John Deere

MODEL:

2040

S/n 100,001 - 349,999

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## 2040 TRACTOR TECHNICAL MANUAL

**TM-4300 (SEP-77)**

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TRACTOR SEPARATION
(Open Center System)

SEPARATING BETWEEN ENGINE AND TRACTOR FRONT END

REMOVAL

For safety disconnect ground straps from batteries.
Remove front end weights (if equipped).
Remove radiator and fuel tank caps. Remove radiator side grille screens and hood. Install radiator and fuel tank caps. Remove tool box and side frames.

Close fuel shut-off valve at bottom of fuel tank.
Disconnect fuel inlet line at fuel tank and transfer pump. Remove transfer pump and fuel inlet line.

Drain coolant and disconnect upper and lower water hose at radiator.

NOTE: Plug lines and openings immediately with plugs or caps.

Disconnect drag link at bell crank. Securely support rear of tractor under clutch housing.

Insert wood blocks between front axle and front support to prevent the latter from tipping sideways.

Install JDG-9 support stand on flywheel housing.

Fig. 1—Separating between Tractor Front End and Engine

1. Cap screws
2. Cable of air cleaner restriction warning switch
3. Cable of fuel gauge sending unit

Disconnect air intake pipe 6 (fig. 1) at engine intake manifold and air cleaner.

Disconnect fuel return line 4 at fuel tank.

Disconnect cable 2 at air cleaner restriction warning switch and disconnect cable 3 at fuel gauge sending unit.

Drain coolant and disconnect upper and lower water hose at radiator.

Fig. 2—Disconnecting Hydraulic Oil Lines

1. Retainer
2. Cap screw
3. Hydraulic pump suction line
4. Pressure line of tractor hydraulic system pump
5. Pipe clamps
6. Pressure line of power steering system pump
7. Power steering return line
8. Power steering pressure line
9. Power steering pressure relief valve return line

Remove pipe clamps 5 (fig. 2). Remove cap screw 2 and retainer 1 for attaching suction line 3 to front of clutch housing. Disconnect pressure line 4 at union.

Disconnect pressure line 6 of power steering system pump at union. Disconnect power steering return line 7 and power steering pressure relief valve return line 9 from hydraulic pump suction line 3.

NOTE: Plug lines and openings immediately with plugs or caps.

Disconnect drag link at bell crank. Securely support rear of tractor under clutch housing.

Insert wood blocks between front axle and front support to prevent the latter from tipping sideways.

Install JDG-9 support stand on flywheel housing.
INSTALLATION

Install camshaft, observing the following:

1. Coat camshaft with light, clean engine oil.

2. When installing, make sure that cam lobes do not damage bearing bores in block.

3. Rotate camshaft until cap screws attaching thrust plate can be installed and tighten them to specified torque.

4. Check camshaft end play (a new camshaft and a new thrust plate should add up to the proper end play).

NOTE: Take care not to spring front plate, when checking end play.

5. With crankshaft at TDC and piston No. 1 (front) on compression stroke, adjust camshaft for valve timing.

6. With camshaft gear in this position, install upper idler gear and tighten cap screw to specified torque (see Torques for Hardware).

Install cam followers, cylinder head, timing gear cover and fuel transfer pump.

Run engine for some time at a specified load (see Specifications) and then retighten cylinder head cap screws to specified torque. Check valve clearance and readjust, if necessary.

Fig. 10 - Measuring Camshaft End Play

Fig. 11 - Timing Camshaft Gear by Means of Timing Tool No. JD 254

Use timing tool No. JD 254 to align timing mark (see "b", fig. 9) on camshaft gear with crankshaft center.

Fig. 11 - Measuring Camshaft End Play
If ring gear has to be replaced, heat gear evenly and lift away from flywheel. Also heat new gear evenly to 150\(^\circ\)C (300\(^\circ\)F) and install with chamfered edge of teeth facing away from flywheel. Do not overheat.

Check flywheel pilot bearing for wear and replace, if necessary.

Check flywheel housing and speed-hour meter drive shaft for damage. Check drive shaft rubber gasket for serviceability.

Check oil seal of flywheel housing, especially sealing lip, for proper condition; replace, if necessary. Press unserviceable oil seal out of flywheel housing, using a suitable tool. Support housing securely in bore area to avoid damage.

Use the driver JD 297-1 with the handle to drive in the oil seal until the driver bottoms on the pilot (see fig. 1).

**NOTE:** It is not necessary to use 27489 handle with the JD 297-1 driver to install the oil seal but it does help.

**CHECKING CRANKSHAFT**

Clean crankshaft thoroughly, especially oil passages from crankshaft bearings to connecting rod bearings.

Check all crankshaft journals thoroughly. Make sure bearing faces are not damaged or excessively worn. If scores are not deep, carefully dress journals by means of fine emery cloth or polishing cloth.

**IMPORTANT:** Especially check both shoulders of thrust bearing journal for scores or unevenness which might damage the lateral thrust faces of the thrust bearing.

Measure each journal at several places by means of a micrometer to determine out-of-roundness and/or taper due to wear (see Specifications).

The flywheel end of the crankshaft has an axial bore receiving a plug. This plug receives the thrust exerted by the shaft. If the plug is worn or damaged, pull out old plug and insert a new plug in crankshaft bore.

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The dump valve 1 (figs. 1 and 2) consists essentially of main valve 2 and control valve 3. In neutral position, oil (see item 4) from the hydraulic pump flows through the dump valve and returns to the transmission case through port 6. In this position, the main valve 2 is closed by its spring while control valve 3 is open.

When moving rockshaft control lever to "lift" position, the pressure valve 11 is opened, causing a pressure drop behind the main valve 2. Pressure oil 4 now overcomes spring tension of main valve and pushes the ball off its seat. At the same time, oil flowing through channel 8 and pilot line 10 closes control valve 3 (see fig. 2).