

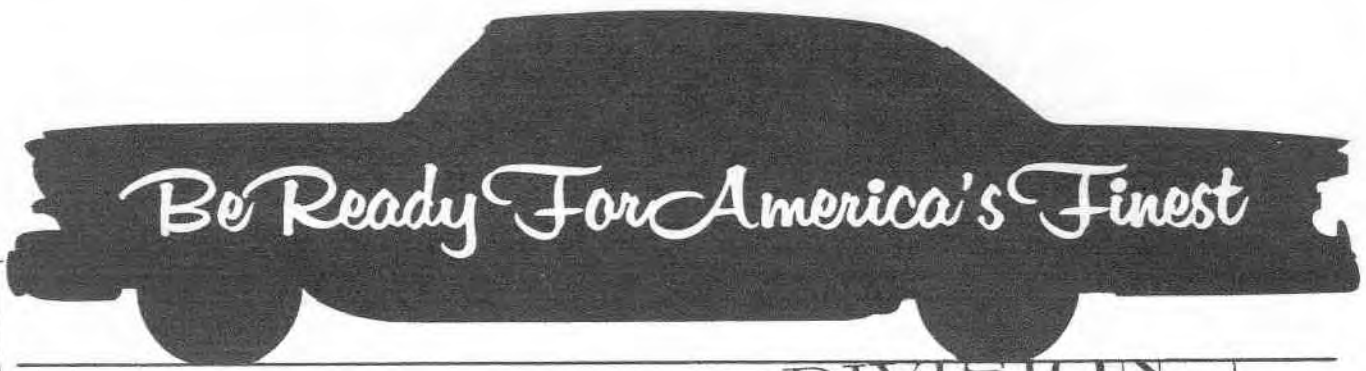
PONTIAC



Service Craftsman News

No. 10 S-299

Nov. 1957



PONTIAC MOTOR DIVISION

Pontiac, Michigan



TO ALL DEALER SERVICE PERSONNEL: --

In a short time, the 1958 Pontiac will be introduced. Without doubt, this is the finest car Pontiac has produced...a fitting tribute to fifty years of progress. You will play a vital part in the successful introduction of this great car...and in its sale throughout the year...because good service is so important in creating and maintaining satisfied customers.

This issue of the Pontiac Service Craftsman News is of particular importance to each of you. It contains service information on the 1958 model and supplements the Preliminary Shop Manual which has already been released.

We strongly recommend that you familiarize yourself with all the information available. This will enable you to provide the best possible pre-delivery service...and assure that every new Pontiac owner becomes an enthusiastic booster for our product.

Yours in an important contribution to the success of your dealership and Pontiac. We have full confidence that you will accept, and fulfill this responsibility.

Very truly yours,

H. J. Hales
General Service Manager

PRECAUTIONS MUST BE TAKEN WITH NEW AIR RIDE

The following information on the air ride system supplements that contained in the 1958 Preliminary Shop Manual and will be included in the final Shop Manual.

The CAR LIFT knob must always be in either the full IN or full OUT position, otherwise neither the regulator or exhaust port of manual valve will be blocked by the sliding valve (Fig. 3A-2, 1958 Preliminary Shop Manual) and all compressed air will exhaust (bleed off) from the system.

Best performance of Ever-Level ride is obtained with car at recommended trim height (page 33, Preliminary Shop Manual). Operating car with override applied (knob pulled out) results in a stiff ride since it is riding with bumpers against upper control arms at front and against stops of extended shock absorbers at rear.

The Ever-Level ride springs permit the use of lower velocity shock absorbers than can be used with conventional coil springs. These shock absorbers offer low resistance to compressing and extending; therefore, mechanics are cautioned to check operation of shock absorbers carefully so as to avoid unnecessary replacements.

Use of the override feature of Ever-Level system will facilitate the removal and installation of shock absorbers.

Shock Absorber Specifications Air Ride

Front

Collapsed length (over ends of studs)	Approx. 15-1/8"
Extended length (over ends of studs)	Approx. 22-5/8"
Travel	Approx. 7-1/2"

Rear

Collapsed length (center of eyes)	Approx. 13-3/16"
Extended length (center of eyes)	Approx. 21-15/16"
Travel	Approx. 8-3/4"

Tension is maintained on the new design front suspension lower ball joints by the weight of the car. Therefore, any time the front end of a 1958 car is jacked up until car weight is relieved from wheels, the lower control arm will be loose on the ball studs. Do not replace lower control arm ball studs because of this looseness.

(See Air Suspension Precautions, Page 79)

Push Rod Clearance For 1958 Standard Brake

With the new type suspended standard brake pedal for the 1958 Pontiac an important precaution must be taken after a pedal height or stop light switch adjustment: The length of the master cylinder push rod must be adjusted to provide 1/64" to 1/32" clearance between the forward end of the push rod and the socket seat in the master cylinder piston, with the pedal lever pulled up against the stop (Fig. 1).

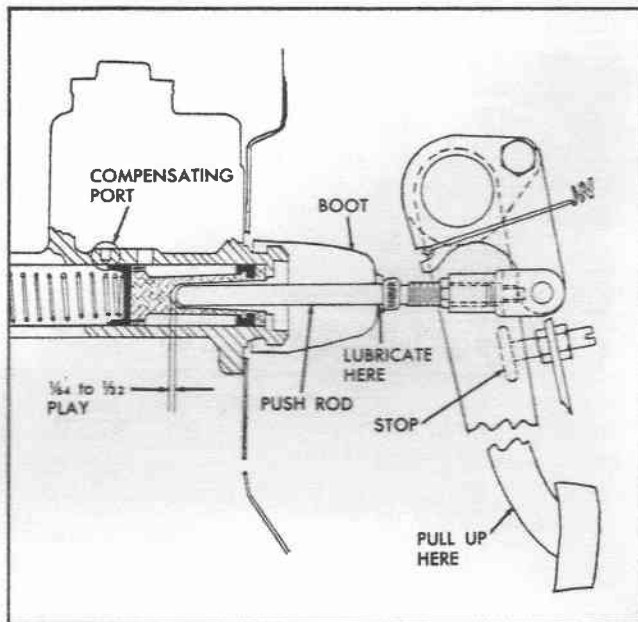


Fig. 1 Brake Pedal Push Rod Clearance

If the push rod does not have this clearance, the piston may not return to its stop inside the master cylinder causing the cup to block the compensating port.

(See Push Rod Adjustment, Page 78)

VAUXHALL SERVICE INFORMATION

Service Information for the new Vauxhall will appear in subsequent issues of the Service Craftsman News.

It is important that everyone be familiar with the servicing of this product as it is possible that Canadian tourists, as well as our own tourists, will be calling on your Pontiac dealership for assistance in maintenance and lubrication services.

Acceptance of this new product will depend a great deal upon proper servicing. Remember, owner satisfaction is an important step to future sales of our Vauxhall product.

CHANGES MADE IN THE NEW "SUPER HYDRAMATIC"

Below are listed the basic changes in the Hydra-Matic transmission for 1958.

Front End

Thrust washer and spacer ring between front unit drive torus and front flywheel housing are eliminated. Steel washer between end of front unit sun gear and large drive torus is selective. Needle bearing with thrust washer fore and aft is used between front internal gear and sun gear in place of former bronze thrust washer and steel washer to increase front unit thrust capacity. Snap ring is added to retain front unit needle bearing and thrust washers.

Neck of torus cover is enlarged and improved welding process employed to reduce possibility of leaks. A large diameter oil seal is used due to increase in diameter of torus cover neck. The front unit selective spacer behind internal gear is eliminated.

Parking Brake

Parking brake lever, links and pawl are redesigned to reduce parking release force.

Mainshaft and Output Shaft

Mainshaft is shortened and does not pilot in output shaft; therefore, output shaft pilot bushing is eliminated. Output shaft incorporates finer splines for increased engine torque.

Front Pump Intake Pipe and "O" Ring

Intake pipe "O" ring is located within a groove in pump body; therefore, flange is not required at pump end of intake pipe.

Rear Pump

The rear pump locating screw is eliminated.

Flywheel

The flywheel seal support which is welded to flywheel has been redesigned to trap dirt, thus eliminating its recirculation through transmission.

Governor

The G-1 weight is crimped into a groove in the G-1 valve plunger.

Sprags

The front and rear sprags for 1958 are improved to eliminate pop-over, and provide greater load carrying capacity and centrifugal engaging force.

These sprags are interchangeable with those used in 1957 transmissions.

Rear Unit

A needle bearing is used instead of bronze thrust washer between rear unit sun gear and output shaft carrier.

Reverse Unit

A composition washer is used in place of former bronze washer.

Transmission Case and Oil Pan

The case has been changed to accommodate the new parking brake and new thermostatic coupling fill element. The transmission oil filler hole is located at right hand side of oil pan.

Control Valve Changes Are: Shift Valve

A lighter neutral clutch valve spring is used.

Clutch Valve

1. Transition valve ball is eliminated and valve spring shortened.
2. Overrun clutch valve is shortened and spacer added.

Manual Valve

Body has been changed to provide for thermostatic TV control element. Element and adjusting set screw are added; thus, TV plug is eliminated. NOTE: Thermostatic controls are incorporated in 1958 transmissions starting with serial numbers P-58-30276 and approximately PA-58-1502.

Accumulator

The accumulator piston has been changed, spring is shortened and spacer added.

Channel Plate

The channel plate has been changed to accommodate new manual valve body with thermostatic control and the elimination of accumulator by-pass valve.

Powder red dye for testing for crankcase and automatic transmission oil leaks is available in one ounce packages from Di-Pax, Box 3131, Memphis, Tennessee.

Follow Definite Procedure in Servicing "Safeguard" Speedometer

A new accessory for the 1958 Pontiac is the "Safeguard" speedometer. A buzzer and caution light warns the driver when a pre-selected speed has been passed.

A switch on the instrument panel has positions marked for 25, 35, 45, 55 and 65 miles per hour and "Off".

After the switch is set and the pre-selected speed is exceeded, a buzzer will be heard during a 9 mph range above the setting and an amber warning light will be illuminated. The signals will stop operating when the speed exceeds the 9 mph range. When speed is reduced to the 9 mph range, the signals will again operate down to the pre-selected speed.

Figure 2 shows the electrical Circuit for the "Safeguard" speedometer. It points out the control switch, line connector, buzzer, multiple connector contacts, warning lamp, and leads to the fuse block. The buzzer and lamp are part of the same circuit. This is important to remember when diagnosing trouble in the circuit. The speedometer is equipped to make contact and close any one of five pre-set contacts.

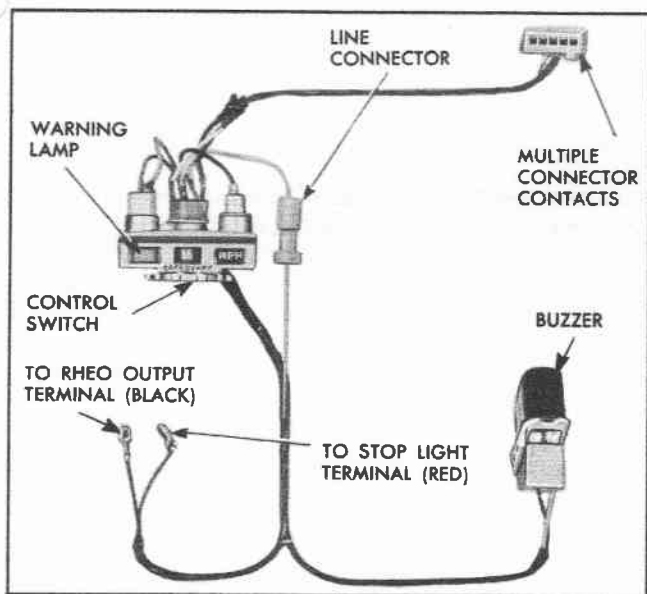


Fig. 2 Circuit For Safeguard Speedometer

It is important to follow a definite procedure in servicing this unit. If the buzzer and lamp fail to operate, first check the stop lamp fuse. If only the buzzer works, replace the warning lamp bulb. Check the circuit at the line connector next. If the lamp and buzzer do not operate with the line connector grounded, the trouble is in these units. If the buzzer and lamp operate when line connector is grounded, the

trouble is in the switch, multiple connector contacts, or speedometer.

The multiple connector contacts should be checked next by grounding all five circuits or each one individually. Operate the control switch on the dash from "Off" to 65, 55, 45, 35, and 25 miles per hour circuits.

If the buzzer and lamp fail to operate on all five circuits it is evident that the trouble is in the switch or line connector. If the buzzer and lamp operate at all speed settings, the trouble is located either in the speedometer or multiple connector contacts. Check the contacts with the unit in tact as follows:

1. If all five speedometer speed positions give no warning during the road test, the speedometer should be removed without further checkings.
2. If all the speed positions are not inoperative, then failure of the grounding contacts is quite possible. Before removing the speedometer, place individual jumpers between the line connector and the speedometer multiple contacts. (See Fig. 3). If the operation is normal during the road test, the trouble is in the connector contacts.

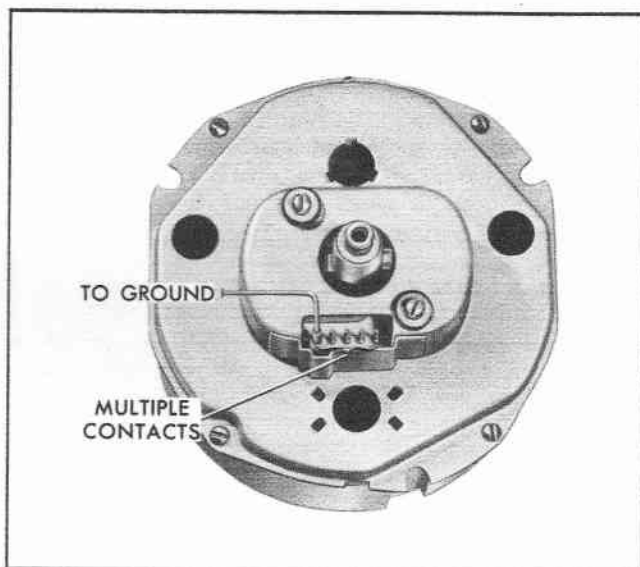


Fig. 3 Speedometer Multiple Contacts

Remember the importance of checking the circuit of the new speed warning system FIRST to prevent unnecessary removal of the speedometer. Considerable time will be saved if correct diagnosis is made at the start of the job.

The rear pump locating screw has been eliminated from late 1957 production Hydra-Matic transmissions and does not have to be used in reassembling any 1956 or 1957 Strato-Flight Hydra-Matic transmissions.

F. I. COLD ENRICHMENT SETTING CLARIFIED

At the recent National Service Meeting there was some question as to which set of notches to use on the cold enrichment cover setting.

The cold enrichment cover has 72 graduations on its outer edge and 36 graduations inside these. The small graduations (72 on the outside edge) are those referred to as notches in the Fuel Injection Shop Manual and should be used in setting the cold enrichment.

The specifications are 5 notches rich on 1957 units and one notch rich on 1958 units.

New Choke Setting for 1958 Carter 4 Barrel Carburetor

Choke setting for the 1958 Carter 4 barrel carburetor is one notch rich. Choke setting on the Rochester 2GC carburetor remains at center index.

DO NOT LUBRICATE CENTER U-JOINT SPLINED YOKE

When removing the propeller shaft on 1958 models, a screw may be noticed in the splined yoke at the center U-joint. It is important to emphasize that the hole is NOT used for periodic lubrication.

No periodic lubrication is necessary for the splined yoke. The ONLY time the spline must be lubricated is when the propeller shaft has been disassembled while servicing any related units. In this case, high melting point wheel bearing lubricant is recommended.

FLAT RATE CLARIFICATION

Some questions have been received regarding operation No. 14-668 and similar operations that appear in the 1955-56-57 Pontiac Flat Rate Manual. In these instances the major operation is shown to include time for evacuating and charging the complete Freon system and a combination is listed for adding a partial charge.

Notation should be made that this partial charge combination applies ONLY to early 1955 models equipped with a receiver and shut-off valve. The time allowed for the major operation on these early 1955 jobs does NOT include complete recharging since it was possible to pump down then open the low pressure side of the system without loss of Freon.

Don't Get Caught!



Every year after the new model announcement, there have been cases where customers have had trouble understanding the function or use of new features on the car. In order to minimize the situation this year we are listing some important precautions which should be noted concerning new model features.

Be sure that you can pass this information on to the owner. It is also included in the 1958 Pontiac Owner's Guide which the owner should be referred to.

Tips on 1958 features:

1. Fuel Gauge - When the ignition switch is turned off on the 1958 Pontiac, the needle may come to rest at ANY position between the "E" and "F" marks (Owner's Guide, page 6).
2. Clock Adjustment - If the clock gains time the hands should be moved COUNTERCLOCKWISE. If it loses time the hands should be moved CLOCKWISE (Owner's Guide, page 8).
3. Gasoline Spillage - The owner should be cautioned against spillage of high octane gasoline on acrylic finishes or tail lamp lens. Deterioration to the paint or lens may result if the gasoline is not washed off immediately.
4. Heater Operation - The owner should be informed that the "TEMP" control automatically regulates the temperature of the air discharged from the heater. Once the "TEMP" lever has been adjusted to produce a comfortable temperature it should be left alone (Owner's Guide, page 20).
5. Break-in Brakes - The owner should be cautioned to break in new, unseasoned brake linings to develop the smooth surface which gives the longest brake life (Owner's Guide, page 27).

(See 1958 Features, Page 79)

EDITOR'S NOTE: There is an addition to the paint color group called "Jubilee Gold" for the 1958 Pontiac. This color will be coded "Z" with duPont stock number 2865L.

Remove Shipping Blocks on 1958 Air Suspension Cars

Cars equipped with Ever-Level Air Ride are fitted with metal blocks for truck or freight car shipment. These blocks should be removed from the car by the Dealer immediately upon receipt of car in the following manner.

1. Start and run engine to pressurize air ride system and relieve blocks.
2. With car resting on tires, pull out CAR LIFT knob located on underside of instrument panel to left of steering column thus raising car to override position. CAUTION: Do not pull out CAR LIFT knob after it is supported on twin post hoist for it may slide off supports.
3. Remove front block and bumper assemblies from lower control arms and rear block and bumper assemblies from frame (Figs. 4 and 5).
4. Remove bumpers from blocks.
5. Install front bumpers on lower control arms and attach rear bumpers in frame tightening nuts to 60-120 lb. in. torque.

Return shipping blocks removed from cars in accordance with instructions furnished by zone office.

LUBRICANT REQUIREMENT FOR SAFE-T-TRACK DIFFERENTIAL

A new lubricant requirement comes along with the introduction of the Safe-T-Track differential for 1958 models.

Under no circumstances should the hypoid lubricant used for standard differential be used in the Safe-T-Track differential. The original factory fill and subsequent changes must be factory recommended multi-purpose gear lubricants. The use of other lubricants with Safe-T-Track differential will result in "chatter" on turns.

The ring gear and drive pinion matched sets for service are the same for both the standard differential and the Safe-T-Track differential. These packages have been changed to include the new multi-purpose lubricant, which is satisfactory for both standard and Safe-T-Track differentials. Should it be necessary to install a new ring gear and drive pinion matched set with a Safe-T-Track differential be sure that the new multi-purpose lubricant is used. If the old hypoid lubricant previously used for standard differentials is used it will result in severe "chatter" on turns.

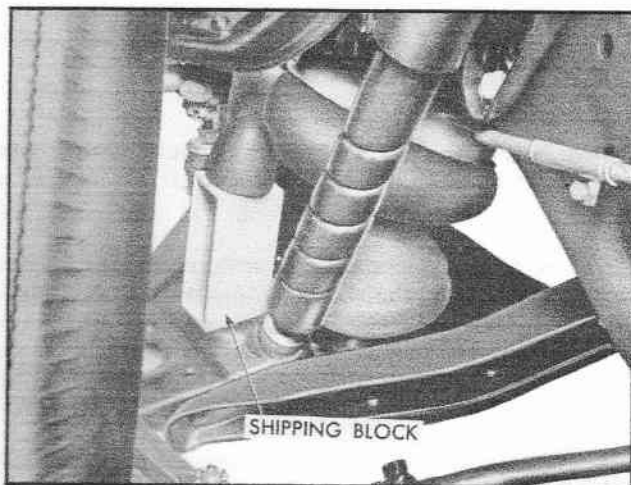


Fig. 4 Front Shipping Block

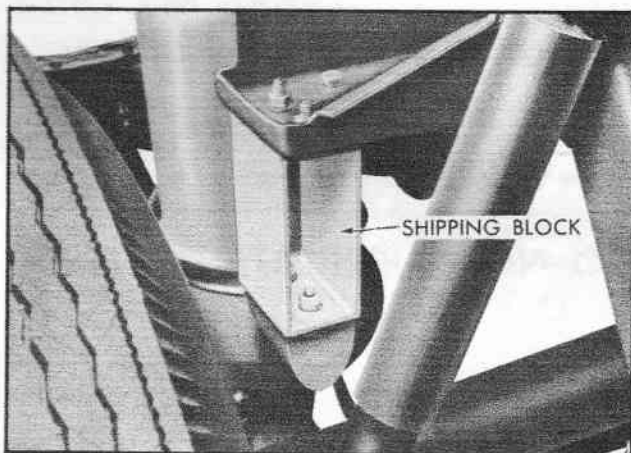


Fig. 5 Rear Shipping Block

PUSH ROD ADJUSTMENT

(Continued From Page 74)

A blocked compensating port cuts off return of fluid into the reservoir, and can result in lining drag, fade, and complete brake burn up. Therefore, be CERTAIN there is PROPER PLAY in the push rod after making a pedal height or stop light switch adjustment.

NOTE: Lubricate hole in boot with soap or brake fluid to prevent rod from snapping back to its original position due to the grip the rubber boot has upon it. DO NOT USE OIL OR GREASE as it will have a deteriorating effect upon the rubber boot.

Screw Removed on Rail Shipped Cars

On 1958 Pontiac cars shipped by rail it was necessary to remove the front engine splash pan front attaching screw to permit attachment of the hold down strap. This screw is one of two used to attach the front splash apron to the frame near the pitman arm. Dealers should install this screw (1/4" - 14 x 5/8" metal screw) before delivering the car.

AIR SUSPENSION PRECAUTIONS

(Continued From Page 74)

When CAR LIFT knob is pulled out the rear end of car will rise faster to override height because increased air pressure is being supplied through two height control valves at rear and only one valve at front.

ALWAYS USE JACKS UNDER AN AIR RIDE CAR BEFORE USING CREEPER as precaution in case air should exhaust from system.

ALWAYS USE JACKS UNDER OUTER ENDS OF AXLES OR FRAME WHEN SUPPORTING AIR RIDE CAR ON HOIST.

Since natural rubber is not resistant to oil, KEEP LUBRICATING OIL, GREASE AND UNDERCOATING OFF AIR RIDE PARTS, PARTICULARLY SPRING DIAPHRAGMS AND PISTONS.

Dash pots will not be incorporated in height control valves of early production Ever-Level Air Ride cars.

When installing new piston rings in air com-

pressor, remove glaze from cylinder walls with hand hone to allow rings to wear until properly seated.

1958 FEATURES

(Continued From Page 77)

- Paper Filter Element - This should never be oiled, or cleaned and reused . . . replace it at 10,000 miles (Owner's Guide, page 35).
- Instrument Panel Lights - When the light switch control knob is turned in a clockwise direction as far as it will turn, the instrument panel lights will go off (Owner's Guide, page 7). Owners often are unaware of this fact.

Knowledge of the above precautions will help minimize owner problems caused by a lack of understanding the function or operation of a new feature on the car. Be certain you are prepared to meet such situations by being aware of the above features.

Decision has been made to increase hot engine idle speeds on all Hydra-Matic transmission equipped 1958 cars to 480-500 RPM. Please proceed accordingly. Synchro-Mesh transmission car idle speed will remain unchanged.

1958 COIL SPRING COLOR CHART

The coil spring color chart shown below is supplied for Pontiac Dealer Service Departments as a guide in checking model application of production front and rear springs on the 1958 Pontiac.

Front Springs*

Body Styles and Models	SM Transmission	HM Transmission	Models with Air Conditioning
Convertible Coupe (25)	Yellow & Red	Yellow & Orange	Yellow & Pink
Sport Coupe (25)	Yellow & White	Yellow & Blue	Yellow & Pale Green
HD Chassis (27)	Yellow & Gray	Yellow & Gray	
Station Wagon (27)	Yellow & Purple	Yellow & Purple	
Sedans (27 & 28)	Yellow & Blue	Yellow & Dark Green	Yellow & Purple
Exc. Police & Taxi			
Police & Taxi	Yellow & Pink	Yellow & Purple	

Rear Springs**

Convertible Coupe (25)	Yellow & Orange	*Paint daub 1/2" wide on outside center coil **Paint daub on outside near center coil NOTE: If chassis black paint is found on these areas, it can be removed with gasoline to expose paint daub.
Sport Coupe (25)	Yellow & Yellow	
2 Door Sedan (27)	Yellow & Blue	
4 Door Sedan (27)	Yellow & Red	
Special Station Wagon (27)	Yellow & Pale Green	
Custom Station Wagon (27)	Yellow & White	
HD Chassis (27)	Yellow & Purple	
2 Door Sedan (28)	Yellow & Brown	
4 Door Sedan (28)	Yellow & Dark Green	
Taxi & Police	Yellow & Pink	

1958 FLAT RATE OPERATIONS

BODY REPAIR OPERATIONS MADE AVAILABLE

The following are some 1958 body flat rate operations. The operations listed are on some of the more commonly referred to body repair operations available at this time.

Unless otherwise indicated, the following combinations apply to all refinish operations.

Combination

Time

- A. For any two-tone panel add2
- B. For color coat only operation
Time 1/2 total allowed
Paint material 3/4 total allowed
- C. With any refinish operation where full time has been allowed deduct2
- D. With any refinish operation of an adjacent panel where full time has been allowed deduct4

1-100 Windshield Glass and/or Rubber Channel
(10.027)G and/or Reveal Molding Complete - Replace
(10.093)M

Includes: R & R Reveal and Garnish Moldings, Rear View Mirror, Rubber Channel, Glass, Align, Reseal and Extra Man's Assistance

Does Not Include: Align Windshield Openings When Necessary

- 58 - 2793, 2793D, 2794, 2741, 2749, 2849D, 2731, 2739, 2831D, 2839D 3.1
- 58 - 2831SD, 2839SD, 2849SD, 2793SD 3.9
- 58 - 2547SD 3.8
- 58 - 2567, 2567SD 3.3

1-170 Instrument Panel - Refinish
(10.230)

Includes: Masking Panel and Cleaning Up

- 58 - All 2.1
(1/2 Qt. Paint Material)

1-172 Windshield Garnish Molding, Right or Left - Refinish
(10.051)

Does Not Include: Time for R & R Molding

- 58 - All Except 2793SD, 2749SD, 2767, 2767SD4

1-174 Glove Compartment Door - Refinish
(10.261)

- 58 - All4
(1/8 Qt. Paint Material)

1-200 Back Window Glass and/or Rubber Channel,
(11.204)G Right or Left - Replace
(11.207)C

Includes, R & R Garnish and Reveal Moldings and Corner Escutcheons, Sealing, Clean-Up and Extra Man's Assistance

- 58 - 2731, 2739, 2741, 2749, 2831D, 2831SD, 2839D, 2839SD, 2849D, 2849SD. . . . 2.4
- 58 - 2547SD 2.5

1-240 Headlining Assembly - Replace
(14.640)

Includes: R & R Garnish Moldings, Rear View Mirror, Sun Visors, Rear Seat Assembly, Dome Light and Transfer Listing Wires

Chassis: D & C Battery1

- 58 - 2731 4.5
- 58 - 2739, 2749, 2849D, 2849SD 4.4
- 58 - 2839D, 2839SD, 2741, 2547SD 4.8
- 58 - 2831D, 2831SD 4.9
- 58 - 2793, 2793D, 2793SD, 2794. 5.7

1-250 Roof Panel - Refinish
(12.810)

Includes: Masking Panel and Clean-Up

- 58 - 2731, 2739, 2741, 2749, 2831D, 2831SD, 2839D, 2839SD, 2849D, 2849SD 4.1
(2-3/8 Qts. Paint Material)
- 58 - 2547SD 3.7
(2-1/8 Qts. Paint Material)
- 58 - 2793, 2793D, 2793SD, 2794. 4.9
(3-1/8 Qts. Paint Material)

1-252 Roof Panel, Front Half or Rear Half - Refinish
(12.810)

Includes: Masking Panel and Clean-Up

- 58 - 2731, 2739, 2741, 2749, 2831D, 2831SD, 2839D, 2839SD, 2849D, 2849SD. . . . 2.3
(1-1/4 Qts. Paint Material)
- 58 - 2547SD 2.1
(1-1/4 Qts. Paint Material)
- 58 - 2793, 2793D, 2793SD, 2794. 2.7
(1-5/8 Qts. Paint Material)

	Time		Time
1-254 (12.966)		Rear Compartment Front Panel - Refinish	
		Includes: Mask Panel	
		58 - 2731, 2739, 2741, 2749, 2831D, 2831SD, 2839D, 2839SD, 2849D, 2849SD, 2547SD, 2567, 2567SD. . . . .	.8
		(1/4 Qt. Paint Material)	
1-256 (11.120)		Back Window Garnish Molding, Complete - Refinish	
		Does Not Include: R & R Garnish Molding	
		58 - 2731, 2739, 2741, 2749, 2831D, 2831SD, 2839D, 2839SD, 2849D, 2849SD, 2547SD. . . . .	.4
1-306 (12.941)		Center Body Pillar Right or Left - Refinish	
		Includes: Masking Panels	
		58 - 2793, 2793D, 2793SD, 2794, 2749, 2849D, 2849SD, 2739, 2839D, 2839SD	.6
		(1/8 Qt. Paint Material)	
1-370 (12.934)		Rocker Panel, Right or Left - Refinish	
		Includes: Masking Panel	
		58 - All	1.0
		(1/4 Qt. Paint Material)	
1-400 (11.011)		Rear Quarter Windows Glass, Right or Left - Replace	
		Includes: R & R Rear Seat Assembly, Garnish Molding, Trim Pad and Loading Hole Cover	
		58 - 2741	1.4
		58 - 2831D, 2831SD, 2547SD, 2731	1.9
		58 - 2567, 2567SD	1.2
		Cars Equipped with Electric Window Regulator Add	(.1)
1-480 (12.940)		Rear Quarter Panel, Right or Left - Refinish	
		Includes: Mask Panel	
		58 - 2741	3.3
		(1-1/8 Qts. Paint Material)	
		58 - 2831D, 2831SD	3.0
		(1-1/8 Qts. Paint Material)	
		58 - 2739, 2749, 2793, 2793D, 2793SD, 2794	2.1
		58 - 2849D, 2849SD, 2839D, 2839SD . . .	2.4
1-482 (12.940)		Rear Quarter Panel, Lower, Right or Left - Refinish	
		Includes: Mask Panel	
		58 - 2731, 2741, 2547SD, 2567, 2567SD. .	2.7
		(1 Qt. Paint Material)	
1-484 (12.940)		Rear Quarter Panel Lower, Upper Area, (Above Rear Fender Upper Molding), Left or Right - Refinish	
		58 - 2731, 2741, 2547SD, 2567, 2567SD	1.3
		(1/2 Qt. Paint Material)	
		58 - 2831D, 2831SD	1.4
		(1/2 Qt. Paint Material)	
		58 - 2739, 2749, 2793, 2793D, 2793SD, 2794	1.1
		(3/8 Qt. Paint Material)	
		58 - 2849D, 2849SD, 2839D, 2839SD . . .	1.2
		(3/8 Qt. Paint Material)	
1-486 (12.940)		Rear Quarter Panel Lower, Accent Area, (Between Rear Fender Upper and Lower Molding) Left or Right - Refinish	
		58 - 2731, 2741, 2547SD, 2567, 2567SD, 2849D, 2849SD, 2839D, 2839SD . . .	1.0
		(3/8 Qt. Paint Material)	
		58 - 2831D, 2831SD	1.1
		(3/8 Qt. Paint Material)	
		58 - 2739, 2749, 2793, 2793D, 2793SD, 2794 . . . . .	.9
		(3/8 Qt. Paint Material)	
1-488 (12.940)		Rear Quarter Panel Lower, Lower Area, (Below Rear Fender Lower Molding), Left or Right - Refinish	
		58 - 2731, 2741, 2547SD, 2567, 2567SD,	1.0
		(3/8 Qt. Paint Material)	
		58 - 2831D, 2831SD	1.1
		(3/8 Qt. Paint Material)	
		58 - 2739, 2749, 2793, 2793D, 2793SD, 2794 . . . . .	.7
		(1/4 Qt. Paint Material)	
		58 - 2849D, 2849SD, 2839D, 2839SD. . . .	.8
		(3/8 Qt. Paint Material)	
1-490 (12.940)		Rear Quarter Panel, Upper (Above Belt Line), Right or Left - Refinish	
		Includes: Mask Panel	
		58 - 2741	1.0
		(3/8 Qt. Paint Material)	
		58 - 2793, 2793D, 2793SD, 2794. . . . .	.7
		(1/4 Qt. Paint Material)	
1-492 (11.119)		Rear Quarter Window Garnish Molding, Right or Left - Refinish	
		Does Not Include: R & R Garnish Molding	
		58 - 2731, 2741, 2793, 2793D, 2793SD, 2794 . . . . .	.5
		(1/4 Qt. Paint Material)	

		Time			Time
1-494 (12.116)	Rear Quarter Belt Finishing Molding Assembly - Refinish		1-590 (11.075)	Front Door Garnish Molding, Right or Left - Refinish	
	58 - 2831D, 2831SD, 2567, 2567SD, 2547SD	3.5		Does Not Include: R & R Molding	
1-500 (10.681)	Front Door Glass, Right or Left - Replace			58 - 2793, 2793D, 2793SD, 2794 . . . . .	.5
	Includes: R & R Garnish Molding, Trim Pad, Vent Assembly and Vent Regulator and Sash Channel to Glass			(1/4 Qt. Paint Material)	
	58 - 2793, 2793SD, 2793D, 2794, 2741, 2749, 2849D, 2849SD	1.4	1-592 (11.075)	Front Door Belt Finishing Molding, Left or Right - Refinish	
	58 - 2731, 2739, 2831D, 2831SD, 2547SD, 2567, 2567SD, 2839D, 2839SD	1.3		58 - 2741, 2749, 2849D, 2849SD, 2731, 2739, 2831D, 2831SD, 2547SD, 2567, 2567SD, 2839D, 2839SD . . . . .	.5
				(1/4 Qt. Paint Material)	
1-502 (10.658)	Front Door Vent Glass, Right or Left - Replace		1-600 (10.741)	Rear Door Glass, Right or Left - Replace	
	58 - All . . . . .	.5		Includes: R & R Garnish Molding, Trim Pad and Glass Run Channel	
1-580 (10.351)	Front Door Panel, Right or Left - Refinish			58 - 2793, 2793D, 2793SD, 2794	1.4
	Includes: Mask Panel			58 - 2749, 2849D	1.3
	58 - 2793, 2793D, 2793SD, 2794, 2741, 2749, 2849D, 2849SD	1.8		58 - 2849SD	1.2
	(3/4 Qt. Paint Material)			58 - 2739, 2839D, 2839SD . . . . .	.7
	58 - 2731, 2739, 2831D, 2831SD, 2547SD, 2567, 2567SD, 2839D, 2839SD	1.4	1-602 (10.827)	Rear Door Vent Glass, Left or Right - Replace	
	(3/4 Qt. Paint Material)			58 - 2849SD . . . . .	.5
1-582 (10.351)	Front Door Panel, Lower, Right or Left - Refinish		1-680 (10.373)	Rear Door Panel, Right or Left - Refinish	
	Includes: Mask Panel			Includes: Mask Panel	
	58 - 2793, 2793D, 2793SD, 2794, 2741, 2749, 2849D, 2849SD	1.4		58 - 2793, 2793D, 2793SD, 2794, 2749, 2849D, 2849SD	1.8
	(3/4 Qt. Paint Material)			(3/4 Qt. Paint Material)	
				58 - 2739, 2839D, 2839SD	1.4
				(3/4 Qt. Paint Material)	
1-584 (10.351)	Front Door Lower Panel, Upper or Lower Area, Left or Right - Refinish		1-682 (10.373)	Rear Door Panel, Lower, Right or Left - Refinish	
	58 - All . . . . .	.8		Includes: Mask Panel	
	(1/2 Qt. Paint Material)			58 - 2793, 2793D, 2793SD, 2794, 2749, 2849D, 2849SD,	1.4
1-586 (10.351)	Front Door Lower Panel, Accent Strip, Left or Right - Refinish			(3/4 Qt. Paint Material)	
	58 - All . . . . .	.5	1-684 (12.913)	Rear Door Panel, Lower, Upper Area, Right or Left - Refinish	
	(1/4 Qt. Paint Material)			58 - All . . . . .	.6
				(3/8 Qt. Paint Material)	
1-588 (10.351)	Front Door Panel, Upper, Right or Left - Refinish		1-686 (12.913)	Rear Door Panel, Lower, Lower Area, Right or Left - Refinish	
	Includes: Mask Panel			58 - All . . . . .	.7
	58 - 2741, 2749, 2793, 2793D, 2793SD, 2794	1.0		(3/8 Qt. Paint Material)	
	(1/4 Qt. Paint Material)				

		Time
1-688 (12.913)	Rear Door Panel, Accent Area, Right or Left - Refinish Does Not Include: R & R Name Plate	
58 - 2739, 2749, 2793, 2794	(1/4 Qt. Paint Material)	.5
1-690 (12.913)	Rear Door Panel, Upper, Right or Left - Refinish	
58 - 2793, 2793D, 2793SD, 2794, 2749	(1/4 Qt. Paint Material)	1.0
1-692 (11.089)	Rear Door Garnish Molding, Right or Left - Refinish Does Not Include: R & R Garnish Molding	
58 - 2793, 2793D, 2793SD, 2794	(1/4 Qt. Paint Material)	.5
1-694 (12.114)	Rear Door Belt Finishing Molding, Right or Left - Refinish	
58 - 2749, 2849D, 2849SD, 2739, 2839D, 2839SD . . . . .		.5
1-770 (12.181)	Rear Compartment Lid and End Gates - Refinish Includes: R & R Compartment Lid Handle and Mask Panel	
58 - 2731, 2739, 2741, 2749, 2547SD, 2567, 2567SD	(1 Qt. Paint Material)	2.0
58 - 2831D, 2831SD, 2839D, 2839SD, 2849D, 2849SD	(1-1/8 Qts. Paint Material)	2.3
	Tail Gate - Refinish	
58 - 2793, 2793D, 2793SD, 2794	(1 Qt. Paint Material)	1.7
	Lift Gate - Refinish	
58 - 2793, 2793D, 2793SD, 2794	(1/4 Qt. Paint Material)	1.0
1-722 (12.966)	Rear End Panel - Refinish Includes: Mask Panel	
58 - All Except 2793, 2793D, 2793SD, 2794	(3/8 Qt. Paint Material)	1.1

Front Seat

1-800 (14.799)	Front Seal Assembly - Replace Includes: R & R Sill Plates (Adjusters Re-
-------------------	---

	mained Attached to Seat Assembly)	
58 - All . . . . .		.5
Note: The above operation also applies to cars equipped with special order seat adjusters.		
1-844 (14.890)	Front Seat Cushion Cover Assembly - Replace	
58 - 2567SD, 2831SD, 2739, 2749, 2793, 2793SD, 2794, 2849SD		2.4
58 - 2831D		2.3
58 - 2547SD, 2567, 2731, 2741		2.1
58 - 2839SD		2.7
58 - 2793D, 2839D, 2849D		2.6

Combinations

A. Seat Cushion Cotton Pad - Replace . . . . .	.3
B. Seat Cushion Rubber Pad - Replace . . . . .	.5
C. Seat Cushion Wire Insulator - Replace or Repair - With Comb. A . . . . .	.2
With Comb. B . . . . .	.4
D. Seat Cushion Frame and Spring Replace (With Comb. A and C Only) . . . . .	.4

1-850 (14.800)	Front Seat Back and Back of Back Cover Assembly - Replace	
58 - 2839SD		2.1
58 - 2739, 2749, 2839D, 2793, 2793D, 2793SD, 2794, 2849D, 2849SD		1.8

Combination

A. Seat Back Cushion Cotton Pad Insulator and/or Frame and Spring - Replace4
---	----

1-860 (14.998)B (15.033)C	Rear Seat Assembly - Replace	
58 - All Except 2793, 2793D, 2793SD, 2794, 2547SD . . . . .		.3
58 - 2547SD . . . . .		.4

1-862 (15.035)	Rear Seat Cushion Cover Assembly - Replace	
58 - 2831SD, 2839SD, 2547SD		1.4
58 - 2731, 2741, 2739, 2749, 2849SD, 2567		1.1
58 - 2831D, 2839D, 2849D, 2547D		1.3

Combinations

A. Seat Cushion Cotton Pad - Replace . . . . .	.2
B. Seat Cushion Rubber Pad - Replace . . . . .	.4
C. Seat Cushion Jute Pad Insulator and/or Spring - Replace (With Comb. A or B) . . . . .	.4

Service Procedures For New Heavy Duty Transmission

MINOR REPAIRS

TRANSMISSION SIDE COVER

GENERAL DESCRIPTION

TRANSMISSION

The three-speed Synchro-Mesh transmission shown in (Fig. 6) is used as standard equipment on heavy duty chassis, taxi cabs and police cars. All gears are of helical design. The gears used for second and third speed are in constant mesh with the countergear and are used with synchronizer cones to reduce the possibility of clashing gears.

The mainshaft is supported by roller bearings in the main drive gear at the front end, and by a ball bearing in the rear bearing retainer.

The countershaft gear is supported by a double row of roller bearings at each unit. Thrust on the countershaft gear is taken by a bronze thrust washer at the front and by dual thrust washers, bronze and steel, at the rear. The second speed gear and reverse idle gear are supported by press-fit ball-indented steel-backed bronze bushing, while the main drive gear is supported by a ball bearing in the front of the transmission case.

The synchronizer assembly consists of a second and third speed clutch hub, clutch sleeve, two synchronizing cones, two clutch key springs, and three energizer clutch keys which are retained as an assembly on the mainshaft by a snap ring.

A spring-loaded oil seal, which wipes on the propeller shaft universal joint yoke hub, is pressed into rear end of rear bearing retainer.

PERIODIC SERVICE

TRANSMISSION

No periodic service of the transmission is required except checking for leaks and proper lubricant level at each 2000 mile chassis lubrication (for details see General Lubrication Section in 1958 Manual.)

TRANSMISSION GEAR SHIFT CONTROL

No periodic service of the shift control is required. The gearshift control linkage is lubricated at assembly and only requires further lubrication with Lubriplate No. 105 when parts become dry and sticky.

REMOVAL

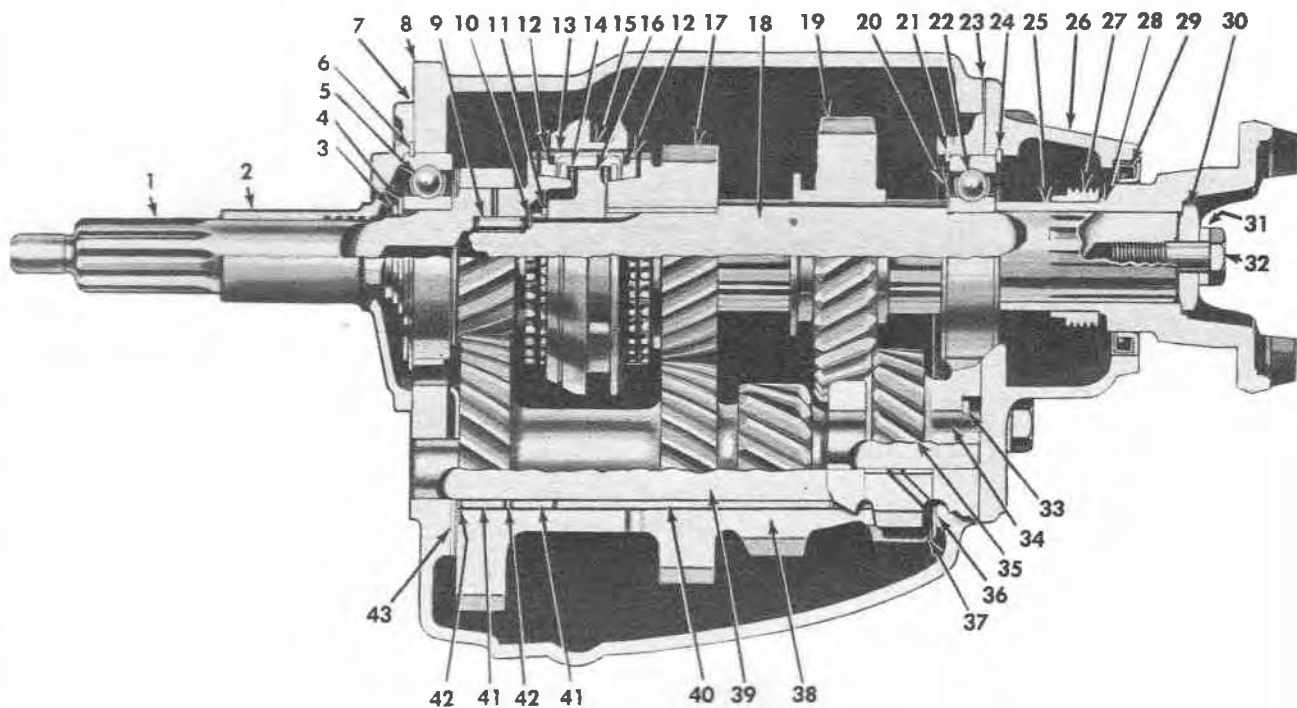
1. Remove drain plug and drain lubricant from transmission case.
2. Disconnect control rods from control levers at transmission cover.
3. Remove nut and lock washer from each shift lever shaft. Remove outer control levers.
4. Remove nine hex head bolts and lock washers securing cover to side of case. Remove side cover assembly and gasket from transmission case (Fig. 7).

DISASSEMBLY

1. Remove shifting forks from shift levers.
2. Remove shafts, two steel poppet balls, poppet spring, interlock pin, and interlock sleeve from cover.
3. Remove O-ring seals from shift lever shafts (Fig. 7).

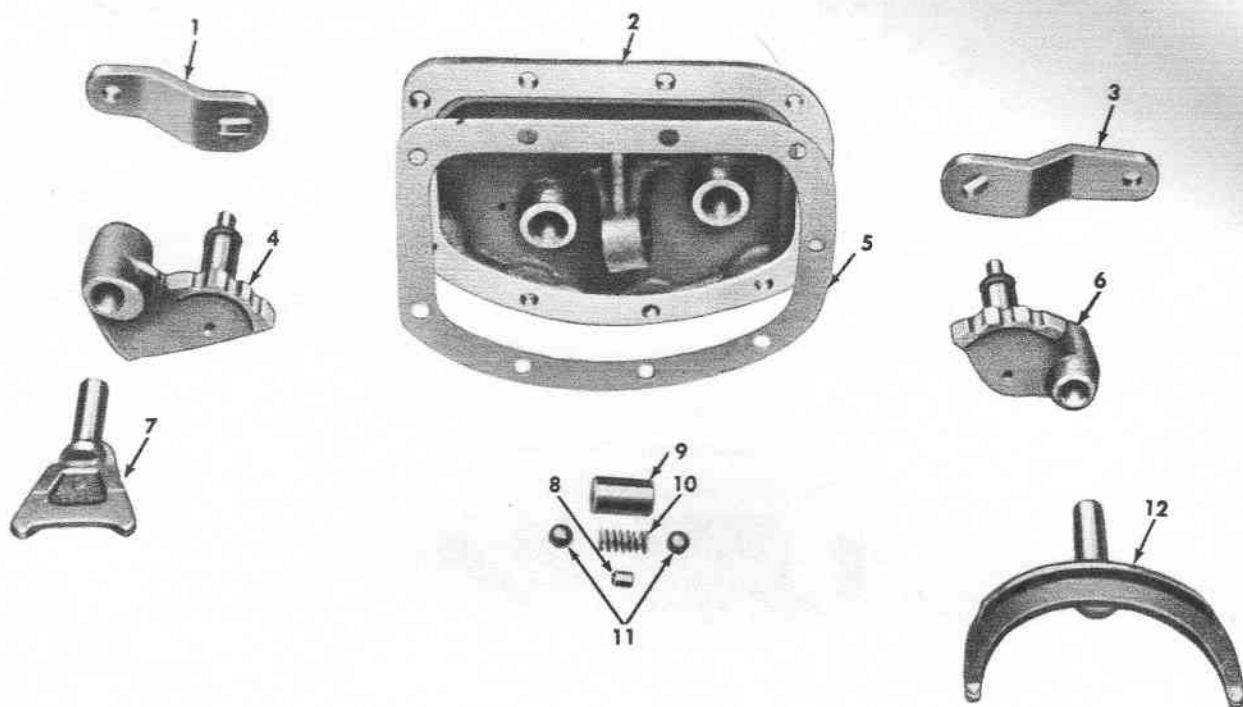
ASSEMBLE TRANSMISSION SIDE COVER

1. Install new O-ring seals in grooves in shift lever shafts.
2. Place 1st and reverse shift lever in cover.
3. Install interlock sleeve, poppet ball, poppet spring, and interlock pin, with ball engaging center detent in lever cam. Install the other poppet ball, then install 2nd and 3rd shift lever in cover (Fig. 7).
4. Check clearance between end of interlock sleeve and shift lever cams when one lever is in neutral (center detent) and the other lever is shifted into gear position. Clearance should be 0.001" to 0.007". Interlock sleeves are available in lengths of 1.0235", 1.0185", 1.0135", and 1.0085", to provide selection for proper clearance.
5. Install outer control levers on shift lever shaft and secure with flat washers, lock washers and nuts. Tighten nuts securely.
6. Place shifting forks in shift levers.



- | | |
|--|--|
| 1. Main Drive Gear | 25. Spacer |
| 2. Main Drive Gear Bearing Retainer | 26. Mainshaft Rear Bearing Retainer |
| 3. Main Drive Gear Snap Ring | 27. Speedometer Drive Gear |
| 4. Main Drive Gear Washer | 28. Universal Joint Yoke |
| 5. Main Drive Gear Bearing | 29. Rear Bearing Retainer Oil Seal |
| 6. Main Drive Gear Bearing Snap Ring | 30. Special Washer |
| 7. Bearing Retainer Gaskets | 31. Lock Washer |
| 8. Transmission Case | 32. Universal Joint Flange Retaining Bolt |
| 9. Mainshaft Front Roller Bearings | 33. Reverse Idler Gear Shaft Lock Key |
| 10. Bearing Spacing Washer | 34. Reverse Idler Gear Shaft |
| 11. Clutch Hub Retaining Snap Ring | 35. Reverse Idler Gear |
| 12. Synchronizing Cones | 36. Countershaft Gear Rear Thrust Washer (Steel) |
| 13. Clutch Key | 37. Countershaft Gear Rear Thrust Washer (Bronze) |
| 14. Clutch Key Springs | 38. Countershaft Gear |
| 15. 2nd and 3rd Speed Clutch Sleeve | 39. Countershaft |
| 16. 2nd and 3rd Speed Clutch Hub | 40. Countershaft Bearing Spacer |
| 17. 2nd Speed Gear | 41. Countershaft Roller Bearings |
| 18. Mainshaft | 42. Countershaft Bearing Retainer Washers |
| 19. 1st and Reverse Sliding Gear | 43. Countershaft Gear Front Thrust Washer (Bronze) |
| 20. Not Used | 44. Oil Retaining Washer |
| 21. Mainshaft Rear Bearing Front Snap Ring | |
| 22. Mainshaft Rear Bearing | |
| 23. Rear Bearing Retainer Gasket | |
| 24. Mainshaft Rear Bearing Rear Snap Ring | |

Fig. 6 Cross Section of Heavy Duty Transmission



- | | | |
|----------------------------------|-------------------------------|----------------------------|
| 1. 1st and Reverse Control Lever | 5. Gasket | 9. Interlock Sleeve |
| 2. Side Cover | 6. 2nd and 3rd Shifter Lever | 10. Poppet Spring |
| 3. 2nd and 3rd Control Lever | 7. 1st and Reverse Shift Fork | 11. Poppet Balls |
| 4. 1st and Reverse Shifter Lever | 8. Interlock Pin | 12. 2nd and 3rd Shift Fork |

Fig. 7 Side Cover Exploded View

REPLACE

1. Make sure all particles of old gasket are removed from side of transmission case. Place new gasket on case.
2. Place gears in transmission in neutral. Place shifter forks on cover in neutral (center detent) position.
3. Position cover assembly at transmission case, making sure shifter forks engage grooves in 2nd and 3rd speed clutch sleeve and in 1st and reverse gear (Fig. 6). Secure cover to case with nine cap screws and lock washers, and tighten firmly.
4. Install outer control levers.
5. Connect control rods to control levers.
6. Install drain plug in bottom of transmission case. Fill transmission with lubricant.

**TRANSMISSION REAR BEARING
RETAINER OIL SEAL REPLACE****REMOVE**

1. Remove propeller shaft drive line assembly. (See removal of transmission)
2. Attach tool J-6289 to universal joint yoke and remove retaining bolt.
3. Remove universal joint yoke and washer.
4. Using a punch or similar tool remove oil seal.

REPLACE

1. Using tool J-5154A drive oil seal flush with rear bearing retainer.
2. Install universal joint yoke and washer.
3. With tool J-6289 attached to universal joint yoke install retainer bolt and tighten securely.

4. Install propeller shaft drive assembly by reversing removal procedure.

REMOVAL OF TRANSMISSION

1. Remove propeller shaft drive line assembly. (See removal of propeller shaft drive line assembly (Section 4) of the 1958 Preliminary Shop Manual.) NOTE: Front propeller shaft is connected to a yoke flange at the transmission instead of the yoke sliding on the main shaft as our standard transmission.
2. Disconnect speedometer cable.
3. Disconnect gear shift control linkage.
4. Remove upper transmission to clutch housing bolts and install transmission aligning studs J-1126. CAUTION: Aligning studs must be used since they support transmission and prevent distortion of clutch driven plate hub when lower transmission bolts are removed.
5. Remove lower bolts and remove transmission.

DISASSEMBLY OF TRANSMISSION

1. Place transmission assembly on a bench or a suitable repair stand.
2. Remove outer control levers.
3. Remove nine hex head bolts and lock washers securing side cover to transmission case. Remove side cover assembly and gasket (Fig. 7).
4. Lock transmission in two gears so mainshaft cannot be turned.
5. Remove hex head bolt and special washer securing universal joint yoke on mainshaft.
6. Remove yoke and speedometer drive gear as an assembly. NOTE: If speedometer drive gear is to be replaced use tool set J-4869 for removing and replacing gear.
7. Remove spacer from mainshaft.
8. Remove four hex head bolts securing mainshaft rear bearing retainer to case, move retainer away from case approximately one-half inch, then rotate retainer to expose countershaft and lock key. (Fig. 8)
9. From front of transmission case, drive countershaft to rear, using countershaft needle bearing loader tool J-5589. NOTE: When lock key in countershaft clears transmission case (Fig. 8), remove lock key to permit countershaft to clear rear bearing retainer.

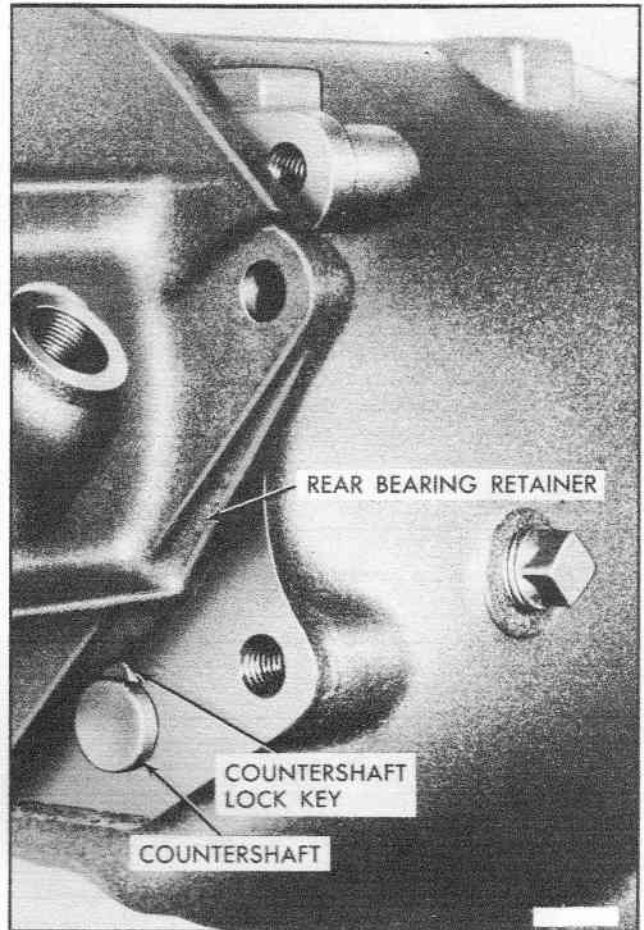


Fig. 8 Rear Bearing Retainer Rotated

10. Drive countershaft all the way out and leave tool J-5589 in the countershaft gear to retain the roller bearings (Fig. 9).
11. Drop countershaft gear down in transmission case, then remove rear bearing retainer, gasket, and mainshaft assembly from transmission case as shown in Fig. 10.
12. Remove 14 mainshaft front roller bearings from inside the main drive gear, (Fig. 11) and remove bearing spacing washer from front end of mainshaft. (Fig. 6)
13. Remove four hex head bolts securing main drive gear bearing retainer to case. Remove bearing retainer and gasket.
14. Remove main drive gear snap ring and washer from main drive gear at front side of main drive gear bearing using snap ring pliers. Place transmission case on end on arbor press bed and press main drive gear out of bearing.
15. Remove oil retaining washer from main drive gear.

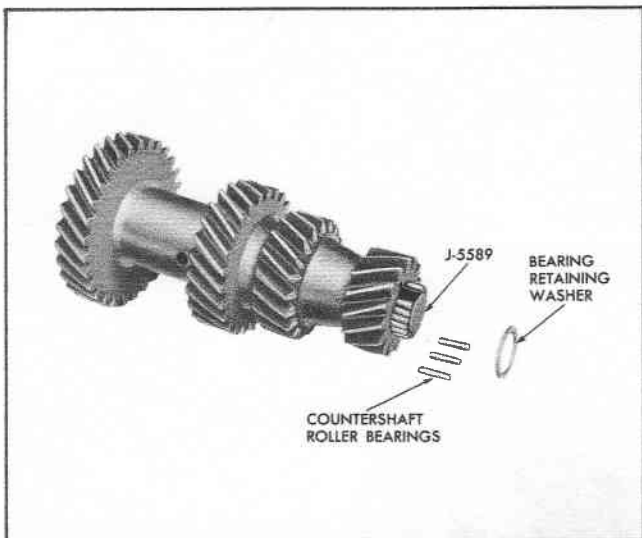


Fig. 9 Bearing Loader Positioned in Countergear

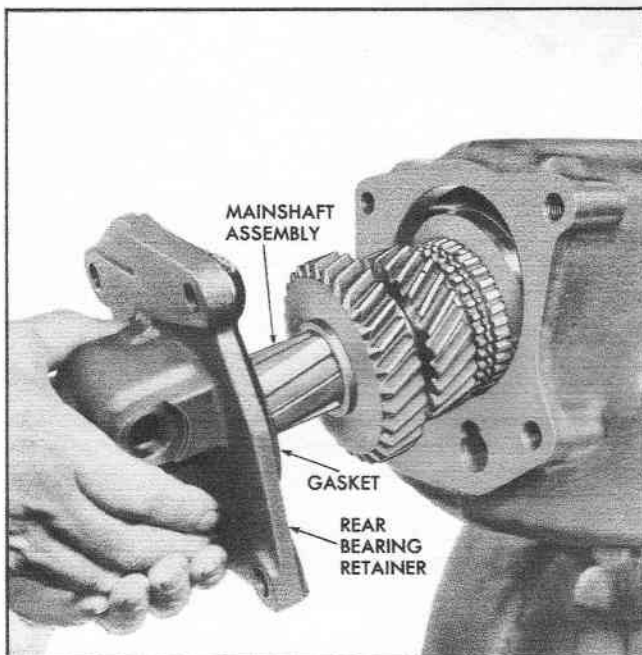


Fig. 10 Removing or Replacing Rear Bearing Retainer and Mainshaft Assembly

16. Tap the main drive gear bearing out through front of case.
17. Drive reverse idler gear shaft to rear of case and remove lock key, shaft, and reverse idler gear.
18. Remove countershaft gear assembly and thrust washers from transmission case. Remove tool from countershaft gear. Remove 80 roller bearings, four bearing retaining washers, and bearing spacer from inside the gear (Fig. 12).

DISASSEMBLE MAINSHAFT AND REAR BEARING RETAINER

1. Remove synchronizing cone from front side of 2nd and 3rd speed clutch sleeve. Remove clutch hub retaining snap ring from front end of mainshaft, using snap ring pliers as shown in Fig. 13.
2. If relationship of 2nd and 3rd speed clutch sleeve and 2nd and 3rd speed clutch hub are not marked, mark for assembly purposes. Remove 2nd and 3rd speed clutch sleeve from clutch hub and remove hub from mainshaft (Fig. 14).
3. Remove two clutch key springs and three clutch keys from clutch hub (Fig. 15).
4. Remove synchronizing cone and 2nd speed gear from mainshaft.
5. Remove 1st and reverse sliding gear from mainshaft.
6. Remove mainshaft rear bearing front snap ring from rear bearing retainer, then tap mainshaft and rear bearing out of retainer. Remove mainshaft rear bearing rear snap ring from retainer.
7. Remove rear bearing from main shaft using second speed gear as a slide hammer.
8. Drive oil seal out of rear bearing retainer.

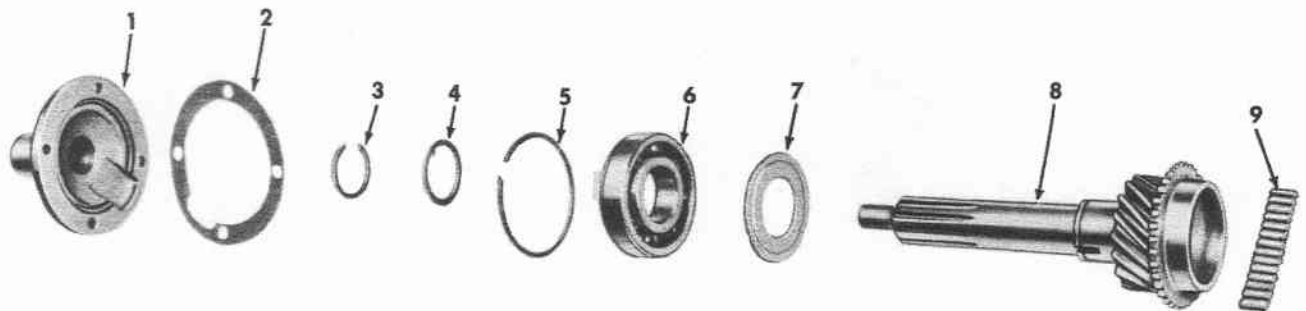
CLEANING AND INSPECTION

BEARINGS

1. Wash all bearings thoroughly in cleaning solvent, then blow bearings dry with compressed air. **CAUTION:** Do not allow bearings to spin; turn them slowly by hand. Spinning bearings may damage the race and balls.
2. After cleaning bearings, lubricate them with light engine oil and check for roughness by slowly turning the outer race by hand.

TRANSMISSION CASE

1. Wash the transmission case thoroughly inside and out with cleaning solvent, then inspect case for cracks.
2. Check the front and rear faces for burrs and if any are evident, dress them off with a fine cut mill file.
3. Check bearing and shaft bores in case and if damaged, replace case.



- | | | |
|-------------------------------------|------------------------------|------------------------------------|
| 1. Main Drive Gear Bearing Retainer | 4. Main Drive Gear Washer | 7. Oil Retaining Washer |
| 2. Bearing Retainer Gasket | 5. Main Drive Gear Snap Ring | 8. Main Drive Gear |
| 3. Main Drive Gear Snap Ring | 6. Main Drive Gear Bearing | 9. Mainshaft Front Roller Bearings |

Fig. 11 Main Drive Gear Exploded View With Retainer and Gasket

GEARS

1. Inspect all gears for excessive wear, chips, or cracks, and replace any that are not in good condition.
2. Inspect bushings in second speed gear and reverse idler gear for wear or damage. If either bushing is worn or damaged, replace the complete gear assembly. Bushings are not serviced separately.
3. Check first and reverse sliding gear for freedom of movement on the mainshaft.
4. Check the 2nd and 3rd speed clutch sleeve to see that it slides freely on the clutch hub.
5. Inspect speedometer drive gear on universal joint yoke. If worn or damaged, press yoke or flange out of gear and press new gear into place.

ASSEMBLE MAINSHAFT AND REAR BEARING RETAINER

1. Press rear bearing onto mainshaft.
2. Install mainshaft rear bearing snap ring in groove in rear bearing retainer. Install mainshaft and rear bearing in rear bearing retainer, and secure in place by installing mainshaft rear bearing front snap ring. NOTE: Front snap rings are available in thicknesses of 0.088", 0.091", 0.094", 0.0100"; select the proper size snap ring to prevent bearing end play.
3. Press new oil seal into rear end of rear bearing retainer, using oil seal replacer J-5154A. Coat lip of oil seal with transmission lubricant.
4. Install spacer on rear end of mainshaft. Install universal joint yoke on mainshaft and secure with special flat washer, lock washer, and hex head bolt. Cap screw will be tightened later.
5. Place 1st and reverse sliding gear and 2nd speed gear over front end of mainshaft.
6. Assemble clutch key springs in 2nd and 3rd speed clutch hub, with one end of each spring in the same slot and the other end free and place three clutch keys in slots in hub (Fig. 15).

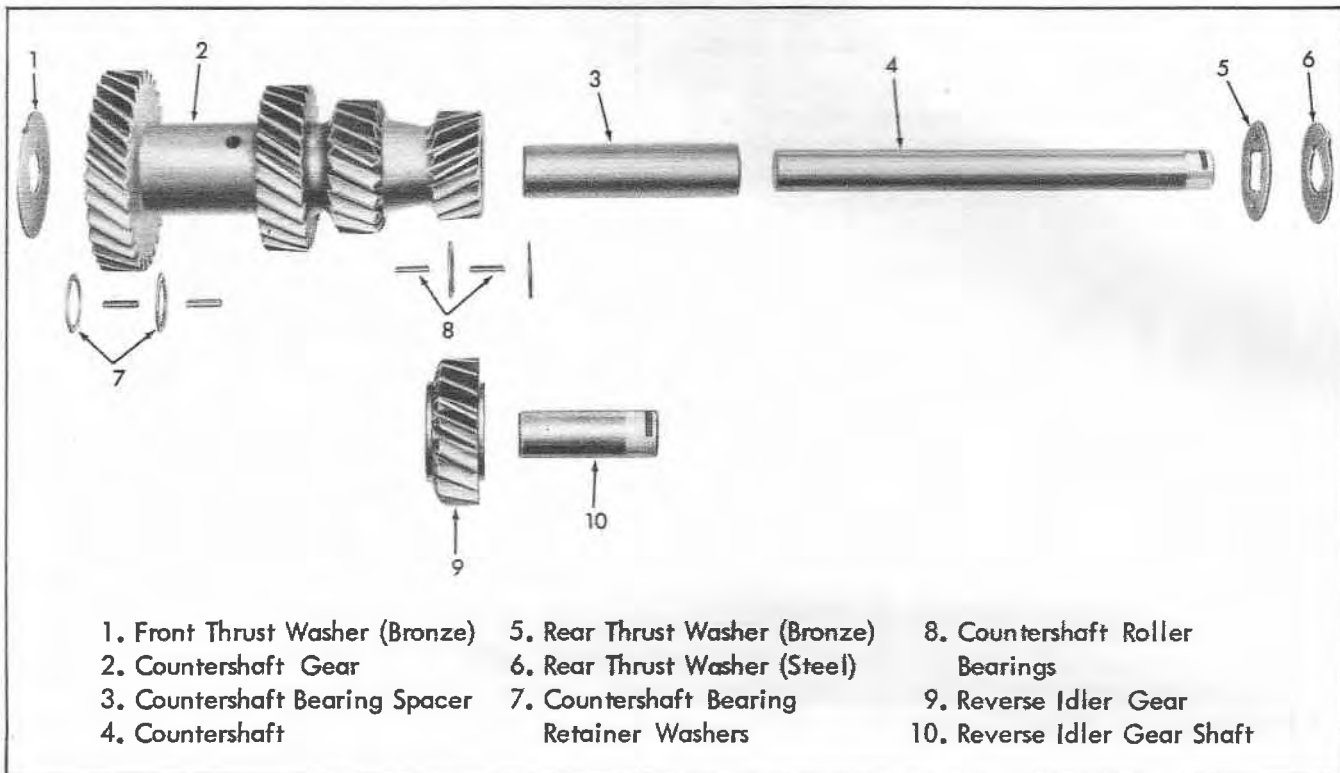


Fig. 12 Countershaft Gear Exploded View With Reverse Idler Gear and Shaft

7. Install 2nd and 3rd speed clutch sleeve on clutch hub, with marks made at disassembly aligned.
8. Place synchronizing cone in each side of the sleeve and hub assembly, making sure slot in cones are aligned with clutch keys.
9. Install sleeve, hub, and synchronizing cone assembly on mainshaft and secure with clutch hub retaining snap ring. Use snap ring pliers to install snap ring (Fig. 14). Make synchronizing cones turn freely.
10. Install bearing spacing washer on pilot on front end of mainshaft.

ASSEMBLY OF TRANSMISSION

1. Place countershaft bearing spacer and countershaft needle bearing loader tool J-5589 inside the countershaft gear.
2. Install two rows of 20 roller bearings over tool in each end of countershaft gear with bearing retainer between each row and at outer ends of bearing (Fig. 12).
3. Place bronze thrust washer at each end of countershaft gear.
4. Place transmission case on bench or repair stand. Place countershaft gear assembly in case through

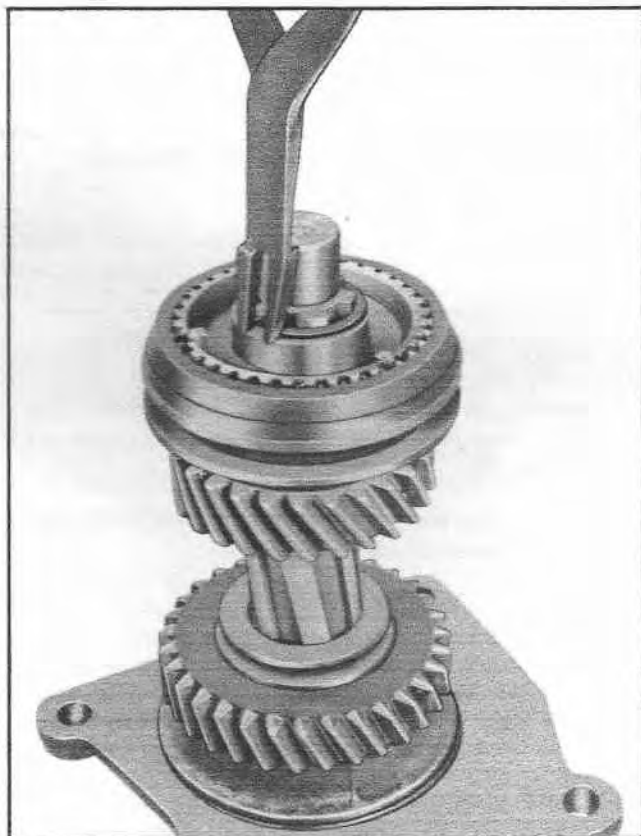


Fig. 13 Removing or Replacing Mainshaft Snap Ring

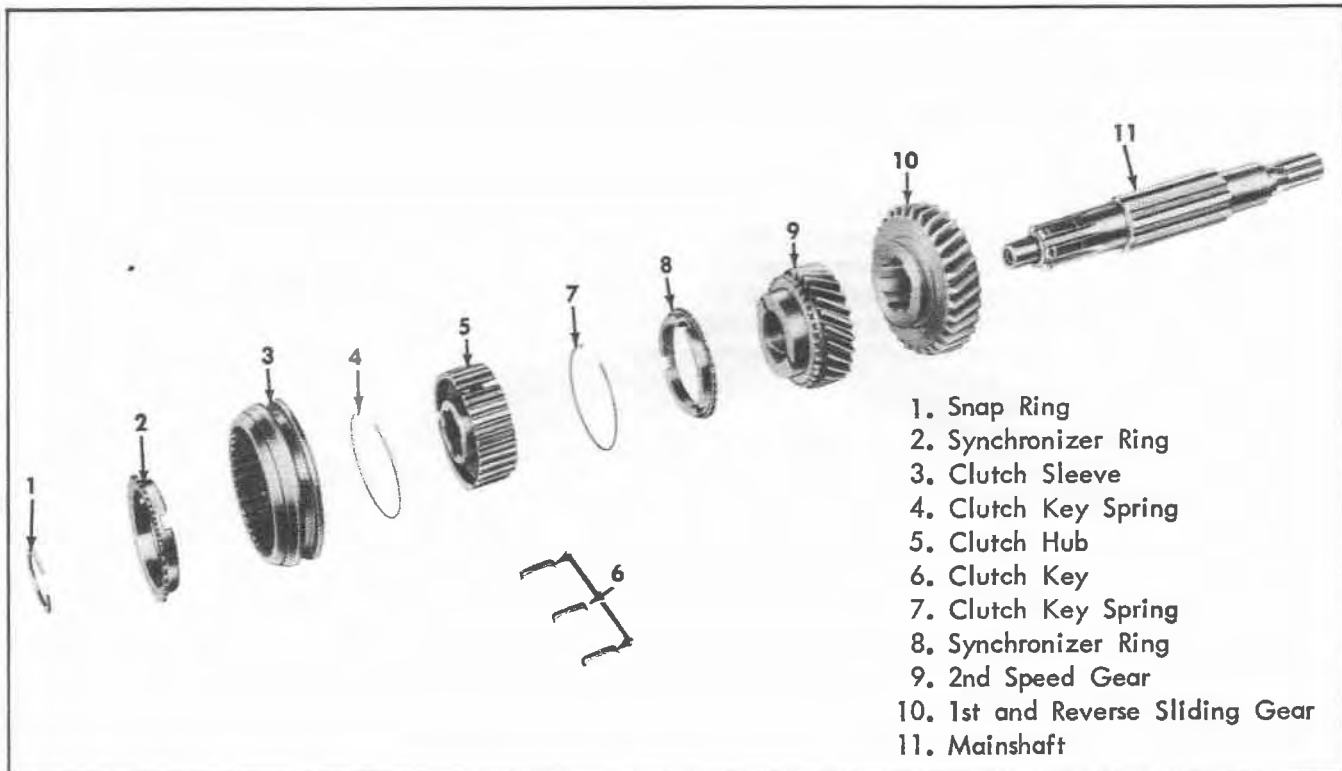


Fig. 14 Mainshaft and Gears Exploded View

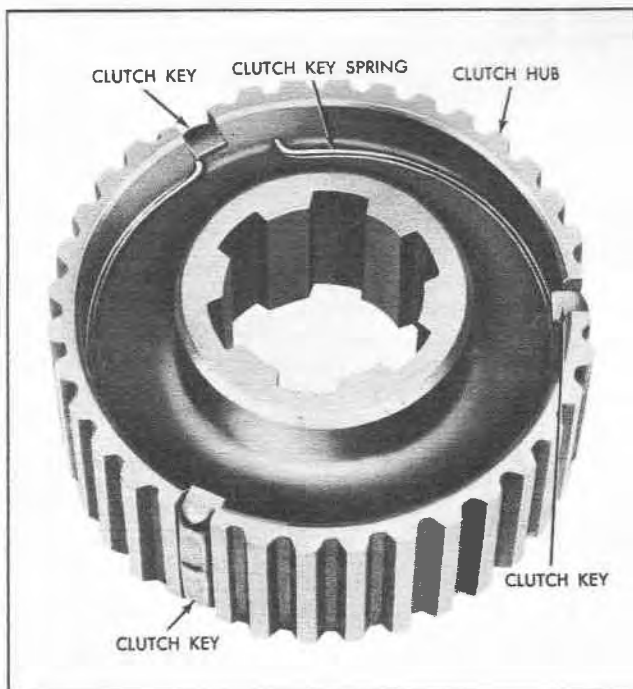


Fig. 15 Clutch Keys and Synchronizer Springs Installed on Clutch Hub

side cover opening, inserting large gear end in first. Place steel thrust washer at rear of countershaft gear between the bronze thrust washer and case.

5. Install oil retaining washer on main drive gear and install bearing by using tool J-6133-A.

6. Install main drive gear washer against bearing inner race and secure in place by installing main drive gear snap ring in groove provided in drive gear.

NOTE: Select snap ring of proper thickness to prevent main drive gear end play in bearing. Snap rings are available in the following thicknesses:

0.086" - 0.088"	0.095" - 0.097"
0.089" - 0.091"	0.098" - 0.100"
0.092" - 0.094"	0.101" - 0.103"

7. Drive main drive gear and bearing assembly into case from front until proper position is obtained for installation of snap ring. Install snap ring in groove in main drive gear bearing.

8. Position reverse idler gear in rear of case at bottom, insert idler gear shaft through case and gear, place lock key in notch in shaft, then drive shaft into case until lock key seats against cut-out in case.

9. Place 14 roller bearings in bore in rear end of main drive gear (Fig. 11). Coat bearings with lubricant to hold in place. Place rear bearing retainer gasket on rear end of case. Carefully install mainshaft and gears assembly through opening in rear of case (Fig. 10) making sure

front end of mainshaft enters roller bearings in main drive gear. Be sure all roller bearings are in place and are not forced into the lubricant opening in drive gear.

10. Position main drive gear bearing retainer over main drive gear against drive gear bearing outer race. Check clearance between bearing retainer bolting flange and transmission case with feeler gauge to determine thickness of gaskets required to form a seal. Gaskets are available in thicknesses of 0.010" and 0.015". Remove bearing retainer, select gasket combination of proper thickness, and install gaskets and bearing retainer. Attach bearing retainer to case with four hex head bolts and lock washers. Tighten bolts securely.
11. Turn transmission over on repair stand to assist in aligning countershaft gear with shaft openings in case. Insert countershaft through opening in rear of case, making sure it passed through the two thrust washers before it enters the countershaft gear. Drive countershaft into gear, forcing tool J-5589 out opening in front of case. NOTE: It is necessary to rotate rear bearing retainer away from case approximately one half inch as shown in (Fig. 8) to uncover the countershaft bore.
12. Before countershaft is driven fully into place, install lock key in notch in shaft, then drive shaft in until lock key seats against cutout in case.
13. Align mainshaft rear bearing retainer and gasket with case, install four attaching hex head bolts and tighten securely.
14. Lock transmission in two gears at once to prevent mainshaft from turning, then tighten universal joint yoke retaining bolt.
15. Install side cover assembly on transmission by reversing steps 1 through 4 under "Removal" in

Transmission Side Cover remove and replace procedure on page 84.

TRANSMISSION INSTALLATION

See Removal of Transmission (page 87) and reverse procedure.

SPECIFICATIONS

Type	Synchro-Mesh
Gear Ratios	2.49 to 1.00
Low	1.59 to 1.00
Second	1.00 to 1.00
Third	3.15 to 1.00
Lubricant Capacity	2-3/4 pints

TORQUE

Main Drive Gear Bearing	
Retainer	12 to 15 lb. ft. torque
Side Cover	12 to 15 lb. ft. torque
Rear Bearing Retainer	55 to 60 lb. ft. torque
Universal Joint Yoke	
Retaining Bolt	60 to 70 lb. ft. torque
Drain Plug	25 to 35 lb. ft. torque
Filler Plug	25 to 35 lb. ft. torque

SPECIAL TOOLS

J-5589	Needle Bearing Loader
J-4869	Speedometer Drive Gear Remover and Replacer Set
J-5154A	Oil Seal Installer
J-1126	Aligning Studs
J-6133A	Main Drive Gearing Bearing Installer
J-6289	Companion Flange Holding Tool

SERVICE MANAGER—IMPORTANT

This News contains important service information on Pontiac cars. Each subject should be cross-referenced in the space provided at the end of each section in the Shop Manual or its Supplement. **Be sure and cover every point with your entire organization.**

Each service man should sign in the space below after he has read and understands the information in this issue.
