Maintenance Manual and the 1962 portion of this manual supplement remain the same for 1963 except for those items covered in this supplement.

FUEL SYSTEM MAINTENANCE (PART 3-1)

CARBURETOR IN-CHASSIS ADJUSTMENTS — FORD SINGLE-BARREL

All carburetor in-chassis adjustments, with the exception of the "Final (Hot) Engine Idle and Fuel Mixture" adjustments, can also be performed as bench adjustments, with the carburetor removed from the car. The "Automatic Choke Fast Idle Adjustment" and the "Automatic Choke Linkage (Pulldown) Adjustment" must be performed as "Carburetor Bench Adjustments".

Idle Adjustments. A stop screw at the throttle lever flange of the carburetor (Figs. 17 and 18) controls the engine idle speed. Turn the screw outward to increase the engine idle speed and inward to decrease the engine idle speed. Make the idle adjustments in the sequence listed.

INITIAL CURB IDLE — MANUAL CHOKE. The initial curb idle adjustment will automatically set the initial fast idle rpm required.

Position the choke control lever so that the choke plate is fully open. Seat the throttle plate in the throttle bore. **It may be necessary to back off on the dashpot adjustment screw to seat the throttle plate in the throttle bore.** Set the idle adjusting screw to just make contact with the cam contour; then, turn the screw outward an additional turn.

The "Final (Hot) Engine Idle and Fuel Mixture" adjustments provide the specified rpm required for the car model.

FINAL (HOT) ENGINE IDLE AND FUEL MIXTURE

1. Place the transmission selector lever in neutral position and set the parking brake.

2. Operate the engine at fast idle until the temperature has stabi-

FIG. 17—Ford Single-Barrel Idle Speed Adjustment—Automatic Choke

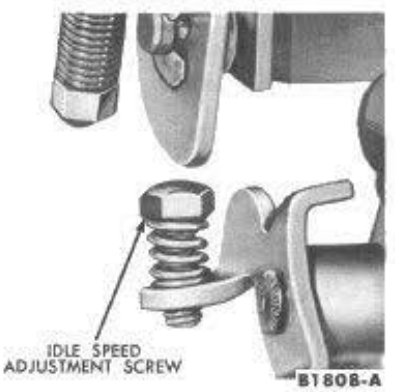


FIG. 18—Ford Single-Barrel Idle Speed Adjustment—Manual Choke

lized (approximately 1200 rpm for 30 minutes).

3. Attach a tachometer to the engine.

On a car with a manual-shift transmission, turn the idle speed "stop" screw in a direction to obtain the specified rpm. Open the throttle by hand and allow it to close normally. Recheck the engine idle speed.

On a car with an automatic transmission, **be sure the parking brake is on.** Place the transmission selector lever in neutral position. Check the engine idle speed and adjust it to the specified rpm in drive range.

Final engine idle speed may be varied to suit the conditions under which the car is to be operated.

4. Remove the tachometer if the idle fuel mixture is not going to be adjusted. If the idle fuel mixture is to be adjusted, leave the tachometer installed so that the idle speed can be checked after the mixture has been adjusted.

Idle Mixture. The idle fuel mixture is controlled by the idle mixture adjusting needle (Fig. 19). Turn the needle inward to lean the mixture, and outward to enrich the mixture.

1. Adjust the engine idle speed.
2. Make the initial mixture adjustment by turning the needle inward until it lightly touches the seat; then, back it off the specified number of turns.
3. Be sure the engine is at normal operating temperature.
4. Turn the mixture needle inward until the engine begins to run rough from the lean mixture. Turn the needle outward until the engine begins to "roll" due to the rich mixture; then, turn the needle inward again until the engine runs smoothly. **Always favor a rich mixture rather than a lean mixture.**
5. Check the engine idle speed and adjust it, if necessary.

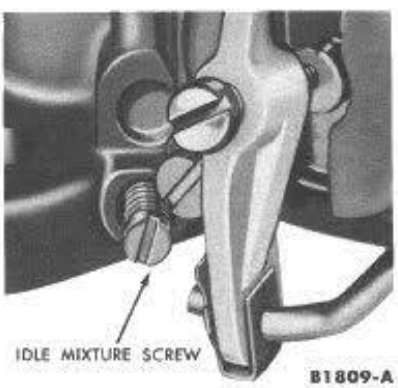


FIG. 19—Ford Single-Barrel Idle Fuel Mixture Adjustment

Vent Valve Adjustment. Set the throttle linkage to the hot idle position. The groove in the vent valve rod should now be even with the open end of the vent valve rod retainer (Refer to Fig. 20). Bend the arm on the vent valve rod actuating lever (where it contacts the accelerating pump lever) to align the groove with the edge of the bore.

Accelerating Pump Adjustments

1. Insert the roll pin in the lower hole ("HI") position in the lever stop hole.
2. Position the throttle and choke linkage so that the throttle plate will seat in the throttle bore. Hold the throttle plates in the closed position. Position a gauge or drill of the specified thickness between the roll pin and the cover surface. Bend the accelerating pump actuating rod to obtain the specified gauge or drill clearance between the pump cover and the roll pin in the pump lever (Fig. 21).

Acceleration requirements in various climates are satisfied by controlling the amount of fuel discharged by the accelerating pump. The pump stroke is controlled by changing the location of the roll pin in the lever stop hole (Fig. 22).

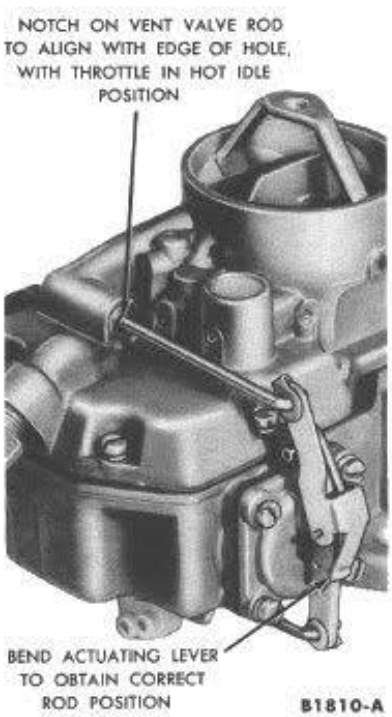


FIG. 20—Ford Single-Barrel Float Bowl Vent Valve Adjustment

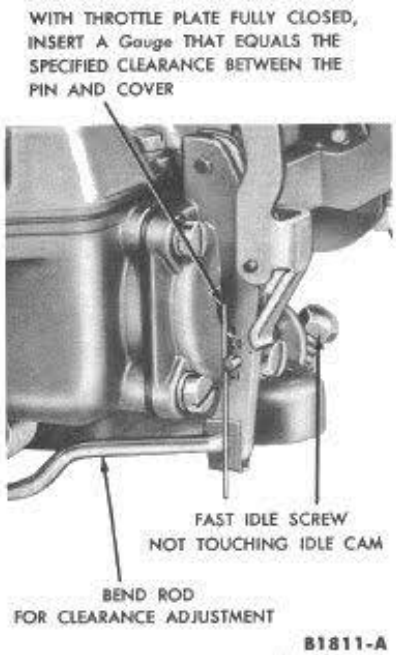


FIG. 21—Ford Single-Barrel Accelerating Pump Adjustment

For operation in ambient temperatures 50° F. and below, place the roll pin in the hole of the pump operating lever marked "HI" (lower hole). For best performance and economy at normal ambient temperatures and high altitude (above 50° F. and/or above 5,000 feet altitude), place the roll pin in the "LO" (upper) hole of the lever.

Anti-Stall Dashpot

1. Adjust the throttle position to the hot idle setting.
2. Turn the dashpot adjusting screw (Fig. 23) inward until it initially contacts the dashpot plunger assembly.

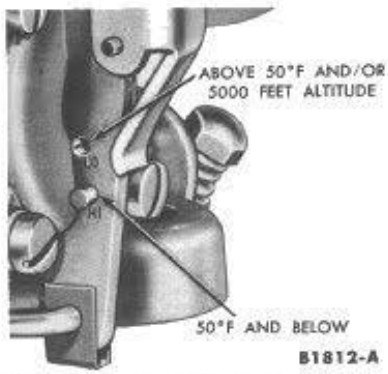


FIG. 22—Ford Single-Barrel Accelerating Pump Lever Adjustment

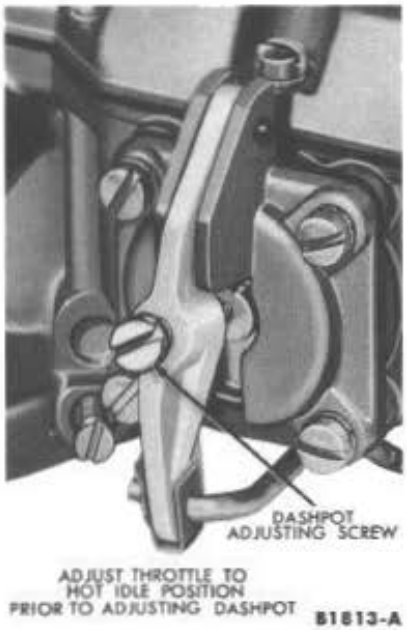


FIG. 23—Anti-Stall Dashpot Adjustment

3. Turn the adjusting screw inward (clockwise) the specified number of turns against the dashpot diaphragm plunger assembly.

Manual Choke Adjustment. Place the choke linkage in the full-choke position. Insert a drill or gauge of the specified size between the choke plate and the inside of the air horn; then, while maintaining the full-choke position, adjust the choke pull-down nut to just contact the swivel on the cam lever (Fig. 24).

Automatic Choke Adjustment. Refer to the Specifications group of this manual to obtain the specified automatic choke setting. Loosen the thermostatic spring housing retaining screws and turn the choke housing to the proper setting. Hold the housing in position and tighten the retaining screws.

Float Adjustment

1. With the carburetor upper body and mounting gasket removed from the carburetor assembly, turn the upper body upside down.

2. Measure the distance from the gasket surface of the upper body to the crown (extreme top) of the float (Fig. 25). If the float adjustment is not within the specified dimension, bend the float arm tab, as necessary, to obtain the specified dimension. Do not apply pressure on the fuel inlet needle. The viton tip of the fuel inlet needle may be damaged through undue pressure exerted on

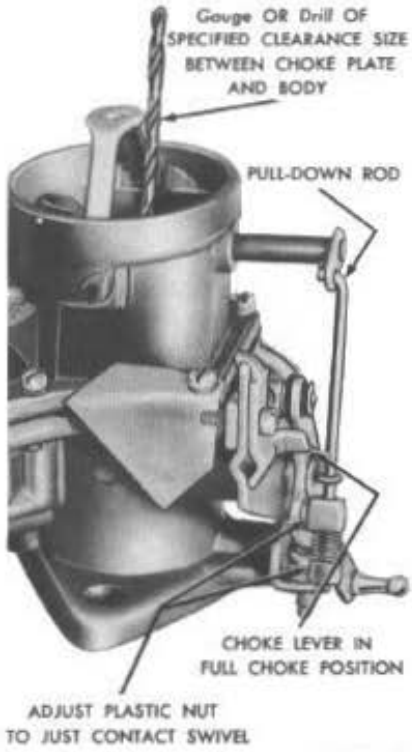


FIG. 24—Ford Single-Barrel Manual Choke Pulldown Adjustment

it and thus cause an improper fuel level within the bowl.

AIR CLEANER

Air Cleaner Maintenance. Air cleaner elements on engines equipped with positive crankcase ventilation systems that are vented to the air cleaner should be serviced at the specified service interval, according to the following procedure:

Use any appropriate method to attach the air cleaner element to a ¼-inch electric drill motor. The air cleaner element can be attached to the drill motor chuck by fabricating

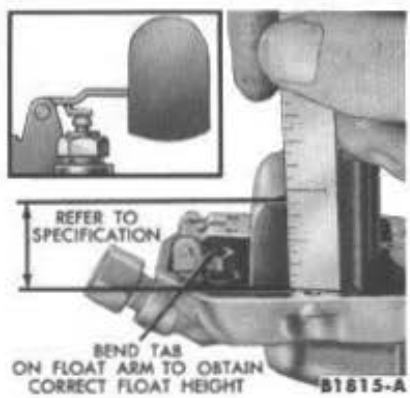


FIG. 25—Float Adjustment

2 air cleaner covers. To fabricate the covers, pierce 8 holes in one cover, and weld the other cover to a short length of screw stock (5/16 - 18 x 3½ inch).

1. To clean the air cleaner element, place it between the fabricated covers and secure it with a nut.

2. Obtain a grease can or suitable container for use as a protective splash shield. Start the motor and spin the element for 2 minutes within the splash shield. **Do not use solvent.**

3. Remove the element from the fixture. The appearance of the filter element, after being serviced in the above manner, does not impair its effectiveness. Inspect the element for any cracks or splits in the filtering area. If any splits or cracks are found, the filter element must be replaced.

4. Clean the interior and exterior of the air cleaner body before replacing the element. Solvents or compressed air can be used for this purpose.

5. Carefully install the air cleaner gasket in position. Install the air cleaner body and element.

CARBURETORS (PART 3-2)

FORD SINGLE-BARREL CARBURETOR

A 1963 Ford single-barrel carburetor is used on the Falcon and Comet 144 and 170 Six engines (Figs. 26 and 27).

The carburetors consist of two main assemblies, the main (upper) body and the throttle (lower) body.

The upper body assembly contains the major metering components of the carburetor; the main and idle fuel, power valve, float chamber vent, and fuel inlet systems.

The lower body assembly contains the fuel bowl, accelerating pump assembly, idle mixture adjusting screw, and spark valve (if so equipped). A hydraulic dashpot is also included in the lower body for use on car models equipped with an automatic transmission.

A manual choke system is standard equipment on all Falcon models, and an automatic choke is standard equipment on Comet models.

This section applies to the Comet and Falcon applications. Differences in the operation and overhaul procedures are given when they exist.

Operation. The engine speed is regulated by controlling the proportion of fuel and air delivered to the

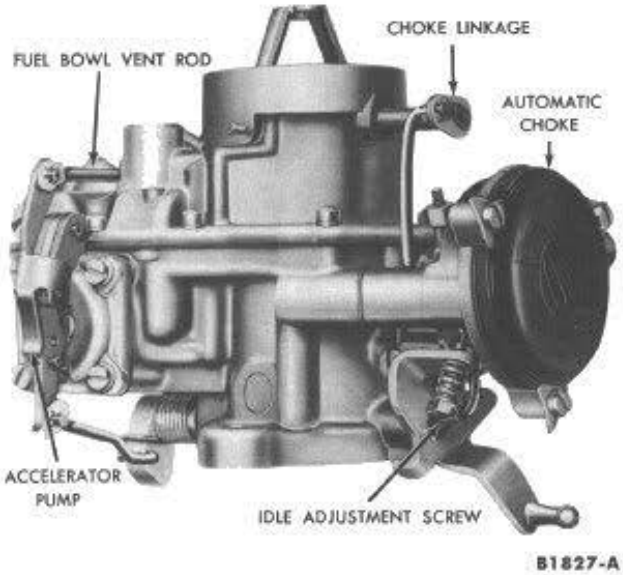


FIG. 26—Ford Single-Barrel Carburetor

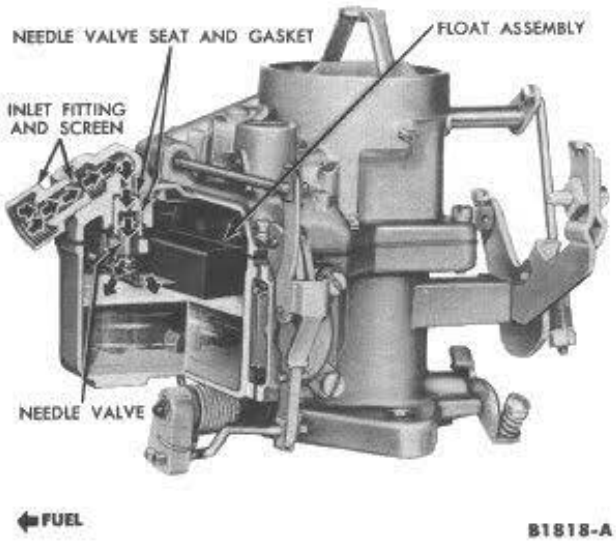


FIG. 28—Fuel Inlet System

cylinders for all engine operating conditions. Operation is based on pressure differences or "vacuum".

Air is drawn into the carburetor air horn by manifold vacuum. As the air passes through the carburetor on its way to enter the cylinders, lower pressure is created at the fuel discharge outlets of the carburetor. The fuel bowl is vented to atmospheric pressure through a vent hole in the upper body assembly. The higher air pressure exerted on the fuel in the bowl forces the fuel to travel up the fuel discharge channels and into the air stream passing through the carburetor. The fuel and air is mixed at this point and distributed into the engine cylinders for burning.

FUEL INLET SYSTEM. The fuel inlet system (Fig. 28) of the carburetor maintains a predetermined fuel level within the fuel bowl. **The wet level within the bowl is important to carburetor calibration.** If the level of fuel within the bowl is below the specified setting, a lean fuel-air mixture will result. A rich fuel-air mixture will occur from a high fuel level. The entire calibration of the carburetor is disturbed if the fuel level is not set as specified.

Fuel enters the fuel bowl through the fuel needle valve and seat assembly. The amount of fuel entering is regulated by the distance the needle valve is moved off the seat and by fuel pump pressure. **Correct fuel pump pressure is important if the carburetor wet fuel level is to be maintained within specified limits.**

The fuel level is maintained at a predetermined level by the float and lever assembly which controls the movement of the needle valve. The needle valve, riding on the tab of the float and lever assembly, reacts to any change in height of the float and the fuel level.

IDLE FUEL SYSTEM. The idle system (Fig. 29) functions when the

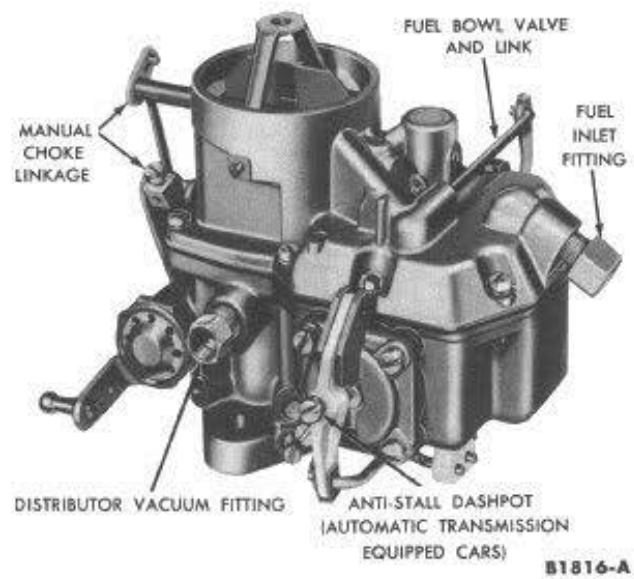


FIG. 27—Ford Single-Barrel Carburetor

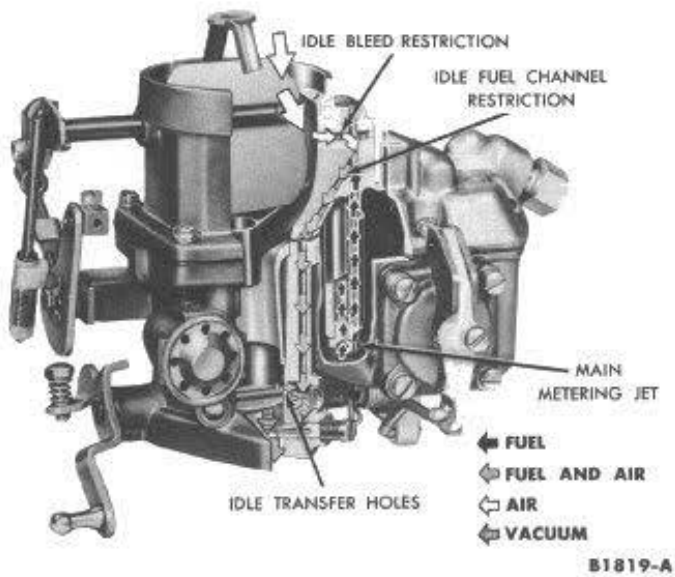


FIG. 29—Idle Fuel System

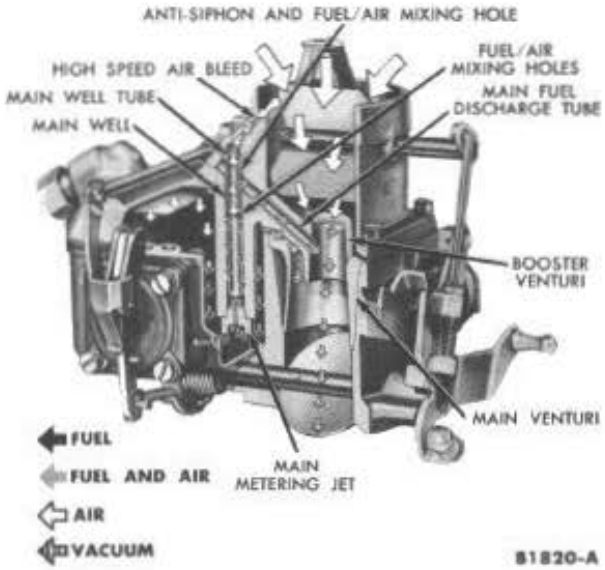


FIG. 30—Main Metering System

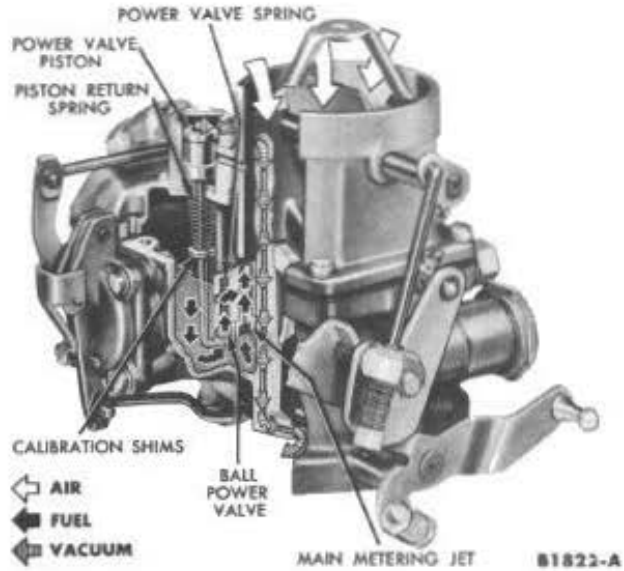


FIG. 32—Power Valve and Fuel Enrichment System

engine is operating at low RPM. It supplies the fuel-air mixture when the air flow past the carburetor venturi is insufficient to operate the main metering system.

The range of the idle system will extend into the operation of the main metering system. Fuel will flow from the main well up the idle well and through the calibrated idle jet. Filtered air from the carburetor air horn enters the idle air bleed restriction and mixes with the fuel. The air bleed restriction also serves as a vent to prevent syphoning of fuel at high speeds or when the engine is shut off. The fuel-air mixture then passes down through an idle channel restriction and is transferred to the idle channel in the lower body assembly. The fuel-air mixture passes down the idle channel, past two idle transfer holes, to the idle mixture adjusting screw. The idle transfer holes act as additional air bleeds at normal idle. The fuel air mixture passes through drilled holes in the adjusting screw and is discharged below the throttle plate. The amount of mixture to be discharged is determined by the position of the idle screw in the lower body passage.

During off-idle operation, when the throttle plate is moved past the idle transfer holes, each hole begins discharging fuel as it is exposed to the lower air pressure (manifold vacuum). Continued opening of the throttle plate increases engine RPM and air flow through the carburetor. The greater air flow past the booster venturi causes a pressure drop in the venturi great enough to bring the main fuel metering system into operation as the idle fuel metering system tapers off.

MAIN FUEL METERING SYSTEM. The main fuel metering system (Fig. 30) supplies the fuel required for engine operation during the cruise or part throttle range. The system begins to function when the air flow through the carburetor venturi creates a sufficient vacuum to start

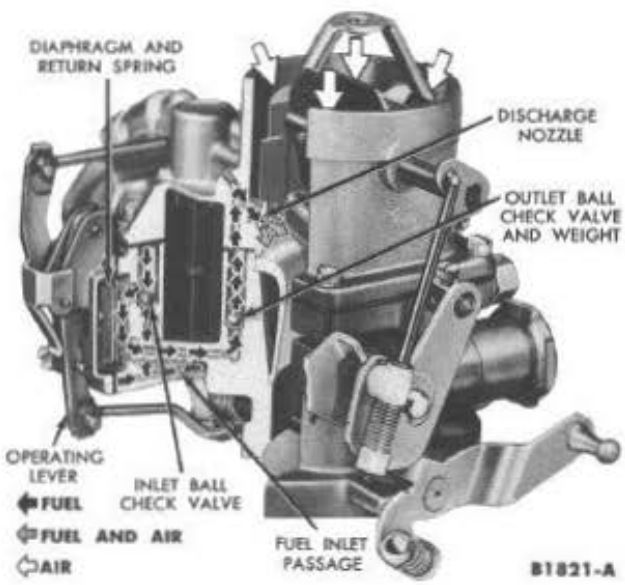


FIG. 31—Accelerating Pump System

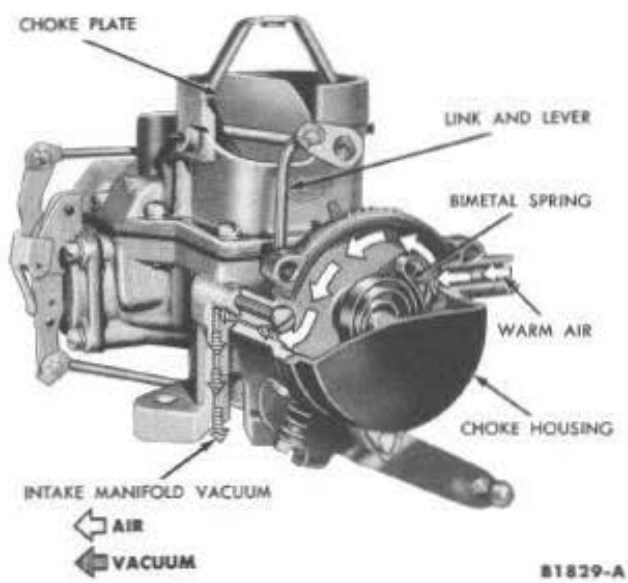


FIG. 33—Automatic Choke System

fuel flowing in the main system. The vacuum at the discharge nozzle will increase as the air flow increases. The faster the engine operates, the more fuel will flow through the main fuel system.

Fuel entering the main jet, located at the bottom of the main well, flows up toward the main nozzle. Inserted in the main well is the main well tube. Air from the high speed bleed channel enters the main well tube through a calibrated restriction at the top of the tube. The air passes through holes spaced along the tube, mixing with the fuel flowing up the main well. The fuel and air mixture being lighter than solid fuel, responds faster to changes in venturi pressures. The mixture continues flowing up the main well to the anti-syphon bleed. More air is introduced at the anti-syphon bleed to the fuel and air mixture which is then discharged from the main nozzle. The fuel is mixed with the filtered air moving past and through the booster venturi.

The anti-syphon bleed also acts as a vent to prevent syphoning of fuel at low engine speeds.

ACCELERATING PUMP SYSTEM. Smooth acceleration requires a momentary increase in the supply of fuel. The air flow through the carburetor responds almost immediately to any increase in carburetor throttle valve opening. The fuel within the metering passages will lag momentarily in its response to the pressure difference created by this increased air flow. This lag in fuel response will cause a temporary leanness in the fuel-air mixture that results in a hesitation in engine acceleration. A mechanically operated accelerating pump system (Fig. 31) supplies added fuel to provide a richer fuel-air mixture for this brief period of time.

The accelerating pump, located on the side of the lower body assembly, is actuated by linkage connected to the throttle shaft. When the throttle is opened on acceleration, the diaphragm forces fuel from the accelerating pump chamber into the discharge channel. The inlet ball check closes to prevent a reverse flow of fuel. Fuel under pressure forces the discharge ball check and the weight off its seat allowing fuel to pass up to the discharge nozzle. The fuel is sprayed from the nozzle into the air stream above the main venturi.

When the throttle plate is closed on deceleration, a return spring forces the diaphragm back drawing fuel through the inlet channel. The inlet ball check opens allowing fuel to pass into the chamber while the discharge ball check closes preventing entry of air.

POWER FUEL SYSTEM. When the engine is required to deliver more power to meet an increased road load demand or wide-open throttle operation, the carburetor must deliver a richer fuel-air mixture than supplied during the operation of the main fuel system. When the engine is running under a high power demand, intake manifold vacuum is low. The vacuum below the carburetor throttle plate approximates intake manifold vacuum. The carburetor power valve (Fig. 32) will open when the manifold vacuum drops below a predetermined value. The fuel-air mixture is thus automatically enriched to meet the increased engine power demands.

Manifold vacuum is transmitted from an opening below the throttle plate through a channel to the upper body assembly and to the top of the power valve piston. At idle and normal engine speeds the manifold vacuum is great enough to hold the power valve piston up.

The power valve rod is connected to the piston. The foot of the rod controls the spring loaded power valve ball check. With the piston held up by manifold vacuum, the ball check closes the power jet inlet channel.

A power valve spring is located on the rod. The spring is shim calibrated to overcome the vacuum above the piston when manifold vacuum drops below a predetermined level. Upon demand for more power, the manifold vacuum drops below this level. The spring tension moves the rod down and allows the power valve ball check to open. Air pressure above the fuel bowl forces fuel to flow through the power jet, adding to fuel in the main fuel system, enriching the fuel-air mixture.

As the demand for power decreases and manifold vacuum increases, the vacuum above the piston overcomes the spring tension. The piston and rod move up and the ball check closes the power jet channel.

AUTOMATIC CHOKE. The automatic choke system (Fig. 33) provides all the proper choking action required to enrich the fuel-air mixture during the engine warm up period. This is accomplished primarily through the use of a bimetal thermostatic coil spring. The automatic choke control assembly is mounted on the lower body assembly and linked to the choke shaft lever.

The bimetal thermostatic spring winds up when cold and unwinds when warm. When the engine is cold, the thermostatic spring, through attaching linkage, holds the choke plate in a closed position. When the engine is started, enough air is drawn past the choke plate to enable the engine to run and prevent flooding. As the engine continues to run, manifold vacuum, channeled through a passage on the bottom of the lower body to the choke housing, draws heated air from the exhaust manifold heat chamber. The amount of air entering the choke housing is controlled by restriction of air channels in the carburetor.

The warmed air from the heat chamber enters the choke housing and heats the thermostatic spring, causing it to warm up. The tension of the thermostatic spring gradually decreases as the temperature of the air from the heat chamber rises, allowing the choke plate to open. The air in the choke housing is exhausted into the intake manifold. When the engine reaches its normal operating temperature, the spring no longer exerts an opposing tension on the choke plate. The air velocity acting on the offset choke plate as well as manifold vacuum acting below the choke plate, forces it to the full open position.

When the choke plate is partially or fully closed, a fast idle cam is rotated into position to contact the fast idle adjustment screw. The screw, attached to the throttle lever, permits a faster engine idle speed for smoother running when the engine is cold. The thermostatic choke lever and torsion spring rotate the fast idle cam to lower the engine idle speed when the engine temperature rises and choking is reduced.

The throttle lever and pulldown rod partially opens the choke plate when the accelerator pedal is fully depressed. This permits unloading a flooded engine.

FUEL BOWL VENT SYSTEM. The fuel bowl requires venting (Fig. 34) to provide proper operation for the various systems. Fuel vapors may form in the fuel bowl when a hot engine is stopped, idling, or operating at very low speeds. By venting the fuel bowl to the atmosphere, engine performance is improved. At higher engine speeds, venting to the carburetor air horn prevents cali-

bration changes due to normal air cleaner contamination.

A valve, connected through the linkage to the throttle shaft, and located in a bore over the fuel bowl, is at the inward position during closed or part throttle operation. In this position, the valve allows venting only to the atmosphere.

At normal or wide open throttle operation, the rod moves outward sealing the external vent and opening the vent to the carburetor throat.

SPARK CONTROL VALVE SYSTEM. The degree of spark advance in the distributor is determined by the strength of the vacuum acting on the distributor diaphragm. Vacuum to the distributor diaphragm is the result of a combination of venturi vacuum and manifold vacuum.

Venturi vacuum is available to the distributor through the pick-up tube in the carburetor main venturi. Manifold vacuum enters a hole above the throttle plate (Fig. 35) and is channeled to the spark valve. In normal operation, the combination of manifold vacuum, a calibrated spring in the spark valve, and atmospheric pressure holds the spark valve open. With the valve open, manifold vacuum aids the venturi vacuum for distributor advance.

When accelerating, manifold vacuum momentarily drops below a predetermined point and the calibrated spring closes the spark valve, shutting off manifold vacuum to the distributor to retard the spark timing. Venturi vacuum prevents full-spark retard. The spark valve opens as manifold vacuum increases; therefore, the distributor advance is increased for more efficient operation.

DASHPOT SYSTEM. The low idle rpm setting, on automatic transmission equipped units, requires a means of control to prevent engine stall upon sudden closing of the throttle plate. This is accomplished by hydraulic dampening of the throttle closing rate.

The dashpot is located on the side of the fuel bowl. It is actuated by linkage connected to the throttle shaft (Fig. 36). When the throttle is opened, a return spring forces the diaphragm back, drawing fuel through the inlet channel. The inlet ball check opens, allowing fuel to flow into the chamber.

When the throttle plate is closed, the dashpot actuating lever and adjusting screw moves the diaphragm inward. The diaphragm moving inward seats the inlet ball check, closes the inlet channel and forces fuel through a restriction into the fuel bowl. The discharge restriction limits the flow of fuel and slows the closing of the throttle plate.

Carburetor Removal

1. Remove the air cleaner from the air horn of the carburetor.

2. Disconnect the accelerator rod, choke control cable, (if so equipped) fuel line, and the distributor vacuum line.

3. Remove the carburetor and gasket from the intake manifold. Discard the gasket.

Carburetor Installation

1. Clean the gasket surface of the intake manifold and carburetor (if necessary). Position a new gasket on the intake manifold.

2. Install the carburetor and tighten the retaining nuts.

3. Connect the choke cable (if so equipped) and throttle linkage to the carburetor. Adjust the cable and linkage, if necessary.

4. Connect the fuel inlet line and the distributor vacuum line. Properly position the air cleaner gasket; then, install the air cleaner.

5. Adjust the idle fuel mixture, engine idle speed, if necessary, and adjust the anti-stall dashpot (automatic transmission).

In-Chassis Adjustments. The carburetor "In-Chassis Adjustments" are covered in this group.

Carburetor Disassembly. Disassembled views of the carburetors are shown in Figs. 37 and 38. Use a separate container for the component parts of the various assemblies to facilitate cleaning, inspection, and assembly.

AUTOMATIC CHOKE

1. Remove the choke control rod to choke shaft lever retainer. Remove the choke pulldown rod to throttle lever retainer.

2. Remove the thermostat housing to choke housing screw and washer assemblies. Remove the thermostat housing and the gasket.

3. Remove the choke housing to lower body screws. Remove the choke housing and the gasket.

4. Remove the choke control lever to thermostatic choke shaft screw. Remove the choke control lever assembly and the spring. Slide the choke shaft out of the choke housing.

5. Remove the choke control rod from the lever.

6. Remove the choke pulldown rod adjusting nut from the rod. Slide the rod out of the swivel.

MANUAL CHOKE LINKAGE

1. Depress the tangs on the fast idle cam lever retainer and remove the retainer from the stud.

2. Remove the fast idle cam lever and the rod assembly from the stud. Move the lever and the rod assembly clockwise and remove it from the choke shaft lever.

3. Remove the rod adjusting nut

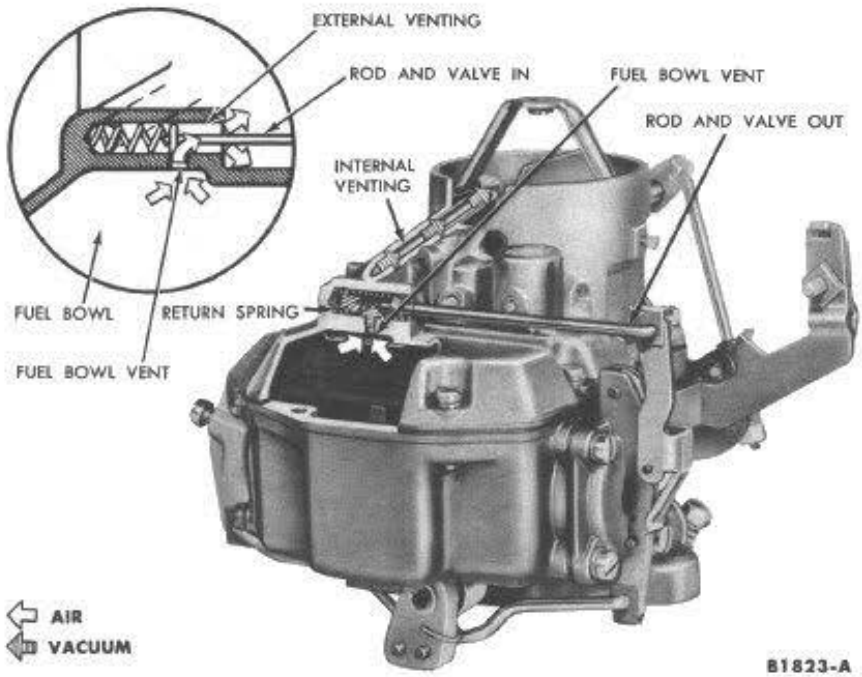


FIG. 34—Fuel Bowl Venting System

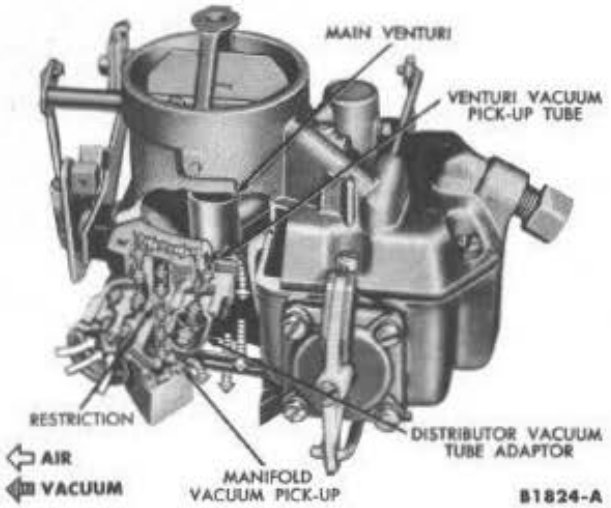


FIG. 35—Spark Control Valve System

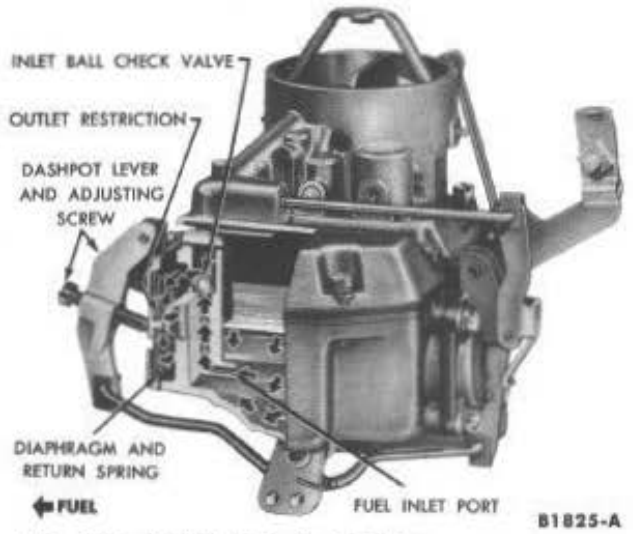


FIG. 36—Anti-Stall Dashpot System

and the spring from the rod. Slide the rod out of the swivel.

4. Remove the fast idle cam stud and the choke cable bracket assembly from the body.

FUEL VENT ROD. Remove the fuel vent rod to accelerating pump actuating lever retainer. Remove the vent rod bushing, rod, and the return spring.

UPPER AND LOWER BODY

1. Remove the upper to lower body retaining screws. Separate the upper body assembly, gasket, and lower body assembly.

2. Invert the lower body assembly and allow the accelerating pump discharge weight and ball check, the accelerating pump inlet ball check, and the dashpot ball check, if so equipped, to fall into the hand.

UPPER BODY

1. Remove the float retaining pin and the float assembly.

2. Remove the fuel inlet needle valve. Remove the needle valve seat and gasket.

3. Remove the main jet.

4. Remove the fuel inlet fitting and the screen assembly.

5. Remove the air cleaner bracket retaining roll pins with pliers. Turn them in a direction that will coil the pins to a smaller diameter. If they offer resistance to turning, turn them in the opposite direction. Pull the bracket out of the retaining channels.

6. If it is necessary to remove the choke plate and shaft, lightly scribe the choke along the choke shaft so that the choke plate can be installed in the same position during installation.

Remove the choke plate screws. Remove the choke plate from the top of the air horn by sliding the plate out of the shaft. Slide the shaft out of the body.

LOWER BODY

1. Remove the accelerating pump lever to throttle shaft retaining ring and washer. Remove the lever and the overtravel spring from the throttle shaft.

2. Remove the accelerating pump cover retaining screws. Remove the cover assembly from the body. Separate, if necessary, the pump diaphragm and spring from the cover or body.

3. Depress the tab on the accelerating pump lever and rod retaining clip and slide the rod out of the lever. Remove the clip from the lever.

If necessary, remove the fuel vent rod actuating lever to cover retaining pin and the accelerating pump lever to cover retaining pin. Remove the lever and rod from the cover.

4. If the carburetor is equipped with a dashpot, remove the dashpot cover retaining screws. Remove the cover assembly. If necessary, separate the diaphragm and the spring from the cover or body. Depress the tab on the dashpot lever and rod retaining clip and slide the rod out of the lever. Remove the clip from the lever. If necessary, remove the lever to cover retaining pin and remove the lever from the cover.

5. Remove the vacuum outlet adapter.

6. If the carburetor is equipped with a spark valve, remove the spark valve and the gasket.

7. Remove the idle mixture adjusting screw.

8. If it is necessary to remove the throttle plate and shaft, lightly scribe the throttle plate along the throttle shaft so that the throttle plates can be installed in the same position during installation.

9. Remove the throttle plate retaining screws and slide the plate out of the shaft. **The retaining screws are staked to the throttle shaft.** If the tips of the screws are flared excessively, file off the flared portion to avoid damage to the threads in the throttle shaft. Be careful not to damage the throttle shaft or venturi while filing the screws.

10. Remove the overtravel spring tension pin from the throttle shaft and slide the shaft out of the body.

Carburetor Cleaning and Inspection. Carburetor cleaning and inspection procedures are covered in this group of the manual.

Carburetor Assembly. Disassembled views of the carburetors are shown in Figs. 37 and 38.

UPPER BODY

1. If the choke plate and the shaft were removed, insert the choke shaft assembly into the air horn, with the lever pointing toward the accelerating pump side of the carburetor.

Refer to the line previously scribed on the choke plate and insert the choke plate into its original position with the plate indentation facing upward and toward the accelerating pump side of the carburetor. Install the choke plate retaining screws snug, but not tight.

Check for proper plate fit, binding in the air horn and free rotation of the shaft by moving the plate from the closed position to the open posi-

tion. If it moves freely, tighten the 2 choke plate screws while holding the plate in the fully-closed position. Stake the screws. **When staking the screws, support the shaft and plate on a block of wood or a metal bar to prevent bending of the shaft.**

2. Install the fuel inlet screen and adapter in the fuel inlet of the body.

3. Install the main jet in the main fuel well.

4. Install the needle valve seat gasket and the seat within the tapped seat hole. Tighten the needle valve seat firmly. Insert the needle valve into the needle valve seat, with the viton tip toward the seat.

5. Position the float assembly in the body, with the tab on the arm located over the needle valve and the hinge of the arm lined up between the hinge bracket holes in the upper body casting. Insert the float hinge pin through the holes in the upper body and the float assembly.

6. Check the float setting. Refer to "Carburetor In-Chassis Adjustments" in this group of the manual.

7. Insert the air cleaner bracket in the channels of the air horn and install the bracket retaining pins.

LOWER BODY

1. If the throttle plate and shaft were removed, slide the throttle shaft into the lower body, with the lever on the throttle shaft located opposite the fuel bowl.

Refer to the line previously scribed on the throttle plate and insert the plate through the slot in the throttle shaft. The plate indentation must face the bottom of the body and point toward the accelerator pump. Install the throttle plate screws snug, but not tight.

Rotate the throttle shaft while lightly slapping the throttle plate within the throttle bore. Check for free rotation of the throttle shaft. Hold the lower body up to the light. **Little, or no light should show between the throttle plate and throttle bore.** When the plate is properly located, hold the throttle plate closed; then, tighten and stake the retaining screws. **When staking the screws, support the shaft and plate on a block of wood or a metal bar to prevent bending of the shaft.**

2. Install the distributor vacuum outlet fitting.

3. If the lever and rod were removed from the accelerating pump cover, position the top hole of the lever between the top bracket holes in the cover; then, install the retaining roll pin.

Position the vent rod lever over the pump cover bracket. Line up the hole in the lever with the holes in the bracket and install the retaining roll pin.

Install the roll pin in the "HI" (lower) lever stop hole.

Position the small diameter end of the diaphragm return spring into the boss in the accelerating pump chamber. Position the diaphragm assembly into the accelerating pump cover and line up the holes. Position the cover and diaphragm over the return spring and onto the body. Install the cover retaining screws finger tight. Push the diaphragm assembly inward and tighten the screws.

4. Position the accelerating pump actuating rod retaining clip over the hole in the accelerating lever, with the tab side of the clip toward the carburetor barrel. Depress the tab and insert the shorter end of the rod through the lever and clip. Release the tab when the rod is inserted. Perform the "Accelerating Pump Adjustments" after the carburetor is assembled. Refer to the "Carburetor In-Chassis Adjustments" in this group of the manual for the proper procedure.

5. If the carburetor is equipped with a dashpot, proceed with the following steps:

If the lever was removed from the dashpot cover, position the hole in the lever between the holes in the bracket on the cover. Install the lever retaining roll pin. Install the adjusting screw in the lever, if necessary.

Position the small diameter of the diaphragm return spring into the boss in the dashpot chamber. Position the diaphragm into the dashpot cover and line up the holes. Position the cover and the diaphragm over the return spring and onto the body. Install the cover retaining screws finger tight. Push the diaphragm assembly inward and tighten the screws.

Position the dashpot actuating rod retaining clip over the hole in the dashpot lever, with the tab side of the clip facing toward the carburetor barrel. Depress the tab and insert the shorter end of the rod through the lever and clip; then, release the tab when the rod is inserted. Perform an "Anti-Stall Dashpot Adjustment" after the carburetor is assembled. Refer to the "Carburetor In-Chassis Adjustments" in this group of the manual for the proper procedure.

6. Position the overtravel spring on the accelerating pump lever and hook the tang of the spring on the lever. Position the overtravel lever and spring onto the throttle shaft and insert the accelerating pump actuating rod and dashpot actuating rod (if so equipped) into the two holes in the lever. Install the washer and retaining ring.

Install the overtravel tension retaining pin in the throttle shaft. Pull the arm of the overtravel spring over the retaining pin to apply spring tension to the overtravel lever.

7. If the carburetor is equipped with a spark valve, position the spark valve gasket over the spark valve and install them into the lower body. Tighten the valve securely. A loose valve will cause poor engine operation.

8. Install the idle mixture adjusting screw in the lower body. Turn the screw inward until the head barely bottoms on the lower body; then, back it off the specified amount of turns. Do not turn the needle against the seat tight enough to groove the point. If the needle is damaged, it must be replaced.

UPPER TO LOWER BODY ASSEMBLY

1. Place the ball check and the accelerating pump weight into the lower body accelerating pump outlet passage. Insert a ball check into the accelerating pump inlet passage.

2. If the carburetor is equipped with a dashpot, insert a ball check into the dashpot inlet passage.

3. Install the upper to lower body gasket onto the lower body. **Make certain the word "TOP" (inscribed on the gasket) is facing upward.** Position the upper body onto the lower body and gasket. Install the body retaining screws.

4. Insert the fuel vent valve return spring into the fuel vent passage in the upper body. Install the vent valve rod retaining ring onto the rod. Insert the piston end of the fuel vent rod valve into the passage and tap the retaining ring into the vent hole.

5. Position the fuel vent valve retaining clip over the hole in the actuating lever, with the tab side of the clip toward the carburetor air horn; then, connect the rod to the actuating lever. Perform a "Vent Valve Adjustment" after the carburetor is assembled. Refer to "Carburetor In-Chassis Adjustments" in this group of the manual for the proper procedure.

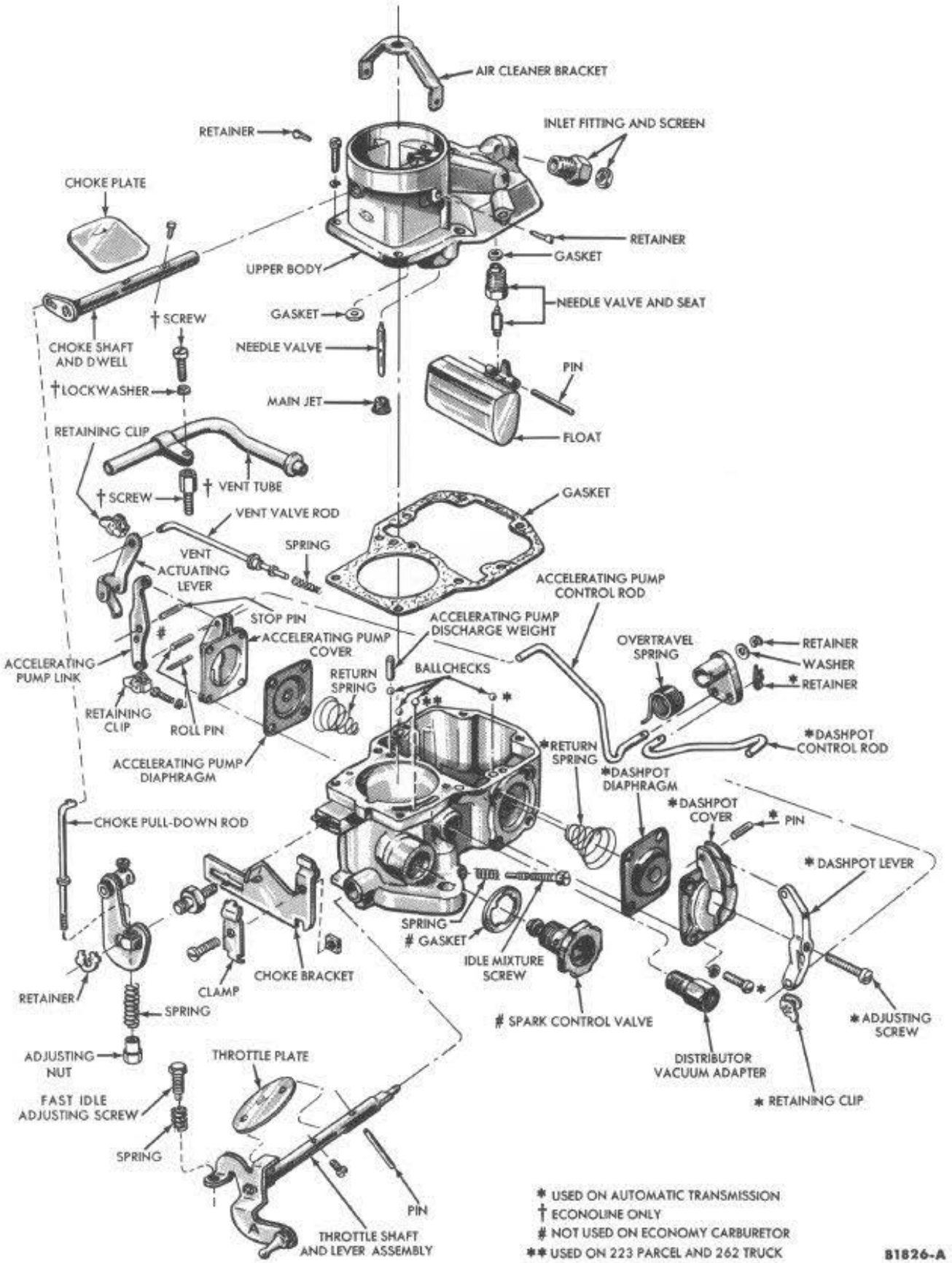


FIG. 37—Single-Barrel Carburetor Without Automatic Choke—Disassembled

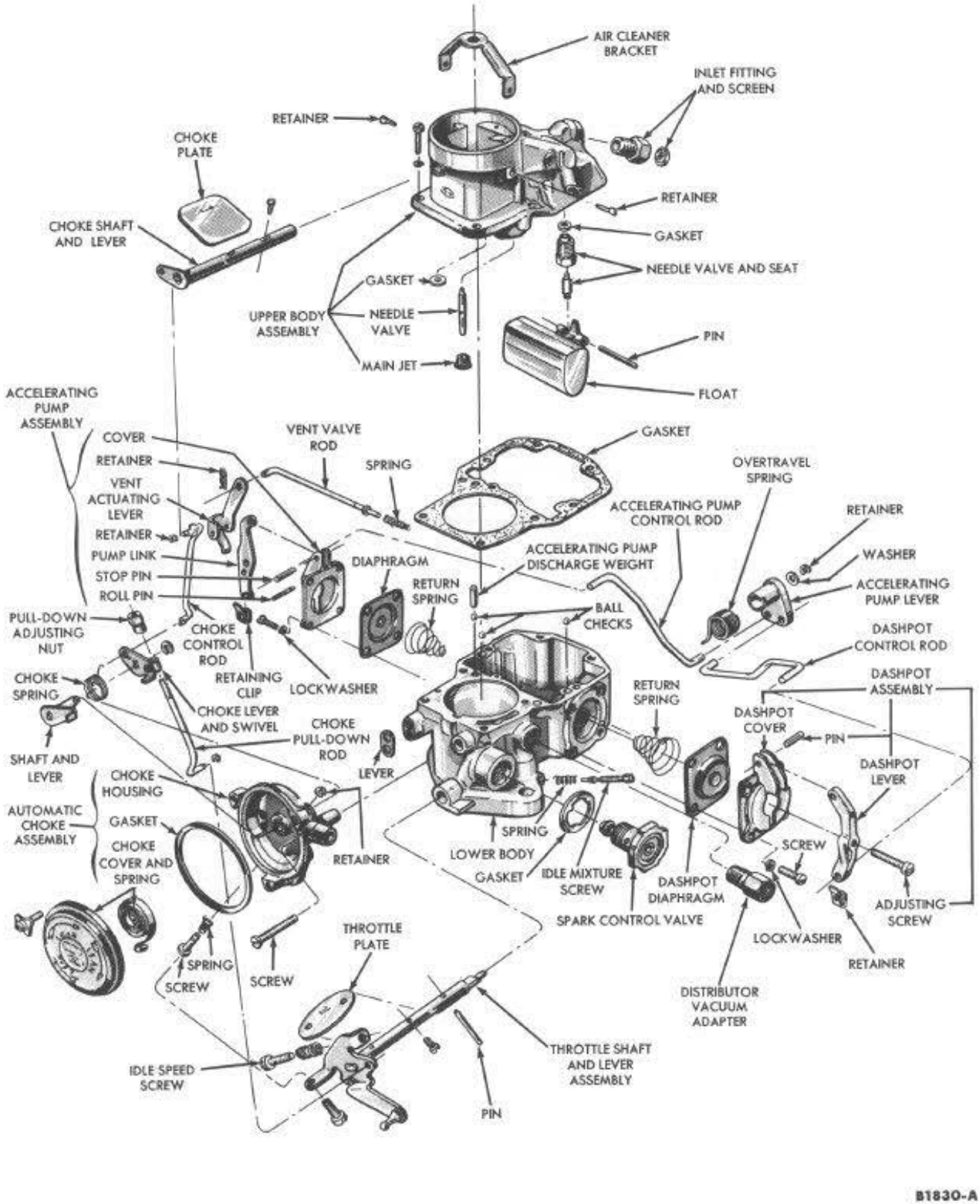


FIG. 38—Single Barrel Carburetor With Automatic Choke—Disassembled

MANUAL CHOKE

1. Position the choke cable bracket assembly onto the lower body assembly and install the stud.

2. Insert the threaded end of the choke shaft to cam lever rod through the cam lever swivel. Install the spring and adjusting nut onto the rod.

3. Position the rod end into the keyhole in the choke shaft lever; then, insert the rod and turn it counterclockwise.

4. Position the cam lever assembly over the stud and install the retainer. Perform a "Manual Choke Adjustment" prior to installation of the carburetor. Refer to "Carburetor In-Chassis Adjustments" in this group of the manual for the proper procedure.

AUTOMATIC CHOKE

1. Insert the thermostatic choke shaft assembly into the choke housing. Position the shaft assembly with the arm of the lever toward the bimetal spring side of the housing.

2. When facing the cam side of the choke housing, position the choke shaft spring over the bushing hub with the hook of the spring on the right side of the cam finger.

3. Position the choke control lever onto the shaft with the short tang of the lever on the left side of the cam finger and the spring tang on the left side of the short lever tang. Install the lever retaining screw.

4. Insert the threaded end of the choke pulldown rod through the swivel (from the bottom) and install the retainer.

5. Position the short end of the choke control rod into the keyhole in the choke housing choke lever.

6. Insert the choke assembly retaining screws into the choke housing. Position the choke control gasket and the choke housing onto the lower body. Start the retaining screws into the body.

7. Insert the end of the choke pull down rod into the throttle shaft lever hole and install the retainer.

8. Insert the long end of the choke control rod into the choke shaft lever hole and install the retainer.

9. Check the position of the choke control gasket and tighten the retaining screws.

10. Position the thermostatic spring cover gasket and cover to the choke housing, making sure the loop at the end of the thermostatic spring is on the choke lever (Fig. 39). The spring must wind clockwise toward the center when viewed from the choke housing side of the carburetor. Align the index mark on the cover with the center index mark on the choke housing. The final setting is made as an "In-Chassis Adjustment".

11. Install the cover onto the choke housing with the retaining screws.

NOTE: The "Automatic Choke Linkage (Pulldown) Adjustment" and the "Automatic Choke Fast Idle Adjustment" must be made as a "Carburetor Bench Adjustment".

Carburetor Bench Adjustments. All carburetor adjustments, with the exception of the "Final (Hot) Engine Idle and Idle Fuel Mixture" adjustments can be performed prior to installing the carburetor in the car. Refer to "Carburetor In-Chassis Adjustments" in this group of the manual for all procedures, except those which follow.

AUTOMATIC CHOKE FAST IDLE ADJUSTMENTS. Insert a gauge pin or drill of the same thickness as the specified clearance between the throttle plate and the side of the throttle bore. Hold the throttle plate against the gauge pin or drill (Fig. 40). Close the choke plate and turn the fast idle screw inward until it just contacts the fast idle cam.

AUTOMATIC CHOKE LINKAGE (PULLDOWN) ADJUSTMENT. The "Automatic Choke Fast Idle Adjustment" must be set before performing the choke pulldown adjustment, because the position of the pulldown rod is one of the determining factors affecting the throttle to choke opening relationship.

1. Place a drill or gauge of the same thickness as the specified clearance between the choke plate and the upper body bore wall. Close the choke plate on the drill or gauge and hold it securely (Fig. 41).

2. Close the throttle until the fast idle screw touches the fast idle cam. Adjust the plastic nut to just contact the swivel on the choke lever assembly.

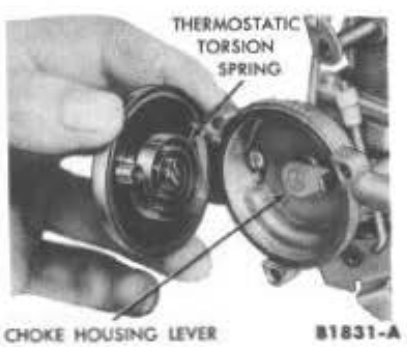


FIG. 39—Correct Position of Automatic Choke Torsion Spring

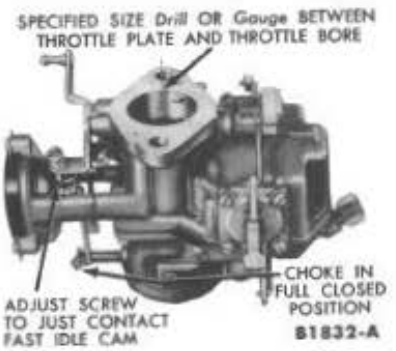


FIG. 40—Automatic Choke Fast Idle Adjustment

Carburetor Cleaning and Inspection. The cleaning and inspection of only those parts not included in the carburetor overhaul repair kit are covered. All gaskets and parts included in the repair kit should be installed when the carburetor is assembled and the old gaskets and parts should be discarded.

The power valve is factory calibrated to each casting and care must be exercised not to bend or distort the rod. **The power valve is not serviceable. Do not remove the shims for cleaning or overhaul operations.**

Wash all the carburetor parts (except the accelerating pump diaphragm, power valve diaphragm, and the anti-stall dashpot assembly if so equipped) in clean commercial carburetor cleaning solvent. If a commercial solvent is not available, lacquer thinner or denatured alcohol may be used. Rinse the parts in kerosene to remove all traces of the cleaning solvent. Be sure all dirt, gum, carbon, and other foreign mat-

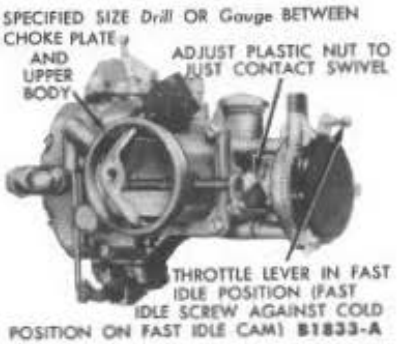


FIG. 41—Automatic Choke Linkage Adjustment

ter are removed from all parts. Dry them with compressed air. Wipe all parts that can not be immersed in solvent with a clean, soft, dry cloth.

Force compressed air through all passages of the upper and lower carburetor bodies. Do not use a wire brush to clean any parts, or a drill or wire to clean out any openings or passages in the carburetor. A drill or wire may enlarge the hole or passage changing the calibration of the carburetor.

Check the choke shaft for grooves, wear, and excessive looseness or binding. Inspect the choke plate for nicked edges (if so equipped) and ease of operation and free it if necessary.

Check the throttle in its bore for excessive looseness or binding and check the throttle plate for burrs which prevent proper closure. If the throttle shaft and plate assembly is not serviceable, it will be necessary to replace the carburetor.

Inspect the upper and lower carburetor body for cracks and stripped threads. Repair or replace the castings if damage is found.

Check the power valve for free movement of the piston and rod assembly. Also, check the power valve ball check for proper seating.

Replace the float if the arm needle contact surface is grooved or damaged. If the float is serviceable, polish the needle contact surface of the arm. Replace the float shaft if it is worn or damaged.

Replace all screws and nuts that have stripped threads.

Replace all distorted or broken springs.

Inspect all gasket mating surfaces for nicks and burrs. Repair or replace any parts that have a damaged gasket surface.

FUEL PUMP, FUEL TANK, AND FUEL LINES (PART 3-3)

FUEL PUMP

A new design AC fuel pump is used on the 1963 EEN 144 and EET 170 engines. This pump has the fuel filter integrally mounted on the top side of the fuel pump body. The lower fuel pump body has been inverted in relation to its original position, to achieve the top mounting of the fuel filter. In addition the pump will have bleed holes in the valve assemblies to prevent excessive pressure build-up in the line between the carburetor and the fuel pump during hot soak periods.

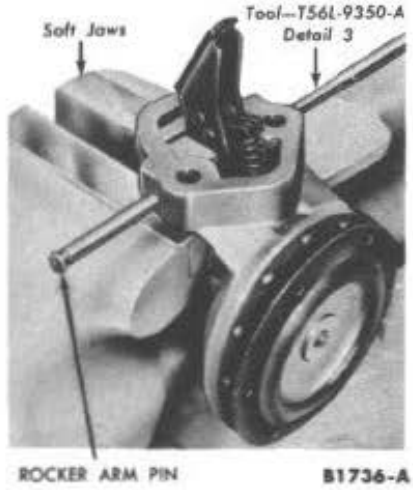


FIG. 42—Rocker Arm Pin Removal or Installation

Replace the disposable fuel filter element at the interval specified in Group 13 of this supplement.

Disassembly

1. Remove the filter housing, gasket and filter element. Discard the filter element.

2. Scribe a line on the flanges of the pump body and valve housing to identify their original position.

3. Remove the valve housing from the fuel pump body.

4. Remove the staking marks from around the valves, remove both valves and their gaskets from the valve housing. **Carefully note the position of the valves in the valve housing cover, so that new valves can be correctly installed.**

5. Using tool T56L-9350-A, Detail 3, drive the rocker arm pin out of the pump body (Fig. 42).

6. Press the pump diaphragm into the fuel pump body and pull the rocker arm outward to unhook the diaphragm actuating rod from the rocker arm and link assembly (Fig. 43).

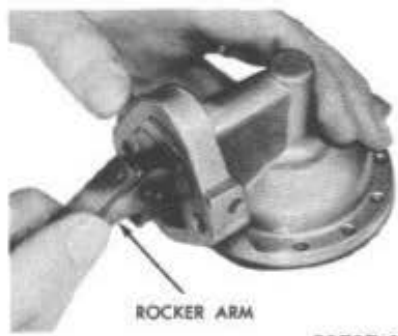


FIG. 43—Fuel Pump Diaphragm Removal

FIG. 44—Fuel Pump Assembly—Disassembled

7. Remove diaphragm and diaphragm return spring, rocker arm and link assembly, and rocker arm return spring from pump body.

8. Remove the diaphragm actuating rod oil seal from pump body (Fig. 44).

Cleaning and Inspection

1. Clean the filter housing, pump body and valve housing in solvent. Blow out all fuel passages.

2. Inspect all gasketed surfaces for cracks, roughness or distortion, and replace associated parts if necessary.

3. Inspect valve and oil seal counterbores for high spots which might distort the new parts upon installation. Remove high spots from these areas.

4. Inspect the rocker arm and link assembly integral bushing for excessive wear.

5. If a badly damaged casting or excessively worn rocker arm-link assembly is found, the fuel pump should be replaced.

Assembly. The fuel pump assembly is shown in Fig. 44.

1. Install diaphragm actuating rod

FIG. 45—Seating the Oil Seal

oil seal and retainer so that the seal protrudes towards the diaphragm mounting flange (Fig. 44).

2. Seat the oil seal, using tool 9350-C or T56L-9350-A, Detail 1 (Fig. 45).

3. Install the valves, and their gaskets, in the valve body so that the valve positions are as shown in Fig. 44.

4. Seat the valves firmly in the valve body, using tool 9350-D or T56L-9350-A, Detail 2. Stake the valves in place.

5. Lubricate the diaphragm actuating rod with grease.

6. Position the fuel pump diaphragm and spring assembly into the pump body as shown in Fig. 46.

7. Hold the diaphragm assembly in the pump body; position the pump body so that the mounting flange faces up. Apply slightly more pressure to the lower edge of the diaphragm, and insert the rocker arm link assembly with the cam shoe facing away from the diaphragm. Hook the rocker arm link to the diaphragm actuating rod.

8. Install the rocker arm return spring and hold it in place by cocking the rocker arm slightly.

9. Install the rocker arm pin in the pump body.

10. Position the valve body and pump body so that the previously scribed marks are aligned.

11. Install all the screws and the lockwashers until the screws just engage the lockwashers. **Make sure that all of the screws pass through the holes in the diaphragm without tearing the fabric.**

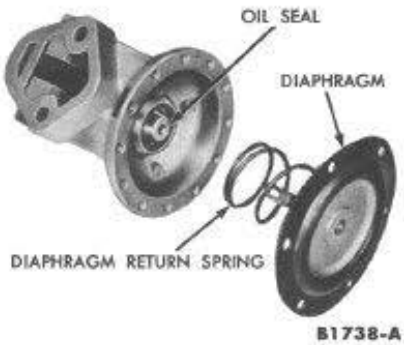


FIG. 46—Diaphragm Installation

12. Alternately and evenly tighten all of the screws.

13. Place a new filter element over the spout in the valve housing cover. Lightly lubricate and position the gasket, then screw the filter housing on to the pump. Hand tighten the filter housing until the gasket contacts the pump, then advance it ⅛ turn.

GROUP 4—COOLING SYSTEM

The 1963 maintenance recommendations are in Group 13 and the 1963 specifications are in Group 14 of this manual.

All the service procedures in Group 4 of the 1960-1961-1962 Falcon Shop Manual remain the same for 1963, except as described herein. All the service procedures in Section 6 of the 1961 Comet Maintenance Manual and the 1962 portion of this manual remain the same for 1963, except for those items covered in this supplement.

THERMOSTAT TEST

Remove the thermostat and immerse it in boiling water. Replace the thermostat if it does not open more than ¼ inch. If the problem being investigated is insufficient heat, the thermostat should be checked for leakage. This may be done by holding the thermostat up to a lighted background. Light leakage around the thermostat valve (thermostat at room temperature) is unacceptable and the thermostat should be replaced. It is possible, on some thermostats, that a slight leakage of light at one or two locations on the perimeter of the valve may be detected. This should be considered normal.

GROUP 5—CLUTCH AND MANUAL-SHIFT TRANSMISSION

CLUTCH (PART 5-1)

The clutch service procedures outlined in Group 5 of the 1960-1961-1962 Falcon Shop Manual and in Section 7 of the 1961 Comet Maintenance Manual apply to the 1963 Falcon and Comet.

The 1963 maintenance recommendations are covered in Group 13 and the 1963 specifications are covered in Group 14 of this manual.

4-SPEED MANUAL-SHIFT TRANSMISSION

TROUBLE SHOOTING

Trouble Symptoms and Possible Causes

NOISY IN ALL SPEEDS. Low lubricant level.

Incorrect lubricant.

Cluster gear bearings worn or damaged.

Input shaft bearing or gear worn or damaged.

Output shaft bearing worn or damaged.

Transmission misaligned or loose.

NOISY IN 1ST THRU 3RD SPEEDS. Gear relative to pertinent speed involved worn or damaged.

Cluster gear worn or damaged.

Synchronizers worn or broken.

NOISY IN 4TH SPEED. See steps 4 and 5 under "Noisy in all speeds".

Synchronizers worn or broken.

NOISY IN REVERSE. Reverse idler shaft worn or damaged.

Reverse sliding gear worn or broken.

Shift linkage improperly adjusted.

Bent, damaged, or loose shift linkage.

HARD SHIFTING. Clutch improperly adjusted.

Clutch parts worn or damaged.

Shift linkage out of adjustment, damaged or loose parts.

Synchronizers worn or damaged.

Shift levers or forks worn.

JUMPS OUT OF GEAR. Shift linkage out of adjustment, damaged or loose.

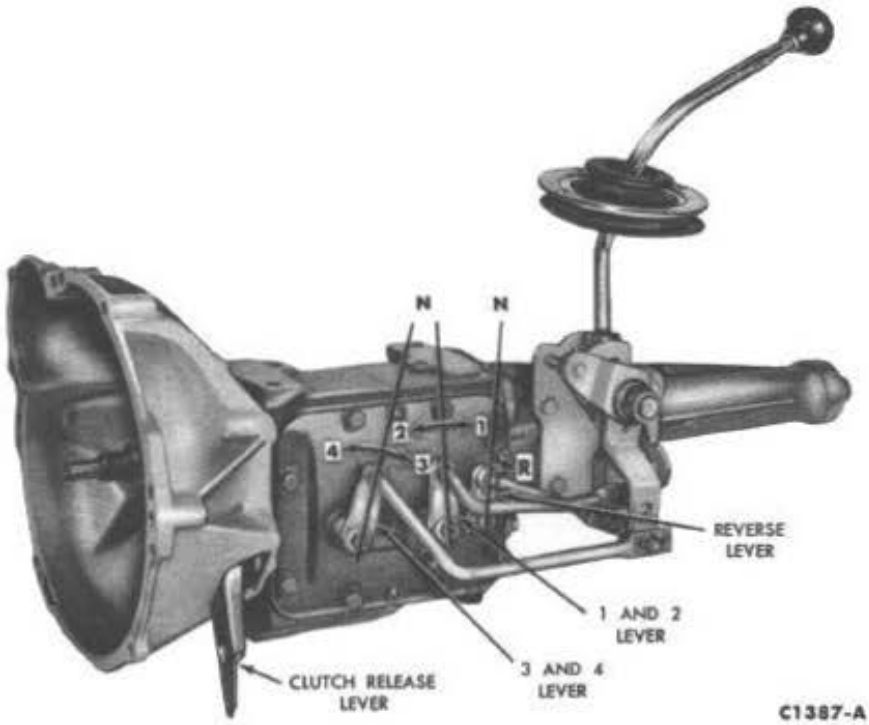


FIG. 47—4-Speed Floor-Shift Transmission

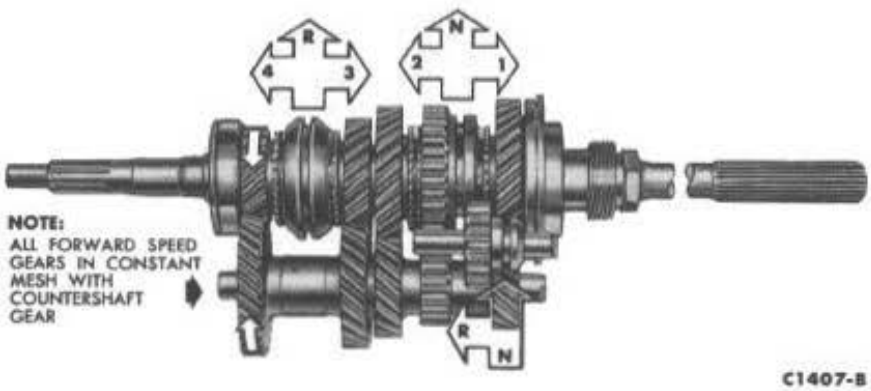


FIG. 48—Power Flow—4-Speed Transmission

Shift lever, shafts, or forks worn.

Shift cover loose.

Transmission misaligned or loose.

Synchronizer worn or broken.

Input shaft bearing retainer loose or broken.

Input shaft bearing worn or damaged.

Worn clutch pilot bearing and/or output shaft bearing.

LUBRICANT LEAKS. Excessive lubricant.

Incorrect lubricant.

Vent plugged.

Input shaft bearing retainer loose, cracked or gasket damaged.

Shift cover loose or gasket damaged.

Worn shifter shaft seals.

Shift cover bolts not sealed.

Worn or damaged extension housing seal.

OPERATION

The four-speed transmission (Fig. 47) is of the fully synchronized type, with all gears except the reverse sliding gear being in constant mesh. All forward speed changes are accomplished with synchronizer sleeves (Fig. 48) instead of sliding gears. The synchronizers will enable quicker shifts, eliminate gear clash and permit down-shifting in all forward speeds.

FIG. 49—4-Speed Floor-Shift Installed

The shift linkage is mounted directly on the transmission extension housing (Fig. 47) and enters the driver's compartment through an opening in the floor pan. A flexible rubber boot is provided to seal the driver's compartment (Fig. 49) from the exterior.

The shift pattern is conveniently located and engraved in the top of the gear shift lever knob. A finger operated release lever is provided on the shift lever (Fig. 49) to prevent the transmission from being accidently shifted into reverse gear.

The forward speed gears are helical-cut and are in constant mesh (Fig. 48). Gears used in the reverse train are spur-cut and are not synchronized.

Ball bearing assemblies support the input gear and the center of the output shaft (Figs. 55 and 57). Needle bearings, in the input gear bore, support the front of the output shaft. The countershaft gear (cluster gear) also runs on 2 rows of needle bearings. A bronze bushing is used in the reverse idler gear (Fig. 65). The rear of the output shaft is supported by the driveshaft front yoke which in turn runs on a steel-backed bushing that is pressed into the extension housing.

Synchronizers and blocking rings are the conventional tapered ring and straight clutch gear-type (Fig. 60).

A removable shift cover contains the shift cams, forks, shafts, detents and interlocks (Figs. 62 and 63).

When first gear is selected, the shift lever and linkage move the first and second shift fork and synchronizer sleeve toward the rear and force the synchronizer blocking ring

conical surface against the matching cone on the output shaft first gear. If the vehicle is moving, the synchronizer sleeve, blocking ring and first gear clutch teeth will not index until first gear is brought up or down to the speed of the synchronizer and output shaft. The synchronizer sleeve has internal splines that, with further movement, will slide over the blocking ring and engage external clutch teeth on first gear. Since first gear is now locked to the output shaft and is always meshed with the countershaft (cluster) gear, the power flow is from the input gear, through the countershaft gear, to the first gear on the output shaft, through the synchronizer sleeve and hub to the output shaft and out the rear of the transmission.

Engagement of second and third gears is the same as first except for ratio.

Fourth gear operation is accomplished in the same manner as first, second and third, but, the input gear is locked directly to the output shaft and the ratio is 1:1.

Spur teeth are cut on the outside of the first and second gear synchronizer sleeve. The sleeve and hub are always locked to the output shaft. Reverse gear is engaged by sliding an idler gear into mesh with the teeth on the first and second synchronizer sleeve and the spur teeth on the countershaft gear. The drive is then from the input gear, through the countershaft gear, through the idler gear, to the output shaft reverse gear (synchronizer sleeve) and the output shaft, which is rotated in a reverse direction.

A system of interlocks and detents in the shift housing assures the selection of only one gear speed at a time and helps to hold any gear in the selected position.

GEAR SHIFT LINKAGE ADJUSTMENT

To adjust the linkage, place the shift lever in the neutral position and raise the car on a hoist. Insert a ¼-inch drill or rod into the alignment hole as shown in Fig. 50. If the rod will not enter, check for bellied or bent connecting rods. If the connecting rods are the correct shape, check for loose lever lock nuts at the rod ends. Reset the linkage by loosening the three rod-retaining lock nuts (Fig. 50) and moving the levers until the ¼-inch gauge rod or drill will enter the alignment holes. Make sure the transmission shift levers are in neutral and the reverse shifter lever is in the neutral detent (Fig. 47). If there is any doubt about location of the neutral position, disconnect the shift rods at the retaining lock nuts and rotate each forward speed shift lever through its three positions until the center (neutral) detent is positively located. Move the reverse shift lever forward until positive engagement of the detent is felt. Install the shift rods and torque the lock nuts to 15-20 ft.-lbs. Remove the ¼-inch drill or rod. Operate the shift levers to make sure that the detents are engaging. Lower the car and check for smooth crossover operation.

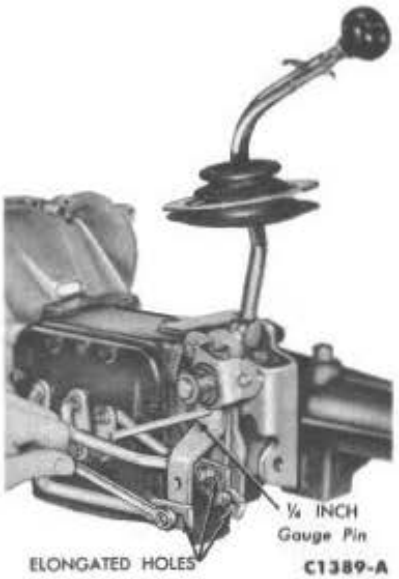


FIG. 50—Gear Shift Linkage Adjustment

TRANSMISSION REMOVAL AND INSTALLATION

Removal

1. Working from inside the car, remove the four screws that attach the retaining ring and boot to the floor pan (Fig. 49).

2. Raise the boot and ring to gain access to the two cap screws that attach the shift lever to the shift linkage assembly (Fig. 61). Remove the cap screws and shift lever.

3. Raise the car; remove the starter cable from the starter and remove the starter. Drain the transmission lubricant (Fig. 72).

4. Disconnect the driveshaft at the pinion flange and tape the U-joint bearing races in place if the joint does not have a strap spot welded to it. Pull the driveshaft off the transmission and insert the tool shown in Fig. 71, into the seal and extension housing to prevent lubricant leakage.

5. Remove the back-up lamp switch (if so equipped) from the shift linkage control bracket.

6. Remove the clip from the equalizer bar at the clutch release rod and

FIG. 51—Transmission Installation

remove the rod (Fig. 51). Remove the linkage return spring from the release lever.

7. Disconnect the parking brake front cable from the equalizer bar. Disconnect the speedometer cable from the extension housing.

8. Support the engine with a jack and remove the two bolts that attach the rear mount spring to the extension housing.

9. Raise the rear of the engine and remove the transmission support crossmember from the underbody.

10. Support the transmission and remove the bolts that attach the flywheel housing to the engine and the cover to the housing. Remove the cover.

11. Move the transmission and clutch housing assembly toward the rear until the transmission input gear splines are clear of the clutch assembly. Lower the transmission.

Installation

1. Raise the transmission and align the input gear splines with those in the clutch hub. Move the transmission forward until the flywheel housing is against the engine.

2. Install the housing to engine bolts and torque them to specifications. Install the cover on the flywheel housing.

3. Position the crossmember that forms the engine and transmission rear mount on the frame and install the attaching bolts. Torque the bolts to specifications.

4. Lower the engine and transmission onto the spring mount and install the spring to extension housing bolts (Fig. 51). Torque the bolts to specifications.

5. Connect the parking brake front cable to the equalizer bar and the speedometer cable drive gear adapter to the extension housing.

6. Connect the clutch release rod to the clutch equalizer shaft and to the clutch release lever. Attach the retaining clip and lever return spring.

7. Remove the tool from the extension housing and slide the driveshaft yoke onto the transmission output shaft, being careful not to damage the seal.

8. Be sure the pinion flange locating slots are clean; then position the U-joint. Install the bolts and torque them to specifications.

9. Install the back-up lamp switch (if the car is so equipped) on the shift linkage bracket.

10. Install the starter and cable.

11. Fill the transmission to the bottom of the fill plug hole (Fig. 72) with the specified lubricant.

12. Adjust the shift linkage as outlined in Section 3.

13. Lower the car and position the shift lever on the linkage assembly. Install the lever to linkage cap screws and torque them to specifications.

14. Install the boot and the retaining ring. Secure with the four screws (Fig. 49).

15. Drive the car to check for proper operation.

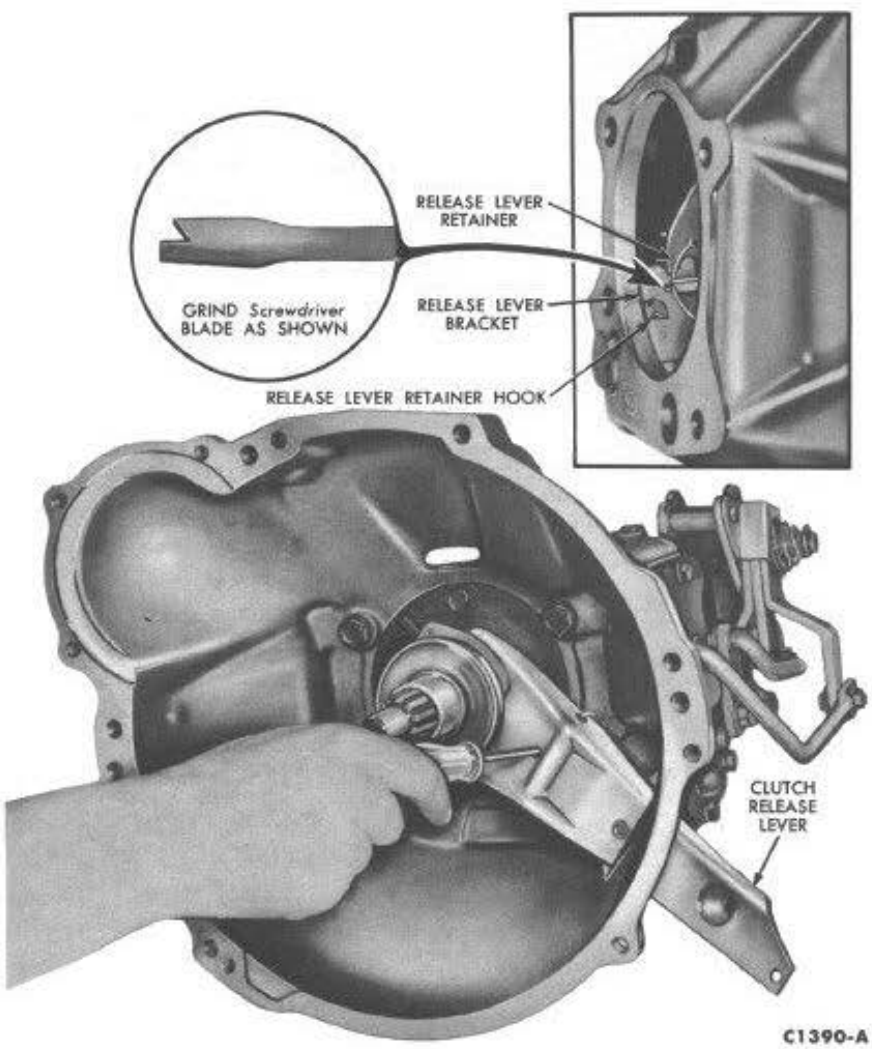


FIG. 52—Removing or Installing Clutch Release Lever Retainer

TRANSMISSION, SHIFT SELECTOR, AND SHIFT COVER DISASSEMBLY

Transmission Disassembly

1. Disconnect the three shift rods from the shift levers (Fig. 47). The reverse shift lever nut must be loosened to free the reverse rod.

2. Remove the three bolts that attach the shift selector assembly to the extension housing.

3. Insert a reworked screw driver (Fig. 52) through the clutch release lever and unhook the retainer that secures the clutch release lever to the retainer bracket.

4. Remove the four bolts that attach the flywheel housing to the transmission.

5. Remove the eight attaching bolts and the shift cover from the transmission.

6. Remove the three bolts and the input gear bearing retainer from the front of the transmission.

7. Remove the four bolts that secure the extension housing and output shaft bearing adapter to the transmission case. In the event that two long and two shorter bolts are used, the two longer bolts are to be installed in the upper right and lower left holes (viewed from the rear). Remove the extension housing.

8. Working from the front of the case, drive the countershaft, with a drift, until it is **just** clear of the front wall of the case. Using the tool shown in Fig. 53, push the countershaft out until the tool and countershaft (cluster) gear drop out of position.

9. Remove the output shaft assembly from the rear of the case (Fig. 54).

10. Remove the input gear and bearing (Fig. 55) from the front of the case.

11. Lift the countershaft gear assembly out through the cover opening of the case. Note that the smallest diameter thrust washer is positioned between the rear of the countershaft gear and the case and that the larger diameter steel and bronze washers are at the front (Fig. 65).

12. Thread a 5/16-24 bolt into the rear end of the reverse idler gear shaft and pull the shaft using tools T50T-7140-B (adapter) and T59L-1000-A (puller). Remove the idler gear.

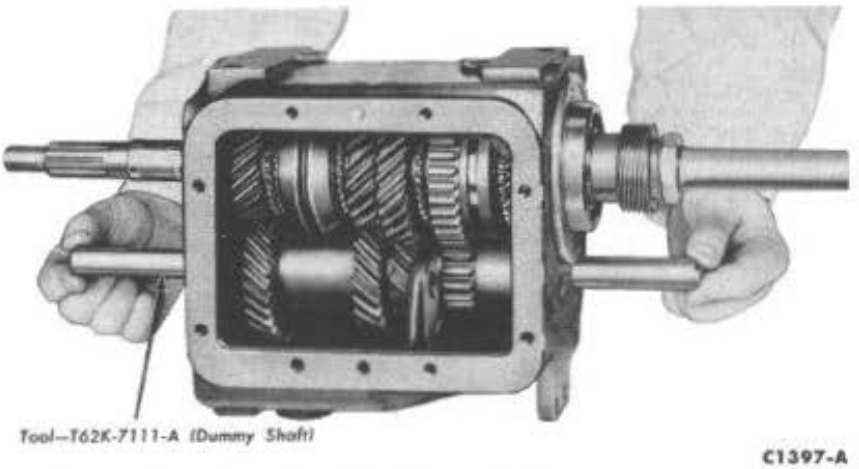


FIG. 53—Removing or Installing Countershaft

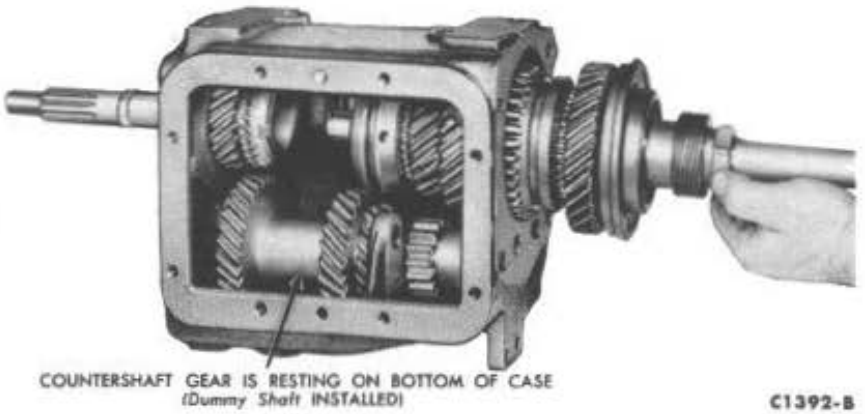


FIG. 54—Removing or Installing Output Shaft

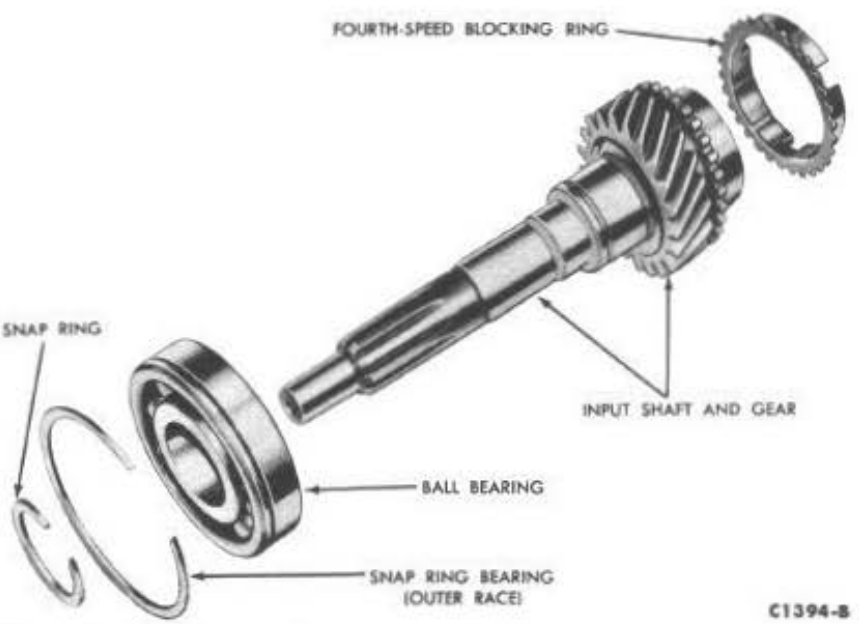


FIG. 55—Input Gear and Bearing Disassembled

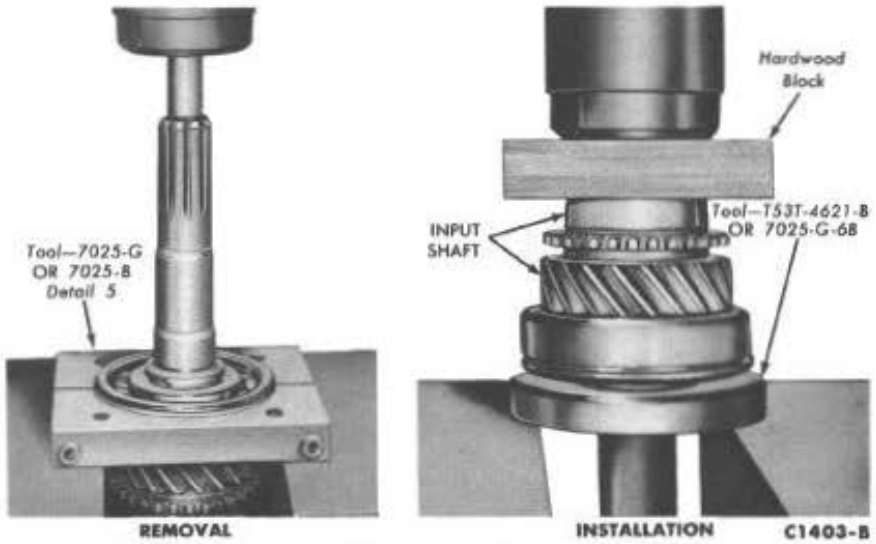


FIG. 56—Removing and Installing Input Gear Bearing

13. If the input gear bearing needs replacing, remove it as shown in Fig. 56.

14. Straighten the output shaft nut lock tab and remove the nut and lock (Fig. 54).

15. Remove the speedometer gear and drive ball. Remove the speedometer gear spacer (Fig. 57).

16. Place the output shaft assembly in an arbor press as shown in Fig. 58 and press the bearing, adapter, first gear, first and second synchronizer assembly and second gear off the shaft.

17. With snap ring pliers, remove the snap ring from in front of the 3-4 synchronizer on the output shaft. Press the third gear and the 3-4 synchronizer off the shaft as shown in Fig. 59.

Before disassembling the synchronizers, scribe an alignment mark across the hub and sleeve if they do not have alignment marks. The alignment marks will permit the sleeves and hubs to be assembled in their original positions. Remove the front and rear insert springs from both synchronizer assemblies (Fig. 60). Slide the sleeves off the hubs. Remove the hub inserts (detents). See "Cleaning and Inspection."

Gear Shift Lever Disassembly

1. Remove the snap ring from the end of the selector shaft with pointed snap ring pliers (Fig. 61).

2. Remove the flat washer and spring.

3. After removing two bolts, pull the retainer, selector levers and bracket from the shaft.

4. Drive the short selector lever pin from the shaft with a large pin punch.

5. Drive the long trunnion pin from the shaft and remove the trunnion and shaft.

6. If necessary to remove the studs from the selector levers, remove the cotter pins, flat washers, wave washers and studs.

Shift Cover Disassembly

1. Remove the levers from the cam and shafts (Fig. 62).

2. Remove the roll pin from the upper fork shaft and remove the shaft and forks.

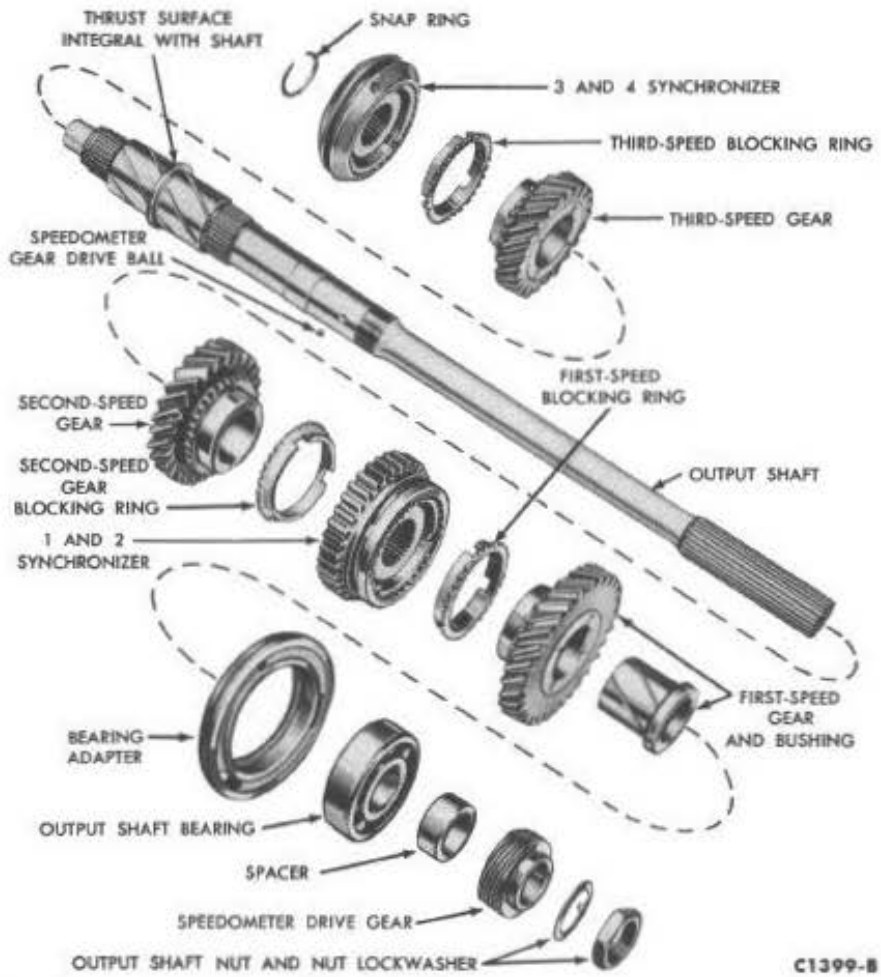


FIG. 57—Output Shaft Disassembled

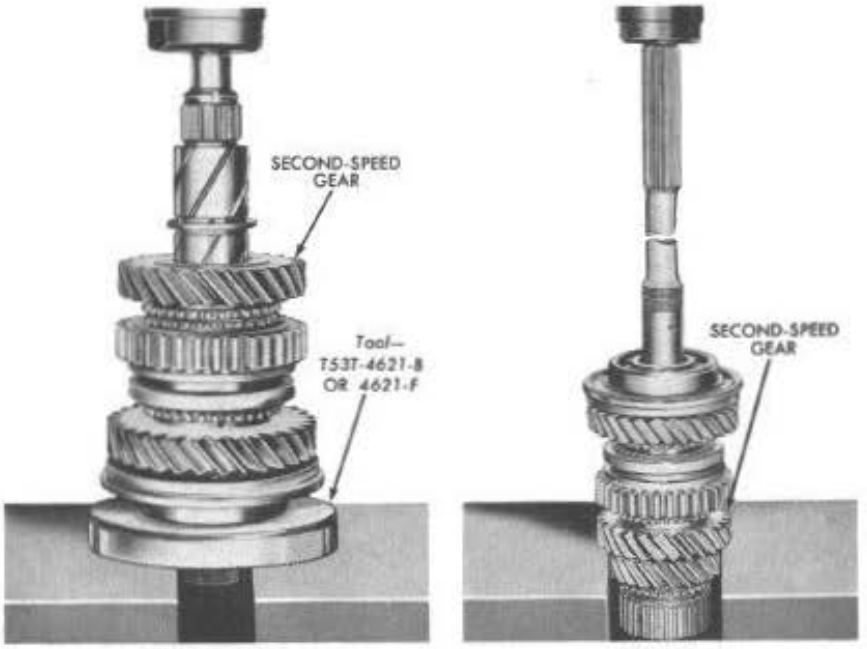


FIG. 58—Removing and Installing Output Shaft Bearing

3. Remove the reverse cam and shaft.

4. Rotate the reverse fork and shaft assembly to disengage the detent ball and remove the fork and shaft (Fig. 63). Hold a cloth over the shaft cover boss nearest to the fork to catch the detent ball and spring when the shaft clears the boss hole.

5. Remove the 1-2 and 3-4 shift cam assemblies. Hold a cloth over the interlock and cam assemblies to catch the detent balls.

6. Push the interlock sleeve, spring and remaining ball out of the cover.

7. Remove the 1-2 and 3-4 to reverse interlock pins from the reverse fork and shaft bosses in the cover.

8. If the seals need replacing, remove them with a screwdriver and install them as shown in Fig. 64.

TRANSMISSION CLEANING AND INSPECTION

Cleaning

1. Wash all parts, except the ball bearings, in a suitable cleaning solvent. Brush or scrape all foreign matter from the parts. Be careful not to damage any parts with the scraper. Dry all parts with compressed air.

2. Rotate the ball bearings in a cleaning solvent until all lubricant is removed. Hold the bearing assembly to prevent it from rotating, and dry it with compressed air.

3. After inspection, lubricate the bearings with transmission lubricant and cover them with a clean, lint-free cloth until ready for use.

Inspection

1. Replace a case that has worn or damaged bearing bores, damaged threads, or if the case is cracked.

2. Inspect the shift selector levers for worn pin slots and worn stud holes; the pins for wear or cracks; the support for worn shaft holes, worn neutral index bracket slot and worn reverse detent slot and the lever studs for grooves. Remove all rust and corrosion from friction surfaces.

3. When inspecting the shift cover parts, look for flat spots on detent balls and interlock pins, broken springs, worn or bent forks, chipped sleeve, worn cams, cracked cover and worn or bent levers.

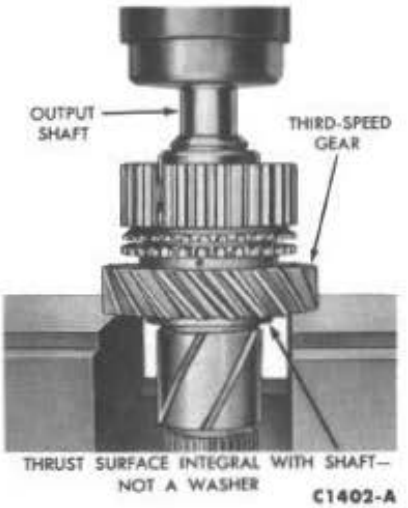


FIG. 59—Removing 3rd Gear and 3rd and 4th Synchronizer Hub

4. Remove any burrs from the front and rear mounting surfaces which could cause transmission misalignment.

5. Inspect all gears for excessive wear or tooth damage and bearing journal wear. If any of the above conditions are present, replace the defective parts.

6. If the bushing in the reverse idler gear is worn, a new gear and bushing assembly must be installed.

7. Inspect all shafts for excessive wear, spline, or tooth damage. If any of these conditions are present, replace the shaft.

8. Inspect the bearing assemblies for cracked races, and the balls and rollers for looseness, wear, end play or other damage. Replace the bearings if any of these conditions exist.

9. Check the end play between the countershaft gear thrust washers and the transmission case. If the end play exceeds 0.008-0.022 inch, replace the thrust washers. Keep the selected thrust washers intact with the gear to eliminate checking the end play when assembling the transmission.

10. Inspect the synchronizer blocking rings for widened index slots, rounded clutch teeth ends and smooth internal surface (must have machined grooves). Check the synchronizer in-

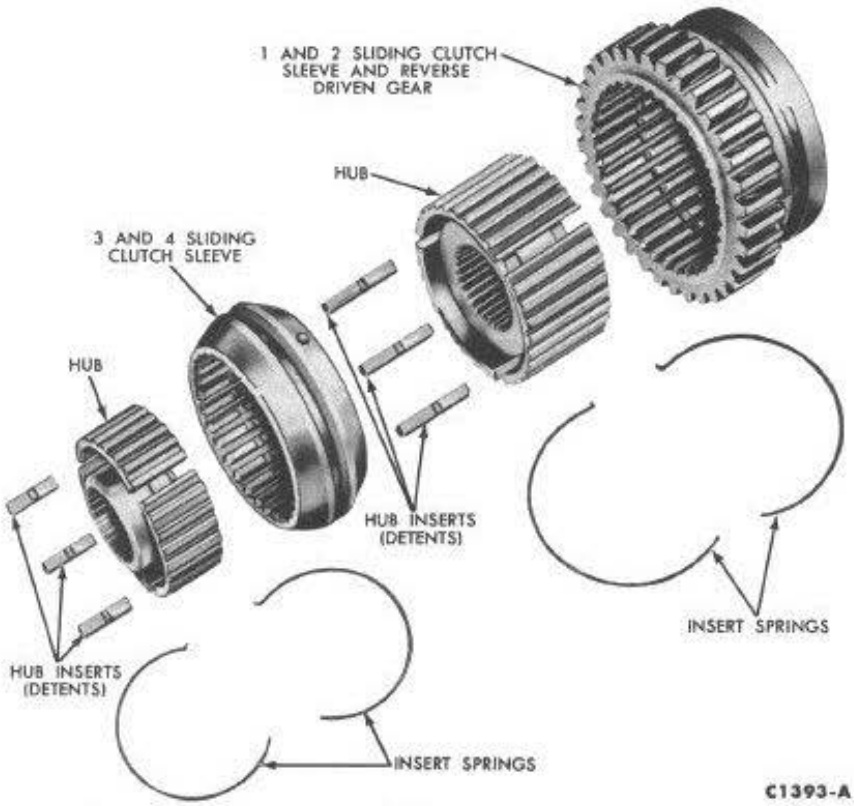


FIG. 60—Synchronizer Disassembled

serts (detents) for a bent condition, and be sure that the center raised portion has not been flattened. Look for worn fork slots on the sleeves and grooved thrust surfaces on the synchronizer hubs. Move the synchronizer hub in relation to the sleeve to make sure that the two parts slide smoothly.

11. Inspect the bushing and seal in the extension housing. If required, they may be removed and installed as described under "Extension Housing Bushing and Seal Replacement" steps in "Transmission Assembly".

TRANSMISSION, SHIFT SELECTOR, AND SHIFT COVER ASSEMBLY

Gear Shift Lever Assembly

1. Lubricate all mating friction surfaces with COAZ-19584-A Lubriplate before assembly.

2. Install the shaft in the bracket. Position the trunnion and drive the long straight pin through the trunnion and into the shaft until an equal length of the pin is exposed on both sides of the shaft.

3. Drive the short pin into the shaft until the pin is centered in the shaft.

4. Install the levers and the neutral index bracket on the shaft as shown in Fig. 61.

5. Position the retainer and start the bolts. Before tightening the bolts be sure that the retainer is not interfering with free movement of the shaft. Tighten the bolts.

6. Install the spring, flat washer and snap ring.

7. Install the lever studs if they were removed.

Shift Cover Assembly

1. Place the 1-2 and 3-4-to-reverse interlock pins in the holes in the reverse fork and shaft bosses (Figs. 62 and 63).

2. Install the 3-4 shift cam in the cover.

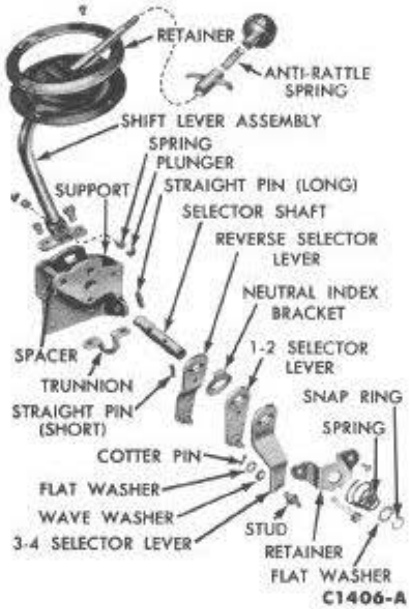


FIG. 61—Gear Shift Lever Disassembled

3. Install the parts of the 1-2 to 3-4 cam interlock: sleeve, ball, spring and another ball, in that order.

4. Hold the 3-4 cam in neutral position and the 1-2 ball depressed while the 1-2 cam is installed in the cover.

5. Install the 1-2 and the 3-4 levers, washers and nuts.

6. Check the clearance between the interlock, detent sleeve and the 1-2 and 3-4 shift cams in, and between, all shift positions. The sleeve to cam clearance must be a minimum of 0.0005 inch and a maximum of 0.010 inch. Service sleeves are available in the following lengths ± 0.010 inch: 1.2875, 1.2905, 1.2935, 1.2965, 1.2995, and 1.3025.

7. With the 1-2 and 3-4 shift cams in neutral and the 1-2 and 3-4-to-reverse interlock pin resting on the cams, install the reverse shaft detent spring and ball and the reverse fork and shaft.

8. Install the reverse shift cam through the cover and into the aligned fork and shaft. Install the reverse cam operating lever, (washer and nut loose).

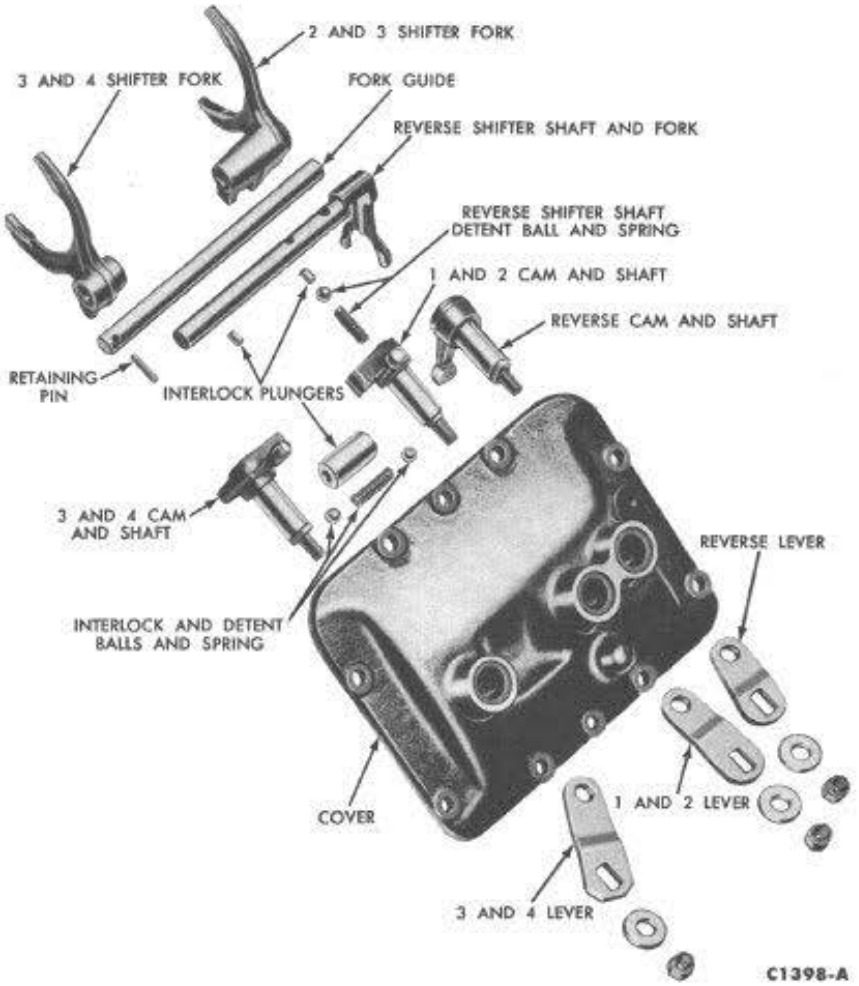


FIG. 62—Gear Shift Cover Disassembled

9. Position the 1-2 and 3-4 forks onto the shift cams and install the fork shaft. Align the shaft hole with the one in the cover and install the lock pin.

10. Check all shift positions for freedom of movement, detent and interlock action.

Transmission Assembly

1. Place the long inserts (detents) into the slots in the 1-2 synchronizer hub and slide the combination sleeve and reverse gear over it making sure that the etch or scribe marks on the hub and sleeve are aligned (Fig. 60). Snap the insert springs into place. The tab on each spring must set into the under side of an insert.

2. Position the short inserts (detents) into the slots in the 3-4 synchronizer hub and slide the clutch sleeve over it making sure that the etch or scribe marks are aligned. Install the insert springs in the same manner as with the 1-2 synchronizer.

3. Place the second gear on the rear of the output shaft with the clutch teeth and tapered synchronizer end toward the rear. Install a blocking ring with the clutch teeth toward the front (Fig. 57).

4. Install the first and second synchronizer and reverse gear assembly on the rear of the output shaft with the shift fork groove toward the rear. Be sure the second speed blocking ring is not cocked on the gear and that the 3 index slots align with the synchronizer inserts (detents).

5. Install the first speed blocking ring with the clutch teeth to the rear and the slots engaging the synchronizer inserts (detents).

6. Slide the first gear and sleeve onto the output shaft, taper and clutch teeth to front, and the sleeve (bushing) shoulder to the rear.

7. Assemble the output shaft ball bearing into the recess in the bearing adapter. Position the adapter and bearing on the rear of the output shaft with the adapter forward. Hold the first gear and sleeve (bushing) forward and place the assembly in a press with the tool resting against the rear of the bearing inner race. Press the bearing until it is seated firmly against the first gear sleeve (bushing) (Fig. 58).

8. Place the spacer, speedometer gear drive ball, speedometer gear, (shoulder to rear) lock washer (tab into speedometer gear), and nut on the output shaft (Fig. 57). Torque the nut to specifications. Bend the washer over a flat on the nut.

9. Set the third speed gear on the front of the output shaft with the clutch teeth toward the front. Place the blocking ring on the gear.

10. Install the 3-4 synchronizer with the wide thrust surface of the hub toward the rear. Align the blocking ring slots with the synchronizer inserts (detents). The hub to shaft spline fit may require a slight press to assemble.

11. Using snap ring pliers, install the snap ring in its groove on the front of the output shaft.

12. Place the tool shown in Fig. 53 in the countershaft (cluster) gear. Starting on either end, drop a steel washer (Fig. 65) over the tool and into the gear. Coat each needle bearing with grease and install 22 of them into the gear. Lay another steel washer on the ends of the needles and the thrust washers that were previously selected.

13. Repeat the above operation for the other end of the gear. Do not lose the bearings and washers in the initially assembled end when invert-

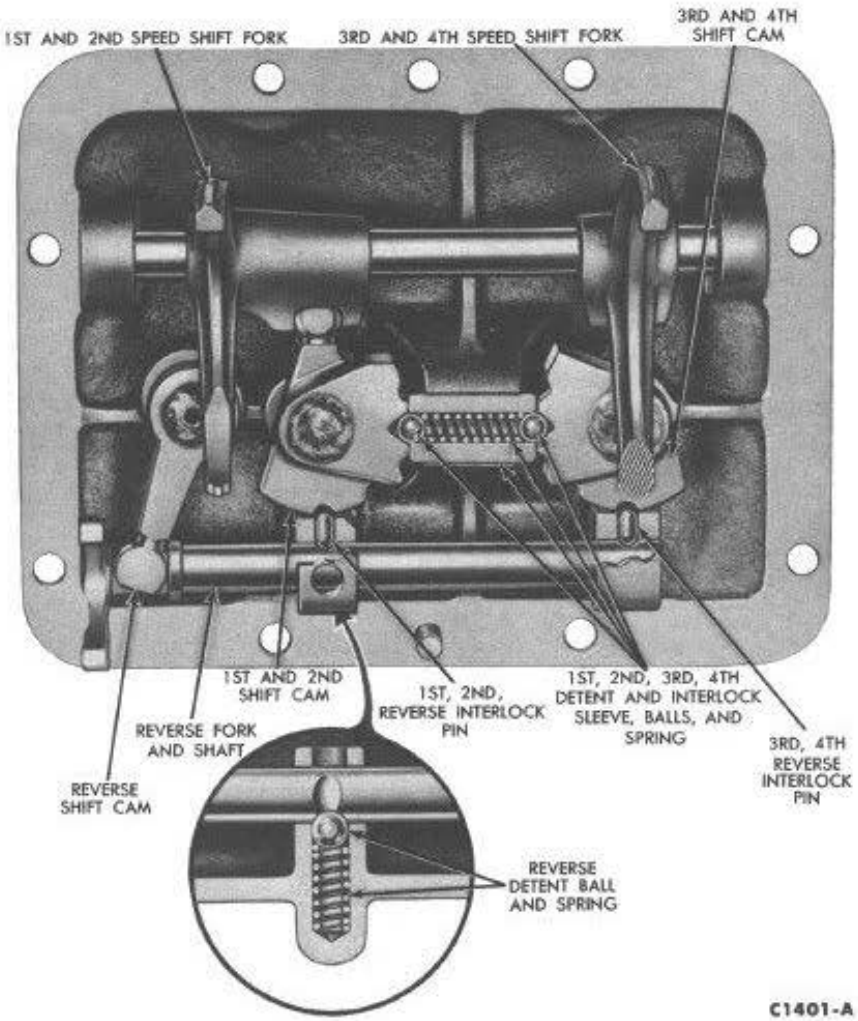


FIG. 63—Transmission Shift Mechanism Details

ing the gear to assemble the opposite end.

14. Position the countershaft gear in the case with the two thrust washers at the front. Allow the gear and tool assembly to lay in the bottom of the case until the input and output shafts are installed.

15. Press the input bearing onto the input gear with the outer race snap ring groove toward the front (Fig. 56).

16. With snap ring pliers, install the snap rings on the bearing outer race and the gear shaft.

17. Using grease, install 17 roller bearings in the bore of the input gear.

18. Install the input gear assembly in the case front bore. Place the fourth gear blocking ring on the rear of the input gear with the clutch teeth forward.

19. Enter the output shaft assembly through the rear of the case and guide the output shaft front pilot into the input gear bore and bearings (Fig. 54). Be sure the fourth gear synchronizer blocking ring slots index with the inserts (detents) on the 3-4 synchronizer assembly.

20. Raise the countershaft (cluster) gear and thrust washers until the countershaft can be inserted from the rear of the case into the gear and bearings. The shaft should push through, easily displacing the tool. Push on the shaft until it contacts the front of the case (Fig. 53). Position the flat on the rear of the countershaft in a horizontal plane so it will align with the slot in the extension housing. Tap the shaft into place.

21. Install the reverse idler gear with the fork groove toward the rear and the idler shaft flat horizontal and parallel with the countershaft flat.

22. Position a new extension housing gasket on the rear of the case using a non-drying sealer.

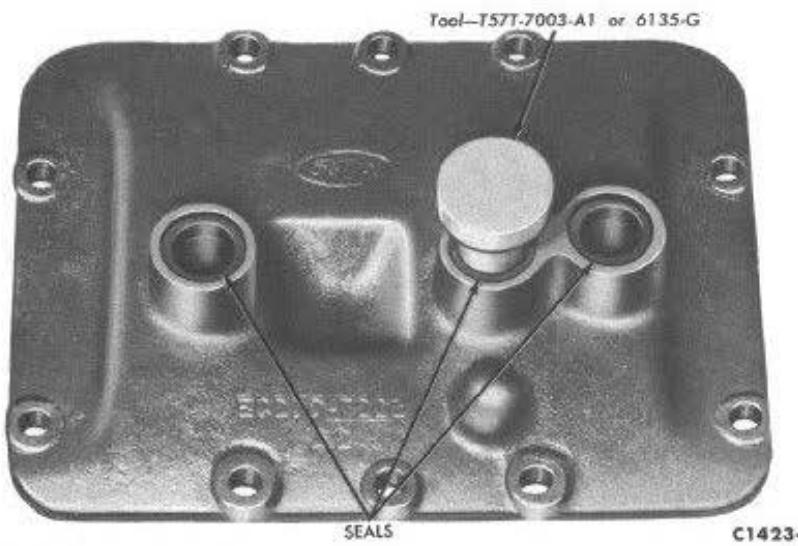


FIG. 64—Installing Cam and Shaft Seals

23. Install the extension housing. Align the dowel in the housing with the hole in the rear bearing adapter (Fig. 66). Be sure the housing is seated squarely on the case, bearing and adapter before torquing the bolts. If two long and two short bolts are used, install the two long bolts in the upper right and lower left holes.

24. If the input gear bearing retainer seal needs replacing, refer to Fig. 67. Install the new bearing retainer gasket, using sealer. Install the bearing retainer, with the drain slot facing downward. Seal and torque the bolts to specifications.

25. Place the 1-2 and the 3-4 synchronizer in neutral and the reverse idler gear in reverse (forward) position. Set the reverse shift lever in the reverse position. Install a new shift cover gasket on the case, using sealer. Install the shift cover. Use sealer on the bolts and torque them to specifications.

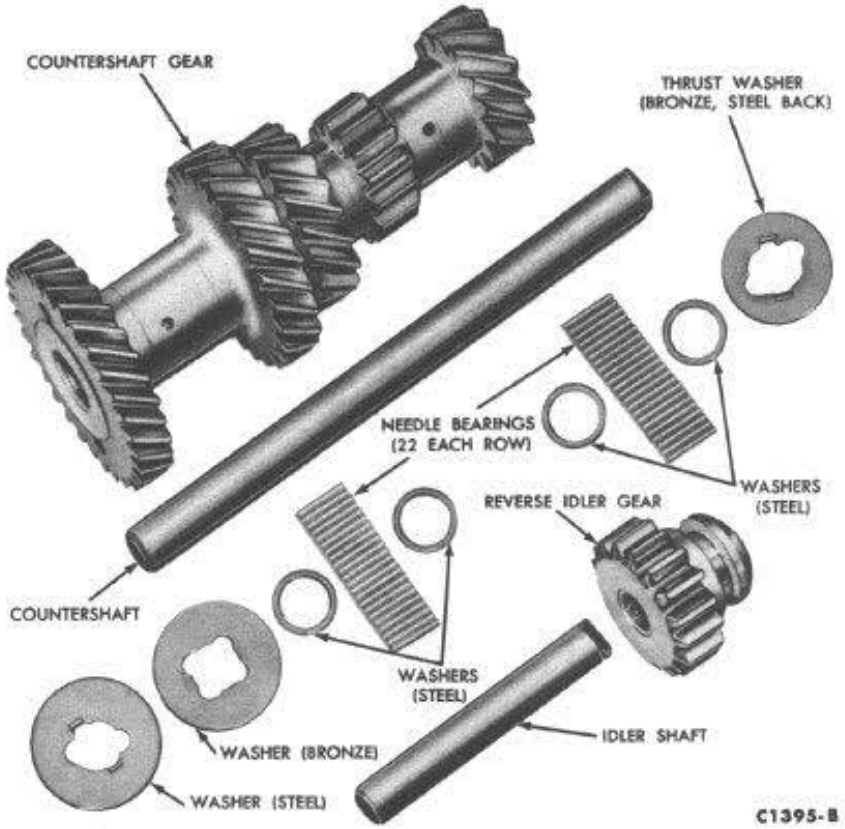


FIG. 65—Countershaft and Idler Gear Disassembled

26. Install the flywheel housing. Use sealer on the retaining bolts and torque them to specifications.

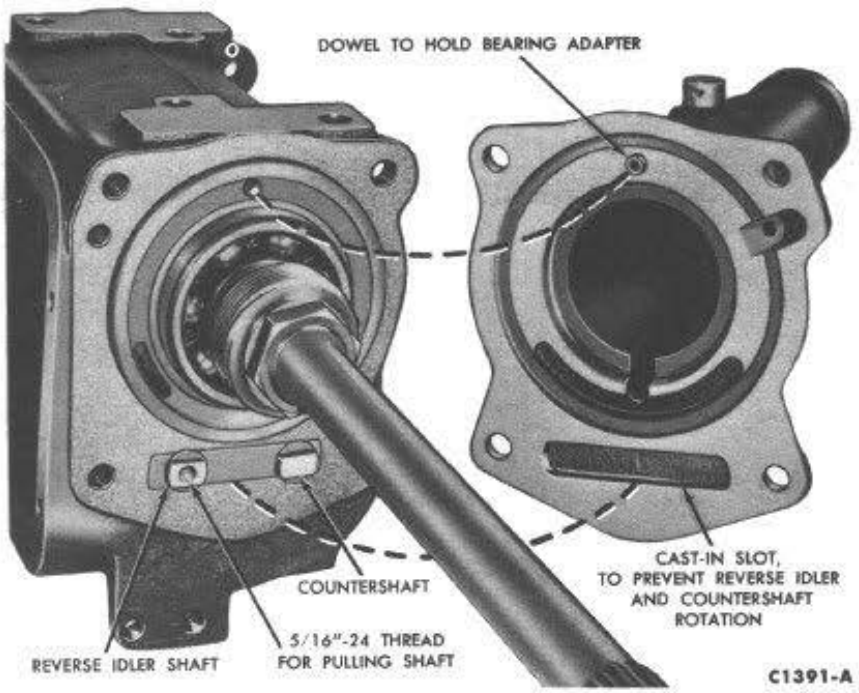


FIG. 66—Extension Housing Installation

27. Install the clutch release bearing on the clutch release lever. Position the release lever through the housing from inside the housing and clip the lever retainer onto its hook as shown in Fig. 52.

28. Install the shift selector assembly on the extension housing (Fig. 47).

29. Insert the shift rods in the cam levers and secure them with the spring washers and cotter pins or clips. Tighten the reverse cam lever nut.

30. Loosely assemble the shift rods to the linkage levers. Insert a ¼-inch rod through the three linkage levers and into the support (Fig. 50). Adjust the linkage as outlined in "Gear Shift Linkage Adjustment". Remove the ¼-inch rod.

31. Assemble the shield over the shift selector assembly.

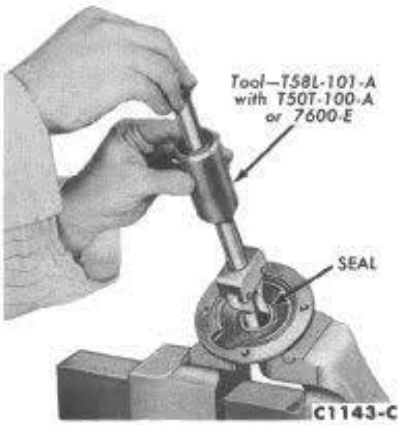


FIG. 67—Removing Input Shaft Bearing Retainer Seal

EXTENSION HOUSING BUSHING AND SEAL REPLACEMENT

1. If the bushing needs replacing, remove the bushing and seal with the tool shown in Fig. 68.

2. To remove just the seal, use the tools shown in Fig. 69.

3. Install a new bushing with the tool shown in Fig. 70.

4. Install the new seal as in Fig. 71.

5. Replenish lubricant to level shown in Fig. 72.

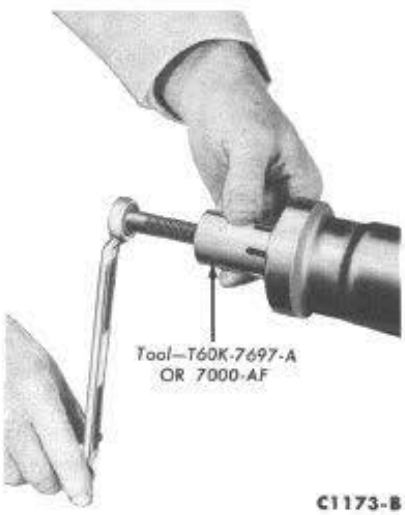


FIG. 68—Removing Bushing and Seal From Extension Housing

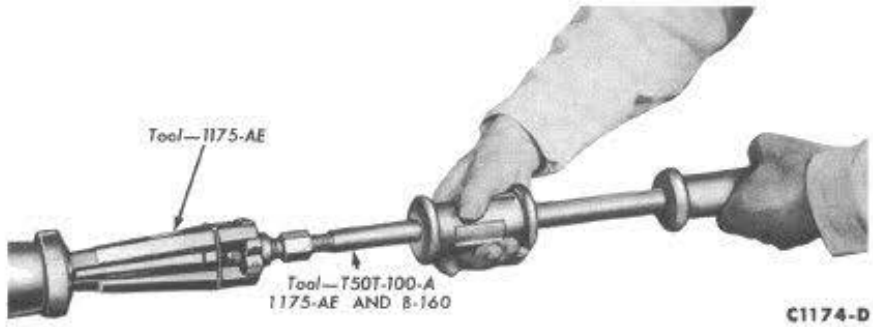


FIG. 69—Removing Seal From Extension Housing

FIG. 70—Installing Bushing in Extension Housing

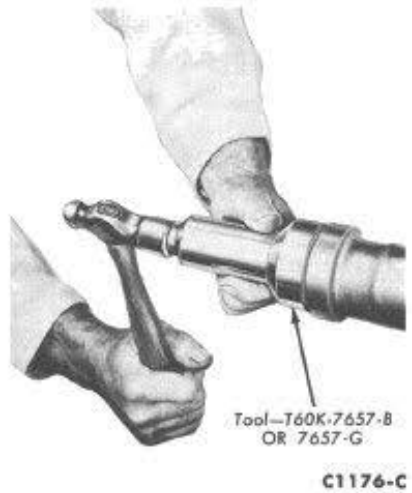


FIG. 71—Installing Seal in Extension Housing

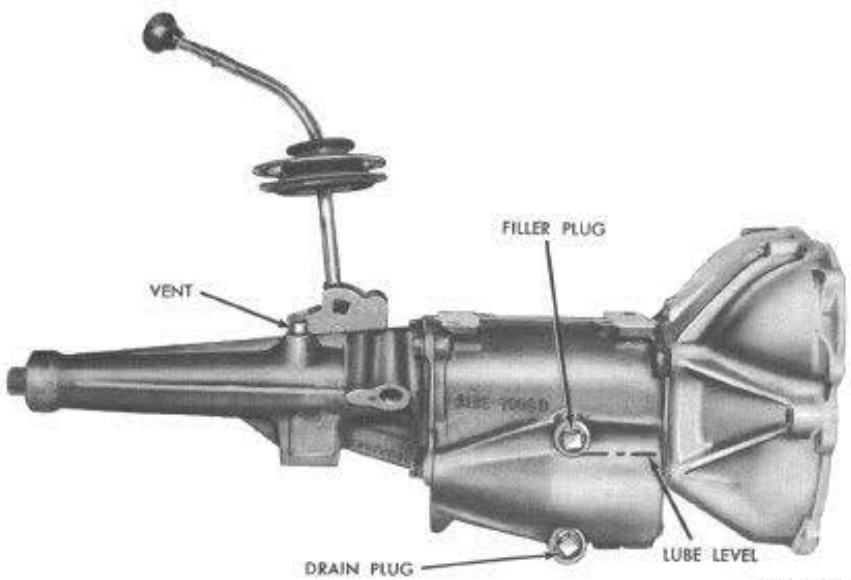


FIG. 72—Lubricant Filler and Drain Plugs

GROUP 6—FORDOMATIC AND MERC-O-MATIC TRANSMISSIONS

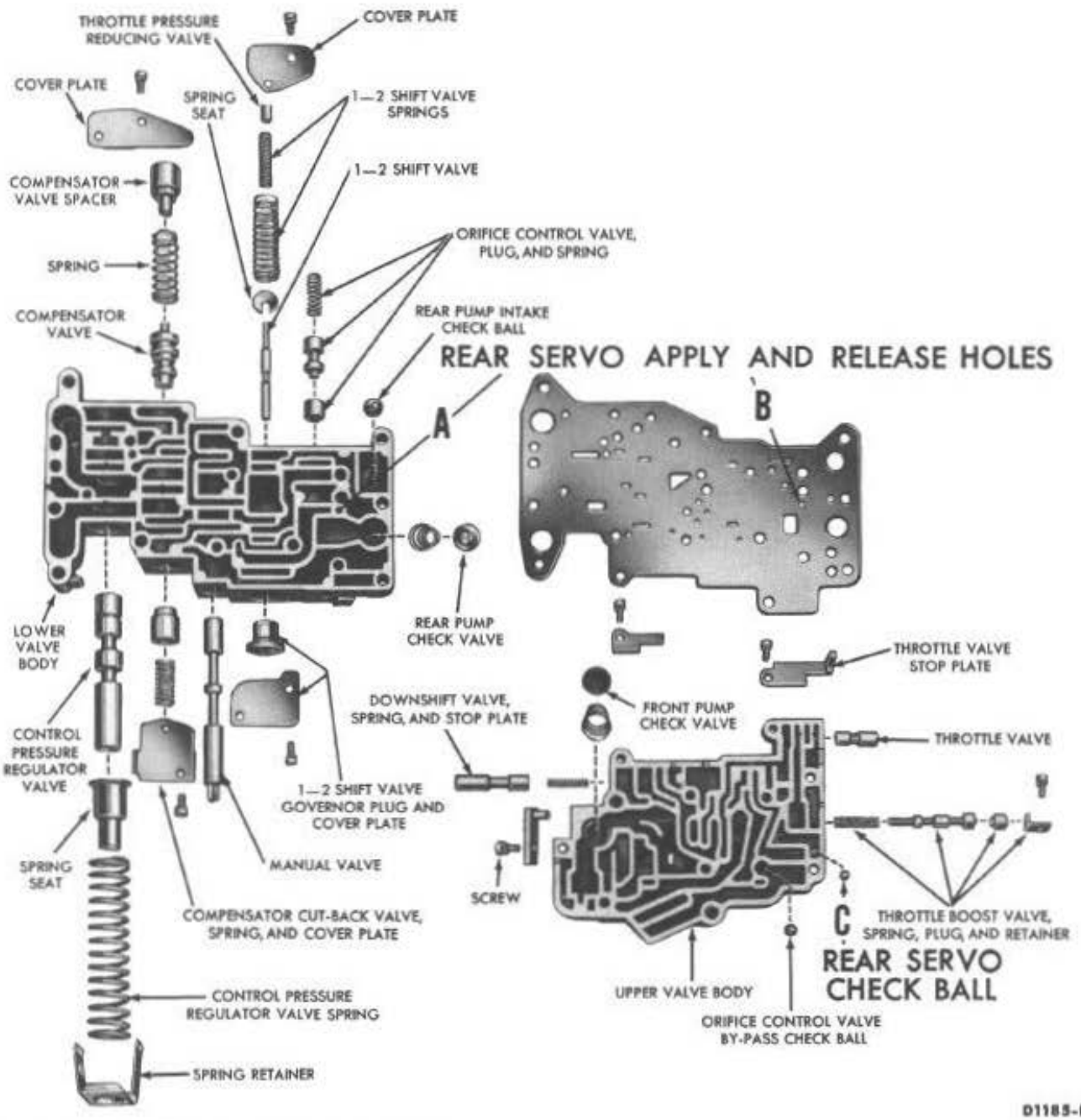


FIG. 73—Rear Servo Apply and Release Holes

The 1963 maintenance recommendations are covered in Group 13, and the 1963 specifications are covered in Group 14 of this manual.

All the service procedures outlined in Group 6 of the 1960-1961-1962 Falcon Shop Manual remain the same for 1963 except as described herein. All the service procedures in Section 7 of the 1961 Comet Maintenance Manual and the 1962 portion of this manual remain the same for 1963 except as described herein.

MODEL APPLICATION

TRANS. MODEL	USAGE	ENGINE DISPLACEMENT
PCL-D	Falcon Passenger and Station Wagon	144 (IV)
PCL-D	Comet Station Wagon	144 (IV)
PCL-E	Comet Passenger	144 (IV)
PCM-E	Falcon Passenger and Station Wagon	170 (IV)
PCM-E	Comet Station Wagon	170 (IV)
PCM-F	Comet Passenger	170 (IV)

CONTROL VALVE

A new control valve is being used to provide a smoother neutral to reverse transmission engagement. The new valve incorporates a steel ball (C) in the upper valve body, a hole (B) in the separator plate, and a new passage (A) in the lower body to correspond with the additional hole in the separator plate (Fig. 73).

When a shift from neutral to reverse is made, the steel ball seats upon the separator plate, allowing the rear servo feed to reach the rear servo piston only through the new orificed passage to slow down the rear servo application. When a shift from reverse to neutral is made, the steel ball unseats, allowing the fluid to exhaust through both passages to provide a quick rear servo release.

The disassembly and assembly of the new control valve is accomplished in the same manner as detailed in the 1962 Falcon Shop Manual and the 1961 Comet Maintenance Manual except for the installation of the check ball. The check ball should be installed as follows:

1. Place the upper valve body on the bench and secure the separator plate with one screw as shown in Fig. 74.

2. Place the rear servo check valve in the pocket of the upper body.

3. Hold the front pump check valve and spring in place as shown in Fig. 74.

4. Slide the separator plate into position and install another screw, as shown, to secure the plate. Tighten both screws to prevent the check ball from rolling out of the pocket and into the rear servo apply passage.

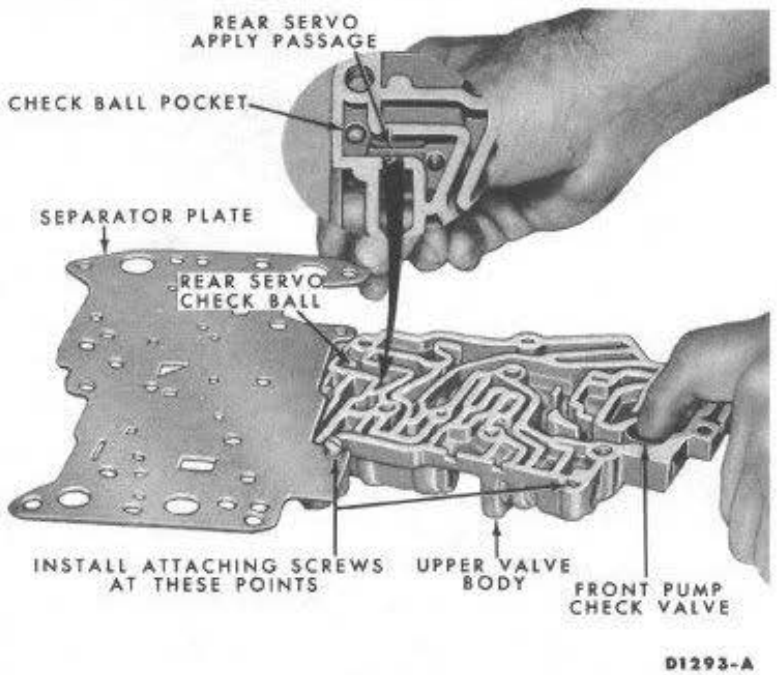


FIG. 74—Installing Rear Servo Check Ball

5. After the valve body bolts have been installed and torqued to specifications, the two separator plate attaching screws may be removed to install the hold-down and throttle valve stop plates.

CONVERTER AND FRONT PUMP

A new converter incorporating a front pump drive hub with two flats 180° apart instead of two drive lugs will be used (Fig. 75). The rotor in the front pump has also been revised to match the flats on the converter hub. The new converter can be used to service previous models which have the dual port solid slipper pump. The new type rotor with two flats must be installed in the pump when using it with the new converter.

The design of the new converter is such that a new longer locking rod, tool No. T63P-7902-A will be required for use with the existing converter clutch checking tool. The checking procedure is the same as for previous model converters.

REAR CLUTCH (PCL Models)

The PCL model transmission (144 cu. in. engine) will have either a four-plate (two friction and two steel) or five-plate (two friction and three steel) clutch pack depending on the piston used.

Piston and plate usage on the PCL model transmissions is as follows:

Piston Thickness "A"	Number of Steel Plates	Number of Friction Plates
0.972"	2	2
0.901"	*3	2

*Two steel plates used together between two friction plates.

All PCM model transmissions (170 cu. in. engine) use the 0.901-inch thick piston and five-plate (two friction and three steel) clutch pack.

TRANSMISSION GEAR RATIOS

To improve the performance, a low ratio of 1.82 and a reverse ratio of 1.75 have been incorporated in the transmission. To provide for the gear ratio change, the output shaft planet carrier long gear shafts have been moved toward the center to enable the planetary gears to contact the new 33 tooth (smaller) sun gears.

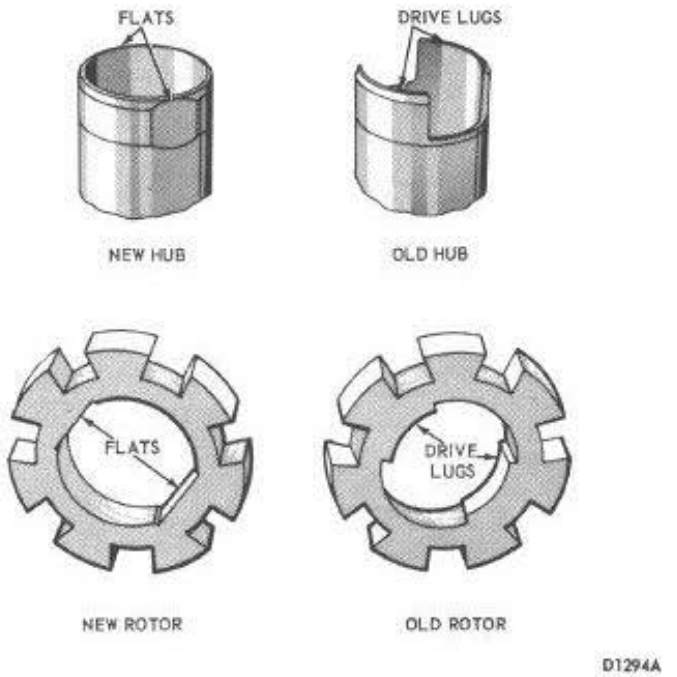


FIG. 75—Converter Hub and Rotor

FIG. 76—Rear Clutch Piston Dimension

When using a new output shaft and carrier for previous models, a new sun gear, planet gear shaft retainer and output shaft rear thrust washer must be used.

GROUP 7—REAR AXLE AND DRIVE LINE

The 1963 maintenance recommendations are covered in Group 13, and the 1963 specifications are covered in Group 14 of this manual.

The service procedures outlined in Group 7 of the 1960-1961-1962 Falcon Shop Manual apply to the 1963 Falcon. Service procedures outlined in Group 7 of the 1961 Comet Maintenance Manual and the 1962 portion of this Manual are the same for 1963.

GROUP 8—STEERING

The 1963 maintenance recommendations are covered in Group 13, and the 1963 specifications are covered in Group 14 of this manual.

All basic service procedures outlined in Group 8 of the 1962 Falcon Shop Manual are the same for 1963 except as outlined herein. All the service procedures in Section 5 of the 1961 Comet Manual and the 1962 portion of this manual remain the same for 1963 with the following exceptions.

STEERING GEAR (PART 8-1)

STEERING GEAR REPAIR

For 1963, the worm shaft upper bearing cup is no longer a press fit in the bearing adjuster. The lower bearing cup is no longer a press fit in the housing. During disassembly or assembly, the cup will slide in or out of the adjuster and housing without use of special tools.

The worm shaft bearing adjuster lock nut is marked on its outer side with the letter "S". Install the lock nut with the flat side against the bearing adjuster and the identifying letter "S" outward.

GROUP 9—BRAKES AND SUSPENSION

The 1963 maintenance recommendations are covered in Group 13, and the 1963 specifications are covered in Group 14 of this manual.

All basic service procedures outlined in Group 9 of the 1962 Falcon Manual remain the same for 1963 except as covered herein. All service procedures in Sections 1, 2, 3 and 4 of the 1961 Comet Maintenance Manual and the 1962 portion of this manual remain the same for 1963 with the following exceptions.

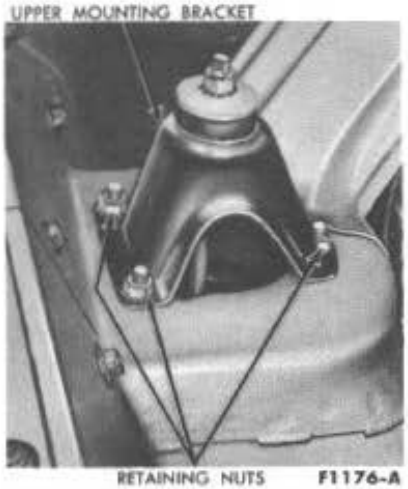


FIG. 77—Shock Absorber Upper Mounting

FRONT AND REAR SUSPENSION (PART 9-3)

FRONT SPRING REMOVAL AND INSTALLATION (FALCON ONLY)

Removal

1. Raise the car and position safety stands under the front ends of the frame rails.

2. Remove the wheel and tire assembly, then remove the upper arm bumper and bracket assembly.

3. Remove the shock absorber upper bracket retaining nuts (Fig. 77).

4. Remove the two shock absorber to spring lower seat mounting nuts (Fig. 78), and remove the shock absorber and upper mounting bracket assembly from the top of the spring housing.

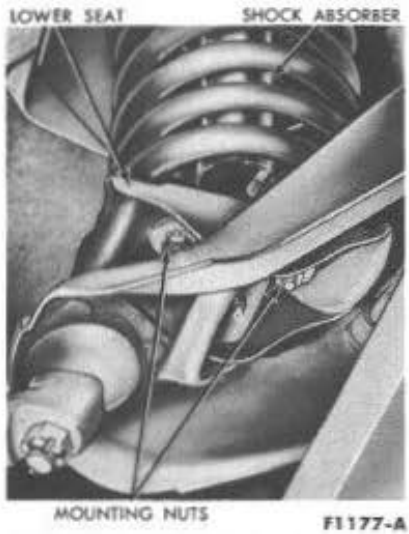


FIG. 78—Shock Absorber Lower Mounting

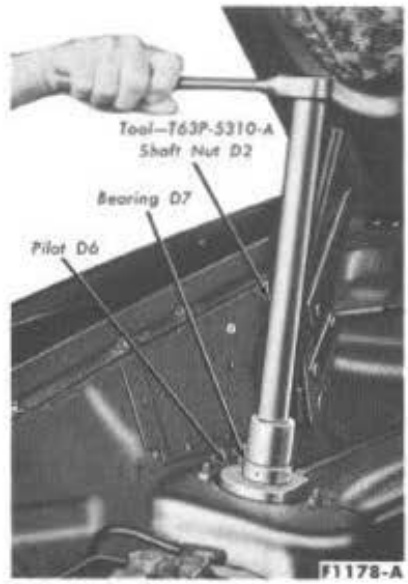


FIG. 79—Compressing or Releasing Spring in Car

5. Reinstall the shock absorber bracket retaining nuts on the bolts so that the bolt heads will be in proper position when the spring is installed (Fig. 79).

6. Install the spring removal tool T63P-5310-A. Slide the tool bearing and pilot over the shaft screw against the shaft nut, and insert the assembly through the top of the coil spring with the pilot and bearing positioned as shown in Fig. 79.

7. From under the car, place the tool lower plate under the third spring coil from the bottom. Secure the plate to the coil by installing the tool retainer to the groove in the shaft screw (Fig. 80).

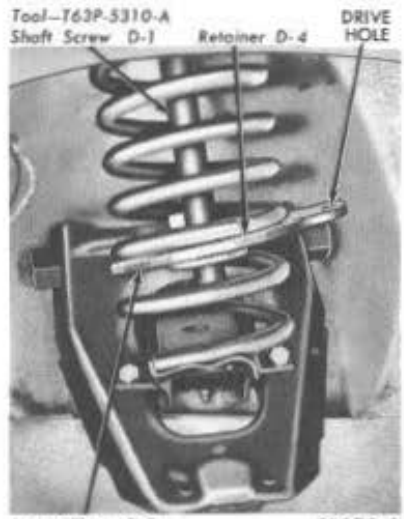


FIG. 80—Removal and Installation of Spring in Car

8. A ½-inch square drive hole has been provided on the lower plate. Insert a ½-inch square drive flex handle wrench in the drive hole to prevent the tool and spring from turning (Fig. 80). While thus holding the tool, compress the spring by turning the tool shaft nut clockwise (Fig. 79). When the spring is sufficiently compressed, remove the spring and tool assembly from underneath the car.

Installation

1. Lift the spring and tool assembly into the spring housing from underneath the car. Position the spring lower coil in the grooves in the spring lower seat so that the end of the coil butts against the seat flange (Fig. 80).

2. Release the spring tension by turning the tool shaft nut counterclockwise (Fig. 79). **Hold the tool lower plate from turning during spring release. Use the ½-inch square drive flex handle wrench.** When the spring is fully released and in position, continue turning the tool shaft nut from the shaft screw until the tool lower plate and retainer can be removed from the shaft screw and spring (Fig. 80). Remove the remaining tool components from the top of the spring housing.

3. Remove the shock absorber upper bracket retaining nuts from the bolts. Install the shock absorber and bracket assembly from the top of the spring housing. The shock absorber lower studs enter the holes in the spring lower seat. Install the lower mounting nuts (Fig. 78).

4. Install the upper mounting bracket retaining nuts (Fig. 77).

5. Install the upper arm bumper and bracket assembly with eight retaining bolts and nuts. Install the wheel and tire assembly.

6. Remove the safety stands and lower the car. Check and, if necessary, adjust caster, camber, and toe-in.

FRONT SPRING REPLACEMENT

1. Remove the old spring from the car as outlined under "Removal" in the foregoing procedure.

2. Position the spring and tool assembly in a vise. Turn the tool shaft nut counterclockwise until the spring

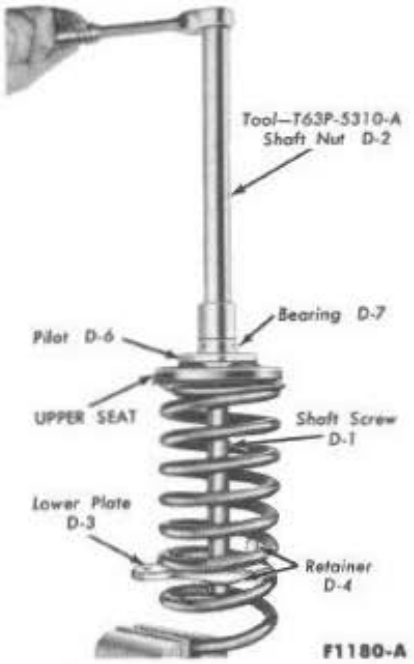


FIG. 81—Removal and Installation of Tool and Upper Seat

is released, then remove the tool components and upper seat from the spring (Fig. 81). **Hold the tool lower plate from turning during spring release. Use the ½-inch square drive flex handle wrench.** Remove the old spring from the vise.

3. Install the new spring in a vise,

FIG. 82—Positioning of Rubber Insulator and Upper Seat to Spring

pry the two top coils apart with a screwdriver, and locate the rubber insulator between the two coils as shown in Fig. 82.

4. Clearance holes are cut in the spring upper seat to permit entry of the shock absorber mounting bracket bolt heads and thus allow the seat to be flush against the inner side of the spring housing, when the spring and seat are installed in the car.

Locate the spring seat so that the edge of the clearance hole will be in alignment with the ends of the top and bottom coils as shown in Fig. 82. The clearance hole used for alignment should be the hole that permits entry of the mounting bracket **outer rear** bolt head (Fig. 77).

5. Install the components of tool T63P-5310-A to the spring as shown in Fig. 81 and turn the tool shaft nut clockwise until the spring is compressed. **Hold the tool lower plate from turning during spring compression. Use the ½-inch square drive flex handle wrench.**

6. Install the new spring and tool assembly in the car as outlined under "Installation" in the foregoing procedure.

HYDRAULIC BRAKES (PART 9-4)

Single-anchor, internal-expanding, and self-adjusting hydraulic brakes are used on all 1963 Falcons and Comets.

An independent manually-operated parking brake operates the rear wheel

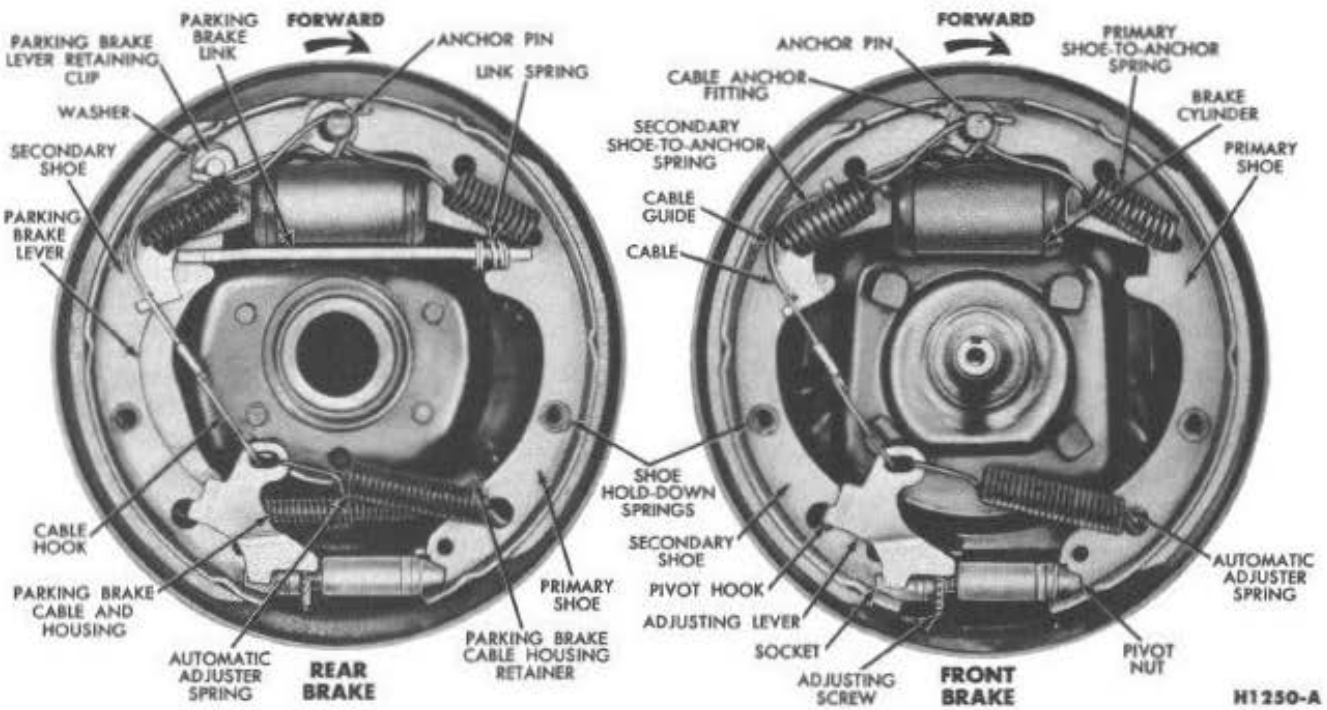


FIG. 83—Falcon and Comet Self-Adjusting Brakes

brake shoes through a mechanical cable linkage.

The self-adjusting brake mechanism consists of a cable, cable guide, adjusting lever, and adjuster spring, (Fig. 83). The cable is hooked over the anchor pin at the top and is connected to the lever at the bottom. The cable is connected to the secondary brake shoe by means of the cable guide. The adjuster spring is hooked to the primary brake shoe and to the lever.

The automatic adjuster operates only when the brakes are applied while the car is moving rearward and the brake pedal pressure is firmly applied until the car comes to a complete stop.

With the car moving rearward and the brakes applied, the "wrap-around" action of the shoes following the drum forces the upper end of the primary shoe against the anchor pin. The action of the wheel cylinder moves the upper end of the secondary shoe away from the anchor pin. The movement of the secondary shoe causes the cable to pull the adjusting lever upward and against the end of a tooth on the adjusting screw star-wheel. The upward travel of the lever increases as lining wear increases. When the lever can move upward far enough it passes over the end of the tooth and engages the tooth. When the brakes are released, the adjuster spring pulls the lever downward causing the star-wheel to turn and expand the shoes. The star-wheel is turned one tooth at a time as the linings progressively wear.

With the car moving forward and the brakes applied, the secondary shoe is against the anchor pin and the primary shoe is moved toward the drum. Therefore, the adjuster does not operate.

The rear brake assembly is basically the same as the front brake. The conventional parking brake lever, link, and spring are used in the rear brake.

The anchor pins on all brakes are fixed and non-adjustable.

TROUBLE SHOOTING

The preliminary checks given here and the trouble shooting information given in Group 9 of the 1962 Falcon manual and in Section 2 of the 1961 Comet manual apply to all parts of the hydraulic and parking brake systems. For 1963 add "Self-adjusters not operating" as a possible cause for excessive pedal travel.

Preliminary Checks. Check the fluid level in the master cylinder, and add FoMoCo **heavy-duty** brake fluid if required.

Push the brake pedal down as far as it will go while the car is standing still. If the pedal can be pushed down more than halfway between the released position and the floor, check the brake adjustment and the automatic adjusters.

To check adjuster operation expand the brake shoes on **all** wheels until a slight drag is felt. Count the number of clicks required to attain the drag at each wheel. If one wheel requires more clicks than the others, carefully check the shoes and the adjuster components on that wheel for binding or improper installation. Follow the procedure described under adjustment.

Make several reverse brake stops to ensure uniform adjustment at all wheels.

Apply a steady pressure to the brake pedal. If it moves slowly toward the floor, check for leaks in the hydraulic system.

If the brake pedal movement feels spongy, bleed the hydraulic system to remove air from the lines and cylinder.

Should one of the brakes be locked and the car must be moved, open the brake cylinder bleeder screw long enough to let out a few drops of brake fluid. **This bleeding operation will release the brakes, but it will not correct the cause of the trouble.**

BRAKE DRUM AND BRAKE ASSEMBLY REPAIR

Front Brake Drum Removal and Installation

REMOVAL

1. Raise the car so that the wheel is clear of the floor.

2. Remove the hub cap, wheel, and bearing dust cap. Remove the cotter pin, nut lock adjusting nut, and washer.

3. Pull the brake drum approximately 2 inches outward and push back into position. Remove the wheel bearing and withdraw the brake drum.

If the brake drum will not come off, insert a narrow screwdriver through the brake adjusting hole in the carrier plate, and disengage the adjusting lever from the adjusting screw. While thus holding the adjusting lever away from the adjusting screw, back off the adjusting screw with the brake adjusting tool (Fig. 84). **Back off the adjustment only if the drum cannot be removed. Be very careful not to burr, chip, or damage the notches in the adjusting screw; otherwise, the self adjusting mechanism will not function properly.**

INSTALLATION

1. If the drum is being replaced, remove the protective coating from the new drum with carburetor degreaser. Install new bearings and grease retainer. Soak the new grease retainer in light engine oil at least 30 minutes before installation. Pack the wheel bearings, install the inner bearing cone and roller assembly in the inner cup, and install the new grease retainer. See Part 9-1 of the 1962 Falcon manual or Section 1 of the 1961 Comet manual.

If the original drum is being installed, make sure that the grease in the hub is clean and adequate.

2. Install the drum assembly, outer wheel bearing, washer and adjusting nut.

3. Adjust the wheel bearing.

4. Install the grease cap, wheel, and hub cap. If the adjustment was backed off, adjust the brake as outlined in the "Adjustment" procedure under "Brake Shoe and Adjusting Screw Removal and Installation".

Rear Brake Drum Removal and Installation

REMOVAL

1. Raise the car so that the wheel is clear of the floor.

2. Remove the hub cap and wheel. Remove the three Tinnerman nuts and remove the brake drum.

If the brake drum will not come off, insert a narrow screwdriver through the brake adjusting hole in the carrier plate, and disengage the adjusting lever from the adjusting screw. While thus holding the adjusting lever away from the adjusting screw, back off the adjusting screw with the brake adjusting tool (Fig. 84.) **Back off the adjustment only if the drum cannot be removed. Be very careful not to burr, chip, or damage the notches in the adjusting screw; otherwise, the self adjusting mechanism will not function properly.**

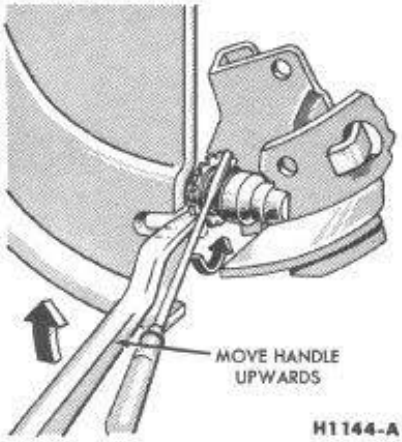


FIG. 84—Backing Off Brake Adjustment

INSTALLATION

1. Remove the protective coating from a new drum with carburetor degreaser.

2. Place the drum over the brake assembly and into position. Install the three Tinnerman nuts and tighten securely.

3. Install the wheel. If the adjustment was backed off, adjust the brake as outlined in the "Adjustment" procedure under "Brake Shoe and Adjusting Screw Removal and Installation".

CLEANING AND INSPECTION

1. Remove the wheel and drum. Wash all the parts except the brake shoes in a cleaning fluid and dry with compressed air.

2. Brush all dust from the carrier plates and interior of the brake drums.

3. Inspect the brake shoes for excessive lining wear or shoe damage. If the lining is worn to within 1/32 inch of the rivet heads or if the shoes are damaged, they must be replaced. Replace any lining that has been oil saturated. Replace lining in axle sets. Prior to replacement of lining, the drum diameter should be checked to determine if oversize linings must be installed.

4. Inspect all other brake parts and replace any that are worn or damaged.

5. Inspect the brake drums and, if necessary, refinish.

Brake Shoe and Adjusting Screw Removal and Installation

REMOVAL

1. With the wheel and drum removed, install a clamp over the ends of the brake cylinder as shown in Fig. 85.

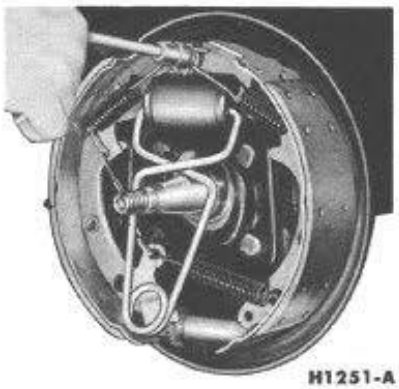


FIG. 85—Retracting Spring Removal

2. Contract the shoes as follows:

a. Disengage the adjusting lever from the adjusting screw by pulling backward on the adjusting lever (Fig. 83).

b. Move the outboard side of the adjusting screw upward and back off the pivot nut as far as it will go.

3. Pull the adjusting lever, cable and automatic adjuster spring down and toward the rear to unhook the pivot hook from the large hole in the secondary shoe web. **Do not attempt to pry the pivot hook out of the hole.**

4. Remove the automatic adjuster spring and adjusting lever (Fig. 83).

5. Remove the secondary shoe to anchor spring with the tool shown in Fig. 85. With the same tool, remove the primary shoe to anchor spring and unhook the cable anchor.

6. Remove the cable guide from the secondary shoe (Fig. 83).

7. Remove the shoe hold-down springs, shoes, adjusting screw, pivot nut, and socket.

8. On rear brakes, remove the parking brake link and spring. Disconnect the parking brake cable from the parking brake lever.

9. After removing the rear brake secondary shoe, disassemble the parking brake lever from the shoe by removing the retaining clip and spring washer (Fig. 83).

INSTALLATION

1. Before installing the rear brake shoes, assemble the parking brake lever to the secondary shoe and secure with the spring washer and retaining clip.

2. Apply a light coating of high-temperature grease at the points where the brake shoes contact the carrier plate.

3. Position the brake shoes on the carrier plate and secure the assembly with the hold down springs. On the rear brake, install the parking brake link and spring. Connect the parking brake cable to the parking brake lever (Fig. 83).

4. Place the cable anchor over the anchor pin with the crimped side toward the carrier plate.

5. Install the primary shoe to anchor spring with the tool shown in Fig. 86.

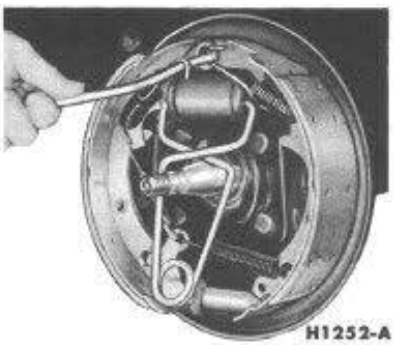


FIG. 86—Retracting Spring Installation

6. Install the cable guide on the secondary shoe web with the flanged hole fitted into the hole in the secondary shoe web. Thread the cable around the cable guide groove (Fig. 83).

It is imperative that the cable be positioned in this groove and not between the guide and the shoe web.

7. Install the secondary shoe to anchor spring (Fig. 86).

Be certain that the cable end is not cocked or binding on the anchor pin when installed. All parts should be flat on the anchor pin. Remove the brake cylinder clamp.

8. Apply high-temperature grease to the threads and the socket end of the adjusting screw. Turn the adjusting screw into the adjusting pivot nut to the limit of the threads and then back off ½ turn.

Interchanging the brake shoe adjusting screw assemblies from one side of the car to the other would cause the brake shoes to retract rather than expand each time the automatic adjusting mechanism oper-

ated. To prevent installation on the wrong side of the car, the socket end of the adjusting screw is stamped with an R or L (Fig. 87). The adjusting pivot nuts can be distinguished by the number of lines machined around the body of the nut. Two lines indicate a right hand nut; one line indicates a left hand nut.

9. Place the adjusting socket on the screw and install this assembly between the shoe ends with the adjusting screw nearest the secondary shoe.

10. Hook the cable hook into the hole in the adjusting lever from the backing plate side. The adjusting levers are stamped with an R or L to indicate their installation on a right or left hand brake assembly (Fig. 87).

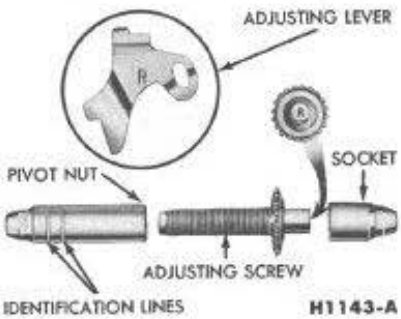


FIG. 87—Adjusting Screw and Lever Identification

11. Position the hooked end of the adjuster spring into the large hole in the primary shoe web, and connect the loop end of the spring to the adjuster lever hole.

12. Pull the adjuster lever, cable and automatic adjuster spring down and toward the rear to engage the pivot hook in the large hole in the secondary shoe web (Fig. 83).

13. After installation, check the action of the adjuster by pulling the section of the cable between the cable guide and the adjusting lever toward the secondary shoe web far enough to lift the lever past a tooth on the adjusting screw wheel. The lever should snap into position behind the next tooth, and release of the cable should cause the adjuster spring to return the lever to its original position. This return action of the lever will turn the adjusting screw one tooth.

If pulling the cable does not produce the action described, or if the lever action is sluggish instead of positive and sharp, check the position of the lever on the adjusting screw toothed wheel. With the brake in a vertical position (anchor at the top), the lever should contact the adjusting wheel 3/16 inch (plus or minus 1/32 inch) above the centerline of the screw. If the contact point is below this centerline, the lever will not lock on the teeth in the adjusting screw wheel, and the screw will not be turned as the lever is actuated by the cable.

To determine the cause of this condition:

a. Check the cable end fittings. The cable should completely fill or extend slightly beyond the crimped section of the fittings. If it does not meet this specification, possible damage is indicated and the cable assembly should be replaced.

b. Check the cable length. The cable should measure 11⅛ inches (plus or minus 1/64 inch) from the end of the cable anchor to the end of the cable hook.

c. Check the cable guide for damage. The cable groove should be parallel to the shoe web, and the body of the guide should lie flat against the web. Replace the guide if it shows damage.

d. Check the pivot hook on the lever. The hook surfaces should be square with the body of the lever for proper pivoting. Repair the hook or replace the lever if the hook shows damage.

e. See that the adjusting screw socket is properly seated in the notch in the shoe web.

INITIAL ADJUSTMENT. The hydraulic service brakes are self-adjusting and require a manual adjustment only after the brake shoes have been relined, replaced, or when the length of the adjusting screw has been changed while performing some other service operation.

1. After the shoes have been installed or the adjusting screw has been turned, install the drum. Be sure that all excess grease, oil, and other foreign material are wiped off the carrier plate and drum.

Before installing the brake drum on the front wheel spindle, wipe the spindle completely free of grease. Install the drum carefully so that the grease seal retainer within the hub will not be damaged.

2. Remove the adjusting hole cover from the carrier plate and, from the carrier plate side, turn the adjusting screw upward to expand the shoes (Fig. 88). Expand the shoes until a slight drag is felt when the drum is rotated.

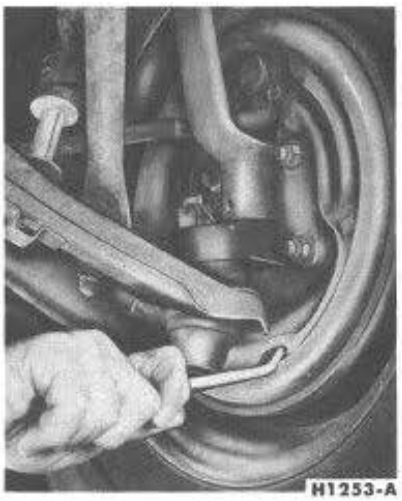


FIG. 88—Expanding Brake Shoes

3. Remove the drum. While holding the adjusting lever out of engagement with the adjusting screw, back off the adjusting screw ¾ of a turn with the fingers. If finger movement will not turn the screw, free it up; otherwise, the self adjusting lever will not turn the screw. Lubricate the screw with oil and coat with wheel bearing grease.

Any other adjustment procedure may cause damage to the adjusting screw with consequent self-adjuster problems.

4. Apply a small quantity of high-temperature grease to the points where the shoes contact the carrier plate, being careful not to get the lubricant on the linings. Install the wheel and drum.

5. Install the adjusting hole cover on the brake carrier plate.

6. When adjusting the rear brake shoes, check the parking brake cables for proper adjustment. Make sure that the equalizer lever operates freely.

7. After the brake shoes have been properly adjusted, check the operation of the brakes.

BRAKE CYLINDER OVERHAUL

The front wheel brake cylinders on 1963 Falcons and Comets are provided with a rubber seal around the center of each piston. **Be sure to replace the seal whenever a cylinder is disassembled.**

GROUP 10—GENERATING AND STARTING SYSTEMS

The 1963 maintenance recommendations are covered in Group 13, and the 1963 specifications are covered in Group 14 of this manual.

The service procedures outlined in Group 10 of the 1960-1961-1962 Falcon Shop Manual remain the same for 1963. The service procedures in Section 9 of the 1961 Comet Maintenance Manual and the 1962 portion of this manual remain the same for 1963.

GROUP 11—LIGHTS, INSTRUMENTS AND ACCESSORIES

The 1963 maintenance recomendations are covered in Group 13, and the 1963 specifications are covered in Group 14 of this manual.

All the service procedures outlined in Group 11 of the 1960-1961-1962 Falcon Shop Manual remain the same for 1963 except as described herein. All the service procedures in Sections 10 and 11 of the 1961 Comet Maintenance Manual and the 1962 portion of this manual are the same with the following exceptions.

LIGHTING SYSTEM (PART II-I)

HEADLIGHT ALIGNMENT

Headlight alignment should be made with a person seated in the driver's seat, the car unloaded and the trunk empty except for the spare tire and jacking equipment. The fuel tank should be half full, plus or minus one gallon, and the tires should have recommended air pressure.

WINDSHIELD WIPER

A single-speed and a two-speed electric wiper motor are used on the 1963 Falcon and Comet. Fig. 89 shows the wiring diagram for the single-speed wiper motor.

Single-Speed Electric Wiper Motor Trouble Diagnosis and Adjustment. When checking an inoperative or sluggish windshield wiper, first examine the linkage under the instrument panel for obstructions. Disconnect the linkage at the motor and check for ease of operation, with the arms and blades removed.

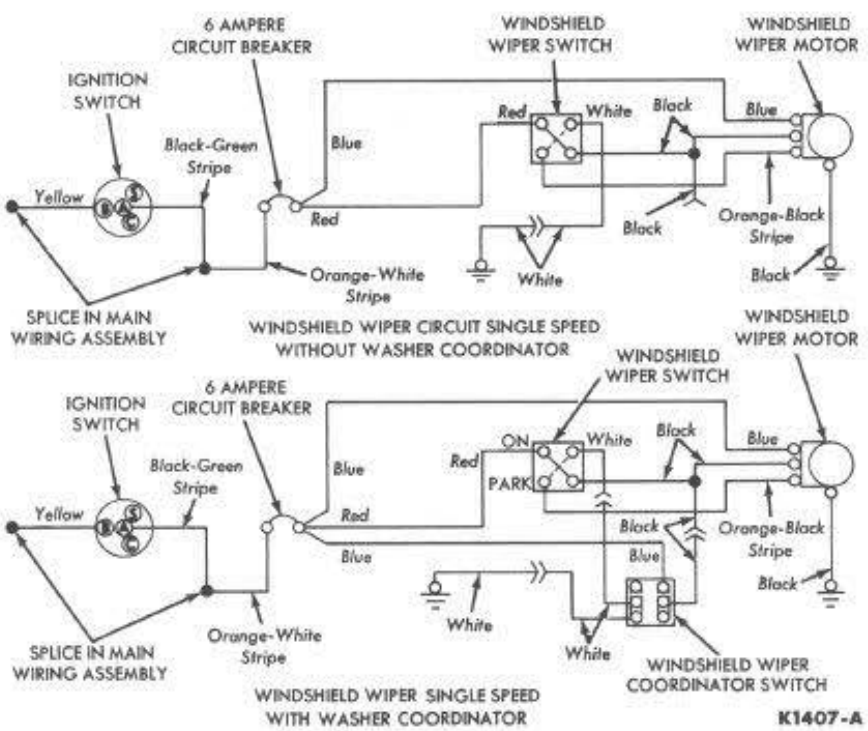


FIG. 89—Single-Speed Wiper Motor Installation Wiring Diagram

Disconnect the wiring harness connector plug from the motor, turn the wiper switch and ignition switch to the on position and check for voltage at the center opening of the plug (Fig. 90). No voltage indicates a defective circuit breaker, switch or wiring. With the switch at the off position, check for voltage between the two outside openings of the plug. If there is no voltage, replace the defective parts. Fig. 91 shows the complete wiring diagram.

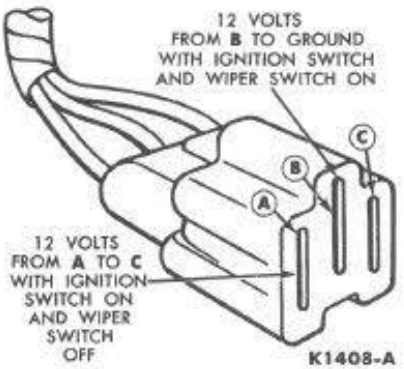


FIG. 90—Windshield Wiper Terminal Plug Test Points

The park position adjustment is made during assembly after overhaul. Follow the procedure outlined in the section covering assembly.

Single-Speed Electric Wiper Motor Disassembly. A disassembled view of the single-speed wiper motor is shown in Fig. 92.

1. Remove the gear cover retaining screws, ground terminal, and cover.

2. Remove the idler gear retainer, thrust washer and idler gear.

3. Remove the motor through bolts, motor housing, switch terminal insulator sleeve, and armature. **Do not pound the motor housing magnet assembly as the ceramic magnets may be damaged.**

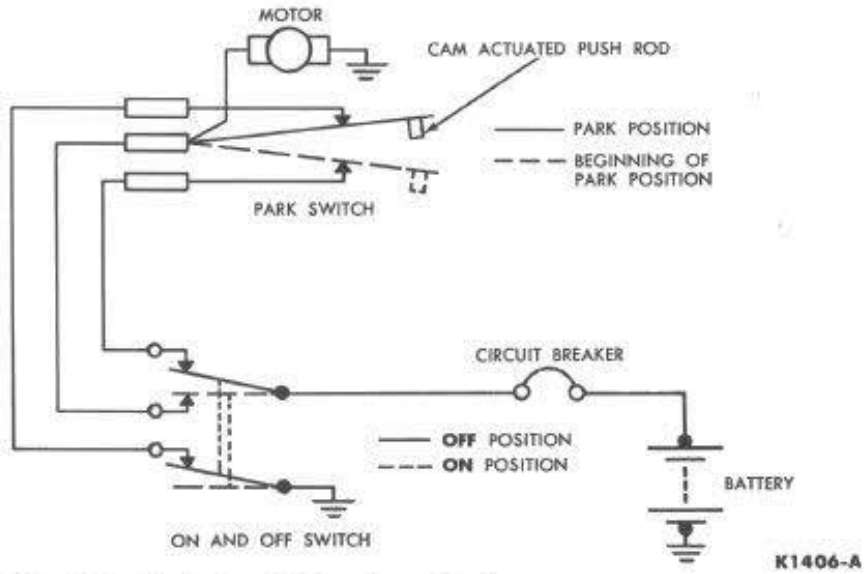


FIG. 91—Single-Speed Wiper Motor Circuit

4. Remove the armature end play adjusting set screw.

5. Mark the position of the output arm with respect to the output shaft, for assembly. Remove the output arm retaining nut, output arm flat washer, output gear and shaft assembly, thrust washer, and parking switch lever.

6. Remove the brushes and brush springs.

7. Remove the brush plate and switch assembly, and remove the switch contact to parking lever pin from the gear housing.

Single-Speed Electric Wiper Motor Cleaning and Inspection

1. Clean the gear housing of all old grease. **Do not allow any cleaning fluid to contact the armature shaft and output shaft bearings.**

2. Wipe all other parts with a clean cloth.

3. Cover the motor housing bearing, and blow out any dust from the housing with compressed air.

4. Inspect the armature for burned commutator bars and unsoldered connections. Check all shafts, bushings, and gears for scored surfaces. Check the thrust ball for pitting or discoloration due to heat. Make sure that the output gear is not loose on the output shaft, and that the cam surface is not worn. Replace any defective parts.

5. Check the armature for grounds with a test light. Replace the armature if it is grounded.

6. Inspect the brush plate assembly for cracks or distortion. The brush holders should be securely fastened to the brush plate. Inspect the contact points for burned or pitted surfaces. Replace defective parts.

7. Inspect the motor housing and magnet assembly. Replace the assembly if it has a cracked magnet, or if the thrust button is hollowed out to a diameter greater than 1/32 inch.

8. Replace the brushes if they are worn to 5/16 inch. Replace distorted or burned brush springs.

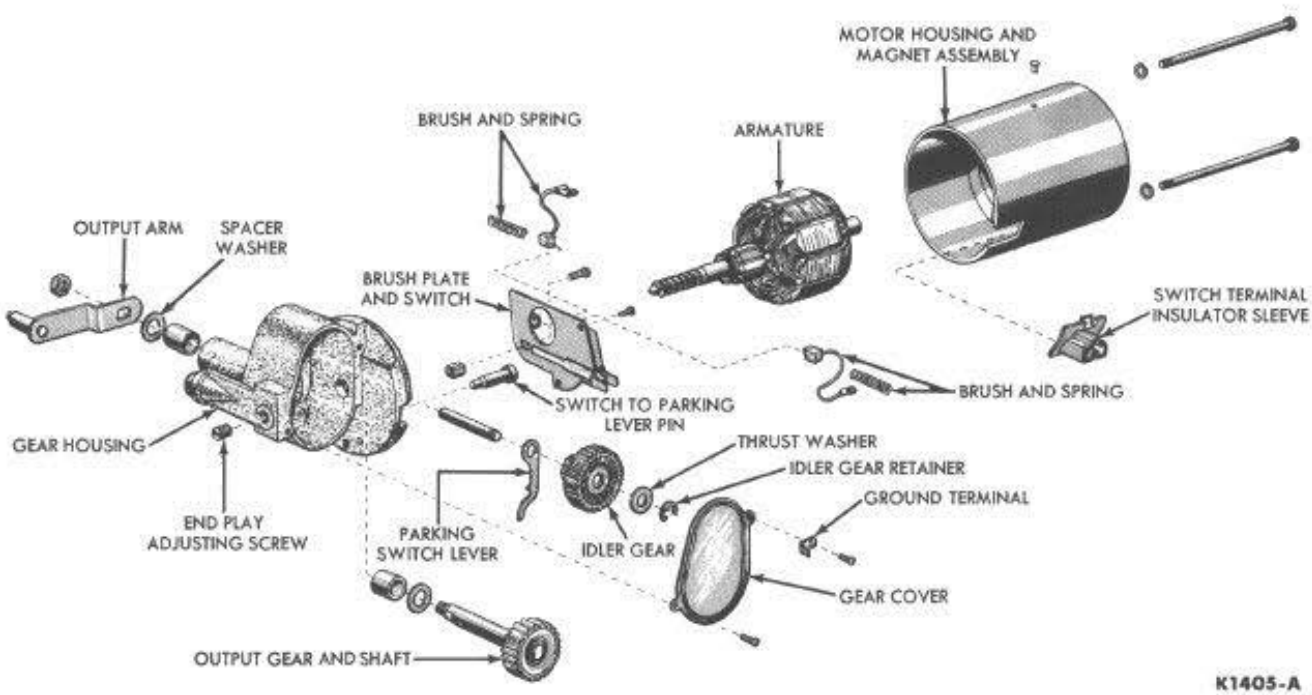


FIG. 92—Disassembled Single-Speed Wiper Motor

Single-Speed Electric Wiper Motor Assembly

1. Install the parking switch lever on the idler gear shaft with the cam rider pointing toward the gear housing output shaft hole. Make certain that the lever bottoms against the casting.

2. Apply a film of Sun Prestige grease to the output gear teeth and shaft bearing surface. Place the thrust washer on the shaft and insert the shaft in the bearing. Make certain that the parking switch lever is clear of the cam and gear assembly.

3. Place the spacer washer on the shaft, position the output arm on the shaft in the marked position from which it was removed, and install the mounting nut.

4. Position the brush springs and brushes in the holders and wrap wire around them to hold them in the fully retracted position. Push the insulated brush connector onto the switch terminal.

5. Place the switch-contact to parking-lever pin in the gear housing. Position the brush plate assembly to the housing and install the mounting screws. Adjust the switch contact points by turning the adjusting screw clockwise until the inner contact points just open. Then back off the adjusting screw (counterclockwise) one and one half turns. Make this adjustment with the parking lever riding on the lower part of the output gear cam. Then insert a 0.030-inch feeler gauge between the center and outer contact points. Bend the outer arm to attain the 0.030-inch gap.

6. Apply Sun Prestige grease to the ball bearing in the end of the armature shaft. Position the armature shaft in the gear housing and remove the brush retracting wires.

7. Holding the armature in position, install the terminal insulating sleeve, motor housing and magnet assembly, and through bolts. Seal the area where the terminal insulator sleeve seats against the motor and gear housings.

8. Apply Sun Prestige grease to the worm gear and idler gear, and install the idler gear, thrust washer and retainer.

9. Install the armature shaft end play adjusting screw and adjust the end play to 0.003 inch.

10. Apply a generous amount of Sun Prestige grease to the area around the end of the armature shaft. Install the gear housing cover and ground terminal.

Two-Speed Electric Motor Disassembly. The two-speed electric motor may be disassembled for service of the drive mechanism parts.

1. Remove the gear housing cover plate and gasket (Fig. 93).

2. Remove the output shaft retainer and spacer washer.

3. Remove the crankpin bearing retainer and remove the spacer washer and cam return spring assembly.

4. Remove the arm and link assembly.

5. Remove the crankpin bearing cam.

6. Remove the input gear retainer and outer spacer shim, and remove the input gear and inner spacer shim.

7. Remove the wiper arm lever nut and lock washer.

8. Remove the wiper arm lever and spacer, and remove the output shaft and gear assembly from the housing.

9. The output gear may be removed from its shaft by tapping with a fiber hammer. Be careful not to damage the end of the shaft.

The worn drive gear and armature assembly is not serviced.

Two-Speed Electric Motor Assembly and Adjustment

1. Tighten the motor cover. Adjust the motor shaft end play to 0.000-0.005 inch by turning the shaft stop screw. Measure with a feeler gauge between the stop screw and the motor shaft.

2. Install the input gear shim or the input gear shaft and install the gear in the housing. Adjust the end play to 0.005- to 0.010 inch by adding or removing shims under the input gear retainer. Install the retainer.

3. Install the output gear on the output shaft. Make sure that the gear is bottomed on the shaft.

4. Install the output shaft and gear assembly into the housing with the gear teeth facing the motor. Install one spacer washer to the outside end of the output shaft and assemble the wiper arm lever to the output shaft, with the linkage studs facing away from and above the shaft. Secure the lever with a lock washer and nut.

5. Place the bearing cam on the crankpin with the small diameter portion of the cam facing outward.

6. Install the arm and link assembly to the bearing cam. As the arm

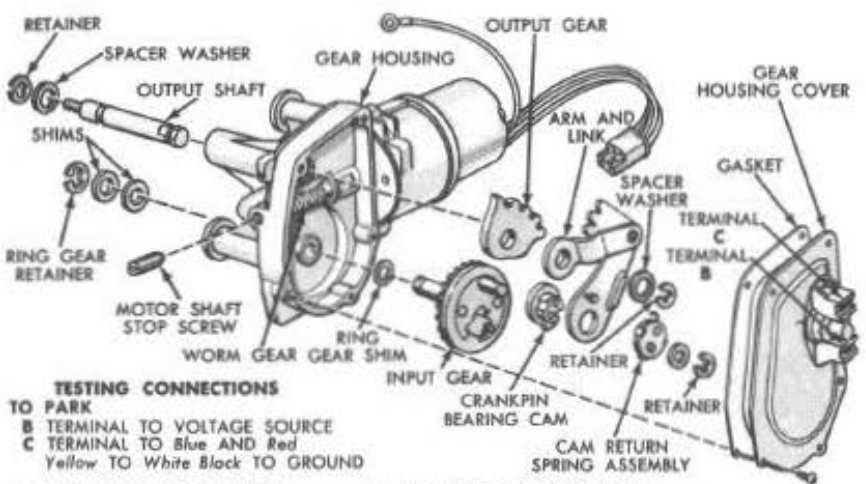


FIG. 93—Two-Speed Electric Wiper Motor

is placed on the shaft, the gears must be meshed and the link which is riveted to the arm must be installed to the output shaft at the same time. Proper gear indexing is obtained when the bottom tooth of the arm and gear segment will be in mesh with the bottom valley of the output shaft gear.

7. Install the output shaft spacer washer and retainer. Check the end play of the output shaft (0.005-0.010 inch). Remove or install spacer washers under the shaft retainer to adjust the end play.

8. Install the cam return spring assembly.

9. Install the bearing spacer and retainer. If the retainer cannot be installed, one or more coils of the spring clutch are probably out of place. If the bearing has excessive end play on the crankpin, the projection of the bearing may ride out of the semi-circle slot in the end plate. Add spacer washers under the retainer if necessary.

10. Apply generous amounts of Sun Prestige No. 41 grease to all moving parts. Install the gear housing cover plate.

When operating the unit on the bench, do not place hands or fingers between the wiper lever and the case, or inside the gear housing, as considerable power is developed by the gear reduction.

RADIO AND HEATER (PART 11-2)

RADIO

The 1963 radios are completely transistorized. The Falcon radio is model 3TBD manufactured by Bendix. The Comet radio is model 3TME manufactured by Motorola.

Radio Trouble Diagnosis. As there are no radio tubes in the 1963 radios, delete all references to radio tubes in the trouble diagnosis procedures.

GROUP 12—BODY

FRONT SHEET METAL AND BODY TRIM (Part 12-2)

The 1963 maintenance recommendations are in Group 13, and the 1963 specifications are in Group 14 of this manual.

All the service procedures outlined in Group 12 of the 1960-1961-1962 Falcon Shop Manual remain the same for 1963 except as described herein. All the service procedures in Section 13 of the 1961 Comet Maintenance Manual and the 1962 portion of this manual are the same except as described herein.

FRONT SHEET METAL

GRILLE REPLACEMENT—(FALCON)

Grille replacement procedure other than location of retaining bolts (Fig. 94) remains the same as 1962.

GRILLE REPLACEMENT—(COMET)

Grille replacement procedure other than location of retaining bolts (Fig. 95) remains the same as 1961.

SEATS

FUTURA AND S-22 FRONT SEAT

The seat is mounted in the conventional manner on two seat tracks. The seat release is located at the lower front center of the seat, and is

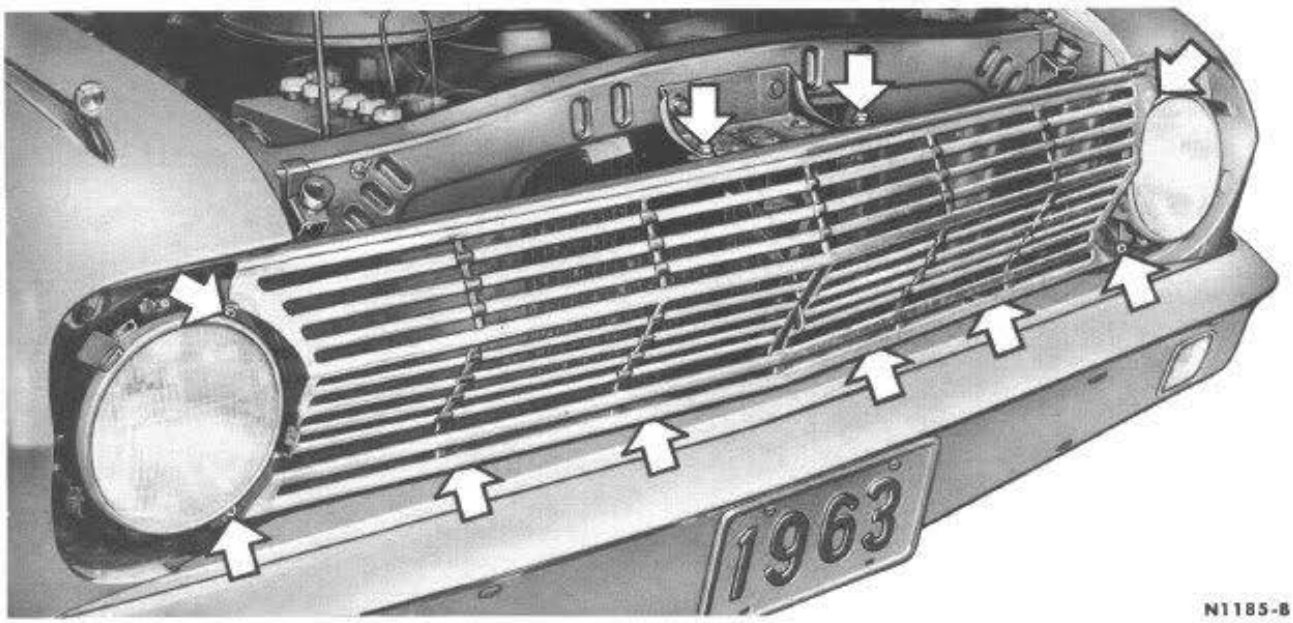
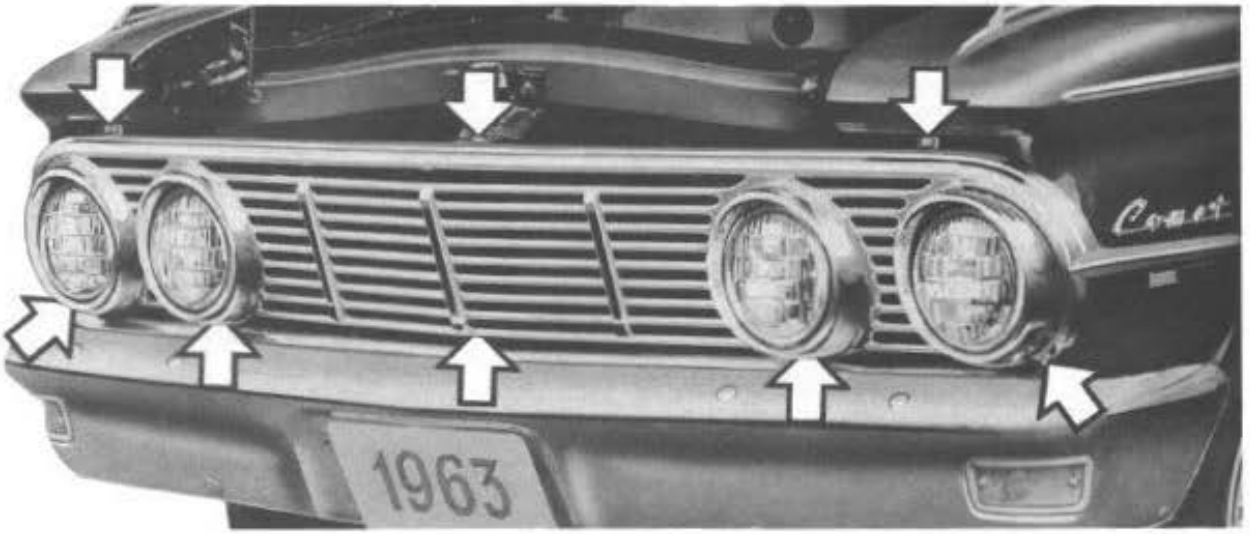


FIG. 94—1963 Falcon Grille Retaining Bolt Locations



N1322-A

FIG. 95—1963 Comet Grille Retaining Bolt Locations

operated by pulling the lever up to release the seat tracks.

Seat Track Replacement. The seat track assembly is most easily replaced if the seat assembly is removed from the car.

1. From underneath the car, remove the seat track retaining stud nuts and washers. Remove the seat assembly from the car and place it on a clean work area.

2. Remove the screws which retain the seat track assembly to the seat cushion and remove the seat track assembly (Fig. 96).

3. Disconnect the seat track brace and latch release rod from the track being replaced, and connect these parts to the new seat track.

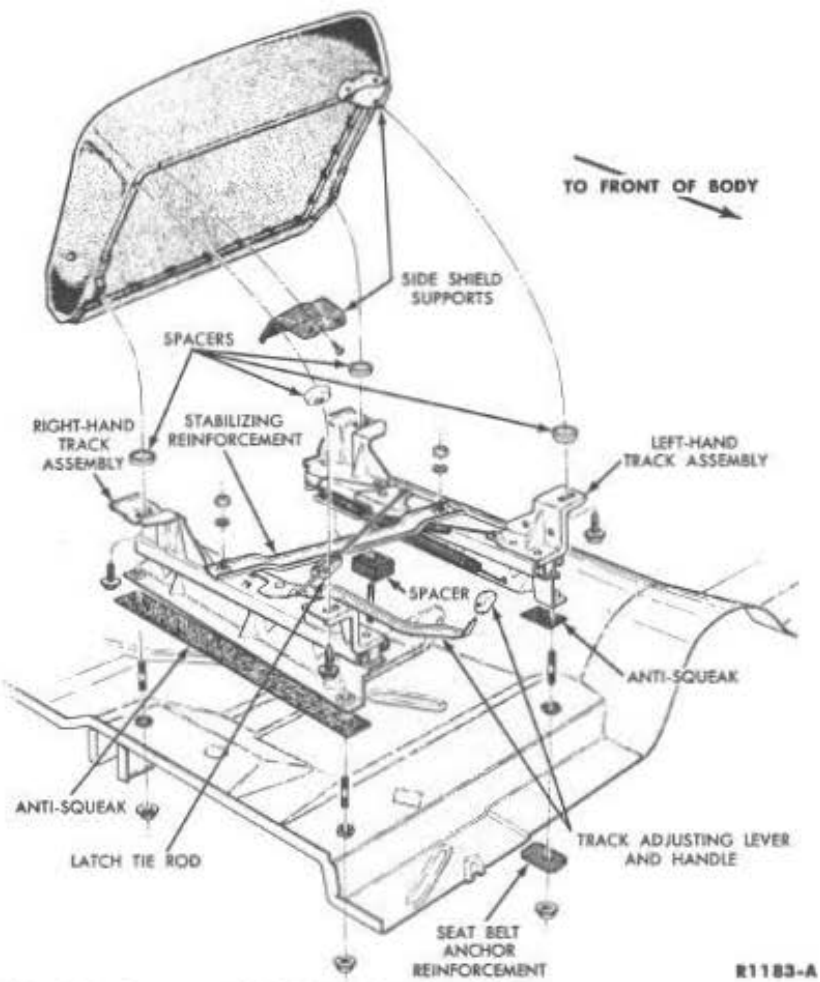
4. Loosely install the track-to-floor retaining studs in the seat track.

5. Place the seat track assembly on the seat cushion, and install the retaining screws.

6. Place the seat assembly in the car and install the washers and nuts on the retaining studs.

Front Seat Cover Replacement. Repairs to seat cushions or seat backs are performed out of the car and are usually limited to replacement of torn or burned seat covers. In a few instances, the pads may be damaged and require replacement.

When installing a new seat cover or pad, refer to Fig. 97 for the loca-



R1183-A

FIG. 96—Futura and S-22 Front Seat Installation

tion of listing wires, hog rings, anti-squeak pads, and seat pad stack-up.

SEAT REMOVAL. From underneath the car, remove the seat track retaining stud nuts and washers. Remove the seat assembly from the car and place it on a clean work area.

SEAT CUSHION COVER REPLACEMENT

1. Remove the seat assembly, and then remove the cushion side shields and seat track assembly. From each side of the seat, remove the seat back retaining pin and retainer, and then remove the seat back.

2. Remove the seat back scuff plates and remove the hog rings retaining the seat cushion cover to the spring assembly (Fig. 97). Separate the bottom facing from the cushion cover top rear panel, and allow the facing to remain cemented to the foam pad. Remove the cushion cover.

3. Inspect the pad and spring assemblies, and repair or replace as necessary.

4. Transfer the listing wires to the new cover.

5. Place the new cover assembly over the pad and seat spring assembly and secure it to the front bolster wire with five hog rings. Apply M-2G17-A cement to the bottom of the cushion cover top rear panel and to the old facing which was left cemented to the foam rubber pad.

6. Secure each side bolster wire to the seat spring assembly with six hog rings.

7. The front and side edges of the cover assembly can now be secured to the bottom of the spring assembly with hog rings as shown in Fig. 97.

8. Secure the rear edge of the

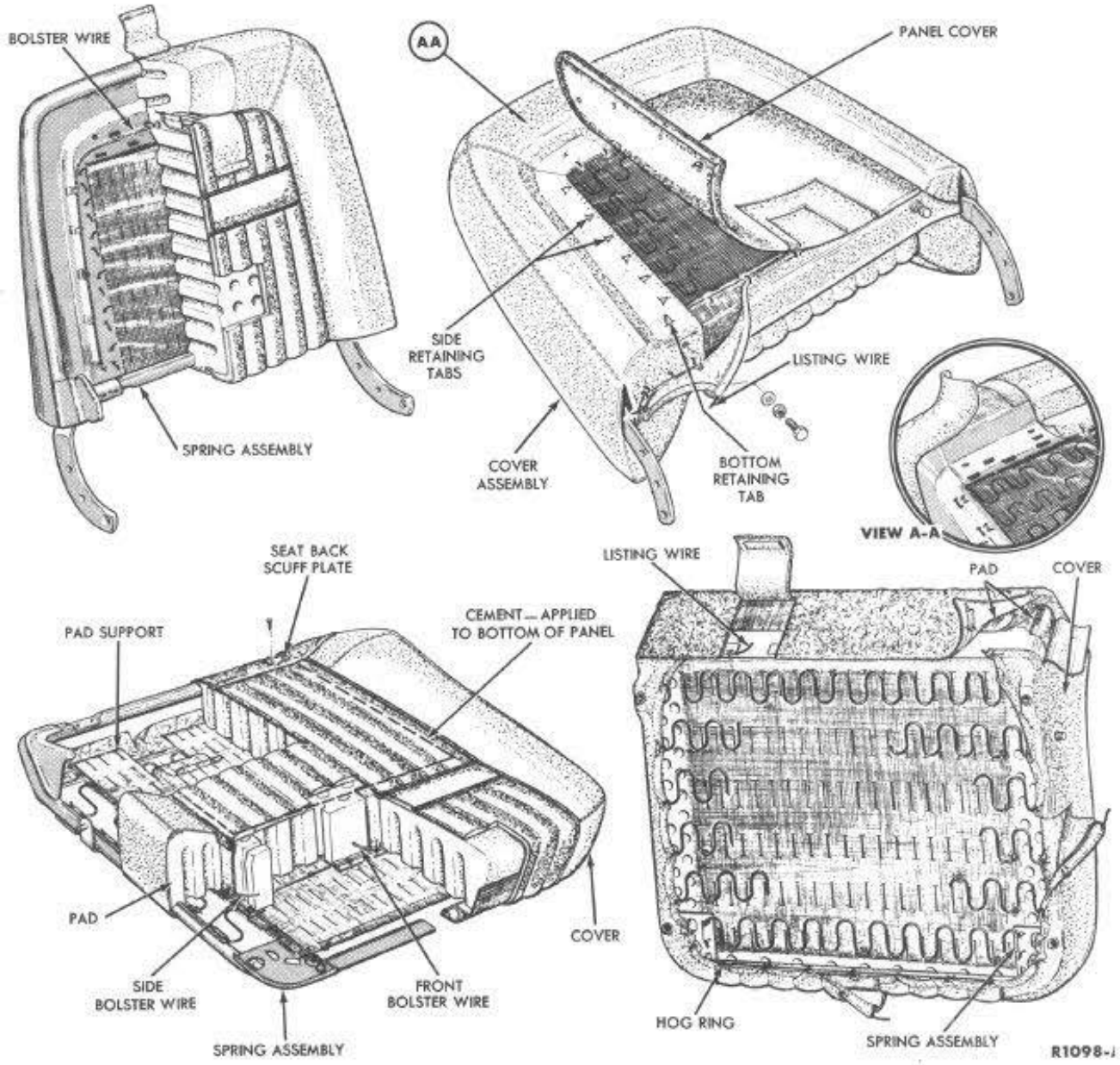


FIG. 97—Futura and S-22 Front Seat Back and Cushion

cover assembly to the bottom of the spring assembly with six hog rings.

9. Install the two scuff plates on the cushion.

10. Install the cushion side shields, seat back, and seat tracks. Install the seat assembly.

SEAT BACK COVER REPLACEMENT

1. From each side of the seat, remove the seat back pivot arm retaining pin and retainer, and then remove the seat back. Remove the two seat back stops, seat back pivot arm covers, and remove the panel cover from the seat back (Fig. 97). Remove the hog rings from the seat back assembly, bend the tabs up on the seat back, and remove the seat back cover. Inspect the pad and spring assemblies, and repair or replace as necessary.

2. Transfer the listing wires to the new cover.

3. Place the new cover over the pad and spring assembly, and with 17 equally spaced hog rings, secure the cover to the bolster wire (Fig 97).

4. Pierce the cover over the side and bottom retaining tabs, and bend the side retaining tabs toward the center of the seat.

5. Pull the lower rear edge of the cover over the bottom of the spring assembly, and secure each side with three hog rings (Fig. 97).

6. Pull the lower front edge of the cover over the bottom of the spring assembly, and secure to the lower rear edge of the cover with one hog ring on each side (Fig. 97). Secure the lower listing of the cover assembly to the spring assembly with five hog rings, pierce the cover over the bottom retaining tab, and bend each tab toward the top of the seat.

7. Secure the top rear edge of the cover assembly to the spring assembly with five hog rings.

8. Install the seat back panel with the retaining clips, the seat back pivot arm covers, and the two seat stops to the seat back assembly

9. Connect the seat back to the seat cushion and install the pivot arm retainers and retaining pins.

FRONT SEAT INSTALLATION

Adjust the seat stops as required. Place the seat assembly in the car and install the nuts and washers on the studs that retain the seat tracks to the floor panel.

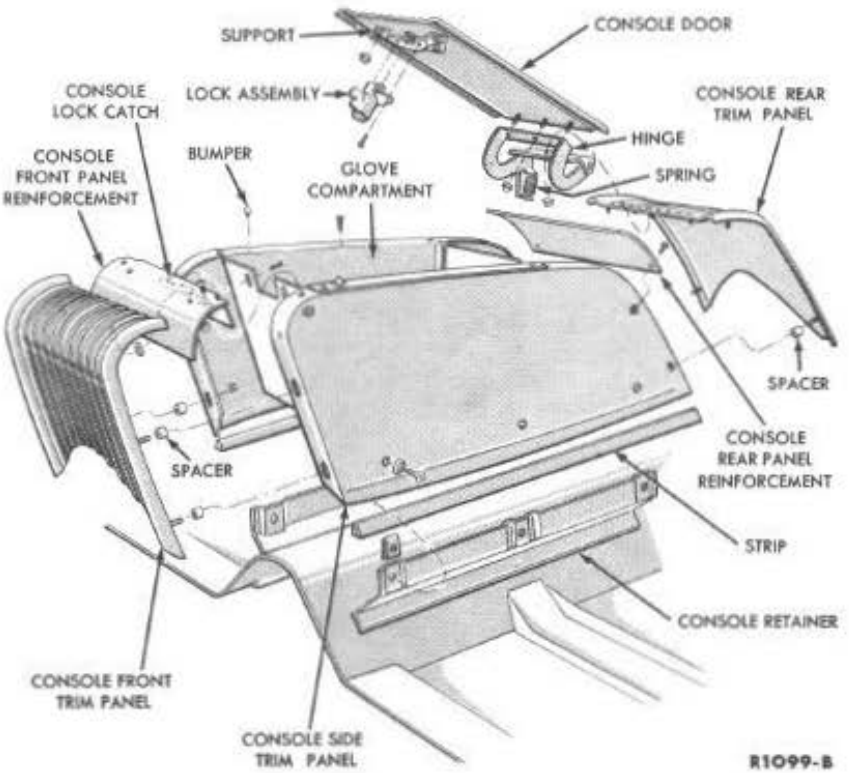


FIG. 98—S-22 Console Installation

CONSOLE AND INSTRUMENT PANEL SAFETY COVER

S-22 CONSOLE

The S-22 console assembly is shown in Fig. 98. The glove compartment liner must be removed for access to the hinge and front and rear console panels.

The console side trim panels can be replaced without removing the front seats. The following console side trim panel replacement procedure is given because it is the final component to be removed from the console assembly. This procedure requires the removal of components such as the console door and hinge, glove compartment liner, and the console front and rear finish trim panels.

Console Side Trim Panel Replacement

1. Open the console door and remove the screws and washers retaining the glove compartment liner and lock catch (Fig. 98).

2. Remove the console door and hinge assembly.

3. Remove the nuts retaining the front finish panel and remove the panel.

4. Remove the console rear finish trim panel.

5. Remove the console side trim panel retaining screws from the floor panel bracket (Fig. 98) using a small ratchet wrench such as a General 807X Wrench. Remove the side trim panel from the front and rear finish panel reinforcements, and remove the panel.

6. Install the console side trim panel to the front and rear finish panel reinforcements and the floor pan bracket.

7. Install the console rear finish panel, console door and hinge assembly, and console front finish panel.

8. Install the lock catch and glove compartment liner.

9. Adjust the lock catch.

INSTRUMENT PANEL SAFETY COVER REPLACEMENT

1. Unsnap the chrome trim moulding from the instrument panel safety cover lower edge (Fig. 99).

2. Remove the safety cover end retaining mouldings at each door pillar.

3. Remove the lower windshield garnish mouldings (safety cover top retaining mouldings) and note the screw sizes.

4. Remove the radio speaker and defroster grille assembly.

5. Pull the safety cover from the instrument panel.

6. Using solvent B6A - 19563 - D, clean the old cement from the instrument panel mounting surfaces.

7. Position the cover temporarily, and then mark the cover and the instrument panel at several locations.

8. Using a wide brush, apply cement (COAZ-19552-A) to both the instrument panel and to the safety cover around the outside and the inside edges only.

9. Press the safety cover into position.

10. Install the radio speaker and defroster grille assembly.

11. Install the garnish mouldings, safety cover and retaining mouldings, and the lower windshield garnish mouldings (safety cover top retaining mouldings).

EXTERIOR MOULDINGS

EXTERIOR MOULDINGS (FALCON)

Exterior mouldings and various moulding retaining clips and bolts are shown in Figs. 100, 101 and 102.

It should be determined by the type of retainer used whether the respective trim panel must be removed.

EXTERIOR MOULDINGS (COMET)

Exterior mouldings and the various retaining clips and bolts are shown in Figs. 103, 104 and 105.

It can be determined by the type and location of retainer used whether a respective trim panel must be removed to provide access to the retainer.

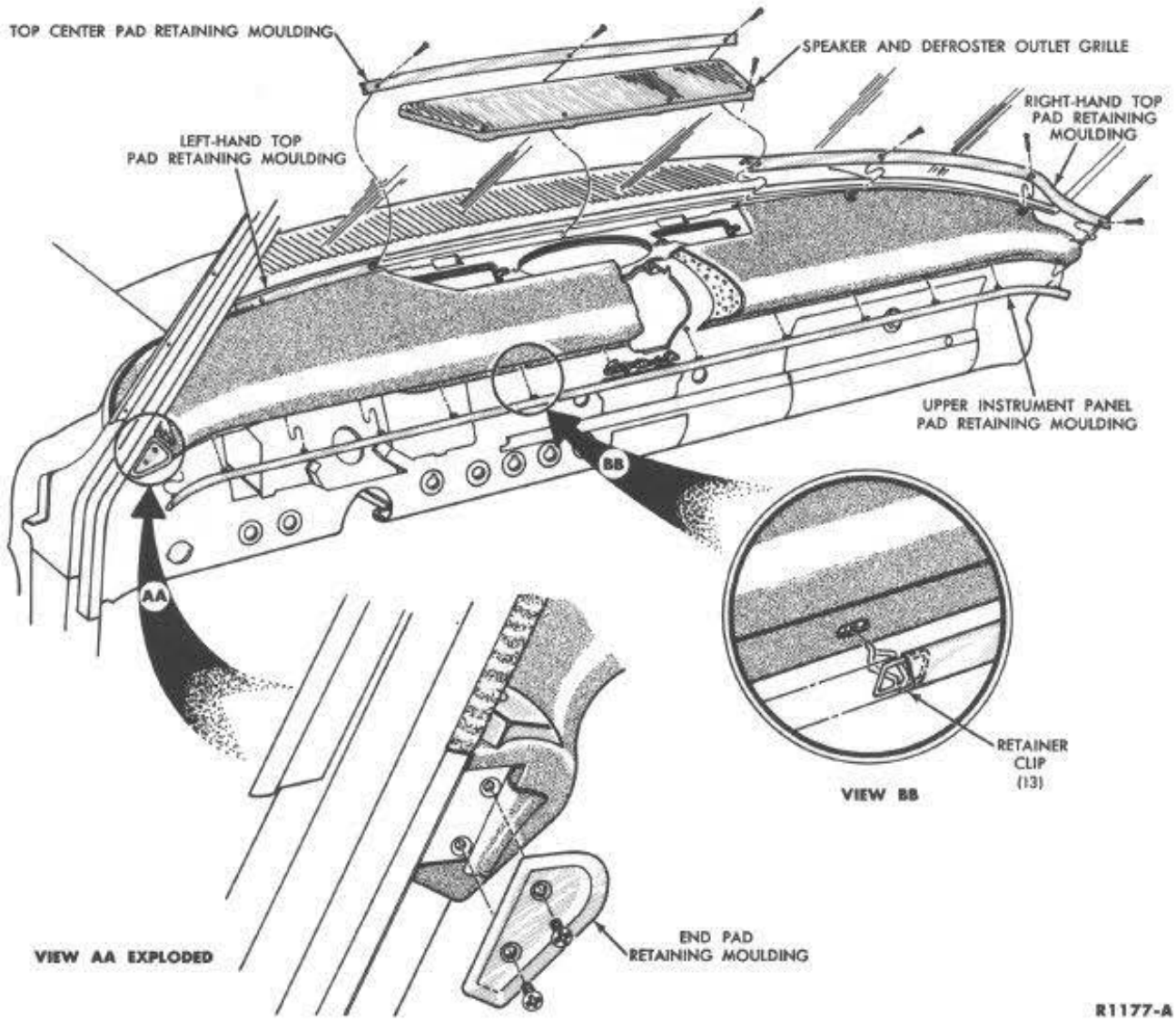
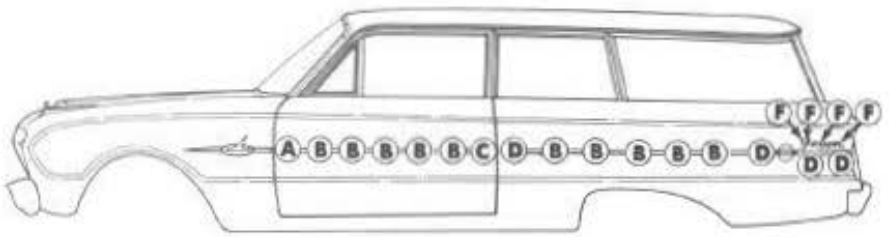
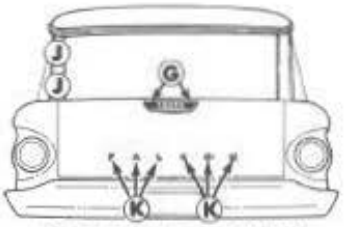


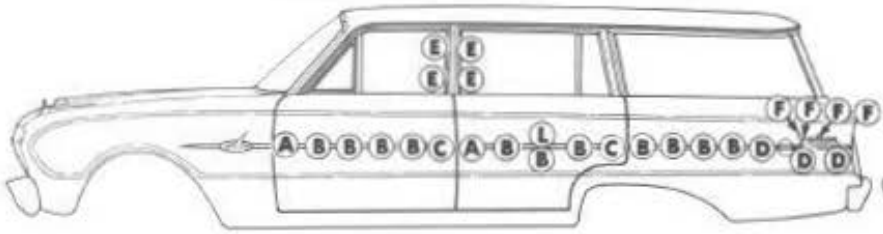
FIG. 99—Comet Instrument Panel Safety Cover Installation



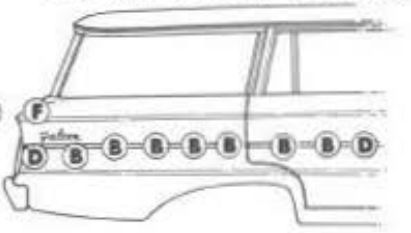
MODEL C3DB-59B SHOWN
MODEL C3DB-59A TYPICAL



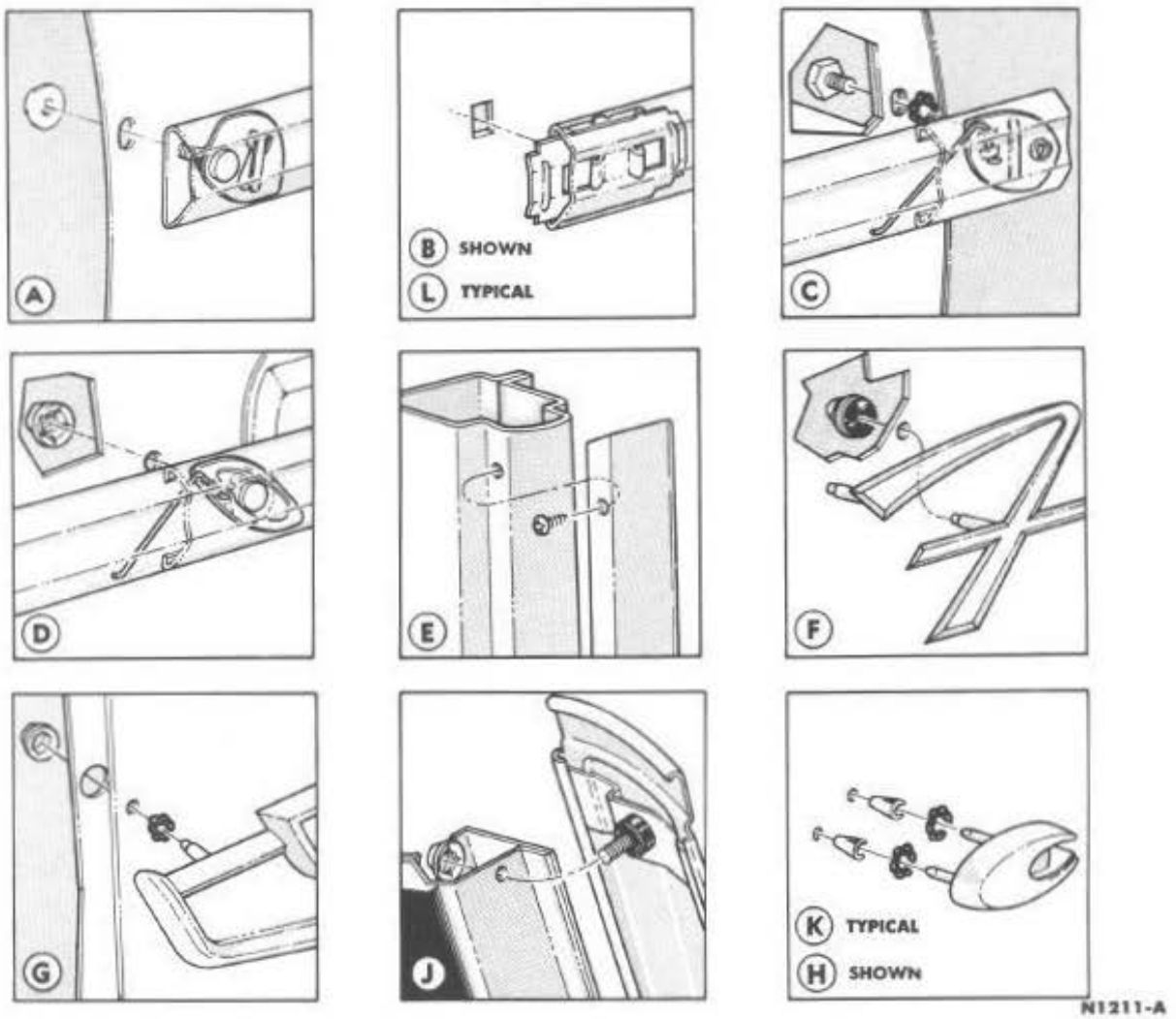
MODELS C3DB-59B SHOWN
MODELS C3DB
-59A -71A -71B -71C -71D TYPICAL



MODEL C3DB- 71B SHOWN
MODEL C3DB -71A -71C -71D TYPICAL

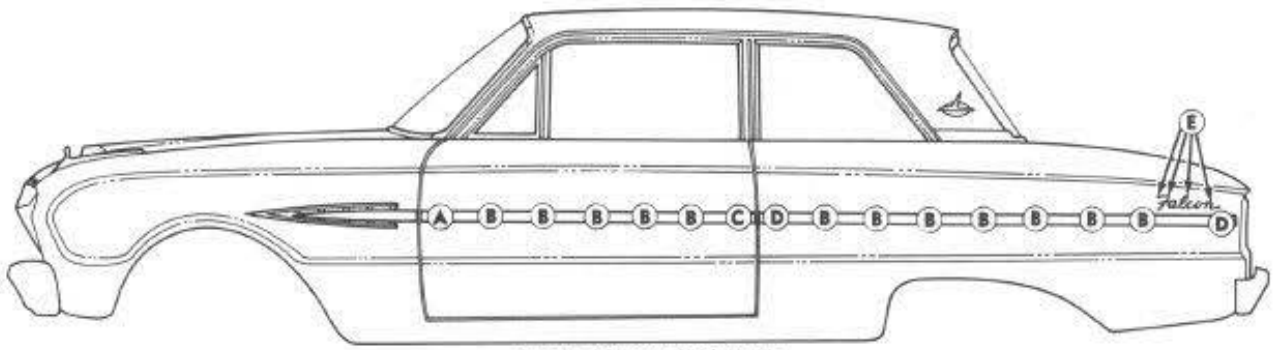


MODELS C3DB-59B -71B—RIGHT-HAND SIDE

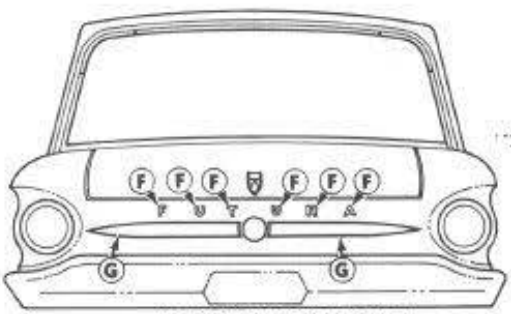


N1211-A

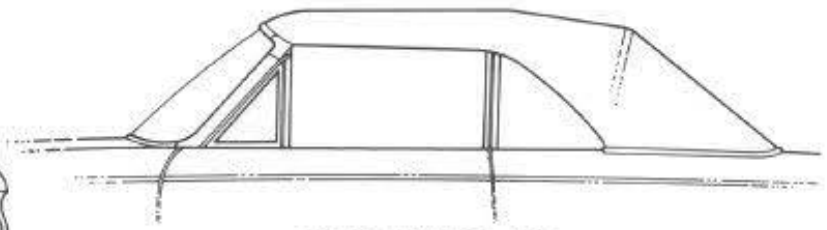
FIG. 100—Exterior Mouldings—Falcon Models 59 and 71



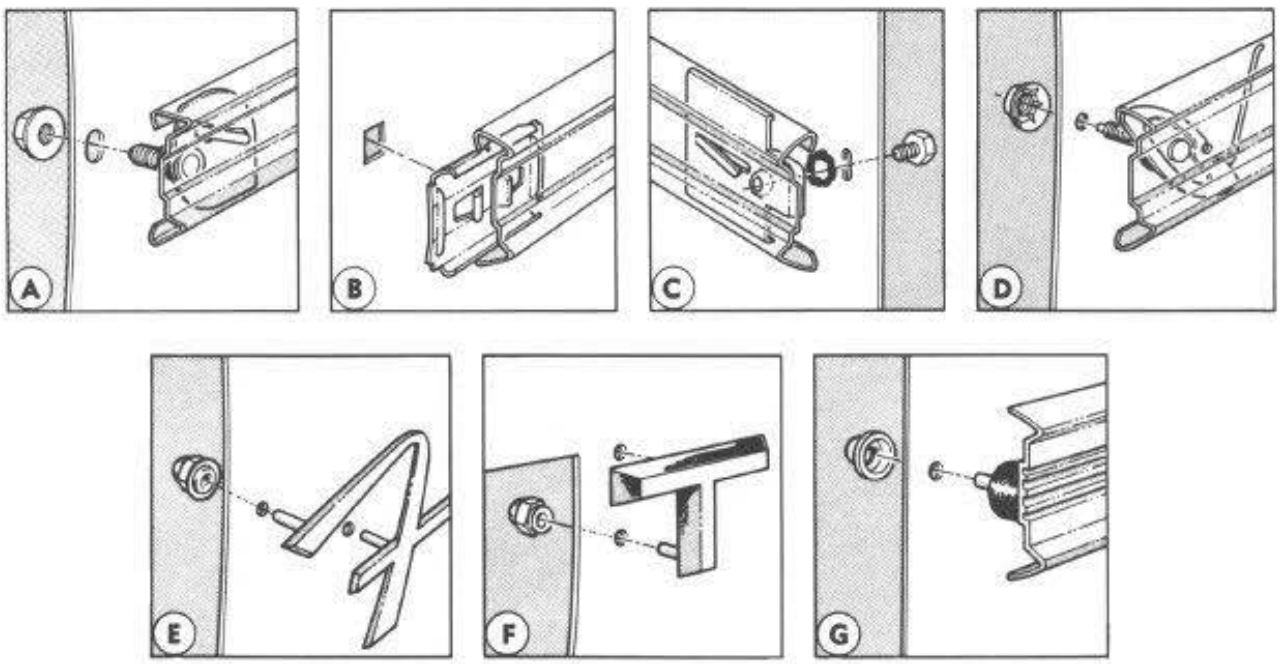
MODEL C3DB-62C SHOWN
MODELS C3DB-76A -76B TYPICAL



MODEL C3DB-62C SHOWN
MODELS C3DB-76A -76B TYPICAL

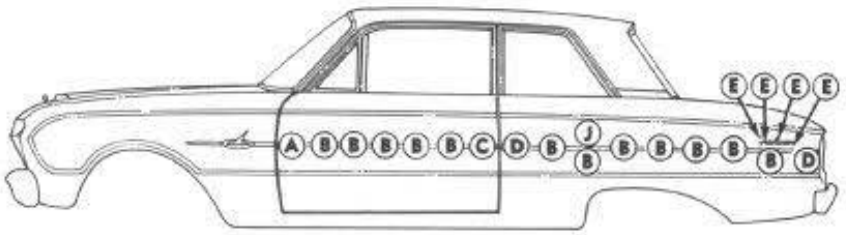


MODELS C3DB-76A -76B



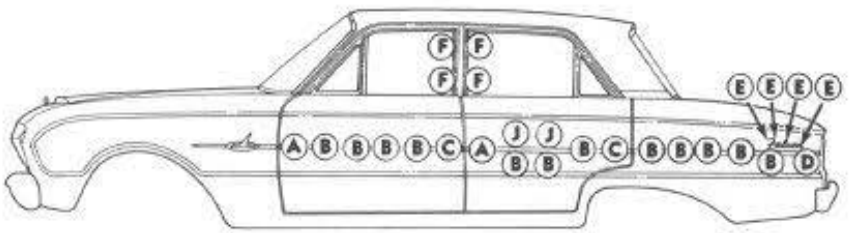
N1210-A

FIG. 101—Exterior Mouldings—Falcon Models 62C, 76A, and 76B

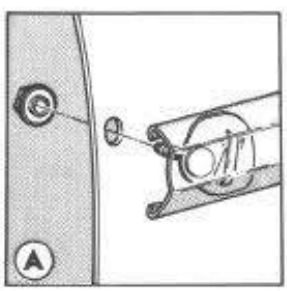


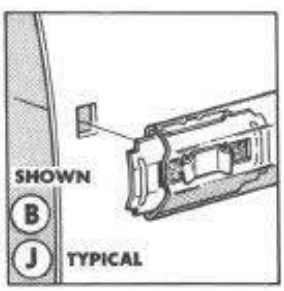
MODEL C3DB-54B-62B SHOWN
MODEL C3DB-54A-62A TYPICAL

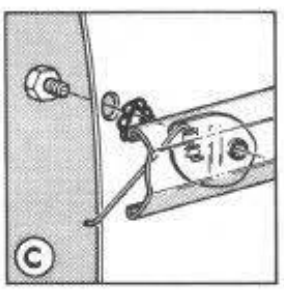
MODEL C3DB-54A-54B-62A-62B

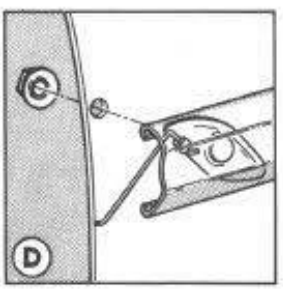


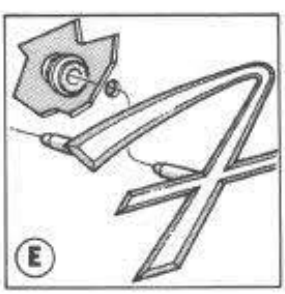
MODEL C3DB-54B SHOWN
MODEL C3DB-54A TYPICAL

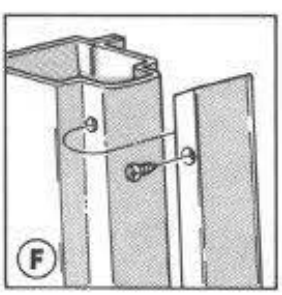


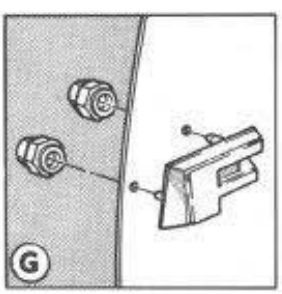


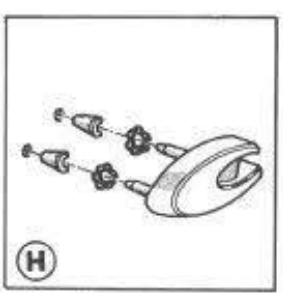






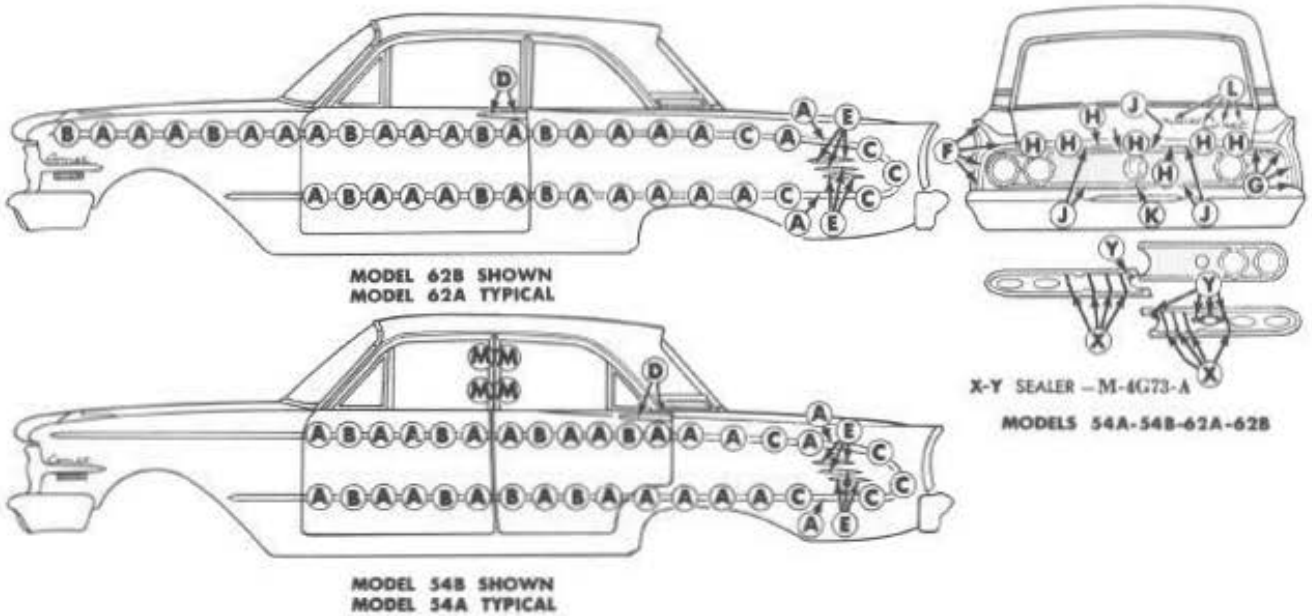


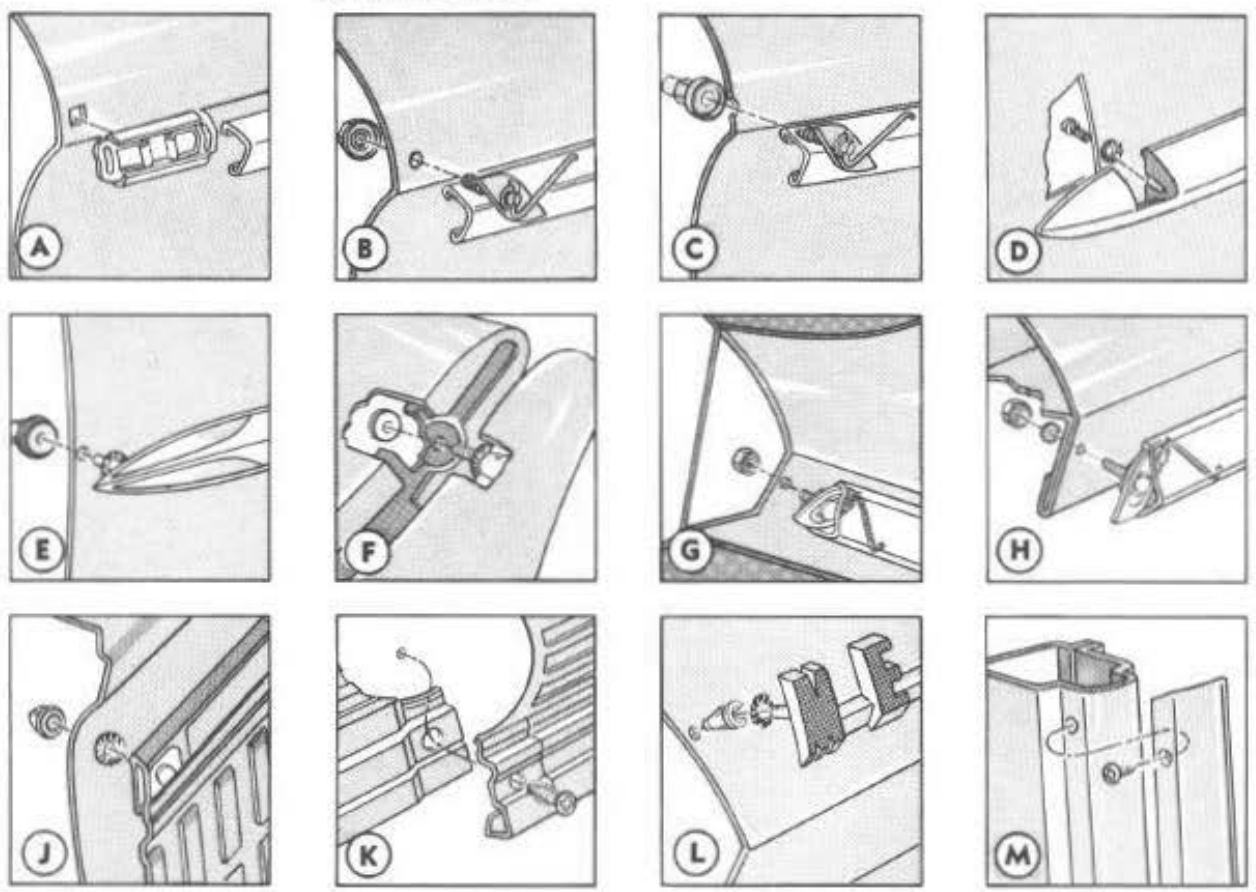




N1209-A

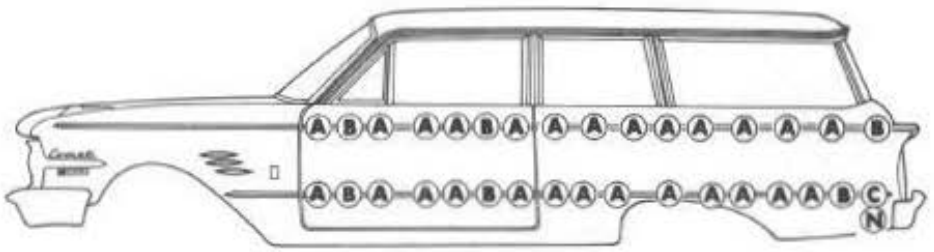
FIG. 102—Exterior Mouldings—Falcon Models 54A, 54B, 62A and 62B



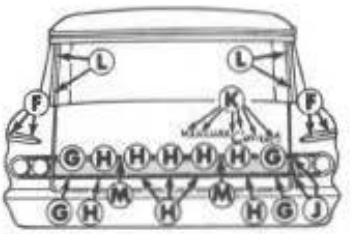


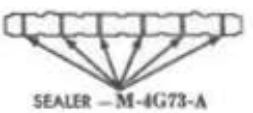
N1263-A

FIG. 103—1963 Exterior Mouldings—Comet Models 54A, 54B, 62A and 62B

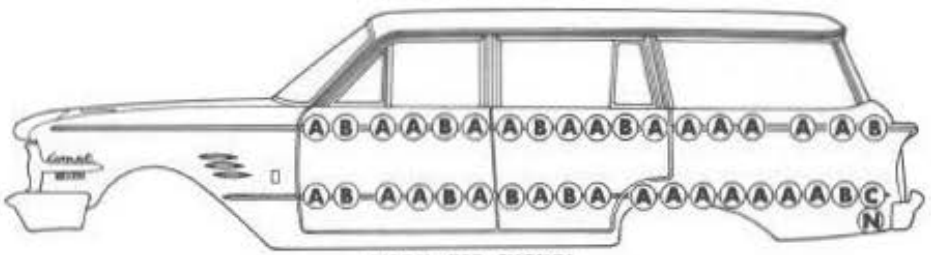


MODEL 59B SHOWN
MODEL 59A TYPICAL

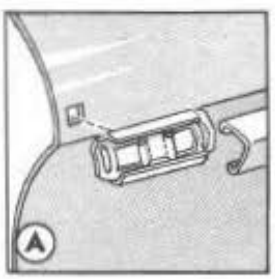


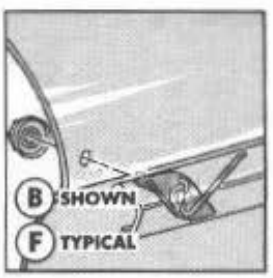


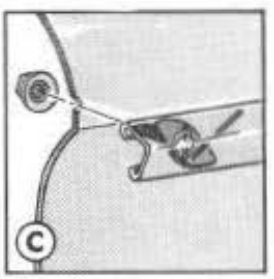
MODELS 59B-71B SHOWN
MODELS 59A-71C-71D TYPICAL

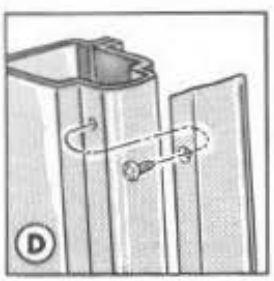


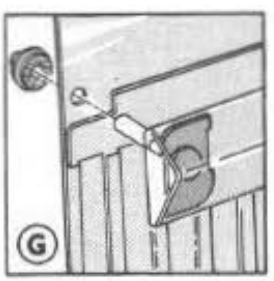
MODEL 71B SHOWN
MODELS 71A-71C-71D TYPICAL

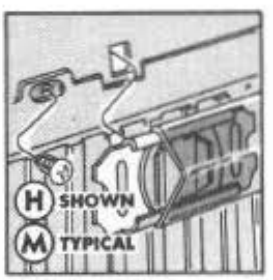


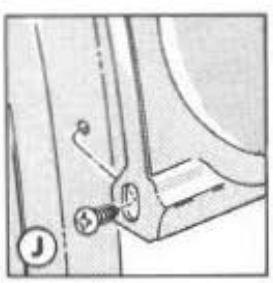


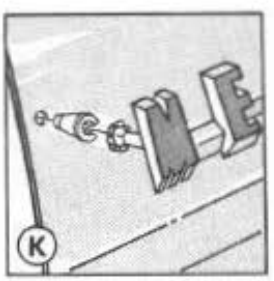


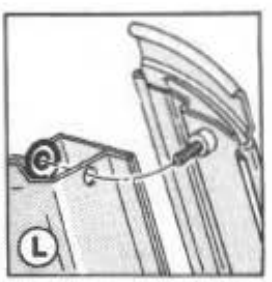






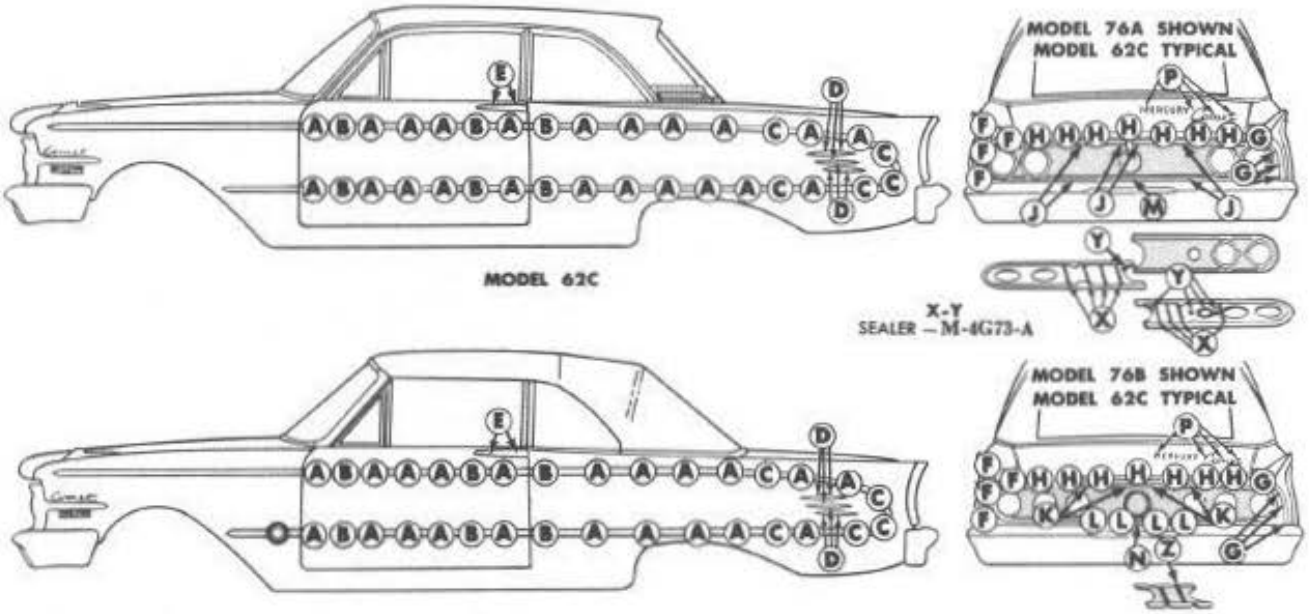


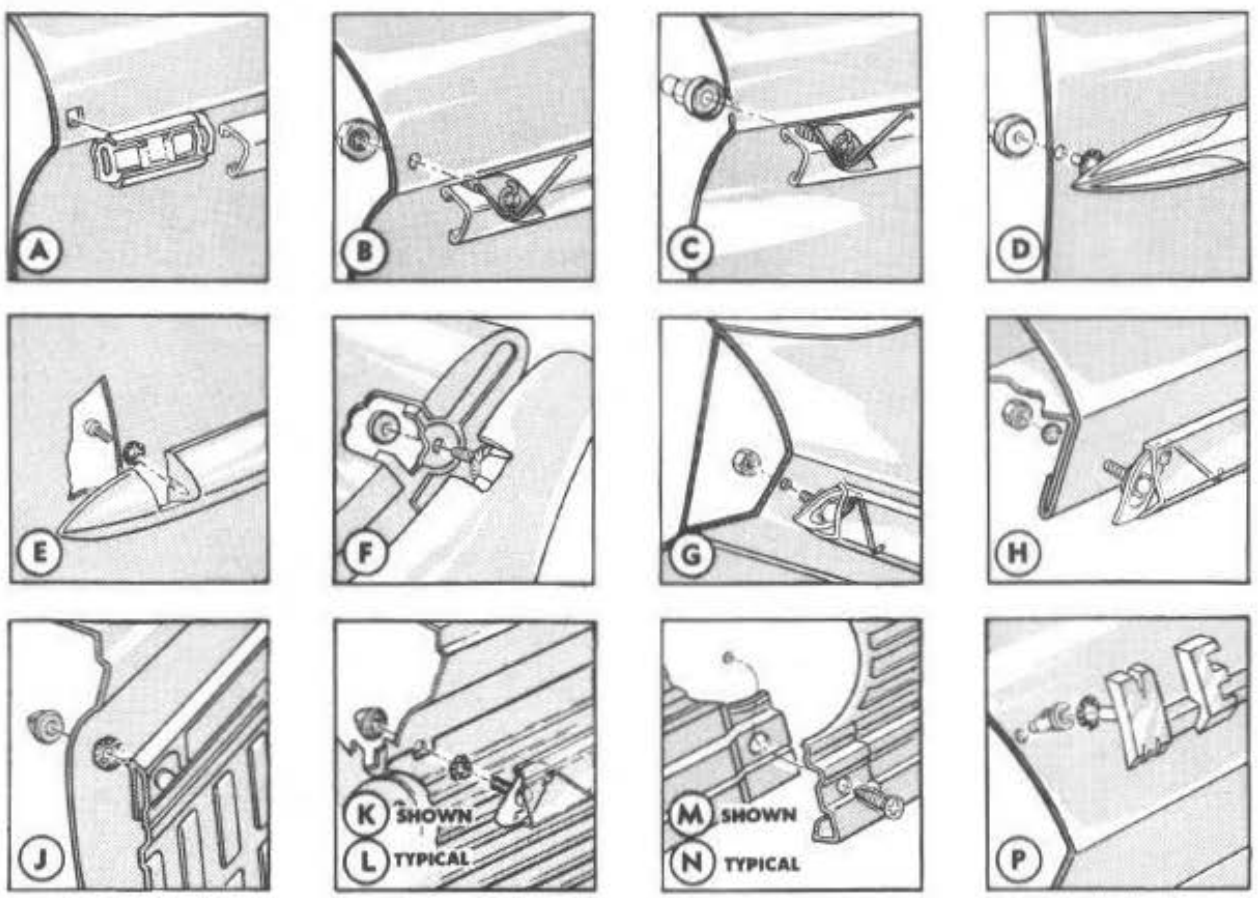




N1266-A

FIG. 104—1963 Exterior Mouldings—Comet Models 59A, 59B, and 71 (all)





N1264-A

FIG. 105—1963 Exterior Mouldings—Comet Models 62C, 76A and 76B

LANDAU TOP ASSEMBLY

The landau top consists of a conventional steel roof panel with a padded texture vinyl covering. The following procedure applies to replacement of the Landau top assembly.

REMOVAL

1. Loosen the headlining in the roof side quarter areas to gain access to the roof side ornament assembly retaining nuts.

2. Remove the roof side ornament retaining nuts and remove the ornament (Fig. 106).

3. Remove the quarter outside belt mouldings and retainers.

4. Remove the back window mouldings and window.

5. Remove the windshield.

6. To remove the right and left hand drip rail cover retainers, first center-punch the peened rivet heads from the underside of the drip rails. Use a 5/16-inch drill and carefully drill out only the peened head of each rivet (Fig. 106, View AA). Use a small diameter punch to drive out the remaining portion of each rivet, but do not enlarge the rivet holes.

7. Remove the roof cover to the quarter panel retaining screws (Fig. 106).

8. Remove the trim clips, drive nails and/or screws from the windshield and rear window flanges (Fig. 106, Views BB, DD and EE).

9. Remove the cover and, if necessary, the pad from the roof panel.

10. If the pad is removed, remove all old sealer or adhesive with naptha solvent or equivalent.

INSTALLATION

1. With a crayon, mark the location of the drive nail and screw holes on the windshield and back window header flanges. Using a 0.107-inch drill, relocate all holes **less** than ¼ inch from the top edge of the header face downward to the approximate center of the surface. Seal all unused holes.

2. If a new pad is being installed, carefully locate and cement center and side pads to the roof panel. Adhesive should be applied to an area about ¾ inch wide around the entire outside edge of each pad section (Fig. 106) and the corresponding areas of the roof panel. After the pad is secured, trim off any excess material.

3. Carefully position the outside cover on the pad and roof panel. The cover has punch marks fore and aft which are used to center the cover on the top. Use adhesive to cement the cover to the header and back pinch-weld flanges, the roof sides at the drip rails, and to the roof sides at the belt line.

4. Using the existing holes in the header, secure the cover to the header with a 6-32 x ⅜-inch pan head self tapping screws and 0.156-inch I.D. x 0.375-inch O.D. x 1/16-inch flat washers (Fig. 106). After the cover is secured, trim off any excess cover material.

5. Secure the cover at the drip rail areas with adhesive.

6. Position the roof outside cover retainer (Fig. 106, Views AA and FF) along the roof drip rail and secure the cover with blind rivets along each roof drip rail.

7. Apply sealer over entire surface of the roof outside cover retainer (Fig. 106). Brush or wipe the sealer to present a smooth and uniform appearance.

8. Install the roof side ornament assembly and the quarter outside belt mouldings.

9. Install the headlining at the roof quarter areas.

10. Install the rear window assembly and mouldings.

11. Install the windshield assembly.

INSIDE REAR VIEW MIRROR (BONDED TO WINDSHIELD)

The following procedures are used when replacing or repairing a bonded-to-windshield type rear view mirror.

REMOVAL

1. Clean both the inside and outside surfaces of the windshield in the area of the mirror mounting bracket. Inspect the windshield for stone chips and scratches.

2. Using welding putty or wet rags, insulate all chips or scratches within 12 inches of the mirror mounting bracket.

3. Apply heat to the bracket mounting area from outside the windshield with a standard 250 watt infrared bulb (heat lamp). Hold the lamp approximately 4 inches from the windshield, and rotate it in a small circle.

4. The mirror mounting bracket can be pulled off the windshield glass in approximately 8-10 minutes using the mirror as a handle.

5. Slowly remove the heat lamp. **Do not remove the insulating materials until the windshield has cooled to room temperature.**

6. Remove the mirror and arm from the bracket.

INSTALLATION

1. Locate and mark with a wax pencil the bracket location on the outside surface of the windshield (Fig. 107).

2. Use a good grade of "Ethyl Alcohol" to thoroughly clean the inside glass surface bracket mounting area and mounting bracket face. It is important that the mounting surfaces are properly cleaned before the resin is applied.

3. To mix the resin pour the entire contents of the small catalyst bottle into the large epoxy bottle (Fig. 107).

4. Stir the contents for 3 to 5 minutes.

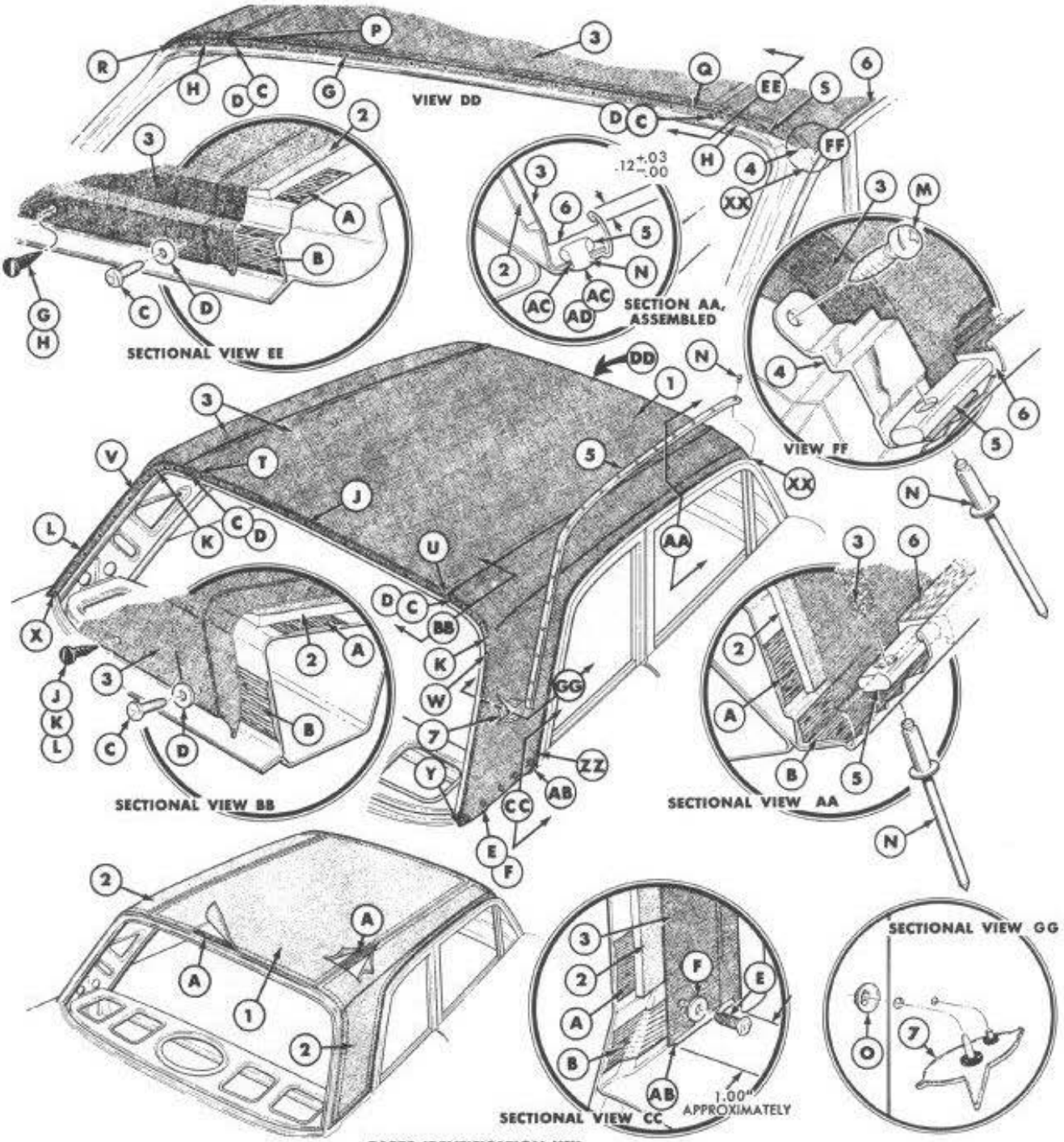
CAUTION: To guarantee the correct mixing ratio and resulting bond strength it is mandatory that the entire contents of both bottles are used and properly mixed. Under no circumstances should only portions of the epoxy or catalyst be used.

5. Apply the mixed resin to the bracket mounting surface. Level off the resin film as smoothly as possible.

6. Place the mounting bracket surface upward in a vise or in a small mound of permagum or any suitable holding material that will support the mounting bracket (Fig. 107). Hold a standard 250 watt infrared lamp about 5 to 6 inches from the mounting surface of the bracket for 2½ minutes.

7. Allow the bracket to cool for one minute. With light hand pressure apply the mounting surface of the bracket to the desired inside area of the windshield.

8. Secure the bracket to the windshield using a piece of tape about 5



PARTS IDENTIFICATION KEY

① OUTSIDE CENTER ROOF PAD
② OUTSIDE SIDE ROOF PAD
③ OUTSIDE ROOF COVER ASSEMBLY
④ WINDSHIELD OUTSIDE UPPER CORNER MOULDING
⑤ OUTSIDE ROOF COVER RETAINER
⑥ SEALER
⑦ ROOF SIDE ORNAMENT
Ⓐ ADHESIVE
Ⓑ ADHESIVE
Ⓒ SCREW (2 REQUIRED, EACH SIDE OF BODY)
Ⓓ WASHER (2 REQUIRED, EACH SIDE OF BODY)
Ⓔ SCREW (5 REQUIRED, EACH SIDE OF BODY)
Ⓕ WASHER (5 REQUIRED, EACH SIDE OF BODY)
Ⓖ *DRIVE NAIL (13 REQUIRED BETWEEN POINTS **P** AND **Q**)
Ⓗ *DRIVE NAIL (3 REQUIRED BETWEEN POINTS **R** AND **P**; **Q** AND **S**)
Ⓙ *DRIVE NAIL (13 REQUIRED BETWEEN POINTS **T** AND **U**)
Ⓚ *DRIVE NAIL (5 REQUIRED BETWEEN POINTS **T** AND **V**; **U** AND **W**)
Ⓛ *DRIVE NAIL (6 REQUIRED BETWEEN POINTS **V** AND **X**; **W** AND **Y**)
Ⓜ SCREW (1 REQUIRED EACH SIDE OF BODY)
Ⓝ BLIND RIVET (17 REQUIRED EACH SIDE OF BODY)
Ⓞ ORNAMENT RETAINING NUT
*REPLACE WITH #6-32 x 3/8 INCH SCREWS AND 0.156 I.D. X 0.375 O.D. X 1/16 INCH FLAT WASHERS FOR SERVICE

N1300-A

FIG. 106—Landau Top Installation

inches long located just under the knob of the bracket (Fig. 107). Apply another piece of tape in the vertical direction (Fig. 107) to firmly hold the mounting bracket in place on the windshield.

9. When the temperatures are above 67°F., the mirror and arm should not be mounted to the bracket for 8 hours, to allow the resin to properly adhere the bracket to the glass. However, the car may be used with the bracket taped in place one hour after installation.

When the temperatures are below 67°F., the mirror and arm should not be mounted to the bracket for 16 hours. However, the car can be used 2 hours after the bracket has been taped in place.

10. After the bracket has had time to adhere to the glass, remove the tape and install the mirror and arm to the bracket (Fig. 107).

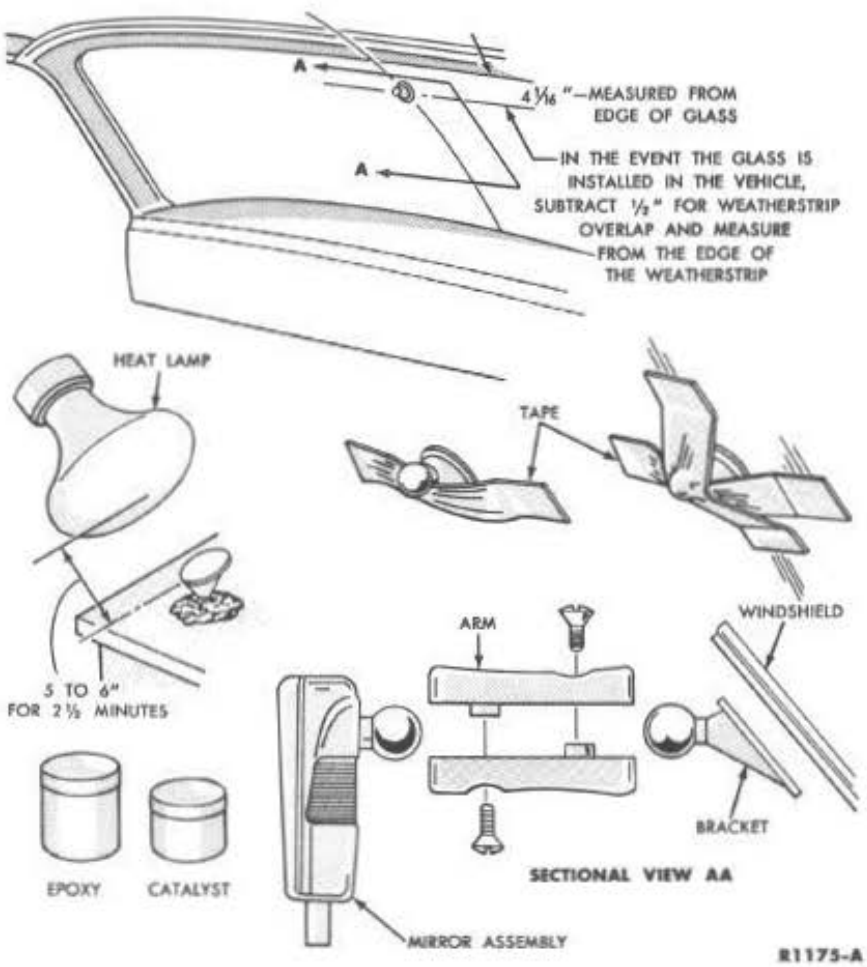


FIG. 107—Bonded Rear View Mirror Installation

DOORS, WINDOWS, DECK LID AND TAILGATE (Part 12-3)

DOORS

DOOR LOCK REPLACEMENT (MODEL 76)

1. Remove the trim panel and the trim panel upper retainer. Pull the water shield away from the access holes.

2. Remove both window upper stop brackets from the glass lower channel, and remove the rollers from the regulator arms (Fig. 108). Remove the glass assembly.

3. Disconnect the door lock remote control link, the lock actuating rod, and the lock control to cylinder rod at the lock (Fig. 109). Remove the knob from the push button rod.

4. Remove the glass rear run lower retaining bolt. Remove the run upper adjusting screw lock nut. **Do not disturb the position of the adjusting screw.** Remove the run from the door.

5. Remove the lock assembly from the door. Remove the push button rod from the lock.

6. Install new sleeve nuts (retainers) on the lock assembly. Connect the push button rod to the lock.

7. Position the lock in the door, and install the retaining screws. Connect the lock control to cylinder rod, the lock actuating rod, and the remote control link at the lock. Install the push button.

8. Position the glass rear run in the door. Install, and snugly tighten, the lower retaining bolt and the upper adjusting screw lock nut.

9. Position the glass assembly in the door. Install the rollers in the glass lower channel, and connect both regulator arms. Install the window upper stop brackets.

10. Check the window operation and, if necessary, adjust the rear run. Tighten the lower retaining bolt and the upper adjusting screw lock nut.

11. Check the operation of the lock. If necessary, adjust the lock striker.

12. Carefully cement the water shield to the inner panel, and install the trim panel upper retainer and the trim panel.

DOOR LOCK STRIKER ADJUSTMENT (MODEL 76)

The striker pin can be adjusted laterally and vertically as well as fore-and-aft. **The striker should not be adjusted to correct door sag.** The striker should be shimmed, if necessary, to get the clearance shown in Figure 109. To check this clearance, clean the lock jaws and the striker, then apply a thin layer of dark grease to the striker. As the door is closed and opened, a measurable pattern will result. Move the striker laterally to provide a flush fit at the door and the quarter panel.

VENT AND DOOR WINDOWS

DOOR WINDOW GLASS REPLACEMENT (MODEL 76)

1. Remove the trim panel and the trim panel upper retainer. Pull the water shield away from the access holes.

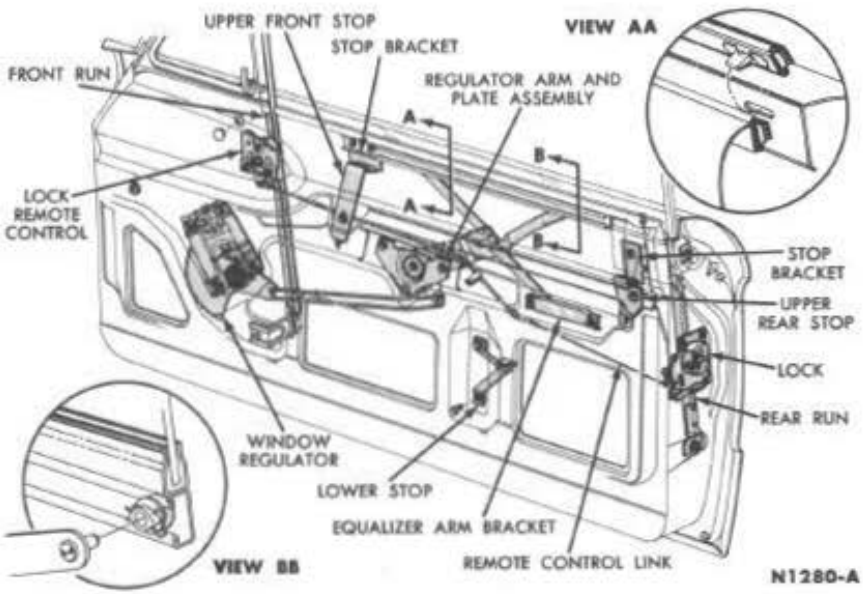


FIG. 108—Door Window and Lock Mechanism—Model 76

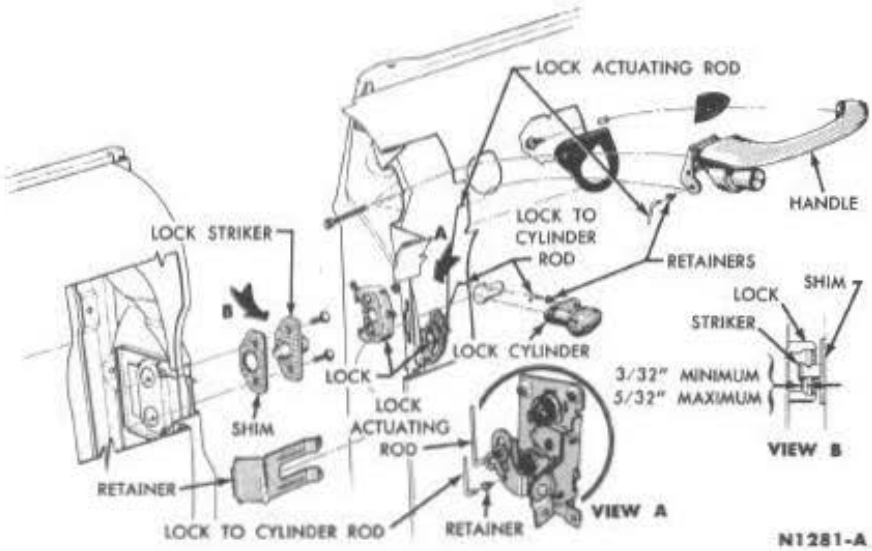


FIG. 109—Door Lock and Striker—Model 76

2. Remove both window upper stop brackets from the glass lower channel. Disconnect both window regulator arms from the lower channel, and remove the rollers. Remove the glass assembly.

3. Remove the glass upper frame to lower channel retaining screws, and remove the frame. Remove the lower channel from the glass.

4. Install a new glass tape and the lower channel on the glass. Install the glass upper frame.

5. Position the glass assembly in the door. Install the rollers in the glass lower channel, and connect both regulator arms. Attach the window upper stop brackets to the lower channel.

6. Install the water shield, the trim panel upper retainer, and the trim panel.

DOOR WINDOW REAR RUN REPLACEMENT (MODEL 76)

1. Remove the trim panel and the trim panel upper retainer. Pull the water shield away from the access holes.

2. Remove both window upper stop brackets from the glass lower channel.

3. Disconnect both regulator arms from the glass lower channel, and remove the rollers. Remove the glass assembly.

4. Remove the glass rear run lower retaining bolt. Remove the run upper adjusting screw lock nut. **Do not disturb the position of the adjusting screw.** Remove the run from the door.

5. The rear run can be installed by reversing the removal procedure. After completing the installation, adjust the run.

DOOR WINDOW ADJUSTMENTS (MODEL 76)

Fore-and-aft adjustment for snug glass fit within the runs is made by means of the rear run upper adjusting screw at "A" (Fig. 110).

Lateral adjustment for smooth movement of the glass within the runs can be made by moving the lower ends of both the front and rear runs at "B" and "C". The vent window assembly and upper portion of the front run can be moved laterally by means of an adjusting screw which is accessible through an opening in the door inner panel at "D" (Fig. 110).

Two adjustable stops (at "E" and "F") limit the upward travel of the window, and one adjustable stop (at "G") limits its downward travel. (Fig. 110).

QUARTER WINDOW ADJUSTMENTS (MODEL 76)

Point "A". The quarter window front guide can be adjusted fore-and-aft and also tilted laterally.

The fore-and-aft adjustment is used to obtain the proper clearance (3/32-inch) between the rear edge of the door window frame and the front edge of the quarter window frame (Fig. 111).

Turning the adjusting screws tilts the guide and window assembly laterally.

Point "B". The front end of the equalizer arm guide can be adjusted vertically to obtain proper alignment and fit of the front upper edge of the window frame at the top side rail weatherstrip (Fig. 111).

Point "C". The quarter window rear guide can be tilted by moving the lower end of the guide laterally to properly align and fit the rear upper edges of the window frame at the top side rail weatherstrip (Fig. 111).

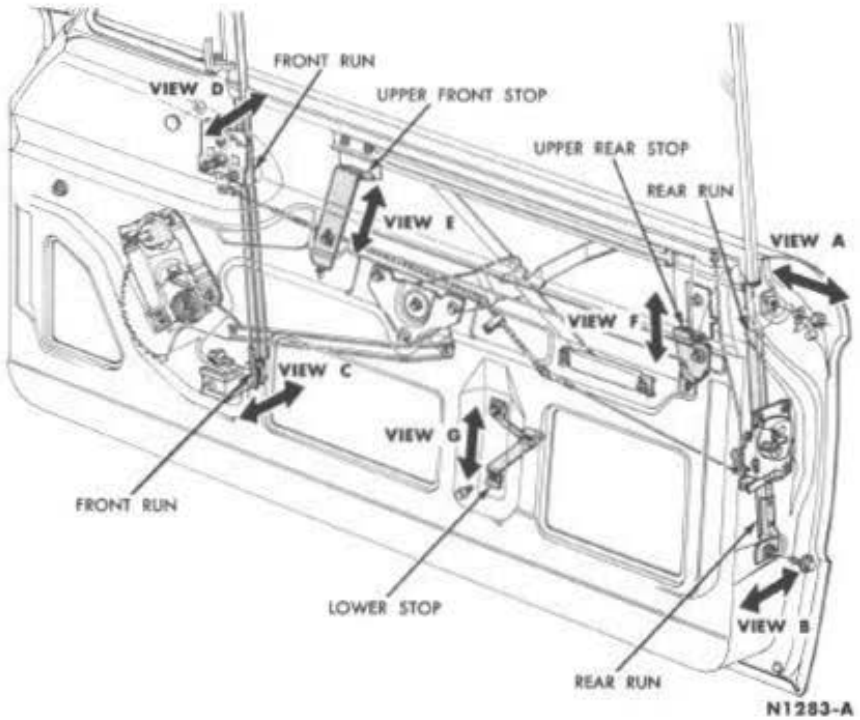


FIG. 110—Door Window Adjustments—Model 76

Point "D". The upper end of the window rear guide can be adjusted laterally to properly align the upper sides of the window frame at the glass outer weatherstrip (Fig. 111).

Point "E". The front guide lower bracket can be moved laterally to obtain the proper clearance (3/16-inch) between the quarter window and the outer quarter panel at the belt line.

Points "F" and "G". The window upper stops are adjusted up or down to obtain the 1/8-inch parallel dimension between the window lower frame and the quarter panel at the belt line (Fig. 111).

Point "H". The quarter window lower stop is adjusted up or down to obtain the proper level of the top edge of the window frame in the quarter panel (Fig. 111).

CONVERTIBLE TOP

DESCRIPTION

The Falcon convertible and the Comet convertible, Model 76, are both new to the respective Ford and Mercury car lines for 1963. Both vehicles utilize the unitized body and frame construction. The retractable top is operated by an electric-hydraulic system which automatically raises the top or lowers it into a top well behind the rear seat.

CONVERTIBLE TOP ELECTRICAL SYSTEM

The convertible top electrical system includes an electric motor, a control switch, a circuit breaker, and the necessary wiring (Fig. 112).

A 12-volt motor is used to drive the hydraulic pump. The motor is reversible so that the pump can be driven in either a clockwise or a counterclockwise direction. The motor and pump assembly is mounted on the floor behind the rear seat back.

The top control switch is mounted in the instrument panel. A toggle switch is used in the Falcon whereas the Comet utilizes a push-pull type switch.

The electrical circuit is protected by a 30-ampere circuit breaker attached to the starting motor relay in the engine compartment.

CONVERTIBLE TOP HYDRAULIC SYSTEM

The convertible top is operated by an electric-hydraulic system which is actuated by a control switch mounted in the instrument panel.

The hydraulic power system consists of an electric motor, pump, and reservoir assembly, two hydraulic lift cylinders, and the necessary hydraulic lines. The motor and pump assembly, the lift cylinders, and the lines are accessible after the rear seat back and the quarter trim panels have been removed (Fig. 113).

The motor drives the hydraulic pump. Hydraulic pressure is created by the rotation of the internal rotor gears, and is exhausted through one of the two ports in the pump housing. Since the motor is reversible, either port may be on the vacuum (intake) or pressure side of the pump, depending on the direction of pump rotation. When the pump rotors turn, hydraulic pressure is created through one side of the pump while the other side of the pump becomes the vacuum side. Two ball check valves are located in the valve housing. The vacuum on the intake side of the pump pulls the ball off its seat and pressure on the exhaust side of the pump pulls the ball off its seat and When pump rotation is reversed, the intake and pressure sides and the ball check actions also are reversed.

When the top is being lowered, hydraulic fluid is pumped through the hydraulic lines into the upper ends of the cylinders. The hydraulic fluid exerts a pressure on top of the piston in each of the two cylinders, forcing the pistons downward. The downward movement of the pistons displaces the fluid contained in the lower portions of the cylinders. The fluid displaced in this manner flows through the return lines, attached to the lower ends of the cylinders, to the intake side of the pump. The fluid then passes through the internal rotors of the pump and into the pressure side of

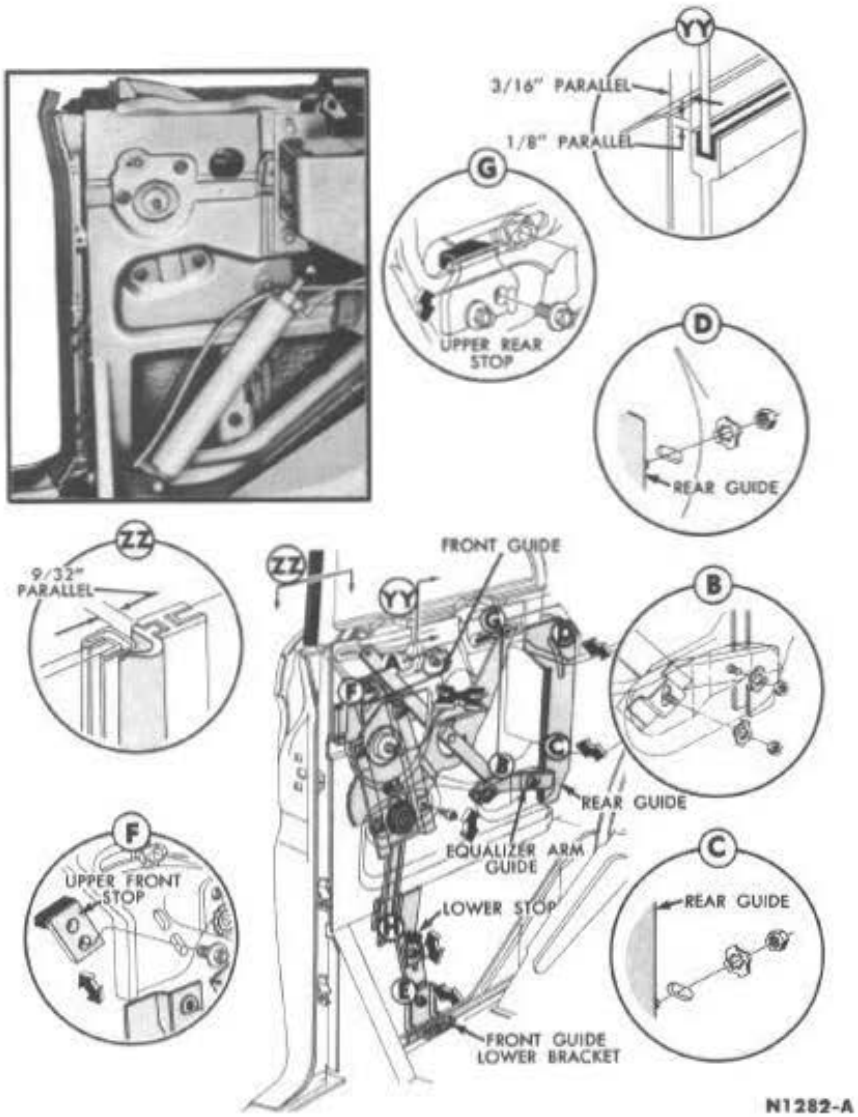


FIG. 111—Quarter Window Adjustments—Model 76

the pump. When the top is being erected, the flow of fluid is reversed.

CARE OF TOP FABRIC

Proper care of the top material will reduce the possibility of water stains, mildew, or shrinkage. Do not stack the top if it is damp. Always use the convertible top vinyl boot to keep the top material clean, dry, and positioned when the top is stacked.

The rear window slide fastener should be lubricated at least once a year with stainless stick lubricant such as "Door Ease".

Use the top compartment behind the rear seat back only for storage of the top. The storage of other items not only interferes with the proper operation of the top, but may also damage or stain the top material.

The vinyl top may be washed each time the car is washed. Clean the material with FoMoCo Interior Trim Cleaner and a scrub brush. For an extremely soiled top, use an abrasive cleaner sparingly. Be sure to rinse the top thoroughly with clean water during and after washing.

Do not use a cleaning fluid that is not recommended for vinyl material because damage to the top may result.

The vinyl coating becomes tacky at approximately 180° F. Therefore, when making paint repairs, be sure to protect the top material from heat.

CONVERTIBLE TOP CHECKS

If the top cannot be lowered or raised satisfactorily, or if it fails to operate at all, and the trouble is not readily apparent, make the following mechanical, electrical, and hydraulic checks to find the cause of the trouble. **Always check the battery before making any of the following checks.**

Table 1 shows symptoms and possible causes of trouble.

MECHANICAL CHECKS

1. If the action of the top is slow, raise and lower it slowly and look for bent or misaligned linkage.

2. If binding is noted when clamping the top at the header, check the alignment of the door and the quarter windows with the side rail weatherstrips. Also check the top sag adjustment and toggle clamp adjustment.

ELECTRICAL CHECKS

Battery Charge. The battery charge should be determined before making any electrical checks because a partially discharged battery will cause slow motor and pump operation.

Current Draw. To check the current draw in the top operating circuit, disconnect the black wire at the circuit breaker (located on the starter relay), and connect an ammeter in series in the circuit (Fig. 114). Operate the top control switch and note the ammeter readings. The current draw should be 25-35 amps operating, and 40-50 amps stalled, with a voltage reading of 9-10. Current in excess of 75 amps indicates a frozen pump or cylinder or a mechanical obstruction. Low amperage with the motor running and no top movement indicates a defective pump or low fluid level in the reservoir.

Top Control Switch

1. Disconnect the wiring harness at the switch multiple connector located behind the instrument panel.

2. Connect one lead of a test lamp to the black (feed) wire of the main

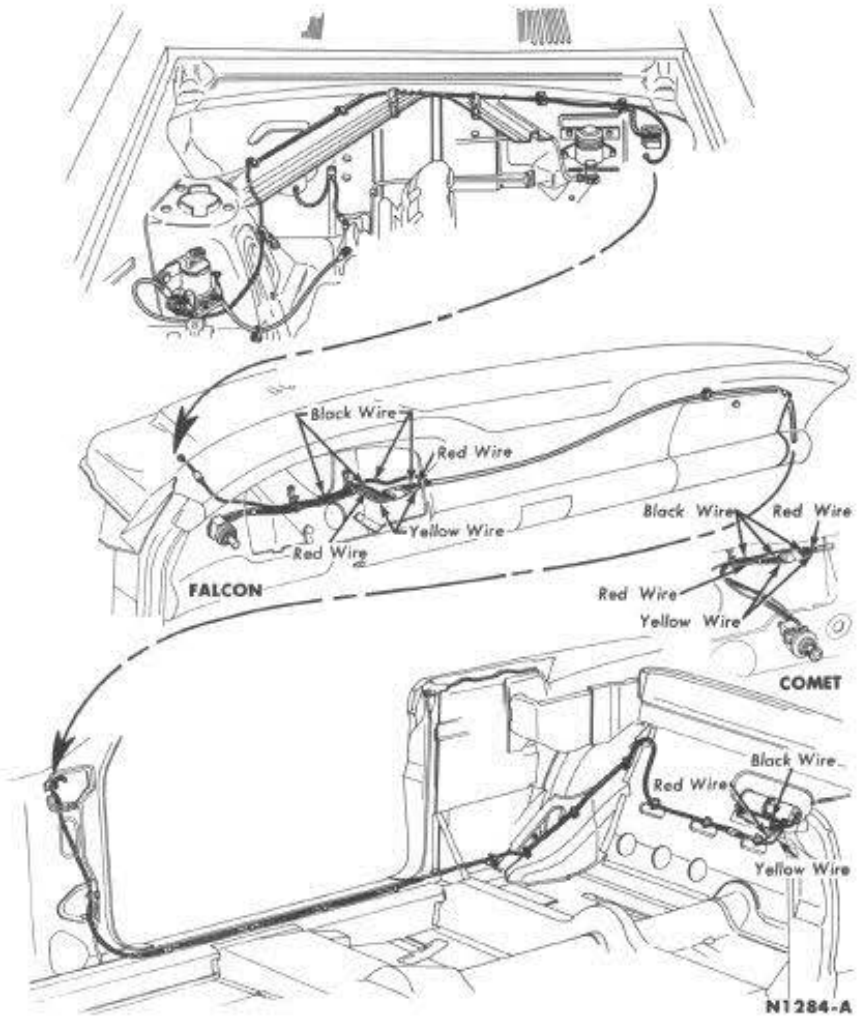


FIG. 112—Convertible Top Electrical System

harness connector, and ground the other lead (Fig. 115). If the test lamp does not light, there is an open or short circuit between the battery and the connector.

3. If there is voltage to the connector, connect a jumper wire between the black (feed) wire and the yellow wire and then between the black wire and the red wire (Fig. 115). If the top motor operates, the switch and wire assembly is faulty and must be replaced.

Circuit Breaker. If there is no voltage at the black (feed) wire of the main harness connector, connect a jumper wire across the terminals of the circuit breaker (located on the starter relay) and operate the switch (Fig. 116). If the top motor operates, the circuit breaker is faulty and must be replaced.

Switch-to-Motor Wires. Disconnect the yellow and the red switch-to-motor leads at the connector near the motor. Connect a 12-volt test lamp between the yellow wire and a ground (Fig. 117) and check by operating the top control switch to raise the top. Connect the test lamp between the red wire and a ground, and check by operating the switch to lower the top. If the test lamp does not light in either case, the wire from the connector to the switch is open or shorted.

Motor. Check the operation of the motor by connecting first one motor lead, and then the other, directly to the battery positive terminal (Fig. 118). If the motor operates in either case, but will not operate when hooked into the wiring harness, check the wiring harness again for short or open circuits. If the motor will not operate when hooked directly to the battery, check the black (ground) wire from the motor. If the motor still does not operate, it must be replaced.

HYDRAULIC CHECKS

Faulty hydraulic system operation can be caused by lack of fluid, leaks, air in the system, obstructions or kinks in the hoses, or faulty operation of cylinder or the pump.

Fluid Level Check

1. Remove the rear seat cushion and seat back. Raise the top.

2. Place absorbent cloths below the filler plug.

3. Remove the filler plug, and check the fluid level. It should be level with the bottom edge of the hole.

4. If the level is low, check the system for leaks, adding Automatic Transmission Fluid Type "A" as necessary.

Lift Cylinder Check. Remove the rear seat and the quarter trim panels, operate the top control switch, and observe the operation of the lift cylinders for the following:

If the movement of the piston rods is sluggish or uneven, check the hoses from the pump to the cylinders for kinks.

If one piston rod moves more slowly than the other, the cylinder with the slower rod is defective and should be replaced.

If both rods move slowly, or do not move at all, disassemble and repair the pump.

TOP ADJUSTMENTS

If the top is misaligned, corrections should not be made until after a

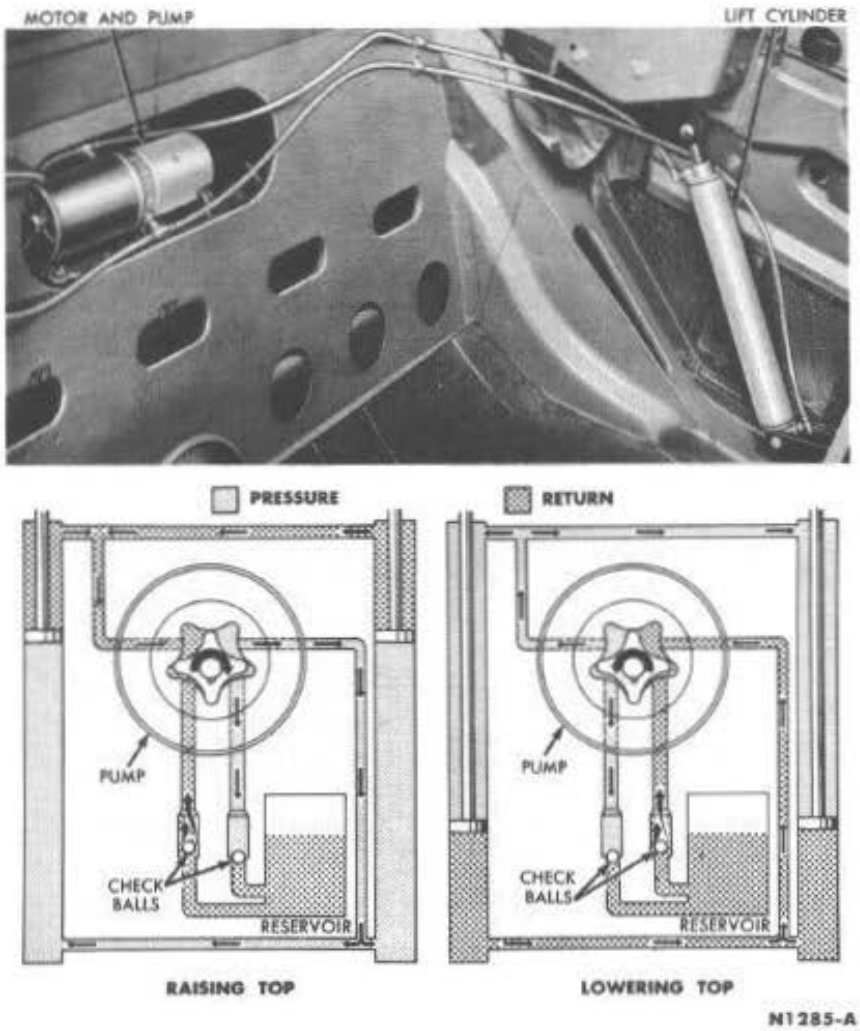


FIG. 113—Convertible Top Hydraulic System

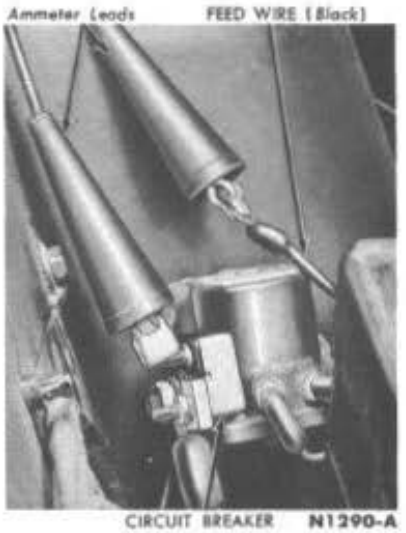


FIG. 114—Testing Motor Current Draw

check has been made for bent linkage. All pivot points in the top linkage should be lubricated periodically with light engine oil. See Group 13 "Maintenance and Lubrication."

Before aligning the top, visually determine if the trouble results from top misalignment and/or window misalignment. It may be necessary to align both the top and the windows because of the relationship between the two. Adjustments of the door and quarter windows must be checked and any necessary changes made before making top adjustments.

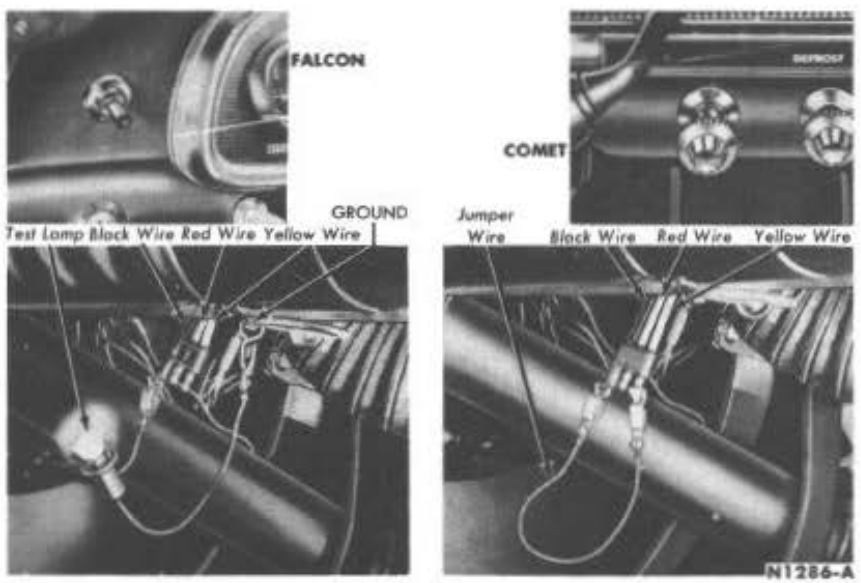


FIG. 115—Testing Switch Wiring

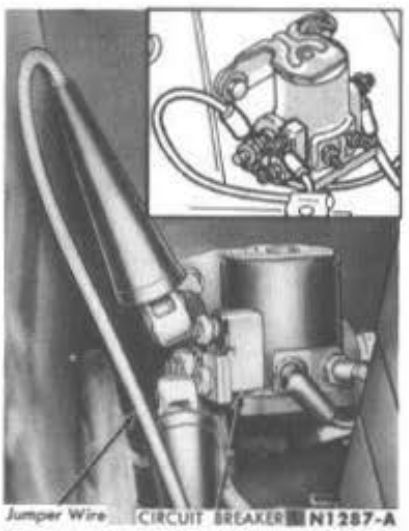


FIG. 116—Testing Circuit Breaker

TABLE 1—Trouble Symptoms and Possible Causes

Symptoms	Possible Causes																	
	Top Control Switch	Inadequate Battery Charge	Motor	Circuit Breaker	Faulty Wiring	Hydraulic Cylinder(s)	Air in Hydraulic System	Insufficient Hydraulic Fluid	Bent Linkage	Maladjusted Header Bow	Header Dowel(s) Maladjusted	Rear Rail Area Maladjustment	Pivot Bracket Adjustment	Toggle Clamp Adjustment	Door Window Adjustment	Quarter Window Adjustment	Weatherstripping	Balance Link Bracket Adjustment
Top Does Not Retract	x	x	x	x	x	x	x	x	x									
Top Action Sluggish		x			x	x	x	x	x									
Top Sides Operate Unevenly						x			x									
Top Does Not Stack												x						x
Side Rail(s) Do Not Fit												x			x	x		
Top Does Not Rise From Stack	x	x	x	x	x	x	x	x	x									
Top Does Not Latch									x	x	x		x	x	x	x	x	
Top Leaks										x		x		x	x	x	x	

These windows must be fully closed to insure proper adjustment. Refer to "Doors, Windows, Deck Lid and Tail Gate" for door window and quarter window adjustments.

HEADER AREA ADJUSTMENTS

Header Bow. The header bow can be adjusted fore and aft to provide alignment with the header.

1. With a pencil, mark the present location of the joint between the header bow and the side rail. This mark provides a measuring point for adjustment.

2. Raise the top to a satisfactory working level, prop it in position, and remove the screws that hold the front part of the side rail forward weatherstrip to the side rail and the header bow (Fig. 119). It is not necessary to remove the entire weatherstrip.

3. Using a putty knife, loosen the front part of the weatherstrip from the side rail and the header.

4. Loosen the blind nuts (Fig. 120), move one or both sides of the bow fore or aft to get proper alignment at the header, and tighten the nuts.

5. Loosen the holddown clamp plate on the header, and lower the top to check adjustment.

6. After making sure the dowels are aligned with their striker plates, tighten the clamp plate in position.

Dowel Adjustment. The header bow dowels must be aligned with the holddown clamp plates on the header. After making any top adjustment, check the dowel alignment, and adjust if necessary. After removing the header bow weatherstrip, the clamp

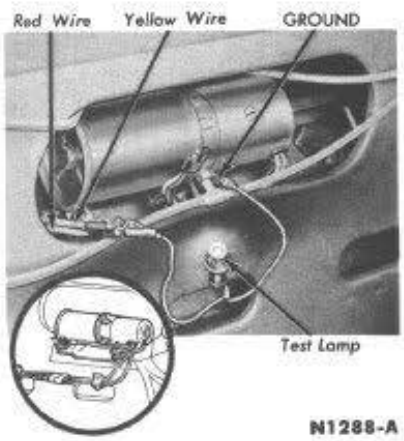


FIG. 117—Testing Switch to Motor Wiring

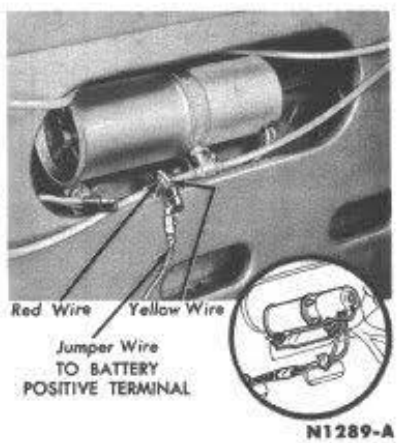


FIG. 118—Testing Motor

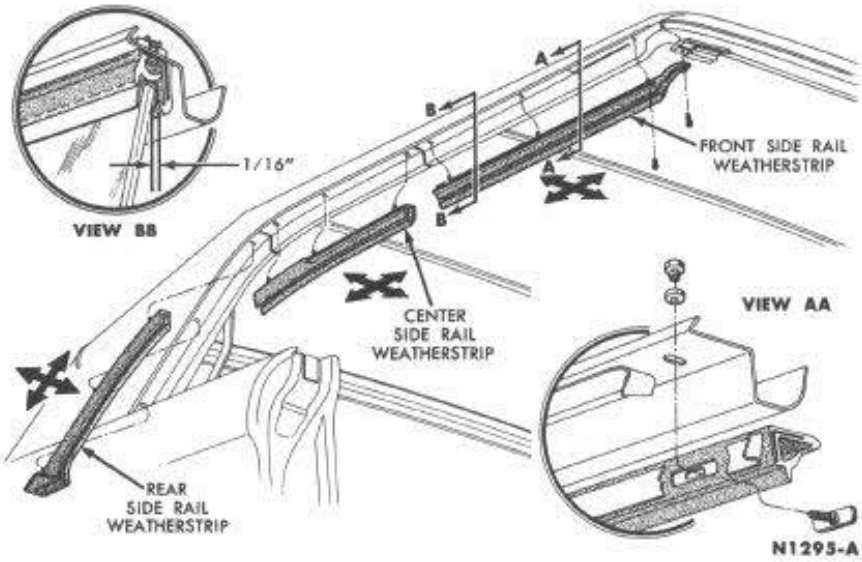


FIG. 119—Convertible Top Weatherstrip Adjustment

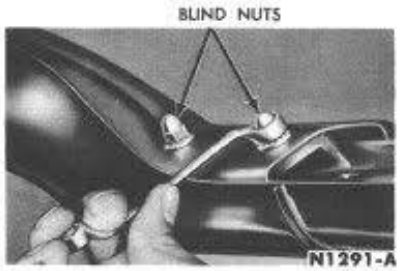


FIG. 120—Header Bow Adjustment

plates can be moved laterally by merely loosening the screws (Fig. 121).

Toggle Clamp Adjustment. The toggle clamps that hold the header bow against the header can be adjusted to provide a good seal.

1. To determine which side is not sealing, check the weatherstrip between the header bow and the header. Both toggle clamps need not be adjusted unless necessary.

2. Release the toggle clamps, and thread the toggle hook in or out until adequate sealing pressure is applied at the header weatherstrip.

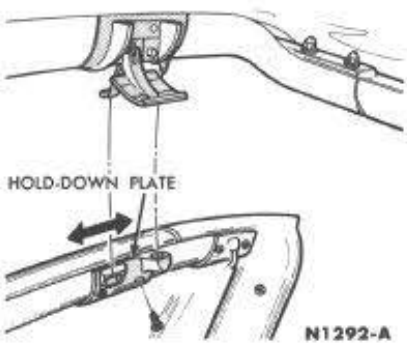


FIG. 121—Dowel Plate Adjustment

BALANCE LINK ADJUSTMENT

The balance link adjusting bracket is mounted on the main pivot bracket support (Fig. 122). Two adjustments are provided at the bracket. Sliding the bracket in the elongated mounting holes permits proper stacking of the top in the well. Turning the Allen head adjusting screw in the bracket corrects sag in the side rails.

Side Rail Sag. If the side rail sags above the door glass, adjust as follows:

1. Use the top of the door glass and quarter glass as reference points to determine the proper level of the side rail.

2. Have the top locked in the fully raised position.

3. Slightly loosen the balance link adjusting bracket retaining screws (Fig. 122).

4. With an Allen wrench, turn the adjusting screw in the balance link adjusting bracket down to raise the side rail.

5. If the side rail is too high, or crowned, above the windows, (this does not usually occur) turn the adjusting screw up to lower the side rail.

6. Tighten the balance link adjusting bracket retaining screws.

Top Stack. When the top is stacked, it may be too high or too low in the well. If the top stacks too high, it will be difficult to fasten down the boot. If the top stacks too low, the folded side rails may pinch the top material and the resultant chafing may wear a hole in the material. To obtain proper stacking, proceed as follows:

1. If the top stacks too high in the well, loosen the balance link adjusting bracket mounting screws, and slide the bracket forward to lower the top in the well.

2. If the top stacks too low in the well, loosen the balance link adjusting bracket mounting screws, and slide the bracket rearward to raise the top in the well.

MAIN PIVOT BRACKET ADJUSTMENTS

The main pivot bracket is mounted on the main pivot bracket support. The support is mounted to the inner quarter panel and the wheelhouse extension. The main pivot bracket and its support provide for shifting of the entire top assembly, fore and aft, vertically and laterally. **Because movement of the main pivot bracket will disturb several adjustments, move this bracket only after other adjustments have failed to solve a specific problem.**

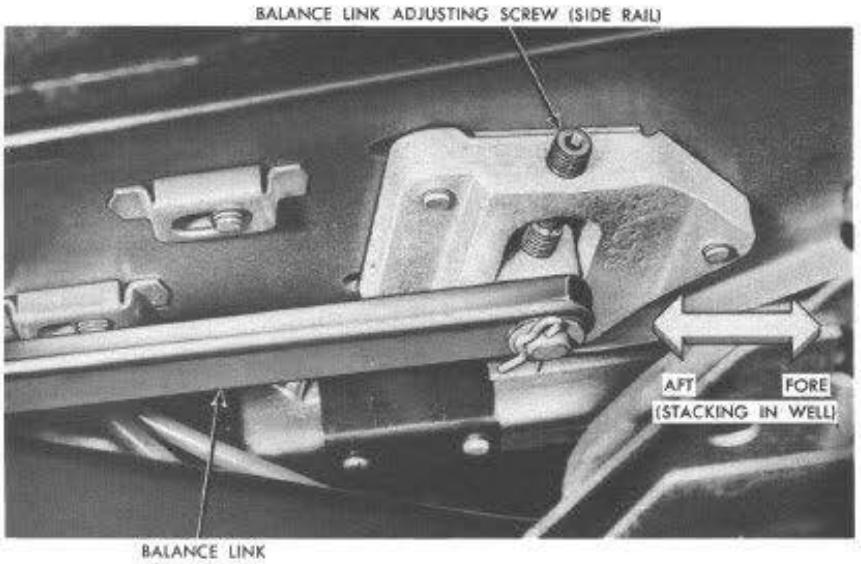
Fore and Aft Adjustment. This adjustment moves the top assembly straight forward or rearward to obtain a good fit between the rear side rail weatherstrip and the rear edge of the quarter glass.

1. Loosen the screws which retain the main pivot bracket support to the inner quarter panel and to the wheelhouse extension (Fig. 123).

2. Shift the entire pivot bracket support fore or aft as required to bring the rear side rail in proper relationship to the quarter glass.

3. Check the quarter glass operation, and tighten the mounting screws.

Vertical Adjustment. This adjustment moves the top assembly up or down to obtain a good fit between the rear and center side rail weatherstrip and the top of the quarter and door glass.



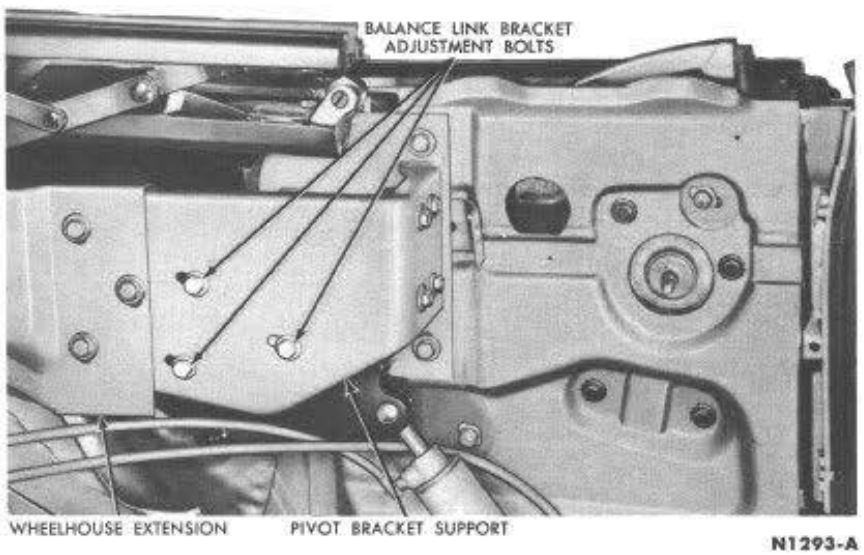


FIG. 122—Balance Link and Bracket Adjustments

1. Loosen the screws which retain the main pivot bracket to its support (Fig. 123).

2. Shift the main pivot bracket up or down as necessary to level the side rails with the quarter and door glass.

3. Make sure the weatherstrip is not bottomed on the glass frame, and tighten the screws.

Lateral Adjustment. This adjustment shifts the top assembly sidewise to obtain a good seal between the side of the rear side rail weatherstrip and the side of the quarter glass frame.

1. Loosen the screws which retain the main pivot bracket to its support (Fig. 123).

2. Shift the main pivot bracket toward either side as necessary to obtain the proper interference fit between the side of the rear side rail weatherstrip and the side of the quarter glass frame.

3. Check the operation of the quarter glass, and move the main pivot bracket as necessary to relieve any binding condition. Tighten the mounting screws.

4. If proper sealing and quarter glass operation cannot be obtained with this adjustment, adjust the quarter glass guides (See "Doors, Windows, Deck Lid and Tailgate").

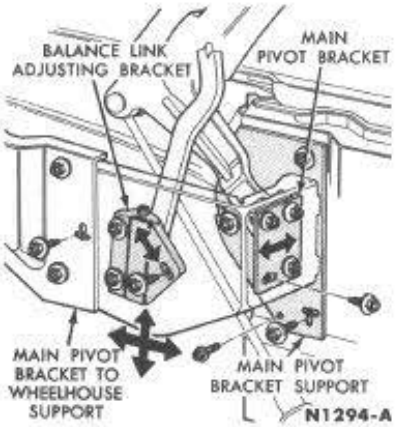


FIG. 123—Main Pivot Bracket Adjustments

SIDE RAIL WEATHERSTRIP ADJUSTMENTS

The side rail weatherstrips can be adjusted laterally and also fore and aft (Fig. 119).

Adjust the weatherstrips laterally so that the sealing lips make full contact with the door and quarter window frames.

Adjust the weatherstrips fore or aft to butt the ends of the weatherstrips together to provide a watertight seal.

TOP MECHANISM REPLACEMENTS

MOTOR AND PUMP

A pump repair kit and a reservoir repair kit are available for service.

Removal

1. Operate the top to the fully raised position.

2. Remove the rear seat cushion and seat back.

3. Disconnect the motor leads and the ground wire.

4. Remove the attaching screws, and remove the motor and pump assembly from the floor pan. Do not lose the rubber grommets.

5. Vent the reservoir by removing the filler plug, and then reinstall the filler plug. **The reservoir must be vented in order to equalize the pressure. This lessens the possibility of fluid spraying on the trim and paint when the hoses are disconnected.**

6. Place absorbent cloths beneath the hose connections, disconnect the hoses, and then plug the open fittings and lines.

Disassembly

1. Remove the filler plug, and drain the fluid from the reservoir into a clean container.

2. Scribe lines on the reservoir, pump body, and reservoir cover so these parts can be positioned properly upon assembly (Fig. 124).

3. Remove the center bolt from the reservoir cover (Fig. 125).

4. Remove the cover and reservoir, and the seal at each end of the reservoir.

5. Remove the mounting bolts that hold the valve body on the pump body.

6. Place a cloth under the assembly, and carefully remove the valve body so that the check balls are not lost.

7. Remove both rotors and the drive ball.

Assembly. Use all the parts contained in the pump repair kit when assembling the pump or reservoir.

1. Install the drive ball and inner rotor on the armature shaft.

2. Install the outer rotor over the inner rotor.

3. Place the check balls in the pump body channels.

4. Install the valve body on the pump body.

5. Install the valve body mounting bolts.

6. Install a seal in each end of the reservoir.

7. Install a new seal on the center bolt, and install the reservoir and cover on the valve body, using the lines previously scribed as guides (Fig. 124).

The embossed lines in the cover must be positioned as in Fig. 124.

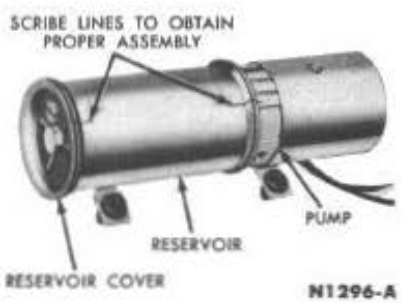


FIG. 124—Reservoir Marked Before Disassembly

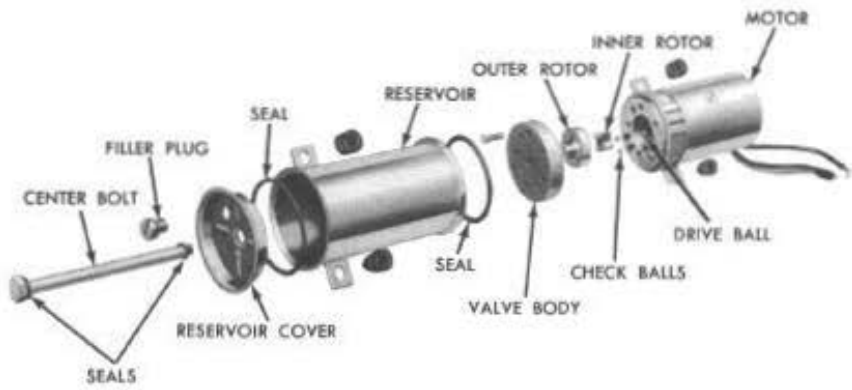


FIG. 125—Motor and Pump Disassembled

8. Place the assembly in a horizontal position, fill the reservoir with Automatic Transmission Fluid Type "A" to the level of the bottom of the filler plug hole. Install the filler plug and a new seal.

Installation

1. Remove the plugs from the lines and fittings, and connect the lines to the pump. Use cloths to absorb any fluid that leaks out of the lines or the pump.

2. Install the assembly on the floor pan, making sure the rubber grommets are in proper position under the mounting brackets.

3. Connect the motor lead wires at the junction block, and connect the ground wire.

4. Operate the top assembly two or three times to bleed any air from the system, and check the fluid level in reservoir. **The top must be up when the level is checked.**

5. Install the rear seat back and seat cushion.

LIFT CYLINDER REPLACEMENT

1. Operate the top to the fully raised position.

2. Remove the quarter trim panels and rear seat cushion and back.

3. Disconnect and plug the hydraulic lines at the upper and lower ends of the cylinder. Use absorbent cloths to catch any fluid that leaks out.

4. After removing the hair pin clip and clevis pin at each end of the cylinder (Fig. 126), remove the cylinder.

5. Position the cylinder in the floor bracket with the hose connections facing down.

6. Install the clevis pin and hair pin clip at each end of the cylinder.

7. Connect the hydraulic lines to the cylinder.

8. Operate the top assembly two or three times to bleed any air from the system.

9. With the top in the raised position, check the reservoir fluid level.

10. Install the quarter trim panels and the rear seat back and cushion.

TOP REAR SIDE RAIL REPLACEMENT

1. Unfasten the clamps that hold the top to the windshield header.

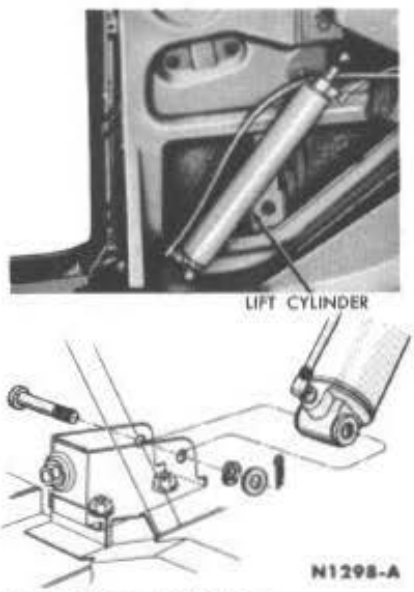


FIG. 126—Lift Cylinder Assembly

2. Remove the quarter window garnish moulding and lower the quarter window.

3. Remove the quarter rear trim panel from the pivot bracket support.

4. Remove the bolts and nuts retaining the rear side rail weatherstrip and remove the weatherstrip.

5. Pull the top fabric from the rear side rail.

6. Lift the top and temporarily support it in a vertical position. Remove the cotter pin and washers retaining the pivot pin at the control link, rear side rail, and number 3 bow bracket. Lift the top to the closed position, but do not fasten the windshield header clamps.

7. With a block of wood, support the center side rail.

8. Remove the roll pin and pivot pin retaining the center side rail to the rear side rail.

9. Remove the cotter pin, washers, and pivot pin retaining the rear bow and rear side rail.

10. Remove the pivot pin retaining the top control link, rear side rail and number 3 bow.

11. Remove the roll pin and pivot pin retaining the power link to the rear side rail.

12. Pry the rear side rail from the center side rail.

13. Remove the cotter pin, washer, and pivot pin retaining the rear side rail to the main pivot bracket support.

14. Remove the rear side rail.

15. Transfer the rear side rail bushings and deflector to the new rear side rail.

16. Connect the rear side rail to the main pivot bracket with the pivot pin, washer and cotter pin.

17. Connect the power link to the rear side rail with the pivot pin and roll pin.

18. Connect the center side rail to the rear side rail with the pivot pin and roll pin.

19. Connect the rear bow to the rear side rail with the pivot pin, washer, and cotter pin.

20. Lift the top, temporarily support it in a vertical position, and remove the center side rail temporary support. Connect the top control link and the number 3 bow to the rear side rail with the pivot pin, washer, and cotter pin.

21. Close the top and fasten the windshield header clamps.

22. Cement the top fabric to the rear side rail and install the weatherstrip.

23. Install the quarter rear trim panel and the quarter window lower garnish moulding.

BACK CURTAIN WINDOW AND SLIDE FASTENER REPLACEMENTS

BACK CURTAIN WINDOW REPLACEMENT

1. Unfasten the clamps that hold the top to the windshield header.

2. Unsnap the well cover from the back curtain window rear and side belt tacking strips.

3. Remove the bolts and lock washers that retain the curtain rear and side belt tacking strips to the body panel.

4. Open the back curtain window slide fastener and remove the curtain assembly.

5. Pull the tacking strips from the curtain and remove the staples from the tacking strip (Fig. 127).

6. Remove the tacking strip adjustment retaining screws from the tacking strips.

7. Align the belt center tacking strip on the curtain and staple the curtain securely to the tacking strip.

8. Staple the side tacking strips to the curtain.

9. Position the curtain assembly to the body panel, and loosely install the belt tacking strip retaining bolts and lock washers.

10. Close the curtain window slide fastener and fasten the top clamps at the windshield header.

11. To adjust the curtain window tension and remove wrinkles, tighten or loosen the tacking strip retaining bolts as required. After adjusting the curtain, install and tighten the tacking strip adjustment retaining screws until they bottom against the body panel.

12. Snap the top well cover retainers into the tacking strip.

UPPER HALF CURTAIN SLIDE FASTENER REPLACEMENT

1. Unfasten the top clamps at the windshield header, and then open the curtain window slide fastener.

2. Remove the rear bow binding end caps, pry the binding open, and remove the staples and binding (Fig. 127).

3. Remove the staples retaining the top deck and quarter assembly to the rear bow.

4. Remove the staples retaining the top right and left back stay pad case assemblies to the rear bow (Fig. 127).

5. Remove the staples retaining the slide fastener to the rear bow tacking strip and remove the slide fastener.

6. Center the upper half of the slide fastener on the rear bow tacking strip, and staple the fastener in place.

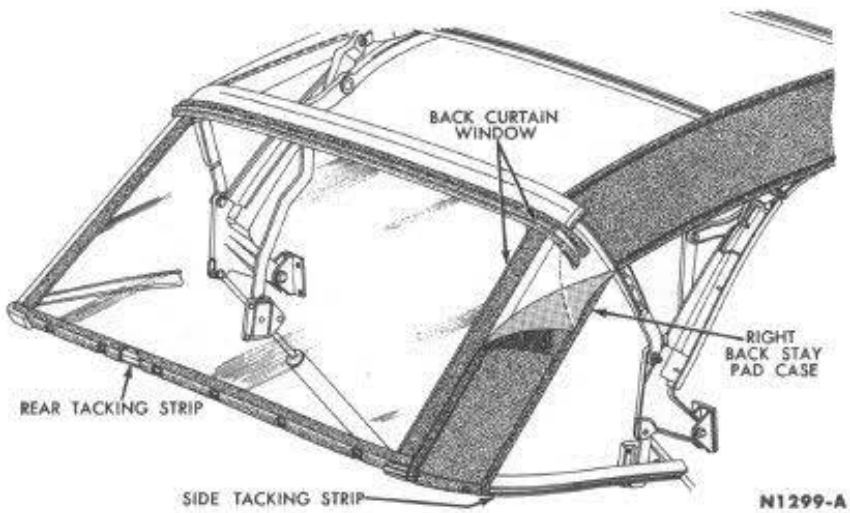


FIG. 127—Back Curtain Window

7. Staple the top left and right back stay pad case assemblies to the rear bow tacking strip.

8. Staple the top deck and quarter assembly to the rear bow tacking strip.

9. Staple the binding in position, and install the binding end caps.

10. Close the slide fastener, and and then fasten the top clamps at the windshield header.

11. To adjust the curtain window tension and remove wrinkles, unsnap the convertible top well cover from the curtain rear and side belt tacking strips. Loosen the tacking strip adjustment retaining screws. Then, tighten or loosen the tacking strip retaining bolts as required.

12. After adjusting the curtain, tighten the tacking strip adjustment retaining screws until they bottom against the body panel. Snap the top well cover retainers into the tacking strip.

LOWER HALF CURTAIN SLIDE FASTENER REPLACEMENT

1. Unfasten the convertible top clamps at the windshield header.

2. Unsnap the convertible top well cover from the curtain rear and side belt tacking strips.

3. Remove the bolts and lock washers that retain the curtain rear and side belt tacking strips to the body panel.

4. Open the curtain window slide fastener, and remove the curtain assembly.

5. Cut the old slide fastener from the curtain and sew the new slide fastener in place.

6. Loosen the tacking strip adjustment retaining screws.

7. Position the curtain assembly to the body panel, and loosely install the belt tacking strip retaining bolts and lock washers.

8. Close the curtain window slide fastener and fasten the top clamps at the windshield header.

9. To adjust the curtain window tension and remove wrinkles, tighten or loosen the tacking strip retaining bolts as required. After adjusting the curtain, tighten the tacking strip adjustment retaining screws until they bottom against the body panel.

10. Snap the top well cover retainers into the tacking strip.

GROUP 13 – MAINTENANCE AND LUBRICATION

MAINTENANCE SCHEDULE (PART 13-1)

MAINTENANCE SCHEDULE

Interval	Operation	Lubricant
SEASONALLY	Check Air Conditioner State of Refrigerant Charge, and Add Refrigerant as Required.	
	Adjust Accelerator Pump Lever.	
AS REQUIRED	Check Convertible Top Pump Reservoir Fluid Level, and add Fluid as Required.	Use Rotunda Automatic Transmission Fluid, Ford Part No. C1AZ-19582-B (Ford Spec. M-2C33-D) for adding or for complete refill. If Rotunda fluid is not available, automatic transmission fluid marked "Type A, Suffix A" may be used to "add to" the factory fill to maintain fluid level.
	Check Steering Gear Preload (After 6000-Mile Inspection).	
	Check Battery Fluid Level and Electrical Charge.	
	Adjust Carburetor Idle Speed and Idle Fuel Mixture.	
	Adjust Automatic Transmission Bands.	
	Replace Windshield Wiper Blades.	
	Service or Replace Spark Plugs.	
	Service or Replace Distributor Breaker Points.	
	Lubricate Distributor Wick and Bushing.	Engine oil–SAE 10W.
	Lubricate Distributor Cam.	Distributor Cam Grease.
Odometer Reading (Miles)	**Operation**	**Lubricant**
6000	Change Engine Oil and Rotunda Oil Filter.	Certified Sequence-Tested Engine Oil. SAE 30 or 10W-30 for continuing temperatures above 90° F. SAE 20, 20W, or 10W-30 between 20° F and 90° F. SAE 10W or 10W-30 between –10°F and 20° F. SAE 5W* or 5W-20 for continuing temperature below –10° F. *Sustained speeds above 65 mph should be avoided when using SAE 5W engine oils.

CONTINUED ON NEXT PAGE

MAINTENANCE SCHEDULE (Continued)

Odometer Reading (Miles)	Operation	Lubricant
6000 (continued)	Check Automatic Transmission Fluid Level and Add Fluid as Required.	Use Rotunda Automatic Transmission Fluid, Ford Part No. C1AZ-19582-B (Ford Spec. M-2C33-D) for adding or for complete refill. If Rotunda fluid is not available, automatic transmission fluid marked "Type A, Suffix A" may be used to "add to" the factory fill to maintain fluid level.
	Check Manual-Shift Transmission Lubricant Level, and Add Lubricant as Required.	Use Rotunda Manual Transmission Lubricant, Ford Part No. C3RZ-19C547-A (Ford Spec. M-568-D) for "adding" or for complete refill. If Rotunda lubricant is not available, a reputable SAE 80 grade mild extreme pressure type lubricant may be used to "add to" the factory fill to maintain the lubricant level.
	Check Brake Master Cylinder Fluid Level, and Add Fluid as Required.	FoMoCo or Rotunda Heavy-Duty Brake Fluid Ford Part No. B7A-19542.
	Check Rear Axle Lubricant Level, and Add Lubricant as Required.	FoMoCo or Rotunda Hypoid Gear Lubricant. Engine Sizes — Ford Specification — Ford Part No. 144 — M-2C28-B — C2AZ-19580-A 170 — M-2C28-B — C2AZ-19580-A If other specified lubricants are unavailable, M-2C50-B may be used for "adding to", not exceeding one pint in quantity. SAE 90 grade lubricants are recommended for all temperatures above −25° F. For temperatures below −25° F, the same type of lubricant, but of a SAE 80 grade, should be used.
	Check Clutch Linkage and Adjust if Necessary.	
	Check Tension of Engine Accessory Drive Belts and Adjust if Necessary.	

CONTINUED ON NEXT PAGE

MAINTENANCE SCHEDULE (Continued)

Odometer Reading (Miles)	Operation	Lubricant
6000 (continued)	Check Steering Gear Preload and Backlash and Adjust if Necessary.	Use FoMoCo Special Steering Gear Grease, Ford Part No. B8A-19578-A (Ford Spec. M-4738) for adding or for complete refill. If unavailable, a good lithium base grease #1 grade may be used to "add to" the factory fill to maintain grease level.
	Clean Carburetor Air Cleaner Filter Element as Outlined in Group 3 of this Supplement.	
	Clean Crankcase Breather Cap and Filter.	
	Lubricate Automatic Transmission Kickdown Linkage.	FoMoCo Ball Joint Grease Ford Part No. C1AZ-19590-A. Substitute must conform to Ford spec. M-1C47.
	Cross Switch Wheels and Tires if Necessary.	
12,000	Change Engine Oil and Rotunda Oil Filter.	Certified Sequence-Tested Engine Oil. SAE 30 or 10W-30 for continuing temperatures above 90° F. SAE 20, 20W, or 10W-30 between 20° F and 90° F. SAE 10W or 10W-30 between –10°F and 20° F. SAE 5W* or 5W-20 for continuing temperature below –10° F. *Sustained speeds above 65 mph should be avoided when using SAE 5W engine oils.
	Check Automatic Transmission Fluid Level, and Add Fluid as Required.	Use Rotunda Automatic Transmission Fluid, Ford Part No. C1AZ-19582-B (Ford Spec. M-2C33-D) for adding or for complete refill. If Rotunda fluid is not available, automatic transmission fluid marked "Type A, Suffix A" may be used to "add to" the factory fill to maintain fluid level.
	Check Manual-Shift Transmission Lubricant Level, and Add Lubricant as Required.	Use Rotunda Manual Transmission Lubricant, Ford Part No. C3RZ-19C547-A (Ford Spec. M-568-D) for "adding" or for complete refill. If Rotunda lubricant is not available, a reputable SAE 80 grade mild extreme pressure type lubricant may be used to "add to" the factory fill to maintain the lubricant level.

CONTINUED ON NEXT PAGE

MAINTENANCE SCHEDULE (Continued)

Odometer Reading (Miles)	Operation	Lubricant
12,000 (continued)	Check Brake Master Cylinder Fluid Level, and Add Fluid as Required.	FoMoCo or Rotunda Heavy-Duty Brake Fluid Ford Part No. B7A-19542.
	Check Rear Axle Lubricant Level, and Add Lubricant as Required.	FoMoCo or Rotunda Hypoid Gear Lubricant Engine Sizes / Ford Specification / Ford Part No. 144 M-2C28-B C2AZ-19580-A 170 M-2C28-B C2AZ-19580-A If other specified lubricants are unavailable, M-2C50-B may be used for "adding to," not exceeding one pint in quantity. SAE 90 grade lubricants are recommended for all temperatures above −25° F. For temperatures below −25° F, the same type of lubricant, but of a SAE 80 grade, should be used.
	Check Clutch Linkage and Adjust if Necessary.	
	Check Parking Brake and Adjust if Necessary.	
	Check Front End Alignment and Correct if Necessary.	
	Check Ignition Timing and Adjust if Necessary.	
	Clean Body and Door Drain Holes.	
	Clean Positive Crankcase Ventilation System Hose and Adapter.	
	Clean Carburetor Air Cleaner Filter Element as Outlined in Group 3 of this Supplement.	
	Clean Crankcase Breather Cap and Filter.	

CONTINUED ON NEXT PAGE

MAINTENANCE SCHEDULE (Continued)

Odometer Reading (Miles)	Operation	Lubricant
12,000 (continued)	Lubricate Deck Lid Hinge Pivots or Tailgate Hinge Pivots and Supports.	FoMoCo or Rotunda Silicone Jelly or Spray, Ford Part No. COAZ-19553-A or B.
	Lubricate Door Locks.	FoMoCo or Rotunda Lock Lubricant, Ford Part No. B4A-19587-A.
	Lubricate Deck Lid or Tailgate Lock.	FoMoCo or Rotunda Lock Lubricant, Ford Part No. B4A-19587-A.
	Lubricate Hood Latch.	FoMoCo or Rotunda Silicone Jelly, Ford Part No. COAZ-19553-A.
	Cross Switch Wheels and Tires if Necessary.	
18,000	Change Engine Oil and Rotunda Oil Filter.	Certified Sequence-Tested Engine Oil. SAE 30 or 10W-30 for continuing temperatures above 90° F. SAE 20, 20W, or 10W-30 between 20° F and 90° F. SAE 10W or 10W-30 between −10°F and 20° F. SAE 5W* or 5W-20 for continuing temperature below −10° F. *Sustained speeds above 65 mph should be avoided when using SAE 5W engine oils.
	Check Automatic Transmission Fluid Level, and Add Fluid as Required.	Use Rotunda Automatic Transmission Fluid, Ford Part No. C1AZ-19582-B (Ford Spec. M-2C33-D) for adding or for complete refill. If Rotunda fluid is not available, automatic transmission fluid marked "Type A, Suffix A" may be used to "add to" the factory fill to maintain fluid level.
	Check Manual-Shift Transmission Lubricant Level, and Add Lubricant as Required.	Use Rotunda Manual Transmission Lubricant, Ford Part No. C3RZ-19C547-A (Ford Spec. M-568-D) for "adding" or for complete refill. If Rotunda lubricant is not available, a reputable SAE 80 grade mild extreme pressure type lubricant may be used to "add to" the factory fill to maintain the lubricant level.

CONTINUED ON NEXT PAGE

MAINTENANCE SCHEDULE (Continued)

Odometer Reading (Miles)	Operation	Lubricant
18,000 (continued)	Check Brake Master Cylinder Fluid Level, and Add Fluid as Required.	FoMoCo or Rotunda Heavy-Duty Brake Fluid, Ford Part No. B7A-19542.
	Check Rear Axle Lubricant Level, and Add Fluid as Required.	FoMoCo or Rotunda Hypoid Gear Lubricant Engine Sizes / Ford Specification / Ford Part No. 144 M-2C28-B C2AZ-19580-A 170 M-2C28-B C2AZ-19580-A If other specified lubricants are unavailable, M-2C50-B may be used for "adding to," not exceeding one pint in quantity. SAE 90 grade lubricants are recommended for all temperatures above −25° F. For temperatures below −25° F, the same type of lubricant, but of a SAE 80 grade, should be used.
	Check Clutch Linkage and Adjust if Necessary.	
	Check Tension of Engine Accessory Drive Belts and Adjust if Necessary.	
	Clean Carburetor Air Cleaner Filter Element as Outlined in Group 3 of this Supplement.	
	Clean Crankcase Breather Cap and Filter.	
	Lubricate Automatic Transmission Kickdown Linkage.	FoMoCo Ball Joint Grease Ford Part No. C1AZ-19590-A. Substitutes must conform to Ford spec M-1C47.
	Cross Switch Wheels and Tires if Necessary.	
24,000	Change Engine Oil and Rotunda Oil Filter.	Certified Sequence-Tested Engine Oil. SAE 30 or 10W-30 for continuing temperatures above 90° F. SAE 20, 20W, or 10W-30 between 20° F and 90° F. SAE 10W or 10W-30 between −10°F and 20° F. SAE 5W* or 5W-20 for continuing temperature below −10° F. *Sustained speeds above 65 mph should be avoided when using SAE 5W engine oils.

CONTINUED ON NEXT PAGE

MAINTENANCE SCHEDULE (Continued)

Odometer Reading (Miles)	Operation	Lubricant
24,000 (continued)	Check Automatic Transmission Fluid Level, and Add Fluid as Required.	Use Rotunda Automatic Transmission Fluid, Ford Part No. C1AZ-19582-B (Ford Spec. M-2C33-D) for adding or for complete refill. If Rotunda fluid is not available, automatic transmission fluid marked "Type A, Suffix A" may be used to "add to" the factory fill to maintain fluid level.
	Check Manual-Shift Transmission Lubricant Level, and Add Lubricant as Required.	Use Rotunda Manual Transmission Lubricant, Ford Part No. C3RZ-19C547-A (Ford Spec. M-568F) for "adding" or for complete refill. If Rotunda lubricant is not available, a reputable SAE 80 grade mild extreme pressure type lubricant may be used to "add to" the factory fill to maintain the lubricant level.
	Check Brake Master Cylinder Fluid Level, and Add Fluid as Required.	FoMoCo or Rotunda Heavy-Duty Brake Fluid Ford Part No. B7A-19542.
	Check Rear Axle Lubricant Level, and Add Lubricant as Required.	FoMoCo or Rotunda Hypoid Gear Lubricant Engine Sizes / Ford Specification / Ford Part No. 144 M-2C28-B C2AZ-19580-A 170 M-2C28-B C2AZ-19580-A If other specified lubricants are unavailable, M-2C50-B may be used for "adding to", not exceeding one pint in quantity. SAE 90 grade lubricants are recommended for all temperatures above −25° F. For temperatures below −25° F, the same type of lubricant, but of a SAE 80 grade, should be used.
	Check Clutch Linkage and Adjust if Necessary.	
	Check Parking Brake and Adjust if Necessary.	
	Check Front End Alignment and Correct if Necessary.	

CONTINUED ON NEXT PAGE

MAINTENANCE SCHEDULE (Continued)

Odometer Reading (Miles)	Operation	Lubricant
24,000 (continued)	Check Ignition Timing and Adjust if Necessary.	
	Clean Body and Door Drain Holes.	
	Clean Positive Crankcase Ventilation System Hose and Adapter.	
	Replace Carburetor Air Cleaner Element.	
	Clean Crankcase Breather Cap and Filter.	
	Lubricate Deck Lid Hinge Pivots or Tailgate Hinge Pivots and Supports.	FoMoCo or Rotunda Silicone Jelly or Spray, Ford Part No. COAZ-19553-A or B.
	Lubricate Door Locks.	FoMoCo or Rotunda Lock Lubricant, Ford Part No. B4A-19587-A.
	Lubricate Deck Lid or Tailgate Lock.	FoMoCo or Rotunda Lock Lubricant, Ford Part No. B4A-19587-A.
	Lubricate Hood Latch.	FoMoCo or Rotunda Silicone Jelly, Ford Part No. COAZ-19553-A.
	Cross Switch Wheels and Tires if Necessary.	
	Lubricate and Adjust Front Wheel Bearings.	FoMoCo Wheel Bearing Grease Ford Part No. C2AZ-19585-A.
	Check Brake Lines and Linings.	
30,000	Change Engine Oil and Rotunda Oil Filter.	Certified Sequence-Tested Engine Oil. SAE 30 or 10W-30 for continuing temperatures above 90° F. SAE 20, 20W, or 10W-30 between 20° F and 90° F. SAE 10W or 10W-30 between −10°F and 20° F. SAE 5W* or 5W-20 for continuing temperature below −10° F. *Sustained speeds above 65 mph should be avoided when using SAE 5W engine oils.

CONTINUED ON NEXT PAGE

MAINTENANCE SCHEDULE (Continued)

Odometer Reading (Miles)	Operation	Lubricant
30,000 (continued)	Check Automatic Transmission Fluid Level, and Add Fluid as Required.	Use Rotunda Automatic Transmission Fluid, Ford Part No. C1AZ-19582-B (Ford Spec. M-2C33-D) for adding or for complete refill. If Rotunda fluid is not available, automatic transmission fluid marked "Type A, Suffix A" may be used to "add to" the factory fill to maintain fluid level.
	Check Manual-Shift Transmission Lubricant Level, and Add Lubricant as Required.	Use Rotunda Manual Transmission Lubricant, Ford Part No. C3RZ-19C547-A (Ford Spec. M-568-D) for "adding" or for complete refill. If Rotunda lubricant is not available, a reputable SAE 80 grade mild extreme pressure type lubricant may be used to "add to" the factory fill to maintain the lubricant level.
	Check Brake Master Cylinder Fluid Level, and Add Fluid as Required.	FoMoCo or Rotunda Heavy-Duty Brake Fluid Ford Part No. B7A-19542.
	Check Rear Axle Lubricant Level, and Add Lubricant as Required.	FoMoCo or Rotunda Hypoid Gear Lubricant Engine Sizes / Ford Specification / Ford Part No. 144 M-2C28-B C2AZ-19580-A 170 M2C28-B C2AZ-19580-A If other specified lubricants are unavailable, M-2C50-B may be used for "adding to", not exceeding one pint in quantity. SAE 90 grade lubricants are recommended for all temperatures above −25° F. For temperatures below −25° F, the same type of lubricant, but of a SAE 80 grade, should be used.
	Check Clutch Linkage and Adjust if Necessary.	
	Check Tension of Engine Accessory Drive Belts and Adjust if Necessary.	

CONTINUED ON NEXT PAGE

MAINTENANCE SCHEDULE (Continued)

Odometer Reading (Miles)	Operation	Lubricant
30,000 (continued)	Clean Carburetor Air Cleaner Filter Element as Outlined in Group 3 of this Supplement.	
	Clean Crankcase Breather Cap and Filter.	
	Lubricate Automatic Transmission Kickdown Linkage.	FoMoCo Ball Joint Grease, Ford Part No. C1AZ-19590-A. Substitutes must conform to Ford spec. M-1C47.
	Cross Switch Wheels and Tires if Necessary.	
36,000	Change Engine Oil and Rotunda Oil Filter.	Certified Sequence-Tested Engine Oil. SAE 30 or 10W-30 for continuing temperatures above 90° F. SAE 20, 20W, or 10W-30 between 20° F and 90° F. SAE 10W or 10W-30 between −10°F and 20° F. SAE 5W* or 5W-20 for continuing temperature below −10° F. *Sustained speeds above 65 mph should be avoided when using SAE 5W engine oils.
	Check Automatic Transmission Fluid Level, and Add Fluid as Required.	Use Rotunda Automatic Transmission Fluid, Ford Part No. C1AZ-19582-B (Ford Spec. M-2C33-D) for adding or for complete refill. If Rotunda fluid is not available, automatic transmission fluid marked "Type A, Suffix A" may be used to "add to" the factory fill to maintain fluid level.
	Check Manual-Shift Transmission Lubricant Level, and Add Lubricant as Required.	Use Rotunda Manual Transmission Lubricant, Ford Part No. C3RZ-19C547-A (Ford Spec. M-568-D) for "adding" or for complete refill. If Rotunda lubricant is not available, a reputable SAE 80 grade mild extreme pressure type lubricant may be used to "add to" the factory fill to maintain the lubricant level.
	Check Brake Master Cylinder Fluid Level, and Add Fluid as Required.	FoMoCo or Rotunda Heavy-Duty Brake Fluid Ford Part No. B7A-19542.

CONTINUED ON NEXT PAGE

MAINTENANCE SCHEDULE (Continued)

Odometer Reading (Miles)	Operation	Lubricant
36,000 (continued)	Check Rear Axle Lubricant Level, and Add Lubricant as Required.	FoMoCo or Rotunda Hypoid Gear Lubricant Engine Sizes / Ford Specification / Ford Part No. 144 M-2C28-B C2AZ-19580-A 170 M-2C28-B C2AZ-19580-A If other specified lubricants are unavailable, M-2C50-B may be used for "adding to," not exceeding one pint in quantity. SAE 90 grade lubricants are recommended for all temperatures above −25° F. For temperatures below −25° F, the same type of lubricant, but of a SAE 80 grade, should be used.
	Check Clutch Linkage and Adjust if Necessary.	
	Check Parking Brake and Adjust if Necessary.	
	Check Front End Alignment and Correct if Necessary.	
	Check Ignition Timing and Adjust if Necessary.	
	Clean Body and Door Drain Holes.	
	Clean Positive Crankcase Ventilation System Hose and Adapter.	
	Clean Crankcase Breather Cap and Filter.	
	Clean Carburetor Air Cleaner Filter Element as Outlined in Group 3 of this Supplement.	
	Lubricate Deck Lid Hinge Pivots or Tailgate Hinge Pivots and Supports.	FoMoCo or Rotunda Silicone Jelly or Spray, Ford Part No. COAZ-19553-A or B.
	Lubricate Door Locks.	FoMoCo or Rotunda Lock Lubricant, Ford Part No. B4A-19587-A.
	Lubricate Deck Lid or Tailgate Lock.	FoMoCo or Rotunda Lock Lubricant, Ford Part No. B4A-19587-A.
	Lubricate Hood Latch.	FoMoCo or Rotunda Silicone Jelly, Ford Part No. COAZ-19553-A.

CONTINUED ON NEXT PAGE

MAINTENANCE SCHEDULE (Continued)

Odometer Reading (Miles)	Operation	Lubricant
36,000 (continued)	Lubricate Drive Shaft Universal Joints.	FoMoCo Universal Joint Grease, Ford Part No. B8A-19589-A. Substitute universal joint greases must conform to Ford spec. M-1C57.
	Lubricate Front Suspension Ball Joints.	FoMoCo Ball Joint Grease, Ford Part No. C1AZ-19590-A. Substitutes must conform to Ford spec. M-1C47.
	Cross Switch Wheels and Tires if Necessary.	
	Replace Fuel Filter.	
	Replace Engine Coolant (or Every 2 Years).	

MAINTENANCE OPERATIONS (PART 13-2)

MAINTENANCE OPERATIONS

CHECK AUTOMATIC TRANSMISSION FLUID LEVEL	With the engine running at idle speed, the fluid at a normal operating temperature, and the transmission	selector lever at P (park), the fluid level should be maintained at the full mark on the dipstick.
CHECK MANUAL-SHIFT TRANSMISSION LUBRICANT LEVEL	The transmission lubricant level should be maintained at the bottom	of the filler hole in the transmission case.
CHECK BRAKE MASTER CYLINDER FLUID LEVEL	The fluid level should be maintained ⅜ inch below the top of the filler opening.	
CHECK REAR AXLE LUBRICANT LEVEL	The lubricant level should be maintained at the bottom of the filler hole.	
CLEAN CARBURETOR AIR CLEANER ELEMENT	Refer to Group 3 of this supplement for air cleaner element cleaning instructions.	
CLEAN CRANKCASE BREATHER CAP AND POSITIVE CRANKCASE VENTILATION SYSTEM	Remove the breather cap and wash it in solvent. Remove the crankcase ventilation system hose and adapter. Clean the adapter in clean carburetor	solvent, and dry it with compressed air. Clean the rubber hose with a low volatility petroleum base solvent, and dry it with compressed air.
LUBRICATE FRONT SUSPENSION BALL JOINTS	Remove plugs. Apply the recommended lubricant to each ball joint fitting with a pressure gun and replace the plugs.	
LUBRICATE AND ADJUST FRONT WHEEL BEARINGS	Front wheel bearing adjustment information is provided in Part 9 - 1 of the 1962 Falcon Shop Manual	and Section 1 of the 1962 Comet Maintenance Manual Supplement.

CONTINUED ON NEXT PAGE

MAINTENANCE OPERATIONS (Continued)

LUBRICATE DRIVE SHAFT UNIVERSAL JOINTS	Remove plugs. Lubricate the universal joints with the recommended lubricant. Replace plugs.
LUBRICATE HOOD LATCH	Apply lubricant to all points of contact.
LUBRICATE DECK LID LATCH	Apply lubricant to all points of contact.
LUBRICATE DOOR LOCKS	Apply lubricant, and wipe clean.
LUBRICATE DECK LID OR TAILGATE LOCK	Apply lubricant, and wipe clean.
LUBRICATE DECK LID HINGE PIVOTS OR TAILGATE HINGE PIVOTS AND SUPPORTS	Spray all points of friction.
CHANGE ENGINE OIL AND REPLACE ROTUNDA OIL FILTER	Drain the oil from the crankcase, and remove and discard the oil filter. Install a new Rotunda filter, and fill the crankcase to the full mark on the oil level dipstick. Run the engine at idle speed and check for oil leaks at the filter and drain plug. Recheck the oil level and add oil if necessary.
REPLACE FUEL FILTER	Complete procedures for replacing the fuel filter are given in Part 3 - 3 of this Supplement.
REPLACE CARBURETOR AIR CLEANER ELEMENT	Remove the air cleaner from the carburetor. Clean the air cleaner body. Insert a new element and assemble the components.
ADJUST STEERING GEAR PRELOAD AND BACKLASH	Complete steering gear adjustment procedures are given in Part 8 - 1 of the 1962 Falcon Shop Manual and Section 5 of the 1961 Comet Maintenance Manual.
INSPECT AND ADJUST BRAKES	Remove one wheel and drum, and inspect the drum and linings for wear or damage. Scored drums should be repaired. Reline or replace the brake shoes if the linings are worn to within 1/32 inch of any rivet.
CROSS SWITCH WHEELS AND TIRES	All tires, including the spare, should be cross-switched as shown in Part 9-1 of the 1962 Falcon Shop Manual and Section 1 of the 1961 Comet Maintenance Manual.
PERFORM AIR CONDITIONER SEASONAL SERVICES	Check the air conditioner system for refrigerant or oil leaks, and for the state of refrigerant charge.

GROUP 14—SPECIFICATIONS

NOTE: All specifications are given in inches unless otherwise noted.

ENGINE

GENERAL SPECIFICATIONS

Piston Displacement (Cubic Inches)	144 or 170
Bore and Stroke	144 cu. in.—3.50 x 2.50 170 cu. in.—3.50 x 2.94
Compression Ratio	8.7:1
Engine Fuel Requirements	Regular
Comp. Pressure—Sea Level @ Cranking Spd.	150 — 190
Brake Horsepower @ Specified Engine rpm	144 cu. in.— 85 @ 4200 170 cu. in.—101 @ 4400
Torque—(Ft-Lbs) at Specified Engine rpm	144 cu. in.—134 @ 2000 170 cu. in.—156 @ 2400
Firing Order	1-5-3-6-2-4
Valve Arrangement (Front to Rear)	E-I-I-E-I-E-E- I-E-I-I-E
Taxable Horsepower (SAE)	29.4
Engine Idle rpm: Manual-Shift Transmission Automatic 2-Speed (Drive Range)	 500-525 475-500
Engine Idle Manifold Vacuum—Mininum Inches Hg. @ Specified Engine Idle rpm (Sea Level)	144—16 170—17
Initial Ignition Timing—B.T.D.C. Manual-Shift Transmission Automatic 2-Speed	144—8° 170—6° 12°
Crankcase Oil Capacity—Quarts Without Filter Replacement—U.S. Measure —Imperial Measure With Filter Replacement—U.S. Measure —Imperial Measure	 3.5 3 4.5 3.75
Oil Pressure (psi) Hot @ 2000 rpm	35-55

CAMSHAFT AND TIMING CHAIN

Journal Standard Diameter			1.8095-1.8105
Journal Maximum Out of Round			0.0005
Journal to Bearing Clearance —Wear Limit			0.001-0.003 0.006
Timing Chain Deflection			0.5
Camshaft Lobe Lift	144	Int.	0.232
		Exh.	0.232
	170	Int.	0.2405
		Exh.	0.2395
Max. Allowable Lobe Lift Loss—Int. & Exh.			0.005
Camshaft End Play —Wear Limit			0.001-0.007 0.012

CAMSHAFT BEARINGS

Inside Diameter—Assembled	1.8115-1.8125
Location in Relation to Front Face of Block Cam Bearing Bore—No. 1 Bearing Only—Below	0.115-0.125

CYLINDER HEAD

Gasket Surface Flatness	0.003 in any 6 inches or 0.007 inch overall
Valve Guide Bore Diameter—Intake and Exhaust	0.3115-0.3125
Valve Seat Width—Intake and Exhaust	0.070-0.080
Valve Seat Angle—Intake and Exhaust	45°
Valve Seat—Maximum Runout	0.002

VALVE MECHANISM

Intake and Exhaust Clearance—Hydraulic		0.067-0.200*
Valve Stem Diameter—Standard	Int.	0.3100-0.3107
	Exh.	0.3090-0.3097
Valve Stem Diameter 0.003 O.S.	Int.	0.3130-0.3137
	Exh.	0.3120-0.3127
Valve Stem Diameter 0.015 O.S.	Int.	0.3250-0.3257
	Exh.	0.3240-0.3247
Valve Stem Diameter 0.030 O.S.	Int.	0.3400-0.3407
	Exh.	0.3390-0.3397
Valve Stem to Valve Guide Clearance	Int.	0.0008-0.0025
	Exh.	0.0018-0.0035
—Wear Limit	Int.	0.0045
	Exh.	0.0055
Valve Head Diameter	Int.	144 cu. in. 1.462-1.472 170 cu. in. 1.522-1.537
	Exh.	1.261-1.276
Valve Face Angle—Int. & Exh.		44°
Valve Face Maximum Runout (Int. & Exh.)		0.0015
Valve Spring Free Length (Approximate)		1.79
Valve Spring Maximum Out of Square		0.072
Valve Spring Pressure (Lbs.)—Specified Length —Wear Limit		51-57 @ 1.59 46 @ 1.585
Valve Spring Pressure (Lbs.)—Specified Length —Wear Limit		142-158 @ 1.222 128@ 1.222
Valve Spring Assembled Height		1 5/16-1 39/64
Valve Push Rod Maximum Runout		0.025
Valve Tappet Diameter		0.8740-0.8745
Valve Tappet to Tappet Bore Clearance —Wear Limit		0.0005-0.0020 0.005

*Clearance specified is that obtained at the valve stem tip—hydraulic tappet collapsed.

VALVE MECHANISM (Continued)

Hydraulic Tappet Leak-down Rate—Seconds	10-100
Rocker Arm to Rocker Shaft Clearance —Wear Limit	0.002-0.0045 0.006
Rocker Arm Shaft Outside Diameter	0.780-0.781
Rocker Shaft Bore Diameter	0.783-0.784

CRANKSHAFT

Main Bearing Journal Standard Diameter	Coded Red	2.2486-2.2490
	Coded Blue	2.2482-2.2486
Main Bearing Journal Maximum Runout —Wear Limit		0.0025 0.0035
Main Bearing Journal Thrust Face Maximum Runout		0.001
Connecting Rod Journal Diameter	Coded Red	2.1236-2.1240
	Coded Blue	2.1232-2.1236
Connecting Rod and Main Bearing Journal Maximum Out-of-Round		0.0004
Connecting Rod and Main Bearing Journal Maximum Taper		0.0003
Thrust Bearing Journal Length		1.275-1.277
Crankshaft Free End Play —Wear Limit		0.004-0.008 0.012
Assembled Flywheel Clutch Face Maximum Runout		0.010
Assembled Flywheel Outside Diameter Runout		0.007

MAIN BEARINGS

Journal Clearance—Copper Lead		0.0007-0.0025
Bearing Wall Thickness—Copper Lead	Red	0.0754-0.0759
	Blue	0.0758-0.0763
	.002 U.S.	0.0768-0.0773

CONNECTING ROD

Piston Pin Standard Inside Diameter		0.9107-0.9112
Bearing Bore Diameter	Coded Red	2.2390-2.2394
	Coded Blue	2.2394-2.2398
Bearing Bore Maximum Out-of-Round		0.0002
Bearing Bore Maximum Taper		0.0002
Connecting Rod Length (Center to Center)		144 cu. in. 4.854-4.856 170 cu. in. 4.714-4.716
Connecting Rod—Maximum Twist Total Difference		0.012
Connecting Rod—Maximum Bend Total Difference		0.004
Connecting Rod Assembly (Assembled to Crankshaft) Side Clearance —Wear Limit		0.004-0.008 0.014

CONNECTING ROD BEARINGS

Bearing to Crankshaft Clearance		0.0008-0.0023
Bearing Wall Thickness	Red	0.0569-0.0574
	Blue	0.0573-0.0578
	0.002 U.S.	0.0583-0.0588

PISTON

Standard Piston Diameter at Right Angle to Piston Pin Centerline	Red	3.4976-3.4982
	Blue	3.4988-3.4994
	0.003 O.S.	3.5000-3.5006
Piston to Bore Clearance at Right Angle to Piston Pin Centerline —Wear Limit		0.0018-0.0036 0.006

PISTON PIN

Piston Pin Dia. Standard (Coded Green)	0.9120-0.9123
Piston Pin Dia. 0.001 O.S. (Coded Blue)	0.9130-0.9133
Piston Pin Dia. 0.002 O.S. (Coded Yellow)	0.9140-0.9143
Piston Pin Length	3.010-3.030
Piston Pin to Piston Clearance —Wear Limit	0.0001-0.0003 0.0008

PISTON RINGS

Ring Width—Compression—Upper Lower	0.0774-0.0781 0.0770-0.0780
Side Clearance—Compression—Upper Lower —Wear Limit	0.0019-0.0036 0.0026-0.0046 0.006
Piston Ring Gap Width—Compression (Upper and Lower)—Standard Bore	0.010-0.020
Side Clearance—Oil	Snug
Gap Width—Oil—Standard Bore	0.015-0.055 Rail

CYLINDER BLOCK

Cylinder Bore Std. Diameter		3.5000-3.5024
Minimum Cyl. Wall Thickness Std. Bore		0.170
Cylinder Bore Maximum Out-of-Round —Wear Limit		0.001 0.003
Cylinder Bore Maximum Taper —Wear Limit		0.001 0.005
Main Bearing Bore Diameter	Coded Red	2.4012-2.4016
	Coded Blue	2.4016-2.4020
Head Gasket Surface Flatness		0.003 in any 6 inches or 0.007 inch overall

OIL PUMP

Relief Valve Spring Tension (lbs.)	8.6-9.5 @ 1.078
Relief Valve Clearance	0.0015-0.0029
Drive Shaft to Housing Bearing Clearance	0.0015-0.0029
Rotor Assembly End Clearance (Pump Assembled)	0.0011-0.0041
Outer Race to Housing—Radial Clearance	0.006-0.012

TORQUE LIMITS

	Foot-Pounds
Main Bearing Cap Bolts (Oiled)	60-70
Cylinder Head Bolts (Oiled)	65-75
Oil Pan to Cylinder Block	7-9
Flywheel to Crankshaft	75-85
Exhaust Manifold to Cylinder Head	13-18
Muffler Inlet Pipe to Exhaust Manifold	23-27
Oil Pump to Cylinder Block	12-15
Oil Pump Cover Plate	6-9
Camshaft Thrust Plate to Cylinder Block	12-15
Cylinder Front Cover	7-9
Water Outlet Housing	12-15
Oil Pan Drain Plug	15-20
Crankcase Ventilation Tube to Engine	6-9
Rocker Arm Cover	3-5
Camshaft Sprocket to Camshaft	35-45
Damper or Pulley to Crankshaft	45-55
Connecting Rod Nuts	19-24
Rocker Shaft Support to Cylinder Head	30-35

	Foot-Pounds
Water Pump to Cylinder Block	12-15
Oil Tube to Oil Pump	12-15
Oil Filter Adapter to Cylinder Block	50-60
Fuel Pump to Cylinder Block	12-15
Engine Front Support— Insulator Assembly to Engine Bolts	18-24
Insulator Assembly to Attaching Bracket Lock Nut	11-15
Engine Rear Support— Support Retainer to Insulator Lock Nuts	10-15
Support Assembly to Body Lock Nuts	10-15
Canti-Lever Spring Center Bolt to Upper Insulator	28-32
Bracket and No. 2 Crossmember to Body Lock Nut	20-28
Insulator to Transmission Extension Bolts	18-24
Insulator Assembly Nuts	18-24
Support to Transmission Extension Bolts	
Manual-Shift Transmission	37-42
Automatic Transmission	18-24
Canti-Lever Spring	25-28
Fan and Pulley Assembly to Engine	10-15

IGNITION SYSTEM

DISTRIBUTOR

Initial Advance Crankshaft Degrees (BTC)*			Breaker Arm Spring Tension (Ounces)	Contact Spacing	Dwell Contact at Idle Speed
144	Manual-Shift	8°	17-20	0.024-0.026	35°-38°
	Automatic 2-Speed	12°			
170	Manual-Shift	6°			
	Automatic 2-Speed	12°			

*The initial ignition timing may be advanced 5° over the recommended setting. To do this, advance the timing progressively until engine detonation (spark knock) is evident under actual road test acceleration. Retard the timing until the detonation is eliminated. If the individual requirements of the car and/or if sub-standard fuels are used, the initial timing may be retarded from the recommended setting not to exceed 2° BTC.

VACUUM ADVANCE CHARACTERISTICS

144 SIX		
Distributor C3DF-12127-E		
Manual-Shift Transmission		
Set test stand to 0° @ 1000 rpm and 0 inches of Mercury		
Distributor (rpm)	Advance (Degrees)	Vacuum (Inches of Mercury)
500	¾ to 1¾	0.35
600	1¾ to 2¾	0.45
1000	5¾ to 6¾	1.30
1400	7¾ to 9	2.43
2000	9¾ to 11	4.10
Maximum Advance Limit	13¼	10.00

VACUUM ADVANCE CHARACTERISTICS (Cont'd)

144 SIX		
Distributor C3DF-12127-F		
Automatic Transmission		
Set test stand to 0° @ 1000 rpm and 0 inches of Mercury		
Distributor (rpm)	Advance (Degrees)	Vacuum (Inches of Mercury)
500	1½ to 2½	0.35
800	4 to 5	0.80
1200	6 to 7	1.80
1600	7½ to 8½	3.11
2000	8½ to 9¾	4.10
Maximum Advance Limit	12¼	10.00

170 SIX		
Distributor C3DF-12127-G		
Manual-Shift Transmission		
Set test stand to 0° @ 1000 rpm and 0 inches of Mercury		
Distributor (rpm)	Advance (Degrees)	Vacuum (Inches of Mercury)
500	½ to 1½	0.30
800	4¾ to 5¾	0.80
1200	8¼ to 9¼	1.80
1600	10 to 11¼	3.00
2000	11½ to 12¾	3.90
Maximum Advance Limit	16½	10.00

VACUUM ADVANCE CHARACTERISTICS (Cont'd)

Distributor C3DF-12127-J		
Automatic Transmission		
Set test stand to 0° @ 1000 rpm and 0 inches of Mercury		
Distributor (rpm)	Advance (Degrees)	Vacuum (Inches of Mercury)
500	1 to 2	0.35
800	3½ to 4½	0.80
1200	6 to 7	1.80
2000	9½ to 10¾	3.90
Maximum Advance Limit	14	10.00

DISTRIBUTOR DIMENSIONS

Distributor Shaft	Inches
End clearance (to gear)	0.022-0.033
Gear Location (from bottom of gear to bottom of mounting rib)	2.510-2.515

CONDENSER

Capacity Microfarads	Min. Leakage Megohms
0.21-0.25	5

COIL

Primary Resistance (Ohms)*	1.40-1.54 (75° F.)
Secondary Resistance (Ohms)	8000-8800 (75° F.)
Amperage Draw	
Engine Stopped	4.5
Engine Idling	2.5
*Primary Circuit Resistor	1.30-1.40 (75° F.)

SPARK PLUGS

Type	Size	Gap (Inches)	Torque (Ft-Lbs)
Autolite BF-82	18 mm	0.035	15-20

FUEL SYSTEM

CARBURETOR

FALCON

144
C3DF-9510-A—Used with Manual-Shift Transmission
C3DF-9510-B—Used with Automatic Transmission
170
C3OF-9510-A—Used with Manual-Shift Transmission
C3OF-9510-B—Used with Automatic Transmission

COMET*

144
C3GF-9510-A—Used with Manual-Shift Transmission
C3GF-9510-B—Used with Automatic Transmission
170
C3YF-9510-A—Used with Manual-Shift Transmission
C3YF-9510-B—Used with Automatic Transmission

*Automatic Choke

Main Metering Jet Identification No.	
0-5,000 Feet	
C3DF-9510-A, and B	53F
C3OF-9510-A	59F
C3OF-9510-B	57F
C3GF-9510-A, and B	53F
C3YF-9510-A	59F
C3YF-9510-B	57F
5,000-10,000 Feet	
C3DF-9510-A, and B	51F
C3OF-9510-A	57F
C3OF-9510-B	55F
C3GF-9510-A, and B	51F
C3YF-9510-A	57F
C3YF-9510-B	55F
10,000-15,000 Feet	
C3DF-9510-A, and B	49F
C3OF-9510-A	55F
C3OF-9510-B	53F
C3GF-9510-A, and B	49F
C3YF-9510-A	55F
C3YF-9510-B	53F
Float Setting—Dry (All Carburetors)	1 inch from bottom of Float to Air Horn with Air Horn Inverted
Venturi Size	
C3DF-9510-A, and B, and C3GF-9510-A, and B	1 1/64
C3OF-9510-A, and B, and C3YF-9510-A, and B	1 7/64
Anti-Stall Dashpot Clearance	
C3DF-9510-B, C3OF-9510-B, C3GF-9510-B, and C3YF-9510-B—After contact 3¼ to 3¾ turns in against dashpot diaphragm assembly	
All Carburetors	
Initial Idle Mixture Adjustment	3-4 turns open
Power Valve Opens at	4.5-6.5 inches of Mercury
Spark Control Identification Color	Plain
Initial Setting Choke Coil Housing	*
C3GF-9510-A and B, and C3YF-9510-A and B	at Index
Choke Plate Clearance	5/32

*Final Choke Setting may be varied ± 2 digits from the initial setting to suit specific operating conditions.

FUEL PUMP

Minimum Intake Vacuum (Hg.) @ 500 Engine rpm	6
Eccentric Total Lift	0.290-0.310
Fuel Pump Static Pressure psi @ 500 Engine rpm	3.5-5.5
Min. Fuel Pump Volume (Flow) @ 500 Engine rpm	1 pint in 30 seconds

FUEL TANK

Capacity Gallons	U.S. Measure	Imperial Measure
	14	11.5

COOLING SYSTEM

Cooling System Pressure	13-15 psi
Water Pump Impeller to Housing Clearance	0.005-0.025
Pump Pulley or Pulley Hub to Pump Housing Mounting Face Alignment	3.94 inches from front face of pulley hub
Drive Belt Tension	
Generator and Water Pump Pulley	
New belt	90-120 lbs.
Used belt*	60- 90 lbs.

*Belt operated for a minimum of 10 minutes is considered a used belt.

Cooling System Capacity*	U.S. Measures	8.5 Quarts
	Imperial Measures	7.25 Quarts
Thermostats		
Low Temp	Opens °F	155°-162°
	Fully Open at °F	182°
High Temp	Opens °F	185°-192°
	Fully Open at °F	210°-212°

*Add 1 qt. for heater

MANUAL-SHIFT TRANSMISSION AND CLUTCH

CLUTCH IDENTIFICATION

Engine	Pressure Plate			Disc	
	Diameter (Inches)	Number of Springs	Spring Color	Number of Springs	Spring Color
144 & 170	8½	6	Unpainted	6	(3) Green (3) Unpainted

ADJUSTMENTS

CLUTCH	Inches
Clutch Pedal Free Travel	⅛-1⅛
Clutch Pedal Total Travel	6-6½
Assist Spring Retainer	1 5/16
Maximum Variation of Finger Height	0.031
TRANSMISSION	
Cam Ramp to Interlock Shift Sleeve—Clearance	0.001-0.013
(5) Interlock Shift Sleeves Available—Length	1.286-1.288
End Play—Cluster Gear	0.0045-0.0185

GEAR RATIOS—MANUAL-SHIFT TRANSMISSION

Engine	Gear			
	Low	2nd	High	Reverse
144 Cu. In.	3.41	1.86	1.00	3.51
170 Cu. In.	3.41	1.86	1.00	3.51

LUBRICANT CAPACITY—APPROXIMATE

Application	Pints
Manual-Shift Transmission	2½

TORQUE LIMITS

CLUTCH	Ft-Lbs
Clutch Cover to Flywheel Bolts	12-20
Flywheel Housing to Engine Bolts	23-28
Flywheel Housing Dust Cover Bolts	12-15
Clutch Release Equalizer Underbody Bracket Bolts	15-24
Clutch Pedal Assist Spring Link to Brake Pedal Support Bracket	13-20
Clutch Pedal Bumper Bracket to Brake Pedal Support Bracket	8-12
TRANSMISSION	
Extension Housing Bolts—7/16-14	37-42
—⅜-16	28-38
Input Shaft Bearing Retainer to Transmission Case Bolts	12-15
Transmission to Flywheel Housing Bolts	32-36
Transmission Cover to Transmission Case Bolts	10-13
Engine Rear Support to Extension Housing Bolt	18-24
Engine Rear Support to Extension Housing Bracket Nut	18-24
Universal Joint U-Bolt Nut	7-10
Gear Shift Levers to Cam and Shaft Assembly Lock Nuts	12-15

2-SPEED AUTOMATIC TRANSMISSION

Stall Ratio	Gear Ratio			Engine Cubic Inch Displacement	Transmission Model	Stall Speed Engine rpm
	Low	Direct	Reverse			
2.4	1.75	1.00	1.50	144	PCL	1600-1800
					PBZ-A, E	1740-1940
					PBZ-H, J	1645-1845
				170	PCM	1750-1950
					PCF-A, B	1840-2040

FLUID PRESSURE LIMITS

Engine Speed	Selector Lever Position	Gauge Reading (psi)	
		PBZ-A 345105 and lower serial numbers PBZ-E 345535 and lower serial numbers Model PCF-A or B (170 Six Engine)	PBZ-A 345106 and higher serial numbers PBZ-E 345536 and higher serial numbers Model PBZ-H or J (144 Six Engine)
Idle	All	46-56	40-48
1200 rpm	D	78-82	53-57
Stall	D, L and R	170-192	135-155

CHECKS AND ADJUSTMENTS

Operation	Specification
Transmission End Play Check	0.020-0.039 inch Selective Thrust Washers Available: 0.067-0.069 inch, 0.074-0.076 inch 0.083-0.085 inch, 0.092-0.094 inch
Turbine and Stator End Play Check	0.060 inch (maximum)
Front Band Adjustment	Adjust screw to 10 foot-pounds torque, and back off two full turns. Lock nut to 35-40 foot-pounds.
Rear Band Adjustment	Insert ¼-inch spacer between the piston rod seat and the adjusting nut. Adjust nut to 45-50 inch-pounds torque, and back off two turns. Lock jam nut to 15-18 foot-pounds.
Accelerator Pedal Height Adjustment	4¼ inches above floor pan
Anti-Stall Dashpot Clearance	After contact, 3¼ to 3¾ turns in against dashpot diaphragm assembly

CONTROL PRESSURE AT ZERO OUTPUT SHAFT SPEED—PCL AND PCM MODELS

Engine Speed or Manifold Vacuum	Throttle Position	Shift Selector Lever Position	Control (Line) Pressure
Idle Above 15 Inches of Mercury	Closed	All	PCL 40-48
			PCM 46-63
15 to 12.5 Inches of Mercury	As Required	Drive Low Reverse	Pressure Starts Rising
Stall Below 1.5 Inches Mercury	Through Detent (Wide Open)	Drive Low Reverse	PCL 145-170
			PCM 175-200

CONTROL PRESSURE VARIATION—WITH ROAD SPEED PBZ AND PCF MODELS

Engine	Axle Ratio	Average Control Pressure (psi) @ Wide Open Throttle		
		10 mph	15 mph	30 mph
144	3.50:1	112	82	74
	3.10:1	118	95	
170	3.50:1	151	124	
	3.10:1	156	136	

FORDOMATIC SHIFT SPEEDS (APPROXIMATE)

Engine Model	Transmission Model Prefix	Rear Axle Ratio	Automatic Shift Speeds (mph) Selector Lever at D			
			1-2 Minimum Throttle	1-2 Thru Detent	2-1 Thru Detent	2-1 Closed Throttle
144 Six	PBZ	3.10 to 1	12-18	48-55	46-54	8-14
		3.50 to 1	11-16	43-49	41-48	7-12
	PCL	3.50 to 1	13-15	44-50	42-48	6-13
		4.00 to 1	12-14	40-44	38-42	5-12
170 Six	PCF	3.10 to 1	13-18	47-55	46-54	6-15
		3.50 to 1	12-16	42-49	41-47	6-13
	PCM	3.50 to 1	13-15	46-51	45-50	6-12
		3.20 to 1	14-16	51-55	50-54	7-13

APPROXIMATE LUBRICANT REFILL CAPACITY

Approximate Capacity (Quarts)	7½

ASSEMBLY TORQUE LIMITS

Screws or Bolts		Ft-Lbs
Control Valve Body	Screws (10-24)	20-30*
	Bolts—Upper to Lower Body (¼-20)	70-85*
	Bolts—Body to Transfer Case (¼-20)	8-10
Cover—Governor Body		20-30*
Planet Gear Shaft Retainer to Output Shaft Carrier		20-30*
Cover—Rear Pump to Body		50-60*
Oil Pan to Case		10-13
Cover—Front or Rear Servo to Case		12-15
Support—Converter Stator to Front Pump		12-17
Pump to Case—Front		18-22
Pump to Case—Rear		12-15
Extension to Case		28-38
Nuts		
Lever—Manual Control Shaft to Case		17-20
Lever—Throttle or Downshift to Case—Outer		17-20
Seat—Rear Band Servo Piston Rod		15-18
Stop—Front Band Lock		35-40
Fitting—Oil Filler Tube to Case		40-50
Diaphragm Assembly to Case		15-18†
Nut—Oil Filler Tube to Case		45-55
Plugs		
Drain—Oil Pan		10-15
Drain—Converter Cover		20-28
Front Servo Mfg. Holes		10-15
Gauge Hole in Case		10-15
Cooler Inlet or Outlet		10-15
Fitting		
By-Pass Tube or Tube Connector		9-12

*Inch-pounds †Use FCO-24 tool

REAR AXLE AND DRIVE LINE

DRIVE PINION ADJUSTING SHIM THICKNESS CHANGES—INCHES

Old Pinion Marking	New Pinion Marking								
	−4	−3	−2	−1	0	+1	+2	+3	+4
+4	+0.008	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0
+3	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	−0.001
+2	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	−0.001	−0.002
+1	+0.005	+0.004	+0.003	+0.002	+0.001	0	−0.001	−0.002	−0.003
0	+0.004	+0.003	+0.002	+0.001	0	−0.001	−0.002	−0.003	−0.004
−1	+0.003	+0.002	+0.001	0	−0.001	−0.002	−0.003	−0.004	−0.005
−2	+0.002	+0.001	0	−0.001	−0.002	−0.003	−0.004	−0.005	−0.006
−3	+0.001	0	−0.001	−0.002	−0.003	−0.004	−0.005	−0.006	−0.007
−4	0	−0.001	−0.002	−0.003	−0.004	−0.005	−0.006	−0.007	−0.008

REAR AXLE RATIOS, GEAR AND CODE IDENTIFICATION

Code Symbol	Axle Ratio	No. of Teeth	
		Driven Gear	Pinion
3	3.10:1	31	10
J	3.50:1	35	10
4	4.00:1	36	9
5	3.20:1	32	10

REAR AXLE

Backlash Between Drive Gear and Pinion	0.006-0.010
Backlash Variation between Teeth	Max. 0.002
Runout of Backface of Drive Gear as Assembled	Max. 0.002
Thickness: Differential Side Gear Thrust Washers	0.030-0.032
Differential Pinion Gear Thrust Washers	0.030-0.032
Rear Bearing Cone to Pinion Gear Nominal Shim	0.018
Shims Available:	0.008-0.024

LUBRICANT CAPACITY—APPROXIMATE

Rear Axle	2½ Pints

TORQUE LIMITS

REAR AXLE	Ft-Lbs
Rear Cover Bolts	10-17
Differential Bearing Cap Screws	40-50
Differential Bearing Adjusting Nut Lock Bolts	12-20
Rear Shock Absorber to Rear Spring Clip Plate Assembly Nuts	15-25
Universal Joint Flange Axle End to Universal Joint Bearing Assembly Nuts	10-14
Drive Gear Attaching Cap Screws	40-50
Rear Axle Shaft Bearing Retaining Nuts	30-35
Spring Clip Nuts (Rear Springs to Axle Housing)	13-20
Minimum Torque Required to Tighten Pinion Flange Lock Nut to Obtain Correct Pinion Bearing Preload	140
Pinion Bearing Preload New Bearings	17-27*
Used Bearings	6-12*
Differential Bearing Preload	2-3 notches tight

*Inch-pounds

STEERING

STEERING GEAR AND LINKAGE ADJUSTMENTS

Sector Shaft End Play—Steering Linkage Disconnected	No Perceptible
Worm Bearing Preload (Pull to keep steering wheel moving)	3-6 in-lbs
Total Preload— Mesh Load plus Worm Bearing Preload (Pull to rotate worm past center high spot)	8-13 in-lbs
Backlash permissible at 30° on either side of straight-ahead steering position	No Perceptible
Over-all Steering Ratio	27.0:1

DIMENSION

Sector Adjusting Screw Head to End of Sector Shaft Maximum Clearance	0.002 inch

TORQUE LIMITS

Description	Ft-Lbs
Sector Arm and Idler Arm to Cross Link Slotted Nut	25-35
Spindle Connecting Rod and End Assembly to Idler and Sector Arms Slotted Nut	25-35
Spindle Connecting Rod and End Assembly to Spindle Arm Slotted Nut	25-35
Spindle Connecting Rod Clamp to Adjusting Sleeve Lock Nut	10-15
Idler Arm Mounting Bracket to Underbody Assembly Lock Nut	13-20
Idler Arm Assembly to Idler Arm Mounting Bracket Bolt	45-60
Steering Wheel to Steering Gear Assembly Nut	25-35
Cover Assembly to Steering Gear Housing Assembly Bolt	12-20
Sector Arm to Sector Shaft Assembly Nut	85-110
Steering Gear to Underbody Assembly Bolt	25-35
Steering Column Bracket to Instrument Panel Nut	9-13

BRAKES AND SUSPENSION

TORQUE LIMITS—BRAKES

Description	Ft-Lbs
Brake Cylinder to Brake Carrier Plate Bolt	8-12
Hand Brake Control Assembly to Instrument Panel Bolt	8-14
Master Cylinder to Dash Panel Bolt	12-18
Hand Brake Control Assembly to Dash Panel Bolt	8-12
Brake Hose Bolt	12-18
Brake Pedal Support Bracket to Dash Panel Bolt	12-18
Brake Pedal Support Bracket to Instrument Panel Nut	10-15
FRONT BRAKES ONLY	
Wheel Assembly to Wheel Hub and Drum Assembly Nut	55-85
Wheel, Hub and Drum Assembly to Wheel Spindle Nut	0.001-0.003 End Play

TORQUE LIMITS—BRAKES (Cont'd)

Description	Ft-Lbs
Carrier Plate to Spindle Nut	25-35
REAR BRAKES ONLY	
Axle Housing to Carrier Plate Lock Nut	30-35
Drum to Axle Shaft Assembly Speednut	Hand Push Fit
Wheel Assembly to Axle Shaft to Drum Assembly Nut	55-85
Brake Line Connection to Axle Housing Bolt	12-18
Bleeder Screw to Wheel Cylinder	8-12
Master Cylinder Cover	Finger-Tight
Eccentric Bolt to Brake Pedal	20-27

BRAKE CHECKS AND ADJUSTMENTS

Type of Check or Adjustment	Specification
Brake Pedal	Pedal Free Play ¼-7/16 inch
Brake Shoe Repair	Brake Lining Clearance (Midway between Rivets) Maximum 0.005 inch Lining Wear Limit (From Top of Rivets) Maximum 1/32 inch
Master Cylinder	Hydraulic Master Cylinder Bore, Honed Diameter, Maximum 1.003 inch
Drum Out of Round	Refinish if Total Indicator Runout Exceeds 0.005 inch

DIMENSIONS

All Dimensions are given in inches.

		Car		Station Wagon	
		Front	Rear	Front	Rear
Drum Inside Diameter		9.000		9.000	
Drum Maximum Boring Limit		9.060		9.060	
Lining Width	Primary	2.25	1.50	2.25	2.25
	Secondary	2.25	1.50	2.25	2.25
Wheel Cylinder Bore Diameter		1.062	0.8125	1.062	0.875
Master Cylinder Bore Diameter		1.000		1.000	

CASTER*

Degrees	+1° −0°
Difference between shim stack thicknesses at two bolts should not exceed	1/32 inch
1/32" change in shim thickness at either bolt will change caster angle	½°

*Maximum difference between both front wheel caster angles ½°.

CAMBER*

Degrees	+¾° −0°
Maximum shim stack thickness at each bolt	3/16 inch
1/16" change in shim thickness at both bolts will change camber angle	⅓°

*Maximum difference between both front wheel camber angles—½° (¼° preferred).

TREAD AND TOE-IN

Tread (Inches)	Front	55
	Rear	54½
Toe-In (Inches)		1/16 — 3/16
Toe-Out on Turns (Degrees)†		20¾°

†Angle of inside wheel when outside wheel is turned 20°.

TORQUE LIMITS—FRONT SUSPENSION

Description	Ft-Lbs
Lower Arm Ball Joint Assembly to Spindle Slotted Nut	35-65
Upper Arm Ball Joint Assembly to Spindle Slotted Nut	35-65
Bumper Assembly—Suspension Compression to Body Bracket Stud Nut	12-17
Arm and Inner Shaft Assembly—Upper Suspension to Body Bolt	65-90
Lower Arm Assembly to Underbody Lock Nut	60-75
Lower Arm Strut to Underbody Lock Nut	40-55
Shock Absorber Assembly to Spring Seat Bolt	12-17
Shock Absorber to Upper Mounting Bracket Stud Nut	15-25

Description	Ft-Lbs
Brake Assembly to Front Spindle Lock Nut	25-35
Front Stabilizer to Lower Arm Stud Nut	12-17
Front Strut to Lower Arm Bolt	40-55
Shock Absorber Upper Bracket to Body Nut	8-13
Front Stabilizer to Body Lock Nut	11-16
Upper Arm Shaft to Upper Arm Bolt	40-55
Shaft—Upper Arm Spring Seat to Upper Arm Lock Nut	13-18
Lower Arm Ball Joint Preload	20-30*
Wheel Nut Torque Limits	55-85
Upper Ball Joint to Suspension Arm	12-15

*Inch-Pounds

TORQUE LIMITS—REAR SUSPENSION

Description	Ft-Lbs
Spring Assembly to Rear Spring Front Hanger Lock Nut	30-40
Spring Shackle Bars to Body Lock Nut	13-20
Spring Shackle Bar to Rear Spring Assembly Lock Nut	13-20
Spring Assembly to Rear Axle "U" Bolt Lock Nut	13-20
Universal Joint Flange—Axle End to Bearing Ass'y Nut	9-10
Rear Shock Absorber to Upper Mounting Bracket Stud Nut	15-25
Rear Shock Absorber to Spring Clip	15-25
Hanger Bracket to Underbody Nut	20-27

TIRE PRESSURES

Model	Load Conditions	Tire Size and Ply Rating	Tire* Pressures (Psi)	
			Front	Rear
Sedan	All Loads	6.00 x 13-4	24	24
		6.50 x 13-4	24	24
Station Wagon	Normal Passenger Load	6.50 x 13-4	22	28
	Passenger and Cargo Loads	6.50 x 13-4	24	28
	All Loads and Snow Tires	6.50 x 13-4	22	30
Ranchero	All Loads	6.50 x 13-4	24	30
		6.50 x 13-6	24	30

*Cold pressures. For considerable high-speed driving, add 4 to 6 pounds to the recommended cold pressures.

COIL SPRINGS—FRONT (FALCON)

Body Style	Design Load (Pounds)	Deflection Rate (Pounds per Inch)	Free Height (Inches)
Sedan	1200 ± 20	192 ± 7	16.48
Station Wagon	1200 ± 20	192 ± 7	16.03

SEMI-ELLIPTIC LEAF SPRINGS—REAR (FALCON)

Body Style	No. of Leaves	Capacity at Normal Loaded Height (Pounds)	Deflection Rate (Pounds per Inch)	Length (Inches)	Width
Sedan	5	610-640	64-74	50.0	2.0
Convertible	5	740-780	95-105		
Station Wagon	5	860-900	102-114	50.0	2.0

COIL SPRINGS—FRONT (COMET)

Body Style	Design Load (Pounds)	Deflection Rate (Pounds per Inch)	Free Height (Inches)
Sedan	1300 ± 20	220 ± 7	
Convertible	1390 ± 20	244 ± 7	
Station Wagon	1200 ± 20	192 ± 7	

SEMI-ELLIPTIC LEAF SPRINGS—REAR (COMET)

Body Style	No. of Leaves	Capacity at Normal Loaded Height (Pounds)	Deflection Rate (Pounds Per Inch)	Length (Inches)	Width
Sedan	5	635-665	70-80		
Convertible	5	805-665	95-105		
Station Wagon	5	860-900	102-114		

GENERATING AND STARTING SYSTEM

REGULATOR—FALCON

Current Rating (Amperes)	25	30*	35†	40**
Current Regulation (Amperes)	23-27	28-32	34-38.5‡	43-47
Cut-In Voltage	12.4—13.2	12.0—12.8	12.3—13.5	12.5—13.8
Maximum Reverse Current to Open (Amperes)	8	6-9	8	
Voltage Regulation @ 75° F.	14.6—15.4			14.3—14.9

†R.P.O.—Delco-Remy, Detachable Fuse Link at BAT Terminal Rated at 45 amps.
‡@ 85° F.
*R.P.O.
**R.P.O.—Autolite.

VOLTAGE REGULATION SETTING VERSUS AMBIENT AIR TEMPERATURE

Ambient Temperature °F.	Voltage Regulation Setting (Volts)
25	15.1-15.9
35	15.0-15.8
45	14.9-15.7
55	14.8-15.6
65	14.7-15.5
75	14.6-15.4
85	14.5-15.3
95	14.3-15.1
105	14.2-15.0
115	14.1-14.9
125	13.9-14.7
135	13.8-14.6
145	13.6-14.4

GENERATOR

Part Number	Field Current Draw Amperes @ 12 v 75° F	Watts	Gen. rpm Charge Starts*	Maximum Rate		Pulley		Brushes		
				Amps.	Gen. rpm*	Belt Width (In.)	Pitch Diameter (Inches)	No.	Original Length (Inches)	Spring Tension (Oz.)
C2DF-10000-B	1.2-1.8	375	1420	25	2076	⅜	2.7	2	⅜	32-40
C2DF-10000-C†		450	1088	30	2525					

External Circuit Resistance (generator armature terminal to battery positive terminal: 0.6 Volt Maximum @ 25 Amperes).
Maximum Commutator Runout: 0.002 inch.
*To find equivalent engine rpm, divide the generator pulley diameter by the crankshaft pulley diameter, and multiply by the generator RPM.
†Standard on Comet, Optional on Falcon

STARTER MOTOR

Part Number	Normal Engine Cranking rpm	Min. Torque @ 5 Volts Ft.-Pounds (Min.)	Amp. Load (Max.) @ 12 v	Maximum Commutator Runout (Inches)	No Load Amperage @ 12 v
C2DF-11001-H	250-290	15.5	670	0.002	70
C2DF-11001-A		8	450		

Current Draw under load (Engine at normal operating temperature) 100-150 Amperes.

STARTER MOTOR BRUSHES

Mfg. Length (Min.) (Inches)	Wear Limit (Inches)	Brush Spring Tension (Ounces)	No. Used
0.46-0.48	half-size	45	4

BATTERY FREEZING TEMPERATURES

Specific Gravity	Freezing Temp.
1.280	−90° F
1.250	−62° F
1.200	−16° F
1.150	+ 5° F
1.100	+19° F

BATTERIES—12 VOLT

Plates	Amp. Hours	Specific Gravity (fully charged)
54	40	1.270-1.290
54	55	
66	55*	

*R.P.O.

ALLOWABLE BATTERY FAST CHARGE TIME—DOMESTIC ONLY

Specific Gravity	Maximum Fast Charge Time
1.150 or less	1 hour
1.150 to 1.175	¾ hour
1.175 to 1.200	½ hour
1.200 to 1.225	¼ hour
Above 1.225	Slow Charge Only

LIGHTS, INSTRUMENTS AND ACCESSORIES

BULB CHART

	Candle Power or Wattage	Trade No.
Headlamps (Falcon)	50/40w	6012
Headlamps (Comet)	37.5/50w 37.5 w	4002 4001
Front Turn Signal and Parking	32/4 c.p.	1157
Rear Turn Signal, Stop and Tail	32/4 c.p.	1157
License Plate	4 c.p.	1155
Instrument Panel		
Back-up Lamps—Falcon Comet Station Wagons	32 c.p. 21 c.p. 32/4 c.p.	1156 1141 1157
Hi Beam	2 c.p.	1895
Oil Pressure	2 c.p.	1895
Generator	2 c.p.	1895
Turn Signal	2 c.p.	1895
Illumination:		
Cluster	2 c.p.	1895
Radio Dial	1.5 c.p.	1892
Dome Lamp	15 c.p.	1003
Courtesy Lamp Convertible	4 c.p.	1155

HORN

Horn Current Draw at 12 Volts	10-11 Amperes

INSTRUMENTS

Fuel and Temperature Gauges—Average Voltage at Gauge Terminals	5 v

STOP LIGHT SWITCH

Operating Pressure	60-110 psi

TURN INDICATOR

Current Draw at 12 Volts	0-4 Amperes

HEATER MOTOR CURRENT DRAW

At Low Speed	4-5 Amperes at 12 volts
At High Speed	5-6 Amperes at 12 volts

FUEL LEVEL VS GAUGE READING

Sedans		Station Wagons	
Gauge Reading	Approximate Gallons In Tank	Gauge Reading	Approximate Gallons In Tank
E	1-3	E	1-3
¼	3-5.5	¼	3-5.5
½	5.5-8.5	½	5.5-8.5
¾	8.5-11.5	¾	9-11.5
F	11-13.5	F	11.5-14

FUSE AND CIRCUIT BREAKER CHART

Circuit	Protective Device	Location
Headlamps—Falcon	Circuit Breaker 12 Amp.	Integral with Headlight Switch
Headlamps—Comet	Circuit Breaker 18 Amp.	Integral with Headlight Switch
Instrument Panel, Dome, and All Exterior Lamps, except Headlamps	3AG-15	Fuse Panel on Lighting Switch
Turn Signals	SFE-14 Fuse	
Radio	SFE-7.5 Fuse	
Heater Blower	SFE-14 Fuse	
Electric Windshield Wiper	12 Amp. Circuit Breaker	Right Side of Instrument Cluster
Cigar Lighter	Circuit Breaker	On Back of Cigar Lighter
Tailgate Control Circuit	30 Amp. Circuit Breaker	On Starter Relay
Tailgate Motor Ground	13.5 Amp. Circuit Breaker	Right Taillight Vicinity
Windshield Wiper Motor (Single-Speed)	Circuit Breaker 5 Amp.	On edge of Instrument Panel—left of Steering Column
Windshield Wiper Motor (Two-Speed)	Circuit Breaker 12 Amp.	
Convertible Top Circuit	Circuit Breaker 30 Amp.	On Starter Motor Relay
Electrical Window Power Circuit	Circuit Breaker 30 Amp.	On Starter Motor Relay

SPEEDOMETER DRIVEN GEAR, AXLE RATIO AND TIRE SIZE COMBINATIONS

Driven Gear Teeth	Color	Axle Ratio	Tire Size
16	Wine	3.10:1 & 3.20:1	6.00-13 & 6.50-13
18	Gold	3.50:1	6.00-13
17	Green	3.50:1	6.50-13
20	Black	4.00:1	6.50-13

1962

MERCURY COMET SUPPLEMENT

SECTION INDEX

SECTION 1—WHEELS AND TIRES

PERIODIC MAINTENANCE

Tires should be checked frequently when cool to be sure that air pressures agree with those specified for the tire being checked.

Wheel stud nuts should be inspected regularly to avoid accidental loosening of the wheels.

Keep wheels and hubs clean. Pebbles and lumps of mud or grease wedged between the wheel or drum can unbalance a wheel and tire.

A tire inspection and inflation pressure check should be performed at 6,000 mile intervals. If unusual tire wear is noted, front wheel alignment and/or balance should be checked and adjusted, as required. Cross-switch wheel and tire assemblies at 12,000 mile intervals and balance them, if necessary.

Lubrication and adjustment of front wheel bearings is recommended at 12,000 mile intervals.

FRONT WHEEL SPINDLE NUT AND NUT-LOCK INSTALLATION

1. With the wheel and tire assembly rotating, torque the spindle adjusting nut to 12-15 lbs. ft. This will properly seat the bearing.

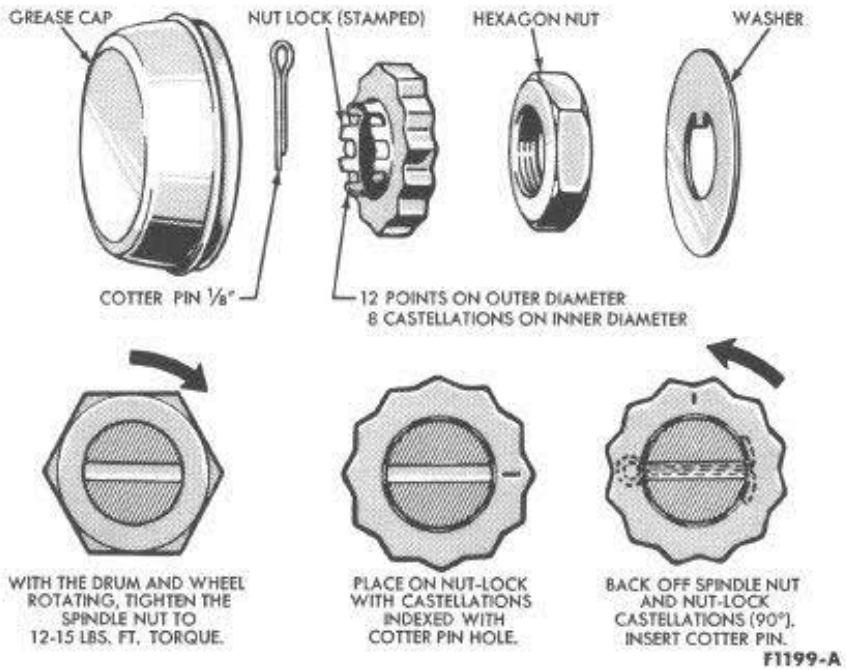


FIG. 1—Front Wheel Spindle Nut Installation and Adjustment

2. After the adjusting nut is properly torqued, place the nut-lock over the adjusting nut so that one cotter pin castellation is aligned with the cotter pin hole in the spindle (Fig. 1).

3. Using a 1⅛-inch box end wrench, back-off the adjusting nut and nut-lock two castellations (90°) as shown in Figure 1.

4. Insert a ⅛-inch cotter pin and bend the ends of the cotter pin around the flange of the nut-lock.

SPECIFICATIONS (TIRES)

Number of Ply (Standard)	2 (4 Ply Rating)	
Inflation Pressure (PSI)*	**Front**	**Rear**
Sedans (All)	24	24
Station Wagon (Passenger Load)	22	26
Station Wagon (Platform Load)	24	30

*Add 4 lbs. for heavy loads or high-speed driving.

Size:	
Sedan (Standard)	6.00 x 13
Sedan (RPO)	6.50 x 13
Station Wagons (All)	6.50 x 13

SECTION 3—FRONT SUSPENSION

PERIODIC MAINTENANCE

The front suspension should be lubricated every 1,000 miles with chassis lubricant. Refer to "Chassis Lubrication" in Section 12—Maintenance of this manual.

At 12,000 mile intervals: cross-switch wheels and tires and check for wear; check wheel balance and front wheel alignment and adjust, as required, if unusual tire wear is indicated.

VEHICLE RIDING HEIGHT MEASUREMENT

To determine vehicle riding height variations, accurate measurements of the front and rear suspension will be necessary to locate the spring which should be replaced, if any. (For rear riding height measurements, refer to Section 4 of this manual).

Front riding height measurements must be taken with the car at curb load weight on a level surface, with the front end normalized in the same manner used when setting front end alignment.

Curb load weight of the car includes the spare tire and jack in the trunk, a full tank of gasoline, and

FOREWORD

This supplement is divided into two parts: 1963 Ford Falcon and Mercury Comet information, and 1962 Mercury Comet information. When used with the 1962 Ford Falcon Shop Manual and the 1961 Comet Maintenance Manual, this supplement provides the necessary information for servicing the 1963 Ford Falcon and Mercury Comet. Complete 1963 maintenance information and specifications are included.

The descriptions and specifications contained in this supplement were in effect at the time the manual was approved for printing. The Ford Motor Company reserves the right to discontinue models at any time, or change specifications or design, without notice and without incurring obligation.

SERVICE DEPARTMENT
FORD MOTOR COMPANY

the transmission, crankcase, axle, and radiator filled to their specified capacities. **If any miscellaneous materials are in the trunk or passenger compartment, they should be removed prior to measurement of vehicle riding height.**

CURB LOAD RIDING HEIGHT MEASUREMENT

1. Position the vehicle on a smooth, level floor.

2. Inflate all tires to specified tire pressures.

3. Jounce and rock the vehicle several times and allow it to settle to a normal height.

4. To obtain the specified front suspension curb load riding height, refer to Fig. 2 and follow the instructions noted on the illustration to obtain Measurement "C". Distance "C" should measure:

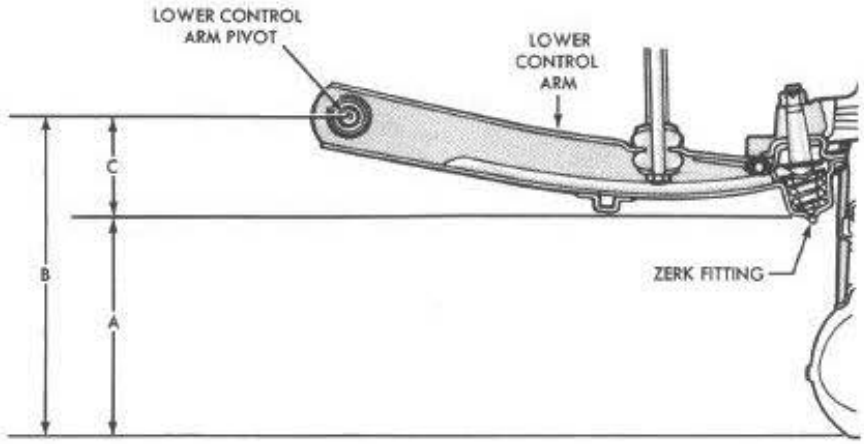


FIG. 2—Measurement of Front Suspension Curb Load Riding Height

Body Type	Std. Trans.	Auto. Trans.
2-Dr. Sedan	4 3/16" ± 3/8"	4 7/16" ± 3/8"
4-Dr. Sedan	4 1/4" ± 3/8"	4 3/8" ± 3/8"
2-Dr. Station Wagon	4 1/4" ± 3/8"	3 15/16" ± 3/8"
4-Dr. Station Wagon	4 1/16" ± 3/8"	4 5/16" ± 3/8"

SPECIFICATIONS

CASTER (At Curb Weight) ..... Positive ½° ± ½°

CAMBER (At Curb Weight) ..... Positive ½° ± ½°

TOE IN (Inches):
- Minimum ..... ¼
- Maximum 5/16

FRONT SPRINGS:
- Deflection Rate (Lbs. per Inch) ..... 195 ± 8
- Design Load (Lbs.):
  - Sedan (Standard Transmission) ..... 1217 ± 27
  - Sedan (Automatic Transmission) ..... 1288 ± 30
  - Station Wagon (All) ... 1147 ± 27

FREE HEIGHT (Inches—Approx.)
- Sedan (Standard Transmission) 15.65
- Sedan (Automatic Transmission) 16.03
- Station Wagon (All) 15.30

TORQUE VALUES (Lbs. Ft.)
- Front Strut to Lower Control Arm 40-55
- Lower Arm Assembly to Underbody Nut 35-50
- Front Shock Absorber Upper Bracket to Body 8-13
- Front Stabilizer to Body .. 11-16
- Shaft—Front Suspension Upper Arm Spring Seat to Upper Arm 17-25
- Service Ball Joint—Upper 12-15
- Idler Arm to Idler Arm Bracket 45-60

SECTION 4—REAR SUSPENSION, DRIVE LINE AND AXLE

PERIODIC MAINTENANCE

To maintain maximum rear suspension performance of the vehicle, the following services should be performed every 30,000 miles or 30 months:

1. Repack front and rear universal joints with Lubricant CIAZ-19586.

2. Check rear axle "U" bolt torque.

3. Check shock absorber mountings and bushings.

4. Check rear spring bushings.

5. Replace spring leaf liners (inserts).

6. Lubricate drive shaft slip yoke (automatic transmission models).

VEHICLE RIDING HEIGHT MEASUREMENT

To determine vehicle riding height variations, accurate measurements of the front and rear suspension will be necessary to determine which spring should be replaced, if any. For front riding heights, refer to Section 3 of this manual.

Rear riding height measurements must be taken with the car at curb load weight on a level surface with the front end normalized in the same manner used when setting front end alignment.

Curb load weight of the car includes the spare tire and jack in the trunk, full tank of gasoline, transmission, crankcase, axle, and radiator filled to specified capacities. **If any miscellaneous materials are in the trunk or passenger compartment, they should be removed prior to measurement of vehicle riding height.**

CURB LOAD RIDING HEIGHT MEASUREMENT

1. Position the vehicle on a smooth level floor.

2. Inflate all tires to specified tire pressures.

3. Jounce and rock the vehicle several times and allow it to settle to a normal height.

4. The rear suspension curb load riding height is measured from the rear axle tube vertically upward to the underside of the side rail member, approximately 7/16 inch rearward of the axle bumper bracket flange (Fig. 3).

Body Type	Riding Height Measurements
2-Door Sedan	6 9/16" ± 7/16"
4-Door Sedan	6 9/16" ± 7/16"
2-Door Station Wagon	6 15/16" ± 7/16"
4-Door Station Wagon	6 15/16" ± 7/16"

The specified rear suspension curb load riding height for the respective body styles is as table above.

On a relatively new vehicle with uneven riding heights, the rear suspension should be neutralized and the riding heights rechecked before replacing a rear spring(s). To neutralize the rear suspension, loosen the rear spring front eye attaching nuts (one per side) and the rear shackle nuts (2 per side). Jounce the vehicle several times and allow it to settle to a normal height. Retighten the rear spring front eye and shackle nuts to specification and check riding heights in the usual manner. As with measuring riding heights, the vehicle should be at curb weight when being neutralized.

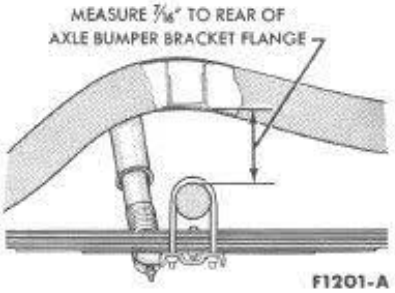


FIG. 3—Measurement of Rear Suspension Curb Load Riding Heights

SPECIFICATIONS

REAR SPRINGS:

Sedans:
- Capacity at Normal Loaded Height (Lbs.) . . 635-665
- Deflection Rate (Lbs. per In.) 70-80

Station Wagons:
- Capacity at Normal Loaded Height (Lbs.) . . 860-900
- Deflection Rate (Lbs. per In.) 102-114

AXLE:
- Backlash Between Drive Gear and Pinion (In.) 0.006-0.010
- Axle Lubricant Capacity (Pts.) 2½
- Torque Values (Lbs. Ft.):
  - Pinion Bearing Pre-Load (Lbs. In.)
    - New Bearings 17-27
    - Used Bearings 6-12
  - Differential Bearing Pre-Load (Light Carrier) . . . . . 1-2 Notches Tight
  - Differential Bearing Pre-Load (Heavy Carrier) . . . . . 1-1½ Notches Tight
  - Rear Cover Bolts 10-17

REAR AXLE RATIOS AND GEAR IDENTIFICATION

Engine	Ratio	Ring Gear Teeth	Pinion Gear Teeth	Ring Gear Diameter
144 C.I.D.	3.50:1	35	10	6.75 Sedan
	3.50:1	35	10	7.00 Sta. Wagon
	4.00:1	36	9	7.00 Sta. Wagon (R.P.O.)
170 C.I.D.	3.20:1	32	10	7.25 Sedan
	3.50:1	35	10	7.25 Sedan (R.P.O.)
	3.50:1	35	10	7.25 Sta. Wagon

SECTION 5—STEERING

PERIODIC MAINTENANCE

Lubricate the steering linkage with chassis lubricant every 1,000 miles.

At the initial 6,000 mile interval only, adjust steering gear preloads and backlash. The steering gear fluid level should be checked every 6,000 miles or 6 months. Use steering gear lubricant B8A-19578-A, as required. Follow the steering gear checking and filling procedure, described in this section of the manual.

STEERING GEAR LUBRICANT LEVEL

In order to assure that the lubricant level is proper, the following steering gear checking and filling procedure should be used.

1. Turn the steering wheel to the full right turn position.

2. Remove the filler plug and the lower sector cover attaching bolt from the steering gear housing.

3. Agitate the lubricant with a screwdriver through the filler plug hole to dissipate any possible air bubbles.

4. Check the lubricant level. It should be even with the lower edge of the filler plug hole.

5. If the level is low, add Lubricant B8A-19578-A through the lower bolt hole until it is level with the lower edge of the filler plug hole.

6. Cycle the gear through a ful. left turn and back to the full right turn position; then, recheck the fluid level.

7. Install the lower sector cover attaching bolt and the filler plug.

SECTION 6—ENGINE, COOLING AND EXHAUST

6A—ENGINE REPAIR PROCEDURE

GENERAL DESCRIPTION

The 1962 engines are basically the same as those used in the 1961 models. The major engine changes for 1962 are as follows:

1. The crankshaft pulley is replaced by an integral pulley and crankshaft vibration damper.

2. A "long-life" coolant concentrate is used in the cooling system.

3. The carburetor is of new design.

4. The fuel filter is relocated and is connected to the fuel pump.

5. Various tolerances and specifications are revised. The revised specifications are listed at the end of this section of the manual.

PERIODIC MAINTENANCE

To maintain maximum engine performance, it is recommended that the following services be performed at each of the mileage intervals indicated:

6,000 Miles or 6 Months

1. Change engine oil.

2. Replace the oil filter. (In dusty or sandy areas more frequent changes may be necessary.)

3. Replace the fuel filter.

4. Clean the carburetor air cleaner and filter.

5. Clean the crankcase inlet breather cap.

6. Clean the smog reduction system valve, if the engine is so equipped.

12,000 Miles or 12 Months

Perform engine tune-up which includes: checking the battery, battery cables; adjustment of all drive belts using an approved belt tension gauge; ignition timing, and carburetor adjustments. Cleaning and inspecting the smog reduction system (if the engine is so equipped); adjusting valve clearance. Inspecting and, if necessary, replacing the spark plugs. Inspecting the distributor rotor and breaker points (replace, if necessary), and lubricating the distributor.

30,000 Miles or 30 Months

Replace the carburetor air cleaner filter element.

SEASONAL SERVICES

1. If the use of "long-life" coolant concentrate is continued in the cooling system, drain and flush the system every two years. If "long-life" coolant concentrate is not used, drain the system at least once a year, preferably just before winter. If the drained coolant appears dirty and/or rusty, the system should be flushed. If water is used as a coolant during warm weather, add rust inhibitor.

2. Inspect all cooling system hoses and replace if necessary. Tighten all clamps and connections securely.

3. Carburetor — position the accelerator pump link in the proper lever hole for winter or summer operations.

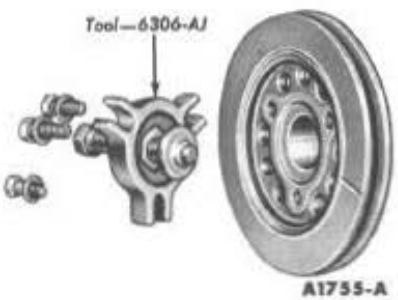


FIG. 4—Vibration Damper Removal

ENGINE DISASSEMBLY (ENGINE REMOVED FROM VEHICLE)

Same as 1961 except as follows:

1. To remove the crankshaft vibration damper, use Tool 6306-AJ shown in Figure 4.

ENGINE ASSEMBLY (ENGINE REMOVED FROM VEHICLE)

Same as 1961 except as follows:

1. Use the revised specifications, where applicable, listed at the end of this section of the manual.

2. To install the crankshaft vibration damper, use Tool 6306-AJ shown in Figure 5.

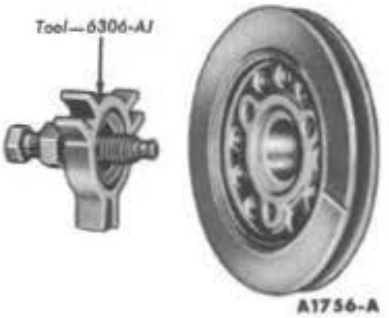


FIG. 5—Vibration Damper Installation

REPAIR PROCEDURES—ENGINE INSTALLED

Same as 1961 except as follows:

1. Use the revised specifications, where applicable, listed at the end of this section of the manual.

2. When repair procedures require the removal and installation of the crankshaft vibration damper, use Tool 6306-AJ shown in Figures 4 and 5.

TUNE-UP SPECIFICATIONS

*144 C.I.D. Engine With Standard Transmission Vacuum Advance		
Distributor RPM	Vacuum Inches Hg	Distributor Advance Degrees
400	.33	0
600	.78	½-1½
800	1.30	3½-4½
1400	3.45	10-12
1800	5.00	12½-15
2000	5.35	12¾-15½
Maximum Advance Limit @ 2500 rpm—16½°		
*Set test stand to 0° at 300 rpm and 0 inches of Mercury		

*144 C.I.D. Engine With Automatic Transmission Vacuum Advance		
Distributor RPM	Vacuum Inches Hg	Distributor Advance Degrees
700	.65	0
1000	1.27	1¼-2¼
1600	2.93	4¾-5¾
2000	3.94	5¾-7
*Set test stand to 0° at 300 rpm and 0 inches of Mercury		

*170 C.I.D. Engine With Standard Transmission Vacuum Advance		
Distributor RPM	Vacuum Inches Hg	Distributor Advance Degrees
700	.43	1½-2½
1000	.92	5¼-6¼
1300	1.50	7½-8¾
1700	2.40	10-11¼
2000	3.00	11-12¼
Maximum Advance Limit @ 2000 rpm—16½°		
*Set test stand to 0° at 450 rpm and 0 inches of Mercury		

*170 C.I.D. Engine With Automatic Transmission Vacuum Advance		
Distributor RPM	Vacuum Inches Hg	Distributor Advance Degrees
650	.35	0
900	.76	¾-1¾
1250	1.40	4-5
2000	3.00	8½-9¾
Maximum Advance Limit @ 2000 rpm—11¾°		
*Set test stand at 0° at 400 rpm and 0 inches of Mercury		

Spark Plug Type BF-82
Spark Plug Gap ..... 0.032-0.036 inch
Spark Plug Torque (Lbs. Ft.) 15-20
Distributor Point Gap ..... 0.024-0.026 inch
Dwell Angle ..... 35°-38°
Breaker Arm Tension (Oz.) 17-20
Condenser Capacity (Mfds.) 0.21-0.25
Shaft End Play—Distributor Removed ..... 0.028 inch

Ignition Timing*—(Degrees B.T.D.C.):
Minimum—All Transmissions 2

Maximum:
Conventional Transmission 9
Automatic Transmission 15

Normal:
Conventional Transmission 4
Automatic Transmission 10

*To obtain maximum engine performance and fuel economy, adjust the timing as close as possible to the maximum setting without audible detonation under actual road test acceleration.

Fan Belt Adjustment (Lbs.):
New Belt 90-120
Used Belt** 60-90

**Any belt in use more than 10 minutes is considered a used belt.

Engine Idle RPM†:

Conventional Transmission:
Less Smog Reduction 500-550
With Smog Reduction 550-600

Automatic Transmission (Drive Range):
Less Smog Reduction 475-525
With Smog Reduction 525-575

†On air-conditioned equipped vehicles, the engine idle speed should be set with the air conditioner in operation and the air conditioning clutch engaged for a minimum of 20 minutes.

Compression Ratio 8.7:1
Compression Pressure (psi) ..... 170 ± 20
Fuel Pump Pressure ..... 3.5-5.5 psi at 500 rpm
Fuel Pump Volume ..... 1 pint in 30 sec. at 500 rpm
Dashpot Clearance 0.120-0.150

6E—SPECIFICATIONS AND SPECIAL TOOLS

ENGINE SPECIFICATIONS

NOTE: All specifications are given in inches, unless otherwise noted.

General Specifications

Compression Pressure (PSI)—Sea Level @
Cranking Speed ..... 170 ± 20
(Allowable tolerance between cylinders—10 psi)

Engine Idle RPM*:

Conventional Transmission:
Less Smog Reduction 500-550
With Smog Reduction 550-600

Automatic Transmission (Drive Range):
- Less Smog Reduction 475-525
- With Smog Reduction 525-575

*On air conditioned equipped vehicles, the engine idle speed should be set with the air conditioner in operation and the air conditioning clutch engaged for a minimum of 20 minutes.

Ignition Timing**——(Degrees B.T.D.C.):
- Minimum—All Transmissions 2
- Maximum:
  - Conventional Transmission 9
  - Automatic Transmission 15
- Normal:
  - Conventional Transmission 4
  - Automatic Transmission 10

**To obtain maximum engine performance and fuel economy, adjust the timing as close as possible to the maximum setting without audible detonation under actual road test acceleration.

Engine Oil Viscosity @ Specified Temperatures:
- SAE30 or 10W-30 ..... Above +90°F
- SAE20, 20W or 10W-30 ..... +20°F. to +90°F
- SAE10, 10W or 10W-30 ..... +20° to −10°F
- †SAE5W or 5W-20 ..... Below −10°F

†Sustained speeds above 65 mph should be avoided when using SAE 5W or 5W-20 engine oils.

Oil Change—Normal Operation—
Miles ..... 1st at 1,000, 2nd at 6,000, and each 6,000 or 6 months thereafter.

Oil Filter Change—Normal Operation—Miles ..... 1st at 1,000, 2nd at 6,000, and each 6,000 or 6 months thereafter.

Clean Engine Ventilating System ..... Each 6,000 miles

Carburetor Air Cleaner-Dry Type. Clean each 6,000 miles
Replace each 30,000 miles

Valve Lash Clearance—Check ....Pre-delivery and each 12,000 miles thereafter.

Dimensions and Clearances

CONNECTING ROD & BEARINGS
- Side Clearance—Assembled to Crankshaft (New) ..... .004-.008
- Connecting Rod Bearing To Crankshaft Actual Clearance (New) ..... .0008-.0023

CRANKSHAFT
- Crankshaft Main Bearing To Crankshaft Actual Clearance (New) ..... .0007-.0025

CYLINDER BLOCK
- Bore Diameter—Standard 3.5000-3.5024
- Bore Surface Finish—R.M.S. 15-35

EXHAUST VALVES
- Head Diameter 1.261-1.276
- Face Angle ..... 44°
- Valve Lash:
  - Preliminary—Cold ..... .016
  - Final—Hot ..... .016

INTAKE VALVES
- Face Angle ..... 44°
- Valve Lash:
  - Preliminary—Cold ..... .016
  - Final—Hot ..... .016

PISTON
- To Cylinder Bore Clearance ..... .0018-.0036

PISTON RINGS
- Compression Ring Side Clearance . . Upper .0019-.0036
  Lower .002-.004

ROCKER ARM, SHAFT & PUSH ROD
- Rocker Arm to Shaft Clearance (New) .... .002-.0045
- Push Rod Runout T.I.R.—Maximum ..... .025

VALVE SPRING
- Out of Square—Maximum ..... .072

COOLING SYSTEM SPECIFICATIONS

NOTE: All specifications are given in inches, unless otherwise noted.

Fan Belt

Belt Tension between Generator and Water Pump Pulley (Lbs.):
- New Belt 90-120
- Used Belt* 60-90

*Any belt in use more than 10 minutes is considered a used belt.

Thermostats
- Opening Temperature °F.— Low Temperature ..... 155°-162°
- Fully opened °F.—Low Temperature ..... 182°
- Opening Temperature °F.— High Temperature ..... 174°-181°
- Fully opened °F.—High Temperature ..... 201°

Fan
- Minimum Fan to Radiator Clearance:
  - Fan to Upper Tank 1.06

ENGINE AND COOLING SYSTEM TORQUE VALUES

Note: All specifications are given in pounds foot.
- Flywheel Housing to Engine 23-28
- Pressure Plate to Flywheel 12-20
- Fan Blade to Water Pump 10-14

SPECIAL TOOLS — ENGINE

Tool No.	Description
6306-AJ	Remover and Replacer—Vibration Damper

SECTION 7—TRANSMISSIONS AND CLUTCH

7A—MERC-O-MATIC TRANSMISSION

TRANSMISSION OVERHAUL

Control Valve Body Disassembly

1. Remove the manual valve. Refer to Fig. 6.

2. Remove the control pressure regulator valve spring retainer, spring, and spring seat. Remove the control pressure regulator valve.

3. Remove the hold-down plate near the compensator cut-back valve cover, and then remove the cover. Remove the compensator cut-back valve spring and valve from the lower body.

4. Remove the 1-2 shift valve governor plug cover, and then remove the plug.

5. At the opposite side of the lower body, remove the compensator and control pressure regulator cover plate. Maintain pressure on this cover against the spring force until all the screws are removed.

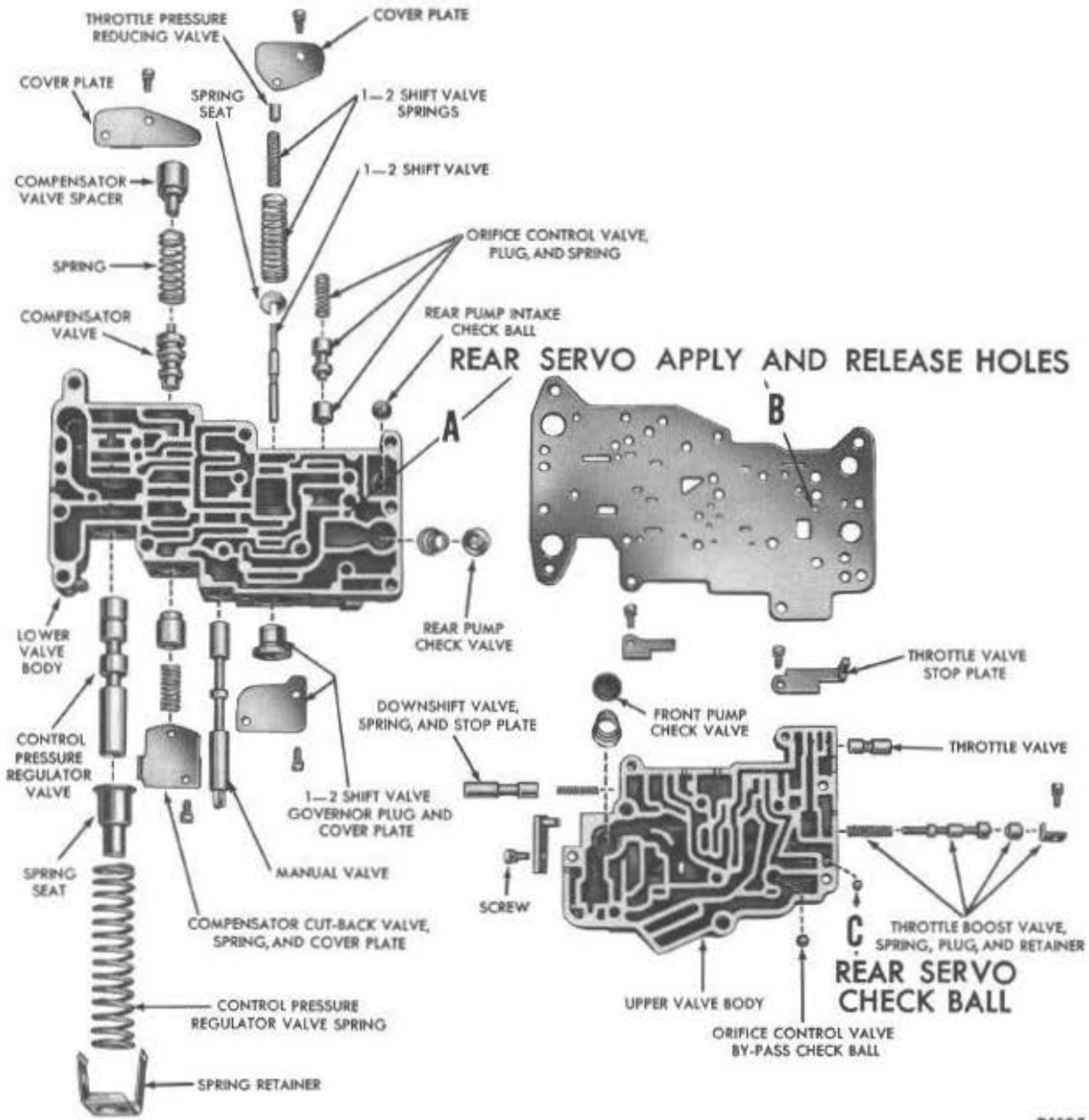


FIG. 6—Control Valve Body—Exploded View

6. Remove the compensator valve spacer, spring, and valve. Temporarily install the hold-down plate and screw so that the separator plate is held on the upper body.

7. Remove the 1-2 shift valve and spring and the orifice control valve spring, valve, and the orifice control valve plug. Refer to Fig. 6.

8. From the upper body, remove the downshift lever stop plate. Refer to Fig. 6.

9. Remove the downshift valve and spring.

10. Remove the throttle valve stop plate and throttle valve from the opposite end of the upper body. Refer to Fig. 6.

11. Remove the throttle boost valve retainer, plug, throttle boost valve, and spring. Refer to Fig. 6.

12. Remove the three screws and five bolts which hold the upper body, separator plate, and lower body together.

13. Lift the upper body and separator plate from the lower body. Remove the rear pump check valve and spring. Remove the rear pump intake check ball from the lower body. Refer to Fig. 6.

14. Remove the 1-2 shift valve from the lower body by compressing the 1-2 shift valve outer spring in the direction of the throttle reducing valve; then, remove the spring seat with needle nose pliers. With the spring seat removed, the 1-2 shift valve can be removed through the throttle reducing valve hole. Remove the 1-2 shift valve spring. Refer to Fig. 6.

15. Turn the upper body and separator plate over so that the separator plate is up. Remove the hold-down plate and screw. Lift the separator plate from the upper body.

16. Remove the front pump check valve and spring from the upper body. Remove the orifice control valve by-pass check ball. Refer to Fig. 6.

Control Valve Body Assembly

1. Place the orifice control valve by-pass check ball in the upper body.

2. Install the front pump check valve and spring.

3. Place the separator plate on the upper body and retain it in its proper position by installing the hold-down plate and screw.

4. Assemble the 1-2 shift valve spring, 1-2 shift valve and the 1-2 shift valve spring seat in the lower body. Make sure that the valve is bottomed in its bore when the spring seat is installed. Place the rear pump check valve and the rear pump intake check ball in the lower body.

5. Place the upper control valve body and separator plate assembly on the lower body. Install the five bolts and three screws which attach the upper and lower control valve bodies. Torque the bolts to 6-7 lbs. ft. and the screws to 20-30 lbs. in.

6. With the upper and lower control valve bodies at normal assembled torque, check the 1-2 shift valve for free movement. If the valve binds, separate the valve bodies. Remove the shift valve and check for scores or burrs.

7. In the upper body, install the downshift detent valve and spring, and stop plate. Install the hold-down plate and screw. Torque the hold-down plate and cover screws to 20-30 lbs. in.

8. At the opposite end of the upper body, install the throttle valve and stop plate; then, install the throttle boost valve spring, valve, plug and retainer.

9. In the lower body, install the compensator valve and springs and spacer. Install the cover plate. Hold the cover plate down against the lower body, until the cover plate screws are tight.

10. Install the throttle pressure reducing spring and valve.

11. Install the orifice control valve plug, orifice control valve and spring. Install the cover plate for the throttle reducing valve and orifice control valve. Torque the screws to 20-30 lbs. in.

12. In the lower body, install the 1-2 shift valve governor plug. Install the cover plate, and torque the attaching screws to 20-30 lbs. in.

13. Temporarily remove the separator plate to upper body hold-down plate and screw.

14. Install the compensator cutback valve and spring. Install the cover plate, and torque the attaching screws to 20-30 lbs. in. Install the hold-down plate and screw.

15. Install the control pressure regulator valve, spring seat and spring. Compress the control pressure regulator valve spring and install the spring retainer.

16. Install the manual valve.

DIAGNOSIS AND TEST PROCEDURES

Control Pressure Tests. Proper diagnosis of control pressure problems, related to the manifold-vacuum-

HYDRAULIC CONTROL PRESSURE CHART
(Control Pressure at Zero Governor R.P.M.—Car Stopped)

Test	Manifold Vacuum (inches Hg.)	Throttle	Range	Engine (C.I.D.)	Control Pressure (P.S.I.)	Engine R.P.M.
1	Above 15	Closed (Engine Idle)	All	144	40-50	As Required
				170	45-65	
2	15 to 12.5	Increased As Required	D-L-R	All	Control Pressure Will Start to Rise	Increased As Required
3	Stall Below 1.5	Max. Thru Detent	D-L-R	144	145-170	1600-1800
				170	175-200	1750-1950

controlled, two-speed automatic transmissions, requires the use of the following test procedures.

In the "Key to Diagnosis Guide," items B, E, and H are related to the correct regulated control pressure in relationship to manifold vacuum. The control pressure tests that are required to determine if the transmission is capable of regulating the correct control pressures, in relationship to the changes in the engine output torque (changes in manifold vacuum), are outlined in the "Hydraulic Control Pressure Chart."

To perform the tests described in the "Hydraulic Control Pressure Chart", the transmission control pressure gauge 77820-B must first be installed into the pressure take-off hole, located on the left side of the transmission above the control levers. Install the tachometer to check engine r.p.m. To install the vacuum gauge, as shown in Fig. 7, remove the hose from the end of the transmission vacuum unit. Obtain a piece of vacuum hose about two inches long and a metal "T" fitting such as that used for a vacuum windshield wiper hose connector. Install the two inch piece of hose onto the transmission vacuum unit. Insert the "T" fitting into the two inch piece of hose. Install the transmission vacuum hose and vacuum line onto the "T" fitting. Install the end of the vacuum gauge hose onto the open end of the "T" fitting.

This will permit a manifold vacuum check at the transmission vacuum unit. By installing the vacuum gauge in this manner, any loose or wrong connections in the vacuum line between the manifold and transmission will immediately be detected when the engine is started. **With the engine idling at 475 to 525 rpm (without smog reduction) or 525 to 575 rpm (with smog reduction) in "D", "L", or "R", the manifold vacuum must be above 15 in. Hg when checked at the end of the hose which connects to the transmission unit.**

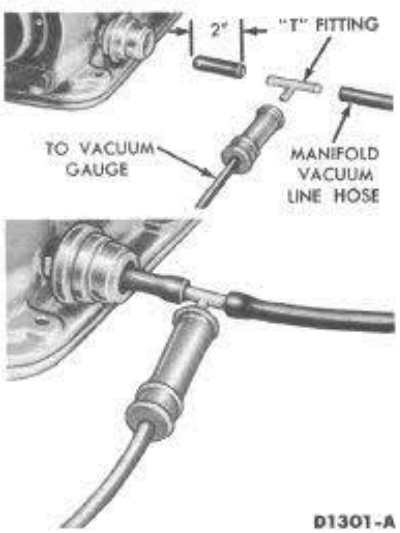


FIG. 7—Vacuum Test-Line Connections

CONTROL PRESSURE TEST NO. 1. With the transmission and engine at normal operating temperatures, the test gauges should read as indicated in the "Hydraulic Control Pressure Chart".

The tachometer and vacuum gauge readings must be correct before the control pressure gauge can record the correct control pressure. If the vacuum check is not within specifications (above 15 in. Hg of vacuum), check the vacuum lines first; then, if necessary, correct any engine problems that could cause low manifold vacuum.

If the transmission control pressure gauge is not recording the control pressure within specifications at engine idle with the manifold vacuum above 15 in. Hg, refer to Fig. 9. The hydraulic schematic shows the required position of the control valves of the main control valve body to obtain the correct control pressure.

The correct amount of regulated control pressure for Test No. 1 depends upon the following items:

1. Manifold vacuum above 15 in. Hg at engine idle.

2. Front pump output (includes oil level).

3. Balanced position of the control pressure regulator valve.

4. Balanced position of the compensator valve.

5. Correct operation of the vacuum unit and positioning of the throttle valve to eliminate throttle pressure from acting on the compensator valve.

6. No internal leakage.

To check the vacuum unit for diaphragm leakage, remove the vacuum unit from the transmission. Use a distributor tester equipped with a vacuum pump. Refer to Fig. 8. Set the regulator knob so the vacuum gauge reads 18 inches with the end of the vacuum hose blocked to obtain a maximum vacuum reading of 18 in. Hg.

Then, connect the vacuum hose to the transmission vacuum unit. If the vacuum gauge still reads 18 inches, the vacuum unit diaphragm is not leaking. As the hose is removed from the transmission vacuum unit, hold your finger over the end of the control rod. When the hose is removed, the internal spring of the vacuum unit should push the control rod outward.

CONTROL PRESSURE TEST NO. 2. To determine if the transmission hydraulic circuit is regulating control pressure in relationship to the rate of vehicle acceleration, the following test procedure should be used:

1. With the selector lever in "D", "L" or "R", at engine idle, the manifold vacuum must be above 15 inches and the pressure gauge attached to the transmission should show between 40-50 psi for the 144 C.I.D. engines and 46-65 psi for the 170 C.I.D. engines. Take an accurate reading of the pressure gauge with the transmission selector lever in the "D" position.

2. Slowly increase the engine rpm until the pressure gauge shows an increase in control pressure.

3. When the control pressure starts to increase, the vacuum gauge should show between 15 to 12.5 inches of vacuum. Repeat the complete test with the selector lever in the "L" and "R" positions.

FIG. 8—Testing Transmission Vacuum Unit for Leakage

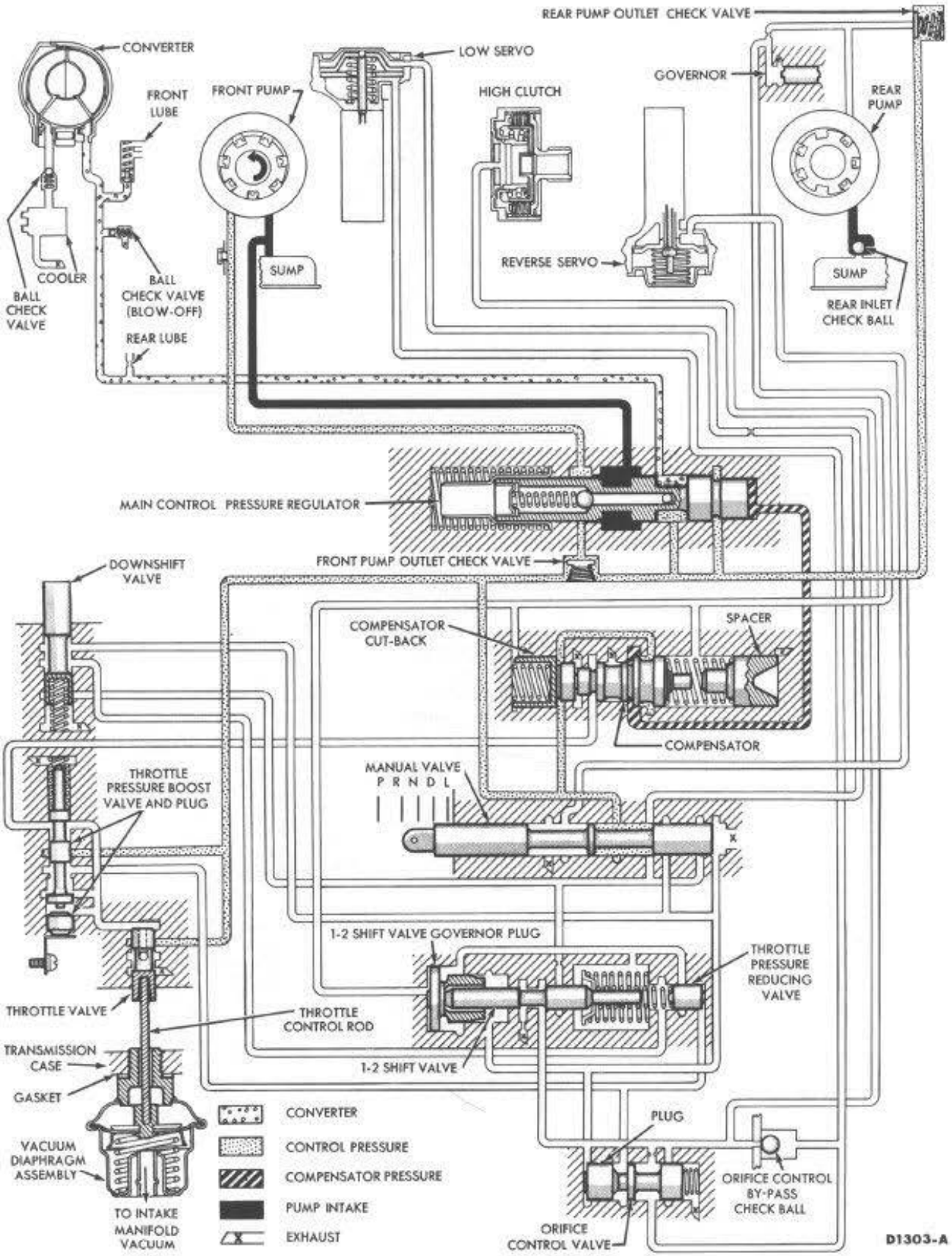


FIG. 9—Test No. 1—Regulated Control Pressure at Engine Idle

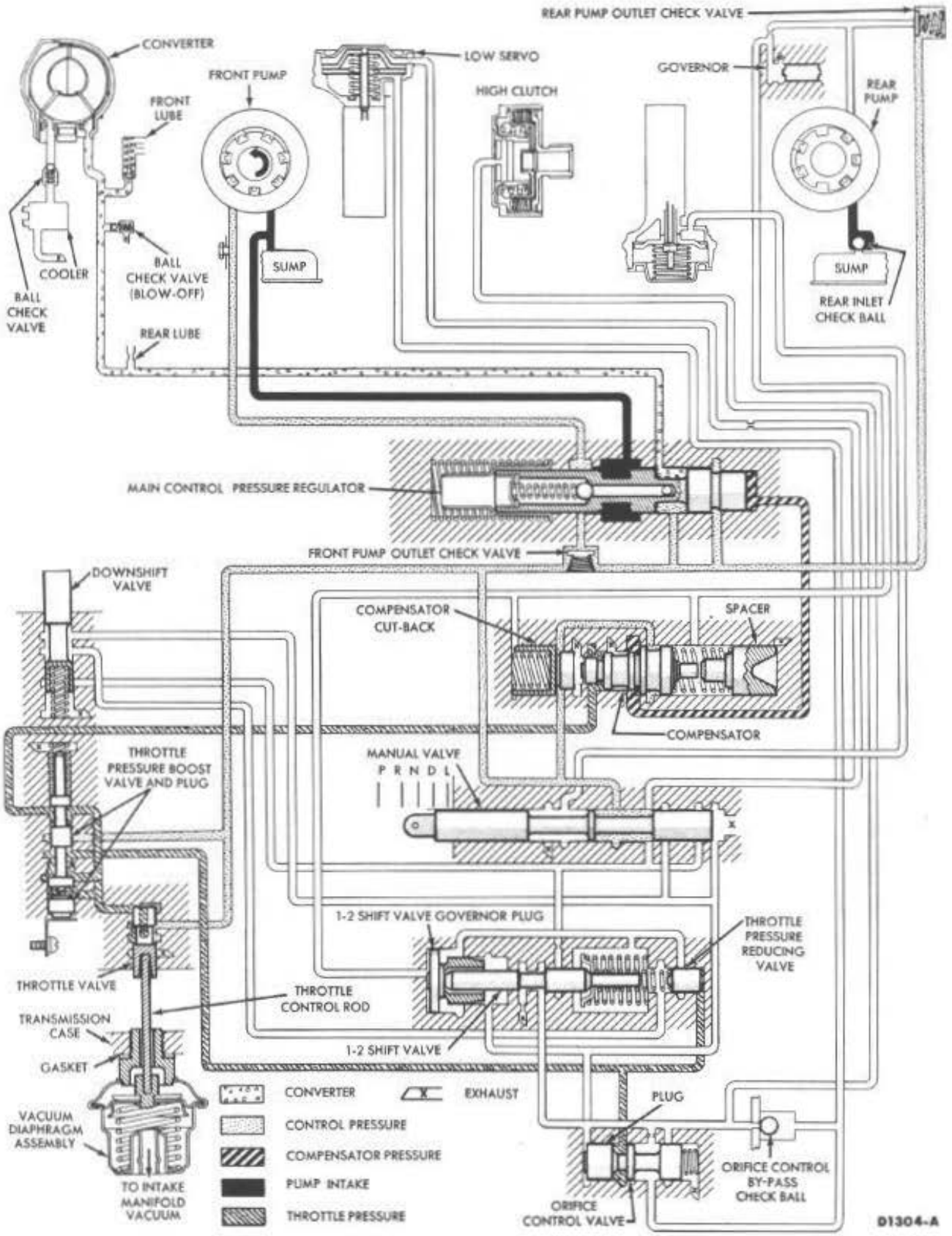


FIG. 10—Test No. 2—Control Pressure Increase

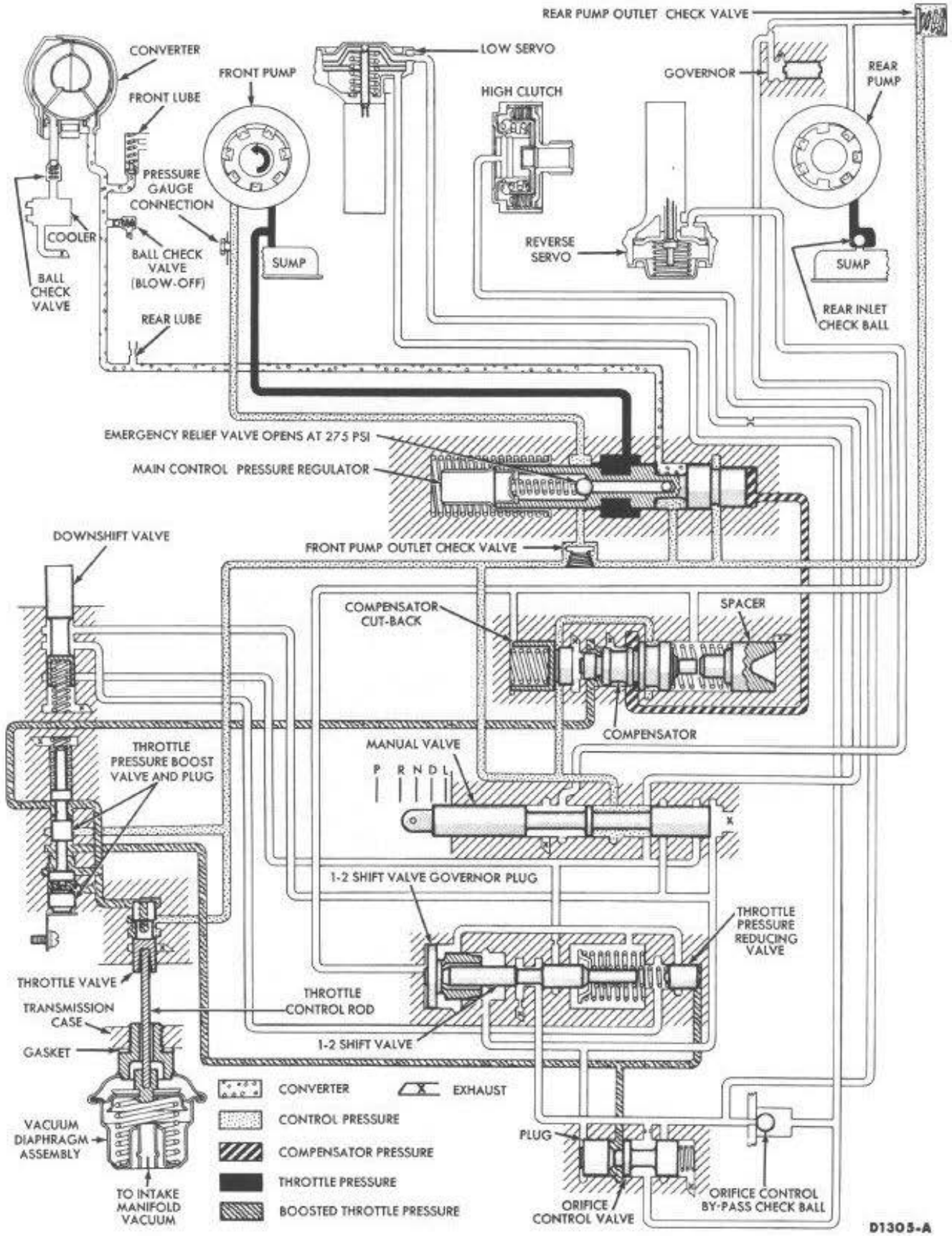


FIG. 11—Test No. 3—Stall Test Control Pressure

4. If the control pressure increase is above 15 inches or below 12.5 inches of vacuum, refer to Figure 10 for a guide in diagnosing the problem.

The increase in control pressure at 15 to 12.5 in. Hg of vacuum depends upon the conditions described in the following paragraph.

The internal spring action of the vacuum diaphragm unit must move in relationship to the changes in manifold vacuum to properly position the control rod and throttle valve. The correct amount of control pressure can now enter the throttle pressure circuit. The correct amount of throttle pressure, now acting on the compensator valve, will reduce the amount of compensator pressure acting on the end of the main control pressure regulator valve. This allows the main control pressure regulator valve to move in the opposite direction of the spring, increasing control pressure.

If the control pressures were within specifications during the first test, the following valves were free to move and were balanced in the correct position:

1. Control pressure regulator valve.

2. Compensator valve.

3. Vacuum unit had positioned the throttle valve, preventing throttle pressure from entering the circuit that leads to the compensator valve.

During the second test, if the increase in control pressure does not occur between 15 to 12.5 inches of manifold vacuum, the following items should be checked:

1. Vacuum diaphragm unit and control rod to throttle valve.

2. Free movement of the throttle valve.

CONTROL PRESSURE TEST

NO. 3. Maximum control pressure is necessary to hold or apply the bands or high clutch under full throttle starting or kickdown passing gear operations. The availability of maximum regulated control pressure is tested under a full stall condition (car stopped and brakes applied with the accelerator pedal fully depressed). The stall test can be made with the transmission selector lever in "D", "L", and "R". Between each stall test, move the selector lever to "N" and increase the engine speed to 1200 rpm for two minutes to recirculate the oil into the converter; this will prevent the transmission from overheating. **Do not stall test for more than 5 seconds at a time.**

During the stall test in the "D", "L", or "R" selector positions, the manifold vacuum must be below 1.5 inches; the regulated control pressure should be 145 to 170 psi for the 144 C.I.D. engine and 175 to 200 psi for the 170 C.I.D. engine. The engine rpm should be 1600-1800 for the 144 C.I.D. engine and 1750-1950 for the 170 C.I.D. engine.

If the control pressures are not within specification for Test No. 3, refer to Figure 11 for a guide in diagnosing the problem.

TROUBLE SHOOTING

The diagnosis guide lists the most common trouble symptoms that may be found in the transmission, and gives the items that should be checked to find the cause of the trouble

The items to check for each trouble symptom are arranged in a logical sequence which should be followed for quickest results. The letter symbols for each item are explained in the key to the diagnosis guide.

DIAGNOSIS GUIDE

Operating Conditions	Components To Check	Operating Conditions	Components To Check
1. Harsh initial engagement in "D," "L," and "R"	D,B,E	11. No 2-1 forced downshift (kickdown)	B1,H,E
2. Slips or chatters in "D" or "L"	C,A,B,Y,E,F,H,O,S,	12. No 2-1 downshift on coast	H,J
3. Slips or chatters in "R"	C,A,B,Y,E,G,G1, H,P,S,	13. Oil forced out filler tube or vent	A,V,W,X,T2
4. Creeps excessively in "D"	D	14. Transmission overheats	A,E,U,T,M1,V,X
5. Slips during 1-2 upshift	A,B,E,F,H,Q,J	15. Acceleration normal—maximum speed approximately 45 M.P.H.	T
6. Momentary lockup during 1-2 upshift	A,B,E,F,Q,Q1	16. Acceleration very poor—operation above 30 M.P.H. at steady throttle normal	T
7. Severe 2-1 downshift on coast	D,B,H,E,F,J	17. Engine does not start with push	A,C,H,N,K,Q1,O, E,F
8. No 1-2 upshift in "D"	A,C,J,H,E,Q,N,R	18. Park lock does not hold or binds	C,Z,F1
9. Delayed 1-2 upshift	B,J,E,H,Q1	19. Delayed initial engagement	A,M2,T1,T2,O
10. Slips continuously after 1-2 upshift	A,B,E,Q,H,R		

KEY TO DIAGNOSIS GUIDE

A —Fluid level.
B —Vacuum unit or connections.
B1 —Kickdown rod adjustment or pedal height.
C —Manual linkage.
D —Engine idle speed.
E —Control pressure out of specifications.
F —Low band adjustment.
F1 —Low band installed backwards.
G —Reverse band adjustment.
G1—Cracked or broken rear band anchor pin.
H —Main control valve malfunction or leakage.
J —Governor.
K —Low servo inoperative.
L —Reverse servo inoperative.
M —Front pump inoperative.
M1—Front pump check valve springs reversed.
M2—Front pump check valve leaking.
N —Rear pump inoperative.
O —Leakage in low servo apply circuit.
P —Leakage in reverse servo apply circuit.
Q —Leakage in clutch apply or low servo release circuit.
Q1 —Low servo piston and/or check valve sticking.
R —Clutch inoperative.
S —Planetary gears
T —Converter one-way clutch.
T1 —Converter return oil ring leaking.
T2 —Stator support drain-back check valve.
U —Cooler plugged or restricted.
V —Fluid contaminated with coolant.
W —Aerated fluid (pumps sucking air).
X —Transmission external vent plugged.
Y —Engine—transmission mounts.
Z —Parking linkage.

SPECIFICATIONS

Merc-O-Matic Transmission

Type	Single Stage, 3 Element Torque Converter with 2 Speed Planetary Gear Train

Ratios and Stall Speed

Gear Ratios			Stall Ratio	Stall Speed	
Low	Direct	Reverse		PCL	PCM
1.75:1	1.00:1	1.50:1	2.4:1	1600-1800	1750-1950

Control Pressure Limits

Control Pressure—Zero Governor R.P.M.					
Test	Vacuum (in. Hg)	Throttle	Range	Engine	Control Pressure
1	Above 15	Idle	All	144 C.I.D.	40-50
				170 C.I.D.	45-65
2	Between 15.0 to 12.5	As Req.	D-L-R	All	Control Pressure to increase from Test "1"
3	Stall Test Manifold vacuum below 1.5	Max. thru Detent	D-L-R	144 C.I.D.	145-170
				170 C.I.D.	175-200

Checks and Adjustments

OPERATION	SPECIFICATION
Transmission End Play Check	0.020-0.039 inch Selective Thrust Washers Available: 0.068 inch, 0.075 inch 0.084 inch, 0.093 inch
Converter Turbine and Stator End Play Check	0.060 inch (maximum)
Low Band Adjustment	Adjust screw to 10 lbs. ft. torque, and back off two full turns. Lock nut to 35-40 lbs. ft.
Reverse Band Adjustment	Adjust screw to 45-50 lbs. in. torque, back off two turns. Lock jamb nut to 15-18 lbs. ft.
Accelerator Pedal Height Adjustment	4-5/16 inches above floor mat
Anti-Stall Dashpot Clearance	0.120-0.150 inch

Shift Points

Approximate Automatic Shift Speeds (M.P.H.)			
Selector Lever at "D"			
1-2 Minimum Throttle	1-2 Thru Detent	2-1 Thru Detent	2-1 Closed Throttle
10-15	40-55	40-50	5-15

SECTION 8—FUEL SYSTEM

8C—HOLLEY SINGLE-BARREL CARBURETOR

DESCRIPTION

A single-barrel carburetor is used on the 144 and 170 C.I.D. engines. This carburetor consists of two main sub-assemblies; the air horn and the main body. The air horn acts as a cover assembly and includes the fuel inlet system, and the automatic choke mechanism. The main body includes the fuel bowl assembly, the fuel metering systems, the throttle shaft and plate, and the spark control valve (See Fig. 12).

The carburetor has five fuel systems to provide the correct fuel-air mixture for all phases of engine operation. The five systems are: the fuel inlet system, the idle fuel system, the main fuel system, the accelerating system, and the power fuel system.

Fuel Inlet System. The fuel inlet system consists of a fuel bowl, a float, and a fuel inlet needle. The float is made of a plastic material. The fuel inlet needle is tipped with a rubber-like material (Viton) and the inlet seat is cast as an integral part of the cover. The bowl is vented externally and also internally into the air horn (See Fig. 13).

The fuel level is adjusted by bending the float tab which supports the needle.

Idle Fuel System. Fuel for idle speed operation passes through the main jet located in the fuel bowl, through passages and restrictions, to the transfer and discharge holes. An air bleed prevents siphoning and helps break up the raw fuel for a more complete mixing with the air (See Fig. 14).

The idle fuel mixture is controlled by the position of the idle adjusting needle which seats in the discharge hole.

Main Fuel System. As the throttle plate is opened, the idle system fuel flow diminishes and the main fuel system starts to function. As the car speed increases, the idle system cuts out entirely. The main fuel system consists of the main jet, air bleeds, and a main discharge nozzle. The air bleeds, one of which is in a well-tube, break up the liquid fuel as an aid to complete mixing with the air flow through the venturi. It also prevents siphoning when the engine is shut down (See Fig. 15).

Accelerating System. The accelerating system provides the additional fuel required for acceleration from the lower engine speeds. A piston type pump transmits this added amount of fuel from the fuel bowl through passages to the discharge port located above the venturi. The intake ball check and the discharge needle check are required to control pump operation (See Fig. 16).

The quantity of fuel discharged into the venturi is controlled by the installation of the operating link into the operating lever. Two installation holes are provided. The hole closest to the throttle shaft is for average and hot weather operation. The outer hole, which permits a longer pump stroke, is for cold weather and average warm weather operation.

Power Fuel System. During periods of increased road loads or high speed operation, the ratio of fuel to air must increase for added power. The added fuel required during this period is supplied by the power fuel system.

This system is composed of a power valve, a vacuum-actuated piston, and the necessary fuel and vacuum passages (See Fig. 17).

Manifold vacuum, which is sensitive to engine load and speed, is

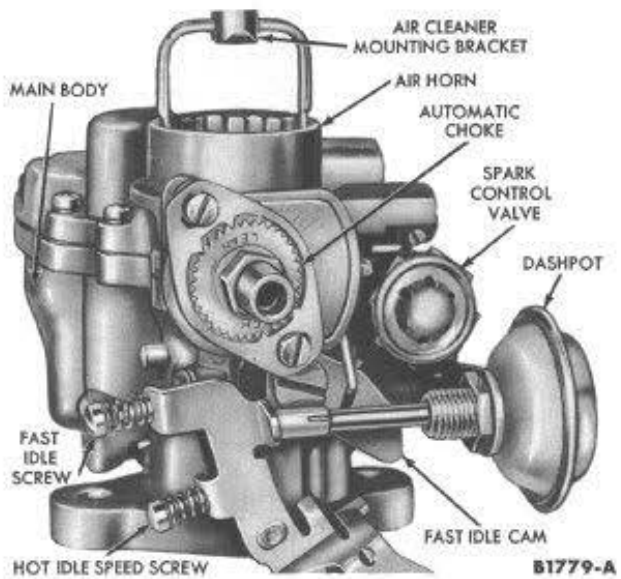


FIG. 12—Holley Single-Barrel Carburetor

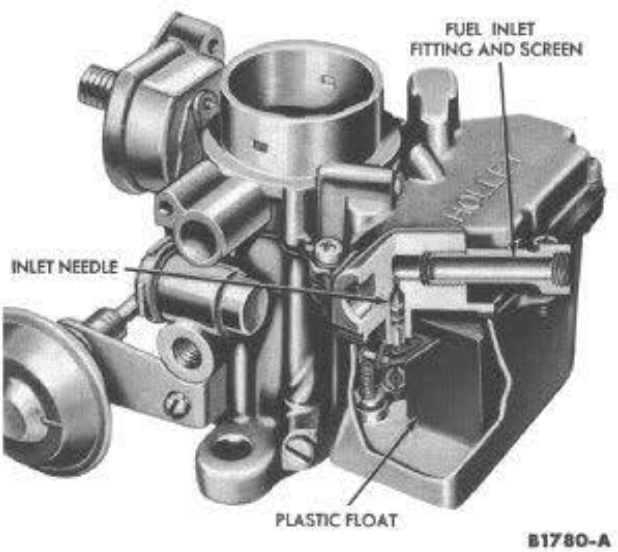


FIG. 13—Fuel Inlet System

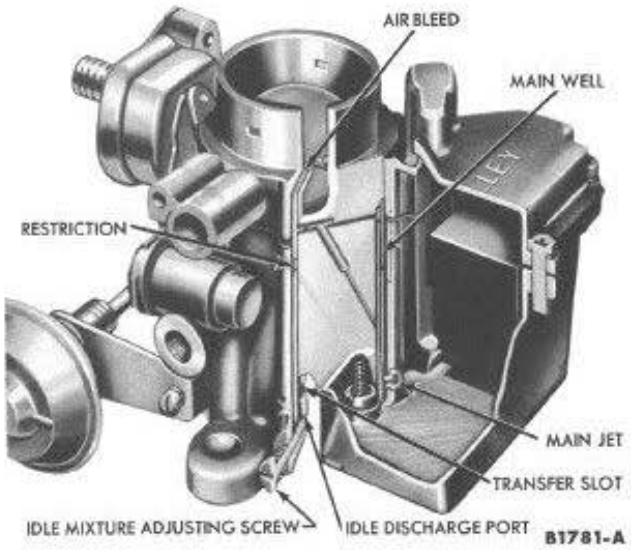


FIG. 14—Idle Fuel System

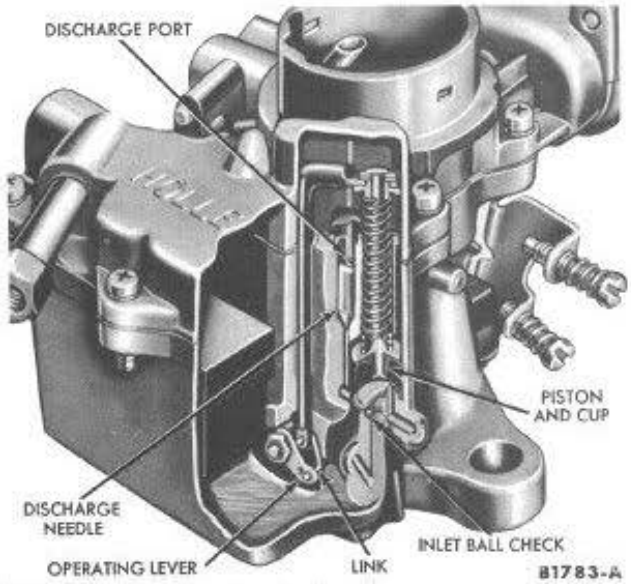


FIG. 16—Accelerating System

transmitted through the carburetor main body to a chamber located in the air horn which is above the vacuum operated piston. High engine vacuum pulls the piston upward and compresses the piston stem spring. When the engine speed or load increases to a predetermined amount, the vacuum lowers and the spring on the piston stem expands, pressing the stem downward, thus depressing the power valve pin. This action opens the power valve and permits additional fuel to flow from the fuel bowl into the main fuel system.

The power fuel system is non-adjustable.

Automatic Choke System. The automatic choke incorporates a free-floating type choke piston which partially opens the choke plate when the engine starts. Manifold vacuum is channeled through a passage in the main body to the piston located in the air horn. The extent of the initial cold start opening of the choke plate is controlled by a stop screw which limits the piston travel. **This screw is factory adjusted and should not require readjustment.**

As the engine warms up, heated air from the exhaust manifold stove is drawn through the choke housing by intake manifold vacuum. The

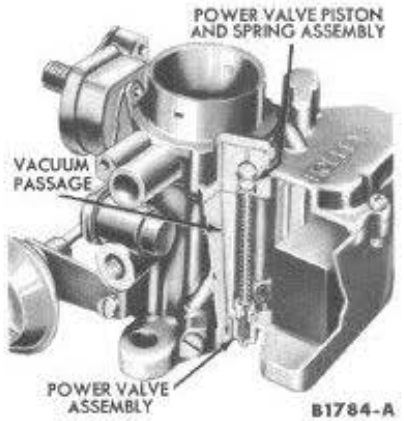


FIG. 17—Power Fuel System

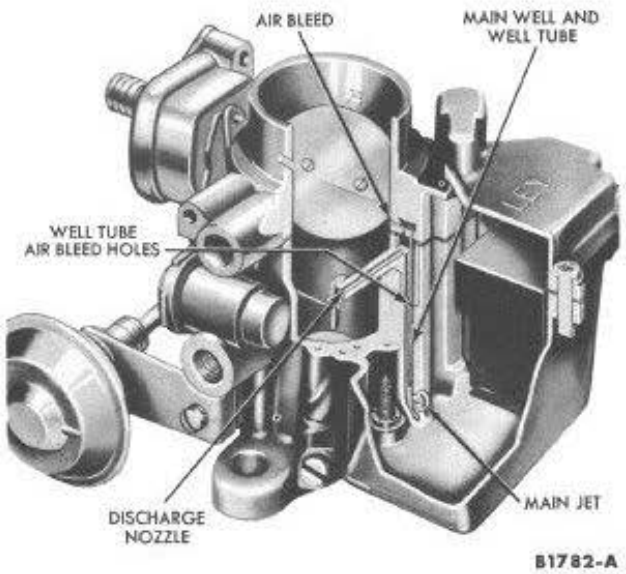


FIG. 15—Main Fuel System

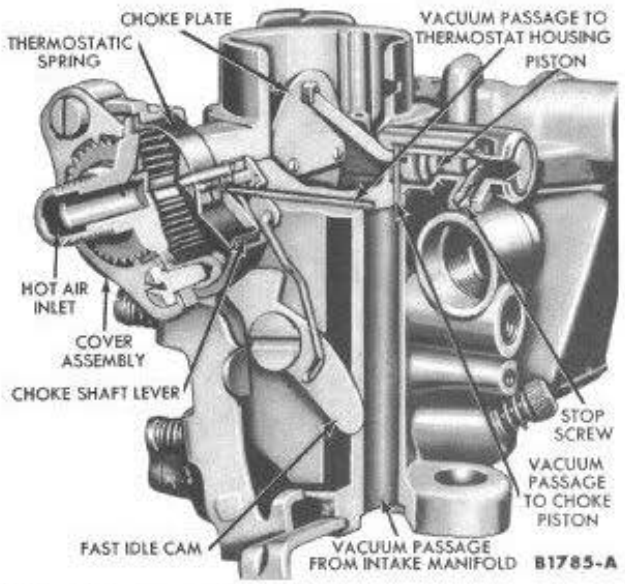
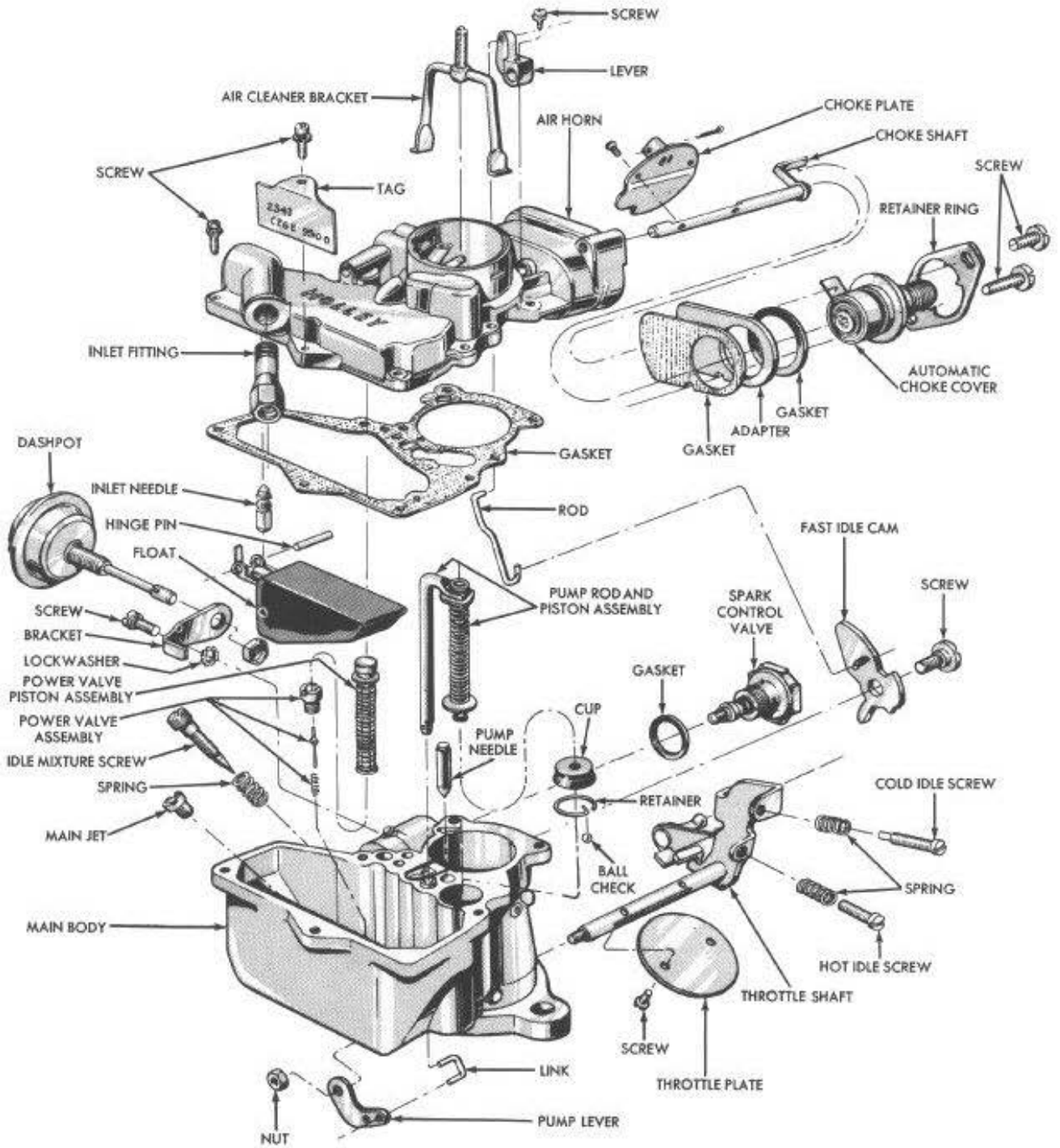


FIG. 18—Automatic Choke System



B1786-A

FIG. 19—Holley Single-Barrel Carburetor

heated air changes the tension of the choke bimetal spring allowing the air flow past the choke plate to gradually force the choke plate open. This is possible due to the fact that the choke plate link is free to move through the piston.

Fast idle is provided by means of a fast idle cam which is linked to the choke shaft lever. Fig. 18 illustrates the choke operation.

An unloading action is provided through this same linkage when the accelerator pedal is fully depressed.

Periodic Maintenance

1. Adjust the carburetor when performing engine tune-up. (Refer to "Engine Performance Service" in "Section 12—Maintenance" in this manual.)

2. Position the accelerator pump link in the proper lever hole for the prevailing climate.

REMOVAL AND INSTALLATION

1. Remove the air cleaner.

2. Disconnect the accelerator rod.

3. Disconnect the fuel and distributor vacuum lines.

4. Disconnect the automatic choke heat tube.

5. Remove the carburetor retaining nuts and lift the carburetor from the adapter.

6. Remove the gasket.

7. Clean the gasket surfaces of the carburetor and the adapter.

8. To install the carburetor, reverse the removal procedure. Use a new gasket. Torque the retaining nuts to 12-15 lbs. ft.

DISASSEMBLY, CLEANING, INSPECTION AND ASSEMBLY

Disassembly. Refer to Fig. 19.

AIR HORN

1. Remove the fuel inlet fitting and screen.

2. Compress the air cleaner bracket with channel lock pliers and remove the bracket from the air horn. **Do not compress the bracket more than is necessary to clear the air horn** (Fig. 20).

3. Remove the screw which retains the dashpot bracket to the main body (Only on cars equipped with an automatic transmission).

4. Remove the fast idle cam retaining screw and disconnect the choke operating rod from the choke shaft lever.

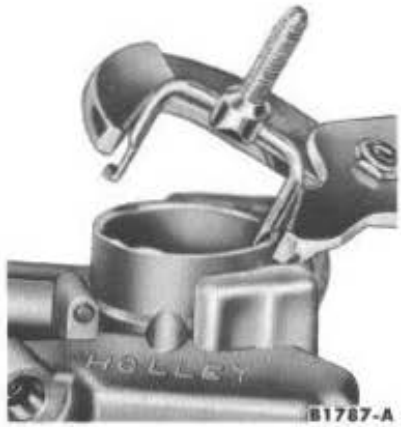


FIG. 20—Air Cleaner Bracket Removal

5. Remove the automatic choke cover retaining screws. Remove the cover and gasket and the adapter plate and gasket (Fig. 21).

6. Remove the air horn attaching screws. Remove the air horn and cover gasket.

7. Remove the plastic float hinge pin. Remove the float and needle.

8. Remove the power valve piston assembly. Use Tool 9904-E to pull the piston and retaining washer from the air horn (Fig. 22).

9. Remove the cotter pin which retains the choke piston link to the choke plate.

10. To remove a damaged choke plate or choke shaft, file off the ends of the attaching screws. Remove the screws. Loosen the choke shaft lever retaining screw and slide the shaft from the air horn. Unless damage to the choke plate or shaft parts is evident, do not remove the assembly.

MAIN BODY

1. Tip the throttle body to remove the accelerator pump needle.

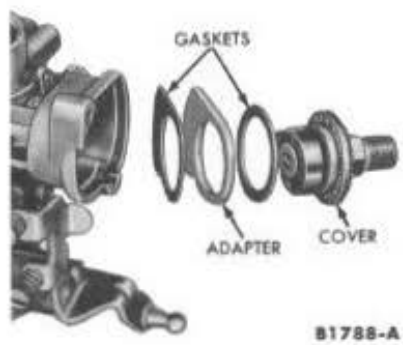


FIG. 21—Automatic Choke Cover and Adapter

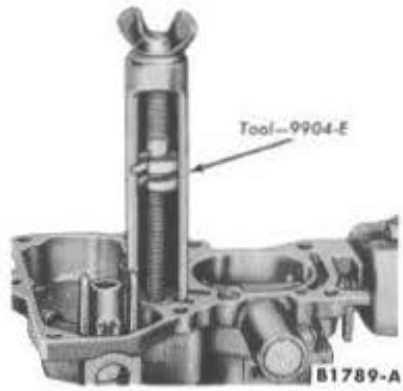


FIG. 22—Power Valve Piston Removal

2. Remove the nut and lock washer from the throttle shaft. Remove the accelerator pump operating lever and link.

3. Pull the pump piston assembly from the main body. Remove the piston cup (Fig. 23).

4. Remove the accelerator pump ball check retainer and ball (Fig. 24).

5. Remove the spark control valve and gasket.

6. Remove the main jet.

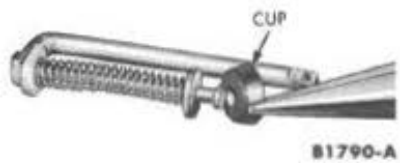


FIG. 23—Accelerator Pump Piston Cup Removal

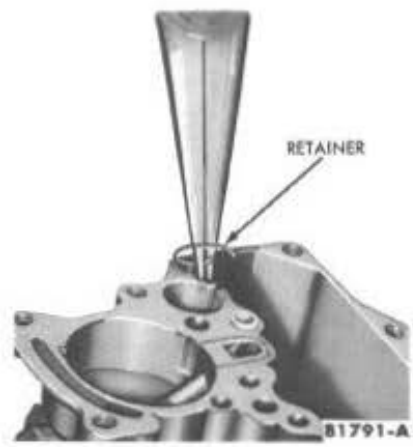


FIG. 24—Ball Check Retainer Removal

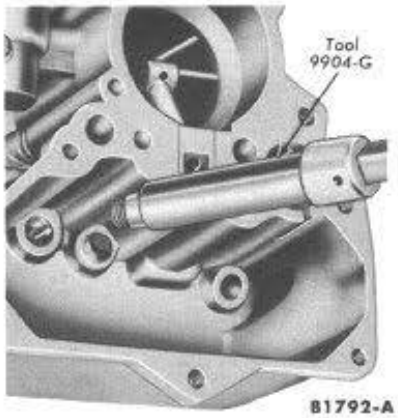


FIG. 25—Power Valve Removal

7. Remove the power valve seat, pin and spring assembly. Use Tool 9904-G to avoid bending the valve pin (Fig. 25).

8. Remove the idle mixture adjusting screw and spring.

9. At times, it may be necessary to remove the throttle plate and shaft to assure a thorough cleaning job. If this is done, lightly scribe the plate along the throttle shaft before removal so that the plate can be exactly installed in its original position. **The throttle plate and shaft are not interchangeable between carburetors, nor are they serviced as separate parts.**

Cleaning and Inspection. Only those parts not included in a repair kit or tune-up kit should be cleaned and inspected for serviceability. Commercial carburetor cleaning fluids should be used. (If a commercial solvent is not available, lacquer thinner or denatured alcohol may be used.) The spark control valve, dashpot, or other parts that contain plastic or rubber-like materials should not be placed in a solvent.

After the parts are cleaned in a suitable solvent, they should be rinsed in hot water and dried with compressed air. Force compressed air through all passages in the air horn and main body. **Do not use a wire brush to clean any parts or a wire drill to clean out any openings or passages.** A drill or wire may enlarge an opening or passage and thus change the calibration of the carburetor.

Check the choke shaft for wear and excessive looseness or binding in the air horn. Inspect the choke plate for nicked edges. Check the action of the choke plate assembly.

If the throttle shaft is excessively loose or binds in the throttle body, or if the plates are burred preventing proper closure, replace the main body.

Inspect the main body and air horn for cracks. Remove any burrs that may have resulted from the staking of any parts.

Replace all screws that have stripped threads.

Inspect the main discharge nozzle and accelerating pump discharge port. If the openings are blocked, open them with compressed air.

Inspect the anti-stall dashpot for smooth operation. **Do not lubricate the dashpot stem.**

Assembly. Make sure all holes in the new gaskets have been properly punched and that no foreign material has adhered to the gaskets.

AIR HORN

1. Install the choke shaft. Position the operating rod lever and piston link, as shown in Fig. 26. **Do not install the lever retaining screw at this time.**

2. Install the choke plate. Hold the plate in a closed position while installing the screws. Install the choke operating lever screw. Open and close the choke plate to make sure there is no binding. Stake the screws with duck bill pliers or other suitable staking tool.

3. Secure the choke piston link to the choke plate with a cotter pin.

4. Install the power valve piston. Use Tool 9904-F (Fig. 27).

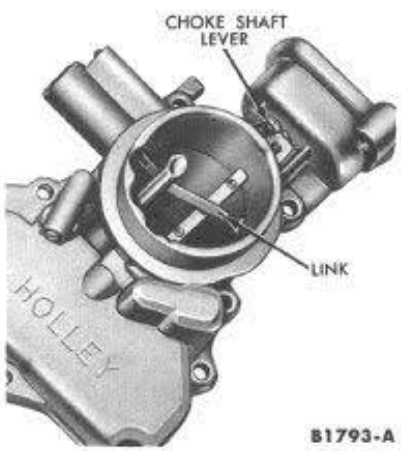


FIG. 26—Choke Shaft Lever and Link Position

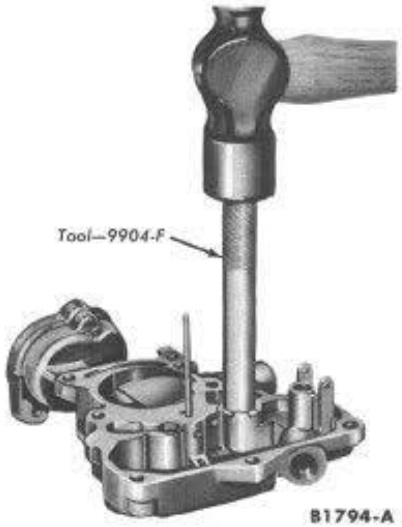


FIG. 27—Power Valve Piston Installation

5. Install the fuel inlet needle, float and plastic hinge pin. **CAUTION: Do not tap the needle into its seat. To do so would damage the rubber tip.**

6. Adjust the float level at a point ¼ inch from the end of the float so that Gauge 9950-MFC will just fit between the float and air horn when the inlet needle is seated (Fig. 28). To decrease the float clearance, bend the tab with needle nose pliers (Fig. 29). To increase clearance, bend the tab outward with a thin-bladed screwdriver (Fig. 30).

CAUTION: To avoid damage to the float assembly and needle tip, never decrease the clearance by pressing downward on the float.

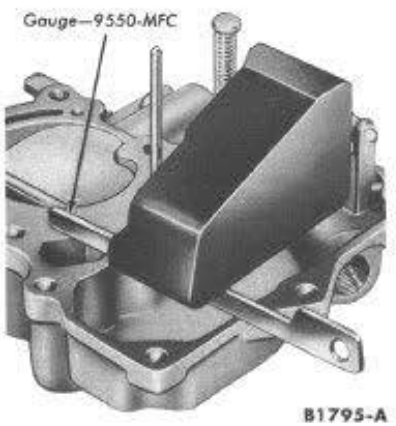


FIG. 28—Checking Float Level Adjustment

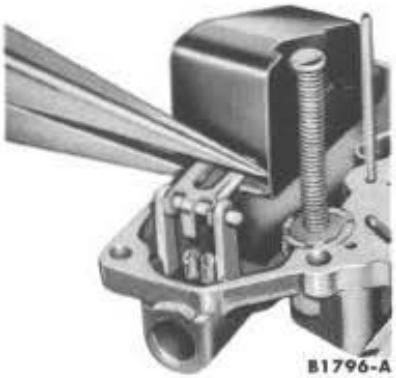


FIG. 29—Decreasing Float Clearance

MAIN BODY

1. If the throttle plate has been removed, reinstall it and align the plate with the previously scribed lines.

2. Install the idle mixture screw and spring. Lightly bottom the needle and then back it off 1½ turns.

3. Install the power valve assembly using Tool 9904-G. The spring must be positioned on the shoulder of the needle. Placing the assembly on the tool and installing it with the main body in an inverted position will assure proper assembly (Fig. 31).

4. Install the main jet.

5. Install the spark control valve and gasket. Tighten to 80 to 90 pound inches.

6. Install the accelerator pump ball check and the retainer. **The projection of the retainer must be placed over the ball check.**

7. Install the accelerator pump piston cup on the pump assembly and install it into the main body. The plastic guide must be positioned as shown in Fig. 32 to avoid interference with the air horn.

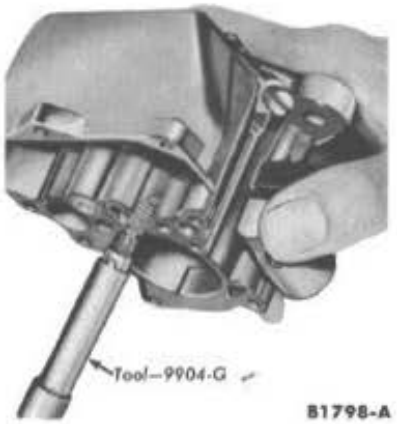


FIG. 31—Power Valve Installation

8. Install the accelerator pump link into the accelerator rod. Install the lever on the link and attach it to the throttle shaft with a nut and lock washer. The outer lever hole is for cold temperature operation; the inner hole for warm weather operation.

9. Install the accelerator pump needle in the passage next to the pump rod (Fig. 33).

10. Position the cover gasket and the air horn on the main body and install the retaining screws. Install the tag under the end bowl retaining screw.

11. Install the automatic choke adapter plate and gasket and the cover plate and gasket. The tab of the thermostatic spring must be positioned so that spring pressure closes the choke plate. Lock the cover in position with the screws and retainer so that the index mark is at its mid position.

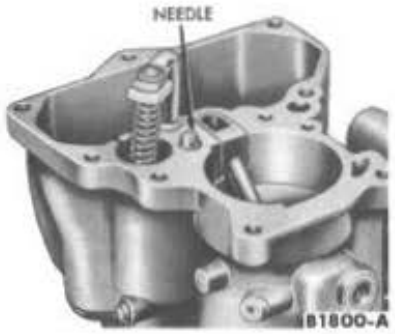


FIG. 33—Accelerator Pump Needle Installation

12. Position the fast idle cam operating rod in the choke lever and the fast idle cam. Secure the cam with the shoulder screw.

13. Install the dashpot and bracket assembly (Only on cars equipped with an automatic transmission).

14. Install the fuel inlet fitting.

15. Install the air cleaner retainer bracket.

ADJUSTMENTS

Accelerator Pump Stroke. For high temperature operation, the accelerator pump operating rod should be installed in the throttle lever hole closest to the throttle shaft (Fig. 34).

For low temperature and average warm temperature operation, install the operating rod in the lever hole farthest from the shaft.

Anti-Stall Dashpot. To adjust the dashpot operating clearance, adjust the engine idle speed.

Hold the throttle in the closed position, and then, fully depress the dashpot plunger stem using a thin blade screwdriver.

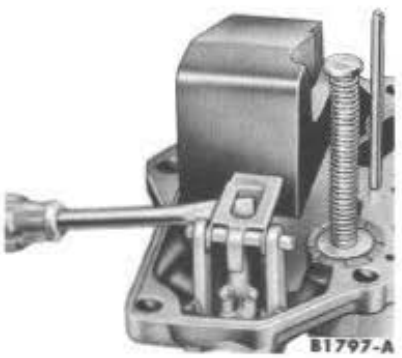


FIG. 30—Increasing Float Clearance

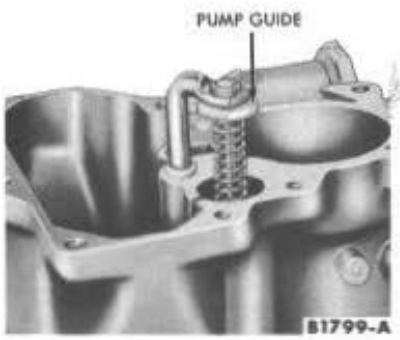


FIG. 32—Accelerator Pump Guide Position

FIG. 34—Accelerator Pump Stroke Adjustment

FIG. 35—Anti-Stall Dashpot Adjustment—Holley Single-Barrel Carburetor

Refer to Fig. 35 and check the available clearance between the plunger tip and the throttle lever (or the dashpot operating lever on a single-barrel carburetor).

To adjust the clearance on the carburetor, loosen the lock nut and rotate the dashpot in a direction to provide .120-.150 inch clearance.

Automatic Choke

THERMOSTAT SPRING HOUSING. The normal setting for the thermostatic housing is at the center index mark. The final setting for the carburetor may be varied, not to exceed 2 marks from the normal setting.

To adjust the carburetor choke setting, the heat tube should be loosened at the choke, the cover adjusted, and then the choke cover must be held with a wrench while the heat tube is retightened to prevent the adjustment from being disturbed.

INITIAL CHOKE PLATE OPENING ADJUSTMENT (COLD). The initial cold start opening of the choke plate is controlled by the position of the choke piston stop screw. The top of the screw is cone shaped. Turning the screw outward increases the amount of the initial opening of the plate. Turning the screw inward reduces the initial opening of the plate. This screw is adjusted at the factory to obtain an initial opening clearance of 3/16 inch for the 144 C.I.D. engine and 7/32 inch for the 170 C.I.D. engine (Fig. 36).

To check the adjustment, insert a small wire between the piston link and the side of the slot in the air horn. Position the wire so that the

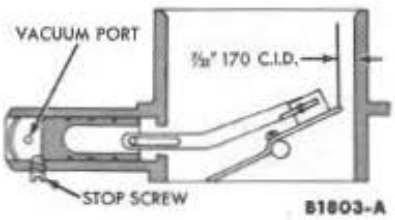


FIG. 36—Checking Choke Plate Pull-Down Setting—Single-Barrel Carburetor

piston is forced against the stop screw. While holding the piston against the screw, press the choke plate lightly towards the closed position. The resulting clearance between the upper edge of the choke plate and the inside vertical surface of the air horn wall is the cold start opening (pull down) of the choke plate. (The above adjustment procedure can be followed if the stop screw is accidentally turned.)

FAST IDLE ADJUSTMENT. Adjust the fast idle rpm with the fast idle adjusting screw on the **highest** step of the cam. Turn the adjusting screw to obtain 1500 rpm for cars equipped with a standard transmission. Adjust to 1800 rpm if the car has an automatic transmission (Fig. 37).

FLOAT ADJUSTMENT. The float adjustment is described in step 6 of the Air Horn Assembly Procedure.

Idle Mixture and Speed (Hot)

MIXTURE

1. Operate the engine to stabilize

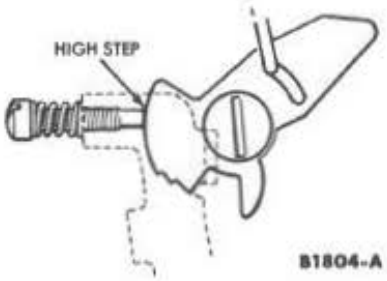


FIG. 37—Fast Idle RPM Adjustment

its temperature. A cold engine should be run approximately 30 minutes at 1200 rpm.

2. Initially set the idle fuel mixture screw by turning the screw inward until it is lightly seated, then back the adjusting screw outward 1½ turns.

3. Next, turn the needle "in" until the engine begins to run "rough" from the lean mixture. Turn the needle "out" until the engine begins to "roll" from the rich mixture. Then turn the needle "in" until the engine runs "smoothly" or evenly. Always favor a slightly "rich" setting rather than a "lean" setting. It may be necessary to reset the idle speed after the correct idle fuel mixture is obtained. Using a vacuum gauge and adjusting the mixture for the highest steady manifold vacuum is a preferred method that assures a satisfactory mixture.

SPEED. After the mixture is correctly set, the hot idle screw should

TABLE 1—Idle R.P.M. Specifications

Engine	RECOMMENDED IDLE R.P.M.*	
	Standard Transmission	Automatic Transmission
170 C.I.D. Without Smog Reduction	500—550	475—525
170 C.I.D. With Smog Reduction	550—600	525—575
144 C.I.D. Without Smog Reduction	500—550	475—525
144 C.I.D. With Smog Reduction	550—600	525—575

*Operate the air conditioning system (if so equipped) a minimum of 20 minutes before adjusting the hot idle speed.

FIG. 38—Checking Unloader Adjustment—Holley Single-Barrel Carburetor

be adjusted to obtain the specified idle rpm listed below.

If the car is equipped with an air conditioning system, run the air conditioner with the blower operating on its highest speed position while the idle speed is being adjusted. When the air conditioner is turned off the idle speed will increase. This is a normal condition.

Unloader (Holley Single-Barrel Carburetor). With the throttle lever held in the wide open position, the clearance between the inner wall of the air horn and the choke plate should be 9/32 inch (Fig. 38).

To adjust the clearance, bend the unloader lever portion of the throttle shaft lever (Fig. 39).

TROUBLE SHOOTING GUIDE

The 1961 Maintenance Manual trouble shooting guide for carburetors applies to 1962 carburetors, except in those cases which make reference to the power valve diaphragm or accelerator pump diaphragm. The 1962 power valve and accelerator pump are both of the piston type. Accordingly, substitute the word piston for diaphragm when using the 1961 guide for the 1962 carburetor.

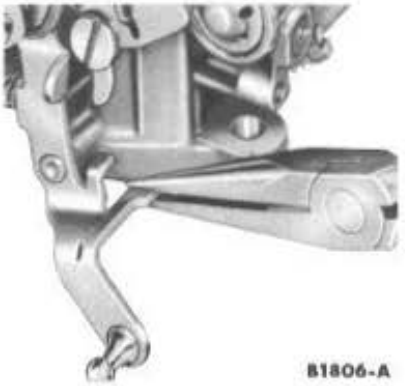


FIG. 39—Adjusting Unloader Action—Holley Single-Barrel Carburetor

SPECIFICATIONS

Venturi Diameter (Inches):
- 144 C.I.D. Engine 1-1/32
- 170 C.I.D. Engine 1-5/32

Dry Float Setting (Inch) ..... 5/16 ± 1/64
(Dry float setting to be measured between outer end of float and air horn with air horn inverted.)

Dashpot Clearance—Auto. Trans. (Inch) .... .120-.150
Idle Mixture Screw Initial Setting (Turns Open) 1½
Initial Choke Coil Setting ..... At Index

Idle RPM—Hot (with Std. Trans.):*
- Less Smog Reduction System 500-550
- With Smog Reduction System 550-600

Idle RPM—Hot (with Auto. Trans.):*
- Less Smog Reduction System 475-525
- With Smog Reduction System 525-575

*Operate the air conditioning system a minimum of 20 minutes before adjusting the hot idle speed if the car is equipped with air conditioning.

"Cold" Fast Idle Adjustment (RPM):*
- Standard Transmission 1500
- Automatic Transmission 1800

*Adjustment to be made with engine hot and screw on high step of cam.

Power Valve Vacuum Limits (Inches Hg) 4.5-7.5
Underloader Choke Plate Opening (Inch) 9/32

Initial Choke Plate Opening—Cold (Inch):
- 144 C.I.D. Engine 3/16
- 170 C.I.D. Engine 7/32

Main Metering Jet Size:

Altitude (Ft.)	Main Metering Jet Number	
	144 C.I.D. Engine	170 C.I.D. Engine
0- 5,000	54	61
5,000-10,000	53	60
10,000-15,000	52	59

Spark Control Valve Number:
- 144 C.I.D. Engine 55
- 170 C.I.D. Engine 35

SPECIAL TOOLS

Tool Number	Description
9904-E	Remover—Power Valve Piston
9904-F	Installer—Power Valve Piston
9904-G	Remover and Replacer—Power Valve
9550-MFC	Float Gauge

SECTION 9—GENERATING SYSTEM, STARTER, AND IGNITION SYSTEM

GENERATOR

The standard generator is a shunt-wound, trailing-brush type with an output rating of 30 amperes. It is similar to the generator used in 1961 and the test and repair procedures are the same with the following exceptions.

DISASSEMBLY

A disassembled view of the generator is shown in Fig. 40.

1. Use a hooked tool and pull the brushes out of their holders far enough to allow the brush arms to bear on the side of the brushes. This will hold the brushes clear of the commutator (Fig. 41).

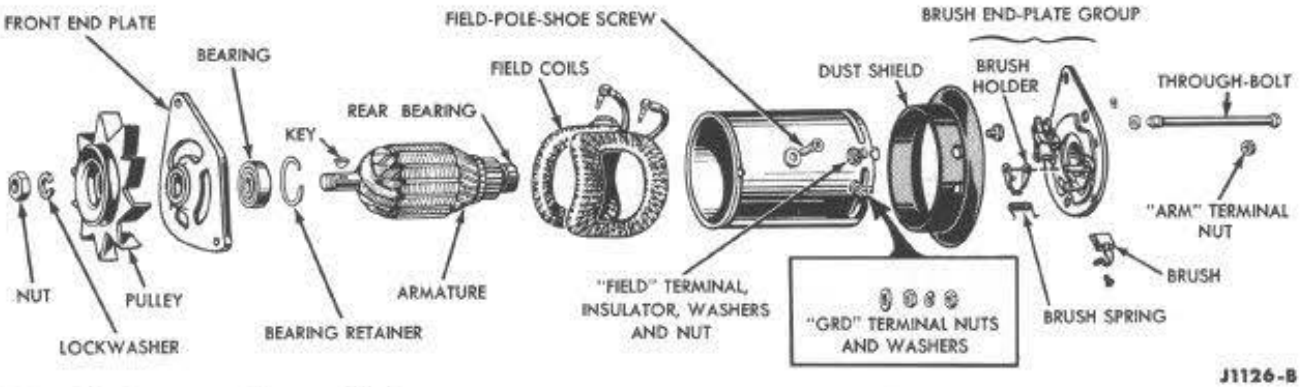


FIG. 40—Generator Disassembled

2. Remove the two through bolts and lock washers from the generator brush end plate and remove the brush end plate (Fig. 42).

3. If it is necessary to remove the brushes, remove the brush terminal to brush holder screws; then, lift the brush arms and remove the brushes.

4. Test the brush spring tension. If the spring tension is less than 20 ounces, unhook them from the notched spring hinges. Lift the springs and brush arms from their pivot studs.

5. Remove the armature (with the pulley and drive end plate attached) from the generator frame.

6. Place the armature in a vise equipped with pieces of wood between the jaws.

CAUTION: Tighten the vise only sufficiently to hold the armature securely.

7. Remove the pulley, drive end plate, and Woodruff key from the armature shaft.

8. Remove the drive end plate bearing stop ring (snap ring) and remove the bearing.

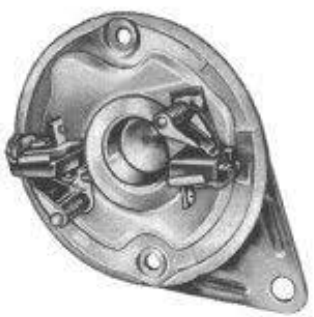


FIG. 41—Brushes Held in the Raised Position

ASSEMBLY

1. Position the drive end plate bearing in the end plate and insert the bearing retainer (snap ring).

2. Place the armature in a vise equipped with pieces of wood between the jaws. **Tighten the vise only sufficiently to hold the armature securely.**

3. Insert the Woodruff key in the slot on the armature shaft. Then, assemble the pulley, lock washer and retaining nut on the shaft.

4. Tighten the retaining nut to 30-50 lbs. ft.

5. Be sure the field coils are securely in place and the pole screws are tight. Assemble the field and ground terminal parts.

6. Position the connecting wire of the field coils to clear the armature and through bolts.

7. Insert the armature and drive end plate assembly in the frame, commutator end toward the terminal end of the frame. Be sure that the field wires are clear of the armature.

8. Assemble the brushes and brush springs to the brush end plate. Position the brushes in their raised position.

9. Place the brush end plate on the armature shaft. Align the locating rivet with the notch on the end of the generator frame.

10. Assemble lockwashers on the through bolts and insert the bolts through the holes in the brush end plate. Screw the bolts into the drive end plate and tighten them securely.

BRUSHES AND BRUSH HOLDERS

Each brush arm and its coil spring is pivoted on a long stud which is riveted to the end plate. As the brush arm bears on the pigtail end of the brush, it exerts pressure in a direction toward the commutator and against the closed side of the brush holder.

The downward travel of the brush arm is limited by a projection of the brush holder. This is designed to limit movement whenever a brush is worn enough that the copper pigtails might otherwise contact and score the commutator (Fig. 42).

REMOVAL

1. Using a hooked tool, pull the brushes out of their holders far enough to allow the brush arms to bear on the side of the brush. This holds the brushes off the commutator.

2. Remove the brush end plate.

3. Remove the brush terminal to brush holder screws.

4. Lift the brush arms and remove brushes.

5. Test the brush spring tension. It should not be less than 20 ounces

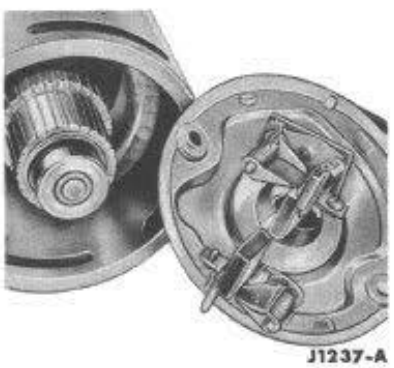


FIG. 42—Generator Brush End Plate Removed

when measured at the end of the arm with the arm just lifted from its stop.

6. Unhook the spring from the notched spring hinges.

7. Lift the springs and the brush arms from the pivot studs.

8. Replace the brush springs if they are found to be weak.

9. Replace the brushes if they are less than 5/8-inch in length when measured on the long side.

INSTALLATION

1. Place the brush arms and springs on the pivot studs.

2. Compress the springs by placing their lower extension into the notched spring hangers.

3. Attach the brush terminals to the brush holders.

4. Lift the brush arms and position the brushes just far enough into their holders so that the arms, when released, will hold them in a raised position (Refer to Fig. 41).

5. Install the brush end plate.

6. Using a hooked tool, lift the pressure arms and guide the brushes into their holders. Make sure the brushes contact the commutator; then, release the pressure arms.

7. Form the brush pigtails so that they will clear the sides of the holders as the brushes wear. Failure to do this may restrict the "downward or inward" movement of the brushes and result in generator failure.

GENERATOR REGULATOR

The generator regulator is a 30-ampere regulator. However, the test and adjustment procedures are the same as those used for the 25-ampere regulator.

STARTING MOTOR

The starting motor is the same type positive engagement starter used on previous models. However, it has been reduced in size and has some modifications. It has new contact points, a shorter pinion travel, a new improved clutch assembly, and a new armature snap ring retainer.

The procedures for repair and trouble shooting of the new starter are the same as the 1961 starting motor procedures.

SPECIFICATIONS

GENERATOR

Rating @ 15V—Amps.	30
Watts	450
Volts	15

BRUSHES

Type	Inclined
Number Used	2
Spring Tension (Oz.)	20 to 26
Field Current Amps. @ 10V Hot	1.0 to 1.5
Original Length (Inches)	.875

PULLEY

Pitch Diameter (Inches)	2.70
Drive Ratio	2.13:1
Belt Width	3/8
Cut-in Speed (Gen. rpm)	1300
Rated Output (Gen. rpm)	2525
Gen. Commutator Runout (Max.)	0.002 inch
Number of Sheaves	1

30 AMP GENERATOR REGULATOR

Manufacturer	Ford	Bosch
Cutout-Volts	12.0—12.8	12.0—12.8
Cutout Point Gap (Inches)	.016—.019	.015—.020
Voltage Limiter @ 75° F (Volts)	14.6—15.4	14.6—15.4
Current Limiter (Amps.)	28—32	28—32

IGNITION SYSTEM

Refer to "Tune-up Specifications" in Section 6 of this Manual.

BATTERY

	Standard	Optional (R.P.O.)	Optional (R.P.O.)
Voltage	12		
Rating—Ampere Hour	40	55	
Plates	54		66
Specific Gravity—Full Charge	1.270—1.290		
Terminal Grounded	Negative		

STARTER

	144 C.I.D. Engines	170 C.I.D. Engines
Identification Color of Lower Terminal Nut	Cadmium Plated	Copper Plated
Cranking @ Normal Engine Operating Temperature (Amps.)	130-160	140-175
Minimum Stall Torque (Lbs. Ft.)	8	9.6
Volts	5.0	
Max. Amps.	450	
Free Run @ 12 Volts (Max. Amps.)	70	

Type Drive	Positive Engagement
Number Pinion Teeth	9
Lead Pitch (Inches)	6
Original Length (Inches)	0.46
Re-usable Length (Inches)	0.30
Minimum Spring Tension (Ounces)	45
Width (Inches)	0.607
Thickness (Inches)	0.316
Material	Copper

SECTION 10—LAMPS, INSTRUMENTS, AND CONTROLS

REAR LAMP

REMOVAL AND INSTALLATION (SEDANS)

1. Disconnect the lamp wires at the bullet connectors.

2. Remove two lamp assembly retaining nuts and remove the lamp assembly and gasket from the car.

3. To install, reverse the removal procedure.

REMOVAL AND INSTALLATION (STATION WAGON)

1. Remove the interior trim to gain access to the rear lamp.

2. Disconnect the wires at the bullet connectors.

3. Remove four nuts and remove the lamp assembly from the car.

4. To install, reverse the removal procedure.

SPECIFICATIONS

ELECTRIC WINDSHIELD WIPER

Circuit Breaker
Rating (Amps.) 12
(Located in instrument panel near ignition switch)

REAR TURN SIGNAL, STOP, AND TAIL LAMP BULB

Quantity 4
Rating (Candle Power) 32/4
Trade Number 1034

CURRENT DRAW @ 12 VOLTS (AMPS.)

Turn Indicator 0-5
Heater Motor:
Low Speed 3-4
High Speed 5-6

SECTION 11—ACCESSORIES

RADIO

The pushbutton radio contains 4 tubes and two transistors.

Tuning is controlled by five push buttons as well as by the manual tuning control located at the right of the receiver dial. Volume and tone are controlled by the two control knobs located at the left side of the dial. The volume control also turns the receiver on and off.

MODEL IDENTIFICATION

The serial number identification plate gives all the necessary information for identification of the 1962 Comet radio receiver.

EXAMPLE: 24ME-001001

2	—Model Year—1962
4	—Tube Complement
M	—Manufacturer—Motorola
E	—Vehicle—Mercury Comet
001001	—Starting Serial Number

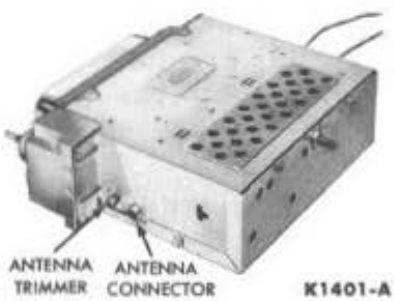


FIG. 43—Antenna Trimmer Adjustment

ANTENNA TRIMMER

1. Extend the antenna to its maximum length. Turn the Tone control to the maximum treble position (fully clockwise). Tune in a weak station around 1400 on the dial and reduce the volume until the station is barely audible.

2. Turn the antenna trimmer knob slowly in either direction until a peak volume is reached. The antenna trimmer knob is located on the right side of the receiver near the antenna lead-in connector (Fig. 43).

RADIO REMOVAL AND INSTALLATION

1. Disconnect the negative (ground) cable from the battery.

2. Pull the control knobs from the front of the receiver.

3. Remove the control shaft nuts and lock washers.

4. Disconnect the antenna lead-in cable from the receiver (Fig. 43).

5. Disconnect the radio speaker wires from the receiver (Fig. 44).

6. Disconnect the dial lamp wire at the connector and the power lead from the main light switch fuse panel.

7. Remove the radio bracket retaining nut from the rear of the receiver and carefully remove the radio.

8. To install, reverse the removal procedure. It may be necessary to adjust the antenna trimmer after installation. Refer to "Antenna Trimmer Adjustment".

RADIO CIRCUIT DIAGRAM

The radio circuit diagram is provided as an aid to the technician for trouble shooting the radio receiver (Fig. 45).

In order to prevent damage to the transistors, always have a speaker connected to the radio before turning the radio on.

TUBE FAILURE

The largest percentage of radio failures are due to tube failures. Figure 46 shows the location and types of tubes used in the radio receiver.

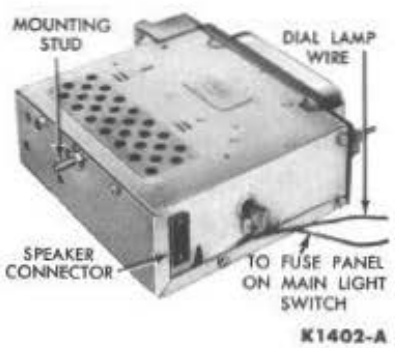
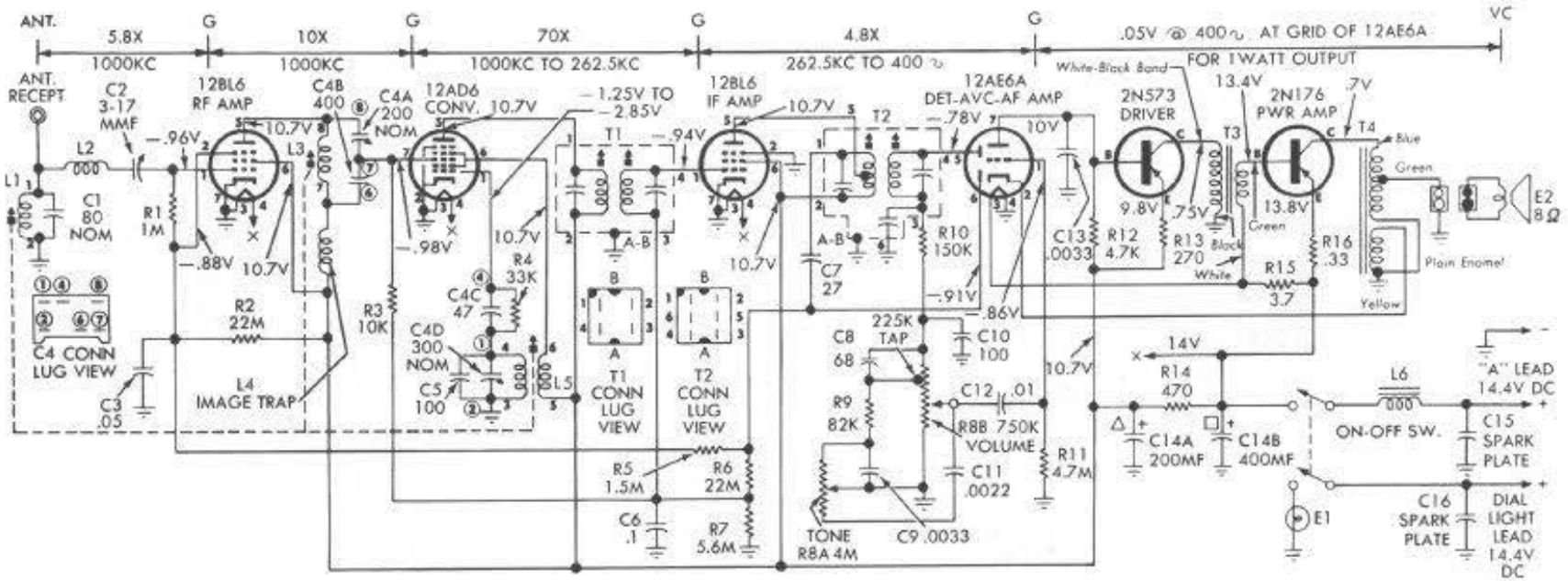
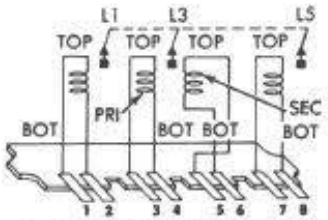


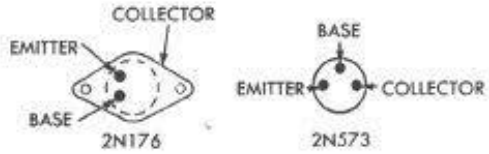
FIG. 44—Radio Wire Connections





L1, L3 & L5 CONNECTION DETAIL

NOTE:
ON L1, L3 & L5 CONNECTION DETAIL, BOT REFERS TO LEAD AT BOTTOM OF COIL, I.E., NEAREST THE TERMINAL STRIP. THE SECONDARY WINDING IS THE OUTERMOST WINDING.



TRANSISTOR CONNECTIONS
LUG VIEW

CAUTION

"A" LEAD MUST BE CONNECTED TO POSITIVE (+) SIDE OF POWER SUPPLY. RADIO WILL NOT OPERATE AND DAMAGE TO COMPONENTS WILL RESULT IF CONNECTED OTHERWISE.

NOTES:

CAPACITORS-UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF; ALL OTHERS IN MMF.
VOLTAGES-MEASURED FROM POINT INDICATED TO GROUND WITH A VTVM, 10%.
NO SIGNAL INPUT.
INPUT VOLTAGE 14.4V DC
TUNING RANGE 540KC TO 1610KC, IF 262.5KC

K1403-A

FIG. 45—Radio Circuit Diagram

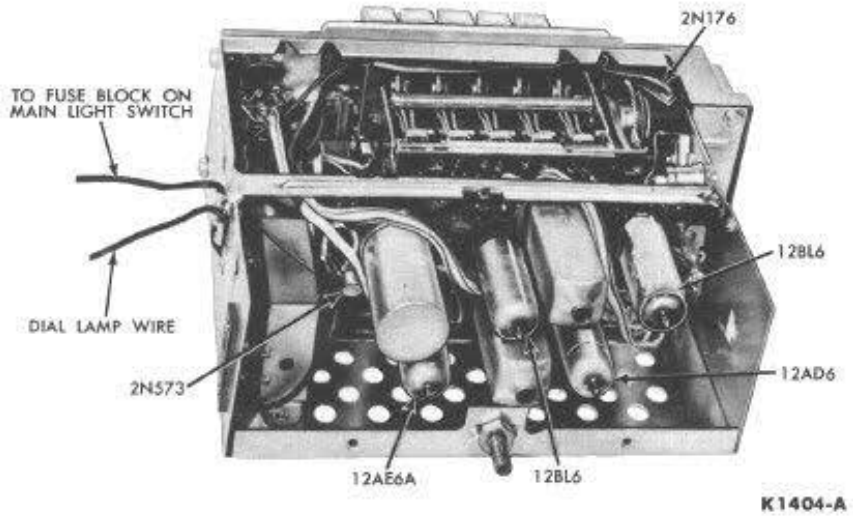


FIG. 46—Radio Receiver Tube Location

SECTION 12—MAINTENANCE

LUBRICATION AND MAINTENANCE SCHEDULE

EVERY 1000 MILES

Chassis Lubrication

1. TRANSMISSION, CLUTCH AND BRAKE LINKAGE: Apply Lubricant COAZ-19584-A to the automatic transmission kickdown linkage sliding slot, linkage joints, and pivot points (except those with rubber insulators).

2. REAR AXLE HOUSING: Use SCL type hypoid gear lubricant SAE 90 (CIAZ-19580-A, C, or D) for sustained temperatures above −25°F. Use SAE 80 (CIAZ-19580-B) for sustained temperatures below −25°F. The lubricant level should be visible at the lower edge of the filler plug hole.

3. FRONT SUSPENSION: Use chassis lubricant at the ball joints (2 each side). Use chassis lubricant at the spring seat pivots (1 each side).

4. STEERING LINKAGE: Use chassis lubricant at the tie rod ends (2 each side). Use chassis lubricant at the connecting links (1 each side).

5. BRAKE MASTER CYLINDER: Use heavy duty hydraulic brake fluid (B7A-19542). Fill to ¼-½ inch from top of the filler opening.

6. AUTOMATIC TRANSMISSION: Check the fluid level according to the following procedure:

a. Be sure the car is level; place the transmission in neutral and apply the parking brake.

b. When the engine and transmission have reached their normal operating temperatures, shift the transmission through all drive ranges to assure fluid distribution throughout the system; then, place the transmission in "PARK" position.

c. Raise the hood and clean all dirt from the fluid level indicator cap area.

d. Remove the indicator and read the fluid level.

e. If necessary, add Automatic Transmission Fluid CIAZ-19582, as required. **CAUTION: Do not overfill.**

f. Replace the fluid level indicator.

7. STANDARD TRANSMISSION: Check the fluid level. Use SAE 80 Multi-Purpose Gear Lubricant, if required. The lubricant level should be maintained at the bottom of the filler hole.

8. BATTERY: Check the battery electrolyte level; fill to the ring, as required.

9. COOLING SYSTEM: Check the coolant level; add, as required to approximately 1 inch below the bottom of the filler neck.

EVERY 6000 MILES OR 6 MONTHS

Body Lubrication

1. DOOR LOCKS AND CYLINDERS: Apply Lubricant COAZ-19553-A or B sparingly on striker plates, rotor teeth and rotor shaft. Apply Lubricant B4A-19587-A sparingly into the door lock cylinders.

2. DOOR CHECK ARMS: Apply Lubricant COAZ-19584-A or COAZ-19553-A sparingly.

3. DOOR HINGES: Apply Lubricant COAZ-19553-B at each hinge point.

4. FRONT SEAT TRACKS: Apply Lubricant COAZ-19584-A sparingly.

5. HOOD LOCK, STRIKER AND AUXILIARY CATCH: Apply Lubricant COAZ-19553-A, B, or COAZ-19584-A on lock dowel and catch.

6. HOOD HINGES: Apply Lubricant COAZ-19553-A, B, or COAZ-19584-A on hinge assembly pivots.

7. LUGGAGE COMPARTMENT DOOR LOCK: Apply Lubricant B4A-19587-A into the lock cylinder. Use Lubricant COAZ-19553-A on lock rotors. Apply Lubricant COAZ-19553-A, B, or COAZ-19584-A on lock striker plate.

8. LUGGAGE COMPARTMENT DOOR HINGES: Apply Lubricant COAZ-19553-B or COAZ-19584-A on hinge assembly pivots.

9. STATION WAGON TAIL GATE HINGES: Apply Lubricant COAZ-19553-B on hinge assembly and support arm pivots.

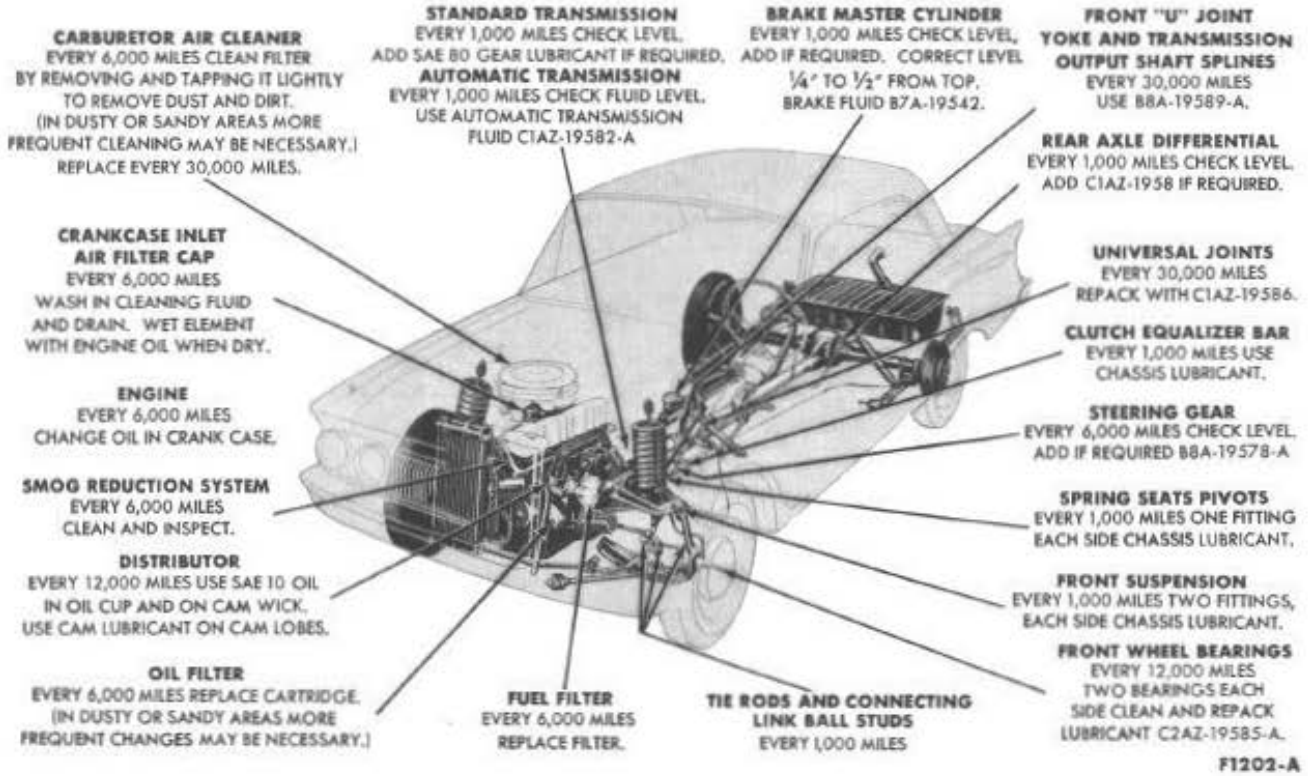


FIG. 47—Chassis Lubrication Guide

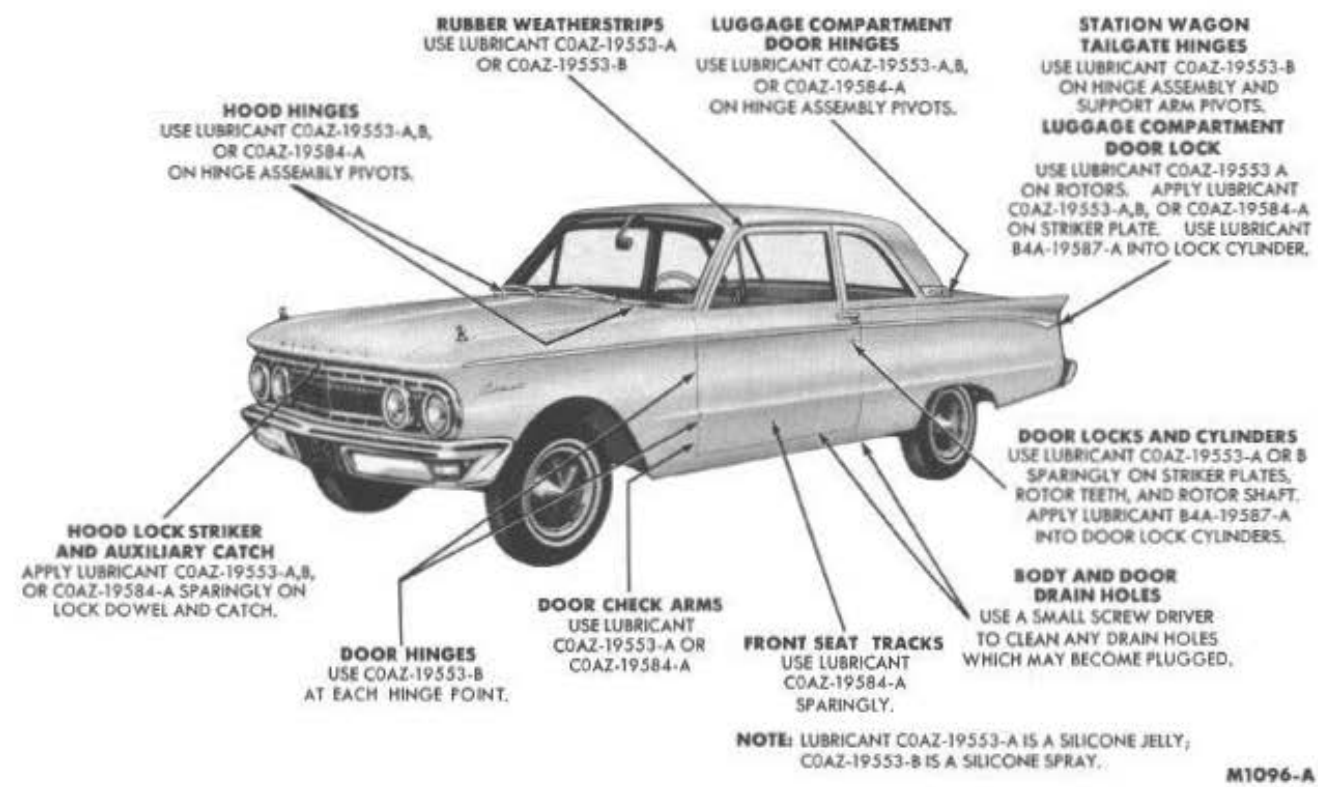


FIG. 48—Body Lubrication Guide

10. BODY AND DOOR DRAIN HOLES: Use a small screwdriver to clear any drain holes which may become plugged.

11. RUBBER WEATHERSTRIPS: Apply Lubricant COAZ-19553-A or COAZ-19553-B.

NOTE: Lubricant COAZ-19553-A is a silicone jelly; COAZ-19553-B is a silicone spray.

Engine Lubrication

1. Change the oil in the crankcase and replace the oil filter. (See "Lubricants and Capacities" in this section for proper oil to be used.)

2. Clean the oil filler tube cap filter and/or the Smog Reduction System. Saturate the filler tube cap filter with oil after cleaning.

Carburetor Air Cleaner

Clean the carburetor air cleaner by removing the filter element and tapping it lightly to remove the dust and dirt. **Do not use cleaning solvents. More frequent cleaning of the air cleaner may be necessary if the vehicle is operated under abnormal or dusty conditions.**

Fuel Filter

Replace the fuel filter.

Tire Pressure

Check the tire pressure and inspect for wear. Correct the wheel alignment or balance if the wear is uneven. **The correct pressure is 24 psi for all models, except the rear tires on Station Wagons. The specified pressure for Station Wagon rear tires is 28 lbs. For considerable high-speed driving or heavy loads, add 4 lbs. to these pressures.**

Steering Gear

Adjust the steering gear preloads and backlash. (Adjust at initial 6,000 miles only.) Check the fluid level; use steering gear lubricant B8A-19578-A, as required. The following steering gear checking and filling procedure should be used:

1. Turn the steering wheel to the full right turn position.

2. Remove the filler plug and the lower sector cover attaching bolt from the steering gear housing.

3. Agitate the lubricant with a screwdriver through the filler plug hole to dissipate any possible air bubbles.

4. Check the lubricant level. It should be even with the lower edge of the filler plug hole.

5. If the level is low, add Lubricant B8A-19578-A through the lower bolt hole until it is level with the lower edge of the filler plug hole.

6. Cycle the gear through a full left turn and back to the full right turn position; then, recheck the fluid level.

7. Install the lower sector cover attaching bolt and the filler plug.

EVERY 12,000 MILES OR 12 MONTHS

Wheels and Tires

Cross-switch the wheels and tires and check for tire wear. If unusual tire wear is noted, check the wheel balance and front wheel alignment; adjust, as required.

Brake Linings

Inspect the front brake linings for wear. If the linings are worn to within 1/32 inch of the top of the rivets, reline or replace the brake shoes and linings.

Wheel Bearings

Clean and repack the front wheel bearings with Lubricant C2AZ-19585-A.

Engine Performance Service

Check the battery and battery cables. Adjust all drive belts, using the approved belt tension gauge. Adjust the ignition timing and carburetor. Lubricate the distributor and inspect the spark plugs, the distributor rotor, and the breaker points. Replace as required. Adjust the valve clearance.

EVERY 30,000 MILES OR 30 MONTHS

Universal Joints

Repack front and rear "U" joints with Lubricant CIAZ-19586.

Carburetor Air Cleaner

Replace the carburetor air cleaner filter element.

SEASONAL PREVENTIVE MAINTENANCE

1. Radiator—flush once every 2 years (when using "long-life coolant" of 50-50 solution FoMoCo brand cooling concentrate and water). If "long-life coolant" is not used, flush at least once a year, preferably just before Winter; add anti-freeze or rust inhibitor each Fall, as required.

2. Inspect all hoses and hose clamps; replace, if necessary.

3. Carburetor—position accelerator pump link in proper lever hole for the prevailing climate.

4. Cars equipped with air conditioning—each Spring check the compressor oil level; and check the sight glass for the condition of charge in the system.

LUBRICANTS AND CAPACITIES

(All Service Capacities on an "As Required" Basis Unless Otherwise Specified.)

ENGINE OIL

Only those oils which have been tested and certified by the marketer as satisfying the engine operating sequence* for service MS should be used.

Certified oils are described on the container by such phrases as: **meets, excels, exceeds, or had proven superior to test requirements, test sequences, MS service tests standards and service requirements of automotive manufacturers, auto makers, car makers, or car manufacturers for MS service or service MS.**

When an MS oil is used which is not certified by the maker as having passed the engine operating sequence test*, the addition of Rotunda Oil Conditioner, Lubricant C2AZ-19579-A, to the oil will satisfy the requirements.

If engine oils or replacement filters other than those recommended here are used, it may be necessary to change the oil more often than the 6,000 mile interval, outlined in this section.

*Defined by ASTM Committee D2 for Section G IV of Technical Committee B and published in the SAE Handbook, 1960 Edition describing those oils which will satisfy Ford Motor Company Specification M2C27 for "Service MS".

Oil should be chosen in the viscosity range to accommodate the extremes of expected temperature. (See the Temperature-Viscosity Chart.)

Temperature-Viscosity Chart

+90°F and above .....SAE 10W-30 or 30
+20°F to +90°F..SAE 10W-30 or 20-20W
−10°F to +20°F..SAE 10W-30 or 10-10W
−10°F and below .....SAE 5W-20 or 5W*

*Sustained speeds above 65 M.P.H. should be avoided when using SAE 5W-20 or 5W engine oils.

COMPONENT	LUBRICANT
Engine Capacity	Engine Oil—See Temperature-Viscosity Chart 4½ Quarts (Including Oil Filter)
Brake Master Cylinder	Heavy-Duty Brake Fluid B7A-19542 ¼-½ Inch From Top of Filler Opening
Front Suspension Ball Joints	Chassis Lubricant
Steering Linkage	Chassis Lubricant
Transmissions: Merc-O-Matic* Standard	 Automatic Transmission Fluid C1AZ-19582 SAE 80 Multi-Purpose Gear Lubricant (Winter and Summer)
Rear Axle Housing: Refill Capacity (When Changing Lube Due to Temperature Requirements) For Sustained Temperatures Above—25°F. For Sustained Temperatures Below—25°F.	 2½ Pints Rear Axle Lubricant C1AZ-19580-A Rear Axle Lubricant C1AZ-19580-B
Steering Gear	Steering Gear Lubricant B8A-19578-A
Front Wheel Bearings	Wheel Bearing Grease C2AZ-19585-A
Universal Joints	Lubricant C1AZ-19586
Distributor: Cam Lobes Breaker Cam Bearing (I.D. of Cam) Oil Cup Cam Oil Wick	 Cam Lubricant Engine Oil (SAE 10-10W) Engine Oil (SAE 10-10W) Engine Oil (SAE 10-10W)

*The transmission vent cap must be free to rotate, and the vent kept open. Otherwise, a build-up of high internal pressure will cause fluid leaks.

SECTION 13—BODY

13A—VEHICLE IDENTIFICATION

PATENT PLATE

The Vehicle Numbering System is basically a 1961 carryover. However, in 1962, the consecutive serial number will begin with 500001 instead of 800001 as was the case in Production Year 1961.

The serial number line and the vehicle data line have exchanged locations and a space has been provided in the vehicle data line for D.S.O. items (Fig. 49).

Body Style Code

Code Number	Body Style	Body Type	Series
02	54A	4-Door Sedan	Comet
01	62A	2-Door Sedan	
21	59A	2-Door Station Wagon	
22	71A	4-Door Station Wagon	
12	54B	4-Door Sedan	Comet Custom
11	62B	2-Door Sedan	
17	62C	2-Door Special Sedan S-22	
23	59B	2-Door Station Wagon	
24	71B	4-Door Station Wagon	

Color Code. A single letter code designates a solid body color and two letters denote a two-tone—the first letter, the lower color and the second letter, the upper color.

Code	Color	"M" Number
A	Presidential Black	M30J-1724
D	Ocean Turquoise	M30J-1451
E	Pacific Blue	M30J-1448
F	Sea Blue	M30J-1449
H	Blue Satin	M30J-1447
J	Carnival Red	M30J-1515
K	Light Aqua	M30J-1452
M	Sultana White	M30J-1238
P	Scotch Green	M30J-1454
Q	Sheffield Gray	M30J-1371
R	Jamaica Yellow	M30J-1456
T	Champagne	M30J-1543
X	Black Cherry	M30J-1444
Z	Desert Frost	M30J-1427

Trim Code. A two-digit number indicates the type of trim and trim color.

If due to unavailability or other difficulties in production, a particular trim set is not intended for service (minor deviation from intended trim), the patent plate code will be followed with a numerical designation—For example: 52-1, 52-2.

If the trim set is serviced directly, the patent plate code will bear an alphabetical suffix—For example: 52-A, 52-B.

KEY CODES

The key code for the front door locks and the ignition switch appears on the door lock cylinder in the right hand door for emergency use. If it is necessary to determine this number, use the following procedure:

1. Pull back the weatherstrip on the rear door face in the area of the door lock cylinder to expose the spring clip.
2. Using a screwdriver and pliers, remove the spring clip.
3. Pull the lock cylinder from the door. The key code number appears on the underside of the lock cylinder.
4. Replace the cylinder, spring clip and weatherstrip.

Code	Trim Scheme
12	Blue Vinyl & Blue 3D B/Cloth
14	Beige Vinyl & Beige 3D B/Cloth
15	Red Vinyl & Black 3D B/Cloth
17	Turquoise Vinyl & Turquoise 3D B/Cloth
40	White Vinyl & Black Bethany B/Cloth
42	Blue Vinyl & Blue Bethany B/Cloth
45	Red Vinyl & Black Bethany B/Cloth
47	Turquoise Vinyl & Turquoise Bethany B/Cloth
52	Blue Vinyl
54	Beige Vinyl
55	Red Vinyl
56	Black Vinyl
57	Turquoise Vinyl
75	White & Red Vinyl
76	White & Black Vinyl

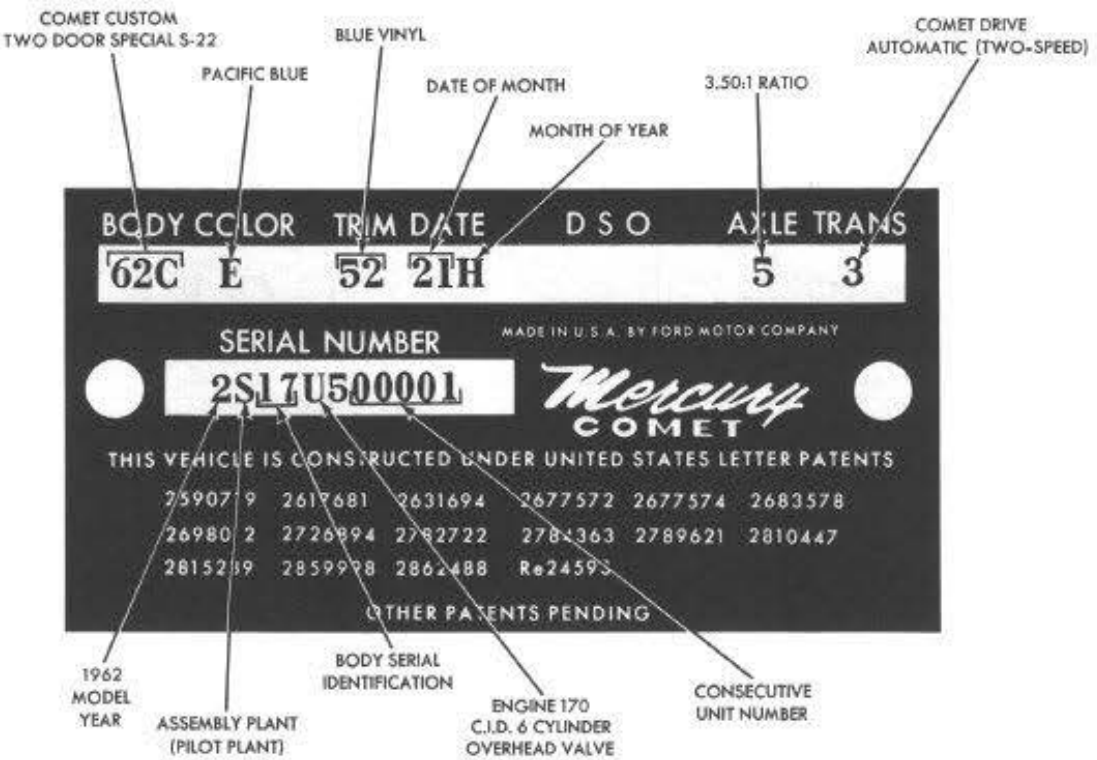
Rear Axle Ratio Code

Code	Ratio
3	3.20 to 1
5	3.50 to 1
9	4.00 to 1

Engine Identification Code

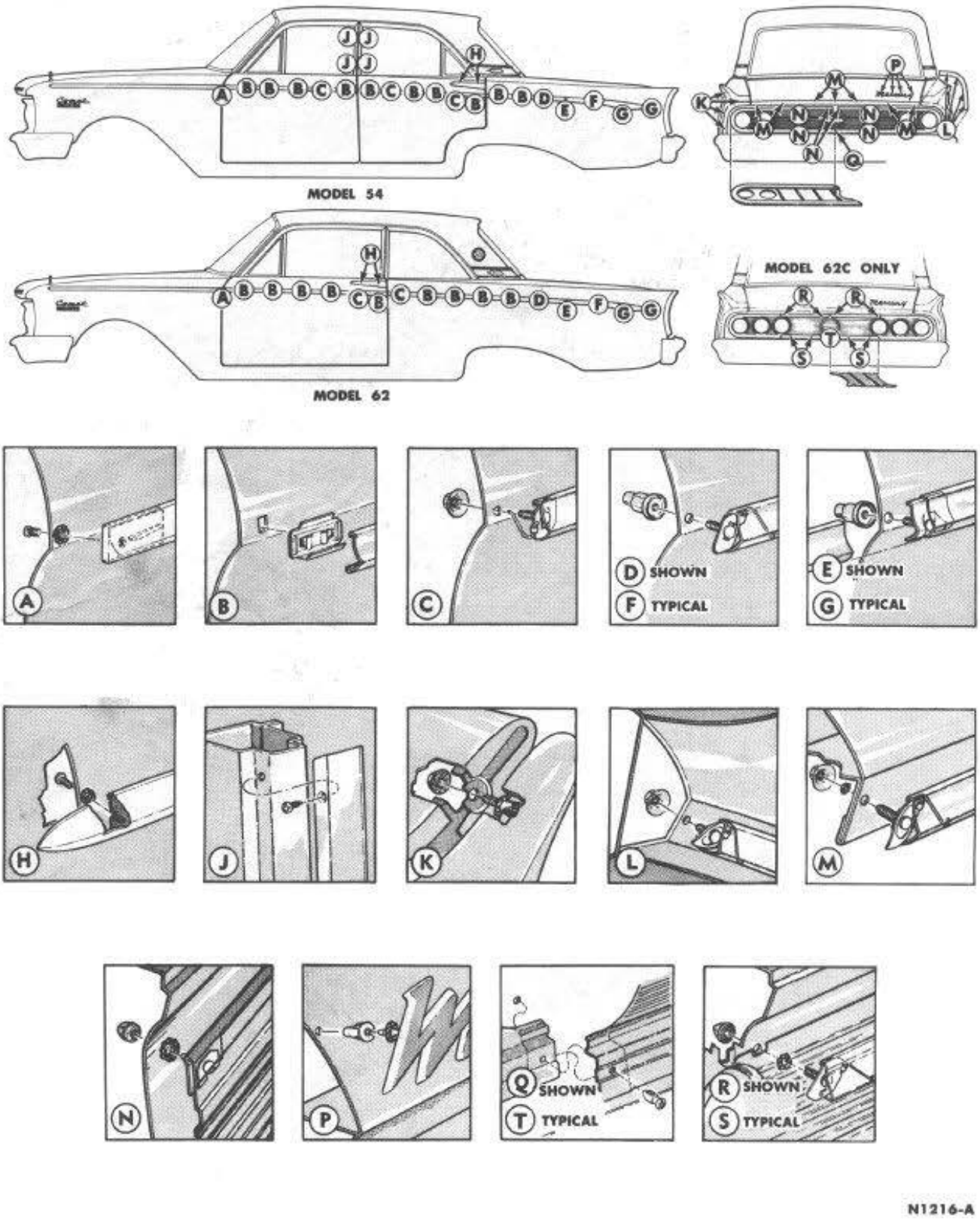
Code	Engine (C.I.D.)
S	144
*D	144
U	170
*E	170

*Low Compression.



M1097-A

FIG. 49—Patent Plate



N1216-A

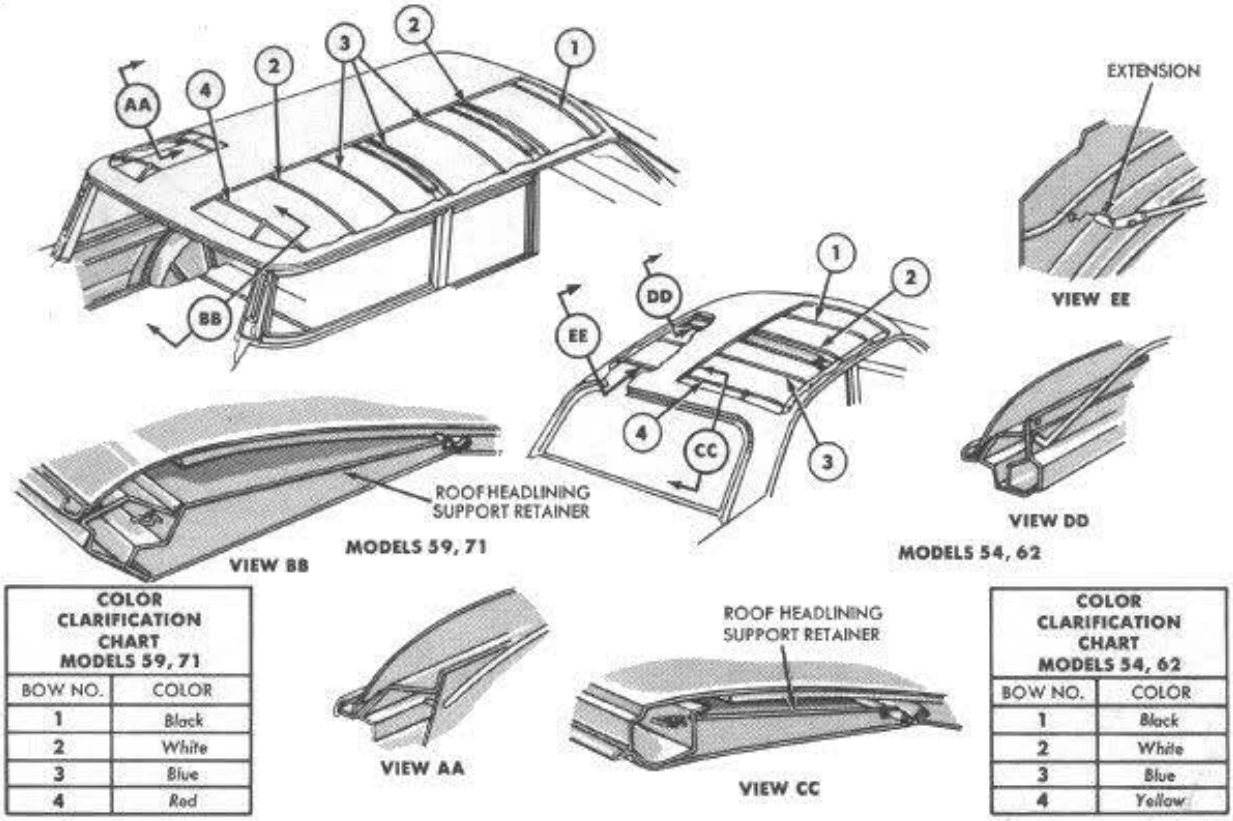
FIG. 50—1962 Exterior Mouldings—Models 54 and 62

Page 131 is missing from my manual.

Please contact me if you have information about acquiring this page.

Page 132 is missing from my manual.

Please contact me if you have information about acquiring this page.



COLOR CLARIFICATION CHART MODELS 59, 71	
BOW NO.	COLOR
1	Black
2	White
3	Blue
4	Red

COLOR CLARIFICATION CHART MODELS 54, 62	
BOW NO.	COLOR
1	Black
2	White
3	Blue
4	Yellow

M1098-A

FIG. 52—Roof Bow Identification—Models 59, 71, 54, 62

14. Remove the roof bows from the headlining. Check the headlining retainers and roof bows to see that none are distorted. Check the roof panel insulation to make certain it is not loose at any point.

Installation

1. Insert the roof bows into the listings of the headlining. Make sure each bow is in its proper listing.

2. Starting at the rear of body, insert the end of the rear (No. 4) bow into the retainers of the roof side rail. Install the two headlining rear support retainers.

3. Insert the remaining roof bows into the respective retainers on the roof side rail.

4. Stretch the headlining toward the front or rear, as required, to take up any slack in material between the bows. The headlining can be properly centered by pulling the material on the sides. In some cases, it may be necessary to cut the ends of the headlining listings in order to stretch the material tight.

5. Trim the headliner front edge, leaving approximately ½ inch of material for tucking under the windshield weatherstrip.

6. Apply trim cement to the windshield upper frame.

7. Position the remaining ½ inch of material under the windshield weatherstrip. Start at the center and work towards the sides.

8. Pull the rear end of the headlining down, starting at center, and cement the headlining to the back window opening. Do not pull the headlining down too tight as the contour will be lost at the rear corners.

9. Tuck the side edges of the headlining under the retainer strips with a dull putty knife and secure the edges to the metal prongs on the retainer strips. Secure the lower rear edge of the headlining with the metal tabs at each side of the body.

10. Trim the headliner, leaving approximately ½ inch of material to tuck into the stationary window weatherstrip.

11. Apply trim cement to the stationary glass upper frame.

12. Position the remaining ½ inch of material under the stationary window weatherstrip.

13. Install the remaining parts by reversing the order of removal procedure.

LOWER BACK PANEL APPLIQUE

Removal

1. With luggage compartment door open, remove the two protective shields from rear lights.

2. Remove rear light assemblies, and back-up lights if so equipped.

3. Remove acorn nuts which secure the applique to the lower back panel, and remove applique.

Installation

1. Position applique to lower back panel.

2. Pack sealer firmly around all stud holes.

3. Install acorn nuts, rear light assemblies, back-up lights, if so equipped, and protective shields.

13K SPECIFICATIONS

SPECIFIED LUBRICANTS

Hood:

- Lock ..... COAZ-19553-A, B, or COAZ-19584-A
- Hinges ..... COAZ-19553-A, B, or COAZ-19584-A

Door:

- Lock Rotor ..... COAZ-19553-A or B
- Hinges COAZ-19553-B

Check Arms ..... COAZ-19584-A or COAZ-19553-A

Lock Cylinder B4A-19587-A

Luggage Compartment Door:

- Hinges ..... COAZ-19553-B or COAZ-19584-A
- Lock Rotor COAZ-19553-A
- Lock Striker Plate ..... COAZ-19553-A, B, or COAZ-19584-A
- Lock Cylinder B4A-19587-A

Station Wagon Tailgate:

- Hinges COAZ-19553-B
- Support Arm Pivots COAZ-19553-B
- Lock Cylinder B4A-19587-A

Front Seat Track COAZ-19584-A

Lubricant COAZ-19553-A is a silicone jelly; COAZ-19553-B is a silicone spray.

FORD MOTOR COMPANY

FORD MOTOR COMPANY PUBLICATIONS

QUALITY SERVICE

FORD MOTOR COMPANY SERVICE