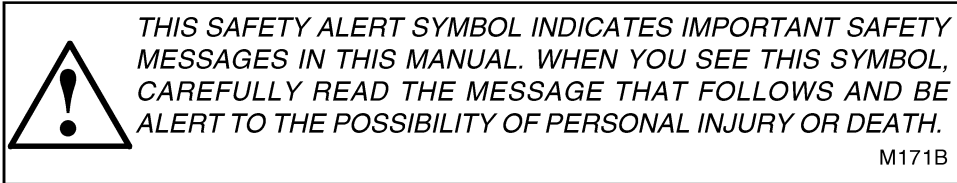


Hydrostatic Transmission Service Manual

SM43

Reprinted




CASE III



If Safety Decals on this machine use the words **Danger, Warning or Caution**, which are defined as follows:

- **DANGER:** Indicates an immediate hazardous situation which if not avoided, will result in death or serious injury. The color associated with Danger is RED.
- **WARNING:** Indicates an potentially hazardous situation which if not avoided, will result in serious injury. The color associated with Warning is ORANGE.
- **CAUTION:** Indicates an potentially hazardous situation which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.

If Safety Decals on this machine are ISO two panel Pictorial, decals are defined as follows:

- The first panel indicates the nature of the hazard.
- The second panel indicates the appropriate avoidance of the hazard.
- Background color is YELLOW.
- Prohibition symbols such as   and  if used, are RED.



WARNING

IMPROPER OPERATION OF THIS MACHINE CAN CAUSE INJURY OR DEATH. BEFORE USING THIS MACHINE, MAKE CERTAIN THAT EVERY OPERATOR:

- Is instructed in safe and proper use of the machine.
- Reads and understands the Manual(s) pertaining to the machine.
- Reads and understands ALL Safety Decals on the machine.
- Clears the area of other persons.
- Learns and practices safe use of machine controls in a safe, clear area before operating this machine on a job site.

It is your responsibility to observe pertinent laws and regulations and follow Case Corporation instructions on machine operation and maintenance.

SERVICE MANUAL

INTERNATIONAL

HYDROSTATIC TRANSMISSIONS

SM - 43

INTERNATIONAL HARVESTER COMPANY
OF GREAT BRITAIN LIMITED

PO BOX 25 259 CITY ROAD LONDON EC1P 1AD

Y/6/80 CP.

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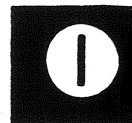
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1. INTRODUCTION

1a. GENERAL

The instructions contained in this Service Manual are for the information and guidance of those who are responsible for the maintenance and overhaul of the Hydrostatic Transmissions used in the 454, 474, 574, 2400, 2500, 3400 and 3500 International Tractors.

This manual provides the serviceman with a convenient reference to information on the removal, dismantling, assembly, installation and adjustments of the Hydrostatic Transmission as well as the tools and equipment necessary to carry out the work.

For the servicing of the other tractor components refer to the relevant tractor Service Manual.

Throughout this manual the terms LEFT, RIGHT, FRONT and REAR are to be taken as those applicable to a person seated in the tractor driver's seat and facing the radiator.

1b. SERVICE TOOLS

Certain service tools are essential and no attempt should be made to dismantle the hydrostatic unit unless these special service tools are available. Where special tools can easily be made in the workshop, dimensional drawings have been provided.

A complete list of special service tools with illustrations and source of supply can be found in this Group immediately following SPECIFICATIONS.

1c. SERVICE PARTS

ALWAYS use genuine I.H. service parts. To ensure that the correct service parts are used always refer to the Parts Catalogue. These catalogues are accurate and are brought up to date continually by revisions.

1d. ADJUSTMENTS

Where adjustments are necessary the instructions will be found in this manual. Reference to these paragraphs before commencing to dismantle units may prevent unnecessary work being carried out.

1e. ILLUSTRATION REFERENCES

Four types of illustration references may be found in this manual and these are explained by the following examples:-

(a) (1-4) This refers to the item marked by indicator number 1 in Fig.4 of the GROUP in which the reference appears.

(b) (1 & 2-4) This refers to items marked by indicators number 1 and 2 in Fig.4 of the GROUP in which the reference appears.

(c) (1-4 & 2-6) This refers to item marked by indicator number 1 in Fig.4 and indicator number 2 in Fig.6 of the GROUP in which the reference appears.

(d) (1-4 GROUP 2) This is used when reference is made to an illustration in another GROUP. A group number may be used in conjunction with (a), (b) or (c) above, to show the indicator number, illustration number and GROUP in which the reference appears.

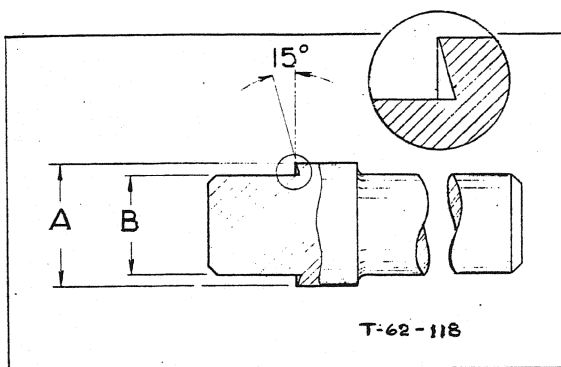
1f. INSPECTION AND REPAIR

The following notes should be used as a general guide to inspection and repair. Where a special procedure is necessary for a component or assembly, full details will be found in the relevant sections.

(a) BEARINGS

Inspect for evidence of overheating, cracks, scores, pitting and general wear. Change if necessary. Soak in oil, wrap and cover with greaseproof paper until required for assembly.

When installing needle roller bearings these MUST be installed using a dolly made to the dimensions in the diagram, and the bearing installed with the manufacturers markings toward the dolly.



A - 1.5 mm (1/16 in) less than outer diameter
B - 0.07 mm (0.003 in) less than inner bore

(b) PINS AND BUSHES

Inspect for damage, scoring and pitting, check with mating parts for wear. Change if necessary.

(c) GEARS AND SPLINES

Check for cracks, pitting, burrs, broken or missing teeth. Check for excessive wear with mating parts. Dress off burrs from gears and splines with a fine carborundum stone, care must be taken to remove only the burr. DO NOT interfere with the tooth or spline profile. CHANGE all parts which show signs of damage or excessive wear.

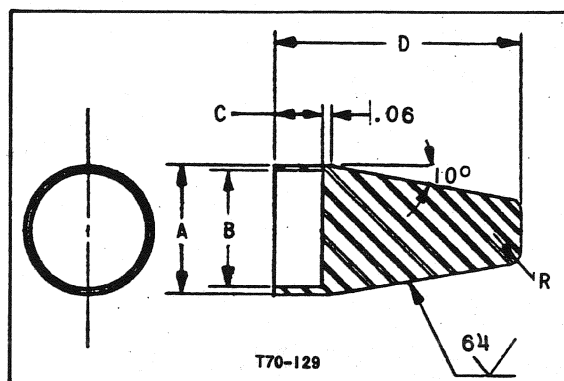
(d) GASKETS AND SEALS

ALWAYS use new gaskets and seals during assembly. Be extremely careful not to damage the seal or gasket during installation.

Coat lip type seals with a light film of grease and use sleeves or tape wherever a seal has to be passed over splines or threads. Felt dust seals should be soaked in oil before assembly.

(e) 'O' RINGS

When installing 'O' rings over threads or standard pipe fittings, a tool made to the dimensions in the diagram MUST be used. Where special fittings are encountered, the dimensions should be varied to suit. Use sleeves or tape when installing 'O' rings over splines or serrations.



PIPE SIZE	THREAD SIZE & T.P.I.	A ^{±.005}	B ^{±.005}	C ^{±.010}	D ^{±.030}
1/4	7/16-20	.523	.443	.280	1.000
5/16	1/2-20	.585	.506	.280	1.000
3/8	9/16-18	.648	.568	.300	1.500
1/2	3/4-16	.835	.756	.330	1.500
5/8	7/8-14	.960	.881	.380	1.500
3/4	1-1/16-12	1.147	1.068	.465	2.500
7/8	1-3/16-12	1.273	1.193	.465	2.500
1	1-5/16-12	1.397	1.318	.465	2.500
1-1/4	1-5/8-12	1.711	1.631	.465	2.500

(f) CASTINGS

Check castings for cracks and distortion.

(g) PIPES AND HOSES

Check unions for leaks, stripped threads or other faults. Check pipes for cracks or chafing, hoses for chafing, twisting or perishing.

1g. LUBRICATION

When assembling any part, always coat all wearing surfaces with the lubricant specified in the Operator's Manual. Use sufficient quantities of lubricant to prevent any danger of seizing, or excessive wear when the assembly is first operated.

FAILURE TO PROVIDE 'STARTING LUBRICATION' MAY RESULT IN SERIOUS DAMAGE. REFER TO 'PRIMING PROCEDURE' AND 'SAFETY STARTING PROCEDURE'.

1h. METRIC CONVERSION

The following table gives conversion factors for use in converting the British Specifications to their metric equivalents.

To convert from	To	Multiply by
inches	cm	2.540
lb	kg	0.4536
ounces	kg	0.02835
lb ft	kgm	0.1383
lb in	kgm	0.0115
lb/in ²	kg/cm ²	0.07031
Imp gal	litres	4.5454
Imp pints	litres	0.5682
miles	km	1.6

T70-126

2. BOLT IDENTIFICATION CHART

IH TYPE	BSS	TENSILE STRENGTH T/in ²	MANUFACTURERS MARKINGS					
			BEES	NEWALL HITENSILE "S"	SPNS	NEWTON S	SPARTS S	TWLS
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

T70-128

3. STANDARD TORQUE DATA FOR NUTS AND BOLTS

Where no special torque data is specified, the following torque figures 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

T70-127A

4. STANDARD TORQUE FOR TUBE FITTINGS

TUBE NUTS FOR 37° FLARED FITTINGS							'O' RING BOSS PLUGS			
							SWIVEL NUTS			
TUBE NUTS FOR 37° FLARED FITTINGS							JIC 37° SEAT			
							TORQUE			
SIZE	TUBE O.D.	THREAD SIZE	MIN.		MAX.		MIN.		MAX.	
			kgm	lbft	kgm	lbft	kgm	lbft	kgm	lbft
4	1/4	7/16 - 20	1.2	9	1.6	12	0.82	6	1.4	10
5	5/16	1/2 - 20	1.6	12	2.0	15	1.4	10	2.0	15
6	3/8	9/16 - 18	2.0	15	2.5	18	2.0	15	2.7	20
8	1/2	3/4 - 16	5.5	40	7.5	55	3.5	25	4.0	30
10	5/8	7/8 - 14	7.5	55	10.5	75	5.0	35	5.5	40
12	3/4	1-1/16 - 12	10.5	75	13.0	95	8.0	60	9.6	70
14	7/8	1-3/16 - 12	13.0	95	16.0	115	9.6	70	11.0	80
16	1	1-5/16 - 12	16.0	115	20.0	145	11.0	80	12.5	90
20	1-1/4	1-5/8 - 12	20.5	150	25.0	180	13.0	95	16.0	115
24	1-1/2	1-7/8 - 12	27.5	200	34.5	250	16.5	120	19.0	140
32	2	2-1/2 - 12	41.5	300	48.0	350	34.5	250	41.5	300

NOTE: These torques are not recommended for 1/2 in or larger O.D. tubes with wall thickness of 0.88 mm (0.035 in) or less.

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