VERSATILE

Service Manual

FORD
NEW HOLLAND

Designation 6
Tractor

Issue 1-91
(Replaces All Previous Issues)



40075691

Reprinted

PREVIEW ONLY - YOUFIXTHIS.COM
Download full manual at youfixthis.com

CONTENTS

SECTION 1 – SPECIFICATIONS AND DATA 1-1
SECTION 2 – ENGINE SYSTEMS 2-1
SECTION 3 – 12-SPEED MECHANICAL TRANSMISSION 3-1
SECTION 4 – 15-SPEED MECHANICAL TRANSMISSION 4-1
SECTION 5 – DRIVE TRAIN 5-1
SECTION 6 – POWERSHIFT TRANSMISSION 6-1
SECTION 7 – HYDRAULICS 7-1
SECTION 8 – ELECTRICAL SYSTEMS 8-1
SECTION 9 – ENVIRONMENTAL SYSTEMS 9-1
SECTION 10 – STRUCTURES 10-1
SECTION 11 – THREE-POINT HITCH 11-1
SECTION 12 – BRAKES 12-1
INDEX 12-13

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SECTION 1
SPECIFICATIONS AND DATA

1 Introduction

This section contains general information about specifications, capacities, fuel, fluids and lubricants for the tractor.

2 Specifications

2.1 ACCESSORIES

Cold Start ..... Manual control, ether type

756
Engine Block Heater ..... 750 W recirculating type

836, 856, 876
Engine Block Heater ..... 1500 W immersion type

936, 956, 976
Engine Block Heater ..... 1500 W immersion type

Radio ..... AM/FM stereo cassette with two 100 x 152 mm (4 x 6 in.) coaxial speakers roof mounted antenna

2.2 AIR CLEANER

Type ..... Dual element, dry type with safety element, exhaust aspirated precleaner, restriction indicator mounted on air cleaner

2.3 AXLES

Outboard

Type .... Spiral bevel differential with outboard planetary, floating ring gear final drive

Differential Ratio 4.88:1

Lubrication ..... SAE 80W90, 85W140

Oil Capacity (each) ..... 38.8L (41 qt US)

Planetary Ratio 5.285:1

Total Ratio 27.45:1

Inboard

Type ..... Row Crop, adjustable wheel mounting, inboard planetaries

Differential Ratio 3.53:1

Lubrication ..... SAE 80W90, 85W140

Oil Capacity (each) ..... 30 L (30.9 qt US)

Planetary Ratio 7.8:1

Total Ratio 27.53:1

2.4 BRAKES

Type ..... twin piston caliper, hydraulically activated by foot pedal on single disc 432 mm (17 in.) for mechanical transmission and 508 mm (20 in.) for powershift transmission

Meets or Exceeds ... ASAE S365T (SAE J1041)

Parkbrake ..... Integral with road brake mechanically activated by overcenter lever

2.5 CAB

Type ..... Independant modular design Rollover Protective Structure (ROPS) (ROPS ASAE S383)

Glass .....Tinted safety, 4.58 m^2 (49.3 ft^2)

Emergency Exits ..... Two, Rear window and right side window

Wipers ..... Two wipers, two speed

Seat ..... Cloth covered, two stage air suspension

Seat Belts ... Retractable, SAE J141, SAE J385

2.6 CAPACITIES

Axles, Differentials (each)
- Outboard ..... 38.8 L (41 qt US)
- Inboard ..... 30 L (30.9 qt US)

Cooling System
- 756 ..... 37.5 L (40 qt US)
- 836, 856, 876 ..... 52.1 L (55 qt US)
- 936, 956, 976 ..... 60.3 L (63.7 qt US)

Engine Oil
- 756 ..... 18.9 L (5 US G)
- 836, 856, 876 ..... 26 L (7 US G)
- 936, 956, 976 ..... 37 L (9.8 US G)

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

TABLE 1-3: Tires

SIZE	TYPE	TRACTOR MODEL						
		756	836	856	876	936	956	976
16.9 x 38	Singles Code R-1	●	●	●				
18.4 x 38	Singles Code R-1	●	●	●				
18.4 x 42	Singles Code R-1	●	●	●	●			
20.8 x 38	Singles Code R-1	●	●	●	●			
20.8 x 42	Singles Code R-1					●		
24.5 x 32	Singles Code R-1	●	●	●	●	●	●	●
30.5 x 32	Singles Code R-1	●	●	●	●	●	●	●
16.9 x 38	Singles Code R-2	●	●	●				
18.4 x 38	Singles Code R-2	●	●	●				
18.4 x 42	Singles Code R-2	●	●	●	●			
20.8 x 38	Singles Code R-2	●	●	●	●			
24.5 x 32	Singles Code R-2	●	●	●	●	●	●	●
30.5 x 32	Singles Code R-2	●	●	●	●	●	●	●

PREVIEW: YOUFIXTHIS.COM

Download full manual at youfixthis.com

Service intervals recommended in this manual are based on operation under average conditions. When operating the tractor in severe heat, cold, dust or humidity, service the tractor more frequently.

TABLE 1-5: Fluids, Fuels and Lubrication Schedule

	A/R	10 HRS	50 HRS	200 HRS	400 HRS	1 YR	LUB	NO OF PTS	LUB PTS
Check engine coolant level		●	●	●	●	●			
Check engine oil level		●	●	●	●	●	A		1
Grease front hydraulic pump drive		●	●	●	●	●	E	1	
Grease clutch release bearing, mech. transmission		●	●	●	●	●	F	1	6
Grease clutch cross shaft, mech. trans.			●	●	●	●	E	2	7
Grease torsional damper bearing, pwrshft trans.			●	●	●	●	E	1	6
Lubricate three-point hitch		●	●	●	●	●	E	9	14
Lubricate driveline U-joints			●	●	●	●	E	11	8,9,11,12
Lubricate driveline steady bearing			●	●	●	●	E	1	10
Lubricate steering cylinder pivots			●	●	●	●	E	4	3
Lubricate frame pivots			●	●	●	●	E	2	5
Lubricate drag link pivot bearings			●	●	●	●	E	4	4
Check transmission oil level			●	●	●		B		
Check hydraulic oil level			●	●	●		B		
Check differential oil level			●	●	●	●	C	2	
Check axle/planetary oil level			●	●	●	●	C	4	
Lubricate three-point hitch pins					●	●	E	10	13,14
Check engine oil and filters				●	●	●	A		2
Change transmission return filter				●	●	●			
Change DCA service filter				●	●				
Change hydraulic return filters				●	●	●			
Check brake fluid level				●	●	●	D		
Change differential/planetary oil		●			●	●	C	4	
Change transmission oil and filter, wash screen	●				●	●	B		
Grease door and window hinge pins						●	E	5	
Change hydraulic oil					●	●	E		
Change coolant. Install precharge element						●			
Gearshift lever base, mech. transmission						●	E	1	

1. **Change oil after the first 30 hours of operation and every 200 hours thereafter.**
2. **Change filters after the first 50 hours of operation and every 200 hours thereafter.**
3. **Change oil after 30 hours of operation and every 400 hours thereafter.**
4. **Change oil and filter after the first 30 hours of operation and every 200 hours thereafter.**
5. **See Table 1-6, Lubricant Brand Equivalency Chart.**

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

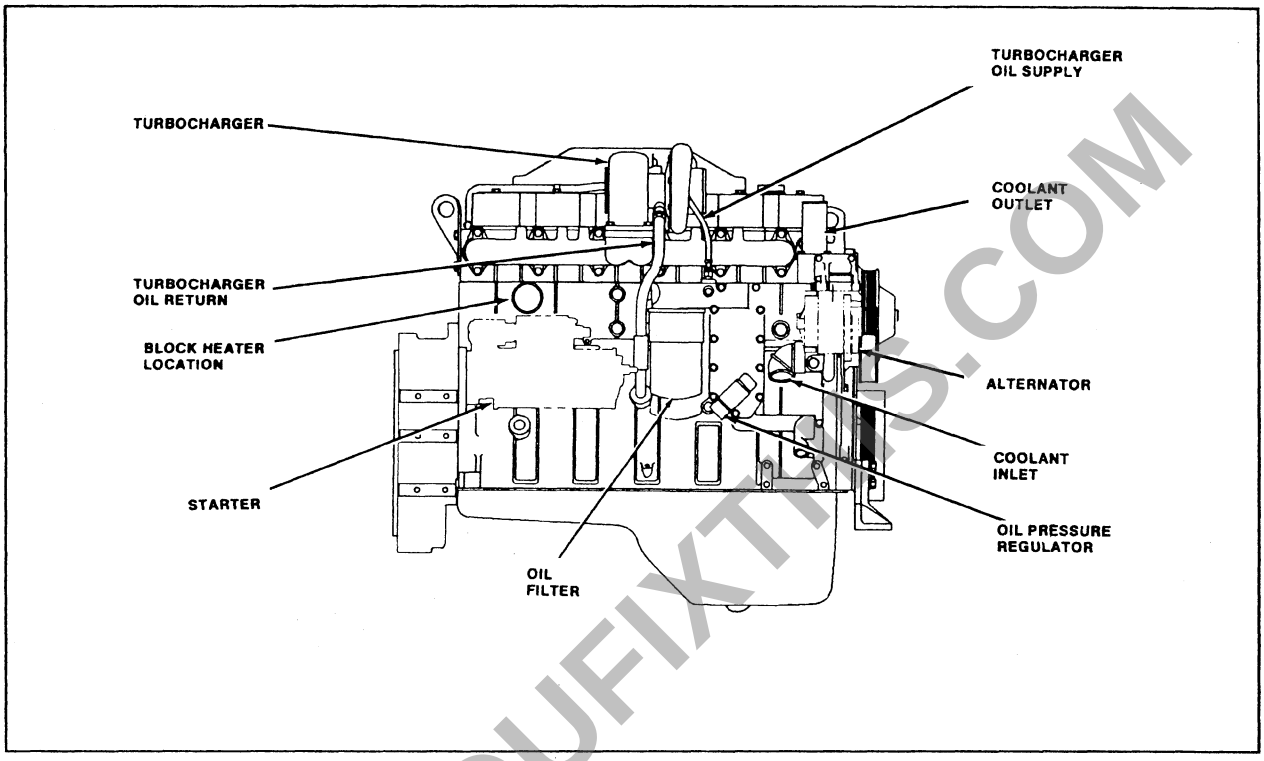


FIGURE 2-1: Engine Right Side

2.2 MODEL 756 ENGINE REMOVAL

CAUTION

SET PARKBRAKE, CHOCK WHEELS AND ENGAGE ARTICULATION LOCK BEFORE SERVICING TRACTOR.

DISCONNECT BATTERY CABLES FIRST TO PREVENT ELECTRICAL DAMAGE FROM OCCURRING.

BE ALERT

1. Drain engine oil from pan. Allow 10 min to drain completely and install plug. Tighten plug securely.
2. Drain cooling system thoroughly.
3. Remove flange screws securing fan guards and remove fan guards.
4. Remove tractor hood. Refer to Section 10, STRUCTURES.
5. Remove clamps securing exhaust pipe to turbocharger and remove exhaust pipe. Cover turbocharger opening (Figure 2-1).
6. Remove clamps securing hose between exhaust pipe and air cleaner housing and remove hose.
7. Remove clamps securing air intake tubing to turbocharger, air intake housing and nose piece and remove air intake tubing.
8. Remove flange screws and nuts securing air cleaner housing to frame and remove air cleaner housing.
9. Label and remove hoses from surge tank and radiator to engine. Tie away hoses.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

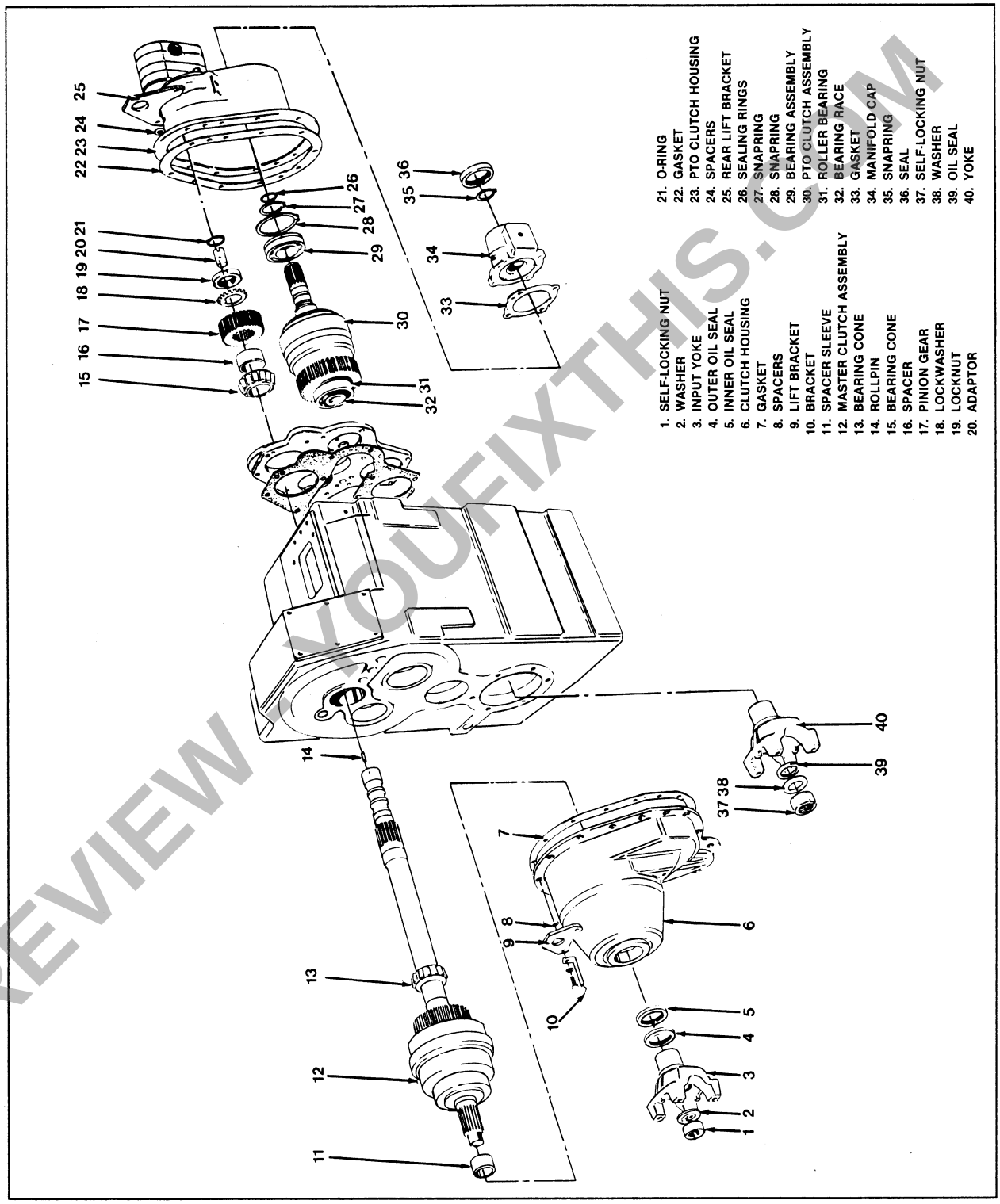


FIGURE 9: Clutches Removal

PREVIEW - YOUFIXTHIS.COM

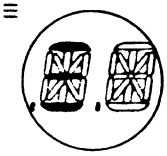
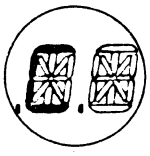
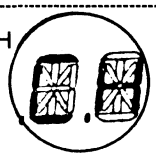
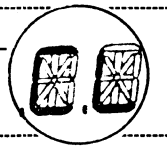
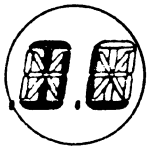
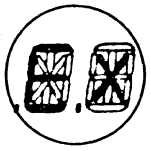
Download full manual at youfixthis.com

TABLE 3-7: Troubleshooting the Master Clutch

TROUBLE	PROBABLE CAUSE	REMEDY
1. Clutch slipping	Clutch pedal linkage out of adjustment	Refer to Section 4, CONTROLS
	Low clutch apply pressure	Worn hydraulic pump
	Clutch disc pads worn	Refer to para 4.3.1
	Parkbrake engaged	Disengaged parkbrake
	Binding parkbrake linkage	Adjust linkage to assure complete release
	Improper vehicle operation	Operating in improper range for load and terrain
	Foaming oil	Correct oil level; oil not of proper specifications
	Air leaks in suction lines	Check oil suction lines for air leaks
2. Clutch will not engage	Any of the above	Perform above in listed sequence
3. Clutch will not disengaged	Clutch linkage out of adjustment or disconnected/broken	Refer to Section 4
	Warped disc and/or interme diate plate cracked	Refer to para 4.3.1
4. Slow or erratic clutch engagement	Low oil level	Add oil
	Foamed oil	Adjust oil level; eliminate suction air leaks
	Clogged oil screen on input side of oil pump	Remove and clean
	Worn hydraulic oil pump	Check pump output against specifications; refer to Section 5, Hydraulics
	Improper linkage adjustment	Check linkage, readjust Check direction and range valve positioning
	Low clutch apply pressure	Check low clutch apply pressure
	Sticky linkage	Free linkage and adjust

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

ERROR CODE	EFFECT ON TRANS. OPERATION	POSSIBLE CAUSE	CORRECTIVE ACTION TO CLEAR
≡ 	Error code displayed in left digit of display and the number of the solenoid in question in the right digit. Solenoid 10 will be displayed as "0". Transmission will be in neutral. All solenoids will be off (computer neutral). Come-Home mode possible.	1. Solenoid lead either open or shorted.	1. Repair solenoid lead.
		2. Defective solenoid.	2. Replace solenoid.
C 	Error code displayed alternately with present gear number. Transmission will operate; however, control of modulation may not be possible and could cause rough shifts.	1. Proximity switch out of adjustment.	1. Adjust proximity switch as follows: a. With clutch pedal switch open, adjust proximity switch output to 1.1 ± .1 volts. b. With clutch pedal switch closed, adjust proximity switch output to 3.0 ± .1 volts.
		2. Defective proximity switch.	2. Replace proximity switch.
		3. Shorted leads.	3. Repair leads.
		4. Supply voltage lever out of tolerance.	4. Check battery.
CH 	Error code flashes alternately with present gear number. Transmission will operate provided the clutch pedal remains at the top of its travel. No modulation is possible.	1. Same as Error Code C above.	1. Same as Error Code C above.
CL 	Error code displays alternately with "N", and maintains computer neutral. Anti-creep functional based on transmission output speed.	1. Same as Error Code C above.	1. Same as Error Code C above.
DL 	Error code displays alternately with "N", transmission in neutral (computer neutral). Anti-creep functional based on transmission output speed. No direction control signal.	1. Direction control switches out of adjustment.	1. Adjust switches.
		2. Defective direction control switch.	2. Replace switch.
		3. Defective cable.	3. Repair cable.
EA 	Error code displays alternately with gear number. Transmission will operate assuming highest engine speed. This may cause rougher shifts based on speed.	1. Engine speed sensor pulses missing due to sensor misalignment.	1. Align engine speed sensor.
		2. Faulty controller.	2. Replace the controller.
EX 	Error code displays alternately with gear number. Transmission will operate assuming highest engine speed. This may cause rougher shifts based on speed.	1. Engine speed sensor leads shorted or open.	1. Repair leads.
		2. Damaged engine speed sensor.	2. Replace engine speed sensor.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

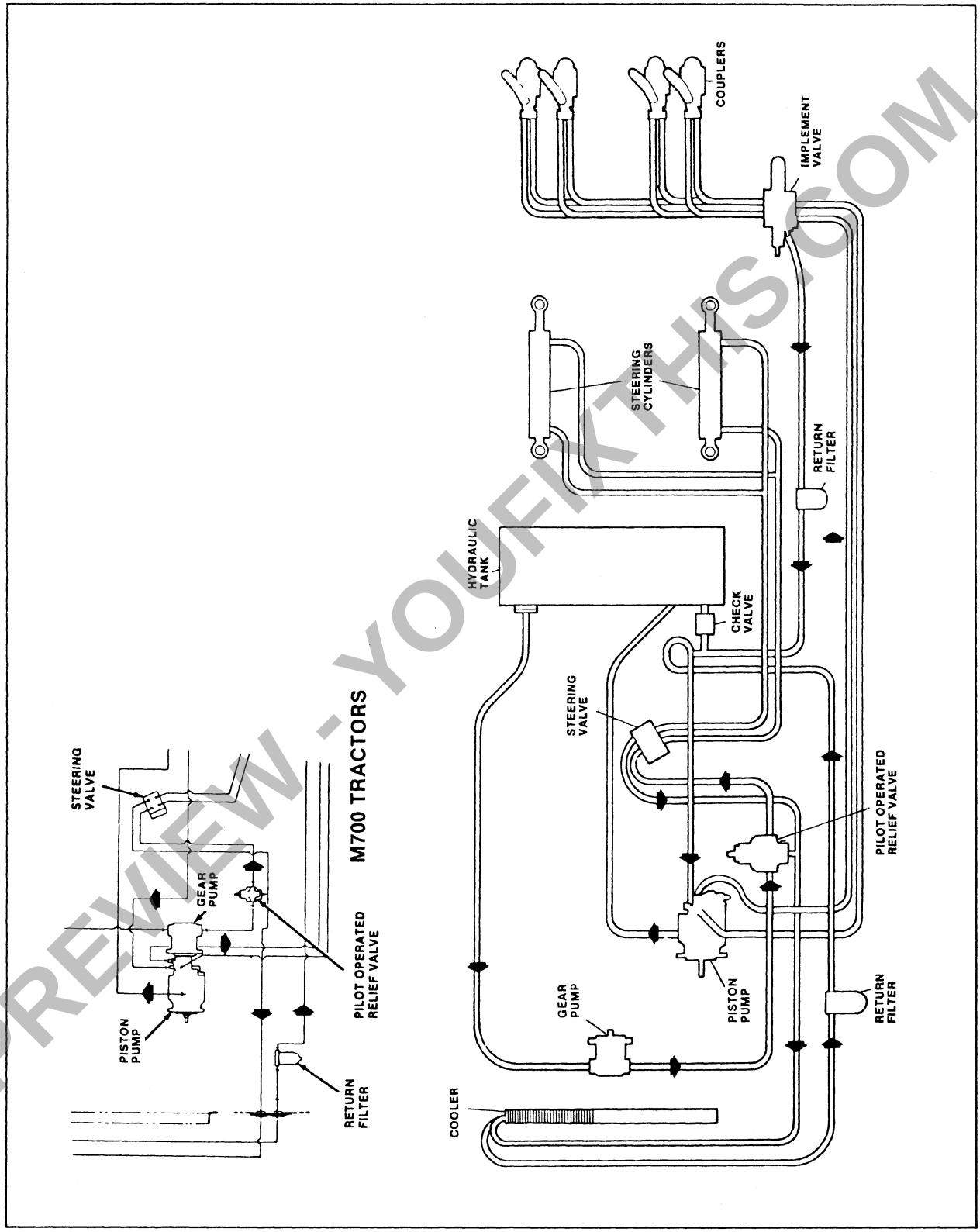


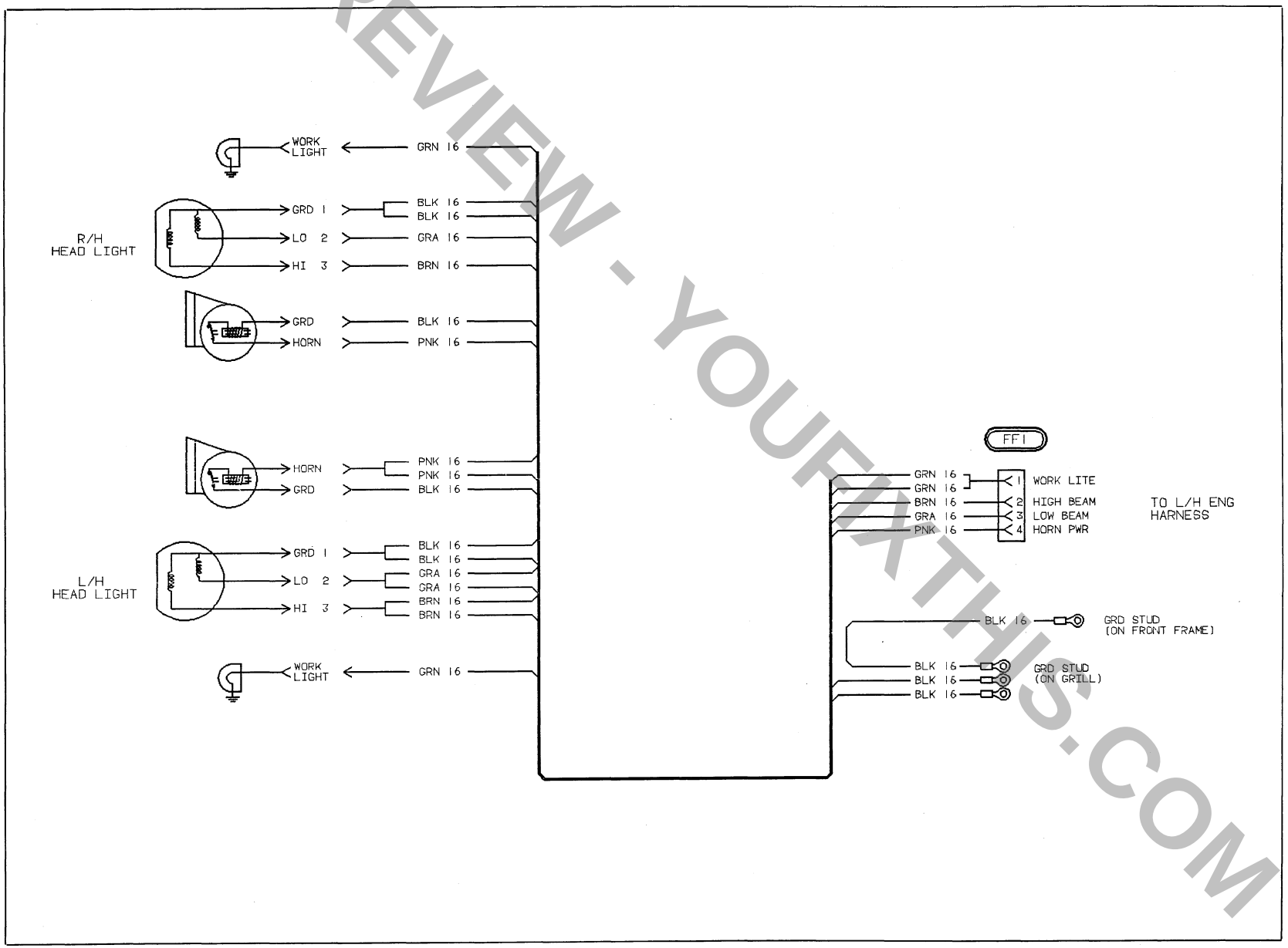
FIGURE 7-3: M700-800 Hydraulic Circuit

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



ELECTRICAL SCHEMATIC **FRONT GRILL REV./00**

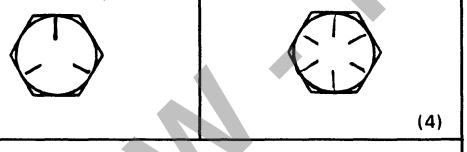
TORQUE VALUES

FOR TIGHTENING CAPSCREWS, BOLTS, NUTS, TUBE FITTINGS AND PLUGS.

CAP SCREWS, BOLTS & NUTS

TORQUE (LB. FT.) FOR COURSE AND FINE THREADS (1)

NOMINAL THREAD DIAMETER	SAE GRADE 5		SAE GRADE 8		Screws for Universal Joint Bearing Caps
	AS RECEIVED (2)	LUBRICATED (3)	AS RECEIVED (2)	LUBRICATED (3)	LUBRICATED (3)
1/4	9 ± 1	7 ± 1	14 ± 1	11 ± 1	----
5/16	19 ± 2	15 ± 2	27± 2	22 ± 2	----
3/8	33 ± 3	27 ± 2	46 ± 4	38 ± 3	----
7/16	52 ± 4	40 ± 3	73 ± 6	60 ± 5	64 ± 4
1/2	80 ± 6	65 ± 5	112 ± 8	90 ± 7	100 ± 7
9/16	112 ± 8	90 ± 8	158 ± 12	130 ± 10	----
5/8	158 ±12	130 ± 10	224 ± 16	180 ± 15	190 ± 10
3/4	280 ±20	225 ± 20	390 ± 30	320 ± 25	330 ± 17
7/8	448 ±32	360 ± 30	630 ± 50	510 ± 40	510 ± 25
1	680 ±50	540 ± 45	960 ± 70	775 ± 60	----
1 1/8	850 ±60	675 ± 60	1360 ±100	1100 ± 85	----
1 1/4	1175 ±85	925 ± 75	1850 ±150	1500 ±125	----



SAE STANDARD HEX BOLT HEAD MARKINGS



12 Pt. Head and Undercut Body

TAPERED PIPE PLUGS

RECOMMENDED TORQUE (LB. FT.)

NPTF SIZE	LUBRICATED (a)	
	In Cast Iron or Steel	In Aluminum
1/16-27	8.5 ± 1.0	5.5 ± 0.7
1/8-27	10.5 ± 1.3	6.5 ± 0.8
1/4-18	25 ± 3	16 ± 2
3/8-18	27 ± 3	17 ± 2
1/2-14	50 ± 6	30 ± 4
3/4-14	54 ± 7	34 ± 4
1 -11 1/2	80 ± 10	50 ± 6
1 1/4-11 1/2	85 ± 10	55 ± 7
1 1/2-11 1/2	85 ± 10	55 ± 7

(a) THE LUBRICANT IS TO BE JOHN CRANE INSOLUBLE PLASTIC LEAD SEAL NO. 2 OR EQUIVALENT OR LOCTITE NO. 92 OR EQUIVALENT AND PLUGS ARE TO BE CAPABLE OF REMOVAL WITHOUT DAMAGE. OVERTIGHTENING MAY CAUSE INITIAL LEAKAGE PLUS POTENTIAL REMOVAL DAMAGE. AN OPTION OF A MAX. OF TWO FULL TURNS AFTER FINGER TIGHTENING THE PLUG MAY BE USED IF REQUIRED AND IF REMOVAL CONDITIONS ARE MET.

(1) **THESE TORQUE VALUES APPLY TO USE OF IRONS, STEELS AND ALUMINUM TAPPED HOLES.**
THE THREAD ENGAGEMENT LENGTH IN ALUMINUM IS TO BE TWICE THE NOMINAL THREAD DIAMETER AND ENGAGEMENT LENGTH RATIO IS TO BE 1.5 FOR IRONS AND SOFT STEEL. WHEN ZINC PLATING IS USED, LUBRICATE THE ZINC PLATED SURFACES OF THE SCREWS AND/ OR NUTS AND USE SPECIAL TORQUE VALUES.

(2) **USE FOR ALL CAPSCREWS, BOLTS AND NUTS COATED ONLY WITH THE FASTENER MANUFACTURER'S RUST PREVENTATIVE OIL AND USE FOR PARTS WIPED OR WASHED NEARLY FREE OF OIL. DO NOT USE FOR PLATED PARTS.**

(3) **USE FOR ALL CAPSCREWS AND NUTS WHOSE THREADS AND WASHER FACE ARE LUBRICATED, ALSO FOR SCREWS OR NUTS WHOSE WASHER FACE IS ASSEMBLED AGAINST A HARDENED WASHER OR SMOOTH FINISHED HARD PART. (R_c40 OR ABOVE AND 40AA MAX.). ALSO USE FOR PLATED SCREWS (EXCEPT ZINC PLATED).** LUBRICATING THE THREADS AND SCREW OR NUT FACE WITH SAE 20 OR 30 OIL IS RECOMMENDED FOR BEST RESULTS FOR ALL THE GRADE 8 SCREWS AND IS REQUIRED FOR ALL THE UNIVERSAL JOINT BEARING CAPSCREWS.

DO NOT USE MOLY-DISULFIDE, WHITE LEAD, COPPER FILLED OR OTHER SUCH FILLED LUBRICANTS WITH THESE TORQUE VALUES. SUCH LUBRICANTS REQUIRE SPECIAL TORQUE VALUES.

(4) **SOCKET HEAD SCREWS AND 12 POINT HEAD SCREWS WITH FULL BODY ARE GRADE 8 OR BETTER QUALITY AND ARE TO BE ASSEMBLED WITH THE ABOVE TORQUE VALUES.**

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

Safety

This section contains general safety precautions which should be thoroughly studied and practised by all service personnel. Refer to your tractor Operator's Manual for more detailed safety information.

GENERAL SAFETY

1. Mount a fire extinguisher near the service area. Maintain it as recommended by the manufacturer.
2. Never operate the tractor in an enclosed building. If it is absolutely necessary to do so, be sure the building is well ventilated and ducting is used to direct exhaust fumes outside.
3. Always keep sleeves, jackets or other loose clothing relatively tight and belted. Loose clothing might catch in moving tractor parts.
4. Never jump from the cab. Always use steps and handholds when mounting and dismounting tractor.
5. Park the tractor on a clear, level area before beginning any maintenance procedure. Shut down the engine and remove key; apply parkbrake; chock the front and back of at least two wheels. Ensure all operating controls are in neutral. Always disengage the PTO clutch and three-point hitch. Engage articulation lock.
6. Always lower implements to the ground when leaving equipment.
7. Always operate tractor controls from the operator's seat.
8. Use articulation lock during tractor servicing. See Section 10, STRUCTURES.

TRANSPORT SAFETY

1. Use a trailer with a carrying capacity of at least 18 tonnes (20 tons) to haul the tractor.
2. Securely chain the tractor to the trailer, block the wheels and engage the parkbrake to prevent tractor movement. Engage articulation lock.

JACKING SAFETY

1. Select a jack strong enough to carry the load. The minimum required jack capacity is 4.5 tonnes (5 tons).
2. Stabilize the tractor by putting transmission into gear, engaging the parkbrake and chocking wheels securely. Engage articulation lock.
3. To prevent jackknifing, use two hoists or two rear jacks to lift the rear frame.
4. Secure the jack under the axle tube, frame or drawbar where it is strong enough to keep the jack from tipping, sinking or shifting. Any additional blocking should be under the jack.
5. Jack up the front and/or rear frame just enough to install steel safety stands under the axle tubes or frame.
6. Check the jack position after it has started to lift. Lower the jack immediately if it starts to lean. Reset the jack; block the tractor more securely and lift again.
7. Keep the tractor stable by not raising it so high that it will slide off the jack.
8. Put support stands under the tractor. Lower the jack and let the tractor rest on the stands. This provides solid support for the tractor when the jack is removed.

HOIST SAFETY

1. Use a chain hoist and frame to lift the tractor. The minimum hoist capacity required is 9 tonnes (10 tons); 7 257 kg (8 tons) for the A-frame or overhead support and 2 721 kg (3 tons) for the support stands.
2. Protect yourself from injury when tractor is being raised by observing the following precautions:
   a. Do not stand on the tractor when it is being lifted.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

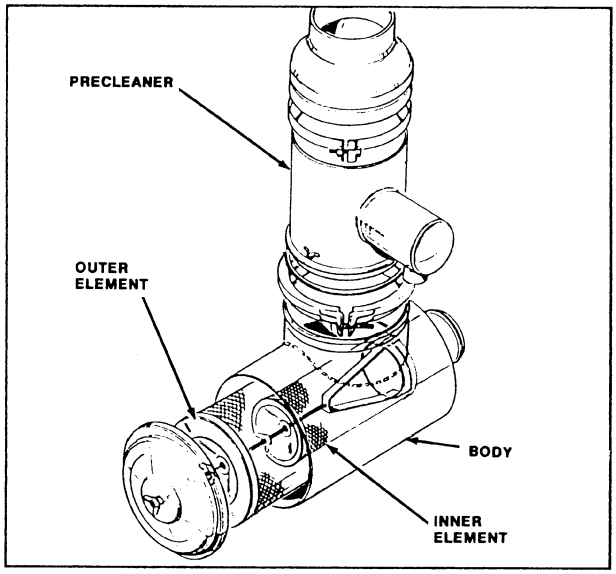


FIGURE 2-18: Air Cleaner Replacement 800 and 900 Models

6.5 AIR CLEANER REPLACEMENT

1. Loosen clamps and disconnect air tubing from air cleaner housing.
2. Loosen hose clamp and disconnect aspirator hose from air cleaner housing.
3. Unscrew air restriction indicator from air intake housing on 800 and 900 models.
4. Remove flange screws and nuts securing air cleaner housing to tractor. Remove air cleaner housing.
5. Install new air cleaner housing to tractor with flange screws and nuts tightened securely.
6. Install air restriction indicator to air cleaner body on 800 and 900 models.
7. Install aspirator hose to air cleaner housing. Tighten hose clamp securely.
8. Connect air tubing to air cleaner housing. Tighten clamps securely.

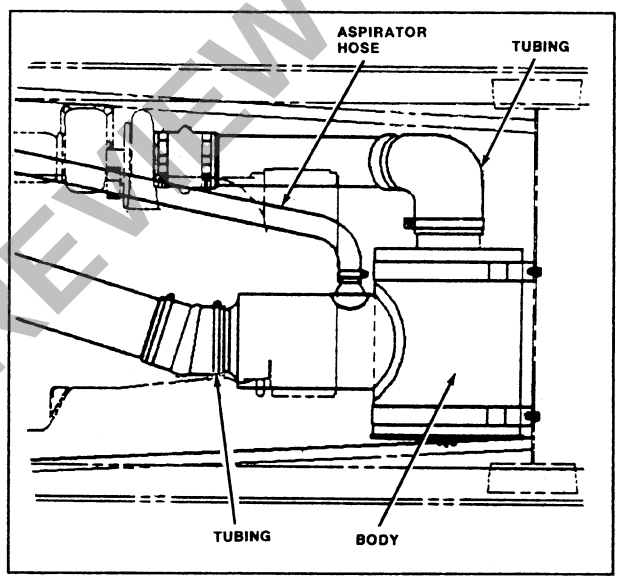


FIGURE 2-19: Air Cleaner Replacement 756 Models

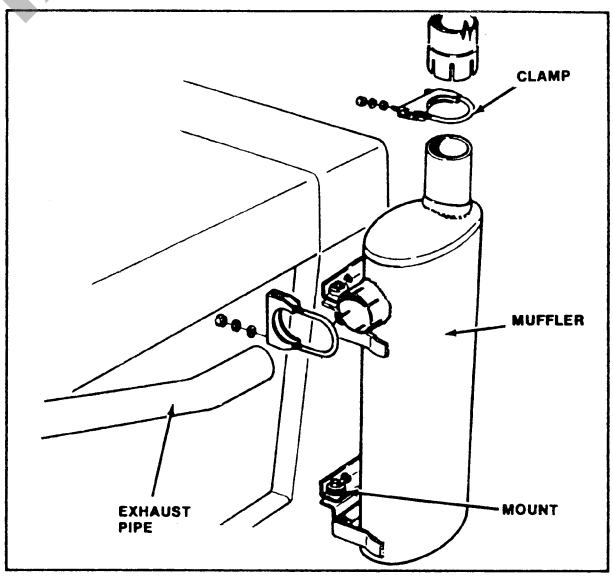


FIGURE 2-20: Muffler Replacement

6.6 MUFFLER REPLACEMENT (800 and 900 Models)

1. Loosen clamp and remove exhaust stack from muffler.
2. Loosen clamp and disconnect exhaust pipe from muffler.
3. Loosen hose clamp and disconnect aspirator hose.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

4.3.2 Output Shaft Reference Figure 17.

1. Position output shaft in transmission case.
2. Install the following parts in the sequence listed below, working from rear of shaft and moving towards front.

IMPORTANT

Note direction of shift collar mating gears when installing gears. These must be installed properly to allow shift collars to slide between each gear set for range selection.

SEQUENCE	COMPONENT	CALL-OUT NUMBER
1	Gear (48 Teeth)	20
2	Gear	17
3	Collar	18
4	Gear (48 Teeth)	15
5	Splined Spacer	14
6	Gear (39 Teeth)	13
7	Gear	9
8	Collar	10
9	Gear (59 Teeth)	7

3. Install split retaining rings between on the output shaft in the following sequence, working from the rear of the shaft to the front:
   a. Split retaining ring (19) between gear (20) and shaft collar assembly (17,18).
   b. Split retaining ring (16) between shift collar assembly (17,18) and gear (15).
   c. Split retaining ring (11) between gear (13) and shift collar assembly (9,10).
   d. Split retaining ring (8) between shift collar assembly (9,10) and gear (13).

4.3.3 Second Countershaft Reference Figure 18.

1. Put shaft in transmission housing.
2. Slip external snap ring (32) onto shaft end, but do not slip into groove in shaft.

NOTE

Do not slip snap ring (32) into groove in rear of shaft until split retaining rings have been installed between components.

3. Install the following parts in the sequence listed below, working from rear of shaft and moving towards front.

SEQUENCE	COMPONENT	CALL-OUT NUMBER
1	Pinion Gear (35 Teeth)	30
2	Synchronizer	
3	Pinion Gear (32 Teeth)	18
4	Splined Spacer	17
5	Pinion (29 Teeth)	30
6	Synchronizer	

4. Install split retaining rings between on the countershaft in the following sequence, working from the rear of the shaft to the front:
   a. Split retaining ring (19) between synchronizer assembly and pinion gear (18).
   b. Split retaining ring between pinion (18) and shift collar assembly (16, 17).
   c. Split retaining ring (12) between splined spacer (13) and pinion gear (11).
   d. Split retaining ring between pinion (11) and shift collar assembly (8,9).
   e. Slip exterior snap ring into groove on rear of shaft.
   f. Install exterior snap ring to groove on front of shaft.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

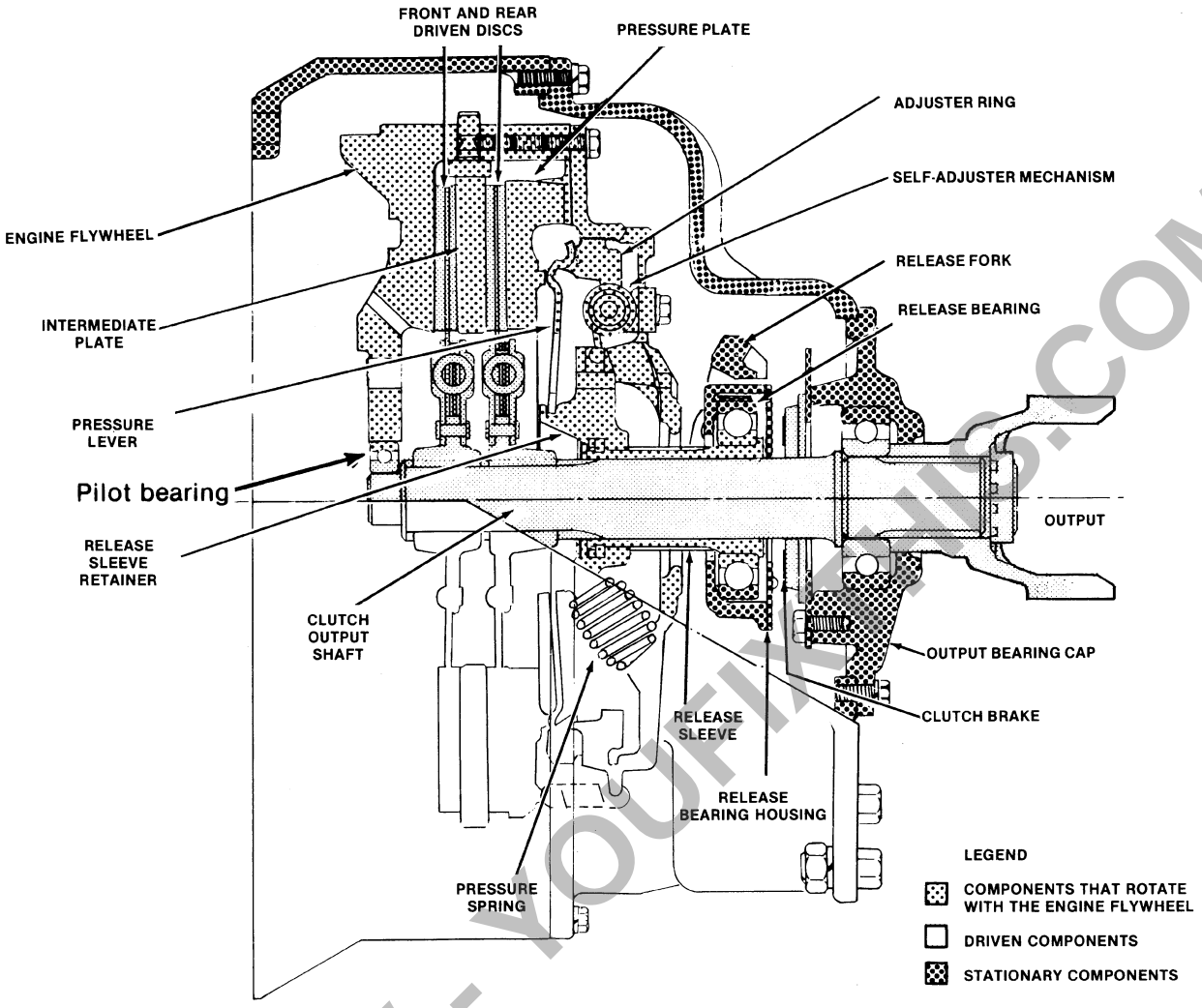


FIGURE 5-3: Clutch Operation

3.1.2 OPERATION

The clutch consists of three groups of components (Ref. Figure 5-3): those components that are attached to the engine flywheel--the drive components; those that rotate at flywheel speed when the clutch is engaged and stop when the pedal is depressed--the driven components; and those components that are stationary or essentially so.

When the tractor engine is in operation and the clutch pedal released (the clutch engaged), the release sleeve retainer is forced forward by the pressure springs. This applies pressure via the pressure levers to the pressure plate. Since the pressure plate and intermediate plate are attached to the engine flywheel, this applied pressure is changed into torque applied to the clutch output shaft via the driven discs.

When the clutch pedal is depressed, the release fork forces the release sleeve and release sleeve retainer to move backward. This movement compresses the pressure springs and removes the pressure applied to the pressure plate, thus the driven discs and output shaft are de-clutched from the flywheel and pressure plate.

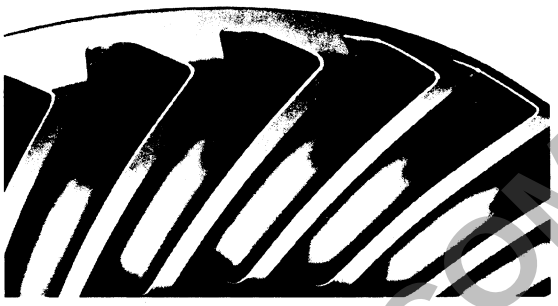
When the clutch pedal is fully depressed, the release sleeve is moved to its full backward limit where it makes contact with the clutch brake. Since the clutch brake is splined to the output shaft, the force applied by the release sleeve causes the brake to make contact with a plate mounted on the output bearing cap, thus the clutch output shaft stops rotating.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

The ring gear tooth contact patterns illustrated are approximate shapes. Actual contact may vary, however the same general shape should be obtained. When adjusting gear sets that have been in service, tooth contact may vary because of wear. To obtain best results, strive to obtain a pattern coinciding with original patterns.

Pattern "A"
CORRECT TOOTH CONTACT

Correct adjustment is obtained when pattern of tooth bearing *(both lengthwise and profile)* appear as shown.



Pattern "A"



Pattern "B"
CONCENTRATED BEARING AT TOE

Not enough backlash . . . move ring gear *away* from drive pinion to increase lengthwise bearing. This may change the profile bearing to some extent and an adjustment of the pinion may be required.



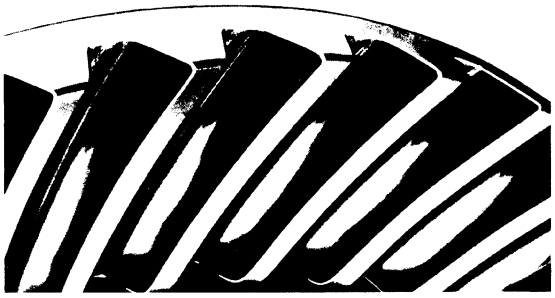
Pattern "C"
CONCENTRATED BEARING AT HEEL

Too much backlash . . . move ring gear *toward* drive pinion to obtain correct lengthwise bearing. This may change the profile bearing to some extent and an adjustment of the pinion may be required.



Pattern "D"
PROFILE BEARING HIGH

Pinion is out too far . . . remove shims to move drive pinion *toward* ring gear. Then move ring gear *away* from pinion to obtain correct lengthwise bearing.



Pattern "E"
PROFILE BEARING LOW

Pinion is in too far . . . add shims to move drive pinion *away* from ring gear. Then move ring gear *toward* pinion to obtain correct lengthwise bearing.

FIGURE 5-54: Tooth contact Patterns on Ring Gear and Pinion

Download full manual at youfixthis.com

5. Remove capscrew (Figure 12-10, 2), retainer washer (3), O-ring (4), and shims (5). See Figure 6-5.

6. Remove the input yoke. See Figure 6-5.

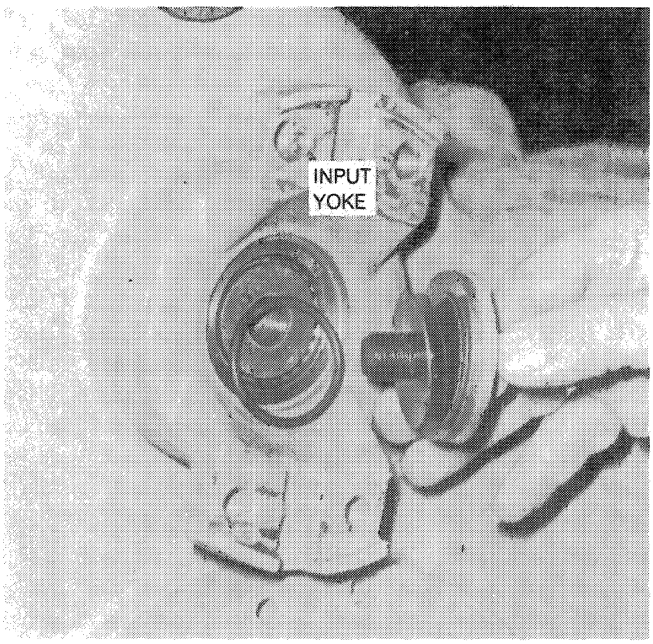


Figure 6-5. Capscrew, Retainer Washer, Shims and O-Ring Removed from Front of Input Shaft.

7. Remove capscrew (Figure 12-10, 16), retainer washer (17), O-ring (18), and shims (19). See Figure 6-6.

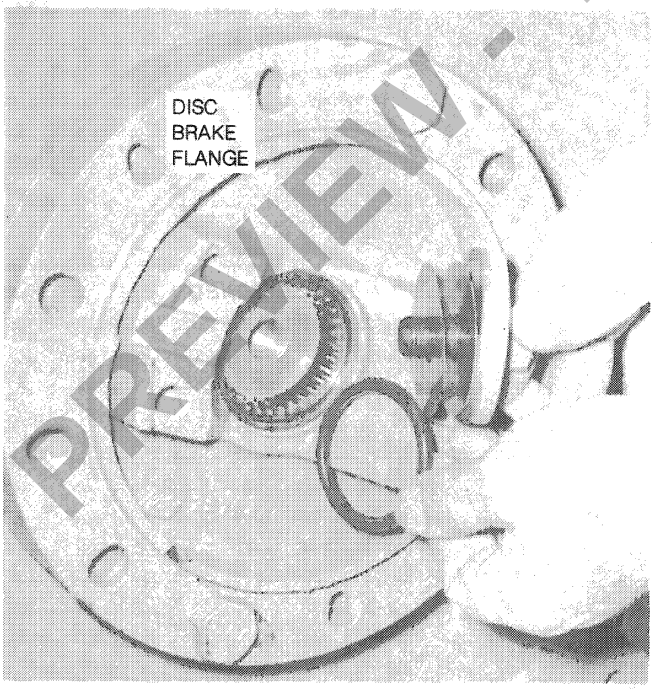


Figure 6-6. Capscrew, Retainer Washer, Shims and O-Ring Removed from Front of Output Shaft.

8. Remove the disc brake flange (Figure 12-8, 22). See Figure 6-6.

9. Lay the transmission on blocks with the rear side up.

10. Remove and label each terminal of wiring harness (Figure 12-11, 1) and remove the wiring harness.

11. Remove suction tube (Figure 12-8, 12). See Figure 6-7.



Figure 6-7. Removing or Installing Suction Tube.

12. Remove pump (Figure 12-11, 40) and gasket (41). See Figure 6-8.

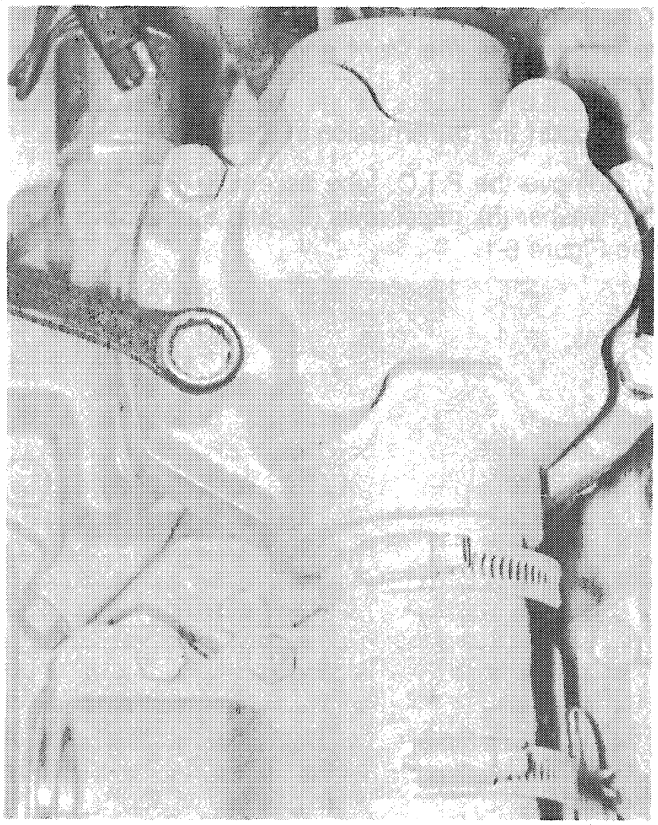
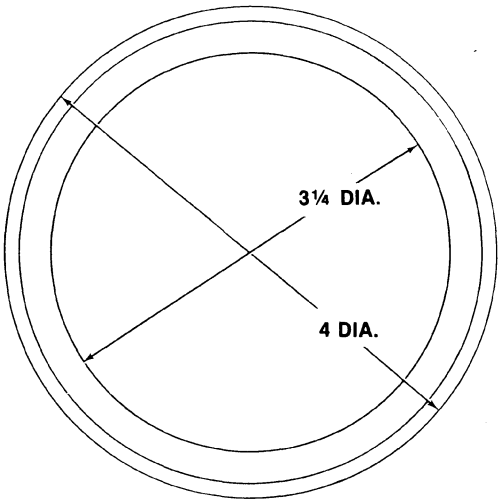
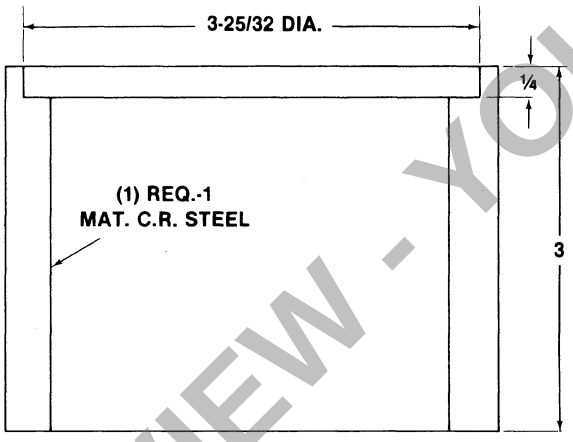


Figure 6-8. Removing or Installing Pump.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

T-19969

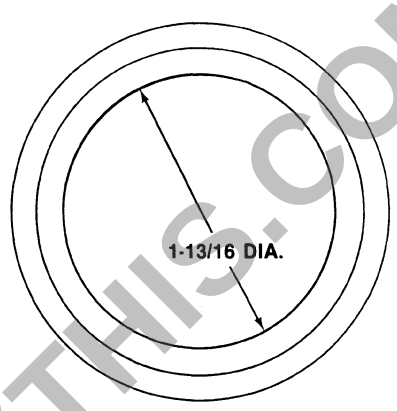


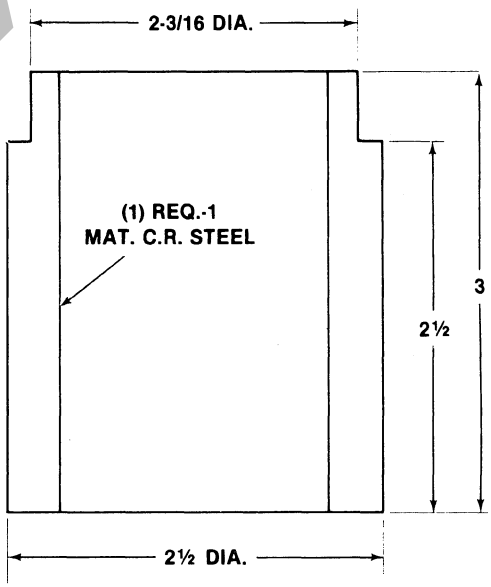


TD-123-1050 TRANSMISSION

T-19969 Gear & Hub Assembly Support

T-19970





TD-123-1050 TRANSMISSION

T-19970 Bearing Driver

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Section 2.
DESCRIPTION AND SPECIFICATIONS

GENERAL.

The TD-124-1402 Power Commander Transmission which is a hydraulically actuated and electrically controlled powershift transmission, provides twelve speeds forward and a maximum of four in reverse. Number of reverse speeds obtainable is determined by the control system configuration. This transmission is unique because no torque converter is required for its operation. This is possible because of a modulated master clutch incorporated in the transmission. The overall ratio coverage is 6.95:1 providing speeds from 2.46 to 17.10 mph at 2100 rpm engine speed. The transmission has a center distance drop of 20.00 inches between the input and output shafts.

MODEL IDENTITY NUMBERS AND LETTERS.

T = Transmission
D = Drop Box, output at different level than input.
12 = Twelve Speeds Forward.
4 = Four Speeds in Reverse.
14 = Transmission Model Series.
02 = Basic Model Number (assigned in consecutive sequence to identify specific modifications or gear ratios).

DESCRIPTION.

The input section consists of two geared-together clutch shafts. Each shaft contains two 7-inch clutch packs with a feedback dump valve for each clutch. When a clutch is engaged, output is from gears on the clutch shafts to and through gearing on the compound shaft, and to the gearing on the 9-inch clutch shaft. This shaft contains two 9-inch clutch packs equipped with individual feedback dump valves. The rear clutch on the shaft is the master clutch which can be modulated for smooth torque transmission. Gears on the 9-inch clutch shaft are meshed with gears and drive rings on the 8-inch clutch packs on the output shaft. The 9-inch clutch shaft which is also the output shaft has two 8-inch clutch packs with individual dump valves. In order to have output torque a 7-inch, 9-inch, and 8-inch clutch must be engaged.

SUMP.

The sump on this transmission is the bottom of the housing. A suction strainer is installed in the sump to prevent debris from being drawn into the pump inlet.

PUMP.

The pump is a positive displacement gear-type. The pump draws oil through the suction strainer and directs it through the filter and heat exchanger to the regulator valve.

REGULATOR VALVE ASSEMBLY.

Pressure regulating valves for controlling main and lube oil pressures are contained in the regulator valve assembly. Pressure check ports are provided on the regulator valve body for monitoring main and lube oil pressures. See Figure 12-16 for location of these ports.

RANGE SELECTOR VALVE.

Eight solenoids mounted on the range selector valve operate eight hydraulic valves inside the selector valve which controls the application of the transmission clutches. A letter coding Z, Y, X, W, V, T, S, and Q is stamped on the range selector valve body to identify the solenoid with respect to the clutch it actuates. This letter is keyed to the wiring circuit, allowing the technicians to trouble-shoot the system. The solenoids operate on 12V DC.

SPECIAL FEATURES.

Clutches.

Internally-splined, hardened steel plates and externally-splined, sintered friction plates are used on all clutches. The reverse clutch plates on the rear of the input shaft are of the polygon design. The clutches are of the "S" dump valve configuration with dual area pistons. The clutches are hydraulically activated, spring-released, and oil cooled.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

CLEANING AND INSPECTION.

See Section 7.

ASSEMBLY OF REAR HOUSING.

1. If tubes were removed, follow instructions in the Service Letter in Section 11 and Figure 12-9 to install them.

2. Press in the roller bearing outer races that were removed in step 1 above of rear housing disassembly instructions.

3. Install suction screen (Figure 12-7, 32) and secure with two hose clamps (31).

DISASSEMBLY OF PUMP.

1. Remove eight capscrews and washers.

CAUTION

Never pry the pump apart. Tap it apart with a plastic hammer to avoid creating burrs. In order to avoid distorting any parts, the use of a vise should be avoided.

2. Remove the oil seal (Figure 12-24, 9) from the front cover (10).

3. Remove the two load seals (3) and two preload seals (2).

4. Remove seal rings (8) and wear plates (4).

5. Remove gears (7 and 11).

NOTE

It is recommended that only the parts in kit number K-544 be replaced. If other parts are worn or damaged, replace the pump.

CLEANING AND INSPECTION.

See Section 7.

ASSEMBLY OF PUMP.

1. Install gears (7 and 11) into the gear plate (6).

2. Install oil seal (9) squarely in the bore with manufacturer's number to the outside of the pump.

3. Install the preload (black) seal (2) into the front and rear covers (1 and 10) in the relative position indicated in Figure 12-24.

4. Install the load seals (blue or gold) (3) over the preload seals (2).

5. Install seal rings (8).

6. Install wear plates (4) with the bronze sides toward the gears (7 and 11). The wear plates must be turned so that the diamond-shaped hole is aligned with the pump inlet marked "TANK". See Figure 12-25.

7. Install the rear cover over the gear shafts.

8. Generously lubricate the lips of oil seal (9) with general purpose bearing grease and install the front cover.

9. Install the eight capscrews and washers.

10. Rotate the drive shaft to assure freedom of movement before tightening the screws. Torque the screws 38 ± 3 lb. ft.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

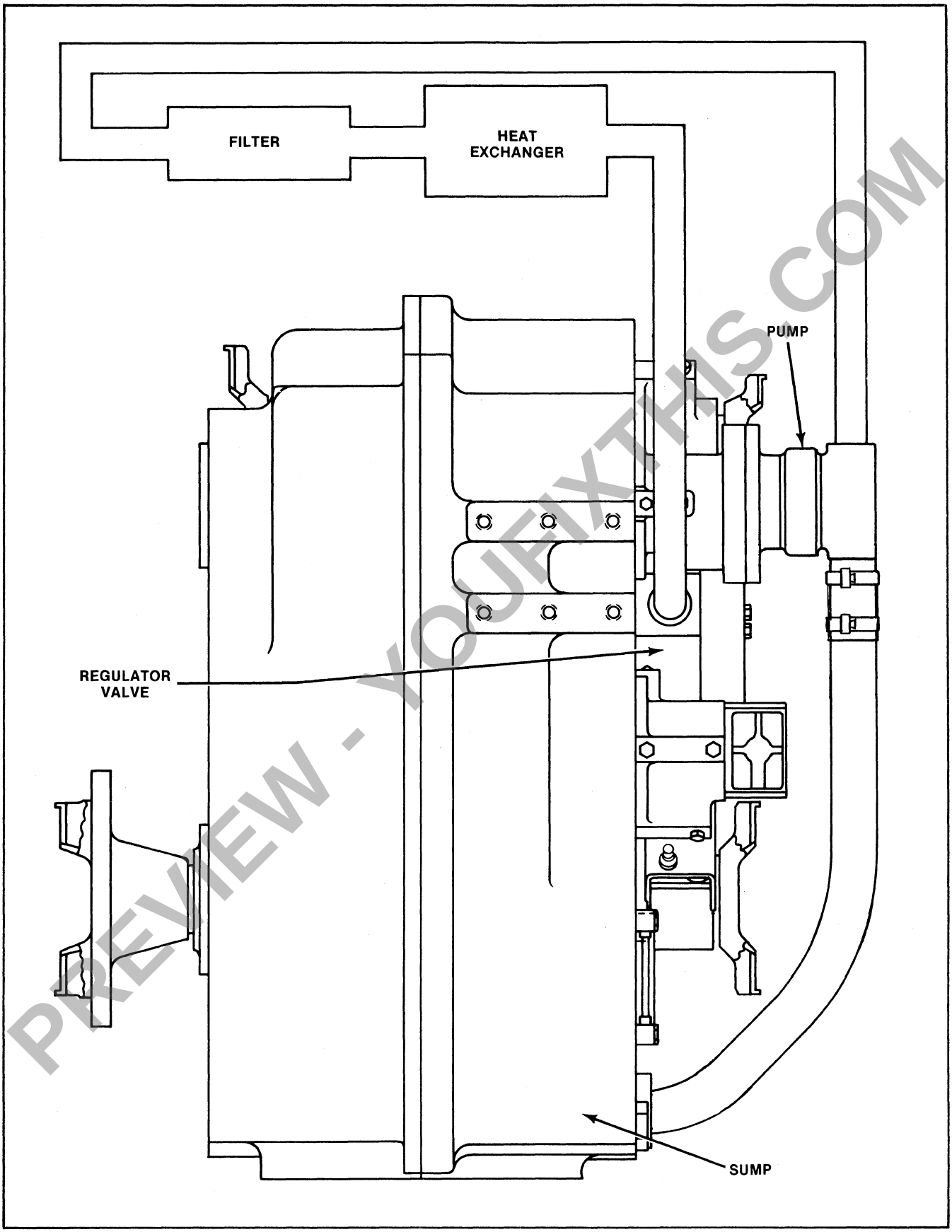


Figure 12-14. Piping Diagram.

Download full manual at youfixthis.com

4.4.6 Bleeding

1. Start engine and turn steering wheel until tractor contacts steering stop. Shut down engine.

WARNING



WEAR SAFETY GOGGLES OR FACE SHIELD AND PROTECTIVE CLOTHING WHEN CHECKING HYDRAULIC CONNECTIONS. HYDRAULIC FLUID ESCAPING UNDER PRESSURE CAN PENETRATE THE SKIN AND CAUSE SERIOUS PERSONAL INJURY.

2. Loosen hydraulic hose fitting on barrel end of extended steering cylinder.
3. Start tractor and hold steering wheel so cylinder remains extended. Have a helper observe hydraulic connection.
4. Shut down engine and tighten hydraulic connection when air bubbles stop and a steady flow of oil comes from connection.
5. Start engine and turn steering fully the opposite way. Repeat procedure at rod end fitting.
6. Start engine and check for leaks. Top up hydraulic tank if necessary.
7. Bleed opposite steering cylinder the same way.

4.5 IMPLEMENT PUMP

4.5.1 Removal

1. Label and disconnect hoses from pump (Figure 7-33). Drain oil from hoses into a container. Cap hoses.
2. Remove fittings from pump and cap threaded holes.
3. Remove mounting capscrews, gaskets, pump adaptor and pump.

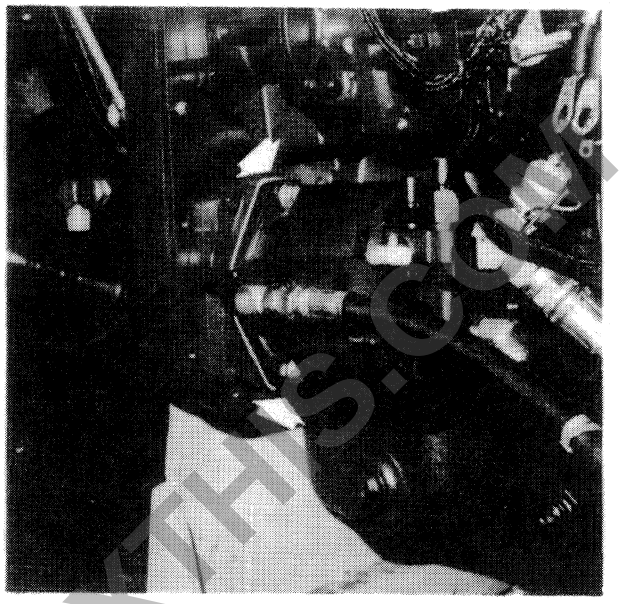


FIGURE 7-33: Implement Pump Removal

4.5.2 Disassembly

1. Clean pump exterior with clean solvent.
2. Clamp driveshaft (9) in a protected jaw vise, pump body UP (Figure 7-34).
3. Remove four Allen screws (38), compensator (37), O-ring (40) and gasket (39). Discard gasket.
4. Remove four capscrews securing back plate (46) to pump housing (10).
5. Tap back plate loose with plastic mallet and pull back plate straight out. Remove and discard gasket (51). Remove control piston (49).
6. Lift rotating group (8) from pump housing.

NOTE

Disassemble rotating group for inspection purposes only. Individual replacement parts are not available. Rotating group is available as a complete replacement kit only.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

ENGINE ELECTRIC SCHEMATIC 800/900

WITH ELECTRONIC DASH

(next two pages)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

7. Slide upper seat tracks off lower seat tracks and remove two capscrews, serrated washers, washers and nuts securing lower tracks to middle plate. Remove tracks and retain hardware.

8. Remove four capscrews, serrated washers and nuts securing three cover strips to seat lower plate. Remove cover strips and retain hardware.

9. Remove plastic rivets securing rubber bellows to seat lower and base plates. Remove bellows and retain rivets.

10. Remove two retaining rings, grooved bolt and washers securing shock absorber to seat lower and base plates. Remove shock absorber and retain hardware.

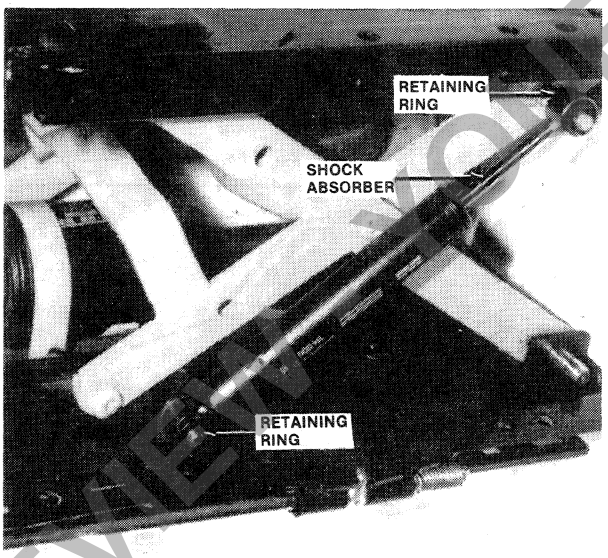


FIGURE 10-9: Shock Absorber Removal

11. Remove clips securing air hoses to compressor. Disconnect hoses.

12. Remove clip securing air hose to base of air spring and remove hose.

13. Remove clip securing air hose to slide bar assembly and remove air hose.

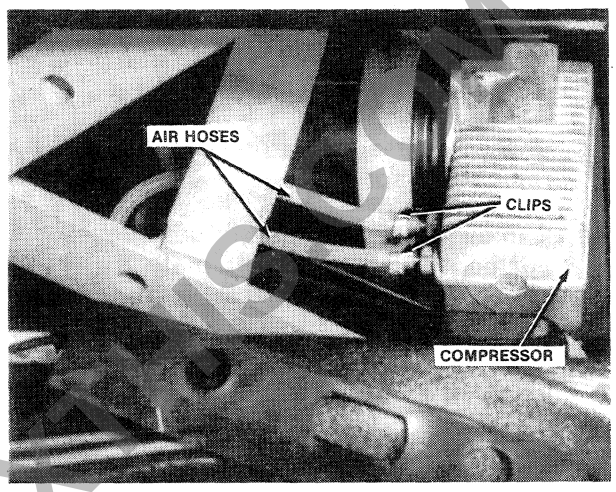


FIGURE 10-10: Compressor Air Hose Removal

14. Disconnect clips on wires from compressor to height/weight valve and remove wires. Note position of wires for assembly.

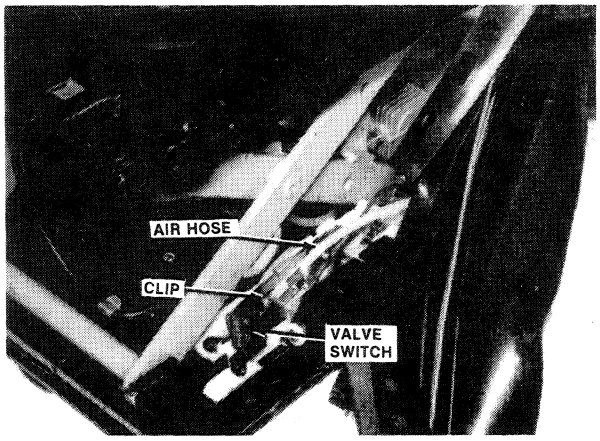


FIGURE 10-11: Valve Air Hose Removal

15. Remove locknut securing compressor retaining bracket. Remove bracket and compressor and retain hardware.

PREVIEW YOUFIXTHIS.COM
Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 25 of 600 pages

The full manual includes:

- All 600 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Versatile 756, 836, 856, 876, 936, 956, 976, Designation 6 Tractor, B7E Service Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual