TORQUEFLITE TRANSMISSIONS

(A-904 and A-727)

INDEX

Service in Vehicle

Service Out of Vehicle

GENERAL INFORMATION

The TorqueFlite Transmission model identification marking shown in the following application chart, is cast in raised letters about 3/8 inch high on the lower left side of the bell housing. Transmission usage is determined by the type of engine with which it is installed.

TRANSMISSION APPLICATION CHART

Engine Type	Displacement Cubic Inch	Identification Marking
6 Cyl.	170-225	A-904-G
8 Cyl.	273	A-904-A
8 Cyl.	318	A-904-LA
6 Cyl.	225	A-727-RG
8 Cyl.	318-340	A-727-A
8 Cyl.	383-426-440	A-727-B

The A-727-RG is available for heavy duty police and taxi service with the 6 Cyl., 225 Cu. In. engine.

Because of the similarity in design and in servicing the transmissions, the procedures have been combined in this Manual. Where variations in procedures occur, application is indicated.

CAUTION: Transmission operation requirements are different for each vehicle and engine combination and some internal parts will be different to provide for this. Therefore, when replacing parts, refer to the seven digit part number stamped on left side of the transmission oil pan flange.

The transmission combines a torque converter and a fully-automatic 3-speed gear system (Figs. 1 and 2). The converter housing and transmission case are an integral aluminum casting. The transmission consists of two multiple disc clutches, an over-running clutch, two servos and bands, and two planetary gear sets to provide three forward ratios and a reverse ratio. The common sun gear of the planetary gear sets is connected to the front clutch by a driving shell which is splined to the sun gear and to the front clutch retainer. The hydraulic system consists of an oil pump, and a single valve body which contains all of the valves except the governor valve.

Venting of the transmission is accomplished by a drilled passage through the upper part of the oil pump housing.

The torque converter is attached to the crankshaft through a flexible driving plate. Cooling of the converter is accomplished by circulating the transmission fluid through an oil-to-water type cooler, located in

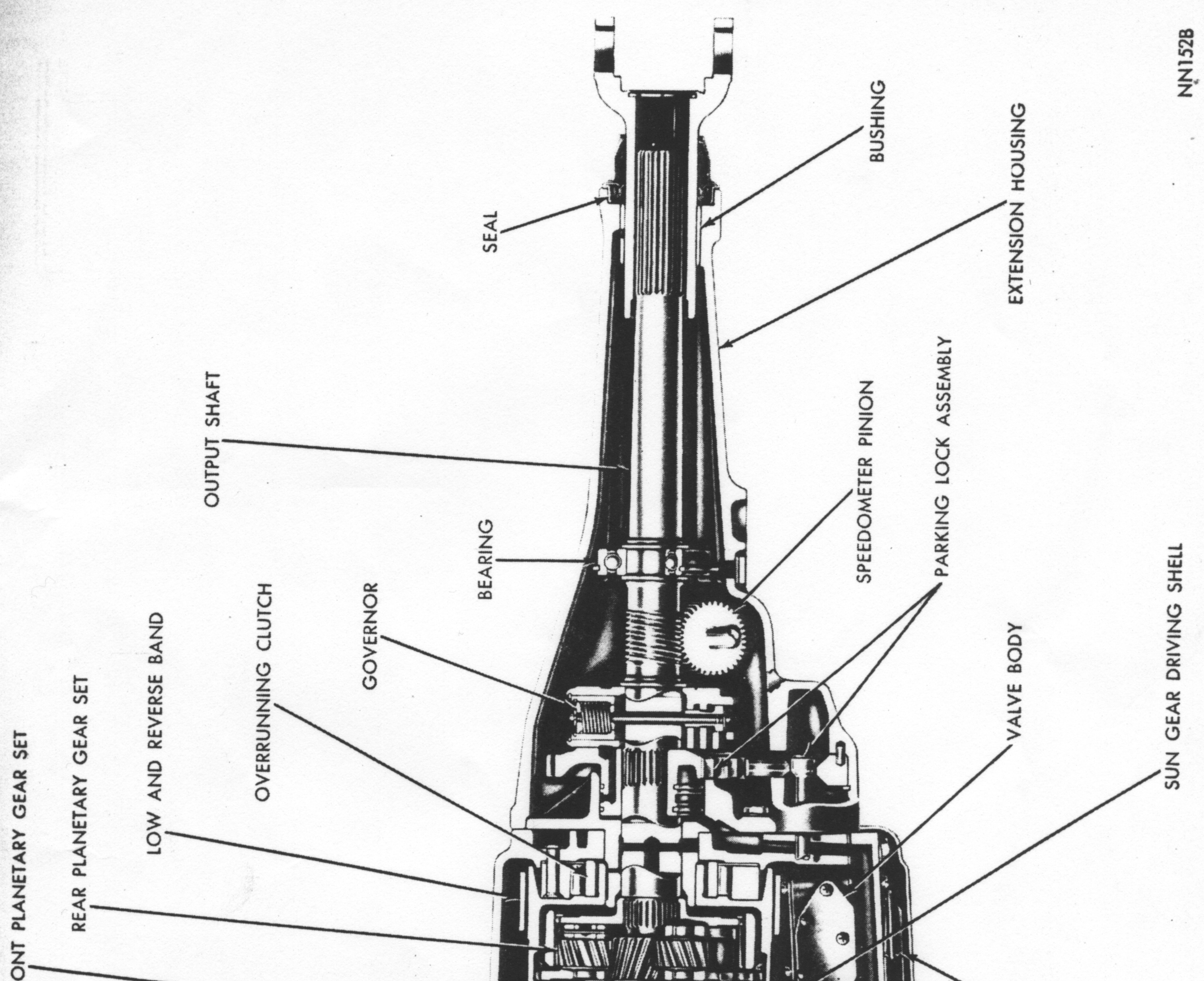
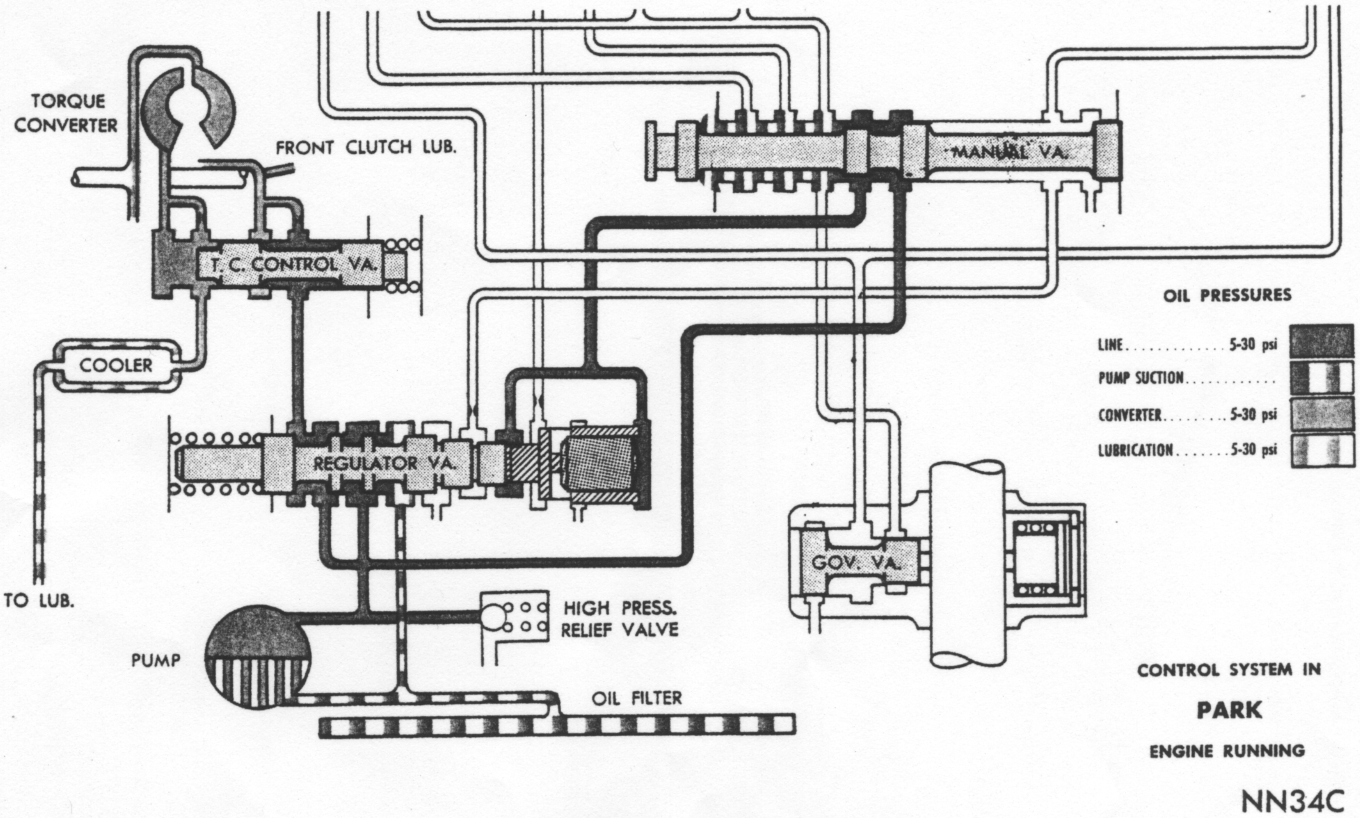
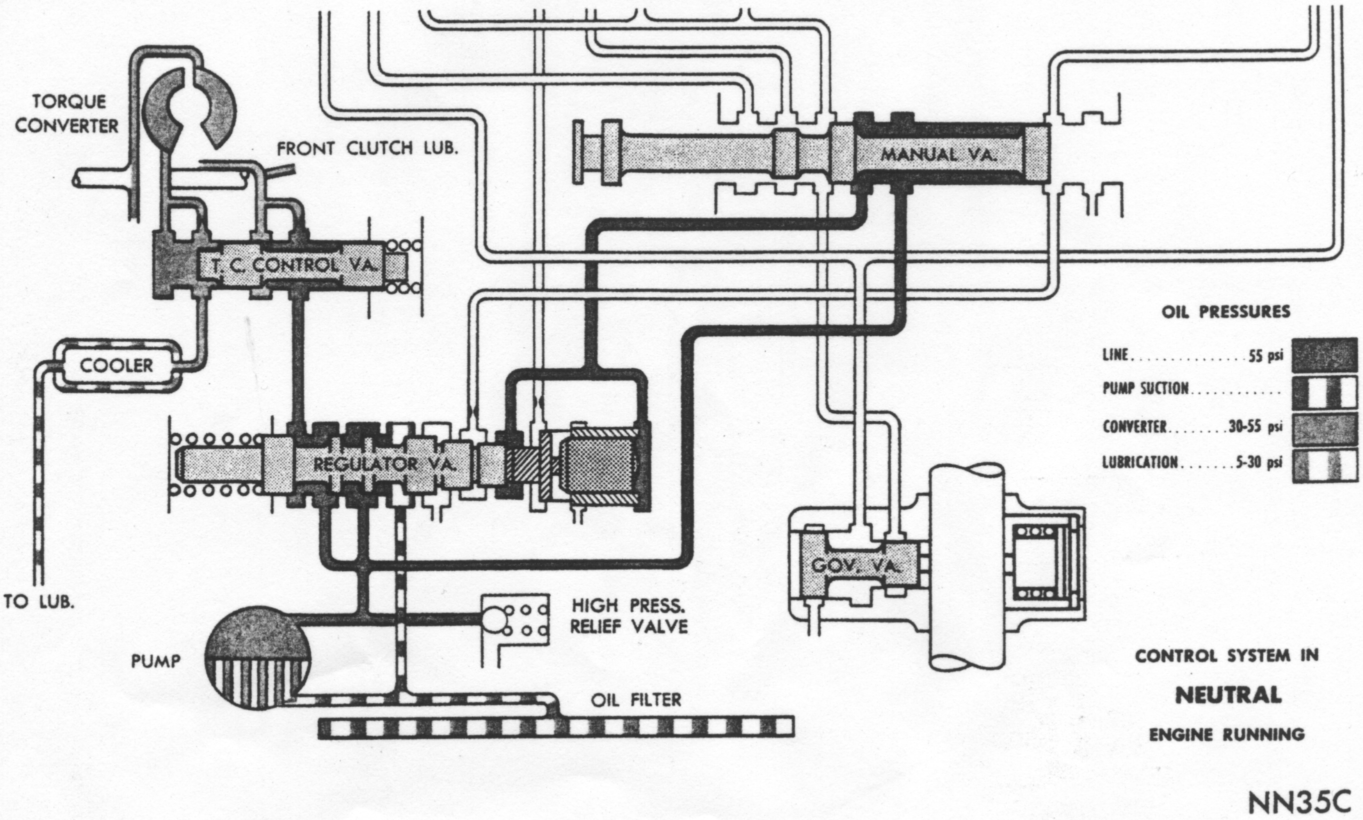


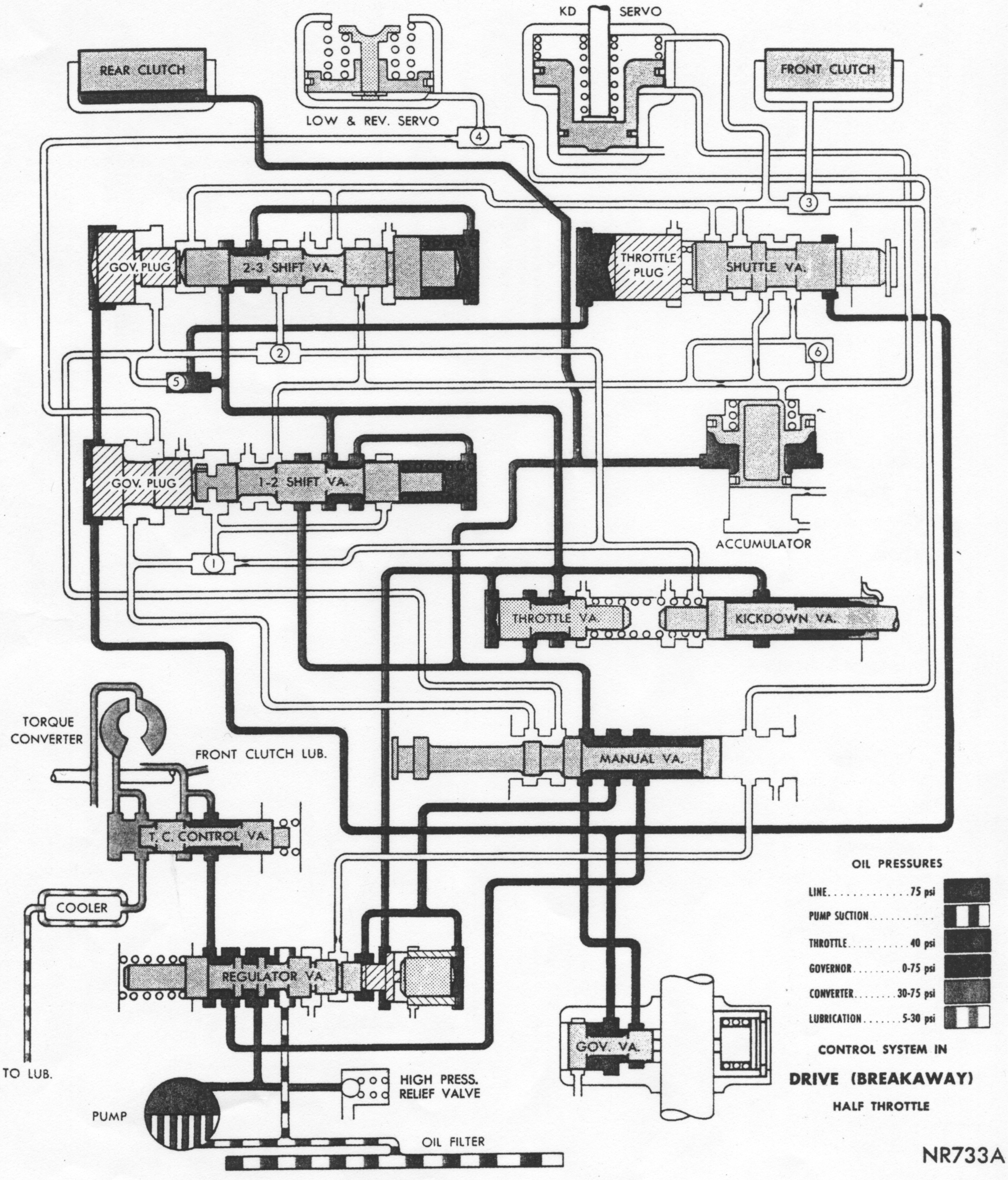
Fig. 1—TorqueFlite Transmission and Torque Converter (A-904)



Park Hydraulic Circuits

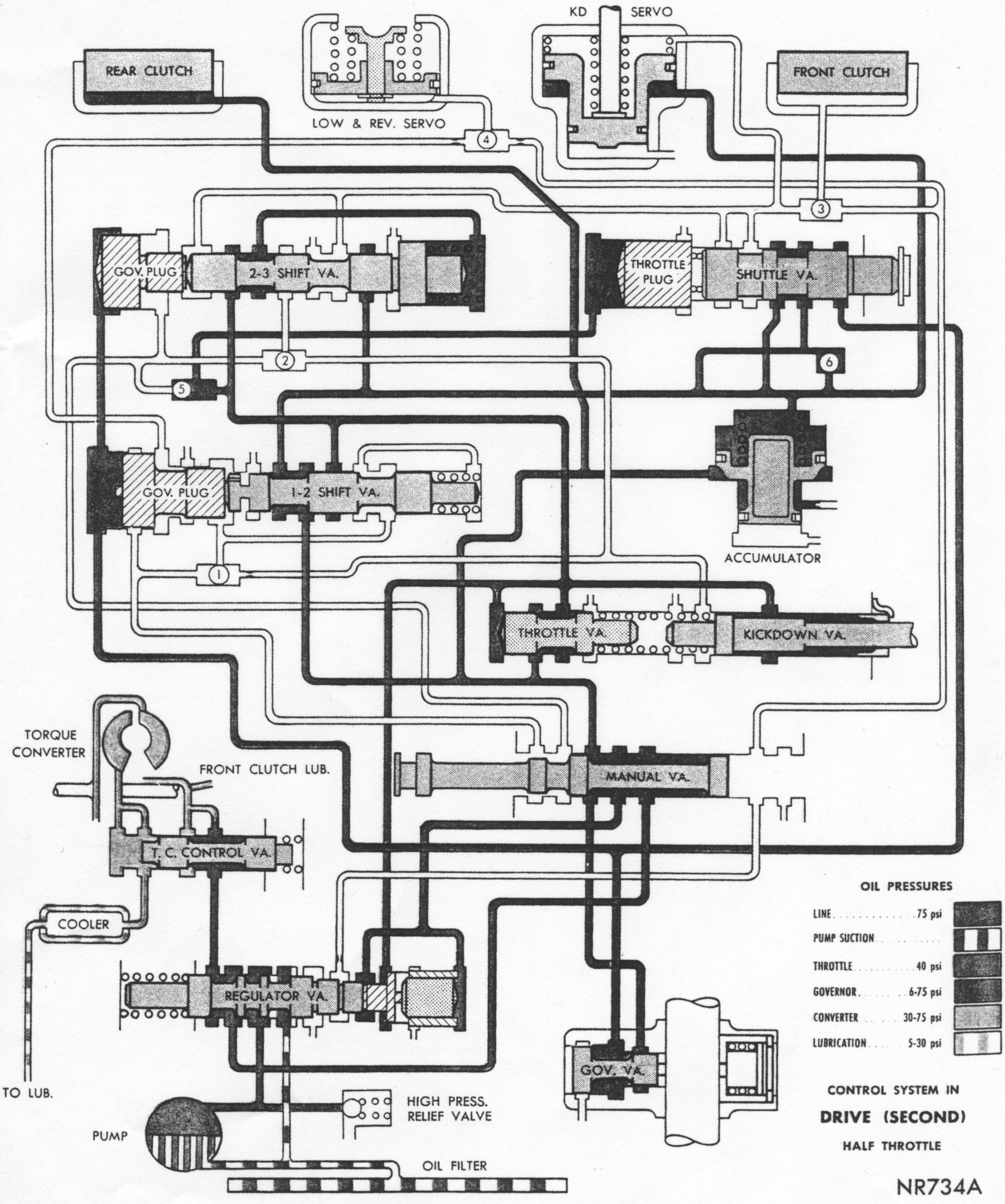


Neutral Hydraulic Circuits

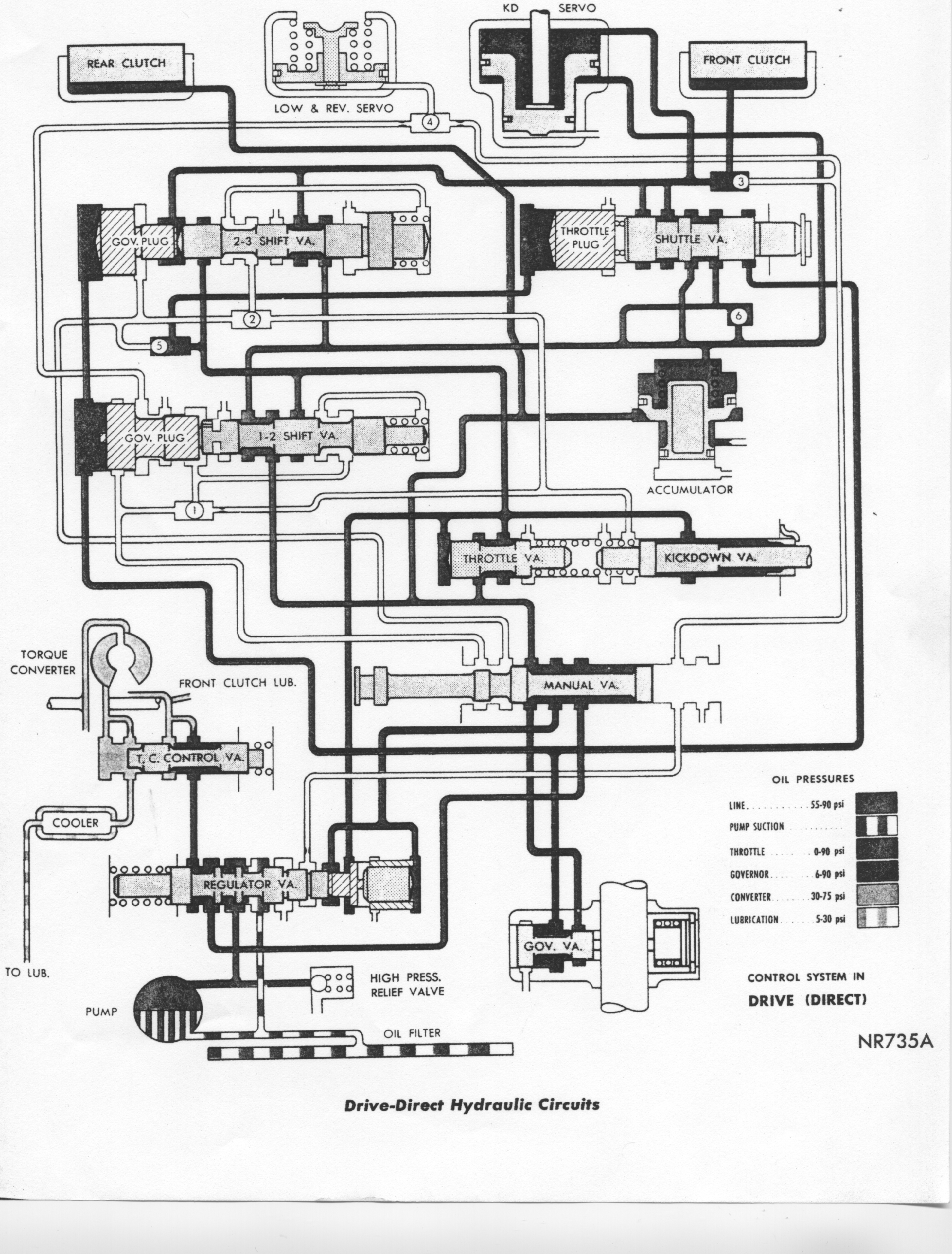


NR733A

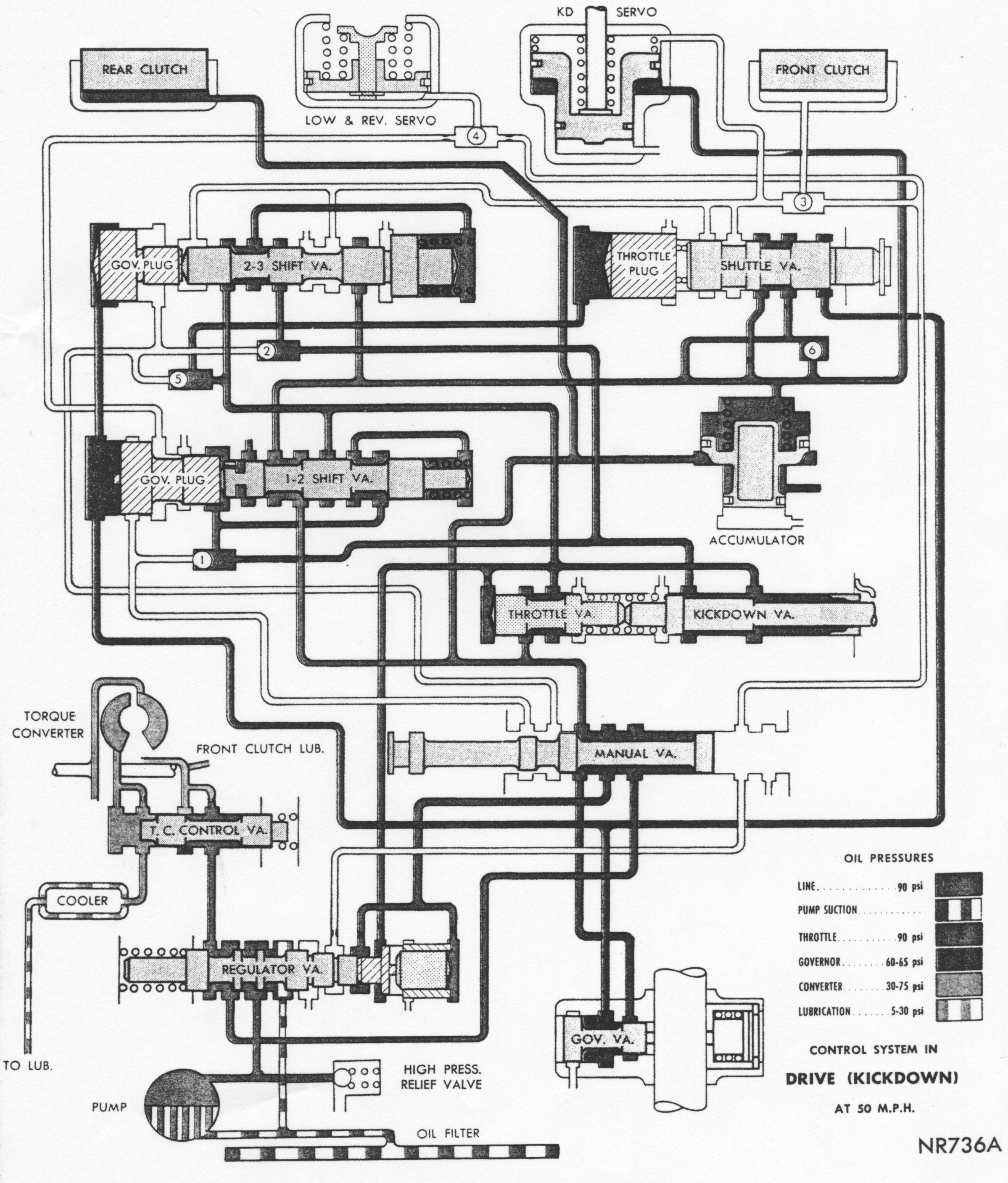
Drive-Breakaway Hydraulic Circuits



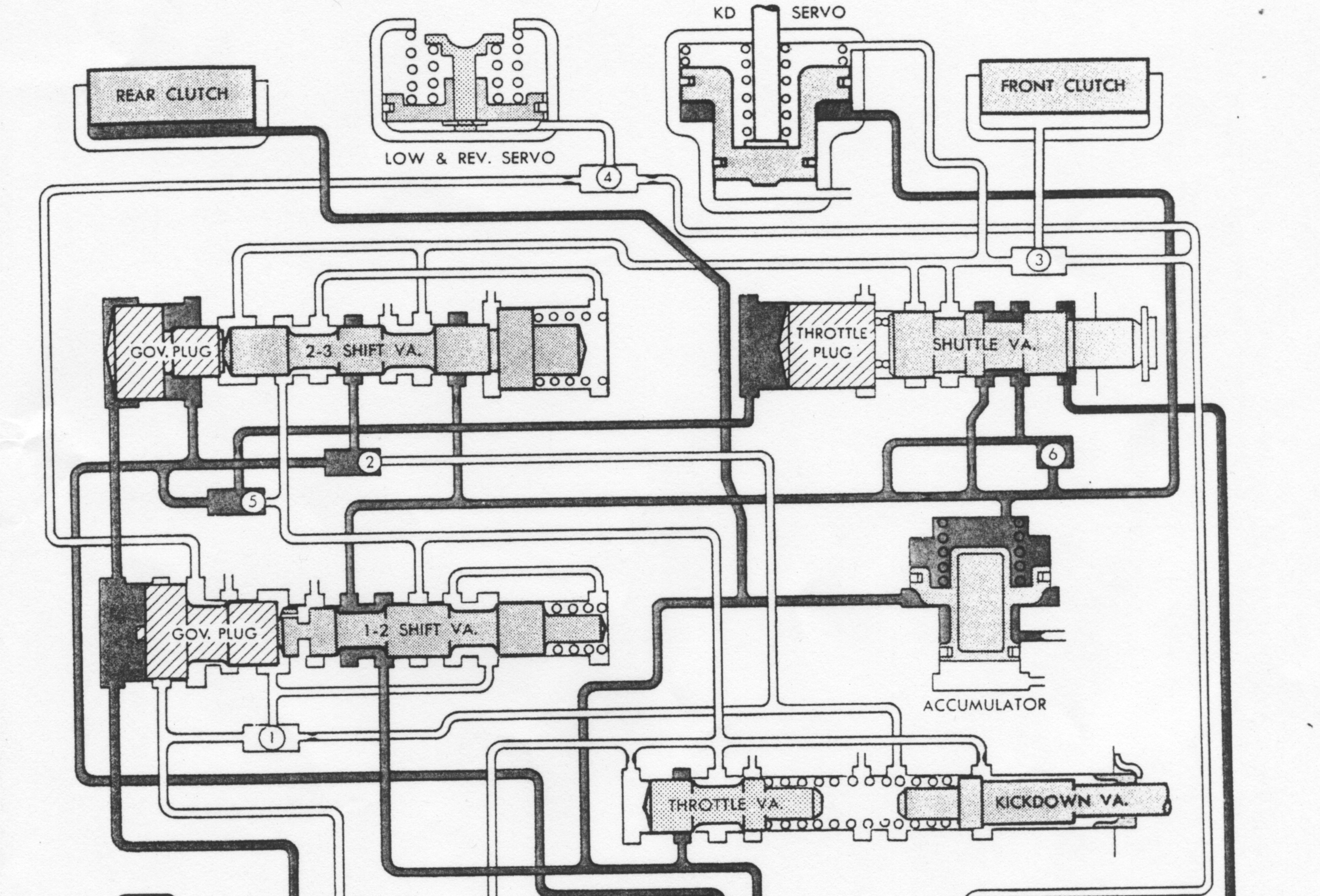
Drive-Second Hydraulic Circuits



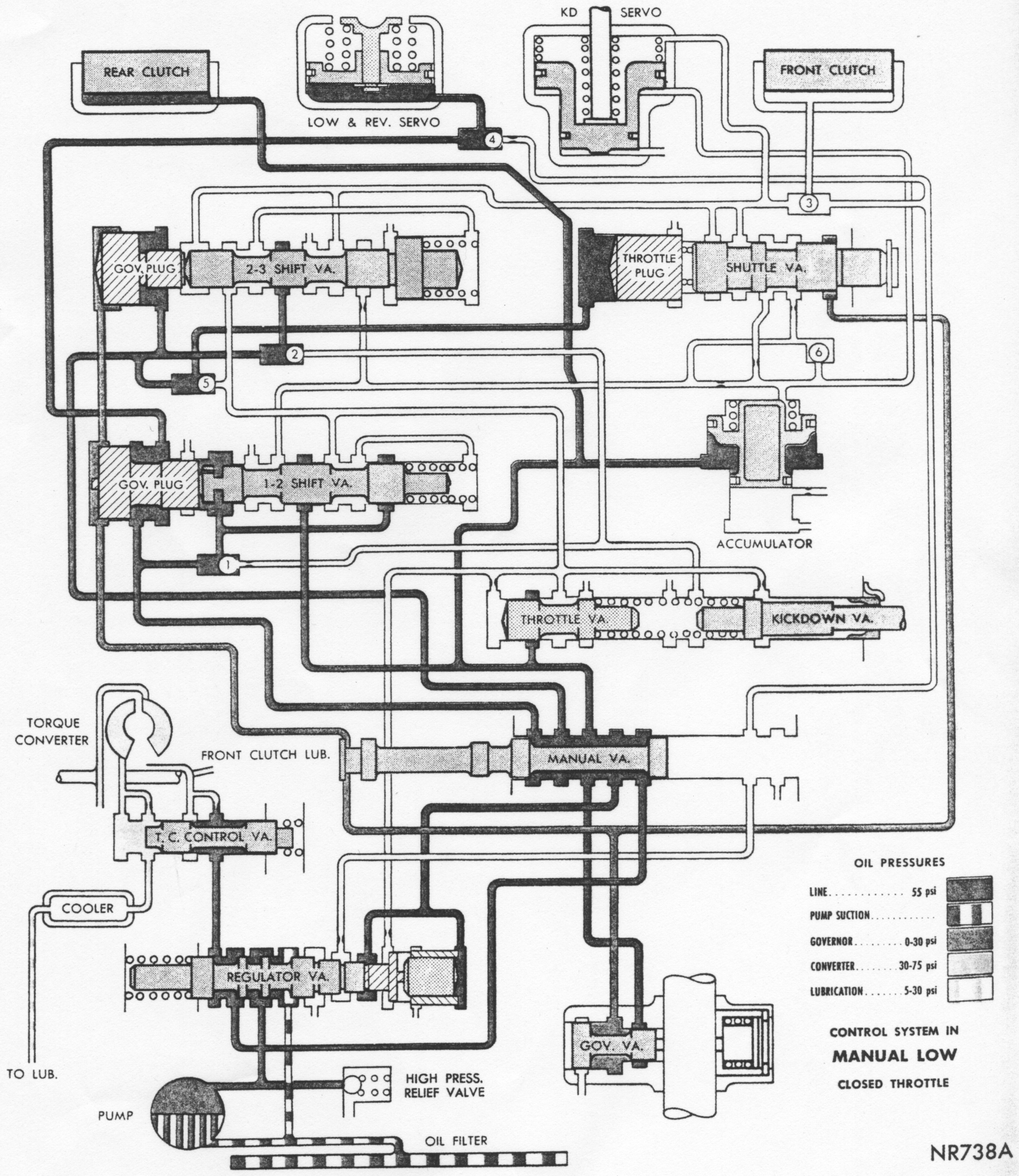
Drive-Direct Hydraulic Circuits



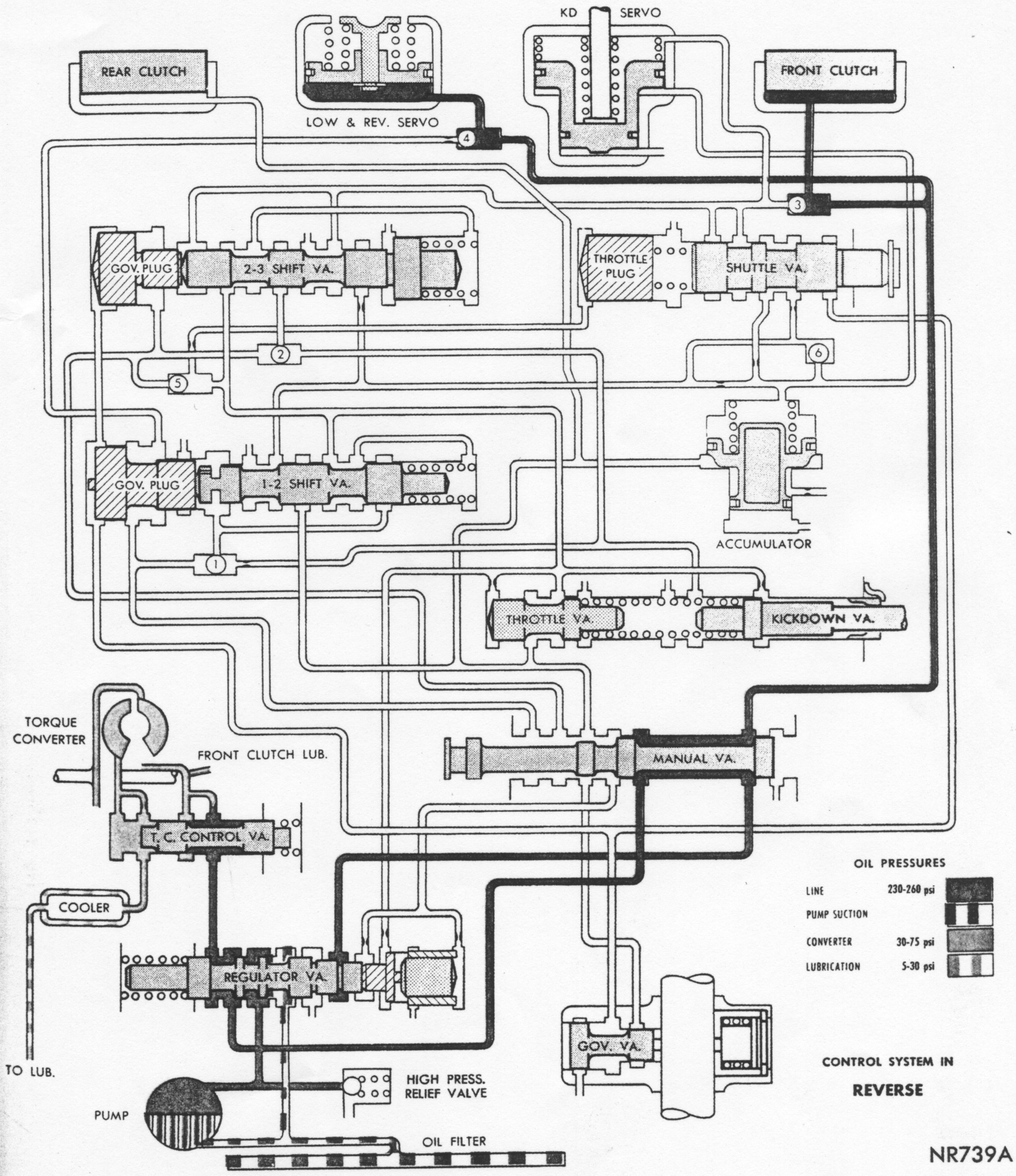
Drive-Kickdown Hydraulic Circuits



Selector Lever Second - Hydraulic Circuits



Selector Lever Low - Hydraulic Circuits



Reverse Hydraulic Circuits

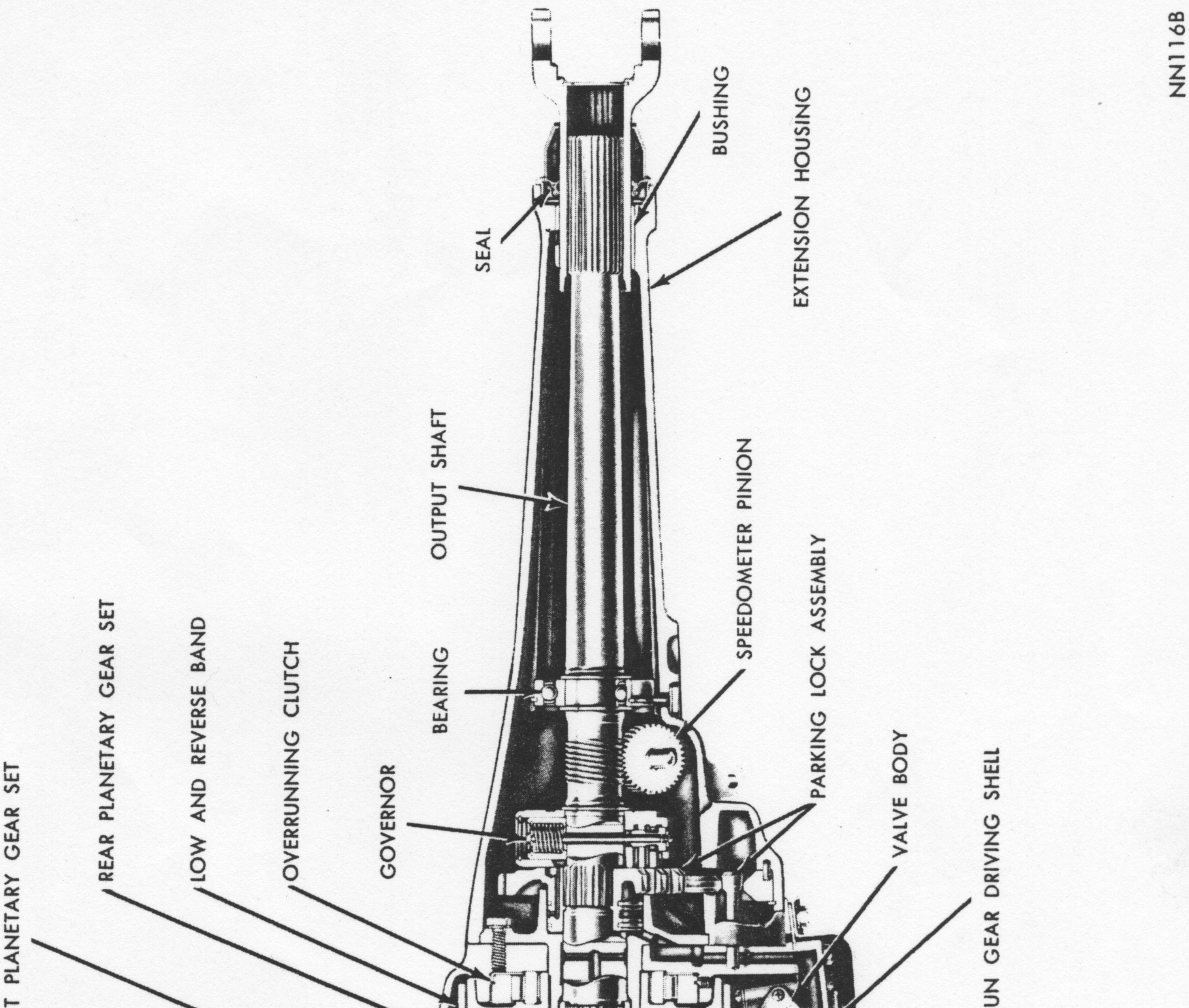


Fig. 2—TorqueFlite Transmission and Torque Converter (A-727)

CLUTCH ENGAGEMENT AND BAND APPLICATION CHART

Lever Position **Drive-Ratio**	**Front Clutch**	**Rear Clutch**	**Front (Kickdown) Band**	**Rear (Low-Rev) Band**	**Overrunning Clutch**
N-NEUTRAL	DISENGAGED	DISENGAGED	RELEASED	RELEASED	NO MOVEMENT
D-DRIVE					
(Breakaway) 2.45 to 1	DISENGAGED	ENGAGED	RELEASED	RELEASED	HOLDS
(Second) 1.45 to 1	DISENGAGED	ENGAGED	APPLIED	RELEASED	OVER RUNS
(Direct) 1.00 to 1	ENGAGED	ENGAGED	RELEASED	RELEASED	OVER RUNS
KICKDOWN					
(To Second) 1.45 to 1	DISENGAGED	ENGAGED	APPLIED	RELEASED	OVER RUNS
(To Low) 2.45 to 1	DISENGAGED	ENGAGED	RELEASED	RELEASED	HOLDS
2-SECOND 1.45 to 1	DISENGAGED	ENGAGED	APPLIED	RELEASED	OVER RUNS
1-LOW 2.45 to 1	DISENGAGED	ENGAGED	RELEASED	APPLIED	PARTIAL HOLD
R-REVERSE 2.20 to 1	ENGAGED	DISENGAGED	RELEASED	APPLIED	NO MOVEMENT

the radiator lower tank. The torque converter assembly is a sealed unit which cannot be disassembled.

The transmission fluid is filtered by an internal "Dacron Type" filter attached to the lower side of the valve body assembly.

Engine torque is transmitted to the torque converter then, through the input shaft to the multiple discs clutches in the transmission. The power flow depends on the application of the clutches and bands. Refer to "Clutch Engagement and Band Application Chart."

HYDRAULIC CONTROL SYSTEM

The hydraulic control circuits on pages 32 through 39 show the position of the various valves with color coded passages to indicate those under hydraulic pressure for all operations of the transmission.

The hydraulic control system makes the transmission fully automatic, and has four important functions to perform. In a general way, the components of any automatic control system may be grouped into the following basic groups:

The pressure supply system, the pressure regulating valves, the flow control valves, and the clutches and band servos.

Taking each of these basic groups or systems in turn, the control system may be described as follows:

Pressure Supply System

The pressure supply system consists of an oil pump driven by the engine through the torque converter. The single front pump furnishes pressure for all the hydraulic and lubrication requirements.

Pressure Regulating Valves

The pressure regulating valves consist of a regulator valve which controls line pressure at a value dependent on throttle opening.

The torque converter control valve maintains torque converter operating pressure and transmission lubricating pressure.

The governor valve transmits regulated pressure to the transmission (in conjunction with throttle pressure) to control upshift and downshift speeds.

The throttle valve transmits regulated pressure to the transmission (in conjunction with governor pressure) to control upshift and downshift speeds.

Flow Control Valves

The manual valve obtains the different transmission drive ranges as selected by the vehicle operator.

The 1-2 shift valve automatically shifts the transmission from low to second or from second to low depending on the vehicle operation.

The 2-3 shift valve automatically shifts the transmission from second to direct or from direct to second depending on the vehicle operation.

The kickdown valve makes possible a forced downshift from direct to second-second to breakaway or direct to breakaway (depending on vehicle speed) by depressing the accelerator pedal past the detent "feel" near wide open throttle.

6-Cylinder Engines: (Fig. 3) The throttle pressure plug at the end of the 2-3 shift valve, provides a 3-2 downshift with varying throttle openings depending upon vehicle speed. Approximately 1/3 throttle at 10 to 20 mph, and 3/4 throttle at the upper limit speed range—40 mph.

The shuttle valve has two separate functions and performs each independently of each other. The first is that of providing fast release of the kickdown band, and smooth front clutch engagement when the driver makes a "lift-foot" upshift from second to direct. The second function of the shuttle valve is to regulate the application of the kickdown servo and band when making direct to second kickdowns.

Clutches, Band Servos and Accumulator

The front and rear clutch pistons, and both servo pistons are moved hydraulically to engage the clutches and apply the bands. The pistons are released by spring tension when hydraulic pressure is released. On the 2-3 upshift, the kickdown servo piston is released by spring tension and hydraulic pressure.

The accumulator controls the hydraulic pressure on the apply side of the kickdown servo during the 1-2 shift; thereby, cushioning the kickdown band application at any throttle position.

OPERATING INSTRUCTIONS

The transmission will automatically upshift and downshift at approximately the speeds shown in the "Shift Pattern Summary Chart." **All shift speeds given in the "Chart" may vary somewhat due to production tolerances and rear axle ratios. The quality of the shifts is very important. All shifts should be smooth, responsive, and with no noticeable engine runaway.**

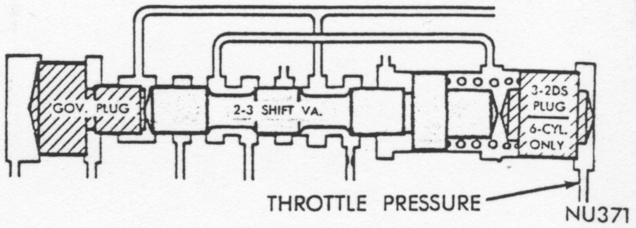


Fig. 3—Part Throttle Downshift Hydraulic Circuit

Gearshift and Parking Lock Controls

The transmission is controlled by a "lever type" gearshift incorporated within the steering column. The control has six selector lever positions: P (park), R (reverse), N (neutral), D (drive), 2 (second) and 1 (low). Some vehicles are equipped with a "lever type" console gearshift which has the same selector lever positions. The parking lock is applied by moving the selector lever past a gate to the P position.

CAUTION: Never apply the parking lock until the vehicle has stopped; otherwise, a severe ratcheting noise will occur.

Starting the Engine

The engine will start with the selector lever in either the P (park) or N (neutral) positions.

(1) As a safety precaution when starting in the N (neutral) position, apply the parking or foot brake.

(2) Depress the accelerator pedal one-third of travel to insure proper choke operation.

(3) Turn the ignition key all the way to the right to START position. When the engine starts, release the key and it will return to the ON position. **The TorqueFlite transmission will not permit starting the engine by pushing or towing.**

Mountain Driving

When driving in the mountains with either heavy loads or when pulling trailers, the 2 (second) or 1 (low) position should be selected on upgrades which

SHIFT PATTERN SUMMARY CHART

(Six Cylinder Vehicles)

	Vehicle Speed To Axle Ratios				
	170 Cu. In. Eng.		225 Cu. In. Eng.		
Condition	2.76:1	3.23:1	2.76:1	2.93:1	3.23:1
Closed Throttle 1-2 Upshift	7-13	6-11	7-13	7-13	7-13
Closed Throttle 2-3 Upshift	12-17	10-15	12-18	11-17	11-16
Wide Open Throttle 1-2 Upshift	29-46	25-39	29-42	29-40	27-38
Wide Open Throttle 2-3 Upshift	68-80	58-68	62-76	62-73	58-69
3-2 Kickdown Limit	59-71	50-61	53-68	53-65	50-61
3-1 Kickdown Limit	26-30	23-26	27-31	26-30	25-28
Closed Throttle Downshift	5-12	4-10	5-12	5-12	5-11

SHIFT PATTERN SUMMARY CHART

(Eight Cylinder Vehicles)

	Vehicle Speed To Axle Ratios						
	273 & 318 Cu. In. Eng.		340, 383 & 440 Cu. In. Eng.			High Performance	
						426	440
Condition	2.76:1	3.23:1	2.76:1	3.23:1	3.55:1	3.23:1	3.23:1
Closed Throttle 1-2 Upshift	7-13	6-11	8-14	6-13	6-10	8-15	7-12
Closed Throttle 2-3 Upshift	12-18	10-15	13-18	11-17	10-14	13-19	11-16
Wide Open Throttle 1-2 Upshift	30-47	25-40	31-49	31-50	28-42	41-58	33-48
Wide Open Throttle 2-3 Upshift	70-82	59-71	72-85	62-81	57-67	80-93	68-78
3-2 Kickdown Limit	60-73	51-63	63-76	55-73	50-60	70-84	60-70
3-1 Kickdown Limit	27-31	23-27	28-32	23-36	22-35	30-45	25-36
Closed Throttle Downshift	5-12	5-10	6-13	5-12	4-9	6-13	5-11

require heavy throttle for 1/2 mile or more. This reduces possibility of overheating the transmission and converter under these conditions.

Towing Vehicle

Transmission Inoperative: Tow the vehicle with a rear end pickup or remove the propeller shaft.

Transmission Operating Properly: The vehicle may be towed safely in N (neutral) with rear wheels on the ground at a speed not to exceed 30 mph. **If the vehicle is to be towed for extended distances, it should be done with a rear end pickup or the propeller shaft removed.** Because the transmission receives lubrication only when the engine is running, **it is good practice to always tow a disabled vehicle with a rear end pickup** or remove the propeller shaft.

SERVICE DIAGNOSIS

The transmission should not be removed nor disassembled until a careful diagnosis is made, the definite cause determined and all possible external corrections performed. In diagnosing any abnormal shift condition, always make the hydraulic pressure tests before disassembly or replacement of parts.

Condition	Possible Cause	Correction
HARSH ENGAGEMENT IN D, 1, 2 AND R	(a) Engine idle speed too high.	(a) Adjust engine idle speed to specifications. Readjust throttle linkage.
	(b) Hydraulic pressures too high or low.	(b) Inspect fluid level, then perform hydraulic pressure tests and adjust to specifications.
	(c) Low-reverse band out of adjustment.	(c) Adjust low-reverse band.
	(d) Valve body malfunction or leakage.	(d) Perform pressure tests to determine cause and correct as required.
	(e) Accumulator sticking, broken rings or spring.	(e) Inspect accumulator for sticking, broken rings or spring. Repair as required.
	(f) Low-reverse servo, band or linkage malfunction.	(f) Inspect servo for damaged seals, binding linkage or faulty band lining. Repair as required.
	(g) Worn or faulty front and/or rear clutch.	(g) Disassemble and inspect clutch. Repair or replace as required.
DELAYED ENGAGEMENT IN D, 1, 2 AND R	(a) Low fluid level.	(a) Refill to correct level with Automatic Transmission Fluid, AQ-ATF, Suffix A. or (Dexron).
	(b) Incorrect gearshift control linkage adjustment.	(b) Adjust control linkage.
	(c) Hydraulic pressures too high or low.	(c) Perform hydraulic pressure tests and adjust to specifications.
	(d) Oil filter clogged.	(d) Replace oil filter.
	(e) Valve body malfunction or leakage.	(e) Perform pressure tests to determine cause and correct as required.
	(f) Accumulator sticking, broken rings or spring.	(f) Inspect accumulator for sticking, broken rings or spring. Repair as required.

Condition	Possible Cause	Correction
	(g) Clutches or servos sticking or not operating.	(g) Remove valve body assembly and perform air pressure tests. Repair as required.
	(h) Faulty oil pump.	(h) Perform hydraulic pressure tests. Adjust or repair as required.
	(i) Worn or faulty front and/or rear clutch.	(i) Disassemble and inspect clutch. Repair or replace as required.
	(j) Worn or broken input shaft and/or reaction shaft support seal rings.	(j) Inspect and replace seal rings as required, also inspect respective bores for wear. Replace parts as required.
	(k) Aerated fluid.	(k) Inspect for air leakage into pump suction passages.
RUNAWAY OR HARSH UPSHIFT AND 3-2 KICKDOWN	(a) Low fluid level.	(a) Refill to correct level with Automatic Transmission Fluid, AQ-ATF, Suffix A. or (Dexron).
	(b) Incorrect throttle linkage adjustment.	(b) Adjust throttle linkage.
	(c) Hydraulic pressures too high or low.	(c) Perform hydraulic pressure tests and adjust to specifications.
	(d) Kickdown band out of adjustment.	(d) Adjust kickdown band.
	(e) Valve body malfunction or leakage.	(e) Perform pressure tests to determine cause and correct as required.
	(f) Governor malfunction.	(f) Inspect governor and repair as required.
	(g) Accumulator sticking, broken rings or spring.	(g) Inspect accumulator for sticking, broken rings or spring. Repair as required.
	(h) Clutches or servos sticking or not operating.	(h) Remove valve body assembly and perform air pressure tests. Repair as required.
	(i) Kickdown servo, band or linkage malfunctions.	(i) Inspect servo for sticking, broken seal rings, binding linkage or faulty band lining. Repair as required.
	(j) Worn or faulty front clutch.	(j) Disassemble and inspect clutch. Repair or replace as required.
	(k) Worn or broken input shaft and/or reaction shaft support seal rings.	(k) Inspect and replace seal rings as required, also inspect respective bores for wear. Replace parts as required.
NO UPSHIFT	(a) Low fluid level.	(a) Refill to correct level with Automatic Transmission Fluid AQ-ATF, Suffix A. or (Dexron).
	(b) Incorrect throttle linkage adjustment.	(b) Adjust throttle linkage.
	(c) Kickdown band out of adjustment.	(c) Adjust kickdown band.
	(d) Hydraulic pressures too high or low.	(d) Perform hydraulic pressure tests and adjust to specifications.
	(e) Governor sticking or leaking.	(e) Remove and clean governor. Replace parts as necessary.
	(f) Valve body malfunction or leakage.	(f) Perform pressure tests to determine cause and correct as required.
	(g) Clutches or servos sticking or not operating.	(g) Remove valve body assembly and perform air pressure tests. Repair as required.
	(h) Faulty oil pump.	(h) Perform hydraulic pressure tests, adjust or repair as required.
	(i) Kickdown servo, band or linkage malfunction.	(i) Inspect servo for sticking, broken seal rings, binding linkage or faulty band lining. Repair as required.
	(j) Worn or faulty front clutch.	(j) Disassemble and inspect clutch. Repair or replace as required.
	(k) Worn or broken input shaft and/or reaction shaft support seal rings.	(k) Inspect and replace seal rings as required, also inspect respective bores for wear. Replace parts as required.

Condition	Possible Cause	Correction
NO KICKDOWN OR NORMAL DOWNSHIFT	(a) Incorrect throttle linkage adjustment.	(a) Adjust throttle linkage.
	(b) Incorrect gearshift control linkage adjustment.	(b) Adjust control linkage.
	(c) Kickdown band out of adjustment.	(c) Adjust kickdown band.
	(d) Hydraulic pressures too high or low.	(d) Perform hydraulic pressure tests and adjust to specifications.
	(e) Governor sticking or leaking.	(e) Remove and clean governor. Replace parts if necessary.
	(f) Valve body malfunction or leakage.	(f) Perform pressure tests to determine cause and correct as required.
	(g) Clutches or servos sticking or not operating.	(g) Remove valve body assembly and perform air pressure tests. Repair as required.
	(h) Kickdown servo, band or linkage malfunction.	(h) Inspect servo for sticking, broken seal rings, binding linkage or faulty band lining. Repair as required.
	(i) Overrunning clutch not holding.	(i) Disassemble transmission and repair overrunning clutch as required.
SHIFTS ERRATIC	(a) Low fluid level.	(a) Refill to correct level with Automatic Transmission Fluid, AQ-ATF, Suffix A. or (Dexron).
	(b) Aerated fluid.	(b) Inspect for air leakage into pump suction passages.
	(c) Incorrect throttle linkage adjustment.	(c) Adjust throttle linkage.
	(d) Incorrect gearshift control linkage adjustment.	(d) Adjust control linkage.
	(e) Hydraulic pressures too high or low.	(e) Perform hydraulic pressure tests and adjust to specifications.
	(f) Governor sticking or leaking.	(f) Remove and clean governor. Replace parts if necessary.
	(g) Oil filter clogged.	(g) Replace oil filter.
	(h) Valve body malfunction or leakage.	(h) Perform pressure tests to determine cause and correct as required.
	(i) Clutches or servos sticking or not operating.	(i) Remove valve body assembly and perform air pressure tests. Repair as required.
	(j) Faulty oil pump.	(j) Perform hydraulic pressure tests, adjust or repair as required.
	(k) Worn or broken input shaft and/or reaction shaft support seal rings.	(k) Inspect and replace seal rings as required, also inspect respective bores for wear. Replace parts as required.
SLIPS IN FORWARD DRIVE POSITIONS	(a) Low fluid level.	(a) Refill to correct level with Automatic Transmission Fluid, AQ-ATF, Suffix A. or (Dexron).
	(b) Aerated fluid.	(b) Inspect for air leakage into oil pump suction passages.
	(c) Incorrect throttle linkage adjustment.	(c) Adjust throttle linkage.
	(d) Incorrect gearshift control linkage adjustment.	(d) Adjust control linkage.
	(e) Hydraulic pressures too low.	(e) Perform hydraulic pressure tests and adjust to specifications.
	(f) Valve body malfunction or leakage.	(f) Perform pressure tests to determine cause and correct as required.
	(g) Accumulator sticking, broken rings or spring.	(g) Inspect accumulator for sticking, broken rings or spring. Repair as required.
	(h) Clutches or servos sticking or not operating.	(h) Remove valve body assembly and perform air pressure tests. Repair as required.
	(i) Worn or faulty front and/or rear clutch.	(i) Disassemble and inspect clutch. Repair or replace as required.
	(j) Overrunning clutch not holding.	(j) Disassemble transmission and repair overrunning clutch as required.

Condition	Possible Cause	Correction
	(k) Worn or broken input shaft and/or reaction shaft support seal rings.	(k) Inspect and replace seal rings as required, also inspect respective bores for wear. Replace parts as required.
SLIPS IN REVERSE ONLY	(a) Low fluid level.	(a) Refill to correct level with Automatic Transmission Fluid, AQ-ATF, Suffix A. or (Dexron).
	(b) Aerated fluid.	(b) Inspect for air leakage into pump suction passages.
	(c) Incorrect gearshift control linkage adjustment.	(c) Adjust control linkage.
	(d) Hydraulic pressures too high or low.	(d) Perform hydraulic pressure tests and adjust to specifications.
	(e) Low-reverse band out of adjustment.	(e) Adjust low-reverse band.
	(f) Valve body malfunction or leakage.	(f) Perform pressure tests to determine cause and correct as required.
	(g) Front clutch or rear servo, sticking or not operating.	(g) Remove valve body assembly and perform air pressure tests. Repair as required.
	(h) Low-reverse servo, band or linkage malfunction.	(h) Inspect servo for damaged seals, binding linkage or faulty band lining. Repair as required.
	(i) Faulty oil pump.	(i) Perform hydraulic pressure tests, adjust or repair as required.
SLIPS IN ALL POSITIONS	(a) Low fluid level.	(a) Refill to correct level with Automatic Transmission Fluid, AQ-ATF, Suffix A. or (Dexron).
	(b) Hydraulic pressures too low.	(b) Perform hydraulic pressure tests and adjust to specifications.
	(c) Valve body malfunction or leakage.	(c) Perform pressure tests to determine cause and correct as required.
	(d) Faulty oil pump.	(d) Perform hydraulic pressure tests, adjust or repair as required.
	(e) Clutches or servos sticking or not operating.	(e) Remove valve body assembly and perform air pressure tests. Repair as required.
	(f) Worn or broken input shaft and/or reaction shaft support seal rings.	(f) Inspect and replace seal rings as required, also inspect respective bores for wear. Replace parts as required.
NO DRIVE IN ANY POSITION	(a) Low fluid level.	(a) Refill to correct level with Automatic Transmission Fluid, AQ-ATF, Suffix A. or (Dexron).
	(b) Hydraulic pressures too low.	(b) Perform hydraulic pressure tests and adjust to specifications.
	(c) Oil filter clogged.	(c) Replace oil filter.
	(d) Valve body malfunction or leakage.	(d) Perform pressure tests to determine cause and correct as required.
	(e) Faulty oil pump.	(e) Perform hydraulic pressure tests, adjust or repair as required.
	(f) Clutches or servos sticking or not operating.	(f) Remove valve body assembly and perform air pressure tests. Repair as required.
	(g) Torque converter failure.	(g) Replace torque converter.
NO DRIVE IN FORWARD DRIVE POSITIONS	(a) Hydraulic pressures too low.	(a) Perform hydraulic pressure tests and adjust to specifications.
	(b) Valve body malfunction or leakage.	(b) Perform pressure tests to determine cause and correct as required.
	(c) Clutches or servos, sticking or not operating.	(c) Remove valve body assembly and perform air pressure tests. Repair as required.
	(d) Worn or faulty rear clutch.	(d) Disassemble and inspect clutch. Repair or replace as required.
	(e) Overrunning clutch not holding.	(e) Disassemble transmission and repair overrunning clutch as required.

Condition	Possible Cause	Correction
	(f) Worn or broken input shaft and/or reaction shaft support seal rings.	(f) Inspect and replace seal rings as required, also inspect respective bores for wear. Replace parts as required.
NO DRIVE IN REVERSE	(a) Incorrect gearshift control linkage adjustment.	(a) Adjust control linkage.
	(b) Hydraulic pressures too low.	(b) Perform hydraulic pressure tests and adjust to specifications.
	(c) Low-reverse band out of adjustment.	(c) Adjust low-reverse band.
	(d) Valve body malfunction or leakage.	(d) Perform pressure tests to determine cause and correct as required.
	(e) Front clutch or rear servo, sticking or not operating.	(e) Remove valve body assembly and perform air pressure tests. Repair as required.
	(f) Low-reverse servo, band or linkage malfunction.	(f) Inspect servo for damaged seals, binding linkage or faulty band lining. Repair as required.
	(g) Worn or faulty front clutch.	(g) Disassemble and inspect clutch. Repair or replace as required.
DRIVES IN NEUTRAL	(a) Incorrect gearshift control linkage adjustment.	(a) Adjust control linkage.
	(b) Valve body malfunction or leakage.	(b) Perform pressure tests to determine cause and correct as required.
	(c) Rear clutch dragging.	(c) Inspect clutch and repair as required.
DRAGS OR LOCKS	(a) Kickdown band out of adjustment.	(a) Adjust kickdown band.
	(b) Low-reverse band out of adjustment.	(b) Adjust low-reverse band.
	(c) Kickdown and/or low-reverse servo, band, linkage malfunction.	(c) Inspect servo for sticking, broken seal rings, binding linkage or faulty band lining. Repair as required.
	(d) Front and/or rear clutch faulty.	(d) Disassemble and inspect clutch. Repair or replace as required.
	(e) Planetary gear sets broken or seized.	(e) Inspect condition of planetary gear sets and replace as required.
	(f) Overrunning clutch worn, broken or seized.	(f) Inspect condition of overrunning clutch and replace parts as required.
GRATING, SCRAPING GROWLING NOISE	(a) Kickdown band out of adjustment.	(a) Adjust kickdown band.
	(b) Low-reverse band out of adjustment.	(b) Adjust low-reverse band.
	(c) Output shaft bearing and/or bushing damaged.	(c) Remove extension housing and replace bearing and/or bushing.
	(d) Governor support binding or broken seal rings.	(d) Inspect condition of governor support and repair as required.
	(e) Oil pump scored or binding.	(e) Inspect condition of pump and repair as required.
	(f) Front and/or rear clutch faulty.	(f) Disassemble and inspect clutch. Repair or replace as required.
	(g) Planetary gear sets broken or seized.	(g) Inspect condition of planetary gear sets and replace as required.
	(h) Overrunning clutch worn, broken or seized.	(h) Inspect condition of overrunning clutch and replace parts as required.
BUZZING NOISE	(a) Low fluid level.	(a) Refill to correct level with Automatic Transmission Fluid, AQ-ATF, Suffix A. or (Dexron).
	(b) Pump sucking air.	(b) Inspect pump for nicks or burrs on mating surfaces, porous casing, and/or excessive rotor clearance. Replace parts as required.
	(c) Valve body malfunction.	(c) Remove and recondition valve body assembly.
	(d) Overrunning clutch inner race damaged.	(d) Inspect and repair clutch as required.
HARD TO FILL, OIL FLOWS OUT FILLER TUBE	(a) High fluid level.	(a) Drain fluid to correct level.
	(b) Breather clogged.	(b) Inspect and clean breather vent opening in pump housing.

Condition	Possible Cause	Correction
	(c) Oil filter clogged.	(c) Replace oil filter.
	(d) Aerated fluid.	(d) Inspect for air leakage into oil pump suction passages.
TRANSMISSION OVERHEATS	(a) Low fluid level.	(a) Refill to correct level with Automatic Transmission Fluid, AQ-ATF, Suffix A. or (Dexron).
	(b) Kickdown band adjustment too tight.	(b) Adjust kickdown band.
	(c) Low-reverse band adjustment too tight.	(c) Adjust low-reverse band.
	(d) Faulty cooling system.	(d) Inspect the transmission cooling system, clean and repair as required.
	(e) Cracked or restricted oil cooler line or fitting.	(e) Inspect, repair or replace as required.
	(f) Faulty oil pump.	(f) Inspect pump for incorrect clearance, repair as required.
	(g) Insufficient clutch plate clearance in front and/or rear clutches.	(g) Measure clutch plate clearance and correct with proper size snap ring.
STARTER WILL NOT ENERGIZE IN NEUTRAL OR PARK	(a) Incorrect gearshift control linkage adjustment.	(a) Adjust control linkage.
	(b) Faulty or incorrectly adjusted neutral starting switch.	(b) Test operation of switch with a test lamp. Adjust or replace as required.
	(c) Broken lead to neutral switch.	(c) Inspect lead and test with a test lamp. Repair broken lead.

STALL TEST

WARNING: During test let no one stand in front of vehicle.

The stall test consists of determining the engine speed obtained at full throttle in D position. This test checks the torque converter stator clutch operation, and the holding ability of the transmission clutches. The transmission oil level should be checked and the engine brought to normal operating temperature before stall operation. **Both the parking and service brakes must be fully applied and front wheels blocked while making this test.**

Do not hold the throttle open any longer than is necessary to obtain a maximum engine speed reading, **and never longer than five seconds at a time.** If more than one stall check is required, operate the engine at approximately 1,000 rpm in neutral for 20 seconds to cool the transmission fluid between runs. If engine speed exceeds the maximum limits shown, release the accelerator immediately since transmission clutch slippage is indicated.

STALL SPEED ABOVE SPECIFICATION

If stall speed exceeds the maximum specified in chart by more than 200 rpm, transmission clutch slippage is indicated. Follow the transmission oil pressure and air pressure checks outlined in the Service in Vehicle section to determine the cause of slippage.

STALL SPEED BELOW SPECIFICATION

Low stall speeds **with a properly tuned engine** indicate torque converter stator clutch problems. A road test will be necessary to identify the exact problem.

If stall speeds are 250-350 rpm below specification, and the vehicle operates properly at highway speeds, but has poor through-gear aceleration, the stator overrunning clutch is slipping.

If stall speed and acceleration are normal. but abnormally high throttle opening is required to maintain highway speeds, the stator clutch has seized.

Both of these stator defects require replacement of the torque converter.

NOISE

A whining or siren-like noise due to fluid flow is normal during stall operation with some converters; however, loud metallic noises from loose parts or interference within the assembly indicate a defective torque converter. To confirm that the noise originates within the converter, operate the vehicle at light throttle in D and N on a hoist and listen under the transmission bell housing.

STALL SPEED SPECIFICATION CHART

Engine Model (C.I.D.)	Transmission Type	Engine Speed (RPM)
170	A904-G	1500-1700
225	A904-G	1800-2000
225	A727-RG	1450-1650
273	A904-A	1950-2150
318	A904-LA	2100-2320
318	A727-A	1750-1950
340-4 BBL.	A727-A	2250-2450
383-2 BBL.	A727-B	1850-2100
383-4 BBL.	A727-B	2350-2650
440-4 BBL.	A727-B	2000-2300
426-2-4 BBL.	A727-B	2650-2850

SERVICE PROCEDURES

SERVICE IN VEHICLE

Various transmission components can be removed for repairs without removing the transmission from the vehicle. The removal, reconditioning and installation procedures for these components are covered here, except the valve body reconditioning, which is described on Page 69.

ALUMINUM THREAD REPAIR

Damaged or worn threads in the aluminum transmission case and valve body can be repaired by the use of Heli-Coils. Essentially, this repair consists of drilling out the worn or damaged threads, tapping the hole with a special Heli-Coil Tap, and installing a Heli-Coil insert into the tapped hole. This brings the hole back to its original thread size.

The chart lists the threaded hole sizes which are used in the aluminum case and valve body, and the necessary tools and inserts for the repair of damaged or worn threads. Heli-Coil tools and inserts are readily available from most automotive parts jobbers. **Some thread drag may occur in screwing a bolt into the installed Heli-Coil insert. Therefore, a torque reading should be taken of the thread drag with an inch-pound torque wrench and added to the specified bolt torque, so that all bolts securing a particular part will be tightened to the same torque.**

LUBRICATION

The transmission fluid and filter should provide satisfactory lubrication and protection to the automatic transmission and no change is recommended in vehicles used in normal service. Regularly scheduled fluid and filter changes, therefore will not be required, except when the operation of the vehicle is classified as severe.

If, for any reason, the factory fill fluid is replaced with another fluid, the fluid must be changed every three years or 36,000 miles in normal service.

Hemi Engine Vehicles: The factory fill fluid should be changed after the first 24,000 miles or 24 months, whichever occurs first, and periodically thereafter every 12,000 miles or 12 months. The filter should be changed with each fluid change. If for any reason, the factory fill fluid is replaced with another fluid prior to the 24,000 mile or 24 month interval, the fluid must be changed every 12,000 miles or 12 months.

Fluid Level

Inspect fluid level every six months with engine and transmission at normal operating temperature. Refer to "Lubrication and Maintenance," Group 0. The transmission should not be idled in gear for long periods.

Trailer Towing Service and Hard Usage

If vehicle is used for trailer towing or is used in hard or severe service, more frequent servicing is required as outlined.

Drain and refill transmission and replace filter initially at 36,000 miles or 3 years and every 12,000 miles or 12 months thereafter.

Drain and Refill

(1) Raise vehicle on a hoist. Place a drain container with a large opening, under transmission oil pan.

(2) Loosen pan bolts at one corner, tap the pan to break it loose allowing fluid to drain, then remove the oil pan.

(3) Remove access plate from in front of converter, remove drain plug allowing fluid to drain (Fig. 4). Install and tighten converter drain plug to 110 inch-pounds, and install the access plate.

(4) If necessary, adjust the reverse band.

(5) Install a new filter on bottom of the valve body, and tighten retaining screws to 35 inch-pounds.

(6) Clean the oil pan, and reinstall using a new gasket. Tighten oil pan bolts to 150 inch-pounds.

HELI-COIL CHART

Heli-Coil Insert			Drill	Tap	Inserting Tool	Extracting Tool
Thread Size	Part No.	Insert Length	Size	Part No.	Part No.	Part No.
10-24	1185-3	.285″	13/64″ (.203″)	3 CPB	528-3N	1227-6
1/4-20	1185-4	3/8″	17/64″ (.265″)	4 CPB	528-4N	1227-6
5/16-18	1185-5	15/32″	Q (.332″)	5 CPB	528-5N	1227-6
3/8-16	1185-6	9/16″	X (.397″)	6 CPB	528-6N	1227-6
7/16-14	1185-7	21/32″	29/32″ (.453″)	7 CPB	528-7N	1227-16

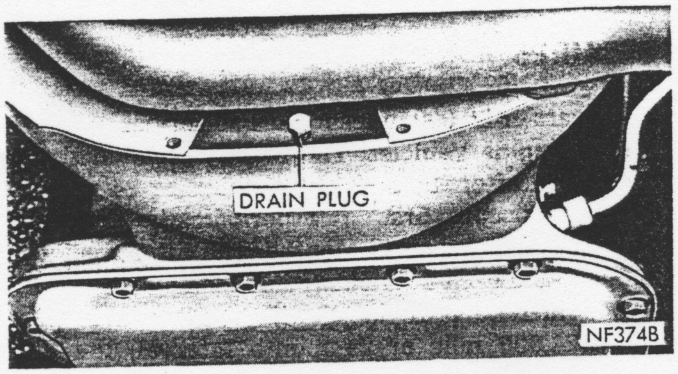


Fig. 4—Converter Drain Plug

(7) Pour six quarts of Automatic Transmission Fluid AQ-ATF Suffix "A" or (Dexron) through the filler tube.

(8) Start engine and allow to idle for at least two minutes. Then, with parking brake on, move selector lever momentarily to each position, ending in the **neutral** position.

(9) Add sufficient fluid to bring level to the **"ADD ONE PINT"** mark.

Recheck fluid level after transmission is at normal operating temperature. The level should be between the **"FULL"** mark and **"ADD ONE PINT"** mark (Fig. 5).

CAUTION: To prevent dirt from entering transmission, make certain that dip stick cap is fully seated onto the filler tube.

GEARSHIFT LINKAGE ADJUSTMENT

(1) Place gearshift selector lever in **PARK** position and loosen control rod swivel clamp screw a few turns (Fig. 6).

(2) Move transmission control lever (Fig. 7), all the way to rear (in park detent).

(3) With control lever on transmission in park position detent and selector lever in **PARK** position, tighten swivel clamp screw to 100 inch-pounds.

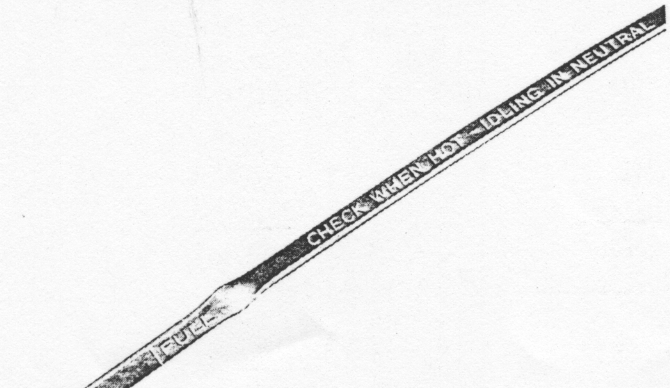


Fig. 5—Dip Stick Markings

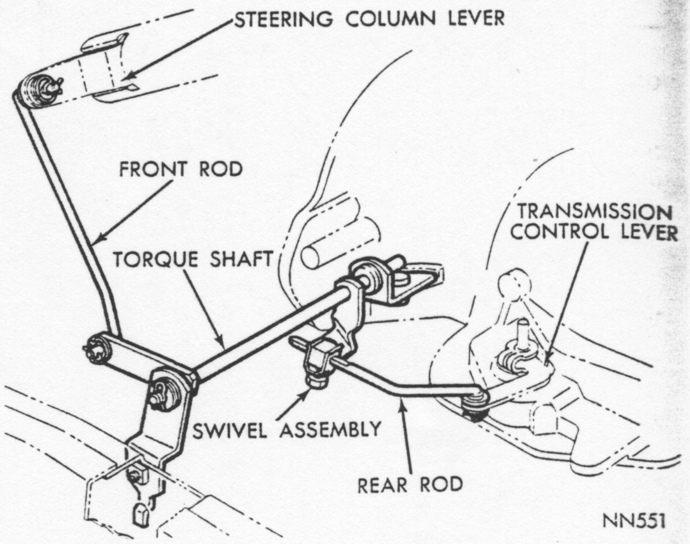


Fig. 6—Gearshift Linkage

CONSOLE GEARSHIFT

Removal

(1) Disconnect negative (ground) cable from the battery.

(2) Remove gearshift knob set screw with an allen wrench (Fig. 8). Unscrew button, spring and knob assembly from cable end and remove from the lever.

(3) **Satellite and Fury Models:** Remove two screws from rear end of upper finish plate (Fig. 9). Raise rear end of plate and work it rearward to disengage from console, disconnect dial lamp wire connectors. On some models, remove console lid and/or center arm rest to gain access to the two upper finish plate screws.

Valiant Models: Remove two screws from front corners of console (Fig. 10). Raise console lid and remove two screws from bottom of tray. Raise console enough to disconnect dial lamp and other electrical connections, then lift off console assembly.

(4) Disconnect upper rod from gearshift unit (Fig.

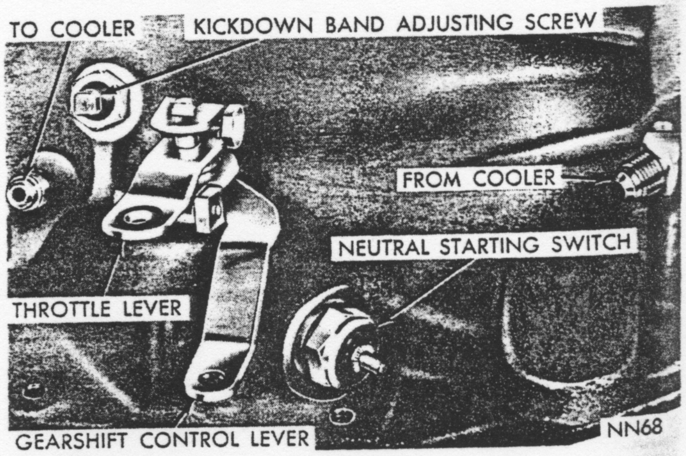


Fig. 7—External Controls and Adjustments

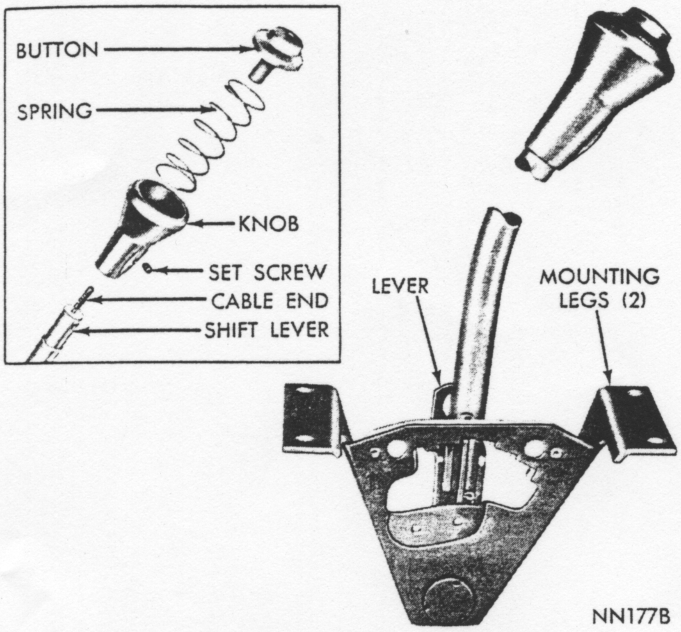


Fig. 8—Console Gearshift Unit

11). Remove gearshift to floor bracket bolts and remove unit.

Installation

(1) Install gearshift unit in its bracket, install and tighten retaining bolts securely (Fig. 11). Attach upper rod to the unit.

(2) **Satellite and Fury Models:** Connect dial lamp wires and install upper finish plate. Secure with the two screws. If removed, reinstall console lid and/or center arm rest.

Valiant Models: Lower console down over shift lever, connect dial lamp and other electrical connections. Install and tighten console retaining screws.

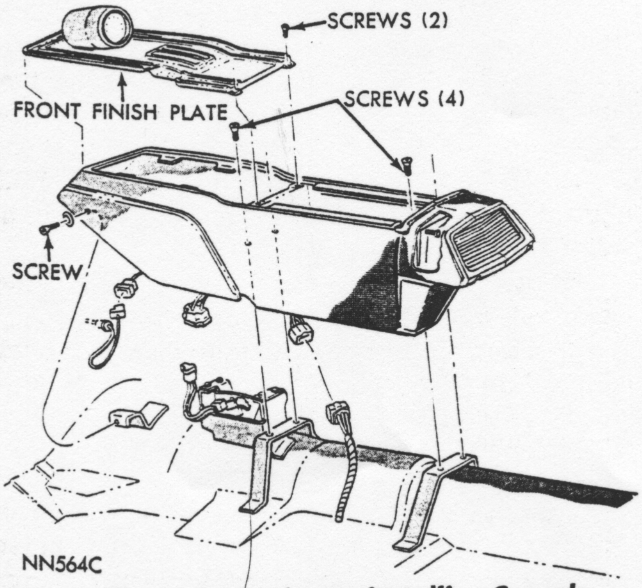


Fig. 9—Removing or Installing Console (Satellite and Fury Models)

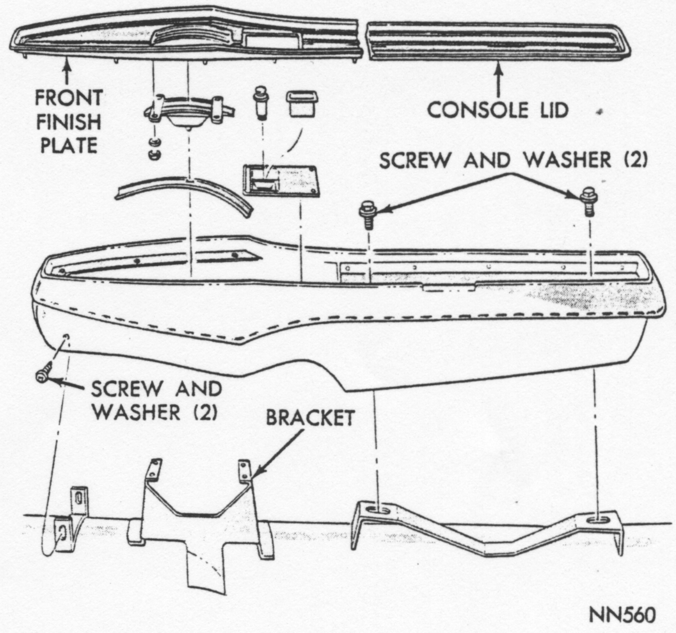


Fig. 10—Removing or Installing Console (Valiant and Barracuda Models)

(3) With gearshift lever in NEUTRAL, thread button, spring and knob assembly on the cable end until serrated surface on button is approximately 1/32 inch above top of knob. Secure knob with set screw.

(4) Connect battery ground cable.

Linkage Adjustment

(1) Place gearshift selector lever in **PARK** position and loosen lower rod swivel clamp screw a few turns (Fig. 11).

(2) Move transmission control lever (Fig. 7), all the way to rear (in park detent).

(3) With control lever on transmission in park position detent, and selector lever in **PARK** position, tighten swivel clamp screw to 100 inch-pounds.

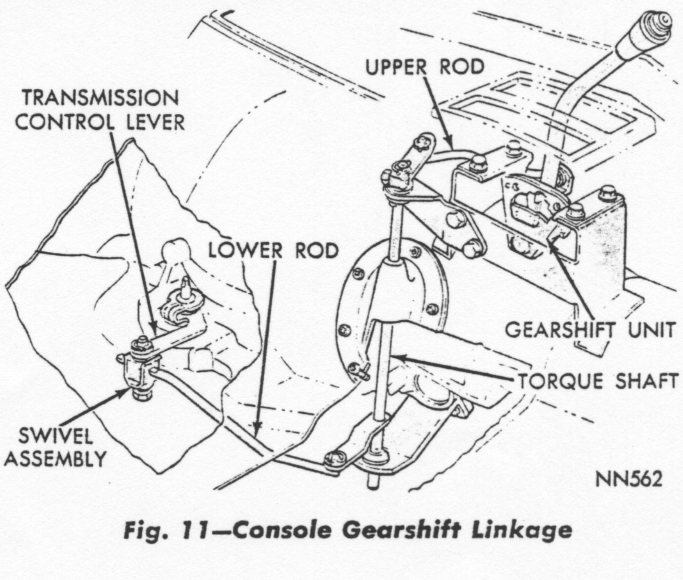


Fig. 11—Console Gearshift Linkage

BACK-UP LIGHT AND NEUTRAL STARTING SWITCH (Figs. 12 and 13)

Replacement and Test

The **Neutral Starting Switch** is the center terminal of the 3 terminal switch. It provides ground for the starter solenoid circuit through the selector lever cam in only **Park** and **Neutral** positions.

(1) To test switch, remove wiring connector from switch and test for continuity between center pin of switch and transmission case. Continuity should exist only when transmission is in **Park** or **Neutral.**

(2) Check gearshift linkage adjustment before replacing a switch which tests bad.

(3) Unscrew switch from transmission case allowing fluid to drain into a container. Move selector lever to **Park** and then to **Neutral** positions, and inspect to see that the switch operating lever fingers are centered in switch opening in the case.

(4) Screw switch and new seal into transmission case and tighten to 24 foot-pounds. Retest switch with the test lamp.

(5) Add fluid to transmission to bring up to proper level.

(6) The **Back-Up Light Switch Circuit** is through the two outside terminals of the 3 terminal switch.

(7) To test switch, remove wiring connector from switch and test for continuity between the two outside pins.

(8) Continuity should exist only with transmission in **Reverse** position.

(9) No continuity should exist from either pin to the case.

BAND ADJUSTMENTS

Kickdown Band

The kickdown band adjusting screw is located on left side of the transmission case (Fig. 7).

(1) Loosen lock nut and back off approximately five turns. Test adjusting screw for free turning in the transmission case.

(2) Using wrench, Tool C-3380 with adapter C-3705, tighten band adjusting screw 47 to 50 inch-pounds. If adapter C-3705 is not used, tighten adjusting screw to 72 inch-pounds which is the true torque.

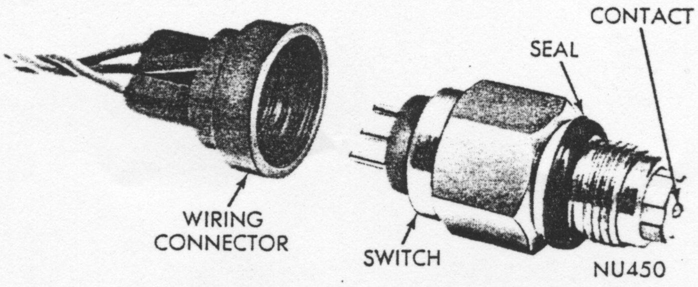


Fig. 12—Neutral-Park Starting Switch and Back-Up Light Switch

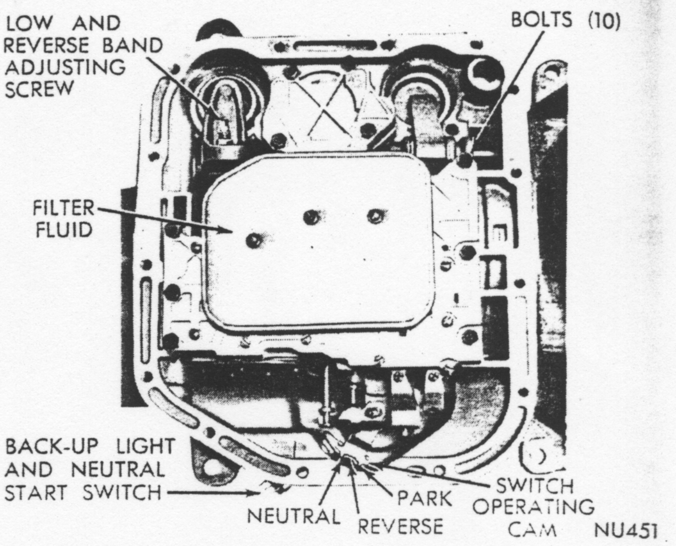


Fig. 13—Bottom View of Transmission (Pan Removed)

(3) **A-904:** Back off adjusting screw 2 turns (2-5/8 turns for 170 cu. in. engine). Hold adjusting screw in this position and tighten lock nut to 25 foot-pounds.

A-727: Back off adjusting screw 2 turns (1-1/2 turns for 426 cu. in. engine). Hold adjusting screw in this position and tighten lock nut to 29 foot-pounds.

Low and Reverse Band

(1) Raise vehicle, drain transmission fluid and remove the oil pan.

(2) Loosen adjusting screw lock nut and back off nut approximately five turns (Fig. 13). Test adjusting screw for free turning in the lever.

(3) Using wrench, Tool C-3380 with adapter C-3705, tighten band adjusting screw 47 to 50 inch-pounds. If adapter C-3705 is not used, tighten adjusting screw to 72 inch-pounds which is the true torque.

(4) **A-904:** Back off adjusting screw 3-1/4 turns (4 turns for 318 cu. in. engine). Hold adjusting screw in this position and tighten lock nut to 20 foot-pounds.

A-727: Back off adjusting screw 2 turns. Hold adjusting screw in this position and tighten lock nut to 35 foot-pounds.

(5) Reinstall oil pan using a new gasket. Tighten oil pan bolts to 150 inch-pounds.

(6) Fill transmission with Automatic Transmission Fluid AQ-ATF, Suffix "A" or (Dexron).

THROTTLE LINKAGE ADJUSTMENT

With engine at operating temperature and carburetor off fast idle cam, adjust idle speed of engine using a tachometer. Refer to "Fuel System" Group 14 for idle speed Specifications.

All Models with 170 or 225 Cu. In. Eng. (Fig. 14)

(1) Follow detailed instructions in Lubrication Section for linkage lubrication of all models.

(2) Disconnect choke (4) at carburetor or block choke valve in full open position. Open throttle slightly to release fast idle cam, then return carburetor to curb idle.

(3) **Hold transmission lever (9) firmly forward against its stop while performing the next two steps. It is important that the lever remains firmly against the stop during these steps to insure a correct adjustment.**

(4) To make transmission rod length adjustment, loosen the slotted link lock bolt (12). Pull forward on the slotted adjuster link (7) so that it contacts carburetor lever pin.

(5) Tighten transmission rod adjustment lock bolt (12) to 95 inch-pounds. To check transmission linkage freedom of operation, move slotted adjuster link to the full rearward position, then allow it to return slowly, making sure it returns to the full forward position.

(6) When carburetor throttle is opened, the transmission lever (9) should begin its travel at the same time with no vertical movement of lever or vertical movement of rod (10) in the lever.

(7) Loosen cable clamp nut (5), adjust position of cable housing ferrule (6) in the clamp so that all slack is removed from the cable with carburetor at curb idle. To remove slack from cable, move ferrule (6) in the clamp in direction **away** from carburetor lever.

(8) Back off ferrule (6) 1/4 inch. This provides 1/4 inch free play of cable, with carburetor at curb idle condition. Tighten cable clamp nut to 45 inch-pounds.

(9) Connect choke rod (4) or remove blocking fixture.

All 8 Cyl. Models Except 426 Cu. In. (Figs. 15, 16, 17 or 18)

(1) Follow detailed instructions in Lubrication Section for linkage lubrication of all models.

(2) Disconnect choke (8) at carburetor or block choke valve in full open position. Open throttle slightly to release fast idle cam, then return carburetor to curb idle.

(3) **Hold transmission lever (11) firmly forward against its stop, while performing adjustments in the next four steps. It is important that the lever remains against the stop during these steps to insure a correct adjustment.**

Steps 4 and 5 do not apply to Fury models.

(4) With a 3/16″ diameter rod (9) placed in the holes provided in the upper bellcrank (6) and lever, adjust length of intermediate transmission rod (10) by means of threaded adjustment (2) at upper end. The ball socket (2) must line up with the ball end

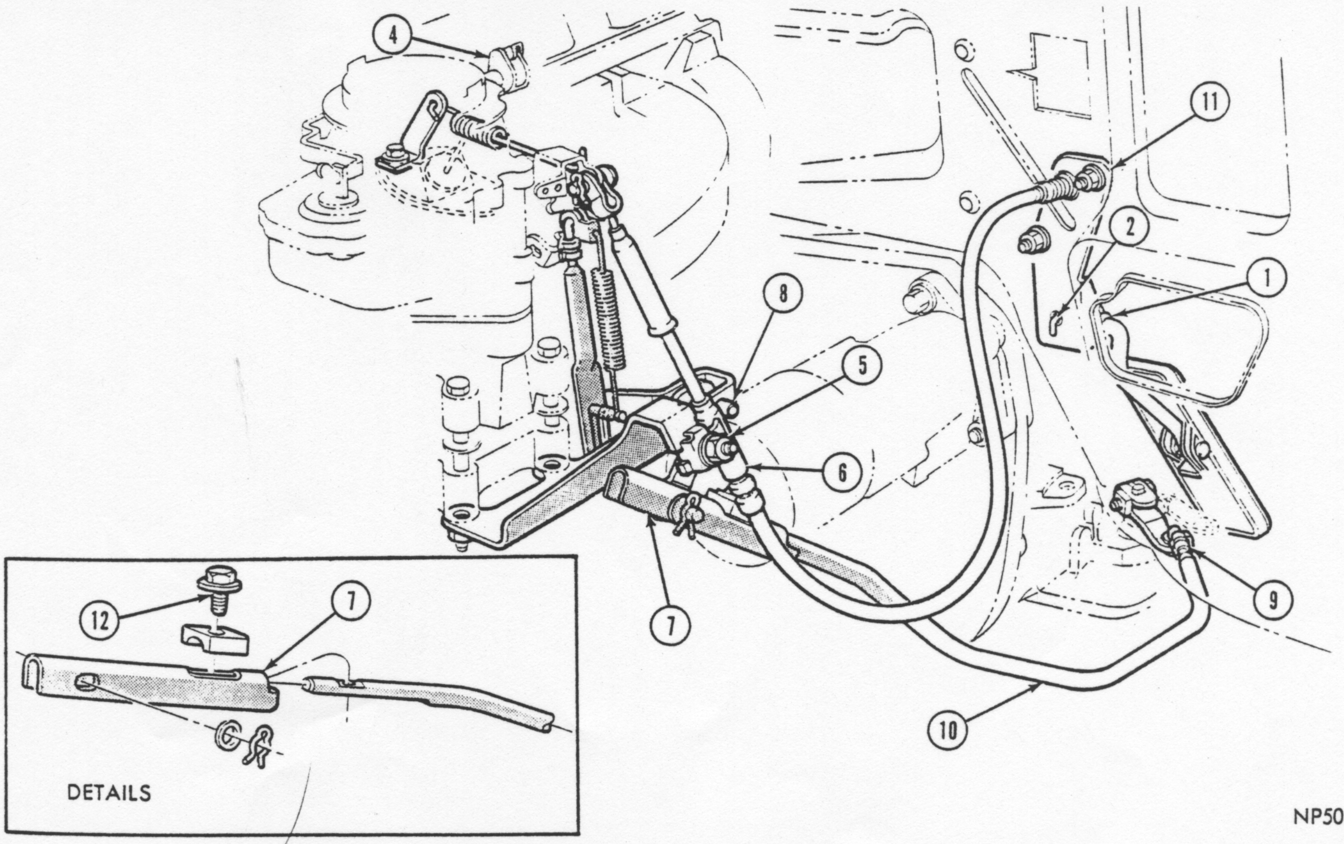


Fig. 14—Throttle Linkage Adjustment (All Models with 170 or 225 Cu. In. Engine)

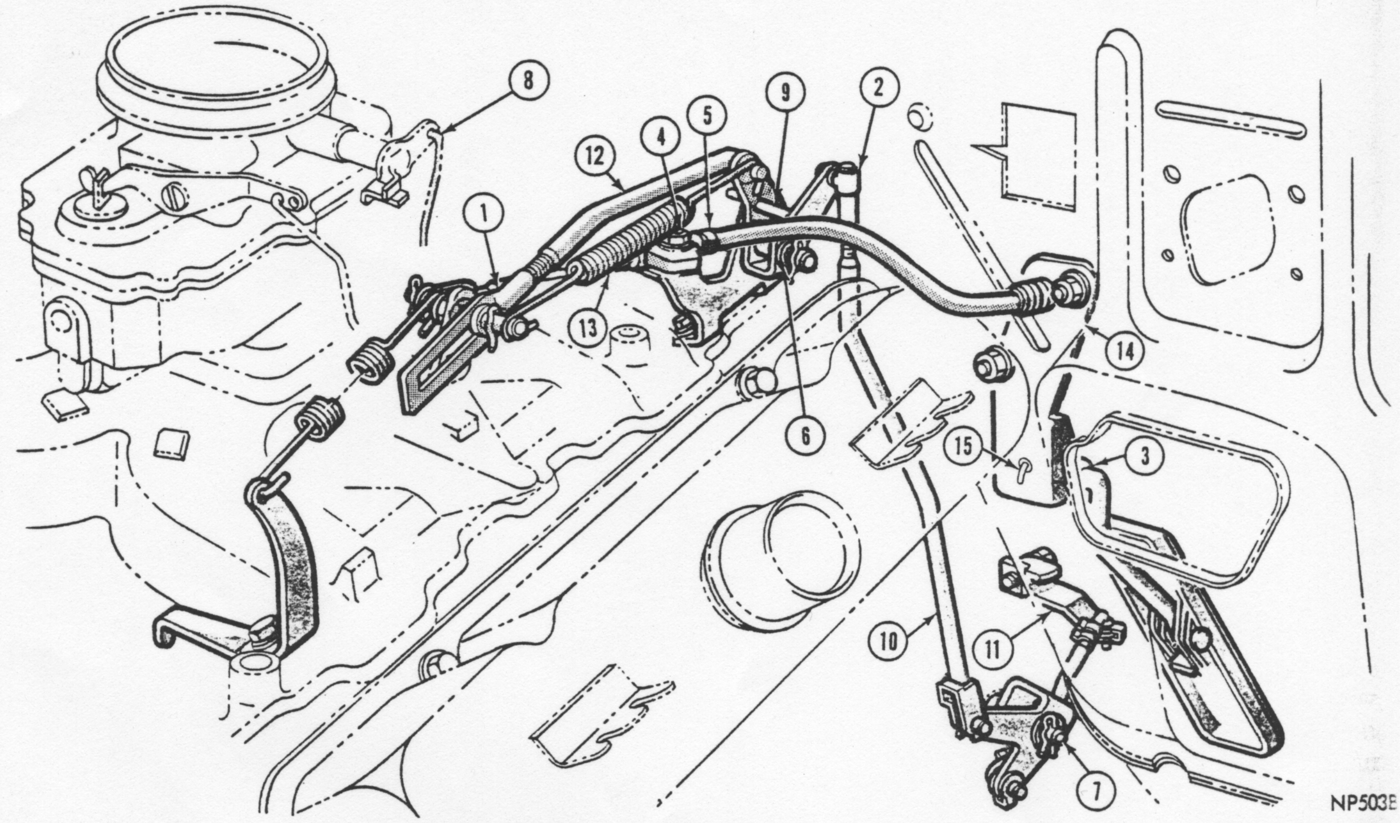


Fig. 15—Throttle Linkage Adjustment (Valiant or Barracuda with 273, 318 or 340 Cu. In. Engine)

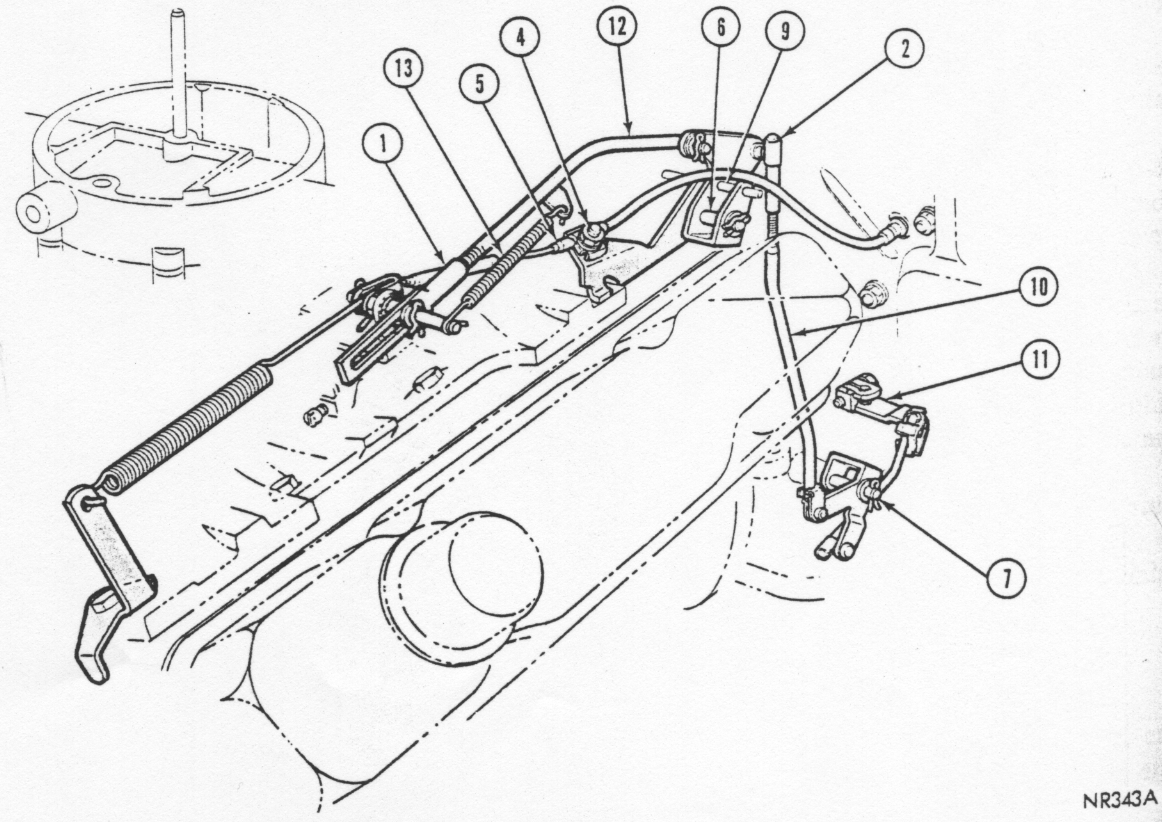


Fig. 16—Throttle Linkage Adjustment (Barracuda with 383 Cu. In. Engine)

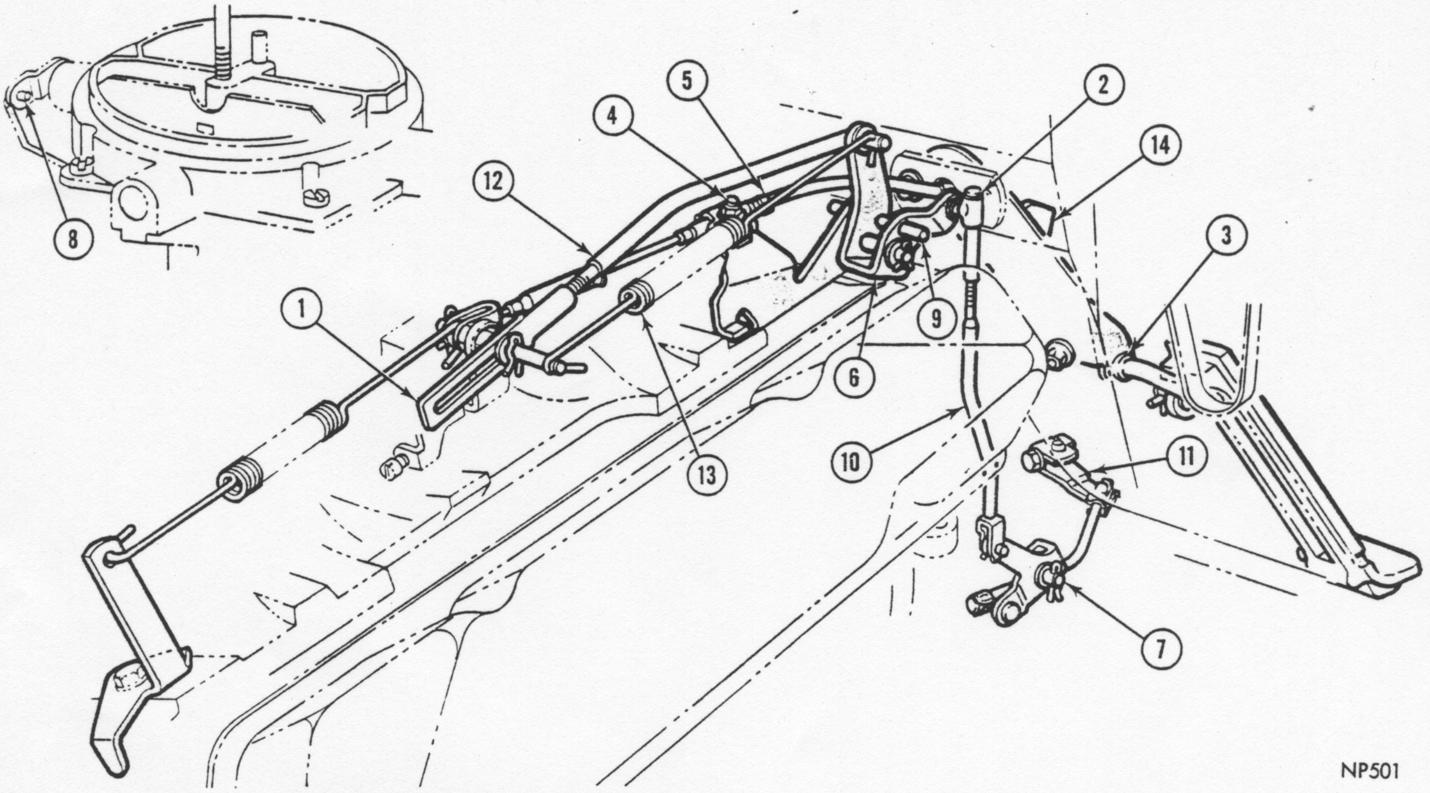


Fig. 17—Throttle Linkage Adjustment (Satellite—8 Cylinder Engine)

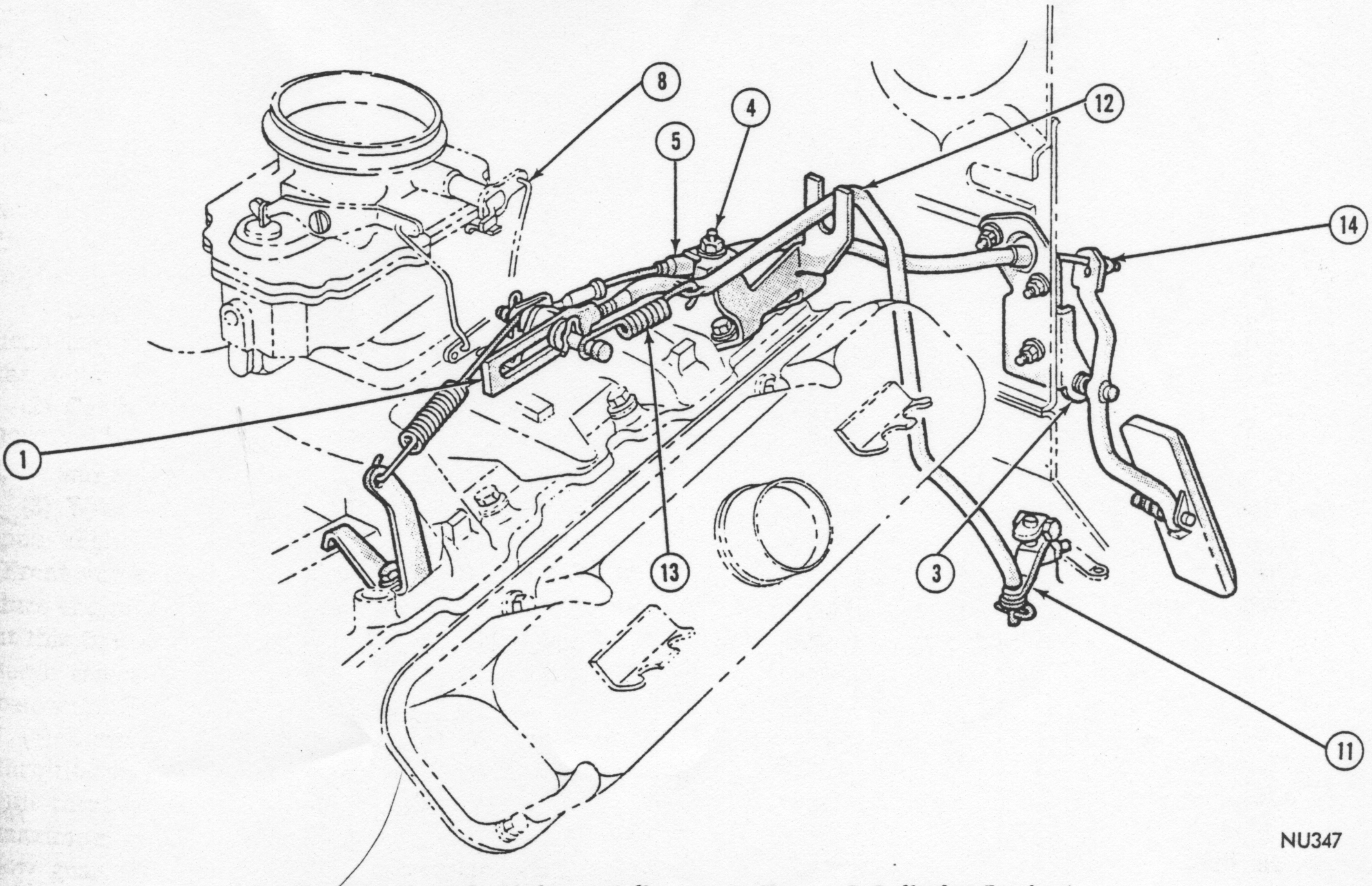


Fig. 18—Throttle Linkage Adjustment (Fury—8 Cylinder Engine)

with a slight downward effort on rod.

(5) Assemble ball socket (2) to ball end and remove 3/16″ rod (9) from upper bellcrank and lever.

(6) Disconnect clip, washer and return spring (13), then adjust length of carburetor rod (12) by pushing rearward on rod with a slight effort and turning the threaded adjustment (1). The rear end of slot should contact carburetor lever pin without exerting any forward force on pin when slotted adjuster link (1) is in its normal operating position against lever pin nut.

(7) Assemble slotted adjustment (1) to carburetor lever pin and install washer and retainer clip. Assemble transmission linkage return spring (13) in place.

(8) To check transmission linkage freedom of operation, move slotted adjuster link (1) to full rearward position, then allow it to return slowly, making sure it returns to full forward position.

(9) Loosen cable clamp nut (4), adjust position of cable housing ferrule (5) in the clamp so that all slack is removed from cable with carburetor at curb idle. To remove slack from cable, move ferrule (5) in the clamp in direction **away** from carburetor lever.

(10) Back off ferrule (5) 1/4″. This provides 1/4″ free play of cable, with carburetor at curb idle condition. Tighten cable clamp nut (4) to 45 inch-pounds.

(11) Connect choke (8) rod or remove blocking fixture.

Models With 426 Cu. In. Eng. (Fig. 19)

(1) Follow detailed instructions in Lubrication Section for linkage lubrication of all models.

(2) Block choke valve in full open position. Open throttle slightly to release fast idle cam, then return carburetor to curb idle.

(3) **Hold transmission lever (10) firmly forward against its stop, while performing adjustments in the next four steps. It is important that the lever remains against the stop during these steps to insure a correct adjustment.**

(4) With a 3/16″ diameter rod (8) placed in the holes provided in upper bellcrank and lever (15), adjust length of intermediate transmission rod (9) by means of threaded adjustment at upper end. The ball socket must line up with the ball end with a slight downward effort on rod.

(5) Assemble ball socket to ball end and remove 3/16″ rod (8) from upper bellcrank and lever (15).

(6) Disconnect return spring (11), adjust length of rod (20) by pushing rearward on rod with a slight effort and turning threaded adjuster link (2). The rear end of slot should contact carburetor lever stud without exerting any forward force on the stud when slotted adjuster link is in its normal operating position.

(7) Assemble slotted adjuster link (2) to carburetor lever stud and install washer and retainer pin. As-

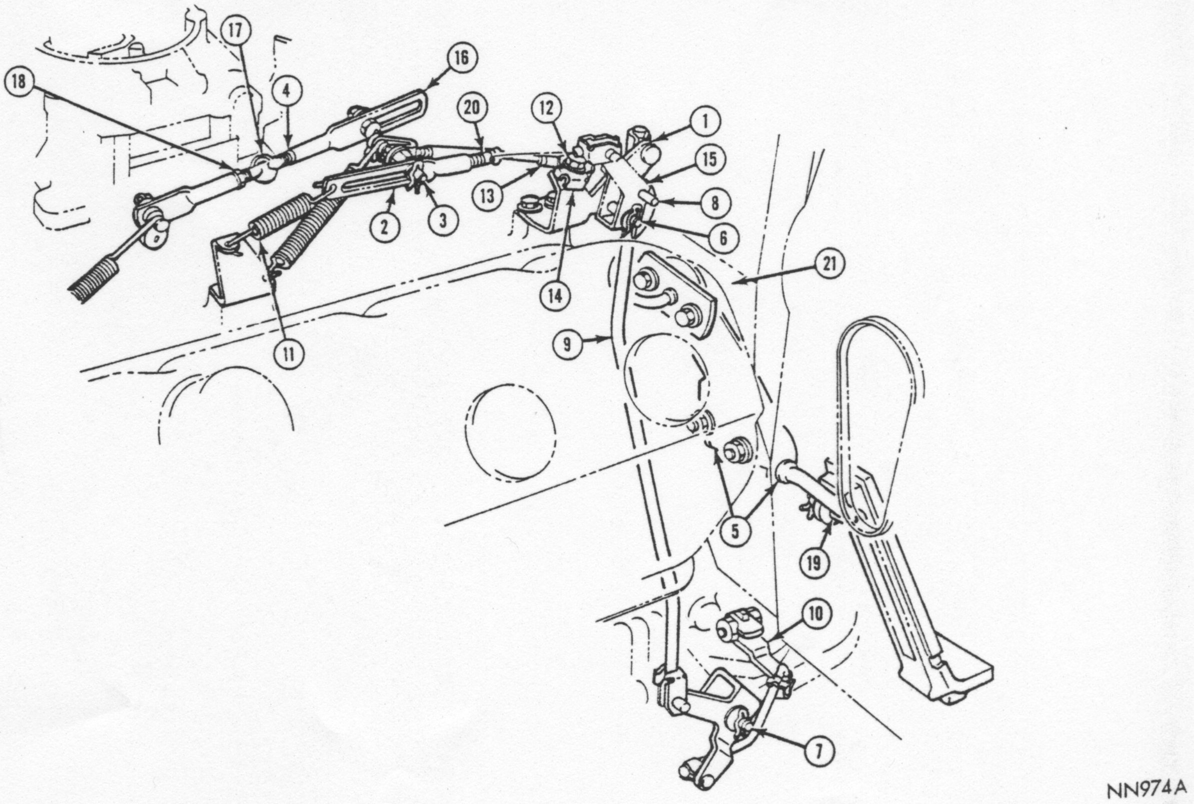


Fig. 19—Throttle Linkage Adjustment (With 426 Cu. In. Engine)

semble transmission linkage return spring (11) in place.

(8) To check transmission linkage freedom of operation, move slotted adjuster link (2) to full rearward position, then allow it to return slowly, making sure it returns to the full forward position against the stud.

(9) Loosen cable clamp nut (12), adjust position of cable housing ferrule (13) in the clamp (14) so that all slack is removed from cable with rear carburetor at curb idle. (To remove slack from cable, move ferrule (13) in clamp (14) in direction **away** from carburetor lever.)

(10) Back off ferrule (13) 1/4″. This provides 1/4″ free play of cable, with carburetor at curb idle condition. Tighten clamp (14) to 45 inch-pounds.

(11) Route cable so it does not interfere with carburetor rod (20) or upper bellcrank (15) throughout full throttle linkage travel.

(12) Attach carburetor rod assembly (4) between the carburetors with slotted rod end (16) attached to outboard side of inboard lever on rear carburetor. With rear carburetor at wide open throttle, adjust length of connector rod (4) so that front carburetor is also at wide open throttle. To lengthen this rod (4), turn adjusting stud (17) clockwise as viewed from front of engine. Tighten the lock nut (18).

(13) Remove choke valve blocking fixture.

HYDRAULIC CONTROL PRESSURE TESTS

Line Pressure and Front Servo Release Pressure

Line pressure and front servo release pressure tests must be made in D (drive) position with rear wheels free to turn. The transmission fluid must be at operating temperature (150 to 200°F).

(1) Install an engine tachometer, raise vehicle on a hoist and position tachometer so it can be read under the vehicle.

(2) Connect two 0-100 psi pressure gauges, Tool C-3292 to pressure take-off-points at side of accumulator and at front servo release (Fig. 20).

(3) With control in D (drive) position, speed up engine slightly until transmission shifts into direct. (Front servo release will be pressurized in direct.) Reduce engine speed slowly to 1,000 rpm. Line pressure at this time (1,000 rpm) must be 54-60 psi, and front servo release pressure must not be more than 3 psi below the line pressure.

(4) Disconnect throttle linkage from transmission throttle lever and move throttle lever gradually to the full throttle position. Line pressure must rise to a maximum of 90-96 psi just before or at kickdown into low gear. Front servo release pressure must follow line pressure up to kickdown point and should not be more than 3 psi below line pressure.

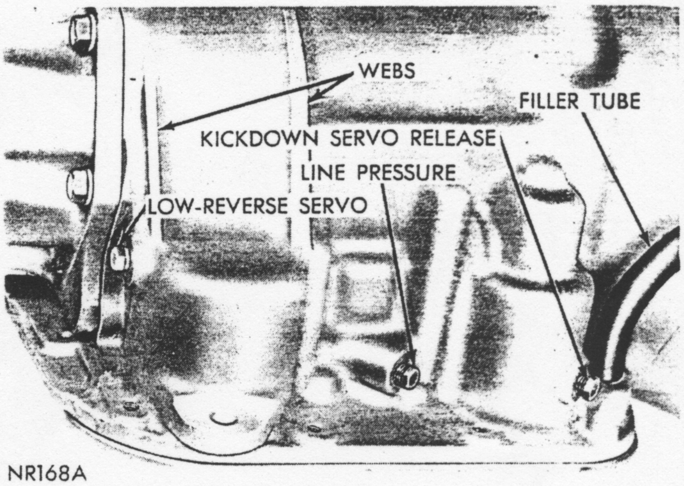


Fig. 20—Pressure Test Locations (Right Side of Case)

If pressure is not 54-60 psi at 1,000 rpm, see "Hydraulic Control Pressure Adjustments".

If front servo release pressures are less than pressures specified and line pressures are within limits, there is excessive leakage in the front clutch and/or front servo circuits. **Always inspect external transmission throttle lever for looseness on the valve body shaft when making the pressure tests.**

Lubrication Pressures

The lubrication pressure test should be made at same time that line pressure and front servo release pressure are tested.

(1) Install a "tee" fitting between cooler return line fitting and fitting hole in transmission case at rear left side of the transmission (Fig. 21). Connect a 0-100 psi pressure gauge, Tool C-3292 to the "tee" fitting.

(2) At 1,000 engine rpm, with throttle closed and transmission in direct, lubrication pressure should be 5-15 psi. Lubrication pressure will be approximately doubled as the throttle is opened to maximum line pressure.

Rear Servo Apply Pressure

(1) Connect a 0-300 psi pressure gauge, Tool C-3293 to apply pressure take-off point at rear servo (Fig. 21).

(2) With transmission control in R (reverse) position and engine speed set at 1600 rpm, reverse servo apply pressure should be 230 to 300 psi.

Governor Pressure

(1) Connect a 0-100 psi pressure gauge, Tool C-3292 to governor pressure take-off point, located at lower left side of extension near the mounting flange (Fig. 21).

(2) Governor pressures should fall within the limits given in the "Governor Pressure Chart."

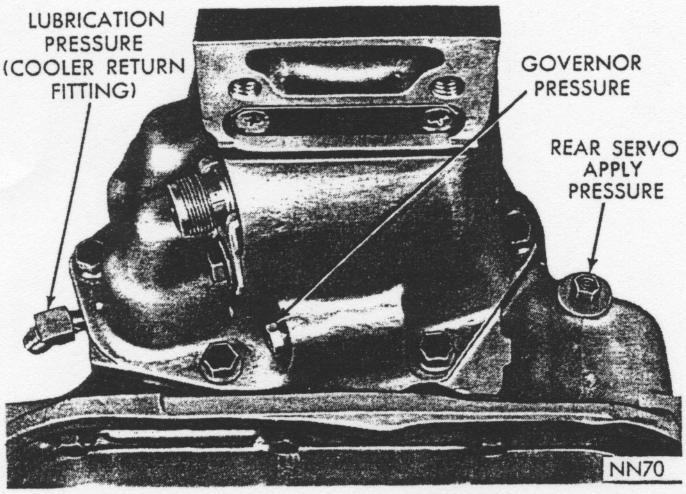


Fig. 21—Pressure Test Locations (Rear End of Case)

If governor pressures are incorrect at the given vehicle speeds, the governor valve and/or weights are probably sticking. **The governor pressure should respond smoothly to changes in mph and should return to 0 to 1-1/2 psi when vehicle is stopped. High pressure at stand still (above 2 psi) will prevent the transmission from downshifting.**

Throttle Pressure

No provisions are made to test the throttle pressure. Incorrect throttle pressure should only be suspected if part throttle shift speeds are either very delayed or occur too early in relation to vehicle speeds. In which case, the throttle linkage should be adjusted before throttle pressure setting is adjusted.

HYDRAULIC CONTROL PRESSURE ADJUSTMENTS

Line Pressure

An incorrect throttle pressure setting will cause incorrect line pressure readings even though line pressure adjustment is correct. Always inspect and correct throttle pressure adjustment before adjusting the line pressure. **Before adjusting line pressure, measure distance between manual valve (valve in 1-low position) and line pressure adjusting screw (Fig. 22). This measurement must be 1-7/8 inches; correct by loosening spring retainer screws and repositioning the spring retainer. The regulator valve may cock and hang up in its bore if spring retainer is out of position.**

If line pressure is not correct, it will be necessary to remove valve body assembly to perform the adjustment.

GOVERNOR PRESSURE CHART

(Six Cylinder Engines)

VEHICLE SPEED TO AXLE RATIOS

170 Cu. In. Eng.		225 Cu. In. Eng.			Pressure Limits
2.76:1	3.23:1	2.76:1	2.93:1	3.23:1	psi
18-20	15-17	18-20	17-20	16-19	15
44-57	37-48	38-46	36-46	34-44	50
69-76	59-65	64-70	60-70	57-66	75

GOVERNOR PRESSURE CHART

(Eight Cylinder Engines)

VEHICLE SPEED TO AXLE RATIOS

273 & 318 Cu. In. Eng.		340, 383 or 440 Cu. In. Eng.			Pressure Limits
2.76:1	3.23:1	2.76:1	3.23:1	3.55:1	psi
18-20	15-17	19-21	14-17	15-17	15
45-53	38-44	46-55	39-51	44-50	50
71-78	60-66	74-82	58-71	64-71	75

GOVERNOR PRESSURE CHART

(High Performance Engines)

VEHICLE SPEED TO AXLE RATIOS

426 Cu. In. Eng. 3.23:1	440 Cu. In. Eng. 3.23:1	Pressure Limits psi
20-23	16-19	15
55-64	46-52	50
82-90	68-73	75

The approximate adjustment is 1-5/16 inches, measured from valve body to inner edge of adjusting nut (Fig. 23). However, due to manufacturing tolerances, the adjustment can be varied to obtain specified line pressure.

The adjusting screw may be turned with an Allen wrench. One complete turn of adjusting screw changes closed throttle line pressure approximately 1-2/3 psi. Turning adjusting screw counter-clockwise increases pressure, and clockwise decreases pressure

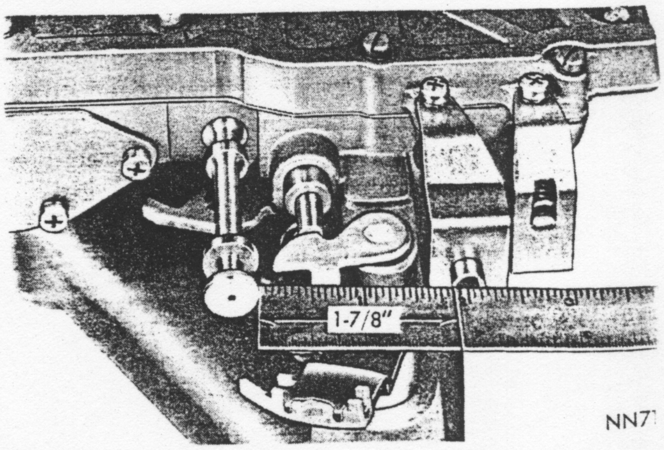


Fig. 22—Measuring Spring Retainer Locations

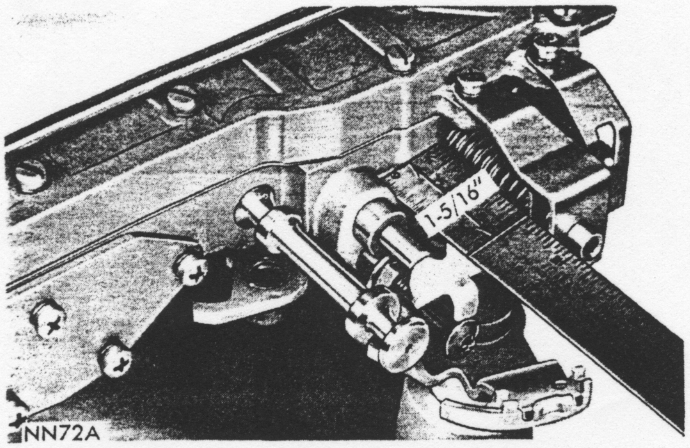


Fig. 23—Line Pressure Adjustment

Throttle Pressure

Throttle pressures cannot be tested accurately; therefore, the adjustment should be measured if a malfunction is evident.

(1) Remove valve body assembly from transmission to perform adjustment.

(2) Loosen throttle lever stop screw lock nut and back off approximately five turns (Fig. 24).

(3) Insert gauge pin of Tool C-3763 between the throttle lever cam and kickdown valve.

(4) By pushing in on tool, compress kickdown valve against its spring so throttle valve is completely bottomed inside the valve body.

(5) As force is being exerted to compress spring, tighten throttle lever stop screw finger tight against throttle lever tang with throttle lever cam touching tool and the throttle valve bottomed. **Be sure adjustment is made with spring fully compressed and valve bottomed in the valve body.**

(6) Remove tool and tighten stop screw lock nut securely.

AIR PRESSURE TESTS

A **"NO DRIVE"** condition might exist even with correct fluid pressure, because of inoperative clutches or bands. The inoperative units, clutches, bands and servos can be located through a series of tests by substituting air pressure for fluid pressure (Fig. 25). The front and rear clutches, kickdown servo, and low-reverse servo may be tested by applying air pressure to their respective passages after the valve body assembly has been removed. To make air pressure tests, proceed as follows:

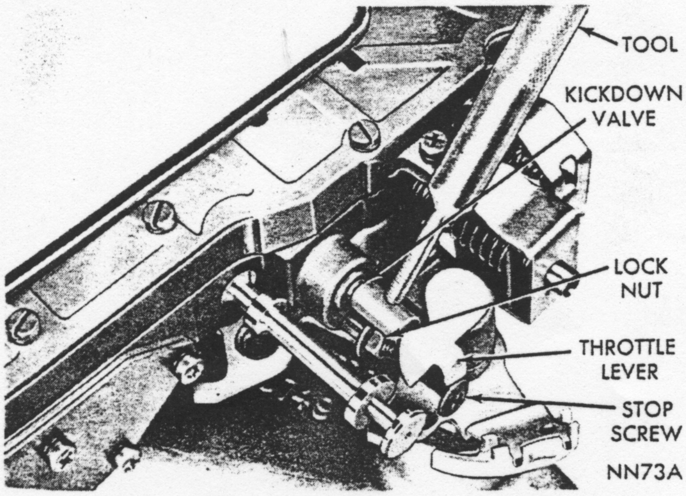


Fig. 24—Throttle Pressure Adjustment

CAUTION: Compressed air supply must be free of all dirt or moisture. Use a pressure of 30 to 100 psi.

Front Clutch

Apply air pressure to front clutch "apply" passage and listen for a dull "thud" which indicates that front clutch is operating. Hold air pressure on for a few seconds and inspect system for excessive oil leaks.

Rear Clutch

Apply air pressure to rear clutch "apply" passage and listen for a dull "thud" which indicates that rear clutch is operating. Also inspect for excessive oil leaks. **If a dull "thud" cannot be heard in the clutches, place finger tips on clutch housing and again apply air pressure. Movement of piston can be felt as the clutch is applied.**

Kickdown Servo

Direct air pressure into front servo "apply" passage. Operation of servo is indicated by a tightening of front band. Spring tension on servo piston should release the band.

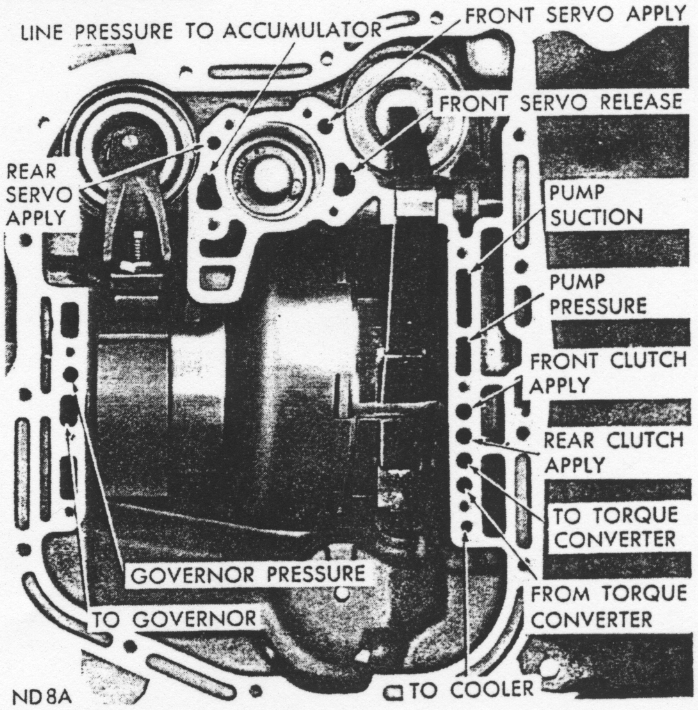


Fig. 25—Air Pressure Tests

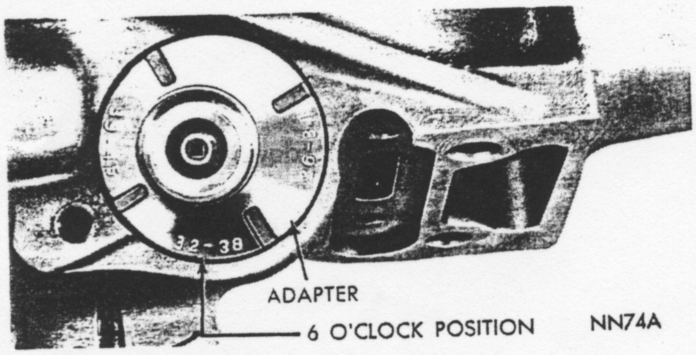


Fig. 26—Speedometer Pinion and Adapter—Installed (Retainer Removed for View)

Low and Reverse Servo

Direct air pressure into rear servo "apply" passage. Operation of servo is indicated by a tightening of rear band. Spring tension on servo piston should release the band.

If clutches and servos operate properly, no up-shift or erratic shift conditions indicate that malfunctions exist in the valve body.

Governor

Governor operating failures can generally be diagnosed by a road test or hydraulic pressure test. Refer to "Hydraulic Control Pressure Tests".

SPEEDOMETER PINION

Removal and Installation

Rear axle gear ratio and tire size determines pinion gear size requirements. Refer to "Speedometer Pinion Chart" in Specifications for pinion usage.

(1) Remove bolt and retainer securing speedometer pinion adapter in the extension housing (Fig. 26).

(2) With cable housing connected, carefully work adapter and pinion out of the extension housing.

(3) If transmission fluid is found in cable housing, replace seal in the adapter (Fig. 27). Start seal and retainer ring in the adapter, then push them into adapter with Tool C-4004 until tool bottoms (Fig. 28).

CAUTION: Before installing pinion and adapter assembly make sure adapter flange and its mating area on extension housing are perfectly clean. Dirt or sand will cause mis-alignment resulting in speedometer pinion gear noise.

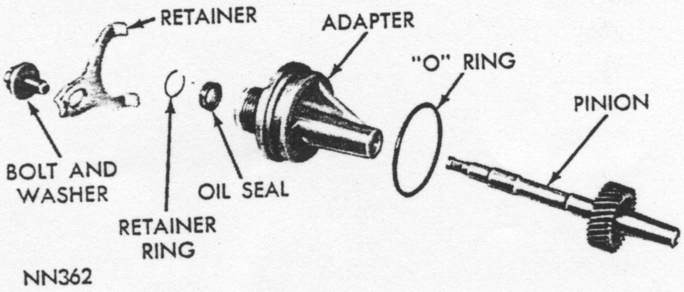


Fig. 27—Speedometer Drive

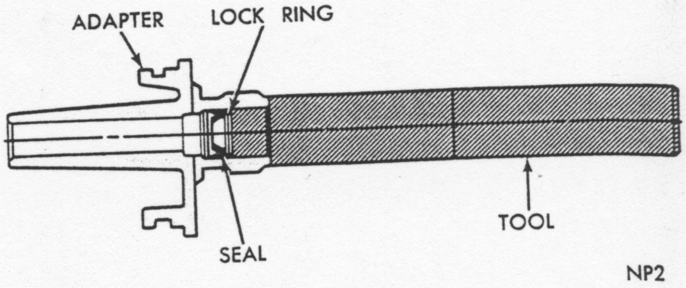


Fig. 28—Installing Speedometer Pinion Seal

(4) Note number of gear teeth and install speedometer pinion gear into adapter (Fig. 27).

(5) With proper gear tooth range number in 6 o'clock position, carefully press assembly into extension housing (Fig. 26).

(6) Install retainer and bolt, with retainer tangs in adapter positioning slots. Tap adapter firmly into the extension housing and tighten retainer bolt to 100 inch-pounds.

EXTENSION HOUSING YOKE SEAL

Replacement

(1) Disconnect propeller shaft at rear universal joint. Carefully pull shaft yoke out of the transmission extension housing.

CAUTION: Be careful not to scratch or nick ground surface on sliding spline yoke during removal and installation of the shaft assembly.

(2) Remove the extension housing yoke seal (Fig 29) with Tool C-3994 or C-3985.

(3) To install a new seal, position seal in opening o extension housing and drive it into the housing wit Tool C-3995 or C-3972 (Fig. 30).

(4) Carefully guide front universal joint yoke int extension housing and on the mainshaft splines. Connect propeller shaft to rear axle pinion shaft yoke.

EXTENSION HOUSING AND OUTPUT SHAFT BEARING

Removal

(1) Disconnect propeller shaft at rear univers

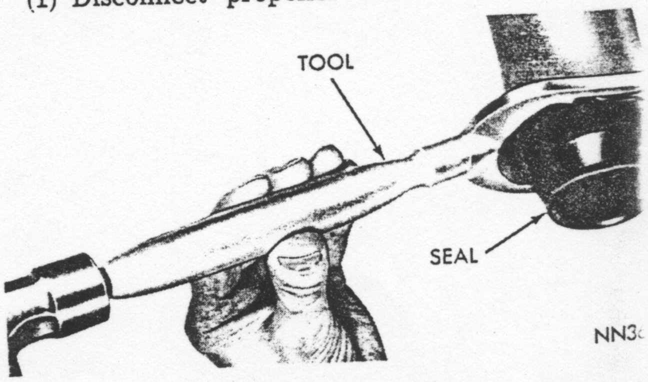


Fig. 29—Removing Extension Housing Yoke Seal

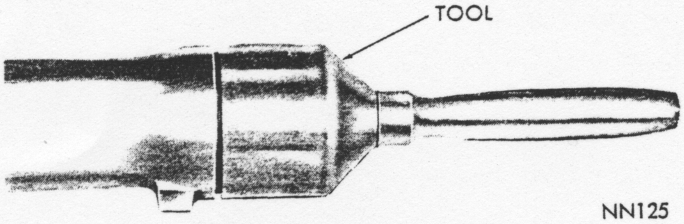


Fig. 30—Installing Extension Housing Yoke Seal

joint. Carefully pull shaft assembly out of the extension housing.

(2) Remove speedometer pinion and adapter assembly (Fig. 26). Drain approximately two quarts of fluid from the transmission.

(3) Remove bolts securing extension housing to the crossmember. Raise transmission slightly with service jack Tool C-3203A, then remove center crossmember and support assembly.

(4) Remove extension housing to transmission bolts.

Console Shift: Remove two bolts securing gearshift torque shaft lower bracket to extension housing. Swing bracket out of way for extension housing removal.

IMPORTANT: In removing or installing extension housing (step 5), the gearshift lever must be in "1" (low) position. This positions parking lock control rod rearward so it can be disengaged or engaged with the parking lock sprag.

(5) Remove two screws, plate and gasket from bottom of extension housing mounting pad. Spread large snap ring from output shaft bearing with Tool C-3301 (Fig. 31). With snap ring spread as far as possible, carefully tap extension housing off the output shaft bearing. Carefully pull extension housing rearward, to remove parking lock control rod knob past the parking sprag, then remove the housing.

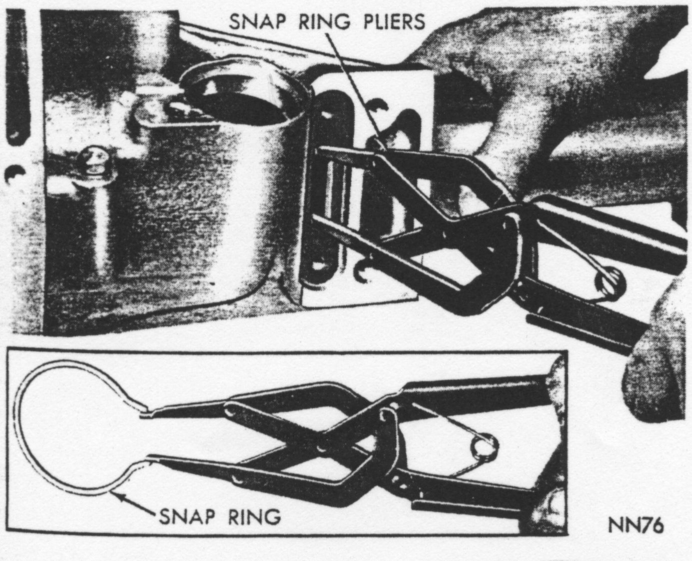


Fig. 31—Removing or Installing Extension Housing

Bearing Replacement

(1) Using heavy duty snap ring pliers C-4020, remove output shaft bearing rear snap ring and remove bearing from the shaft (Fig. 32).

(2) If removed, install snap ring in front groove on output shaft. Install a new bearing on shaft with outer race ring groove toward front (Fig. 32), then install rear snap ring. **To replace the extension housing bushing, refer to INDEX.**

Installation

(1) Place a new extension housing gasket on the transmission case. Position output shaft bearing retaining snap ring in extension housing. Slide extension housing on output shaft guiding the parking lock control rod knob past the parking sprag. While spreading large snap ring in housing with Tool C-3301A (Fig. 31), carefully tap housing into place, then release the snap ring. Make sure snap ring is fully seated in bearing outer race ring groove.

(2) Install and tighten extension housing bolts to 24 foot-pounds.

(3) Install gasket, plate and two screws on bottom of the extension housing mounting pad.

(4) Install center crossmember and rear mount assembly, tighten retaining bolts to 90 foot-pounds. Lower transmission, install extension housing to support bolts and tighten to 40 foot-pounds.

Console Shift: Align gearshift torque shaft lower bracket with the extension housing. Install the two retaining bolts and tighten securely.

(5) Install the speedometer pinion and adapter.

(6) Carefully guide front universal joint yoke into extension housing and on the output shaft splines. Connect propeller shaft to rear axle pinion shaft yoke.

(7) Add fluid to transmission to bring up to proper level.

GOVERNOR

Removal

(1) Remove extension housing and output shaft bearing.

(2) Carefully pry snap ring from weight end of

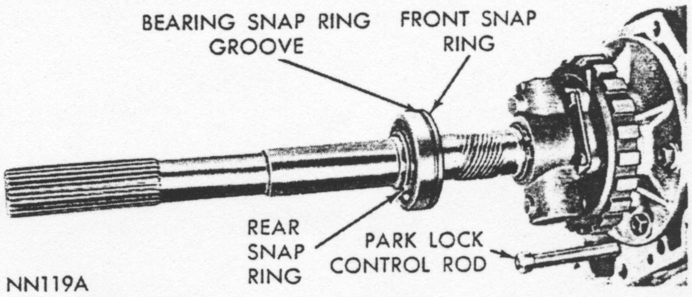


Fig. 32—Output Shaft Bearing

governor valve shaft (Fig. 33). Slide valve and shaft assembly out of governor body.

(3) Remove large snap ring from weight end of governor body, lift out governor weight assembly.

(4) Remove snap ring from inside governor weight, remove inner weight and spring from the outer weight. Figure 34 shows a disassembled view of the governor assembly.

(5) Remove snap ring from behind governor body, then slide governor and support assembly off the output shaft. If necessary remove the four bolts and separate governor body from the support.

Cleaning and Inspection

The primary cause of governor operating failure is due to a sticking governor valve or weights. Rough surfaces may be removed with crocus cloth. Thoroughly clean all parts in clean solvent and inspect for free movement before assembly.

Installation

(1) Assemble governor body to the support (if disassembled) and tighten bolts finger tight. Make sure oil passage of governor body aligns with passage in the support.

(2) Position support and governor assembly on the output shaft. Align assembly so valve shaft hole in governor body aligns with hole in the output shaft, then slide assembly into place. Install snap ring behind governor body (Fig. 33). Tighten the body to support bolts to 100 inch-pounds. Bend ends of lock straps over bolt heads.

(3) Assemble governor weights and spring, and secure with snap ring inside of large governor weight. Place weight assembly in governor body and install snap ring.

(4) Place governor valve on the valve shaft, insert assembly into the body and through governor weights. Install valve shaft retaining snap ring. Inspect valve and weight assembly for free movement after installation.

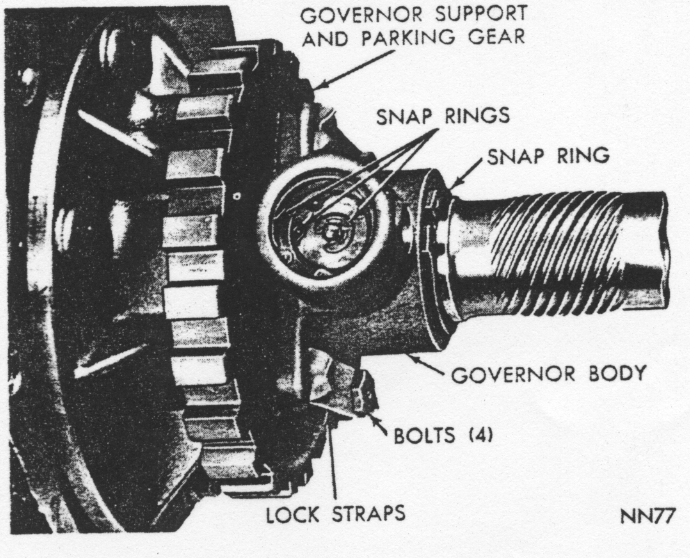


Fig. 33—Governor Shaft and Weight Snap Rings

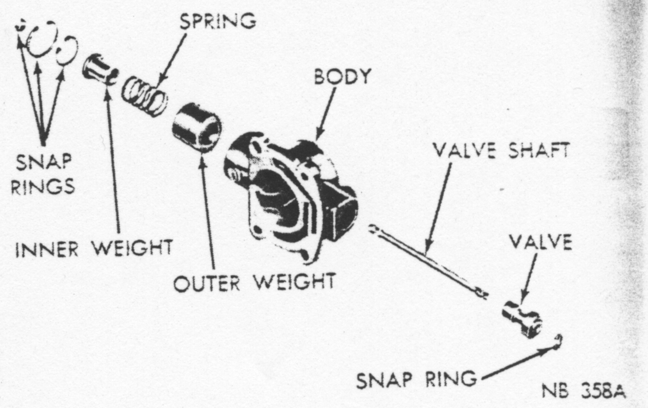


Fig. 34—Governor Assembly

(5) Install output shaft bearing and extension housing. Connect the propeller shaft.

PARKING LOCK COMPONENTS

Removal

(1) Remove extension housing.

(2) To replace the governor support and parking gear, refer to "Governor and Support".

(3) Slide shaft out of extension housing to remove the parking sprag and spring (Fig. 35). Remove snap ring and slide the reaction plug and pin assembly out of the housing.

(4) To replace the parking lock control rod, refer to "Valve Body—Removal and Installation."

Installation

(1) Position sprag and spring in the housing and insert the shaft (Fig. 35). Make sure square lug on sprag is toward parking gear, and spring is positioned so it moves sprag away from the gear.

(2) Install reaction plug and pin assembly in the housing and secure with snap ring.

(3) Install extension housing and connect propeller shaft.

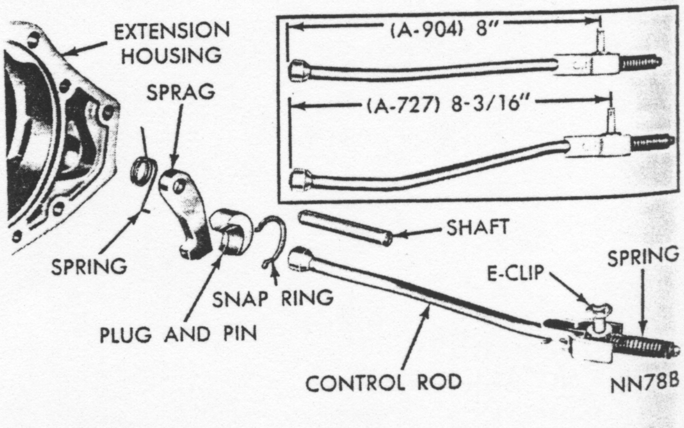


Fig. 35—Parking Lock Components

VALVE BODY ASSEMBLY AND ACCUMULATOR PISTON

Removal

(1) Raise vehicle on a hoist.

(2) Loosen oil pan bolts, tap the pan to break it loose allowing fluid to drain, then remove oil pan.

(3) Disconnect throttle and gearshift linkage from levers on the transmission. Loosen clamp bolts and remove the levers (Fig. 7).

(4) Remove E-clip (Fig. 36), securing parking lock rod to the valve body manual lever.

(5) Remove Back-Up Light and Neutral Start Switch.

(6) Place a drain pan under transmission, then remove the ten hex-head valve body to transmission case bolts. Hold valve body in position while removing the bolts.

(7) While lowering valve body down out of transmission case, disconnect parking lock rod from the lever.

To remove parking lock rod, pull it forward out of the case. If necessary, rotate propeller shaft to align parking gear and sprag to permit knob on end of control rod to pass the sprag.

(8) Withdraw accumulator piston from the transmission case. Inspect piston for scoring, and rings for wear or breakage. Replace as required.

(9) If valve body manual lever shaft seal requires replacement, drive it out of the case with a punch.

(10) Drive a new seal into the case with a 15/16 inch socket and hammer (Fig. 37).

Servicing the valve body assembly is outlined under "Recondition Sub-Assemblies".

Installation

(1) Make sure Back-Up Light and Neutral Start Switch has been removed. If parking lock rod was removed, insert it through opening in rear of case with knob positioned against the plug and sprag. Move front end of rod toward center of transmission while exerting rearward pressure on the rod to force it past the sprag. (Rotate propeller shaft if necessary.)

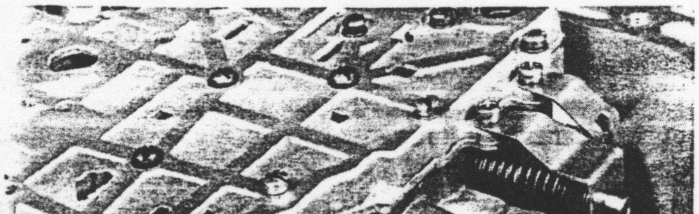


Fig. 36—Parking Lock Control Rod Retaining E-Clip

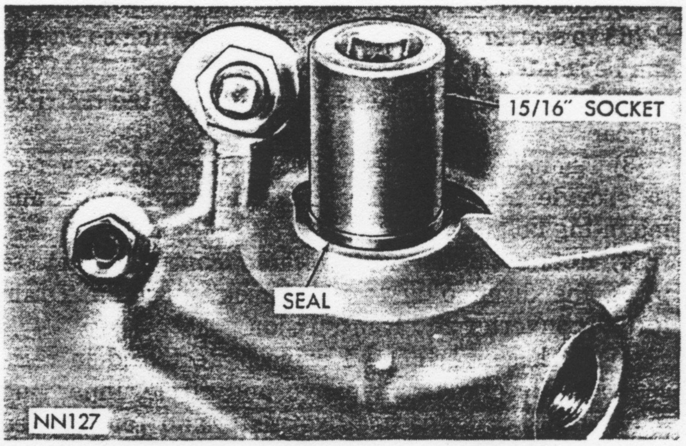


Fig. 37—Installing Valve Body Manual Lever Shaft Oil Seal

(2) Install accumulator piston in the transmission case.

(3) Position accumulator spring on the valve body.

(4) Place valve body manual lever in **LOW** position. Lift valve body into its approximate position, connect parking lock rod to manual lever and secure with E-clip. Position valve body in the case, install retaining bolts finger tight.

(5) With neutral starting switch installed, place manual lever in the neutral position. Shift valve body if necessary to center neutral finger over the neutral switch plunger. Snug bolts down evenly, then tighten to 100 inch-pounds.

(6) Install gearshift lever and tighten clamp bolt. Check lever shaft for binding in the case by moving lever through all detent positions. If binding exists, loosen valve body bolts and re-align.

(7) Make sure throttle shaft seal is in place, then install flat washer, lever and tighten the clamp bolt. Connect throttle and gearshift linkage and adjust as required.

(8) Install oil pan, using a new gasket. Add transmission fluid to bring it up to proper level.

SERVICE OUT OF VEHICLE

TRANSMISSION AND CONVERTER REMOVAL

The transmission and converter must be removed as an assembly; otherwise, the converter drive plate, pump bushing, and oil seal will be damaged. The drive plate will not support a load; therefore, none of the weight of the transmission should be allowed to rest on the plate during removal.

(1) Connect a remote control starter switch, Tool C-763 to starter solenoid and position switch so engine can be rotated from under the vehicle.

(2) Disconnect high tension wire from the distributor cap.

(3) Remove cover plate from in front of converter to provide access to the converter drain plug and mounting bolts.

(4) Rotate engine with remote control switch to bring the drain plug to "6 o'clock" position. Drain torque converter and transmission.

(5) Mark converter and drive plate to aid in reassembly. The crankshaft flange bolt circle, inner and outer circle of holes in drive plate, and four tapped holes in front face of converter all have one hole offset so these parts will be installed in original position. This maintains the balance of engine and converter.

(6) Rotate engine with remote control switch to locate two converter to drive plate bolts at "5 and 7 o'clock" positions. Remove the two bolts, rotate engine with switch and remove the other two bolts. **Do not rotate converter or drive plate by prying with a screw driver or similar tool as the drive plate might become distorted. Also, starter should never be engaged if drive plate is not attached to converter with at least one bolt or if transmission case to engine bolts have been loosened.**

(7) Disconnect negative (ground) cable from the battery.

(8) Remove the starting motor assembly.

(9) Disconnect wire from the neutral starting switch.

(10) Disconnect gearshift rod from the transmission lever. Remove the gearshift torque shaft from transmission housing and left side rail.

Console Shift: Remove two bolts securing gearshift torque shaft lower bracket to the extension housing. Swing bracket out of way for transmission removal. Disconnect gearshift rod from the transmission lever.

(11) Disconnect throttle rod from throttle lever on the transmission.

(12) Disconnect oil cooler lines at transmission and remove oil filler tube. Disconnect the speedometer cable.

(13) Disconnect propeller shaft at rear universal joint. Carefully pull shaft assembly out of the extension housing.

(14) Remove rear mount to extension housing bolts.

(15) Install engine support fixture, Tool C-3487 (8 cyl. engine) or Tool C-3809 (6 cyl. engine) and raise the engine slightly (Fig. 38 or 39).

(16) Remove crossmember attaching bolts and remove the crossmember.

(17) Place a transmission service jack under transmission to support the assembly.

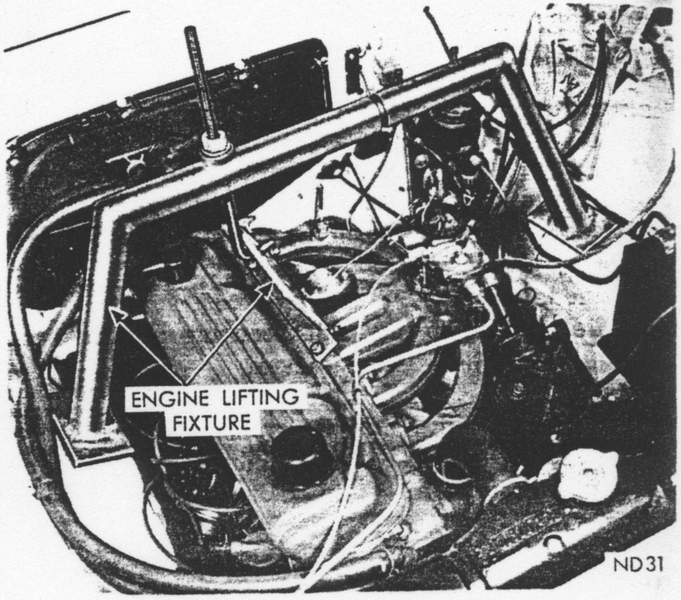


Fig. 38—Engine Lifting Fixture (6 Cyl. Engine)

(18) Attach a small "C" clamp to edge of bell housing to hold converter in place during removal of the transmission.

(19) Remove the bell housing retaining bolts. Carefully work transmission rearward off engine block dowels and disengage converter hub from end of the crankshaft.

(20) Lower transmission jack and remove transmission and converter assembly.

(21) To remove converter assembly, remove "C" clamp from edge of bell housing, then carefully slide assembly out of the transmission.

STARTER RING GEAR REPLACEMENT

The starter ring gear is mounted directly on oute diameter of the torque converter front cover. Wit torque converter removed from vehicle, replacemen of the gear is as follows:

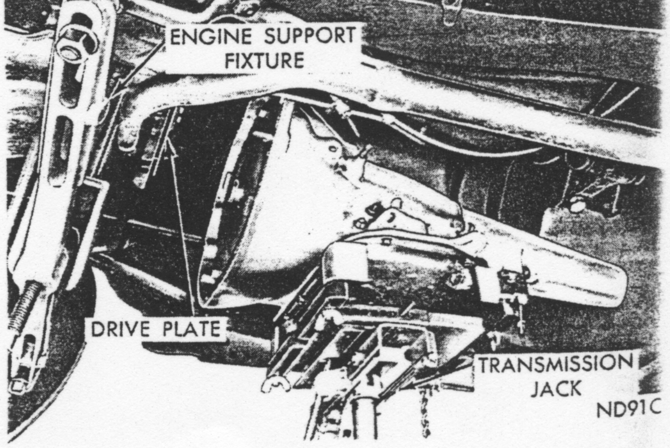


Fig. 39—Engine Lifting Fixture (8-Cyl. Engine)

Removal

(1) Cut through weld material at rear side of ring gear with a hack saw or grinding wheel (Fig. 40). Be careful not to cut or grind into front cover stamping.

(2) Scribe a heavy line on front cover next to front face of ring gear to aid in locating the new gear.

(3) Support converter with the four lug faces resting on blocks of wood. **The converter must not rest on the front cover hub during this operation.** Using a blunt chisel or drift and hammer, tap downward on ring gear near welded areas to break any remaining weld material (Fig. 40). Tap around ring gear until it comes off the converter.

(4) Smooth off weld areas on the cover with a file.

Installation

Any of the following methods may be used to heat and expand starter ring gear for installation on the converter:

Oven: Place ring gear in Oven C-794 and set temperature at 200 degrees F. Allow ring gear to remain in oven for 15 to 20 minutes.

Boiling Water: Place ring gear in a shallow container, add water, and heat for approximately eight minutes after water has come to a boil.

Steam: Place ring gear on a flat surface and direct a steam flow around gear for approximately two minutes.

Flame: Place ring gear squarely on a flat surface. Using a medium size tip, direct a slow flame evenly around inner rim of the gear. **Do not apply flame to the gear teeth.** Place a few drops of water on face of gear at intervals during heating process. When gear is hot enough to just boil the water, installation of gear on the torque converter can be made.

(1) After ring gear is expanded by heating, place the gear in position on converter front cover. Tap gear on the cover evenly with a plastic or rawhide mallet until face of gear is even with scribed line (made during removal) on the front cover. Make sure gear is even with scribed line around full circumference of the front cover.

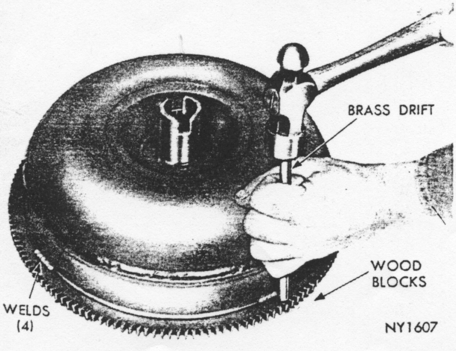


Fig. 40—Removing Starter Ring Gear

(2) Reweld ring gear to torque converter front cover, being careful to place, as nearly as possible, same amount of weld material in exactly same location as was used in original weld. This is necessary in order to maintain proper balance of the unit. Place welds alternately on opposite sides of converter to minimize distortion.

(3) The following suggestions are offered as an aid in making the weld:

a. **Do not gas weld.**

b. Use a D.C welder that is set at straight polarity or an A.C welder if the proper electrode is available.

c. Use a 1/8 inch diameter welding rod, and a welding current of 80 to 125 amps.

d. Direct the arc at intersection of the gear and front cover from an angle of 45 degrees from rear face of the gear.

(4) Inspect gear teeth and remove all nicks where metal is raised, weld metal splatter, etc., in order to ensure quiet starter operation.

TORQUE CONVERTER FLUSHING

When a transmission failure has contaminated the fluid, the torque converter should be flushed to insure that metal particles or sludged oil are not later transferred back into the reconditioned transmission.

HAND FLUSHING

(1) Place converter in horizontal position and pour two quarts of new clean solvent or kerosene into converter through the impeller hub.

(2) Turn and shake converter so as to swirl solvent through the internal parts. **Turn the turbine and stator with transmission input and reaction shafts to dislodge foreign material.**

(3) Position converter in its normal operation position with drain plug at the lowest point. Remove drain plug and drain solvent. Rotate turbine and stator, and shake converter while draining to prevent dirt particles from settling.

(4) Repeat flushing operation at least once, or as many times as required until solvent or kerosene drained out is clear.

(5) After flushing, shake and rotate converter several times with drain plug out to remove any residual solvent and dirt. **Flush any remaining solvent from converter with two quarts of new transmission fluid.** This will prevent any adverse effect the solvent may have on the transmission seals. Reinstall drain plug and tighten to 110 inch-pounds.

(6) Flush and blow out the oil cooler and its lines.

MACHINE FLUSHING

Machine cleaning is recommended; using the type which rotates the converter while pumping cleaning fluid through it. The machine automatically adds timed blasts of compressed air to the cleaning fluid as it enters the converter, providing more thorough cleaning than the hand flushing operation.

FLUID LEAKAGE—TRANSMISSION CONVERTER HOUSING AREA

(1) **Check for Source of Leakage**

Since fluid leakage at or around the converter area may originate from an engine oil leak, the area should be examined closely. Transmission fluid is dyed red and, therefore, can be distinguished from engine oil.

(2) **Prior to removing the transmission, perform the following checks:**

When leakage is determined to originate from the transmission, check fluid level and torque converter drain plug torque prior to removal of the transmission and torque converter.

High oil level can result in oil leakage out the vent located at the top of the front pump housing. If the fluid level is high, adjust to proper level.

Oil leakage can also occur at the torque converter drain plug. Torque the drain plug to 110 inch-pounds.

After performing these two operations, re-check for leakage. If a leak persists, the transmission and torque converter assembly must be removed for repair.

(3) **Remove transmission and torque converter assembly.**

(4) **Check torque converter assembly for leakage.** See "Torque Converter Leak Check". If no leak is found, proceed to step (5).

(5) **Service Transmission Converter Housing Area**

(a) Replace torque converter hub seal—inspect torque converter hub for roughness or damage.

(b) Check pump housing bolt torque and tighten to 175 inch-pounds.

(c) Replace kickdown lever shaft plug, and apply thread sealer—Chrysler Parts Sealing Compound P.N. 1057794 or equivalent.

TORQUE CONVERTER LEAK CHECK

If fluid leakage has occurred in the bell housing area, the torque converter can be leak checked as follows after removal from the transmission:

(1) Drain all oil from the converter. If flushing is required, flush before checking for leakage.

(2) Install tool C-4102 and tighten.

(3) Apply a maximum of 100 psi air pressure to the converter.

(4) Submerge the converter in a tank of water and observe the hub, cup, ring gear, and seam welds for bubbles. Five to ten minutes may be required for bubbles to develop from small leaks.

If no bubbles are observed, it can be assumed that the welds are not leaking. If leakage occurs, the converter should be replaced.

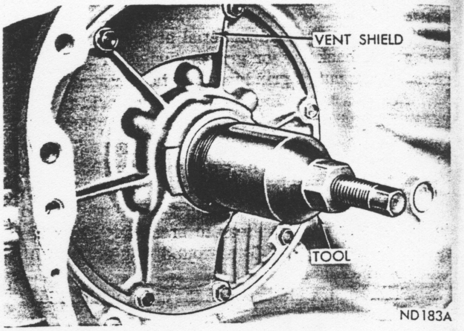


Fig. 41—Removing Pump Oil Seal

PUMP OIL SEAL

Replacement

The pump oil seal can be replaced without removing pump and reaction shaft support assembly from the transmission case. **The vent shield shown in (Figs. 41 and 42) is not used or required on the A-904 pumps.**

(1) **A-904:** Screw seal remover Tool C-3758 into seal (Fig. 41), then tighten screw portion of tool to withdraw the seal.

A-727: Using Tool C-3861, remove seal in the same manner.

(2) **A-904:** To install a new seal, place seal in opening of the pump housing (lip side facing inward).

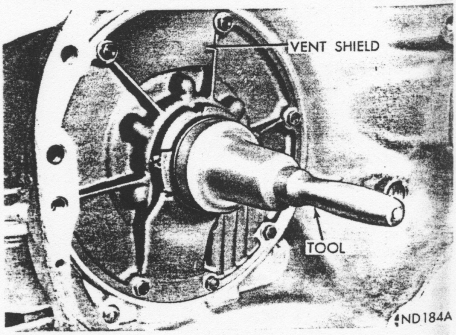


Fig. 42—Installing Pump Oil Seal

Using Tool C-3757, drive seal into housing until tool bottoms (Fig. 42).

A-727: Using Tool C-3860, install new seal in the same manner.

DISASSEMBLY—SUB-ASSEMBLY REMOVAL

Prior to removing any transmission sub-assemblies, plug all openings and thoroughly clean exterior of the unit, preferably by steam. Cleanliness through entire disassembly and assembly cannot be over-emphasized. When disassembling, each part should be washed in a suitable solvent, then dried by compressed air. **Do not wipe parts with shop towels.** All mating surfaces in the transmission are accurately machined; therefore, careful handling of parts must be exercised to avoid nicks or burrs.

Drive Train End Play

Measuring drive train end play before disassembly will usually indicate when a thrust washer change is required, (except when major parts are replaced). **The thrust washer is located between reaction shaft support and front clutch retainer on A-727 transmissions. The thrust washer is located between input and output shafts on A-904 transmissions.**

(1) Attach a dial indicator to transmission bell housing with its plunger seated against end of input shaft (Fig. 43). Move input shaft in and out to obtain end play reading. End play specifications are .030 to .089 inch for A-904 transmissions, and .037 to .084 inch for A-727 transmissions.

(2) Record indicator reading for reference when reassembling the transmission.

Oil Pan

(1) Place transmission assembly in repair stand, Tool C-3750, for 6 Cyl. engines. For 8 Cyl. engines use adapter C-3882, with repair stand to support these transmissions (Fig. 44).

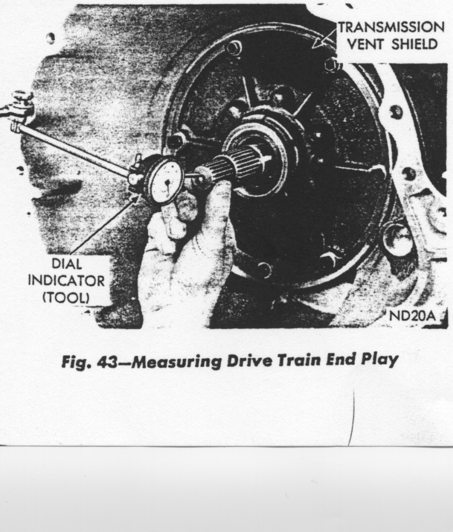


Fig. 43—Measuring Drive Train End Play

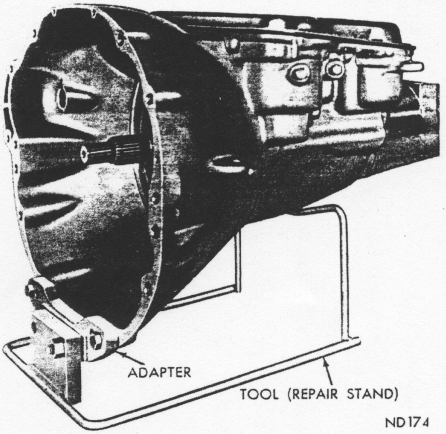


Fig. 44—Transmission Installed in Repair Stand

If repair stand DD-1014 is available, fabricate two attaching brackets (Fig. 45) and install transmission in the stand (Fig. 46), file out the 7/16 inch holes if necessary to obtain bracket alignment. This stand provides easier disassembly and assembly as the transmission can be rotated as desired.

(2) Unscrew oil pan bolts and remove oil pan and gasket.

Valve Body Assembly

(1) Loosen clamp bolts and remove throttle and gearshift levers from the transmission.

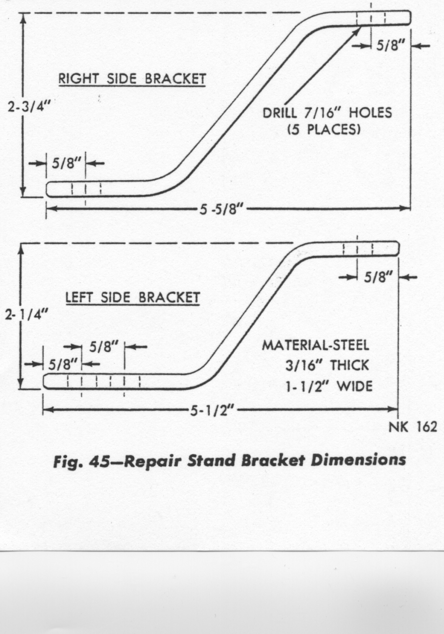


Fig. 45—Repair Stand Bracket Dimensions

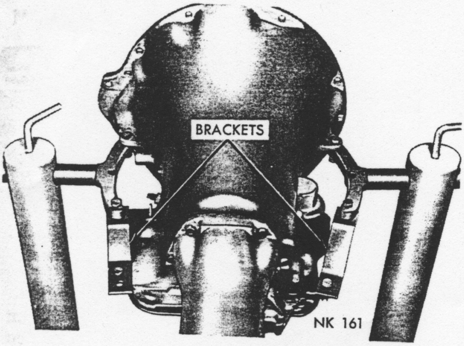


Fig. 46—Transmission Installed in Repair Stand (Tool DD-1014)

(2) Remove Back-Up Light and Neutral Start Switch.

(3) Remove the ten hex-head valve body to transmission bolts. Remove E-clip securing parking lock rod to the valve body manual lever (Fig. 36).

(4) While lifting valve body upward out of transmission case, disconnect parking lock rod from the lever.

Accumulator Piston and Spring

(1) Lift spring off accumulator piston and withdraw piston from the case.

Extension Housing

Before removing extension housing, pull parking lock rod forward out of the case. Rotate propeller shaft if necessary to align parking gear and sprag to permit knob on end of control rod to pass the sprag.

(1) Remove speedometer pinion and adapter assembly.

(2) Remove extension housing to transmission bolts.

(3) Remove two screws, plate and gasket from bottom of extension housing mounting pad. Spread large snap ring from output shaft bearing with Tool C-3301A (Fig. 31). With snap ring spread as far as possible, carefully tap extension housing off the output shaft and bearing.

(4) Using heavy duty snap ring pliers C-4020, remove output shaft bearing rear snap ring. Remove bearing from shaft, then remove front snap ring.

Governor and Support

(1) Carefully pry snap ring from weight end of governor valve shaft (Fig. 33). Slide valve and shaft assembly out of the governor body.

(2) Remove snap ring from behind governor body, then slide governor body and support assembly off the output shaft.

Oil Pump and Reaction Shaft Support

(1) **Tighten front band adjusting screw until band is tight on front clutch retainer.** This prevents clutch retainer from coming out with pump which might cause unnecessary damage to the clutches.

(2) Remove oil pump housing retaining bolts.

(3) Attach Tool C-3752 to pump housing flange, (Fig. 47), in threaded holes in the flange.

(4) Bump outward evenly on the two "knocker weights" to withdraw pump and reaction shaft support assembly from the case.

Front Band and Front Clutch

(1) Loosen front band adjuster, remove band strut and slide band out of the case.

(2) Slide front clutch assembly out of the case.

Input Shaft and Rear Clutch

(1) Grasp input shaft, and slide input shaft and rear clutch assembly out of the case.

CAUTION: Be careful not to lose thrust washer located between rear end of input shaft and forward end of the output shaft.

Planetary Gear Assemblies, Sun Gear and Driving Shell

(1) While supporting output shaft and driving shell, carefully slide assembly forward and out through the case.

CAUTION: Be very careful not to damage ground surfaces on output shaft during removal.

Rear Band and Low-Reverse Drum

(1) Remove low-reverse drum, then loosen rear band adjuster, remove band strut and link, then remove band from the case.

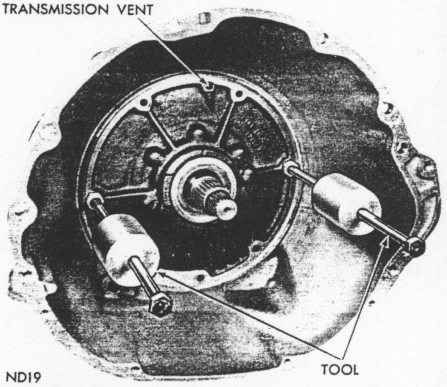


Fig. 47—Removing Pump and Reaction Shaft Support Assembly