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161 Tractor Scraper-Specification

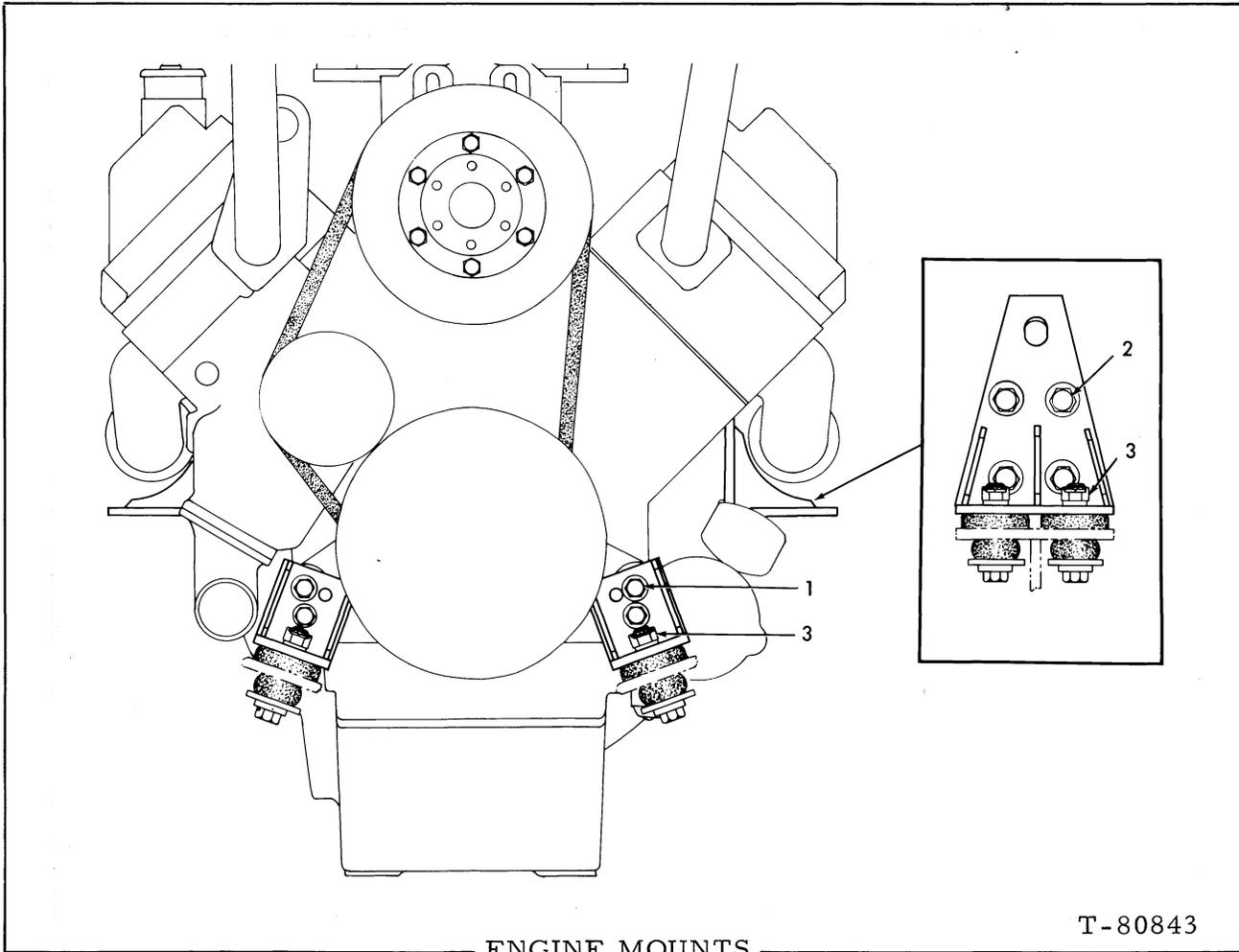
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ENGINE



ENGINE MOUNTS

- 1. Torque capscrew to ----- 90 - 100 lb. ft. (12.6 - 14.0 m-kg)
- 2. Torque capscrew to ----- 170 - 187 lb. ft. (23.8 - 26.2 m-kg)
- 3. Torque nut to ----- 95 - 105 lb. ft. (13.3 - 14.7 m-kg)

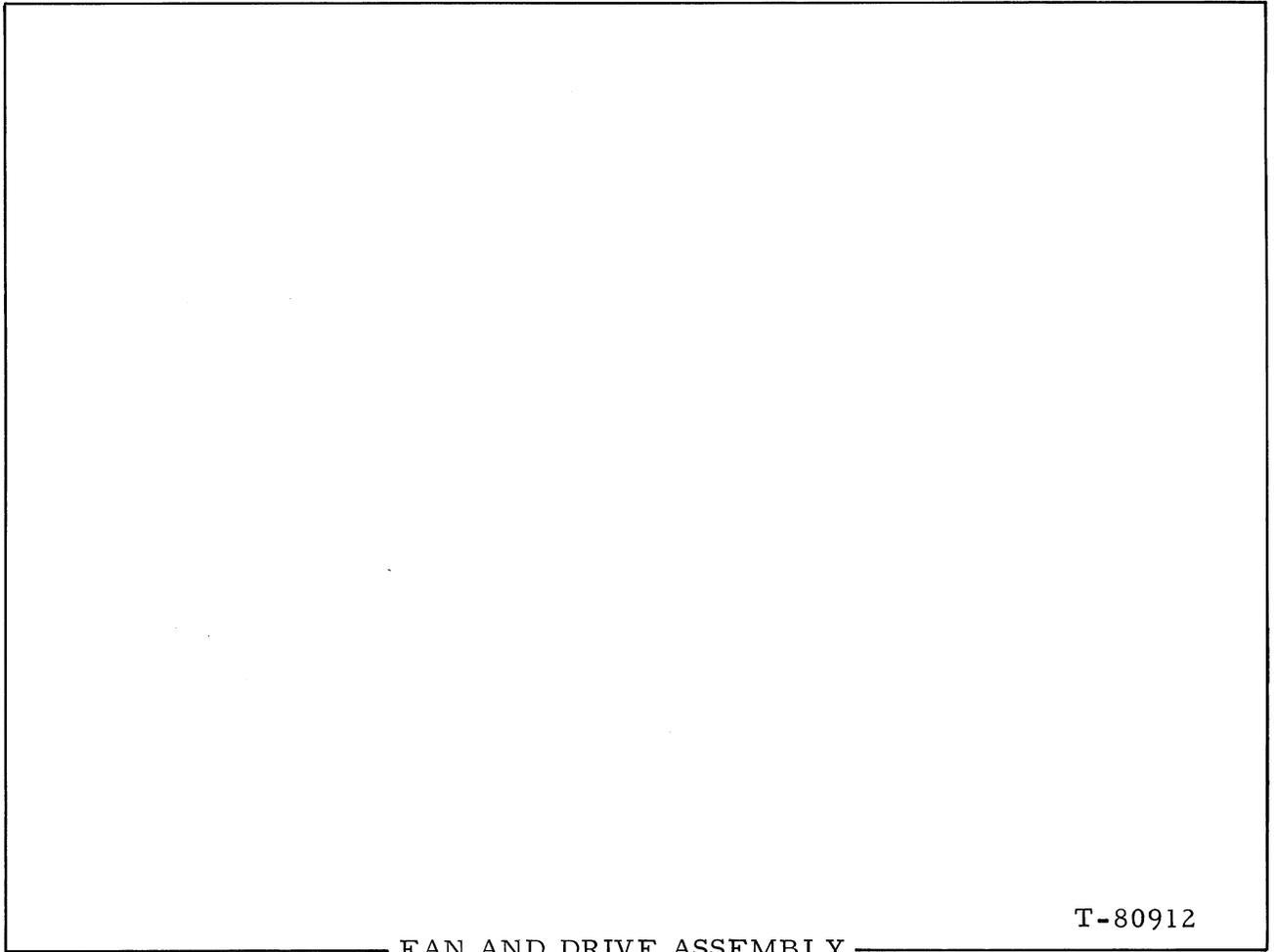
GENERAL

* Make	-----	Cummins
Model	-----	V-903-C265
Number of cylinders	-----	8
Bore and stroke	-----	5.50" x 4.75" (139.7 x 120.6 mm)
Displacement	-----	903 cu in. (14.8 lit.)
Governed speeds		
Full load	-----	2200 rpm
No load	-----	2375-2420 rpm
Idle	-----	550-650 rpm
Converter stall rpm	-----	2010-2070

* Refer to your local Cummins dealer for engine service specifications and manuals.

Study SAFETY RULES, pages I thru III, thoroughly for the protection of personal and machine safety.

Engine



FAN AND DRIVE ASSEMBLY

T-80912

1. Torque spacer capscrews to - - - - - 90 - 100 lb.ft. (12.6 - 14.0 m-k g)
2. Torque fan capscrews to - - - - - 35 - 39 lb.ft. (4.9 - 5.5 m-k g)

TRANSMISSION, TORQUE CONVERTER AND DRIVE SHAFT

SPECIFIED PRESSURES AND FLOWS

PRESSURE (PSI)	MAIN	CONVERTER		LUBE	LOCK - UP CLUTCH		PITOT		TRANSMISSION CLUTCHES						
		1000 RPM	High Idle (lock-up clutch applied)		Press.	RPM	1000 RPM	High Idle	3rd 6th	Rev.	2nd 5th	1st 4th	1st 2nd 3rd Rev.	4th 5th 6th	
NEUTRAL	195- 215	60-65	35-40	20- 30	195- 215	1850 1550 1600	7 - 8	36- 38							
1 FWD	195- 215			20- 30								195- 215	195- 215		
2 FWD	195- 215			20- 30							195- 215		195- 215		
3 FWD	195- 215			20- 30					195- 215				195- 215		
4 FWD	195- 215			20- 30								195- 215		195- 215	
5 FWD	195- 215			20- 30							195- 215			195- 215	
6 FWD	195- 215			20- 30					195- 215					195- 215	
REV.	195- 215			20- 30						195- 215			195- 215		

SHIFT LEVER POSITION FLOW (GPM)	NEUT.	REV.	1ST	2ND	3RD	4TH	5TH	6TH
TRANSMISSION PUMP	29 - 36							
VENTURI PUMP	2							
* TRANSMISSION CLUTCH APPLY		1.6	1.6	1.6	1.6	1.6	1.6	1.6
TORQUE CON- VERTER IN	31	31	31	31	31	31	31	31
TORQUE CON- VERTER OUT	29							

* Two clutches engaged

1 psi = 0.07 kg/cm²
1 gpm = 3.78 lit/min

Study SAFETY RULES, pages I thru III, thoroughly for the protection of personal and machine safety.

TRANSMISSION, TORQUE CONVERTER AND DRIVE SHAFT

HYDRAULIC SYSTEM WORK SHEET

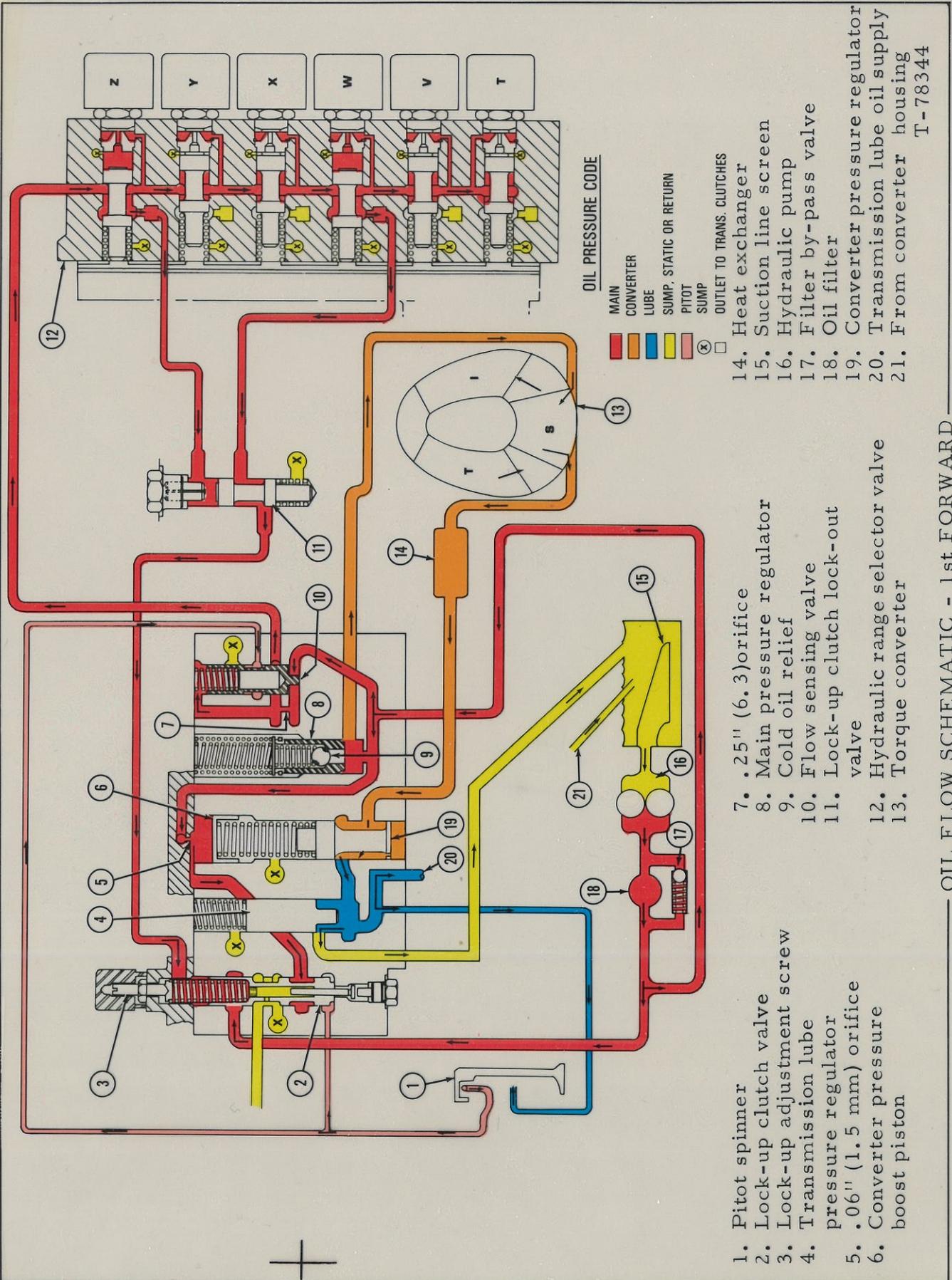
PRESSURE (PSI)	MAIN	CONVERTER		LUBE	LOCK - UP CLUTCH		PITOT		TRANSMISSION CLUTCHES								
		1000 RPM	High Idle (lock-up clutch applied)		Press.	RPM	1000 RPM	High Idle	3rd 6th	Rev.	2nd 5th	1st 4th	1st 2nd 3rd Rev	4th 5th 6th			
NEUTRAL																	
1 FWD																	
2 FWD																	
3 FWD																	
4 FWD																	
5 FWD																	
6 FWD																	
REV.																	

SHIFT LEVER POSITION FLOW (GPM)	NEUT.	REV.	1ST	2ND	3RD	4TH	5TH	6TH
TRANSMISSION PUMP								
VENTURI PUMP								
* TRANSMISSION CLUTCH APPLY								
TORQUE CON- VERTER IN								
TORQUE CON- VERTER OUT								

* Two clutches engaged

Study SAFETY RULES, pages I thru III, thoroughly for the protection of personal and machine safety.

TRANSMISSION, TORQUE CONVERTER AND DRIVE SHAFTS



OIL PRESSURE CODE

- MAIN CONVERTER
- LUBE
- SUMP, STATIC OR RETURN
- PITOT
- SUMP
- OUTLET TO TRANS. CLUTCHES

- 14. Heat exchanger
- 15. Suction line screen
- 16. Hydraulic pump
- 17. Filter by-pass valve
- 18. Oil filter
- 19. Converter pressure regulator
- 20. Transmission lube oil supply
- 21. From converter housing

- 7. .25" (6.3) orifice
- 8. Main pressure regulator
- 9. Cold oil relief
- 10. Flow sensing valve
- 11. Lock-up clutch lock-out valve
- 12. Hydraulic range selector valve
- 13. Torque converter

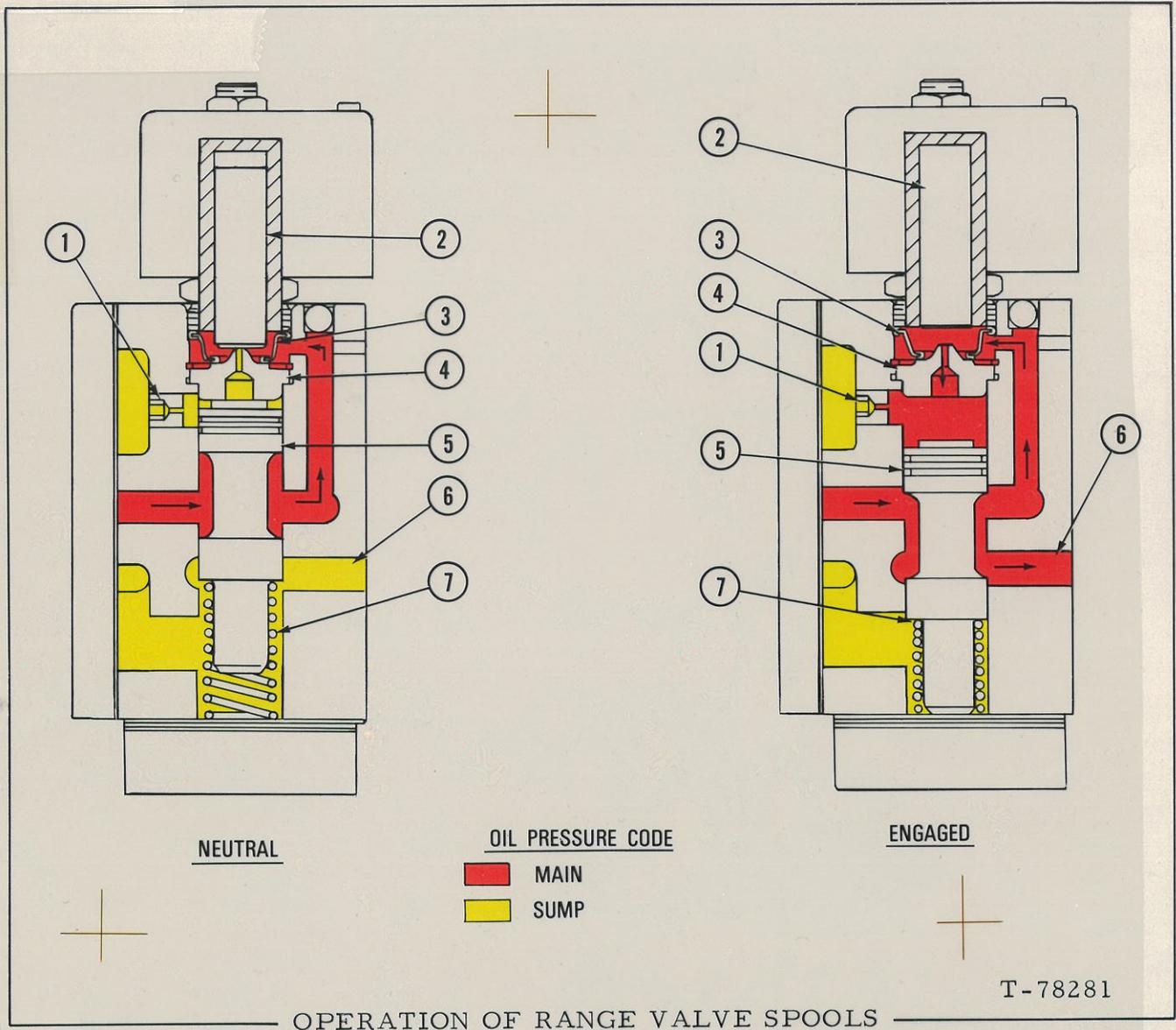
- 1. Pitot spinner
- 2. Lock-up clutch valve
- 3. Lock-up adjustment screw
- 4. Transmission lube pressure regulator
- 5. .06" (1.5 mm) orifice
- 6. Converter pressure booster piston

OIL FLOW SCHEMATIC - 1st FORWARD

T-78344

Study SAFETY RULES, pages I thru III, thoroughly for the protection of personal and machine safety.

Transmission, Torque Converter and Drive Shafts



- 1. Orifice plug
- 2. Solenoid armature
- 3. Filter screen
- 4. Valve seat

- 5. Range spool
- 6. Outlet to clutch
- 7. Spool return spring

Study SAFETY RULES, pages I thru III, thoroughly for the protection of personal and machine safety.

Transmission, Torque Converter and Drive Shafts

T-80186

TORQUE CONVERTER

1. Bearing retainer capscrew - - - - - 38 - 42 lb.ft. (5.3 - 5.8 m-kg)
2. Pump mounting capscrews - - - - - 38 - 42 lb.ft. (5.3 - 5.8 m-kg)
3. Yoke retaining capscrew - - - - - 177 - 195 lb. ft. (24.8 - 27.3 m-kg)
4. Seal carrier capscrews - - - - - 38 - 42 lb.ft. (5.3 - 5.8 m-kg)

(Continued)

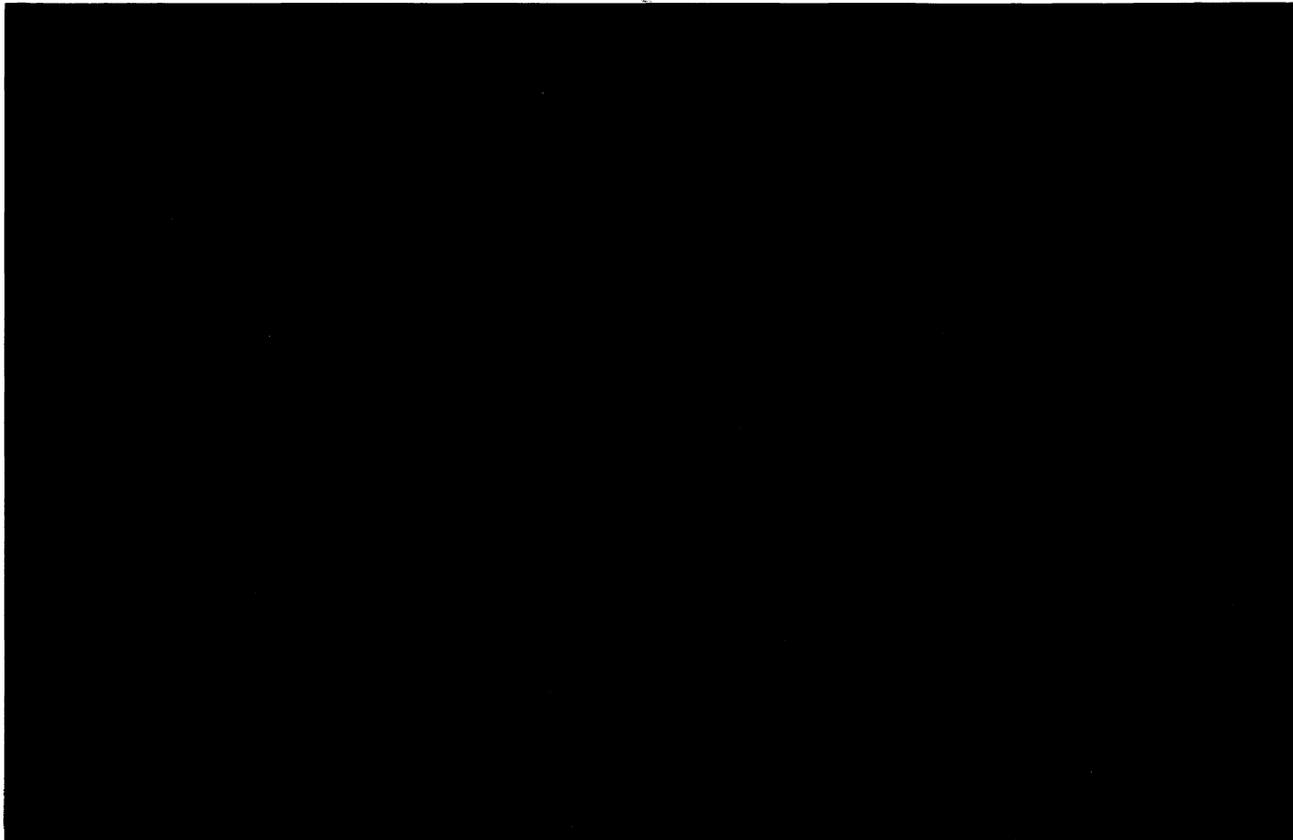
Study SAFETY RULES, pages I thru III, thoroughly for the protection of personal and machine safety.

Transmission, Torque Converter and Drive Shafts

TORQUE CONVERTER (Continued)

5. Cover mounting capscrews - - - - -	86 - 95 lb. ft. (12.0 - 13.3 m-kg)
6. Impeller wheel capscrews - - - - -	21 - 24 lb. ft. (2.9 - 3.4 m-kg)
7. Impeller hub capscrews - - - - -	86 - 95 lb. ft. (12.0 - 13.3 m-kg)
8. Turbine wheel hub capscrews - - - - -	86 - 95 lb. ft. (12.0 - 13.3 m-kg)
9. Plate mounting capscrews - - - - -	38 - 42 lb. ft. (5.3 - 5.8 m-kg)
10. Washer retaining capscrews - - - - -	38 - 42 lb. ft. (5.3-5.8 m-kg)
11. Flywheel pilot orifice size - - - - -	.040" (1.02 mm)
12. Bushing I. D. (Installed) - - - - -	4.053" - 4.057" (102.95 - 103.5 mm)
13. Clutch plate	
Thickness of friction plate - - - - -	.187" - .193" (4.75 - 4.90 mm)
Depth of oil grooves - - - - -	.015" - .023" (0.43 - 0.58 mm)
Maximum allowable dish - - - - -	.010" (0.25 mm)
14. Ring gear capscrews - - - - -	35 - 39 lb. ft (4.9 - 5.5 m-kg)
15. Converter mounting capscrews - - - - -	55 - 60 lb. ft. (7.7 - 8.4 m-kg)

Transmission, Torque Converter and Drive Shafts

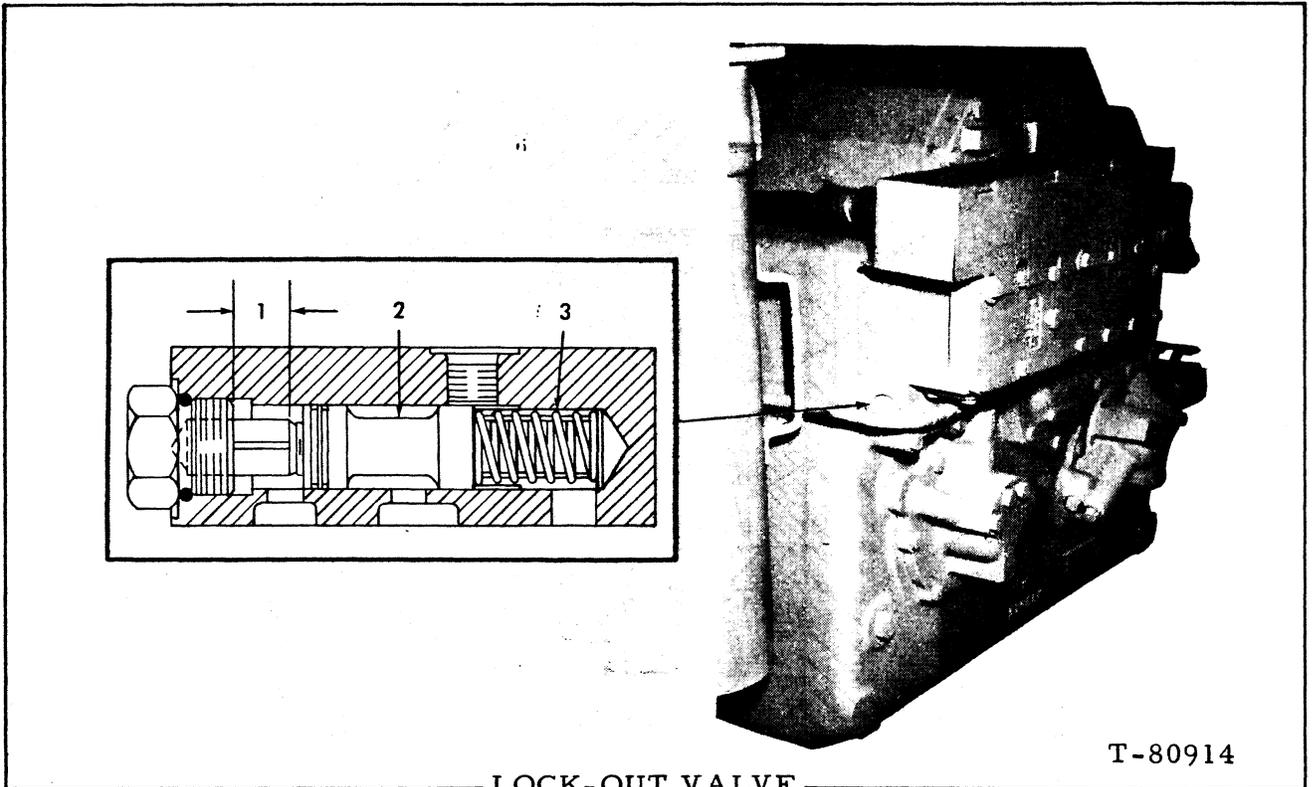


T-80913

TRANSMISSION MOUNTS

1. Transmission mounting capscrews - - - - 45 - 55 lb.ft. (6.2 - 7.6 m-k_g)
2. Bracket attaching capscrews - - - - - 210 - 230 lb.ft. (29.0 - 31.8 m-k_g)

Transmission, Torque Converter and Drive Shafts



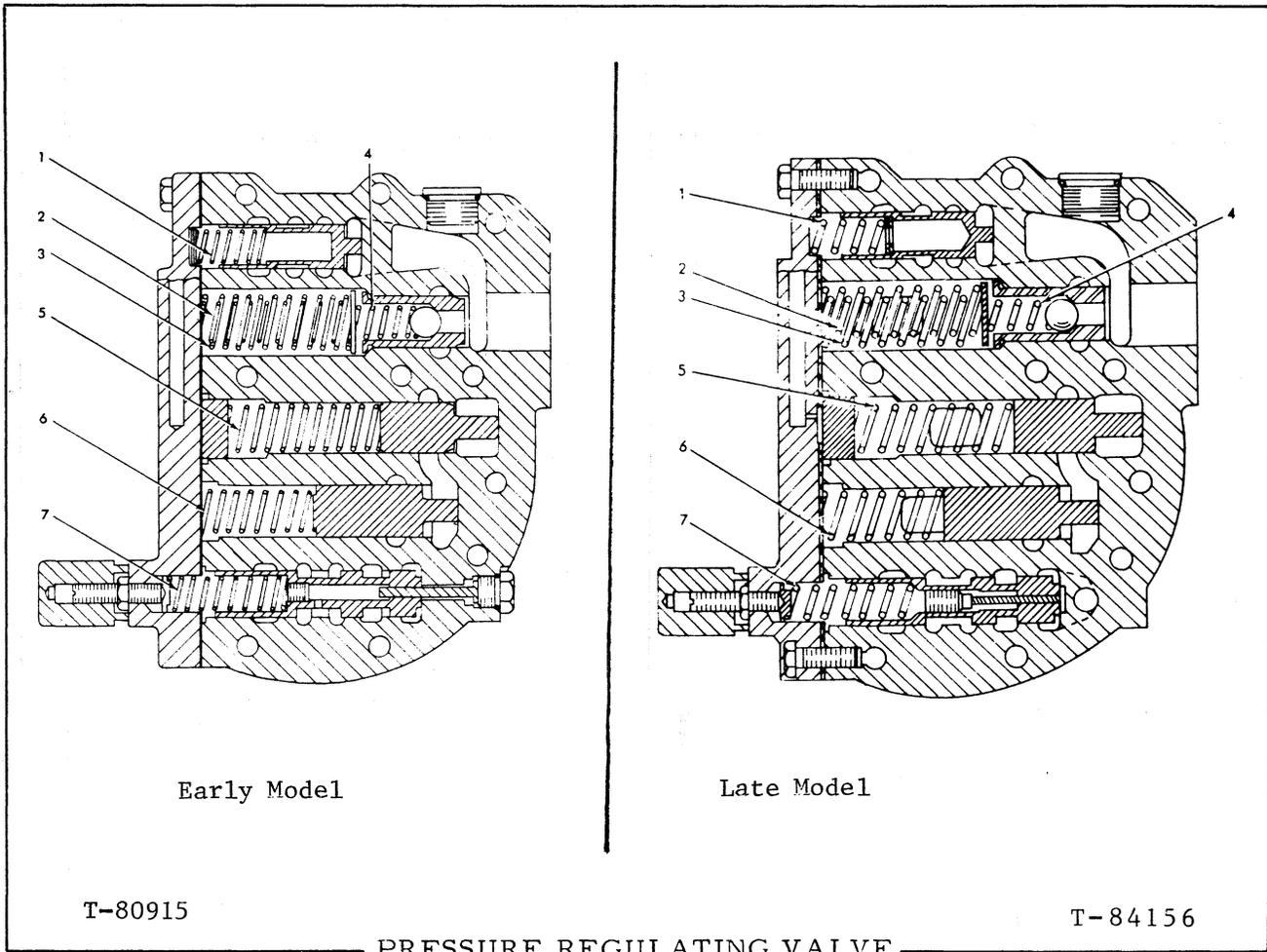
LOCK-OUT VALVE

T-80914

- | | |
|---|---------------------------------|
| 1. Approximate dimension when pin is fully seated ----- | .62" (15 mm) |
| 2. Lock-out valve spool loose fit in bore ----- | .0005" - .002" (0.01 - 0.05 mm) |
| 3. Lock-out valve spring | |
| Approximate ----- | 2.23" (56.64 mm) |
| Load when compressed to 1.26" (32.0 mm) ----- | 15 - 17 lbs. (6.7 - 7.6 kg) |
| Load when compressed to .88" (22.35 mm) ----- | 21 - 23 lbs. (9.4 - 10.3 kg) |

Study SAFETY RULES, pages I thru III, thoroughly for the protection of personal and machine safety.

Transmission, Torque Converter and Drive Shafts



PRESSURE REGULATING VALVE

- | | |
|-----------------------------------|---------------------------------|
| 1. Flow sensing valve spring | |
| Approximate free length - - - - - | 1.95" (49.53 mm) |
| Load when compressed to | |
| 1.21" (30.7 mm) - - - - - | 3.8 - 4.2 lbs. (1.7 - 1.9 kg) |
| Load when compressed to | |
| .88" (22.4 mm) - - - - - | 5.5 - 6.1 lbs. (2.5 - 2.8 kg) |
| 2. Main pressure inner spring | |
| Approximate free length - - - - - | 3.03" (76.9 mm) |
| Load when compressed to | |
| 2.3" (58.4 mm) - - - - - | 40 - 45 lbs. (18.14 - 20.41 mm) |
| 3. Main pressure outer spring | |
| Approximate free length - - - - - | 3.4" (86.4 mm) |
| Load when compressed to | |
| 2.3" (58.4 mm) - - - - - | 68 - 75 lbs. (30.8 - 34.0 kg) |
| 4. Cold oil relief spring | |
| Approximate free length - - - - - | 1.38" (35.0 mm) |
| Load when compressed to | |
| 1.05" (26.6 mm) - - - - - | 30 - 34 lbs. (13.6 - 15.4 kg) |

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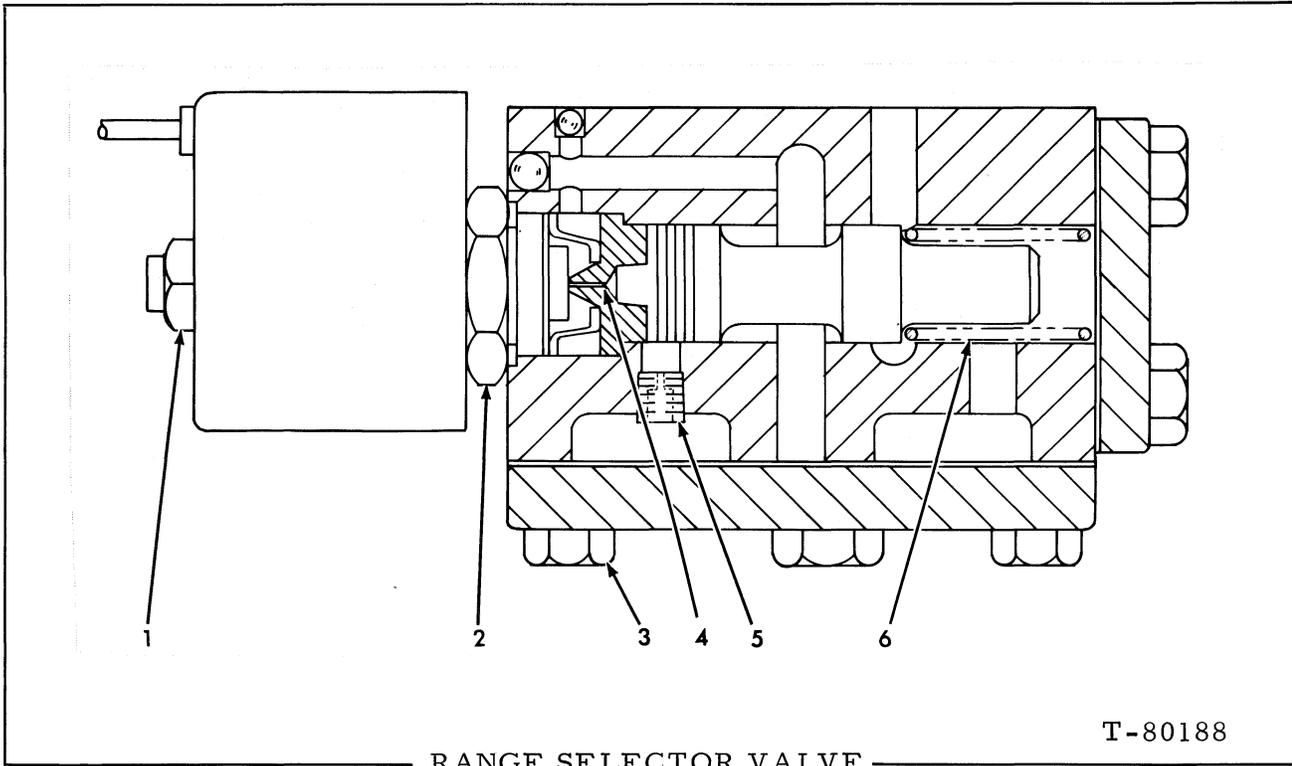
Study SAFETY RULES, pages I thru III, thoroughly for the protection of personal and machine safety.

Transmission, Torque Converter and Drive Shafts

PRESSURE REGULATING VALVE (Continued)

- 5. Torque converter spring
 - Approximate free length - - - - - 2.63" (66.8 mm)
 - Load when compressed to
 - 2.3" (58.4 mm) - - - - - 13 - 14 lbs. (5.9 - 6.3 kg)
 - Load when compressed to
 - 1.7" (43.2 mm) - - - - - 34 - 38 lbs. (15.3 - 17.1 kg)
- 6. Transmission lube pressure spring
 - Approximate free length - - - - - 3.14" (79.7 mm)
 - Load when compressed to
 - 1.33" (33.8 mm) - - - - - 12 - 13 lbs. (5.5 - 5.9 kg)
 - Load when compressed to
 - 1.67" (42.4 mm) - - - - - 14 - 16 lbs. (6.3 - 7.3 kg)
- 7. Lock-up valve spring
 - Approximate free length - - - - - 2.15" (54.6 mm)
 - Load when compressed to
 - 1.33" (33.7 mm) - - - - - 17 - 18 lbs. (7.7 - 8.1 kg)

Transmission, Torque Converter and Drive Shafts



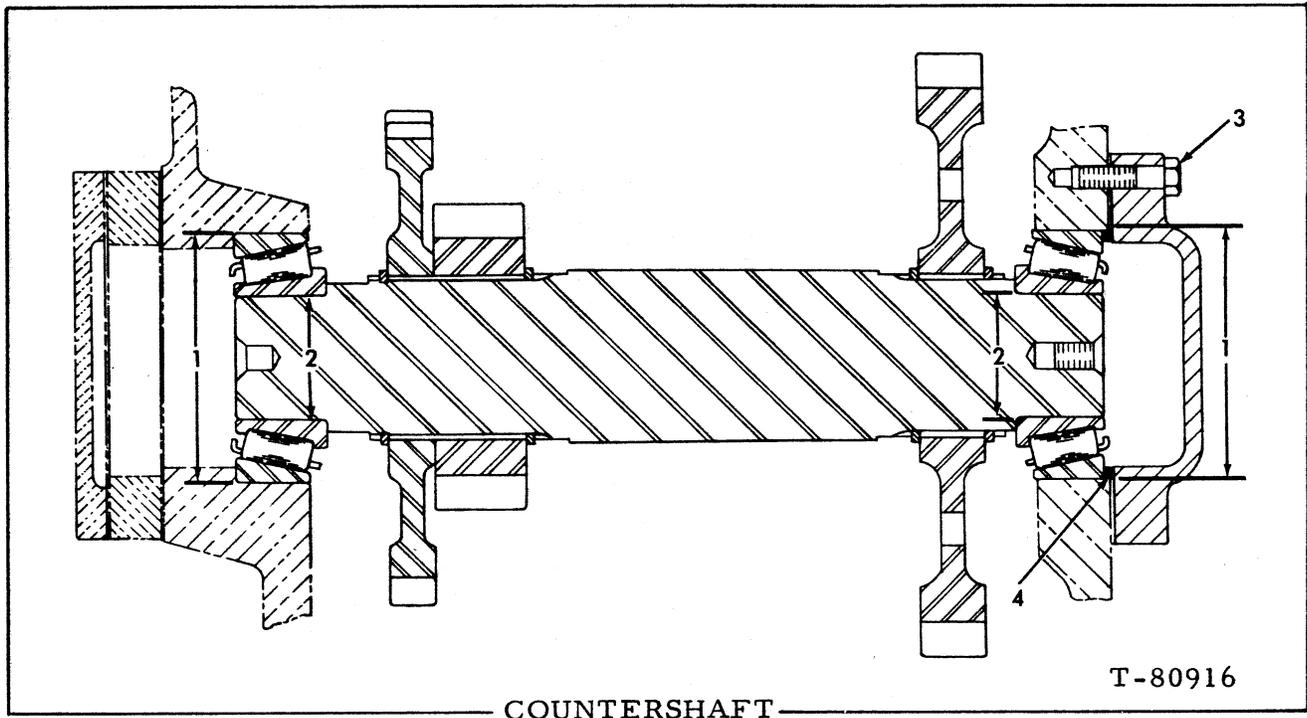
RANGE SELECTOR VALVE

T-80188

- | | |
|--|----------------------------------|
| 1. Torque for nuts (Maximum) - - - - - | 90 lb. in. (103.7 cm-kg) |
| 2. Torque for sleeve - - - - - | 20 lb. ft. (2.7 m-kg) |
| 3. Torque for capscrews - - - - - | 15 - 17 lb. ft. (2.1 - 2.4 m-kg) |
| 4. Spool seat orifice - - - - - | .052" - .055" (1.32 - 1.39 mm) |
| 5. Plug orifice - - - - - | .051" - .056" (1.29 - 1.42 mm) |
| 6. Spool return spring | |
| Approximate free length - - - - - | 2.23" (56.64 mm) |
| Load when compressed to | |
| 1.26" (32.0 mm) - - - - - | 15 - 17 lbs. (6.75 - 7.65 kg) |
| Load when compressed to | |
| .88" (22.35 mm) - - - - - | 21 - 23 lbs. (9.45 - 10.35 kg) |

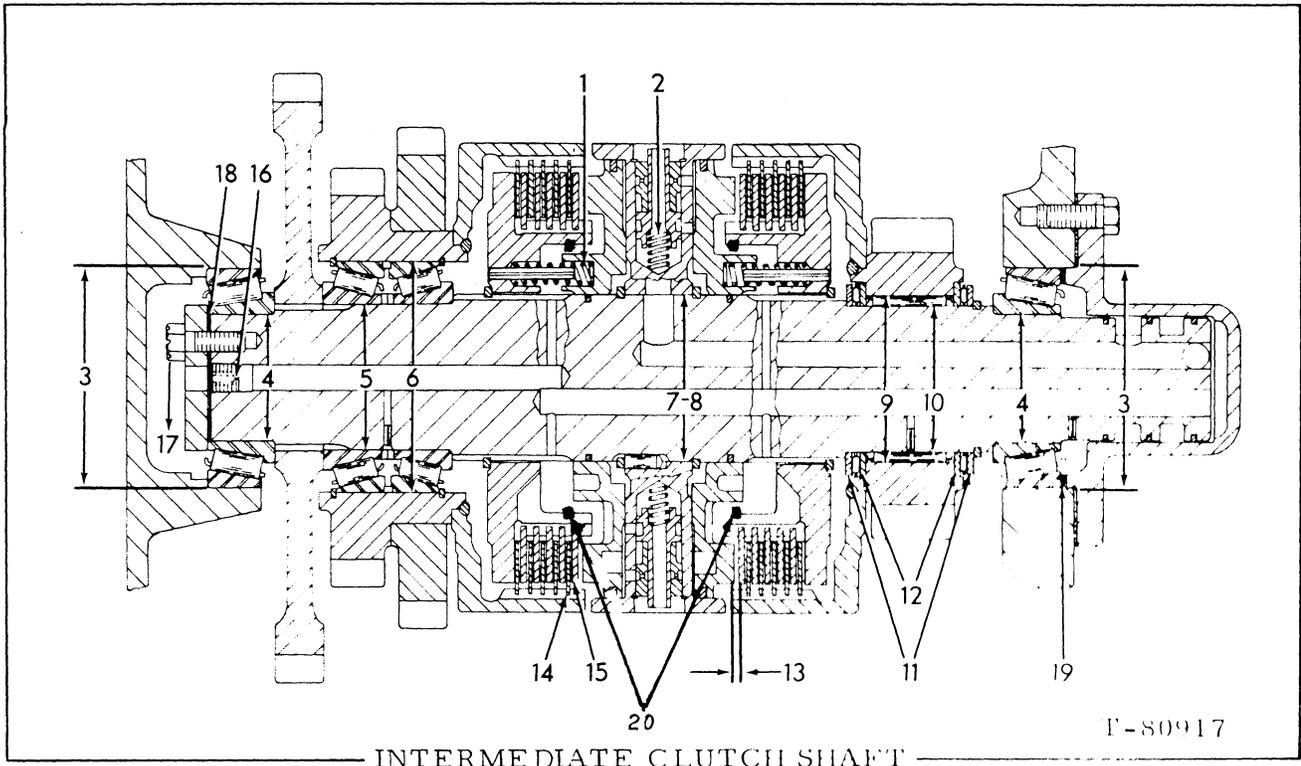
Study SAFETY RULES, pages I thru III, thoroughly for the protection of personal and machine safety.

Transmission, Torque Converter and Drive Shafts



1. Bore in housing for bearing - - - - -	4.3306" - 4.3316" (109.99 - 110.02 mm)
2. Shaft O. D. at bearing - - - - -	2.1659" - 2.1666" (55.016 - 55.032 mm)
3. Torque capscrews to - - - - -	43 - 47 lb. ft. (5.9 - 6.4 m-kg)
4. Shim to provide end play of - - - - -	.010" - .012" (0.25 - 0.30 mm)

Transmission, Torque Converter and Drive Shafts



1. Clutch piston return spring	
Approximate free length - - - - -	1.56" (39.6 mm)
Load when compressed to 1.35"	
(34.2 mm) - - - - -	14 - 16 lbs. (6.3 - 7.3 kg)
Load when compressed to 1.14"	
(28.9 mm) - - - - -	29 - 31 lbs. (13.1 - 14.0 kg)
2. Dump valve spring	
Approximate free length - - - - -	.915" (23.24 mm)
Load when compressed to	
.75" (19.05 mm) - - - - -	2.8 - 3.2 lbs. (1.3 - 1.5 kg)
Load when compressed to	
.50" (12.7 mm) - - - - -	7.1 - 7.9 lbs. (3.2 - 3.6 kg)
3. Bore in housing for bearing - - - - -	3.7400" 3.7409" (94.996 - 95.019 mm)
4. Shaft O. D. at front and rear	
bearings - - - - -	2.1659" - 2.1666" (55.016 - 55.032 mm)
5. Shaft O. D. at 2nd/5th gear	
bearing - - - - -	2.4710" - 2.4715" (62.763 - 62.776 mm)
6. 2nd/5th gear I. D. - - - - -	3.9355" - 3.9365" (99.96 - 99.99 mm)
7. Shaft O. D. at carrier - - - - -	2.869" - 2.870" (72.87 - 72.89 mm)
8. Carrier I. D. - - - - -	2.8665" - 2.8675" (72.809 - 72.835 mm)
9. 1st/4th gear I. D. - - - - -	2.8761" - 2.8766" (73.05 - 73.06 mm)
10. Shaft O. D. at 1st/4th gear bearing - - -	2.4994" - 2.5000" (63.485 - 63.500 mm)
11. Thrust washer O. D. - - - - -	3.23" (82.15 mm)
12. Thrust washer O. D. - - - - -	3.30" (83.74 mm)
13. Clearance between plate and piston - - -	.050" - .080" (1.27 - 2.03 mm)

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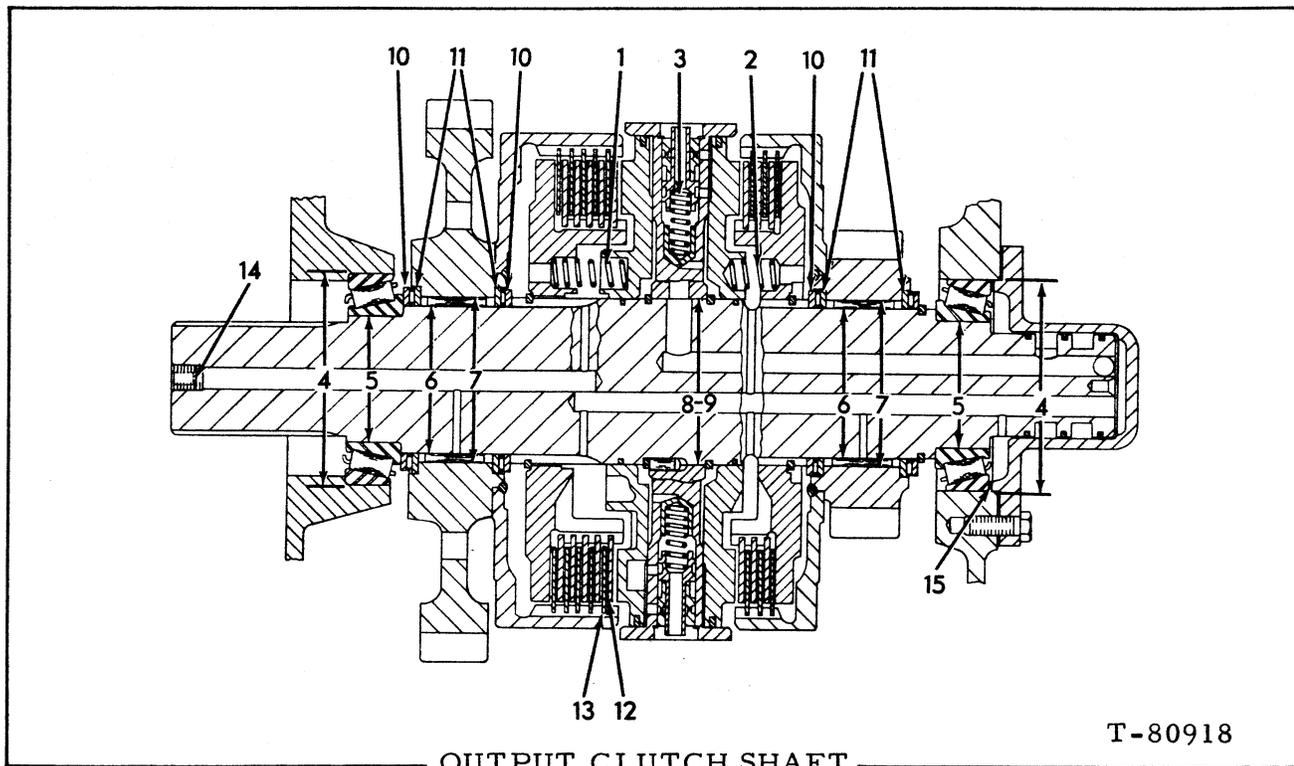
Transmission, Torque Converter and Drive Shafts

INTERMEDIATE CLUTCH SHAFT (Continued)

14. Bi-Metallic clutch plates	
O. D. -----	7.45" (189.2 mm)
Thickness -----	.119" - .124" (3.02 - 3.14 mm)
Depth of oil grooves -----	.012" - .020" (0.30 - 0.50 mm)
15. Steel clutch plates	
O. D. -----	7.0" (177.0 mm)
Thickness -----	.092" - .094" (2.33 - 2.38 mm)
Height of dish (not all plates) -----	.013" - .023" (0.33 - 0.58 mm)
16. Orifice size in plug -----	.062" - .067" (1.57 - 1.60 mm)
17. Torque for capscrew -----	43 - 55 lb. ft. (5.9 - 7.6 m-kgr)
18. Shim to provide a gap of -----	.004" - .010" (0.10 - 0.25 mm)
(Before torquing capscrews)	
19. Shim to provide end play of -----	.004"-.006" (0.10-0.15 mm)
20. Rings (act as an oil baffle to direct lube oil through holes in clutch hub for better plate lubrication).	

NOTE: A steel plate (clutch) must be installed against piston.

Transmission, Torque Converter and Drive Shafts



OUTPUT CLUTCH SHAFT

T-80918

1. Front piston return spring
 Approximate free length ----- 1.95" (49.78 mm)
 Load when compressed to
 1.65" (41.91 mm) ----- 43 - 47 lbs. (19.9 - 21.1 kg)
 Load when compressed to
 1.4" (37.59 mm) ----- 66 - 74 lbs. (29.7 - 33.3 kg)
2. Rear piston return spring
 Approximate free length ----- 1.17" (29.72 mm)
 Load when compressed to
 .91" (23.11 mm) ----- 35 - 41 lbs. (15.7 - 18.4 kg)
 Load when compressed to
 .76" (19.30 mm) ----- 54 - 66 lbs. (24.3 - 29.7 kg)
3. Dump valve spring
 Approximate free length ----- 1.40" (35.56 mm)
 Load when compressed to
 1.25" (31.75 mm) ----- 1.75 - 2.15 lbs. (.79 - .97 kg)
 Load when compressed to
 .92" (23.37 mm) ----- 5.75 - 6.75 lbs. (2.6 - 3.1 kg)
4. Bore in housing for bearings ----- 4.3306" - 4.3316" (109.997 - 110.023 mm)
5. Shaft O. D. at front and rear bearings ----- 2.5596" - 2.5603" (65.014 - 65.032 mm)
6. Shaft O. D. at gear bearings ----- 2.9994" - 3.0000" (76.185 - 76.200 mm)
7. Gear I. D. ----- 3.3761" - 3.3766" (85.753 - 85.766 mm)
8. Shaft O. D. at carrier ----- 3.369" - 3.370" (85.570 - 85.598 mm)
9. Carrier I. D. ----- 3.3655" - 3.3665" (85.484 - 85.509 mm)

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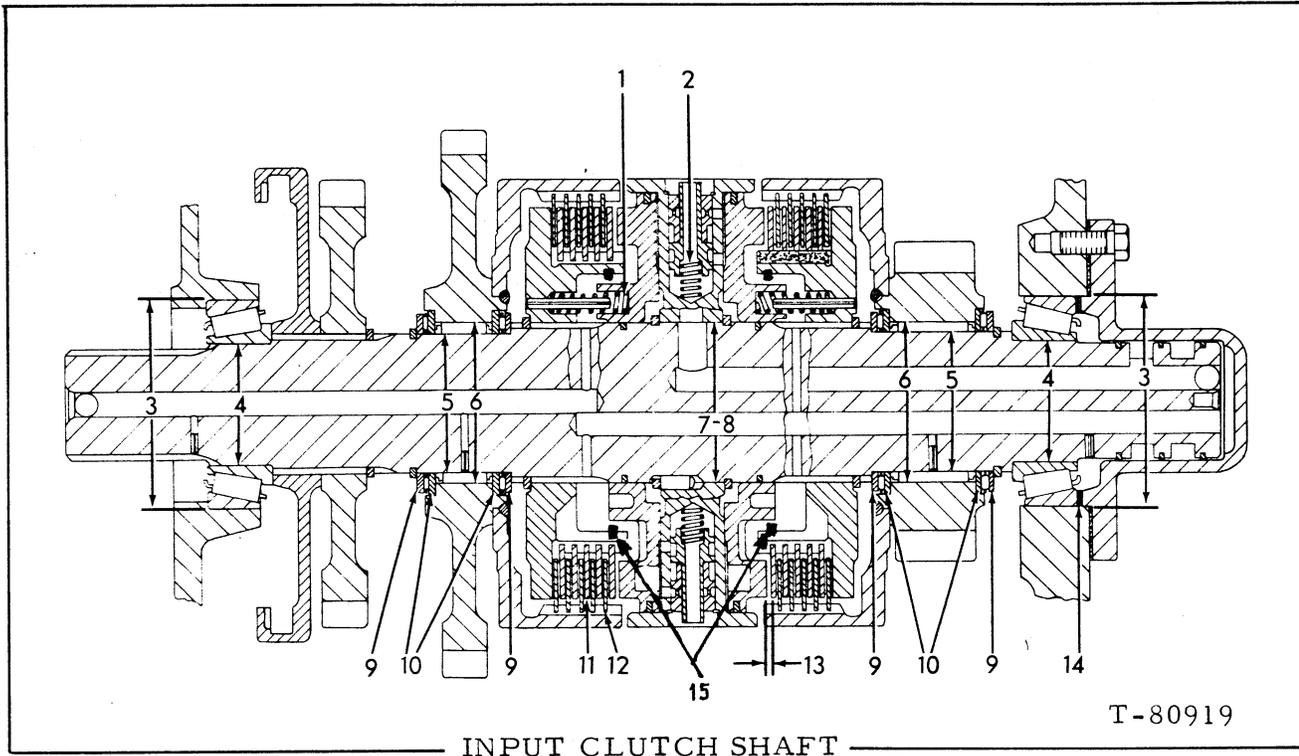
Study SAFETY RULES, pages I thru III, thoroughly for the protection of personal and machine safety.

Transmission, Torque Converter and Drive Shafts

OUTPUT CLUTCH SHAFT (Continued)

- 10. Thrust washer O. D. ----- 3.73" (94.74 mm)
- 11. Thrust washer O. D. ----- 3.80" (96.52 mm)
- 12. Steel clutch plates
 - O. D. ----- 9.0" (228 mm)
 - Thickness ----- .103" - .105" (2.61 - 2.66 mm)
- 13. Bi-Metallic plates
 - O. D. ----- 9.45" (240 mm)
 - Thickness ----- .140" - .145" (3.55 - 3.68 mm)
 - Depth of oil grooves ----- .012" - .020" (0.30 - 0.50 mm)
- 14. Orifice size in plug ----- .062" - .067" (1.57 - 1.60 mm)
- 15. Shims to provide end play of ----- .004" - .006" (0.10 - 0.15 mm)

Transmission, Torque Converter and Drive Shafts



- | | |
|----------------------------------|---|
| 1. Clutch piston return spring | |
| Approximate free length | -----1.56" (39.6 mm) |
| Load when compressed to | |
| 1.35" (34.2 mm) | -----14 - 16 lbs. (6.3 - 7.2 kg) |
| Load when compressed to | |
| 1.14" (28.9 mm) | -----29 - 31 lbs. (13.1 - 14.0 kg) |
| 2. Dump valve spring | |
| Approximate free length | -----.915" (23.24 mm) |
| Load when compressed to | |
| .75" (19.05 mm) | -----2.8 - 3.2 lbs. (1.3 - 1.5 kg) |
| Load when compressed to | |
| .50" (12.7 mm) | -----7.1 - 7.9 lbs. (3.2 - 3.6 kg) |
| 3. Bore in housing for bearing | -----3.7400" - 3.7409" (94.996 - 95.019 mm) |
| 4. Shaft O. D. at front and rear | |
| bearings | -----2.1659" - 2.1666" (55.016 - 55.032 mm) |
| 5. Shaft O. D. at gear bearings | -----2.4994" - 2.5000" (63.485 - 63.500 mm) |
| 6. Gear I. D. | -----2.8761" - 2.8766" (73.05 - 73.06 mm) |
| 7. Shaft O. D. at carrier | -----2.869" - 2.870" (72.87 - 72.89 mm) |
| 8. Carrier I. D. | -----2.8665" - 2.8675" (72.809 - 72.835 mm) |
| 9. Thrust washer O. D. | -----3.23" (82.15 mm) |
| 10. Thrust washer O. D. | -----3.30" (83.74 mm) |
| 11. Steel clutch plates | |
| O. D. | -----7.0" (177.0 mm) |
| Thickness | -----.092" - .094" (2.33 - 2.38 mm) |
| Height of dish (not all plates) | -----.013" - .023" (0.33 - 0.58 mm) |

Transmission, Torque Converter and Drive Shafts

INPUT CLUTCH SHAFT (Continued)

12. Bi-Metallic clutch plates

O. D. ----- 7.45" (189.2 mm)
Thickness ----- .119" - .124" (3.02 - 3.14 mm)
Depth of oil grooves ----- .012" - .020" (0.30 - 0.50 mm)

13. Clearance between plate and piston -- .050" - .080" (1.27 - 2.03 mm)

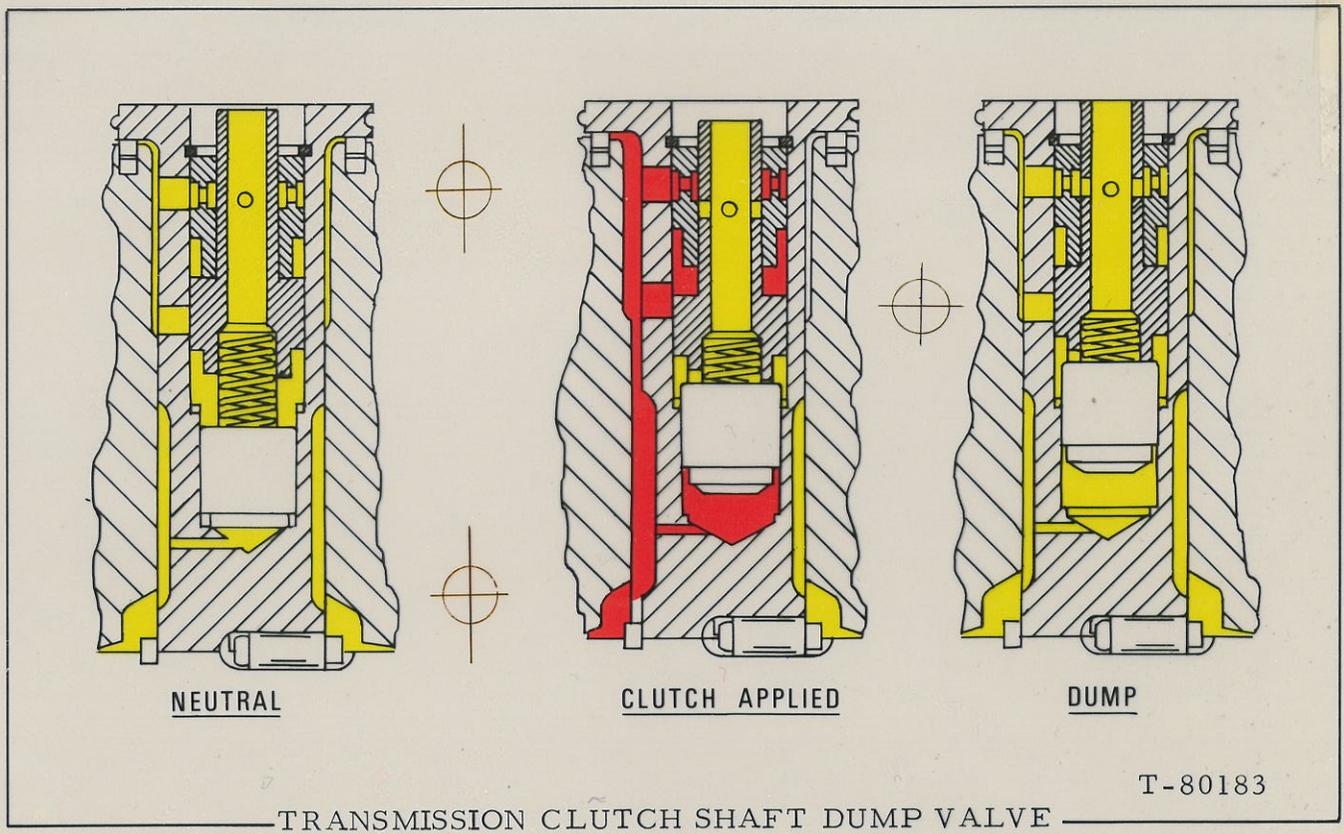
14. Shim to provide end play of----- .004"-.006" (0.10-0.15 mm)

15. Rings (act as an oil baffle to direct
lube oil through holes in clutch hub
for better plate lubrication:).

NOTE: Reverse (Only) friction plates are split.

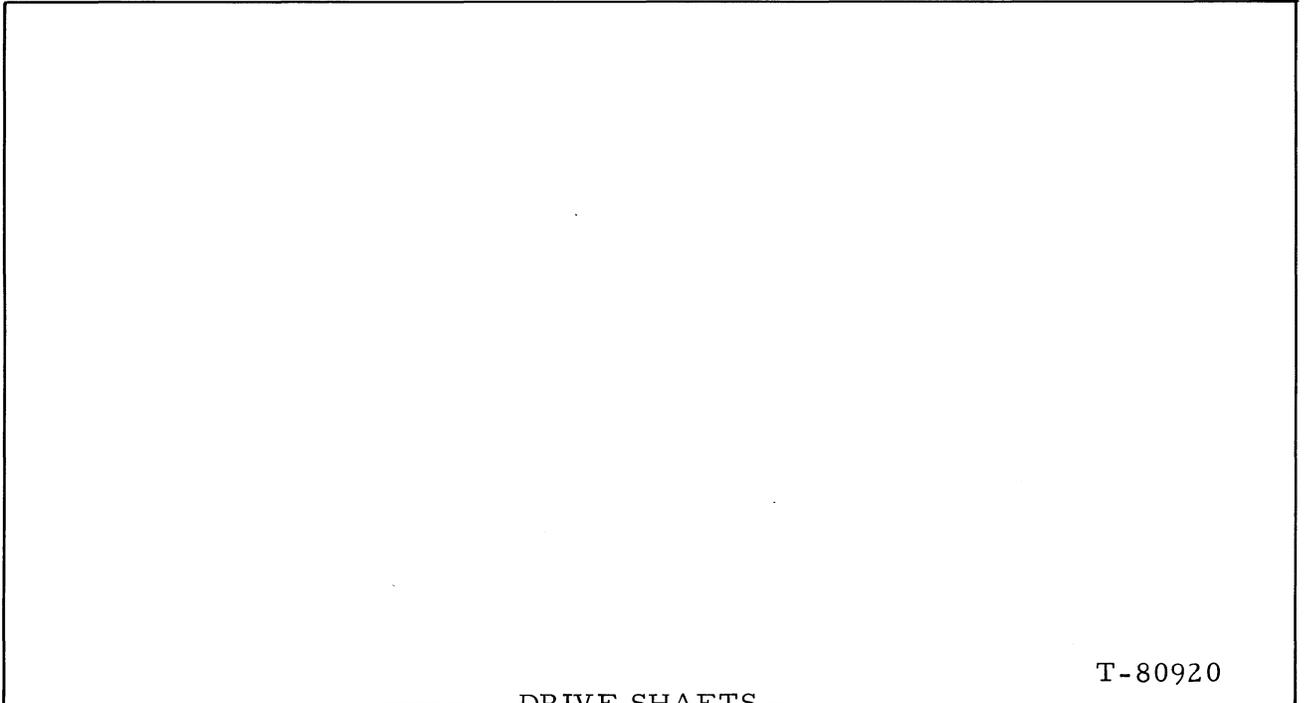
NOTE: A steel plate (clutch) must be installed against piston.

Transmission, Torque Converter and Drive Shafts



Study SAFETY RULES, pages I thru III, thoroughly for the protection of personal and machine safety.

Transmission, Torque Converter and Drive Shafts

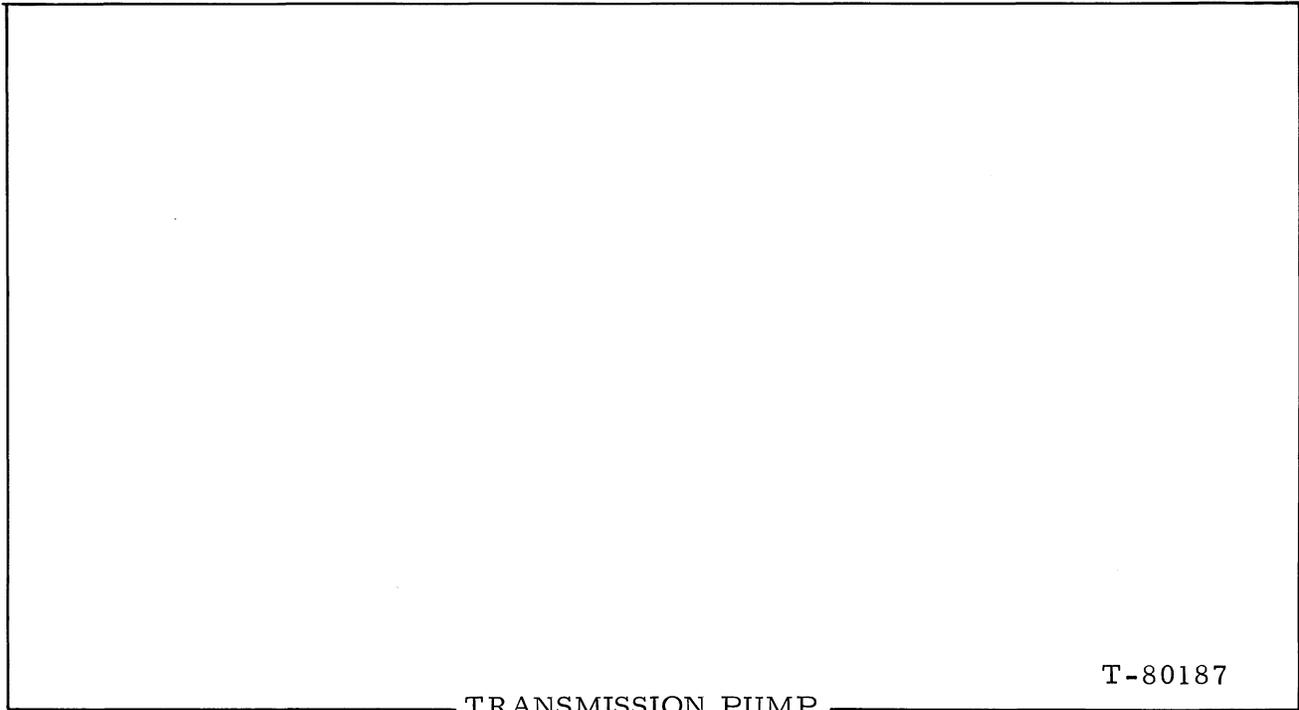


T-80920

DRIVE SHAFTS

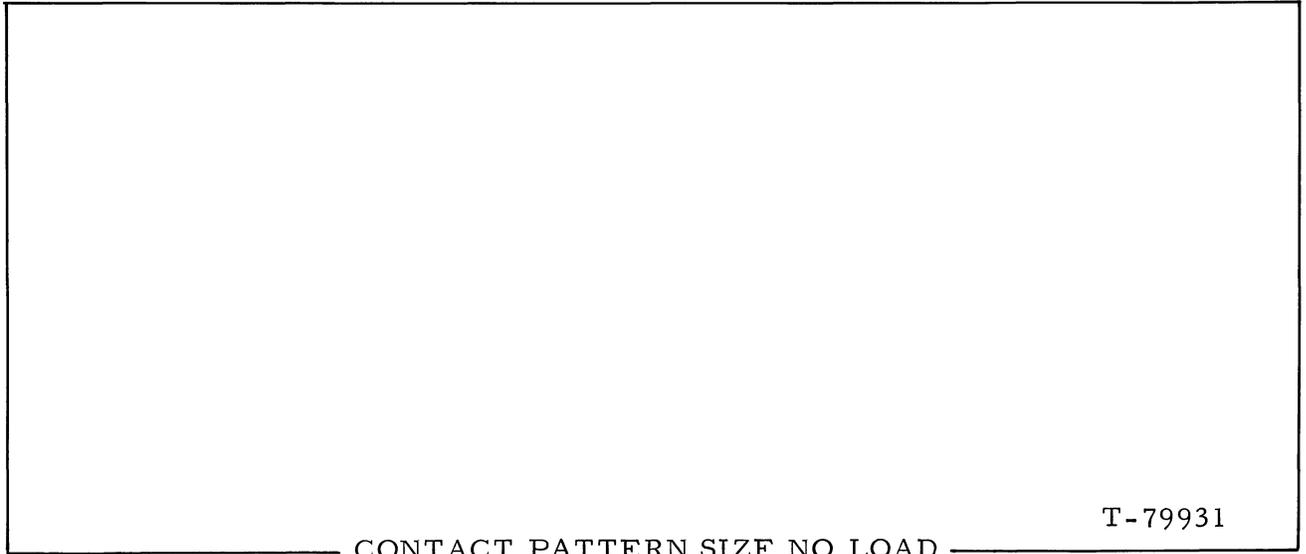
1. Upper U-joint capscrews - - - - - 35 - 47 lb.ft. (4.9 - 6.5 m-kg)
2. Lower U-joint capscrews - - - - - 110 - 135 lb.ft. (15.4 - 19.0 m-kg)

Transmission, Torque Converter and Drive Shafts



1. Pump rotation ----- Counterclockwise
2. Pump output ----- 34 gpm (128.8 lit/min)
 At pumping speed of ----- 2600 rpm
 Engine speed ----- 2100 rpm
3. Drive ratio ----- 1.257

AXLE, DIFFERENTIAL AND BRAKES



1. Drive side of tooth

Dimension "A" ----- .125" - .250" (3.2 - 6.35 mm)

Dimension "B" ----- 33% - 50% of tooth length

2. Coast side of tooth

Dimension "A" ----- .250" - .375" (6.35 - 9.8 mm)

Dimension "B" ----- 40% - 60% of tooth length

Axle, Differential and Brakes

T-80921

PLANETARY HUB

1. Wheel end cover capscrews - - - - -	90 - 100 lb. ft (12.4 - 13.8 m-kg)
2. Ring gear hub retainer capscrews - - -	90 - 100 lb. ft. (12.4 - 13.8 m-kg)
3. Carrier housing capscrews - - - - -	90 - 100 lb. ft. (12.4 - 13.8 m-kg)
4. Brake disc capscrews - - - - -	220 - 240 lb. ft. (30.8 - 33.6 m-kg)
5. Spindle capscrews and nuts - - - - -	350 - 380 lb. ft. (49.0 - 53.2 m-kg)
6. Planet gear shaft capscrews - - - - -	60 - 70 lb. ft. (8.4 - 9.8 m-kg)
7. Planet gear shaft O. D. (large end) - -	2.500" - 2.501" (63.500 - 63.525 mm)
Bore for shaft (large) - - - - -	2.500" - 2.501" (63.500 - 63.525 mm)
8. Planet gear bearing cup O. D. - - - - -	3.7394" - 3.7402" (94.981 - 95.001 mm)
Planet gear I. D. - - - - -	3.7376" - 3.7385" (94.935 - 94.958 mm)
9. Planet gear bearing cone I. D. - - - - -	2.1648" - 2.1654" (54.986 - 55.001 mm)
10. Planet gear shaft O. D. (small	
end) - - - - -	2.1635" - 2.1645" (54.953 - 54.978 mm)
Bore for shaft (small) - - - - -	2.1635" - 2.1645" (54.953 - 54.978 mm)
11. Wheel hub bearing cone I. D. - - - - -	6.6919" - 6.6929" (169.974 -
	169.999 mm)
Spindle O. D. at cone - - - - -	6.6904" - 6.6914" (169.936 -
	169.961 mm)

(Continued)

Study SAFETY RULES, pages I thru III, thoroughly for the protection of personal and machine safety.

Axle, Differential and Brakes

PLANETARY HUB (Continued)

- * 12. Wheel hub bearing cup O. D. - - - - - 9.0539" - 9.0551" (229.969 - 22.999 mm)
 Bore for bearing cup - - - - - 9.0509" - 9.0527" (229.892 - 229.938 mm)
- * 13. Shim pack to equal gap plus - - - - - .010" - .012" (0.254 - 0.305 mm)
- 14. Seal wear sleeve must be smooth and not grooved at seal contact point.
- * 15. Wheel rotational torque - - - - - 55 - 90 lb. in. (63.25 - 103.5 cm-kgr)
- * Before measuring for shim pack, install retainer without shims using four capscrews positioned as shown in illustration. Torque capscrews to 95 lb.ft. (13.3 m-kgr) - loosen all four capscrews and remove any two 180° apart. Rotate wheel one turn and torque remaining two capscrews to 40 lbs. ft. (5.6 m-kgr) - rotate wheel one turn then torque capscrews to 80 lb.ft. (11.2 m-kgr) - retorque capscrews to 80 lb.ft. (11.2 m-kgr) - rotate wheel several turns. Measure distance through both measuring holes - average readings and subtract thickness of retainer to determine gap. Make up shim pack using specifications on prior page and install under retainer - install eight capscrews and tighten to specified torque.

Axle, Differential and Brakes

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SCRAPER AXLE AND HUB

1. Axle support capscrews - - - - - 380 - 475 lb.ft. (53.2 - 66.5 m-kgr)
2. End plate capscrews - - - - - 110 - 135 lb.ft. (15.4 - 18.9 m-kgr)
3. Brake assembly capscrews - - - - - 350 - 380 lb.ft. (49.0 - 53.2 m-kgr)
4. Brake disc capscrews - - - - - 220 - 280 lb.ft. (30.8 - 39.2 m-kgr)
5. Hub cap capscrews - - - - - 35 - 39 lb.ft. (4.9 - 5.5 m-kgr)
- *6. Shim pack to equal gap plus - - - - - .010" - .012" (0.254 - 0.305 mm)
7. Outer bearing cone I.D. - - - - - 4.000" - 4.001" (101.600 - 101.625 mm)
 Shaft O.D. at bearing cone - - - - - 3.9988" - 3.9998" (101.569 - 101.595 mm)
8. Outer bearing cup O.D. - - - - - 6.1875" - 6.1885" (157.162 - 157.188 mm)
 Bore for outer bearing cup - - - - - 6.1845" - 6.1865" (157.086 - 157.137mm)
9. Inner bearing cup O.D. - - - - - 7.1875" - 7.1885" (182.562 - 182.588mm)
 Bore for inner bearing cup - - - - - 7.1845" - 7.1865" (182.486 - 182.537mm)
10. Inner bearing cone I.D. - - - - - 5.000" - 5.001" (127.000 - 127.025mm)
 Shaft O.D. at bearing cone - - - - - 4.9988" - 4.9998" (126.969 - 126.995mm)

(Continued)