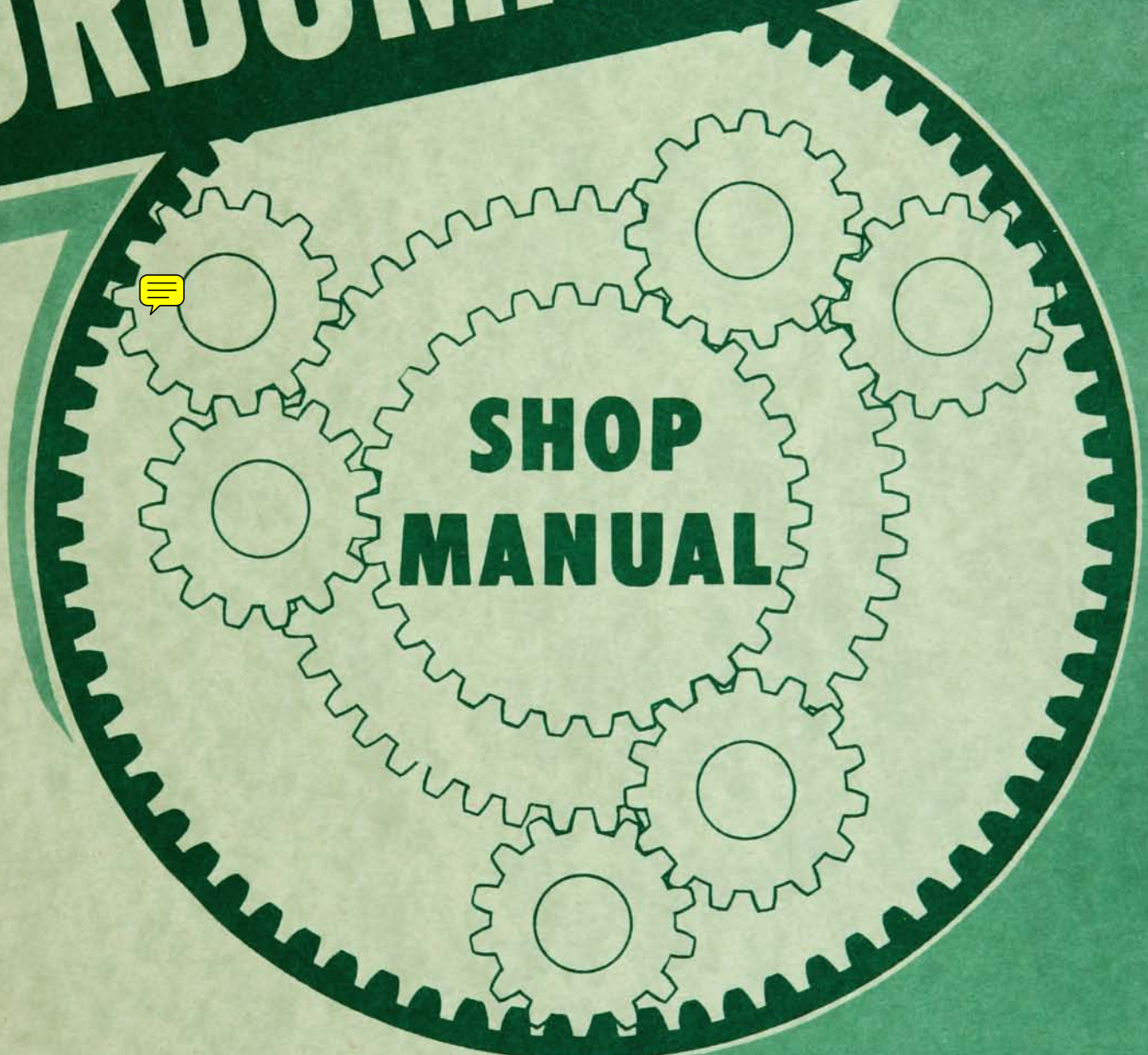


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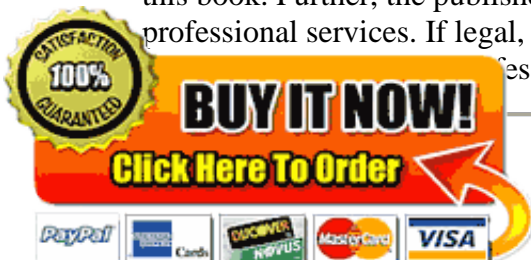
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FOREWORD

Complete service information for the 1955 Fordomatic transmission is presented in this manual. All the procedures needed to check, adjust, replace, or repair the various units of the transmission and torque converter are included.

The manual is arranged in seven chapters as listed in the Table of Contents on the next page. The section headings under each chapter title indicate the subjects covered in the chapter.

Chapter ONE describes the construction and operation of the 1955 Fordomatic transmission and torque converter. Diagrams showing the positions of the gears, clutches, bands, and servos in the various ranges are given in this chapter.

Chapter TWO covers the operations necessary to maintain and adjust the transmission. Service specifications required for each operation are presented here and should be closely adhered to.

Chapter THREE gives all the steps that should be followed in diagnosing Fordomatic troubles. The procedures for correcting the troubles are also included in this chapter.

Chapter FOUR contains the procedures needed to replace the subassemblies in the transmission, and to replace the transmission either with or without the torque converter. These are removal and installation procedures only.

Chapter FIVE gives complete overhaul procedures for all transmission parts except the torque converter. It is important that all operations be performed correctly and completely.

Chapter SIX covers the overhaul procedures for the torque converter.

Chapter SEVEN contains diagrams showing the fluid flow through the hydraulic system in the Fordomatic transmission. The torque specifications and the special tools needed to service the 1955 Fordomatic transmission are given here.

SERVICE DEPARTMENT
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Chapter ONE

Construction and Operation

Section	Page
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A new Fordomatic transmission is available, as optional equipment, for all 1955 Ford cars, including the Police Interceptor Unit, Station Wagons, Courier, and Thunderbird, and F-100, F-250, F-350, and P-350 trucks. The unit is basically the same as previous transmission models, but has certain improvements.

The Fordomatic transmission combines a hydraulic

torque converter with a fully-automatic gear system (fig. 2), and provides a wide range of transmission ratios.

The construction details and the principles of operation of the major assemblies in the transmission are described in this chapter. Any Fordomatic design or operational differences that may exist among the various car and truck models are also fully explained here.

1. TORQUE CONVERTER

The hydraulic torque converters used with all 1955 Fordomatic models differ only in the diameter of the impellers (pumps). A 12-inch impeller is used on the 8-cylinder car, Police Interceptor, and Thunderbird Fordomatic transmissions. An 11¼-inch impeller is used on the 6-cylinder car and all Fordomatic-equipped trucks.

a. Construction.

The torque converter consists of three main parts: the impeller (pump), the turbine, and the stator (fig. 1). The impeller is driven by the engine crankshaft through spring-steel drive plates mounted on the engine flywheel. The turbine, which is mounted on a shaft, is driven by the impeller. The stator is mounted on a one-way clutch. All of these parts are enclosed in a fluid-filled housing which is part of the impeller.

The impeller, or driving member, consists of curved blades mounted around the inside of a housing which is driven by the engine. An inner ring locks the blades in place and forms a fluid passage. As the impeller rotates, fluid is thrown through the curved fluid passage into the turbine.

The turbine, or driven member, is similar in design to the impeller except that it has blades curved in the opposite direction to the impeller blades. Fluid from the impeller strikes the turbine blades and causes the turbine and turbine shaft to rotate.

The fluid leaving the turbine returns to the impeller by a third set of blades known as the stator. The stator is attached to the stator support on the transmission case by a one-way clutch which permits the stator to rotate in the same direction as the impeller. The clutch is attached to the case to prevent the fluid from being transmitted to the

b. Operation.

The torque converter is designed so that the fluid flows from the impeller to the turbine and back to the impeller through the stator. This flow produces a maximum torque increase of slightly over 2:1 when the turbine is stalled. When enough torque is developed by the engine and converter, the turbine begins to rotate, turning the turbine shaft.

The converter torque multiplication gradually tapers off as turbine speed approaches impeller speed and becomes 1:1 when the turbine is being driven at 1/10 impeller speed. This is known as the "coupling point."

While the turbine is operating at less than 1/10 impeller speed and the converter is multiplying torque, the fluid leaving the turbine blades strikes the front face of the stator blades. These blades are held stationary by the action of the one-way clutch as long as the fluid is directed against the front face of the blades.

When the turbine rotates faster than 1/10 impeller

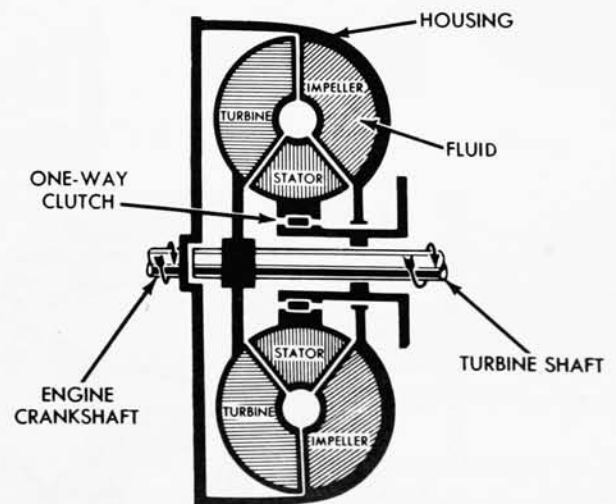


Fig. 1—Torque Converter Parts

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speed and the converter no longer multiplies torque, the fluid is directed against the back face of the stator blades. As the one-way clutch permits the stator to rotate only in the direction of impeller rotation, the stator begins to turn with the impeller and turbine. The converter now acts as an efficient fluid coupling as long as the turbine speed remains greater than $\frac{9}{10}$ impeller speed.

The torque converter is air cooled. On cars, the air enters the converter housing through a removable duct on the left side of the housing (fig. 3). On trucks, the air inlet duct is on top of the converter housing and is cast as part of the housing (fig. 4). A screen in the inlet duct filters out gravel and road dirt, and can be removed for cleaning and inspection.

Fins on the outside of the impeller housing draw air into the converter housing. A baffle directs the air over

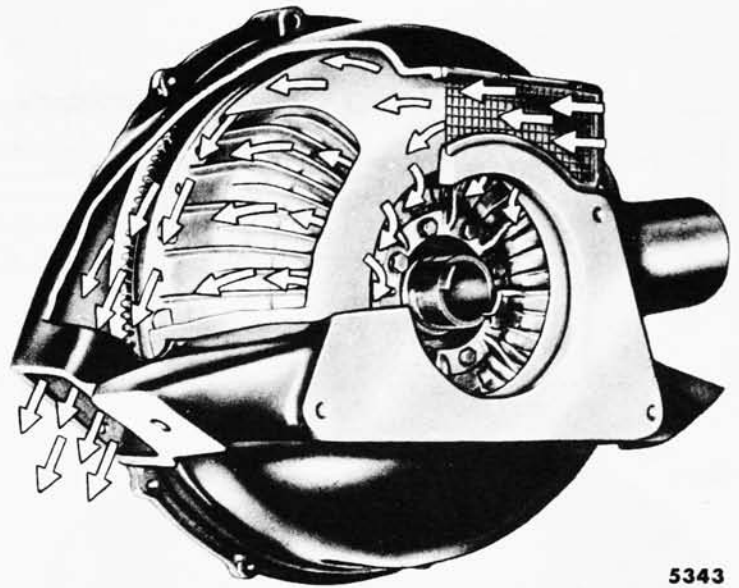


Fig. 4—Converter Cooling Diagram—Truck

the entire converted surface. The air is exhausted through an outlet on the side of the converter housing.

On truck Fordomatic transmissions, additional cooling is provided by an oil-to-water-type cooler (fig. 5). The cooler is mounted on the outside of the transmission. Inlet and outlet tubes connect the cooler with the transmission, and hoses connect the cooler with the engine cooling system.



Fig. 3—Converter Cooling Diagram—Car

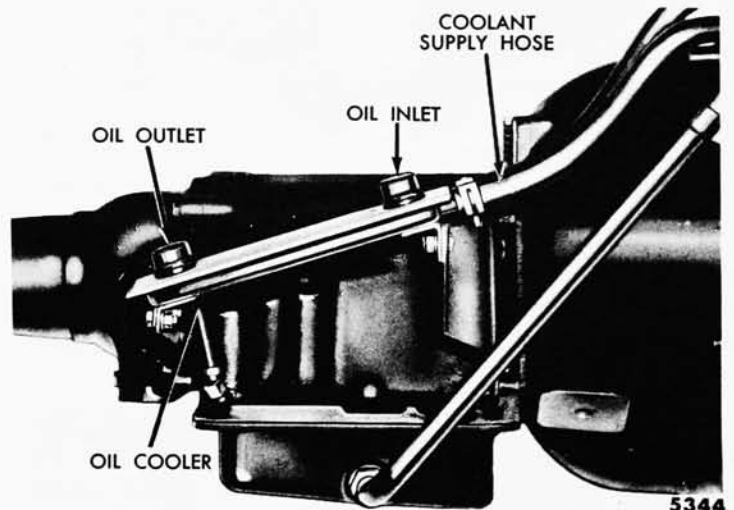


Fig. 5—Oil-To-Water-Type Cooler—Truck

2. PLANETARY GEAR TRAIN

The compound planetary gear system used in the Fordomatic transmission provides neutral, intermediate, high, low, and reverse gear ranges when certain combinations of gears are held or driven.

a. Construction.

The gear train consists of a primary sun gear, secondary sun gear, primary and secondary pinions held in a common carrier, and an internal gear to which the transmission output shaft is attached.

The 1955 planetary gear train parts cannot be interchanged with similar parts on previous Fordomatic models because of differences in design.



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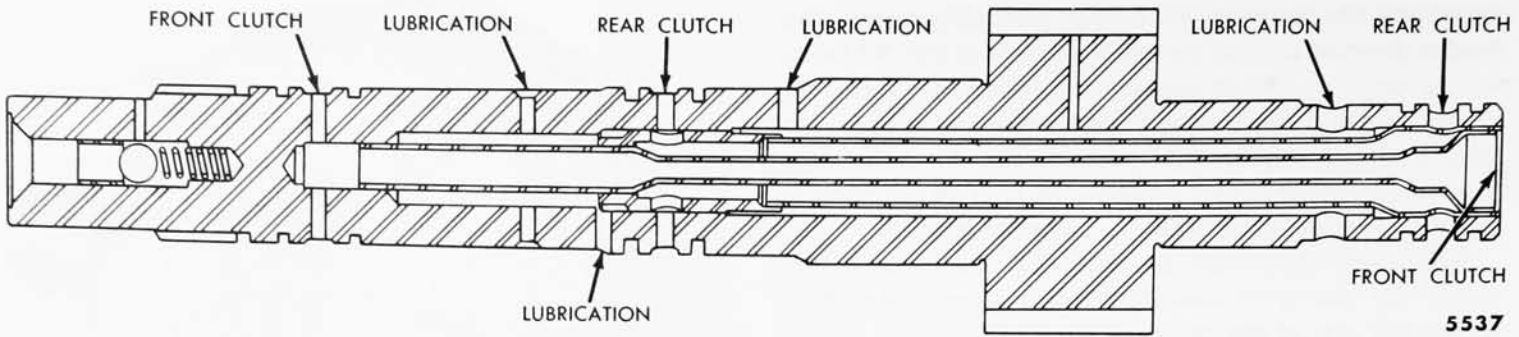


Fig. 6—Primary Sun Gear Assembly

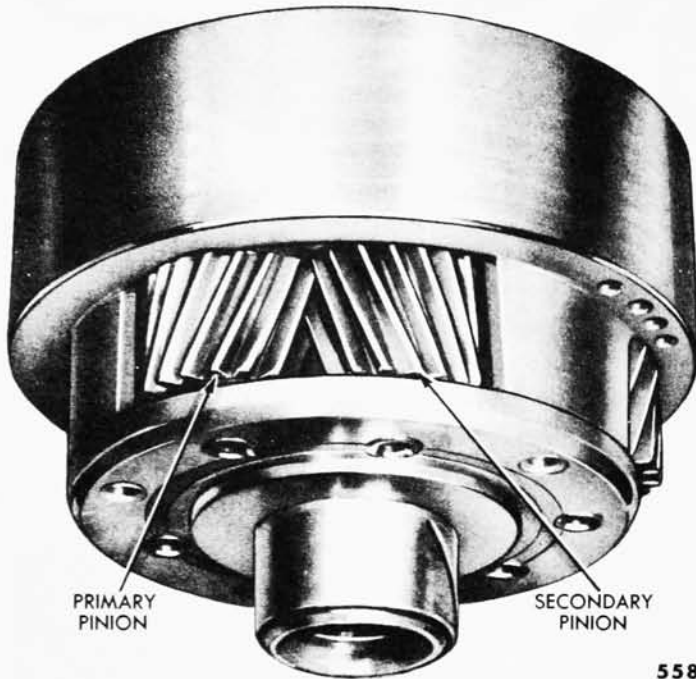


Fig. 7—Pinion Carrier Assembly

assembly to provide contact surface for the wide front band.

(3) **INTERNAL GEAR.** The increase in the number of teeth on the primary and secondary sun gears required an increase in the number of teeth on the internal gear from 66 to 72 teeth.

(4) **PINION CARRIER AND PLANETARY PINIONS.** Pinion carrier assemblies previously used contained primary pinions with 16 teeth and secondary pinions with 17 teeth. The new primary and secondary pinions each have 18 teeth. A bronze bushing is pressed on the pinion carrier pilot (fig. 7). The inside diameter of the selective thrust washer, located between the pinion carrier and the forward end of the output shaft, has been increased to fit around the bronze bushing on the new pinion carrier pilot.

(5) **OUTPUT SHAFT.** The bushing formerly used in the forward end of the output shaft has been eliminated. The machine-finished surface of the shaft bore supports the bronze-bushed pinion carrier pilot (fig. 8).

(1) **PRIMARY SUN GEAR ASSEMBLY.** The new primary sun gear has 30 teeth instead of the 27 provided on previous primary sun gears. A ball check valve is installed in the forward end of the primary sun gear shaft for improved front clutch lubrication (fig. 6).

(2) **DRUM AND SECONDARY SUN GEAR.** The 1955 drum and secondary sun gear assembly has 36 gear teeth instead of the 33 teeth used on earlier model assemblies. The wide drum surface is used on the new

b. Operation.

The operation of the gear train members, held or driven to provide the various ranges, is described on the following page.

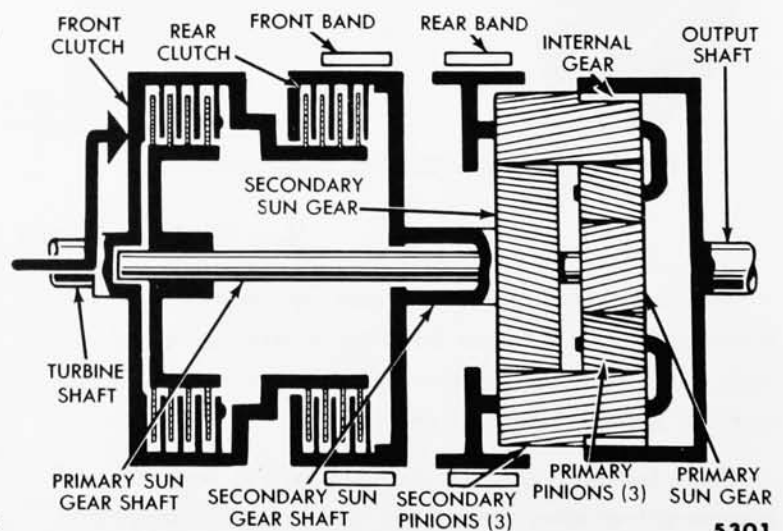


Fig. 9—Planetary Gear Train—Neutral Position



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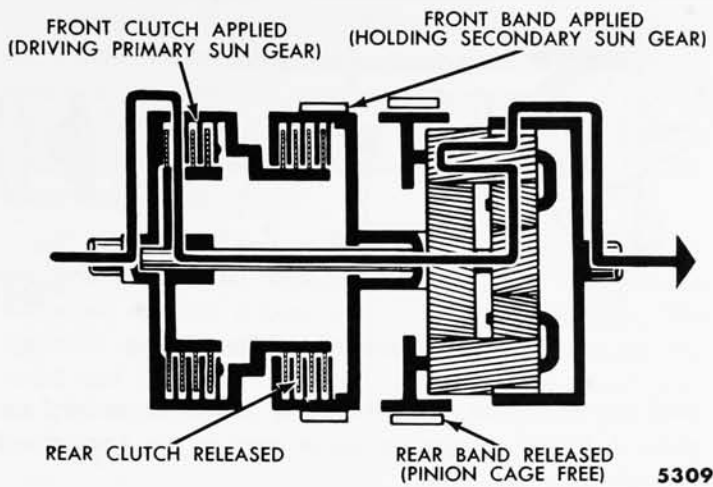


Fig. 10—Power Flow Intermediate Range

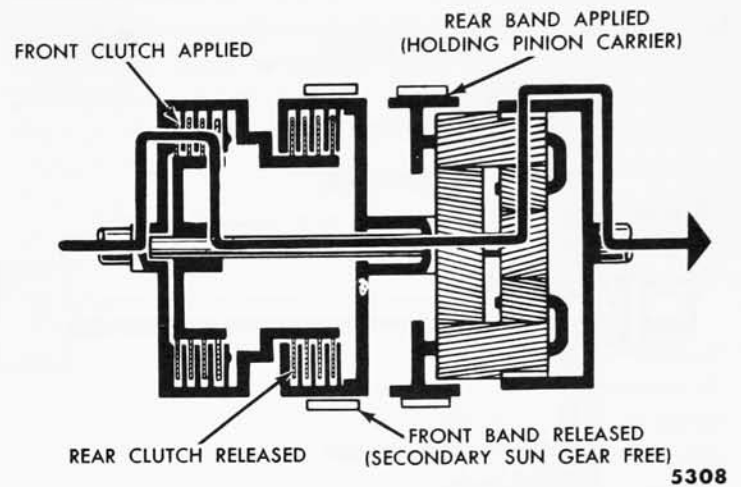


Fig. 12—Power Flow—Low Range

(1) **NEUTRAL.** When the transmission is in the neutral position, none of the gear train members are held or driven. Therefore, no power is transmitted to the output shaft (fig. 9).

(2) **INTERMEDIATE RANGE.** Intermediate range is accomplished by driving the primary sun gear and holding the secondary sun gear (fig. 10). The primary pinions drive the secondary pinions causing them to “walk” around the secondary sun gear carrying the internal gear and output shaft around with them.

(3) **HIGH RANGE.** In high range, the primary and secondary sun gears are locked together and driven as a unit (fig. 11). Therefore, the pinions cannot rotate and the entire planetary train revolves as a unit, which causes the output shaft to rotate at the same speed as the turbine shaft.

(4) **LOW RANGE.** In low range, the primary sun gear is driven and the pinion carrier is held (fig. 12). Power is

transmitted to the primary pinions, the secondary pinions, and the internal gear, driving the internal gear in the same direction as the primary sun gear. The secondary sun gear turns free in the reverse direction and has no effect on the gear train. The pinion carrier is held against rotation.

(5) **REVERSE RANGE.** Reverse range is accomplished by driving the secondary sun gear and holding the pinion carrier (fig. 13). The secondary pinions drive the internal gear in the reverse direction. The primary sun gear and the primary pinions rotate freely and have no effect on the gear train.

(6) **PARK.** When the selector is in the P (park) position, the parking pawl engages the external teeth on the internal gear to lock the internal gear and output shaft. This locks the rear wheels to prevent movement of the vehicle.

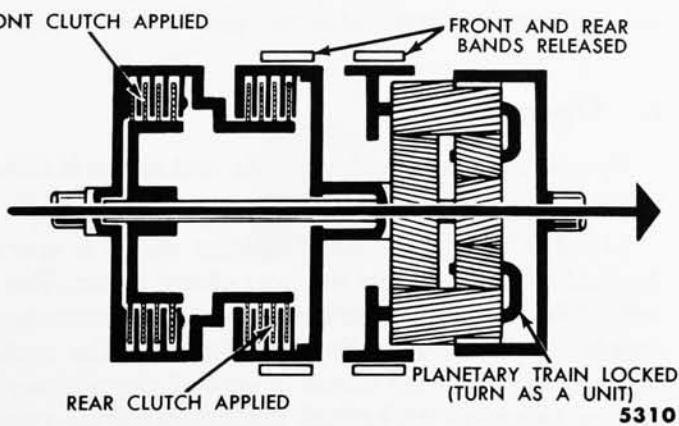


Fig. 11—Power Flow—High Range

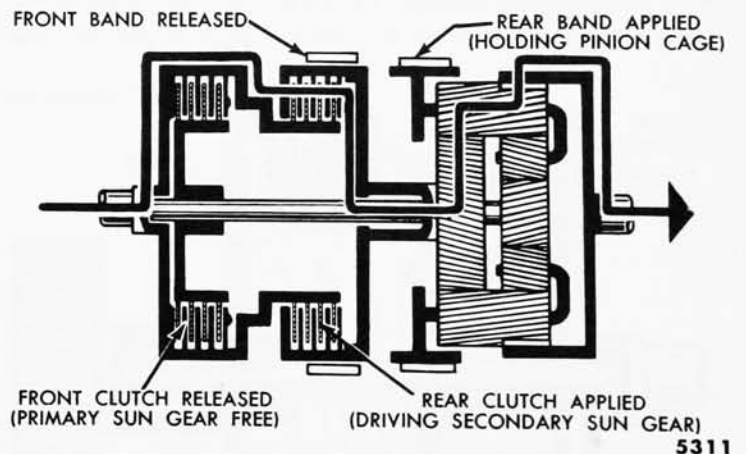


Fig. 13—Power Flow—Reverse Range

3. CLUTCHES, BANDS, AND SERVOS

the proper parts of in order to transmit in the various com-

binations required for the gear ratios. This is accomplished by the two multiple disc clutches and the two single wrapped bands shown in fig. 1.

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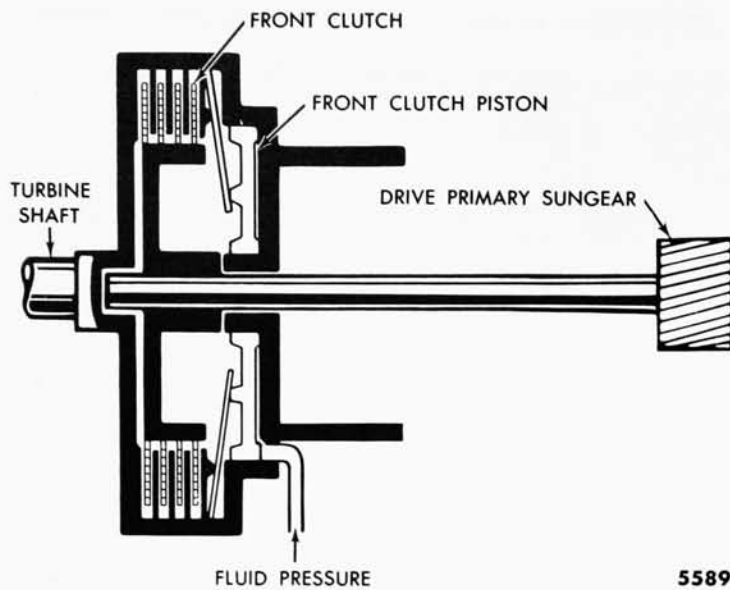


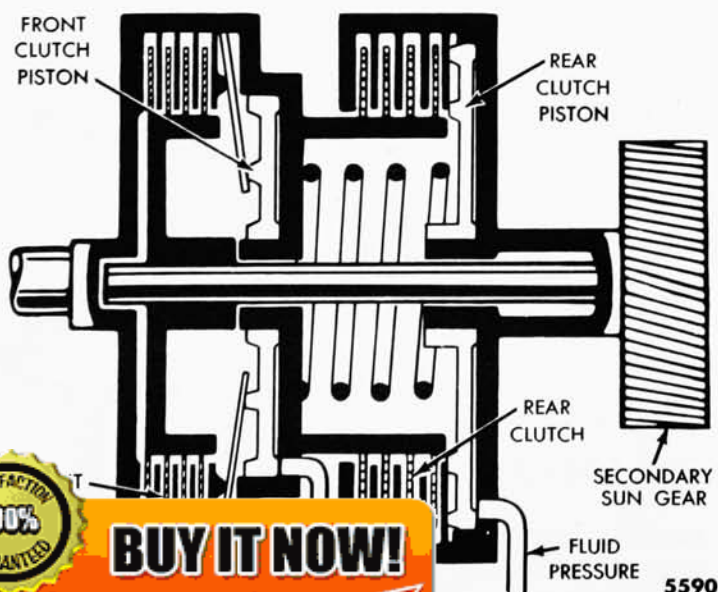
Fig. 14—Front Clutch

a. Construction.

Construction of the clutches, bands, and servos is given below.

(1) **FRONT CLUTCH.** The front clutch assembly consists of the front clutch cylinder, front clutch piston, release spring, three steel drive plates and four clutch driven plates with composition facings (fig. 14). Three drive and four driven clutch plates are used in all models. The drive plates are connected to the turbine shaft. The driven plates are connected to the primary sun gear shaft.

(2) **REAR CLUTCH.** The rear clutch consists of a rear clutch drum, rear clutch piston, release spring, four steel clutch driven plates, and four clutch drive plates with composition facings (fig. 15). The rear clutch drive plates are connected to the front clutch drum and the



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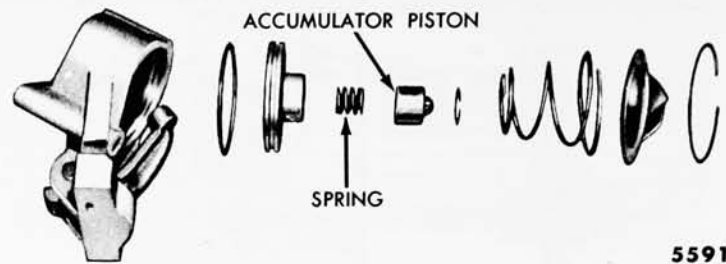


Fig. 16—Disassembled Rear Servo

four driven plates are connected to the secondary sun gear. A heavy release spring is used in the rear clutch assembly.

(3) **BANDS.** The front and rear bands are made of steel and have composition linings bonded to the inside surfaces. The front band encircles the drum of the secondary sun gear assembly. One end of the band is anchored in the transmission case and the other end is connected to the front servo.

The rear band fits around the planetary gear assembly drum. One end of the band contacts the end of the band adjusting screw and the opposite end is connected to the rear servo.

(4) **FRONT SERVO.** The front servo assembly consists of an aluminum servo body, front servo piston, piston guide, release spring, and an actuating lever. The inner end of the lever contacts the front servo piston stem and the outer end contacts the front band strut.

(5) **REAR SERVO.** The rear servo assembly consists of a cast aluminum servo body, rear servo piston, accumulator piston spring, accumulator piston, rear servo release spring, and an actuating lever. The inner end of the actuating lever contacts the accumulator piston and the outer end engages one end of the rear band strut (fig. 16).

b. Operation.

Operation of the clutches, bands, and servos is covered below.

(1) **FRONT CLUTCH.** The front clutch is operated by fluid pressure against the front clutch piston. The piston is moved against a spring washer which increases the "apply" force through lever action to lock the multiple disc clutch. When the clutch is applied the primary sun gear is locked to the turbine shaft to drive the primary sun gear. The primary sun gear is driven in all forward speeds. The piston is returned to the released position by the spring washer when the fluid pressure is removed (fig. 14).

(2) **REAR CLUTCH.** The rear clutch is operated by fluid pressure against the rear clutch piston. Movement of the piston compresses the release spring and locks the multiple disc clutch. The rear clutch drive plates are


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splined to the front clutch drum and the driven plates are connected to the secondary sun gear. When the rear clutch is applied, the secondary sun gear is driven in reverse and in the drive range high ratio. The piston is returned to the released position by the rear clutch release spring (fig. 15).

(3) **BANDS.** The front band encircles the drum of the secondary sun gear assembly. One end of the band is anchored against a boss in the transmission case. The opposite end of the band engages a strut between the band and front servo actuating lever. When fluid pressure is introduced into the front servo, the piston is forced inward against the release spring to tighten the front band around the drum. When the band is held tightly around the drum, it prevents the secondary sun gear from turning. The front band is applied in the intermediate ratio.

The rear band is placed around a drum attached to the pinion carrier. One end of the rear band contacts a strut on the inner end of the rear band adjusting screw. The other end of the band engages the strut between the band and the rear servo actuating lever. Fluid pressure directed to the rear servo piston tightens the band around the drum and prevents the pinion carrier from rotating. The rear band is applied in the low and reverse ratios. When the fluid pressure is removed, the rear band is released by the rear servo return spring pressure.

(4) **FRONT SERVO.** The front servo piston is moved

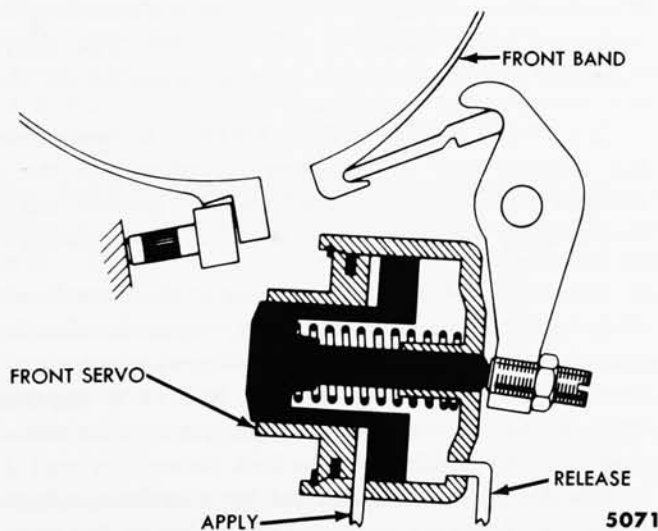


Fig. 17—Front Servo Operation

by fluid pressure which exerts force against the inner end of the front servo actuating lever. Force is transmitted through a strut between the outer end of the lever and the end of the band to tighten the front band around the drum. Under certain conditions, the servo is released by directing fluid pressure to the opposite side of the piston, assisted by release spring force. Under some conditions, the front servo is released by spring pressure only (fig. 17).

(5) **REAR SERVO.** The rear servo assembly uses an accumulator piston and spring to cushion application of the rear band. Fluid pressure is directed to the rear servo piston to force it inward. When the band contacts the drum, cushioning is provided as the accumulator piston spring is compressed. As the accumulator piston bottoms in the rear servo piston bore, the rear band is fully applied (fig. 18).

The clutches and bands are applied by pressure from the hydraulic control system in the following combinations to obtain the desired gear ranges:

Ratio	Apply
Neutral	No Clutches or Bands
Intermediate (1.467:1)	Front Clutch—Front Band
High (1:1)	Front Clutch—Rear Clutch
Low (2.40:1)	Front Clutch—Rear Band
Reverse (2:1)	Rear Clutch—Rear Band

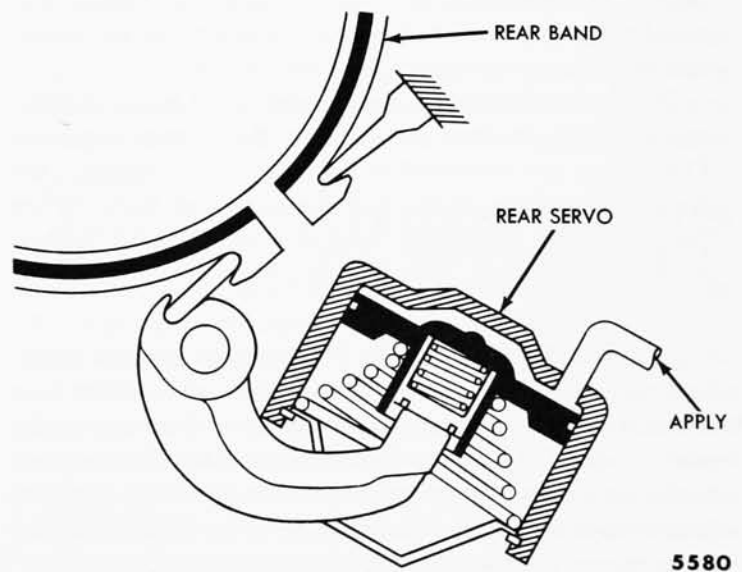


Fig. 18—Rear Servo Operation

4. CONTROL SYSTEM

a. Construction.

The control system consists of a manual selector lever for the driver, and a hydraulic control system which is sensitive to throttle position and road speed.



Control system is provided which makes the trans- driver as well as to construction and opera- in this section.

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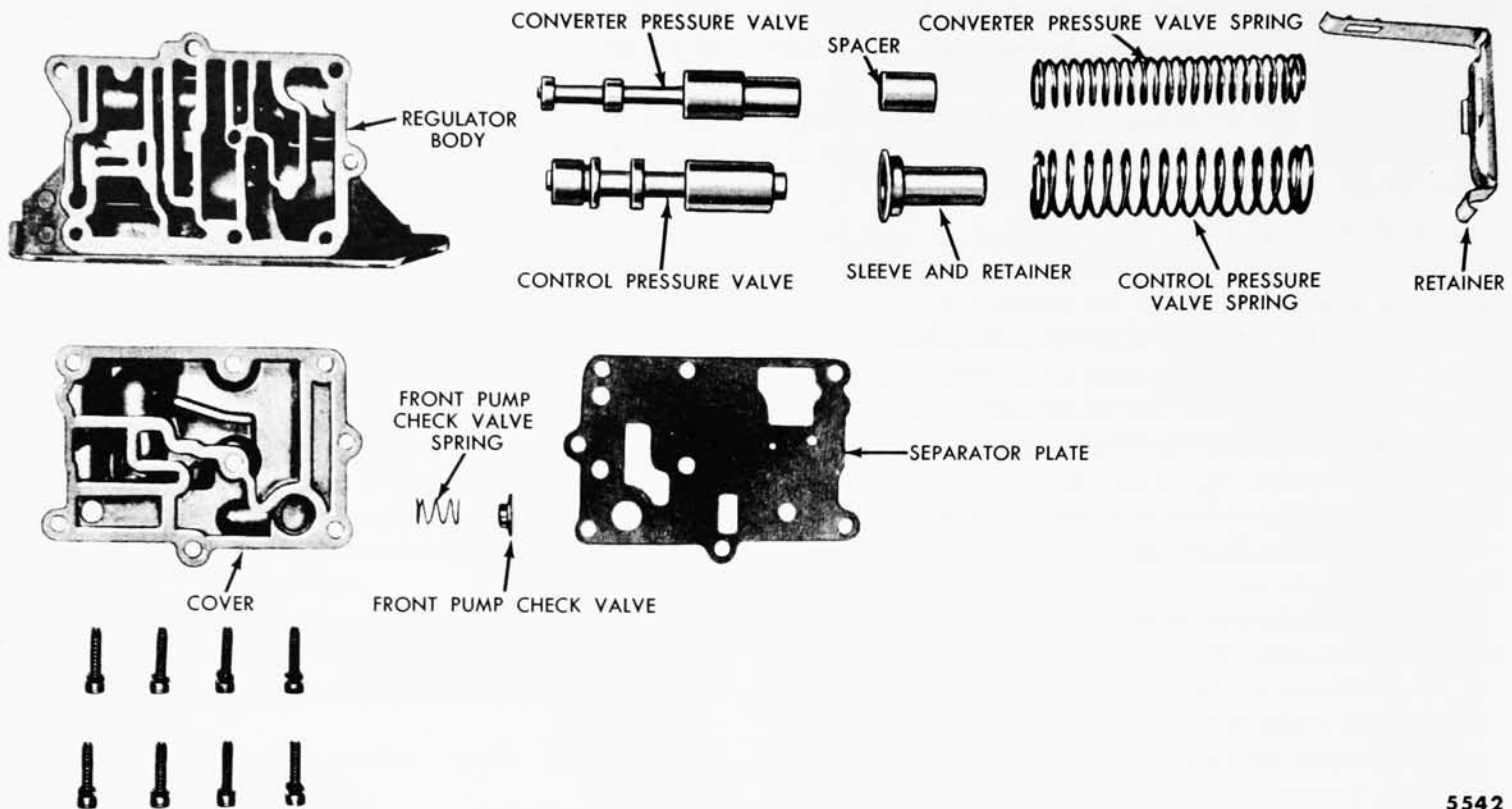


Fig. 19—Oil Pressure Regulator Assembly

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The manual selector lever permits the driver to select the particular range of transmission operation desired. Five range positions are provided: P (parking), R (reverse), N (neutral), Dr. (drive), and Lo (low). The selector lever, connected to the valve system by a linkage, permits remote control of the valves.

The hydraulic control system consists of hydraulically-operated valves, two pumps, and the connecting lines. The valves are mounted in the control valve body, the pressure regulator body, and the governor body. When the pumps are operating, fluid in a sump at the bottom of the transmission case passes, under pressure, to the control system.

(1) **FRONT OIL PUMP.** The front oil pump is a crescent-type, high-volume pump mounted on the front face of the transmission case. A tube connects the sump to the intake side of the pump. Impeller hub drive lugs contact bosses on the front pump drive gear to drive the pump at engine speeds. Fluid from the pump is directed to the oil pressure regulator valve assembly.

(2) **OIL PRESSURE REGULATOR VALVE ASSEMBLY.** The oil pressure regulator valve assembly consists of a cast aluminum body, control pressure regulator valve and spring, converter pressure regulator valve and spring, and a spring retainer (fig. 19).

The valve system assembly is used to regulate the oil pressure regulator valve, and a stop inside the con-boss, cast on the top

of the pressure regulator valve body, and a slot in the base of the body casting are used to lock the spring retainer in position on the body. The control pressure regulator valve springs are the same for all models except the 6-cylinder car. On the 6-cylinder car, the control pressure regulator valve spring is painted blue. The converter regulator valve springs are painted green on all models.

(3) **MANUAL CONTROL VALVE.** Linkage connects the selector arm at the steering column to the outer manual lever on the transmission. This permits the driver to manually move the valve to the desired driving range.

(4) **SHIFT VALVES.** Two shift valves are located in the control valve assembly. The 2-3 shift valve is positioned in the bore with two springs. A governor plug is positioned against the end of the shift valve opposite the springs. The 2-3 shift valve provides automatic shifts from the intermediate to the high ratio.

The 2-1 shift valve fits in a bore in the control valve assembly. A spring positions the valve in the bore. The valve blocks the fluid passage from the manual valve to the rear servo in the intermediate and high ratios, and is moved to open this passage in the low and reverse ratios with control pressure from the downshift valve.

(5) **GOVERNOR VALVE.** A governor assembly is attached to the output shaft to produce governor pressure. Control pressure from the control valve assembly is directed through a case passage and a tube between the case and distributor sleeve to the governor valve.



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The governor valve is operated by centrifugal force working against control pressure on a face of the valve. Governor pressure is provided by regulating control pressure in direct proportion to governor rotation or vehicle speed. A tube between the distributor sleeve and the transmission case is used to direct governor pressure to the control valve assembly.

(6) **THROTTLE VALVE.** The throttle valve is positioned in a bore in the control valve assembly by a spring. Control pressure is directed to a land of the valve. The valve is actuated by movement of the throttle lever and downshift valve when the accelerator pedal is depressed. As the valve is moved, control pressure is regulated to provide throttle pressure. Throttle pressure is directed to the shift valve plug at the spring end of the shift valve to assist the shift valve springs to oppose governor pressure. Throttle pressure is also directed to the orifice control valve and the modulator valve.

(7) **ORIFICE CONTROL VALVE.** The orifice control valve is positioned in a bore in the control valve assembly by a spring. During a normal high to intermediate shift with closed throttle, smooth front band application is provided by exhausting the front servo release fluid through a small orifice. When the same shift occurs at open throttle, the orifice control valve, positioned by throttle pressure, permits an unrestricted exhaust of front servo release pressure, providing a rapid front band application.

On a manual shift from intermediate to low at closed throttle, the orifice control valve momentarily restricts the fluid flow applying the rear servo and releasing the front servo. This action provides a smooth rear band engagement.

(8) **DOWNSHIFT VALVE.** The downshift valve is positioned in the control valve body bore with the throttle valve. The inner throttle lever contacts one end of the downshift valve and the inner end contacts the downshift valve spring. Control pressure is directed to a land of the valve. Linkage is connected between the accelerator pedal and throttle lever. The downshift valve is moved to open a passage to direct fluid pressure to the back face of the 2-3 shift valve and the 2-1 shift valve when the accelerator pedal is depressed completely.

(9) **TRANSITION VALVE.** The transition valve is positioned in a bore in the control valve body by a spring. The function of this valve is to time the operation of the front servo in relation to the rear servo.

Fluid flow to apply the rear band is blocked by the transition valve until the flow to release the front band

until front servo release pressure is exhausted. With front servo release pressure gone, the transition valve is moved by its spring and provides an unrestricted exhaust for the rear servo fluid.

(10) **LOW INHIBITOR VALVE.** The low inhibitor valve is a part of the control valve assembly. This valve prevents a shift into low above approximately 25 m.p.h.

A spring at one end of the valve holds it in a closed position. Passages are provided at both ends of the valve. Governor pressure is directed to the end of the valve opposite the spring, and fluid pressure from the manual valve is directed to one of the lands. The valve is moved against the spring when the vehicle speed increases to produce enough governor pressure to overcome the spring force, and causes the shift from low to intermediate.

(11) **MODULATOR VALVE.** The modulator valve is spring loaded and fits in a bore in the control valve assembly. Fluid passages are provided to direct fluid pressure to the large end of the valve and throttle pressure is directed to one of the lands. Two passages from the modulator valve direct throttle pressure or modulated throttle pressure to the compensator valve, depending on the position of the manual valve.

(12) **COMPENSATOR VALVE.** The compensator valve is located in one of the bores of the control valve assembly. A compensator valve spring is used between one end of the valve and the compensator sleeve. Control pressure is directed to a land on the valve and governor pressure is directed to both ends of the compensator valve. Control pressure, regulated by the compensator valve, produces a reduced pressure called compensator pressure which is directed to the control pressure regulator valve.

(13) **CONVERTER PRESSURE REGULATOR VALVE.** The spring-loaded converter pressure regulator valve is located in a bore in the pressure regulator body. Fluid pressure exhausted from the control pressure regulator valve is directed to a valley of the converter regulator valve and to the converter. Fluid returned from the converter is directed to a land of the valve to provide fluid pressure in the converter regulated to a pressure below that used in the transmission hydraulic system. Transmission lubrication is provided from another land of the converter pressure regulator valve.

(14) **REAR OIL PUMP.** The rear oil pump is a crescent-type pump driven by the transmission output shaft. An intake tube is connected between the sump and the intake side of the pump. A tube from the discharge side of the rear pump is used to direct fluid pressure to the pressure regulator assembly and control valve assembly. A lubrication tube, connected between the pressure regulator body and the rear pump, provides lubrication for the transmission.



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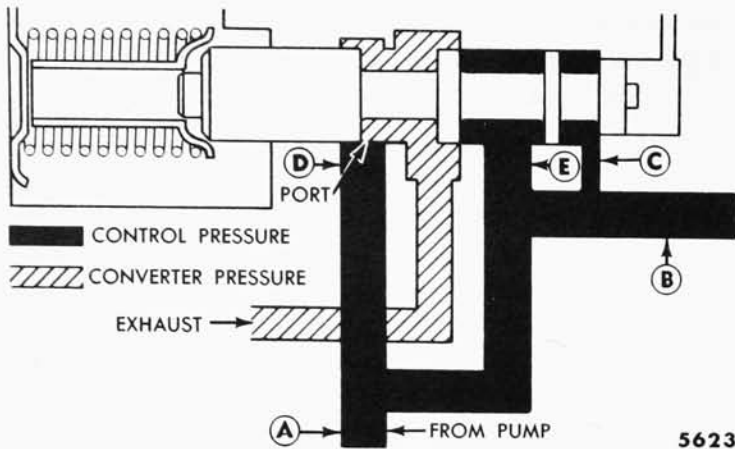


Fig. 20—Control Pressure Regulator Valve Operation

b. Operation.

The automatic operation of the transmission is provided by controlling the flow of fluid pressure to the components. Fluid flow needed to operate the components and to provide the different ratios is explained here. Control diagrams for all the ratios are given in Chapter Seven.

(1) **NEUTRAL RANGE.** The front oil pump is driven when the engine is started with the selector lever in the N (neutral) position. Fluid pressure from the front pump is directed to the control pressure regulator valve. Regulated fluid pressure (control pressure) is directed from the pressure regulator valve to the manual valve. In the neutral position, control pressure is directed to the downshift valve, throttle valve, converter, and converter pressure regulator valve. No fluid pressure is directed to the

clutches or servos. Therefore, no power is delivered to the output shaft, and the transmission is in the neutral ratio.

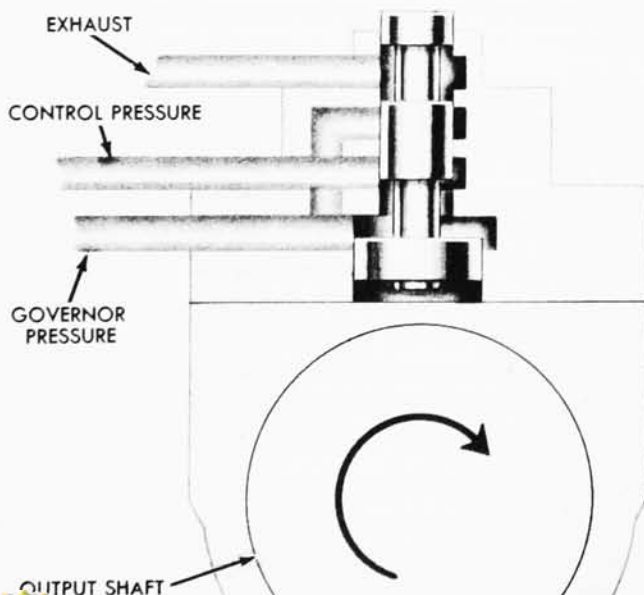
Variations in pump speed from an engine idle speed to wide open throttle would provide a wide range of transmission operating pressures. The control pressure regulator valve (fig. 20) regulates variable pump pressures to provide constant pressure for operation of the transmission. Fluid from the pump at "A" is directed to the valve at "C", "D", and "E". When the pump builds up enough hydraulic pressure at "C" to overcome the force of the spring, the valve moves to the position shown, opens the port at "D", and exhausts a portion of the pump pressure. As the pump volume varies, the valve automatically positions itself so that enough fluid exhausts at port "D" to maintain constant pressure at "B".

(2) **DRIVE RANGE — INTERMEDIATE RATIO.** When the selector lever is moved from the N (neutral) position to Dr (drive), the manual valve moves to open passages from the manual valve to the front clutch and governor, the apply side of the front servo, and to the 2-1 and 2-3 shift valves. Control pressure to the front clutch locks the primary sun gear to the turbine shaft. Control pressure to the apply side of the front servo applies the front band to hold the secondary sun gear. The 2-1 and 2-3 shift valves are held in the closed position by the shift valve springs, and control pressure is blocked at the shift valve lands. With the primary sun gear driven and the secondary sun gear held, the transmission operates in the intermediate ratio of 1.467 to 1.

(3) **DRIVE RANGE—HIGH RATIO.** The shift from the intermediate to the high ratio is accomplished when the front servo is released and the rear clutch is applied. This is accomplished by directing regulated control pressure (governor pressure) to the end of the 2-3 shift valve. As the shift valve moves inward, passages are uncovered to direct control pressure to the release side of the front servo and to the rear clutch. When both clutches are applied, the primary and secondary sun gears are locked to the turbine shaft to provide the high ratio of 1 to 1.

A centrifugally-operated governor is used to provide automatic shifts from the intermediate to the high ratio (fig. 21). Control pressure from the manual valve is directed against a face of the governor valve. The governor valve is forced outward by centrifugal force as the output shaft begins to rotate. Control pressure is reduced and is regulated in direct proportion to the vehicle speed. When enough governor pressure is provided against the shift valve to overcome the springs, the shift valve moves inward to uncover the passages to the release side of the front servo and to the rear clutch.

(4) **DRIVE RANGE—LOW RATIO.** Forced downshifts from the high ratio to the low ratio at vehicle speeds



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below approximately 16 m.p.h. or from the intermediate ratio to the low ratio at speeds below 17-23 m.p.h. can be obtained by depressing the accelerator pedal to the floor. When the accelerator pedal is completely depressed, the downshift valve is moved inward to open a passage to direct control pressure to the shift valves. Control pressure directed to the back face of the 2-3 shift valve forces it closed against governor pressure. Movement of the 2-3 shift valve cuts off control pressure to the rear clutch and to the release side of the front servo.

At the same time downshift pressure is directed to the end of the 2-1 shift valve and moves it against spring pressure. Control pressure from the 2-1 shift valve is directed through a valley of the low inhibitor valve, the closed 2-3 shift valve, and the orifice control valve to the release side of the front servo to release the front band. Control pressure from the closed 2-3 shift valve is also directed through a check valve to the rear servo to apply the rear band. When the front clutch is applied to drive the primary sun gear and the rear band is applied to hold the pinion carrier, the transmission operates in the low ratio of 2.40 to 1.

Upshifts from the drive range-low ratio are accomplished automatically. Governor pressure against the end of the low inhibitor valve increases with vehicle speed. At 28-34 m.p.h., governor pressure is high enough to move the low inhibitor valve inward to cut off rear servo apply and front servo release pressure. The front band is then applied by front servo apply pressure, and the transmission shifts from the low to the intermediate ratio. A further increase in governor pressure moves the 2-3 shift valve inward to release the front band and apply the rear clutch and the transmission shifts to the high ratio.

(5) **LOW RANGE.** The low range is provided by moving the selector lever to the Lo (low) position. The transmission cannot upshift when the manual valve is in this position. In the low position, control pres-

sure is directed to the front clutch and governor, through the downshift valve to the ends of the shift valves and to the apply side of the front servo and to the 2-1 shift valve. Control pressure through the downshift valve is directed to the end of the 2-1 shift valve to move it against spring pressure. A passage is opened from the 2-1 shift valve, through the closed 2-3 shift valve, and orifice control valve to the release side of the front servo. At the same time, control pressure is directed to the rear servo to apply the band.

Upshifts from the low range are prevented by control pressure, from the manual valve, directed to the spring end of the low inhibitor valve. Governor pressure on the end of the valve, is insufficient to move the valve against opposing control pressure. As long as front band release and rear clutch apply pressures are present, upshifts are prevented.

(6) **REVERSE RANGE.** The reverse ratio is obtained when the manual valve is moved to the reverse position. Control pressure to the front clutch is cut off at the manual valve. Control pressure from the manual valve is directed to the apply side of the front servo, and through the 2-1 shift valve, 2-3 shift valve and orifice control valve to the release side of the front servo and to apply the rear servo. Control pressure from the manual valve is also directed to the rear clutch. With the rear band and rear clutch applied, the transmission operates in the reverse ratio of 2 to 1.

(7) **PARK.** The P (park) position is provided to lock the transmission to prevent movement of the vehicle. A mechanical pawl is engaged with external gear teeth on the internal gear. Control pressure from the manual valve is directed through the downshift valve to the ends of the 2-3 and 1-2 shift valves. Control pressure is also directed to the apply side of the front servo and through the 2-1 and 2-3 shift valves to the release side of the front servo and to apply the rear servo.

SERVICE LETTER REFERENCE

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Maintenance and Adjustments

Section	Page
1 Transmission Fluid	14
2 Adjustments	15

The procedures needed to properly maintain and adjust the Fordomatic transmission are given in this

chapter. These operations should be performed completely and correctly for best Fordomatic performance.

I. TRANSMISSION FLUID

The transmission was filled at the factory with Automatic Transmission Fluid—Type A. Always use this type when adding or changing fluid as the use of improper or inferior fluid may affect the operation of the transmission.

fluid to raise the fluid level to the full (F) mark on the indicator.

a. Checking Fluid Level.

b. Leakage Check Points.

Check the transmission fluid level at 1000-mile intervals using the following procedures:

Inspect the bottom of the floor pan at the rear of the transmission for fluid leaks. If fluid is found here, the extension housing rear seal is leaking and should be replaced.

Apply the parking brake, then place the transmission selector lever in the N (neutral) position. Run the engine at idle speed for about four minutes, then move the selector lever to P (park). When the engine and transmission have reached their normal operating temperatures, move the selector lever through all the positions to make sure that the fluid is distributed throughout the transmission. Return the selector lever to P (park).

Check the speedometer cable connection at the transmission. Replace the rubber seal if necessary.

Inspect the governor inspection plate for leakage. Install a new gasket if needed.

Raise the hood, then clean all dirt from the transmission fluid level indicator cap before removing the indicator (fig. 1). Pull the indicator out of the tube, wipe it clean, then insert it back in the tube. Be sure that the indicator is pushed down all the way. Remove the indicator and check the fluid level. If necessary, add enough

Leakage at the oil pan gasket often can be stopped by tightening the attaching bolts to the proper torque (10-13 foot-pounds). If necessary, install a new gasket.

Check the fluid filler tube connection at the transmission oil pan. If leakage is found here, tighten the connection.

Check all the oil cooler fluid connections, and tighten them if necessary.

If leakage is found at either the throttle lever shaft or the manual lever shaft, replace either or both seals.

Inspect the two hexhead pipe plugs on each side of the transmission case at the front. If either plug shows leakage, tighten the plug to 7-15 foot-pounds torque. If tightening does not stop the leaks, replace the leaking plug.

Inspect the inside of the discharge air duct. Leakage here may be caused by loose converter cover bolts or by loose converter drain plugs. Check the converter cover nuts for proper tightness (15-28 foot-pounds torque). Do not tighten the converter cover nuts when they are hot, as leakage may result.

Remove the two converter drain plugs with a six-point wrench. Coat the threads with No. 3 Permatex and install the plugs. Tighten the drain plugs to 7-10 foot-pounds torque.

CAUTION: Fluid in the discharge air duct may be caused by engine oil leaking past the rear main bearing. Be sure to determine the exact cause of the leak.



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Fluid Level

c. Changing Transmission Fluid.

The transmission fluid should be changed and the bands should be adjusted at 15,000-mile intervals. When changing the fluid, use the following procedures:

Remove the converter housing lower plate, then remove one of the converter drain plugs. Rotate the converter 180° and remove the other drain plug. Disconnect the fluid filler tube at the transmission oil pan. Drain the fluid from the transmission, then remove the oil pan. Clean the pan thoroughly, then install it on the transmission.

NOTE: *When the same fluid is to be used again in the transmission after repairs or band adjustments, be sure to properly filter the fluid through a 100-mesh screen, or its equivalent, as it drains from the transmission. Filter the fluid again as it is poured back into the transmission.*

2. ADJUSTMENTS

The Fordomatic transmission adjustments given in this section should be performed in the order in which they appear. Be sure that all specifications given here are closely adhered to.

a. Engine Idle Speed Adjustment.

Place the selector lever in the N (neutral) position, then start the engine. Run the engine at idle speed until its normal operating temperature is reached.

Check the engine idle speed with a tachometer. The correct idle speed should be 475-500 r.p.m. for the Thunderbird and Police Interceptor engines, and 450-475 r.p.m. for all other car and truck engines. If the idle speed is not within these limits, turn the carburetor idle adjusting screw until the correct idle speed is reached (fig. 2).

NOTE: *If the anti-stall dashpot adjusting screw holds the throttle open and prevents the correct idle speed adjustment, loosen the locknut and turn the dashpot adjusting screw in (clockwise) until the correct idle speed is reached.*

b. Anti-Stall Dashpot Adjustment.

After the engine idle speed has been properly adjusted, turn the ignition switch off and adjust the anti-stall dashpot.

Loosen the dashpot adjusting screw locknut. Hold the throttle in the closed position, and turn the dashpot adjusting screw out (counterclockwise) until the head of the screw is flush with the end of its

Connect the fluid filler tube to the transmission oil pan, and tighten the connection securely. Install the drain plugs in the converter cover, and tighten them to 7-10 foot-pounds torque. Install the converter housing lower plate.

Add five quarts of Automatic Transmission Fluid—Type A to the transmission through the filler tube. Run the engine at idle speed for about two minutes, then add four more quarts of fluid. Let the engine idle until it reaches its normal operating temperature. Do not race the engine.

Move the selector lever through all the positions, then place it in the P (park) position. Check the fluid level and add enough fluid to bring the level up to the full (F) mark on the indicator. The approximate Fordomatic refill capacity is 9 quarts (6-cylinder car and all trucks), 9½ quarts (8-cylinder car), and 10½ quarts (Thunderbird and Police Interceptor).

the rod and the screw head. After the adjustment has been made, tighten the adjusting screw locknut.

c. Manual Linkage Adjustment.

With the engine turned off, disconnect the upper end of the manual shift rod from the selector lever (fig. 4).

Position the selector lever so that the indicator is down against the stop in the Dr (drive) position. Place the transmission manual lever in the Dr (drive) detent (second from the bottom).

Rotate the manual shift rod clevis to obtain the shortest rod length that will permit the clevis pin to enter the

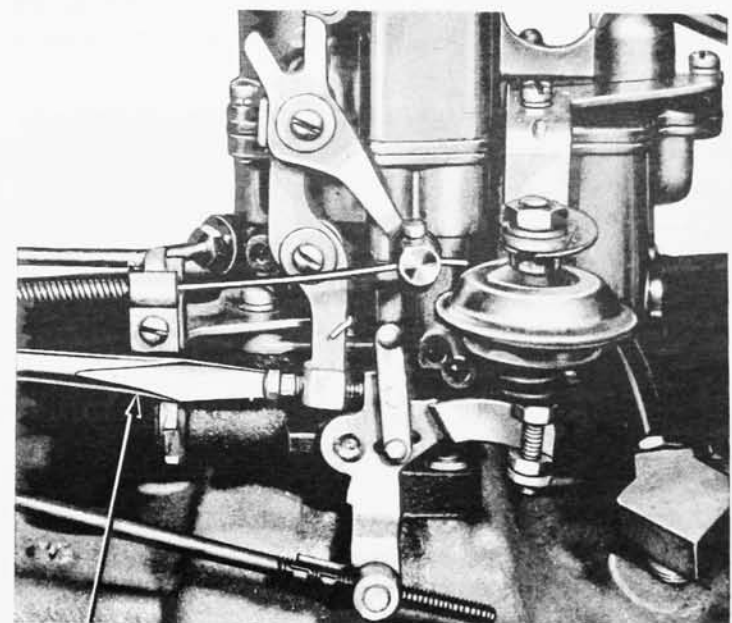


Fig. 2—Engine Idle Speed Adjustment—8-Cylinder



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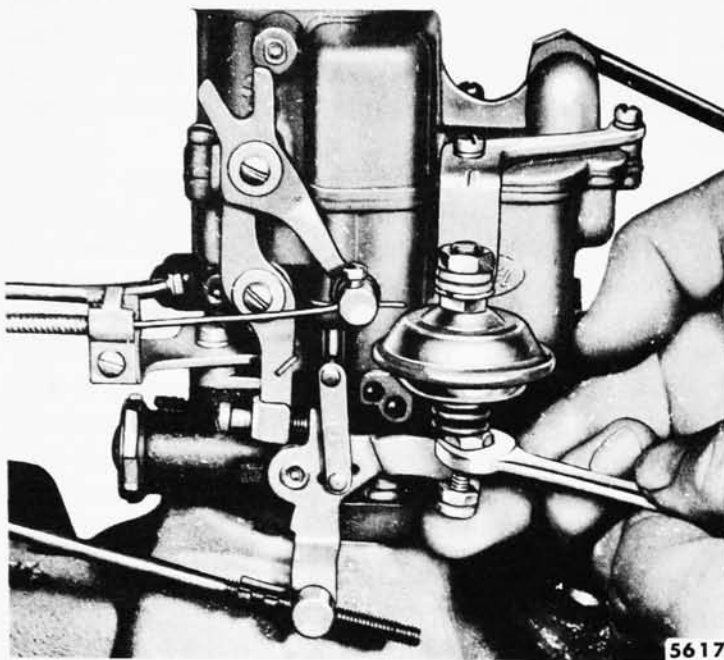


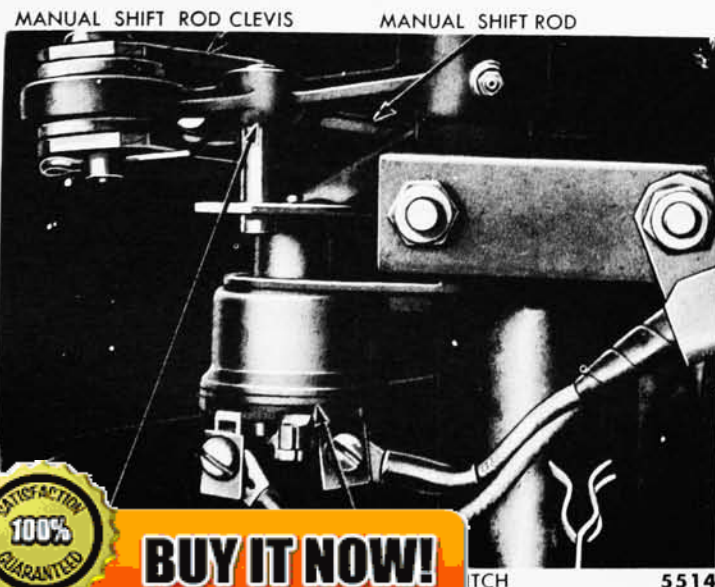
Fig. 3—Anti-Stall Dashpot Adjustment

grommet in the selector lever. Turn the clevis two additional turns counterclockwise, then install the clevis pin. Lock the clevis in place with the locknut. Check the pointer alignment for all positions of the selector lever.

The Thunderbird selector lever is located on the tunnel dome in front of the seat. The lever may be moved by depressing a button on the end of the lever. The lever positions from front to rear are P (park), R (reverse), N (neutral), Dr (drive), and Lo (low) (fig. 5).

The manual shift rod is connected from the selector lever to the transmission manual lever. Disconnect the manual shift rod from the selector lever.

Position the selector so that the indicator at the quadrant is against the stop in the Dr (drive) position. Position



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Fig. 5—Selector Lever—Thunderbird

the transmission manual lever in the Dr (drive) detent (second from the front).

Adjust the length of the manual shift rod by turning the clevis locknuts until the clevis pin enters the selector lever. Turn the lock nuts one turn counterclockwise, then install the clevis. Lock the clevis in place with the locknuts. Check the pointer alignment for all positions of the selector lever.

d. Starter Neutral Switch Adjustment.

Check the starter circuit in all selector lever positions. The circuit must be open in all positions except N (neutral). To adjust, loosen the neutral switch to steering column attaching screws. Position the switch so that the starter circuit is closed when the selector lever is at N (neutral).

e. Throttle Linkage Adjustment.

The throttle linkage used with the 6-cylinder cars (fig. 6) differs from the linkage on the 8-cylinder cars (fig. 7),

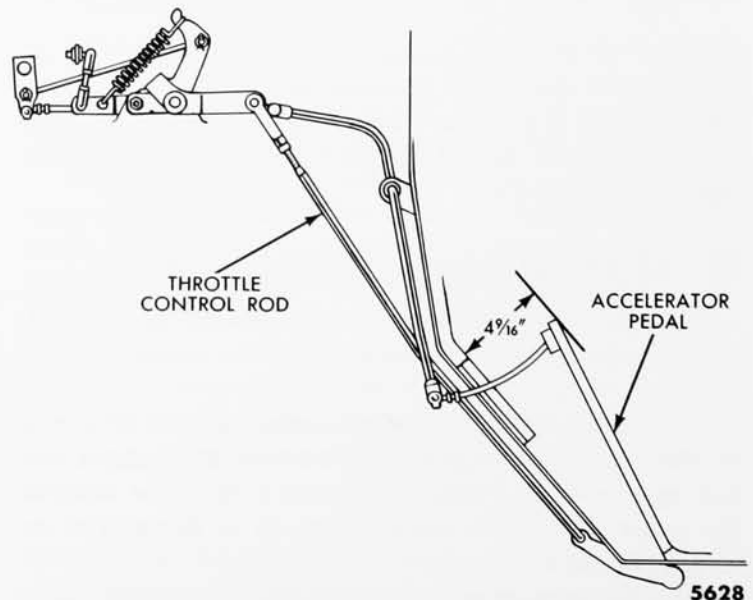


Fig. 6—Throttle Linkage—6-Cylinder