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384 Tractor Chassis

Service Manual

GSS-1489

Reprinted

CASE IH

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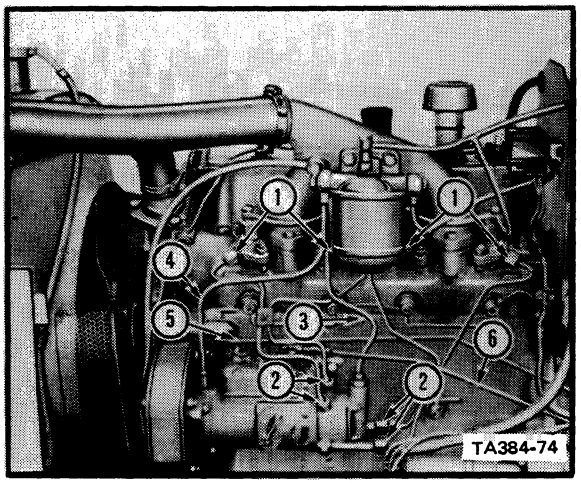


Fig. 5

(e) Remove the cotter pin and disconnect the fuel shut-off control rod (5-5) then release the governor control rod (6-5) at the ball joint.

(f) Disconnect the breather pipe (1-6) at the cover plate.

(g) Remove the nuts, lockwashers and bolts (2-6), bolts (3-6) and lockwashers, then remove the cover plate (4-6) and gasket.

(h) Remove the three bolts (1-7) securing the injection pump drive gear (2-7) to the pump drive hub.

(i) Remove the three nuts (1-8) and lockwashers then lift the injection pump and gasket clear of the engine.

5b. INSTALLATION

(a) Install the gasket and pump onto the mounting studs ensuring that the dowel on the drive gear locates in the slot on the pump hub.

(b) Turn the pump body until the mark (2-8) on the mounting flange is midway between the two marks (3-8) on the rear of the crankcase front plate, then secure the pump with the three nuts and lockwashers (1-8).

(c) Install the injection pump gear on the pump drive hub, install the lockwashers and bolts (1-7) then tighten to the correct torque.

(d) Further installation procedure is the reverse of ops. (a) to (g), para. 6a.

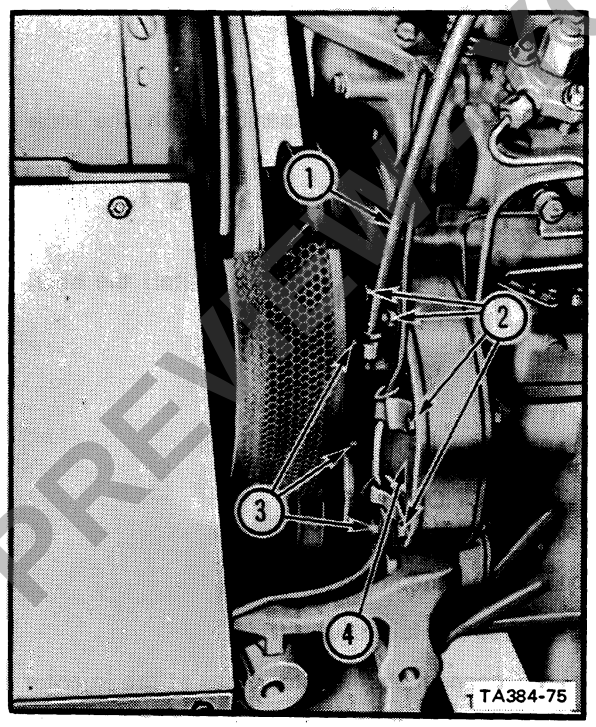


Fig. 6

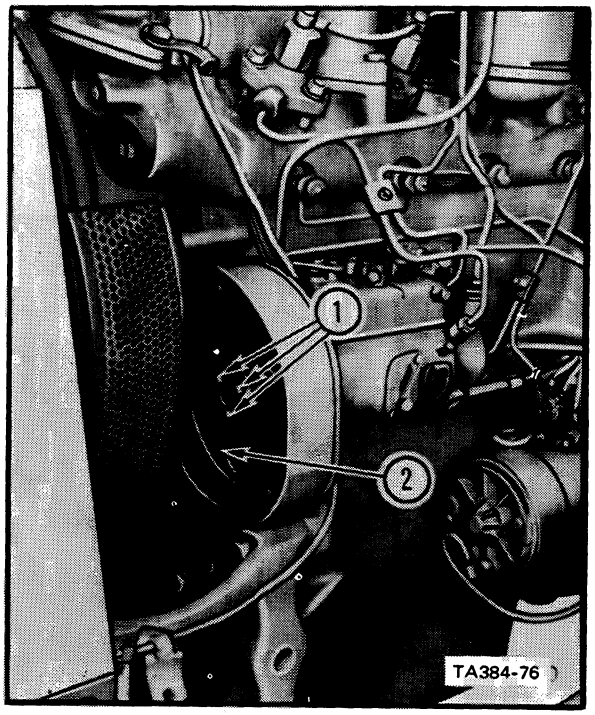


Fig. 7

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7. THE FAST AND SLOW CONTROL

By adjusting the position of the flow divider (6-6) the control regulates the pump oil flow into the valve to approximately 22.75 l/min (5 UK gal/min) in FAST position or approximately halves the oil flow to the valve in SLOW position.

With the valve in the SLOW position, the pressure drop at the port (5-6), allows the oil pressure at the inlet to push the piston (3-6) off its seat and uncover the port (2-6). This allows half the pump output to return to the reservoir through the port (23-6).

With the valve in the FAST position the port in the valve, partially blocked by the flow divider, is uncovered, pressure on each side of the piston (3-6) is equal and the spring (4-6) asserts itself by moving the piston (3-6) to cover the port (2-6). The full pump delivery is then directed to the regulator.

The SLOW position should normally be used with the draft control.

8. THE NON-RETURN VALVE

The ball (12-8) is kept on its seat by the spring (13-8) until pressure in the pump line is approximately 5.25 kg/cm^2 (75 lb/in^2). This ensures that in the drop position the lift arm fall will not be opposed by low pressure oil which is circulated by the pump to the reservoir through the regulator port. The non-return valve also locks the oil in the cylinder when the controls are in the NEUTRAL or 'HOLD' position.

9. THE RELIEF VALVE

The relief valve ball (14-3) becomes unseated allowing the high pressure oil to drain to the reservoir through the relief ports (16-8) when the pressure in the system exceeds 162 to 169 kg/cm^2 (2300 to 2400 lb/in^2) and overcomes the spring (15-3). The relief valve is adjusted by inserting shims behind the spring.

1e. INDEPENDENT AUXILIARY CONTROL VALVES

These are open centred valves with a single control spool which is spring loaded to return automatically to the 'hold' position. The spool provides 'neutral', 'lift' and 'lower' positions for implements with single acting or double acting cylinders. Incorporated in the valve is a relief valve which controls the maximum operating pressure of the system and is adjusted using shims.

NOTE: On no account must any equipment be operated with the relief valve set in excess of the specified pressure.

1f. OPERATION OF SINGLE ACTING VALVE

With the single acting valve spool in 'Neutral' the drillings (7 & 8-9) to the cylinder operating port are blanked off by the spool locking the oil in the cylinder. Oil entering the valve at the inlet (1-9) flows around the spool and through the outlet (2-9) into the valve end cover gallery which directs the oil through the valve drilling (3-9) to the vary touch control valve.

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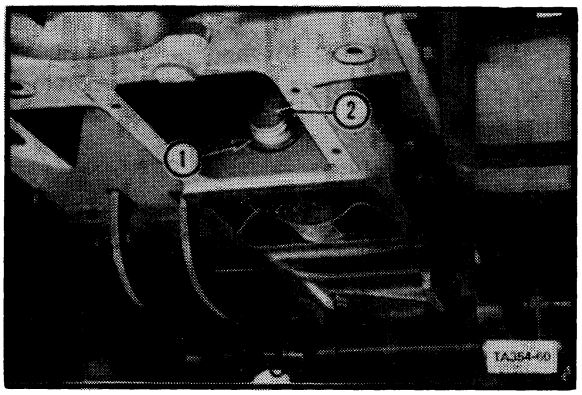


Fig. 23

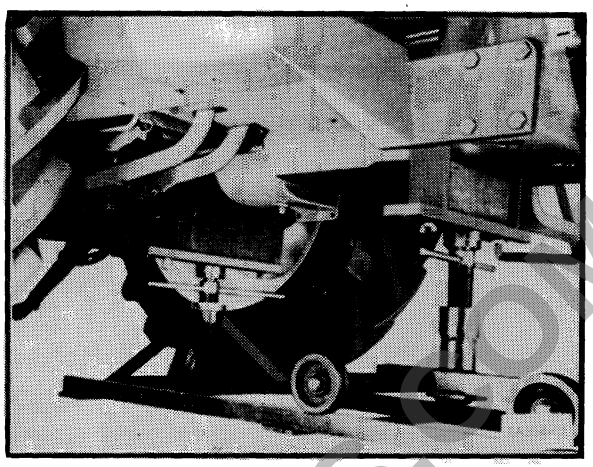


Fig. 25

3b. ASSEMBLING THE TRACTOR

(a) Using a new gasket between the clutch housing and transmission case, carefully ease the clutch housing rearward ensuring that the transmission driving shaft is kept centralized in the PTO driving shaft to avoid damage to the shaft bearing and oil seal (32-14). Turn the shaft(s) as necessary to engage the mating splines.

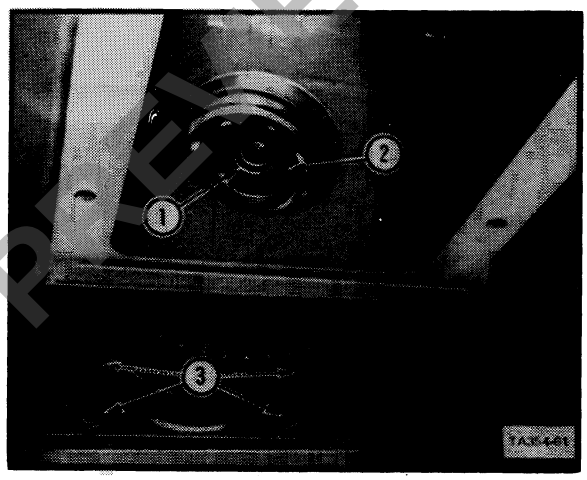


Fig. 24

(b) Install the bolts (6-20, 5-21 and 3-24) or if a standard build, install the six bolts inside the clutch housing and the two outside.

(c) Remove the dismantling stand.

(d) On F/R and constant running PTO versions install the retaining washer (2-24), circlip (1-24), front bearing cap (2-23) and circlip (1-23).

(e) Install the PTO cover plate (3-22) and clutch housing cover (2-22).

(f) On F/R builds push in the connecting shaft (9-39) and secure the retainer plate (2-40). Position the lever (2-39) on the high-low shifter shaft (13-39) and secure with the circlip (1-39). Connect the clevis (7-39).

(g) Connect the safety start switch (3-21) and the connection (2-21).

(h) Connect the foot accelerator control rod (4-20).

(i) Connect the high pressure pipe (3-20) at the valve and the low pressure pipe at the suction strainer connection (2-20).

(j) Install the battery. Fill the transmission to the correct level with the specified oil.

(k) Remove the wood blocks between the front axle and axle support.

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(h) LUBRICATION FITTINGS

Check for damaged or missing fittings. Check that grease and oil galleries are clear.

(i) CASTINGS

Check castings for cracks and distortion.

(j) FUEL TANKS

Check for leaks and corrosion.

(k) FUEL, OIL & COOLANT PIPES AND HOSES

Check unions for leaks, stripped threads or other faults. Check pipes for cracks or chafing, hoses for chafing, twisting, perishing or other damage. Tighten pipe and hose unions to the following torque:

JIC 37° FLARED FITTINGS					
PIPE SIZE	THREAD SIZE	MIN. kgm	MIN. lbft	MAX. kgm	MAX. lbft
1/4	7/16 - 20	1.38	10	2.76	20
5/16	1/2 - 20	2.07	15	3.46	25
3/8	9/16 - 18	3.46	25	4.84	35
1/2	3/4 - 16	5.53	40	7.60	55
5/8	7/8 - 14	7.60	55	10.38	75
3/4	1-1/16 - 12	10.38	75	13.14	95
7/8	1-3/16 - 12	13.14	95	15.89	115
1	1-5/16 - 12	15.89	115	20.04	145
1-1/4	1-5/8 - 12	20.74	150	24.88	180
1-1/2	1-7/8 - 12	27.66	200	34.56	250
2	2-1/2 - 12	41.47	300	48.38	350

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(l) WELDS

Check all welded assemblies for cracks, twisting or misalignment. Information concerning the use of special welding rods or procedures is detailed, where relevent, in the appropriate GROUP. When welding operations are performed on items attached to the machine, it is advisable to disconnect the terminal block at the alternator to avoid any risk of damage to the alternator.

1h. LUBRICATION

During assembly, running or wearing surfaces must be coated with the specified lubricant. Use sufficient lubricant to prevent seizing, scoring or excessive wear on initial operation. FAILURE TO PROVIDE STARTING LUBRICATION MAY RESULT IN SERIOUS DAMAGE.

1i. METRICATION

The metric units used in this manual are the ones most likely to be found on existing equipment such as torque wrenches, pressure gauges etc. which are often dual marked.

Other units may be encountered such as force in Newtons (N), torque in Newton metres (Nm), pressure in N/m^2, pascals (Pa) or bars. To assist the serviceman the following conversions are provided.

1N = 0.10197 kg = 0.2248 lb
1Nm = 0.10197 kgm = 0.7376 lbft
1bar = 1.01976 kg/cm^2 = 14.5038 lb/in^2
1bar = 10^5 Pa = 10^5 N/m^2

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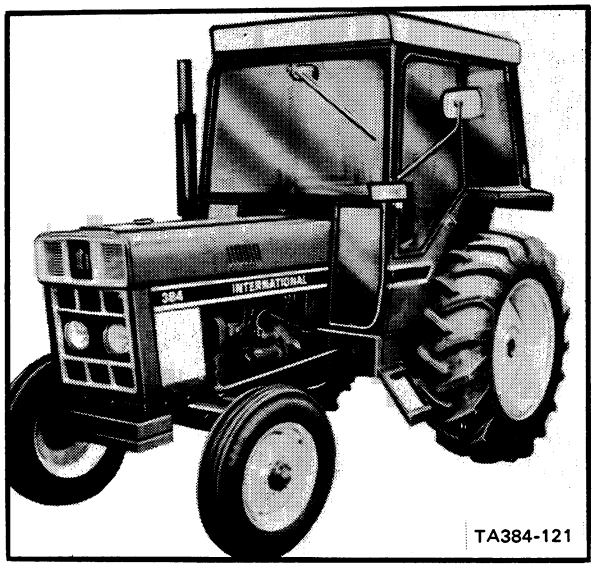


Fig. 4



Fig. 5

4. CAB ASSEMBLY

4a. REMOVAL

(a) Remove the cab front section, referring to para. 5.

(b) Remove the upper safety frame complete with roof and windows, referring to para. 8.

(c) Remove the insulation and seat platform, referring to para. 9.

(d) Remove the fenders, referring to para. 10.

4b. INSTALLATION

(a) Install the fenders, referring to para. 10.

(b) Install the seat platform and insulation, referring to para. 9.

(c) Install the upper safety frame complete with roof and windows, referring to para. 8.

(d) Install the cab front section, referring to para. 5.

5. CAB FRONT SECTION

5a. REMOVAL

(a) Remove the hoodsheet.

(b) Disconnect the spring cylinders from the doors and lift the doors off their hinges.

(c) On machines equipped with roof mounted heater attachment refer to Fig. 6, remove the two bolts on each side of the roof panel and the five self tapping screws located on the forward edge of the escape hatch then lift off the roof panel. Close the valve on the engine coolant pump. Install the radiator cap and disconnect the hoses, install plugs to prevent loss of coolant.

(d) Disconnect the side light cables at the snap connectors (1 & 2-7) and the windscreen wiper motor at the connections (3-7).

(e) Remove the insulator retainers (1-8) and turn back the insulator.

(f) Remove the bolts (4-7) securing the top of the front section to the safety frame and the four bolts (5-7) securing the bottom of the window to the fenders. Ease out the top of the front section and lift clear.

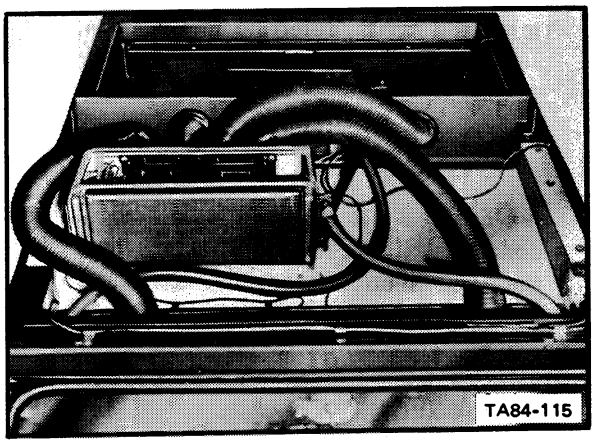


Fig. 6

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7b. DISMANTLING

(a) Remove the tie-rod referring to para. 3.

(b) Remove the axle extension securing bolts (3-10) and withdraw the extensions (4-10) from the axle.

(c) Remove the steering knuckles referring to para. 5.

(d) If inspection proves it necessary remove the lubricators and press out the bushes from the front axle and axle extensions.

7c. ASSEMBLY

(a) If these were removed, press in a new pivot pin bush and steering knuckle bushes. Ream the pivot pin bush to 28.40 to 28.44 mm (1.118 to 1.120 in), the standard axle steering knuckle bushes to 34.52 to 34.54 mm (1.359 to 1.360 in) and the power assisted steering knuckle bushes to 40.92 to 40.94 mm (1.611 to 1.612 in).

NOTE: Prior to further assembly it may be found easier at this stage to adjust the pivot pin shimming referring to para. 7e.

(b) Install the steering knuckles referring to para. 5.

(c) Install the axle extensions (4-10) tightening the bolts (3-10) to 35 to 38 kgm (250 to 280 lbft).

(d) Install the tie-rod referring to para. 3.

7d. INSTALLATION

(a) Position the front axle assembly under the axle support inserting shims as established in para. 7e then drive in the pivot pin.

(b) Align the holes in the pivot pin and axle support then install the bolt (4-9) and nut (3-9).

(c) If fitted, install the stay rod referring to para. 6.

(d) Install the front wheels and lower the tractor to the ground.

(e) Connect the drag link referring to para. 4.

(f) Install the front end weight support and grille support.

7e. ADJUSTMENT

(a) Insert the pivot pin from the front through the axle support and axle but not into the rear lug of the axle support.

(b) Holding the axle square against the front of the axle support select shims (1-10) to provide an end float of 0.13 to 0.38 mm (0.005 to 0.015 in).

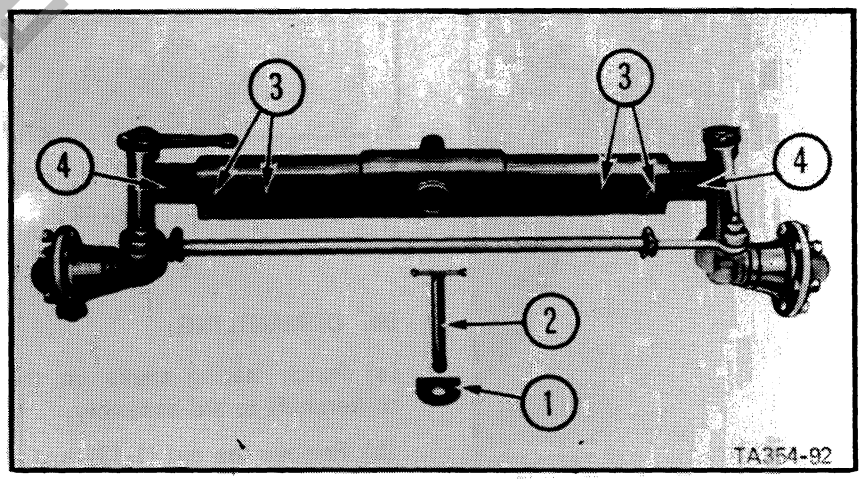


Fig. 10

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2. BOLT IDENTIFICATION

IH TYPE	BSS	TENSILE STRENGTH T/in^2	MANUFACTURERS MARKINGS					
5	S	50 - 55	BEES 50 S 55	NEWALL HITENSILE "S"	SPNS	NEWTON S	SPARTS S	TWLS
	T	55 - 65	BEES 55 T 65	NEWALLOY T or NEWALL HITENSILE T	SPNT	NEWTON T	SPARTS T	TWLT
8	V	65 - 75	BEES 65 V 75	NEWALLOY "V"	SPNV	NEWTON V	SPARTS V	TWLV

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3. STANDARD TORQUE DATA FOR NUTS AND BOLTS

Where no special torque is quoted the following torque figures should be applied. Threads should be applied. Threads should be lubricated with engine oil or chassis grease. Apply the minimum figure to bolts that have previously been used.

BOLT SIZE (in)	TYPE 5				TYPE 8			
	MIN.		MAX.		MIN.		MAX.	
	kgm	lbft	kgm	lbft	kgm	lbft	kgm	lbft
1/4	1.24	9	1.26	10	1.66	12	1.93	14
5/16	2.62	19	2.90	21	3.73	27	4.14	30
3/8	4.56	33	5.11	37	6.22	45	6.91	50
7/16	7.32	53	8.30	60	10.37	75	11.75	85
1/2	11.06	80	12.44	90	15.90	115	17.97	130
9/16	15.90	115	17.97	130	22.81	165	25.58	185
5/8	22.12	160	24.89	180	30.42	220	34.56	250
3/4	40.09	290	44.24	320	55.30	400	62.21	450
7/8	58.07	420	64.98	470	89.87	650	100.93	730
1	87.10	630	98.16	710	134.11	970	150.70	1090
1-1/8	117.52	850	131.34	950	190.79	1380	214.30	1550
1-1/4	165.91	1200	186.64	1350	268.21	1940	301.40	2180

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4. SPECIFICATIONS

1. The following specifications are listed in GROUP order. During overhaul personal initiative must be exercised to determine whether or not a component is suitable for re-use. It is obviously uneconomical to return worn parts to service with a short life expectancy which will involve labour costs at an early date.

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2. CAB

Mounting location		
(distance from centre line of tractor)	mm (in)	510 (20.4)
Special Torque Values		
Mounting retaining bolts	kgm (lbft)	6 (45)
Mounting centre bolt	kgm (lbft)	15 (100)
Rear mounting support retaining bolts	kgm (lbft)	10 (70)
Front mounting support retaining bolts	kgm (lbft)	33 to 38 (240 to 280)
Rear window latch handle	kgm (lbft)	4.5 to 5.4 (10 to 12)
Lower window retaining bolt	gm (lbin)	345 to 460 (30 to 40)
Rubber damper	gm (lbin)	115 to 172 (10 to 15)
Special Tools		
Available From:		Pressac, Masons Road, Stratford-upon-Avon.
Weatherstrip and fillerstrip installation tool kit:		B5406 ref 1.

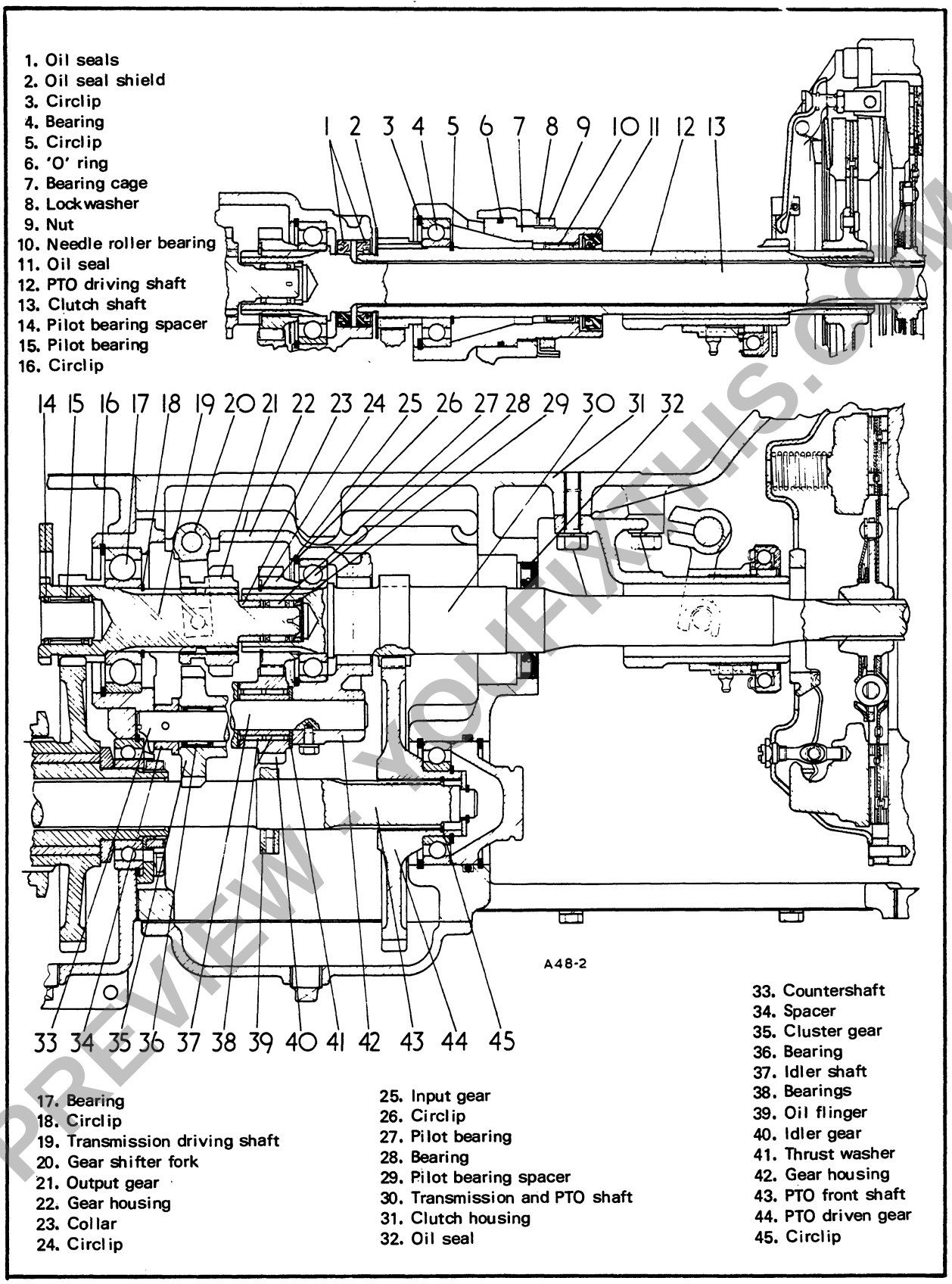
3. COOLING SYSTEM

Radiator		
Type		Fin and flat tube
Cap pressure	kg/cm^2 (lb/in^2)	0.49 (7)
Fan		
Type		Suction
Number of blades		4
Diameter	mm (in)	400 (15.75)
Thermostat		
Open at	°C (°F)	77 (170)
Full open at	°C (°F)	93 (199)
Capacity	litre (UK pint)	10.25 (22)

4. ELECTRICAL

Battery		
Voltage		12
Capacity at 20 hr rate	amp h	95
Cold start performance (to BS3911/IEC)	amp	385
Alternator		
Make		Lucas
Model		15ACR
Output	amp	28
Starting Motor		
Make		Lucas
Model		M45G
Glowplugs		
Make		Bosch
Model		KE/GA1/8
Safety start switch		
Plunger depressed	mm (in)	1.27 (0.050)

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1. Oil seals
2. Oil seal shield
3. Circlip
4. Bearing
5. Circlip
6. 'O' ring
7. Bearing cage
8. Lockwasher
9. Nut
10. Needle roller bearing
11. Oil seal
12. PTO driving shaft
13. Clutch shaft
14. Pilot bearing spacer
15. Pilot bearing
16. Circlip
17. Bearing
18. Circlip
19. Transmission driving shaft
20. Gear shifter fork
21. Output gear
22. Gear housing
23. Collar
24. Circlip
25. Input gear
26. Circlip
27. Pilot bearing
28. Bearing
29. Pilot bearing spacer
30. Transmission and PTO shaft
31. Clutch housing
32. Oil seal
33. Countershaft
34. Spacer
35. Cluster gear
36. Bearing
37. Idler shaft
38. Bearings
39. Oil flinger
40. Idler gear
41. Thrust washer
42. Gear housing
43. PTO front shaft
44. PTO driven gear
45. Circlip

Fig. 3 CROSS SECTION OF THE FWD/REV TRANSMISSION WITH NON-C.R.P.T.O. & A C.R.P.T.O. SHOWN ABOVE

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