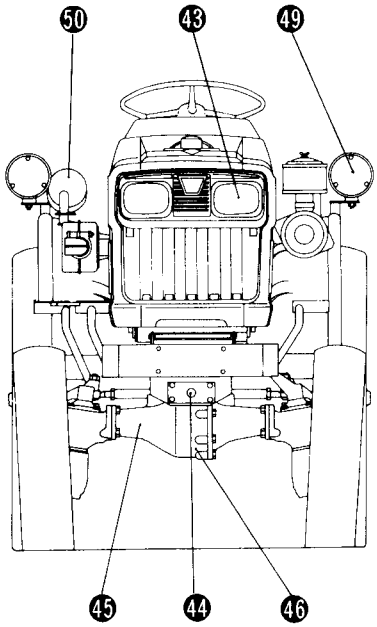
2. COMPONENTS

(1) Muffler
(2) Brake pedal
(3) Step
(4) Differential lock pedal
(5) Instrument panel
(6) Fuel tank cap
(7) Bumper
(8) Radiator
(9) Hood
(10) Engine
(11) Air cleaner
(12) Fuel tank
(13) Throttle lever
(14) Steering wheel
(15) Gear shift lever
(16) P.T.O. shift lever
(17) Hydraulic control lever
(18) Hydraulic cylinder case
(19) Assist bar
(20) Operator's seat
(21) Fender
(22) Lift link
(23) Upper link
(24) Upper link hinge
(25) P.T.O. shaft
(26) Lower link
(27) Lift arm
(28) Rear tire
(29) Rear wheel
(30) Brake
(31) Transmission case
(32) Brake rod
(33) Range shift lever
(34) Pitman arm
(35) Clutch pedal
(36) Steering gear box
(37) Clutch housing
(38) Starter motor
(39) Drag rod
(40) Front wheel
(41) Front tire
(42) Battery
(43) Headlight
(44) Front axle center-pin
(45) Front axle
(46) Front differential gear case
(47) Propeller shaft cover
(48) Front drive shift lever
(49) Flashing warning lamp
(50) Work light

Model YM169D



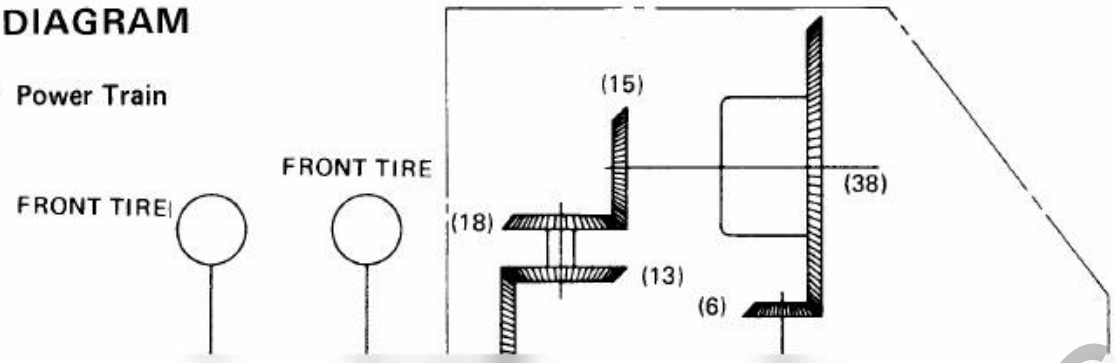
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4. DIAGRAM

4-1 Power Train



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3. TIGHTENING TORQUE RATINGS

[Unit: ft.lbs (kg-m)]

Item	No.	Tightening torque
[ENGINE]		
Cylinder bolts head nuts	8	80 (11)
Rocker arm support	3	45 – 52 (6.2 – 7.2)
Rod bolts	6	16.6 – 20.2 (2.3 – 2.8)
Main bearing housing	6	15 – 18 (2.0 – 2.5)
Crankshaft pulley	1	76.1 – 86.4 (10.5 – 12)

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5. TRANSMISSION AND RELATED ITEMS

	Trouble	Probable cause	Remedy
1.	**Gears cannot be engaged or are hard to engage; two speeds are engaged together; or tend to fall out of gear.**	1. Operator shifting too quickly, or attempting to shift when tractor is still in motion. Clutch pedal is not depressed fully.	Operator orientation.
		2. Shifter worn, deformed, or damaged.	Replace.
		3. Gears damaged: Assembled incorrectly.	Reassemble.
		Deviation in stroke of sliding gear (too much or not enough)	Readjust.
		4. Clutch adjusted incorrectly.	Adjust.
2.	**Strange noises.**	1. Oil insufficient.	Add oil.
		Poor quality oil.	Change oil type.
		2. Shaft deformed, splines worn.	Replace.
		3. Gears damaged.	Replace.
		Backlash of gears incorrect.	Adjust
		Gears adjusted incorrectly (relative positions of drive pinion and ring gear).	
		4. Fork damaged or bent.	Replace.
3.	**Differential does not function.**	1. Differential clutch does not slide and return.	Adjust.
		2. Differential lock spring damaged.	Replace.
4.	**Differential lock does not function.**	1. Differential lock cam damaged.	Replace.

6. PTO AND RELATED ITEMS

	Trouble	Probable cause	Remedy
1.	**Gears cannot be engaged; tend to disengage; difficult to engage; engage double.**	1. Tractor has not come to a full stop.	Driver orientation.
		2. Clutch pedal is not fully depressed.	Driver orientation.
		3. Clutch pedal not adjusted correctly.	Adjust.
		4. Operator shifts too soon.	Driver orientation.
		5. Gears assembled incorrectly.	Reassemble.
		6. Shifter fork worn or deformed.	Replace.
2.	**Strange noises.**	1. Oil insufficient.	Add oil.
		2. Gear has excessive backlash.	Adjust.
		3. Shaft spline section worn or deformed.	Replace.
		4. Fork deformed.	Replace.

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1. SPECIFICATIONS

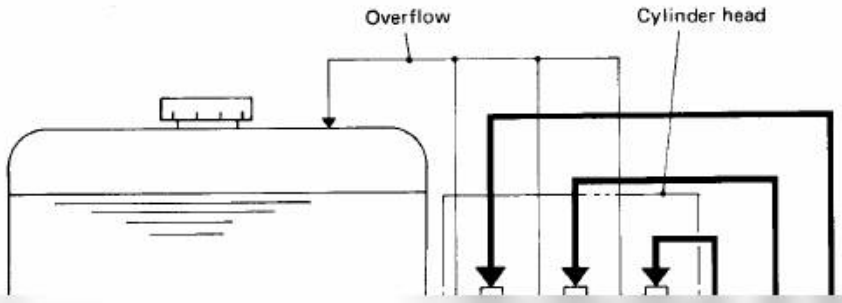
Item			Unit	YM169	YM169D
EN-GINE	Engine block	Engine model		3T72HA-A	
		Type of engine		Diesel engine	
		Number of cylinders		3	
		Cylinder layout		Vertical in line	
		Bore x stroke	in.	2.83 x 2.83 (72mm x 72mm)	

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4-5 Fuel System



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FOREWORD

■ MAKING EFFECTIVE USE OF THIS SERVICE MANUAL

This manual discusses the maintenance standards and trouble-shooting procedures to be employed from the standpoint of the repairman, in order that the tractor can perform in top condition through correct servicing procedures.

Repairs conducted by estimations or force of habit could lead to unexpected accidents and serious trouble. Always carry out repairs in a scientific and accurate manner.

■ SERIAL NUMBERS

Do not limit your work merely to the actual repair work alone but always strive to carry out dependable servicing, including such efforts as noting down the servicing history of your tractor and keeping maintenance records.

In order to easily process any claims it is imperative that the full details and serial numbers of parts be clearly written on the prescribed form, and then sent to the dealer for forwarding to the manufacturer.

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[Unit: inch (mm)]

No.	Item	Standard specification	Replacement limit	Testing equipment
16.	Thickness of the differential side gear spacers	0.035 (0.9)	0.028 (0.7)	Calipers
		0.039 (1.0)	0.031 (0.8)	
		0.043 (1.1)	0.035 (0.9)	
		0.047 (1.2)	0.039 (1.0)	
17.	Outer diameter of metal 22 x 27 x 22.5	1.0609–1.0622 ($27^{-0.020}_{-0.053}$)	—	Micrometer
	Inner diameter of the differential housing	1.0630–1.0638 ($27^{+0.021}_{0}$)	—	Cylinder gauge
	Clearance	0.0008–0.0029 (0.020–0.074)	0.012 (0.3)	
18.	Outer diameter of the final reduction pinion	0.8641–0.8654 ($22^{-0.020}_{-0.053}$)	—	Micrometer
	Inner diameter of metal 22 x 27 x 22.5	0.8661–0.8674 ($22^{+0.03}_{0}$)	0.012 (0.3)	Cylinder gauge
	Clearance	0.0007–0.0033 (0.020–0.086)	—	
19.	P.T.O. shaft deflection (at tip)	—	0.012 (0.3)	Dial gauge
20.	Play in direction of rotation between all gears and shaft splines	—	0.012 (0.3)	

NOTES:

(1) Check to see that there is no looseness between the inner and outer faces of the ball bearings and needle bearings. If there is any looseness, or if any abnormal noises are heard when turned, or if it does not turn smoothly, replace.

Particular care should be taken in the case of needle bearings to see that the rollers are not cracked or chipped.

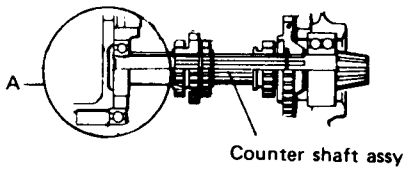
(2) If the gears have any uneven wear, galling, or scoring, they should be repaired or replaced.

1) Item 11 through 16 refer to measurements of the differential assembly; Item 12 is carried out at a point 90° from the axial direction of the motive power rotation shaft. Adjustments should be made in the following manner:

i) When the same drive pinion is reversed, use the shims that were fitted initially.

ii) When using a new ring gear and pinion:

a) Insert shims [(two sizes are available: 0.004, 0.012 in. (0.1, 0.3 mm)] between the transmission case and the transmission case front cover so that there is no space on the counter shaft.

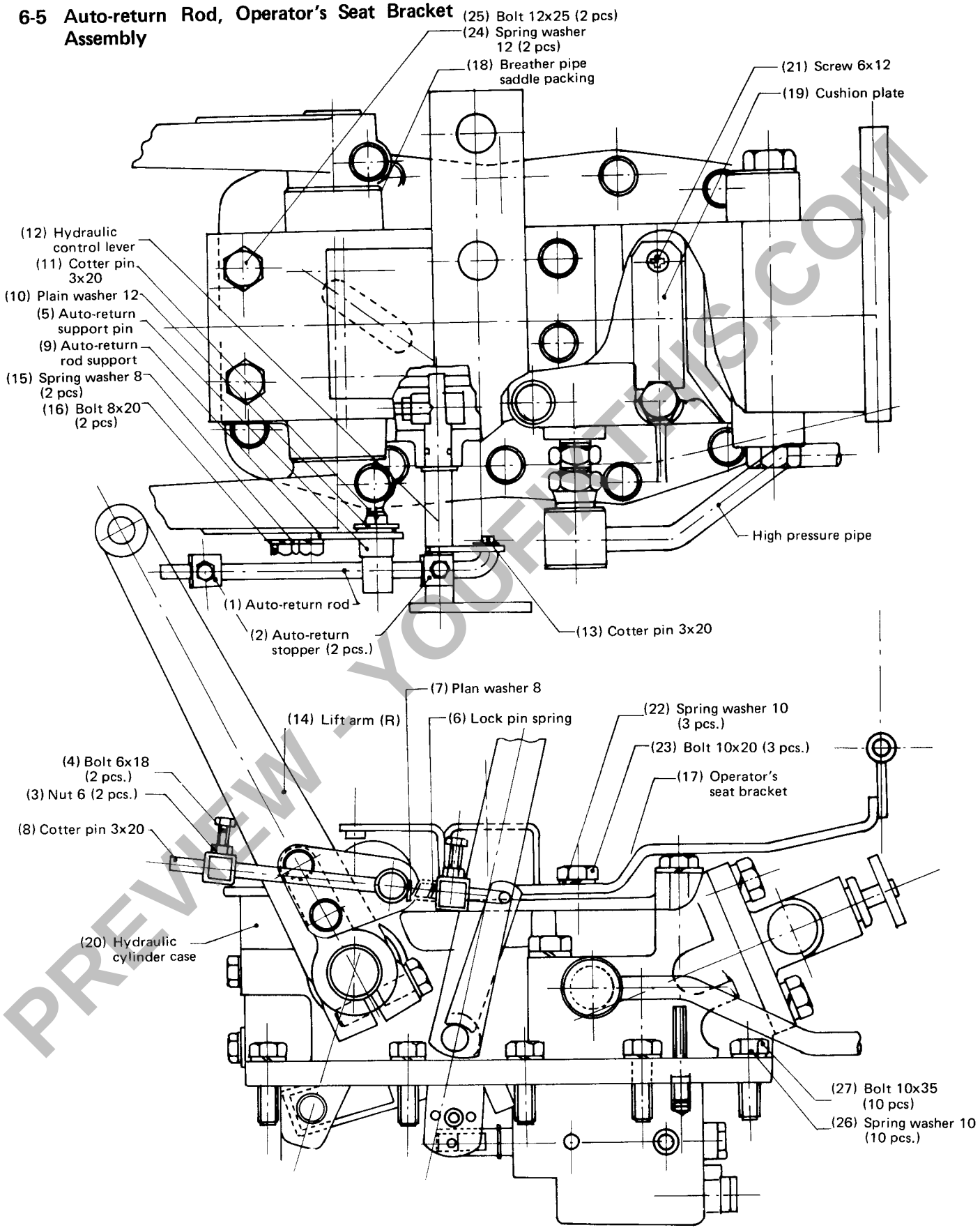


b) Fit the differential assembly into the final reduction gear case.

c) Insert shims [(two sizes are available: 0.004, 0.012 in. (0.1, 0.3 mm)] between the

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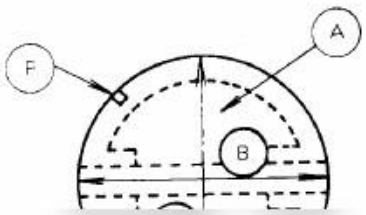
6-5 Auto-return Rod, Operator's Seat Bracket Assembly



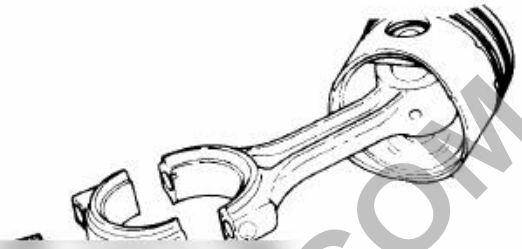
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9) Before installing pistons, make sure ring gaps are between piston pin direction (A) and piston thrust direction (B).



13) Position piston and rod so identification on rod faces to camshaft side of cylinder block.



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