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MODEL:

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MANUAL PREVIEW



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TM-1085

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All information, illustrations and specifications contained in this technical manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Service

Specification

Reference

Before Delivering Tractor—Continued

Check engine speeds	Slow idle, 800 rpm	
	High idle, 2650 rpm	
	Foot throttle, 2800 rpm	Section 30, Group 20

Operation

Check transmission clutch free travel (tractors without reverser)	Approximately 1-inch free pedal travel	Operator's manual
Check clutch wear adjustment (tractors with reverser)	5-1/4 in.	Operator's manual
Shift transmission through all speeds		Operator's manual
Check power takeoff operation		Operator's manual
Check differential lock operation		Operator's manual
Check steering operation		Operator's manual
Check brakes	Bleed brakes if spongy, check for excessive pedal travel, and even position	Operator's manual
Check hydraulic system operation: Rockshaft, and remote cylinder		Operator's manual
Check 3-point hitch operation		Operator's manual
Check negative stop screw adjustment		
Tractors without Independent PTO	1/4 turn	Section 70, Group 30
Tractors with Independent PTO	1/3 turn	Section 70, Group 30
Check operation of reverser, or Hi-Lo Shift		Operator's manual
Check seat operation		Operator's manual

General

Check Roll-Gard Mounting bolts for correct torque	300 ft-lbs	Section 10, Group 25
Check front axle-to-knee bolts for correct torque	300 ft-lbs	Section 80, Group 5
Tighten accessible nuts and cap screws		
Clean tractor and touch up paint		

ASSEMBLY

Install a new clutch housing-to-transmission case gasket and new rubber packings. Remove caplugs.

IMPORTANT: If tractor has a mid-PTO, be sure spring and ball are inserted in PTO drive shaft before joining units.

Join front and rear units. Reverse the numbered separation steps. Tighten cap screws to specified torque. See page 30-1 this section.

Install the transmission shield, footrests, clutch return spring, and drawbar.

Install hydraulic oil filter element and cover. Fill transmission to proper level.

Remove JDG-9 support stand, floor jack, and wood blocks.

SEPARATING TRACTOR FRONT END FROM ENGINE

Remove right-hand cowl. Disconnect battery cable and ground strap. Remove battery, side grille screens, hood, muffler, and front ballast (if used). Drain cooling system.



Fig. 7-Left-Hand Removal Procedures

1. Remove the air intake pipe (Fig. 7) and leak-off pipe.
2. Remove the upper and lower radiator hoses.

3. Disconnect drag link.

4. Remove side frames (if equipped).



Fig. 8-Right-Hand Removal Procedures

5. Remove hydraulic pipe clamps (Fig. 8).
6. Disconnect fuel gauge wire at connector.
7. Disconnect and remove engine oil cooler upper hose.
8. Disconnect fuel pipe at fuel pump.
9. Disconnect hydraulic reservoir vent hose.
10. Disconnect hydraulic pump drive coupling.
11. Disconnect hydraulic oil cooler outlet hose on tractors with Hi-Lo shift or reverser.
12. Remove hydraulic oil cooler return pipe from tractor (tractors with Hi-Lo shift or reverser). On tractors without Hi-Lo shift or reverser, remove the reservoir outlet pipes.
13. Disconnect hydraulic pump pressure pipe at connector.

Install JDG-9 support stand on tractor front end (Fig. 9), and install a support stand under clutch housing.

CAUTION: Before separating tractor, install a wood block between front support and axle on both sides of tractor to prevent tipping sideways. If necessary, use a floor jack or some other suitable method of supporting the tractor front end while separating to prevent tipping forward.

Adjust valve clearance on No. 1 and 3 exhaust and on No. 1 and 2 intake valves to clearances specified. Using a feeler gauge to measure clearance, turn valve adjusting nut up or down until clearance is correct (Fig. 7).

Pull out timing pin and rotate engine 360°. Allow pin to drop into flywheel hole.

Adjust valve clearance on No. 2 and 4 exhaust and No. 3 and 4 intake valves to clearances specified.

Remove engine rotation tool and reinstall timing hole cover.

Retighten cylinder head cap screws and recheck valve clearances after one hour run-in with engine at 2500 rpm with 1/2 load.

CAMSHAFT

Removal

To service camshaft, engine normally need not be removed from the tractor.

Disconnect battery ground straps.

Remove parts necessary to separate engine from tractor front end.

NOTE: See Section 10, Group 25, for separation instructions.

Remove all parts as necessary to remove camshaft. Cylinder head need not be removed unless desired. Remove crankshaft pulley with puller. Identify parts for reassembly.

NOTE: Set No. 1 piston at "TDC" on compression stroke to align timing marks on crankshaft and camshaft gears. This will aid timing on reassembly.

Remove push rods. Use ND425 magnetic holding tool set to hold cam followers away from the camshaft, if the cylinder head hasn't been removed. If followers are removed, mark them for identification on reassembly.

Before removing camshaft, check camshaft end play. End play on a new engine should be 0.0025 to 0.0085 inch. However, end play of 0.0150 inch on an engine that has been in operation is acceptable. Excessive end play would indicate a worn thrust washer.

Remove oil pan and oil pump.

Remove top idler gear and two cap screws holding cam thrust plate.

Carefully slide camshaft from cylinder block. Do not allow camshaft to drag in bore while removing.

Inspection and Repair

Inspect camshaft journals (Fig. 8) and bores in block for wear or damage. Excessive wear may indicate excessive end play. O.D. of journal is 2.1997 to 2.2007 inch. I.D. of the bore is 2.2042 to 2.2052 inch. Maximum allowable clearance is 0.0035 to 0.0055 inch.

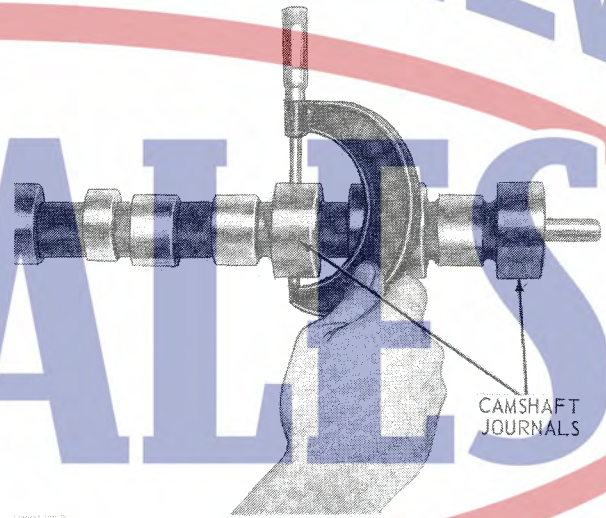


Fig. 8-Measuring Camshaft Journal

New thrust plate thickness is 0.1560 to 0.1580 inch. Maximum wear of 0.0050 inch is allowable.

If necessary, replace camshaft drive gear by pressing gear from shaft. Support camshaft under first journal. With timing mark of new gear facing away from camshaft, align gear and camshaft keyways, install Woodruff key, and press gear on until tight against cam shoulder.

If necessary, remove tachometer drive shaft by threading shaft end, placing hex. nut on shaft, and pulling from camshaft.

Check camshaft lobes and oil pump drive gear for wear or damage. Replace camshaft if necessary.

If camshaft is replaced, cam followers must also be replaced.

Group 35

SPECIFICATIONS AND SPECIAL TOOLS

SPECIFICATIONS

Item	Measurement	Specification	Wear Tolerance
Cylinder Head, Valves, and Camshaft			
Valves			
Intake	Clearance	0.014 in.	
Exhaust	Clearance	0.018 in.	
Valve lift at specified clearance		0.460 to 0.480 in.—intake	0.430 in.
		0.456 to 0.482 in.—exhaust	0.426 in.
Valve springs	Compressed (valve closed)	1.81 in. at 54 to 62 lbs.	
	Compressed (valve open)	1.36 in. at 133 to 153 lbs.	
Valve stem	O.D.	0.3715 to 0.3725 in.	
Valve face	Angle	44.5°	
Valve guides	I.D.	0.3745 to 0.3755 in.	
Valve stem to guide	Clearance	0.0020 to 0.0040 in.	0.0060 in.
Valve seat	Concentricity	Within 0.0020 in. with valve guides	
	Angle	45°	
	Width	0.060 to 0.070 in.	
Valve in head	Recessed	0.0230 to 0.0470 in.—intake	
		0.0380 to 0.0720 in.—exhaust	
Material removed from head	Maximum Amount	0.030 in.	
Rocker arm shaft	O.D.	0.7869 to 0.7879 in.	
Rocker arm bore	I.D.	0.7900 to 0.7920 in.	0.7940 in.
Camshaft	End play	0.0025 to 0.0085 in.	0.0150 in.
Camshaft journals	O.D.	2.1997 to 2.2007 in.	
Camshaft journal bore	I.D.	2.2042 to 2.2052 in.	
Journal to bore	Clearance	0.0035 to 0.0050 in.	
Camshaft thrust plate	Thickness	0.1560 to 0.1580 in.	0.1510 in.
Timing gear train			
Crankshaft to upper idler	Backlash	0.0027 to 0.0116 in.	
Upper idler to camshaft	Backlash	0.0028 to 0.0135 in.	
Upper idler to injection pump	Backlash	0.0028 to 0.0135 in.	
Crankshaft to lower idler	Backlash	0.0027 to 0.0137 in.	
Lower idler to oil pump	Backlash	0.0016 to 0.0147 in.	
Idler gear	End play	0.0010 to 0.0070 in.	0.0150 in.
Idler gear shaft bushing	I.D.	1.7515 to 1.7535 in.	
Idler gear shaft	O.D.	1.7495 to 1.7505 in.	
Idler gear shaft to bushing	Clearance	0.0010 to 0.0040 in.	0.0150 in.
Balancer shaft	End play	0.0020 to 0.0080 in.	0.0150 in.
Balancer shaft thrust plate	Thickness	0.1170 to 0.1190 in.	
Balancer shaft journal	O.D.	1.4995 to 1.5005 in.	
Balancer shaft bushing	I.D.	1.5020 to 1.5040 in.	
Balancer shaft to bushing	Clearance	0.0015 to 0.0045 in.	0.0060 in.

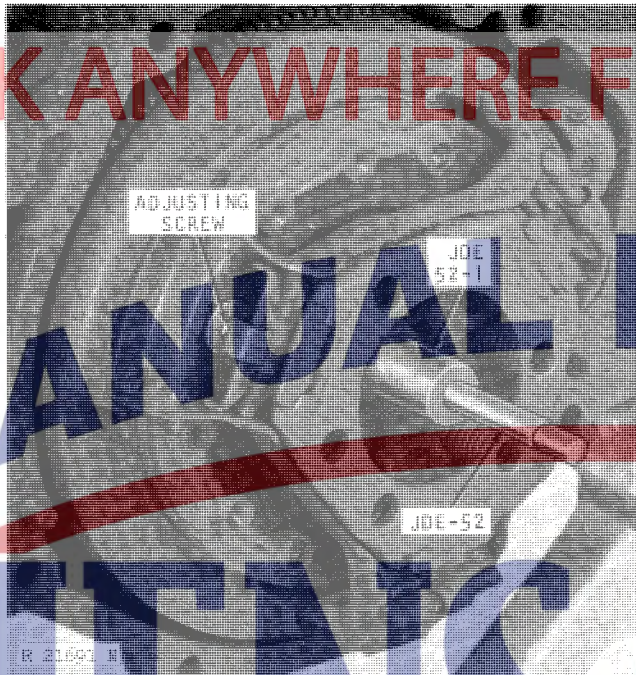


Fig. 4-Installing Pressure Plate Assembly

Position pressure plate assembly on flywheel with tool inserted into assembly (Fig. 4). Tighten attaching cap screws to 35 ft-lbs torque and remove tool.

Adjustment



Fig. 5-Adjusting Clutch Release Levers

NOTE: If a used clutch disk is to be reinstalled, use a new clutch disk to make the adjustment, then remove the new disk and install the used one.

Adjust the setting of the clutch release levers using JD227 clutch adjusting tool (See Special Tools).

Place a gauge over the pressure plate with the gauge legs resting on the flywheel (not on any portion of the pressure plate rim) and with the notched-out area (on JD227) of gauge over a release lever (Fig. 5). Move the adjusting screw in or out to place release levers at the proper level. Repeat the above procedure on the remaining release levers.

After the release levers are adjusted and lock nuts tightened, depress the clutch levers several times. Recheck adjustment. If the levers dropped excessively, this process should be repeated until the setting is permanent. Install return clips.

To insure proper clutch functioning, the variation in the adjusted height of the release levers should not exceed 0.010 inch.

Join engine to clutch housing as instructed in Section 10, Group 25.

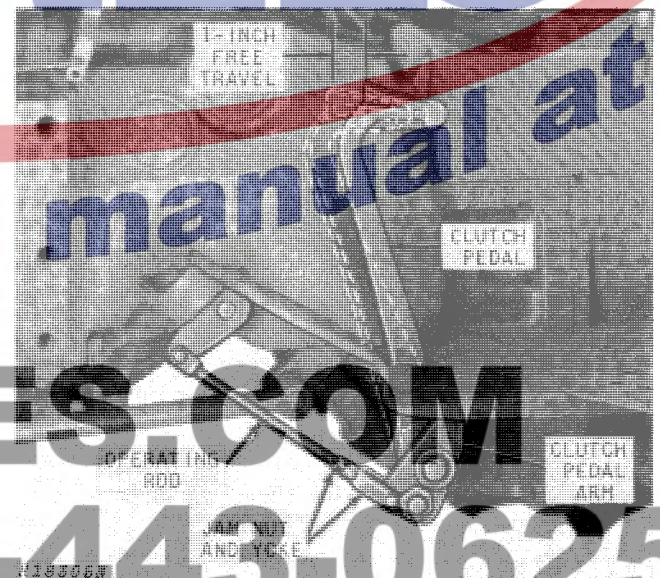


Fig. 6-Adjusting Clutch Pedal Free Travel

Adjust clutch pedal to obtain one inch clutch free travel. Loosen yoke from pedal arm and turn yoke until clearance is achieved. Insert pin and install cotter pin.