BOLT TORQUE CHART

Grade of Bolt		SAE-2	SAE-5	SAE-8		
Min. Tensile Strength		64,000 PSI	105,000 PSI	150,000 PSI		
Grade Marking on Bolt					Socket or Wrench Size	
U.S. Standard					U.S. Regular	
Bolt Dia.	U.S. Dec. Equiv.		TORQUE IN FOOT POUNDS		Bolt Head	Nut
1/4	0.250	(8.14 N-m) 6	(13.56 N-m) 10	(18.98 N-m) 14	7/16	7/16
5/16	0.3125	(17.63 N-m) 13	(27.12 N-m) 20	(40.68 N-m) 30	1/2	1/2
3/8	0.375	(31.19 N-m) 23	(47.46 N-m) 35	(67.80 N-m) 50	9/16	9/16
7/16	0.4375	(47.46 N-m) 35	(74.58 N-m) 55	(108.48 N-m) 80	5/8	11/16
1/2	0.500	(74.58 N-m) 55	(115.26 N-m) 85	(162.72 N-m) 120	3/4	3/4
9/16	0.5625	(101.70 N-m) 75	(176.28 N-m) 130	(237.30 N-m) 175	13/16	7/8
5/8	0.625	(142.38 N-m) 105	(230.52 N-m) 170	(325.44 N-m) 240	15/16	15/16
3/4	0.750	(250.86 N-m) 185	(406.80 N-m) 300	(576.30 N-m) 425	1-1/8	1-1/8
7/8	0.875	*(216.96 N-m) 160	(616.98 N-m) 445	(928.86 N-m) 685	1-5/16	1-5/16
1	1.000	(339.00 N-m) 250	(908.52 N-m) 670	(1396.68 N-m) 1030	1-1/2	1-1/2

Multiply readings by 12 for inch-pound values.

** "B" Grade bolts larger than 3/4-inch (19.1 mm) are sometimes formed hot rather than cold, which accounts fo the lower recommended torque.*

NOTE: Allow a tolerance of plus or minus 10 per cent on all torques given in this chart.

SET SCREW SEATING TORQUE CHART

Screw Size	Cup Point	Square Head
	Torque in Inch Pounds	
#5	(1.02 N-m) 9	—
#6	(1.02 N-m) 9	—
#8	(2.26 N-m) 20	—
#10	(3.73 N-m) 33	—
1/4	(9.83 N-m) 87	(23.96 N-m) 212
5/16	(18.65 N-m) 165	(47.46 N-m) 420
3/8	(32.77 N-m) 290	(93.79 N-m) 830
7/16	(48.59 N-m) 430	—
1/2	(70.06 N-m) 620	(237.30 N-m) 2100
9/16	(70.06 N-m) 620	—
5/8	(138.43 N-m) 1225	(480.25 N-m) 4250
3/4	(240.13 N-m) 2125	(870.10 N-m) 7700

Divide readings by 12 for foot-pound values
NOTE: Allow a tolerance of plus or minus 10 per cent on all torques given in this chart.

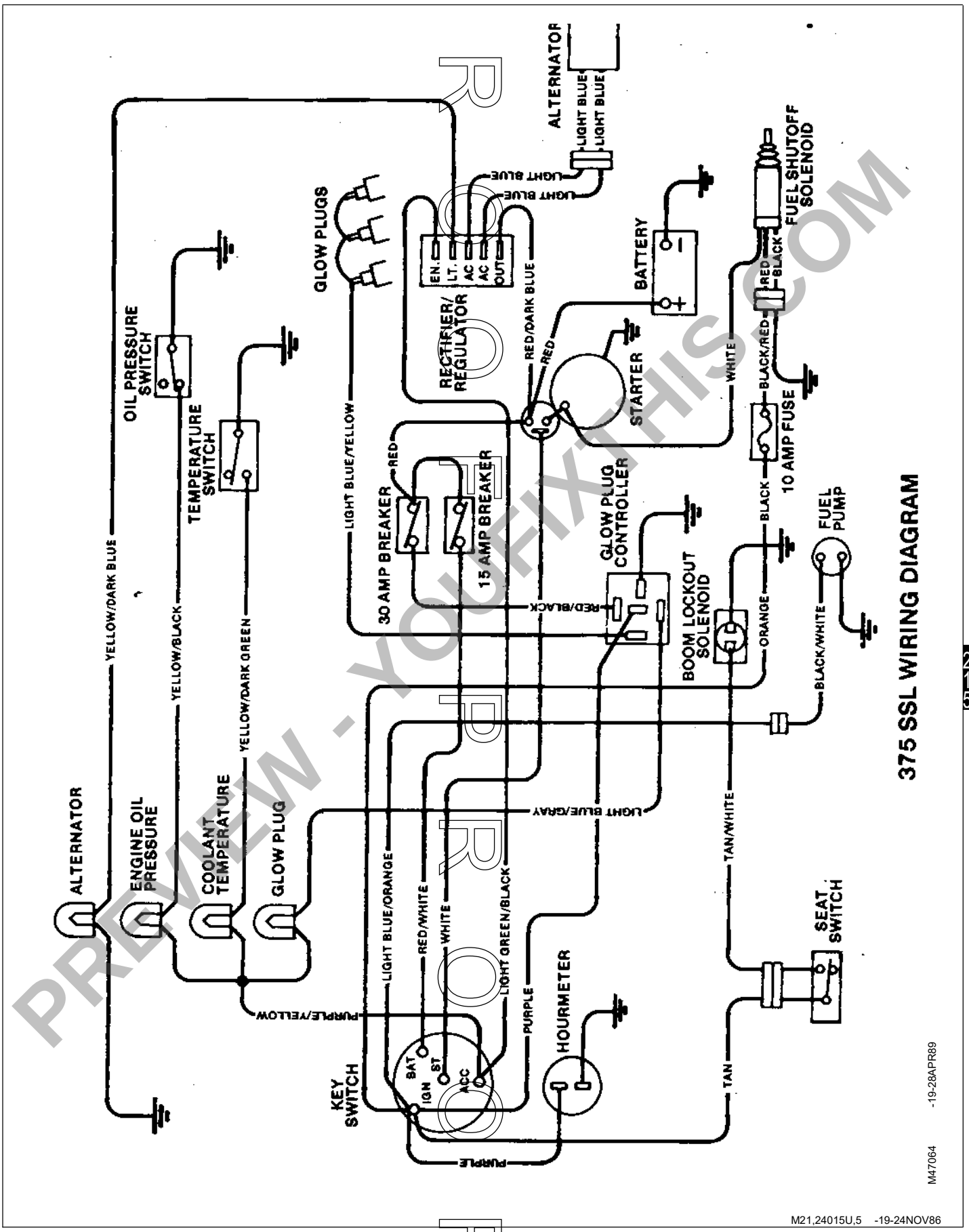
-19-28APR89

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M21,1010K,C -19-25AUG82

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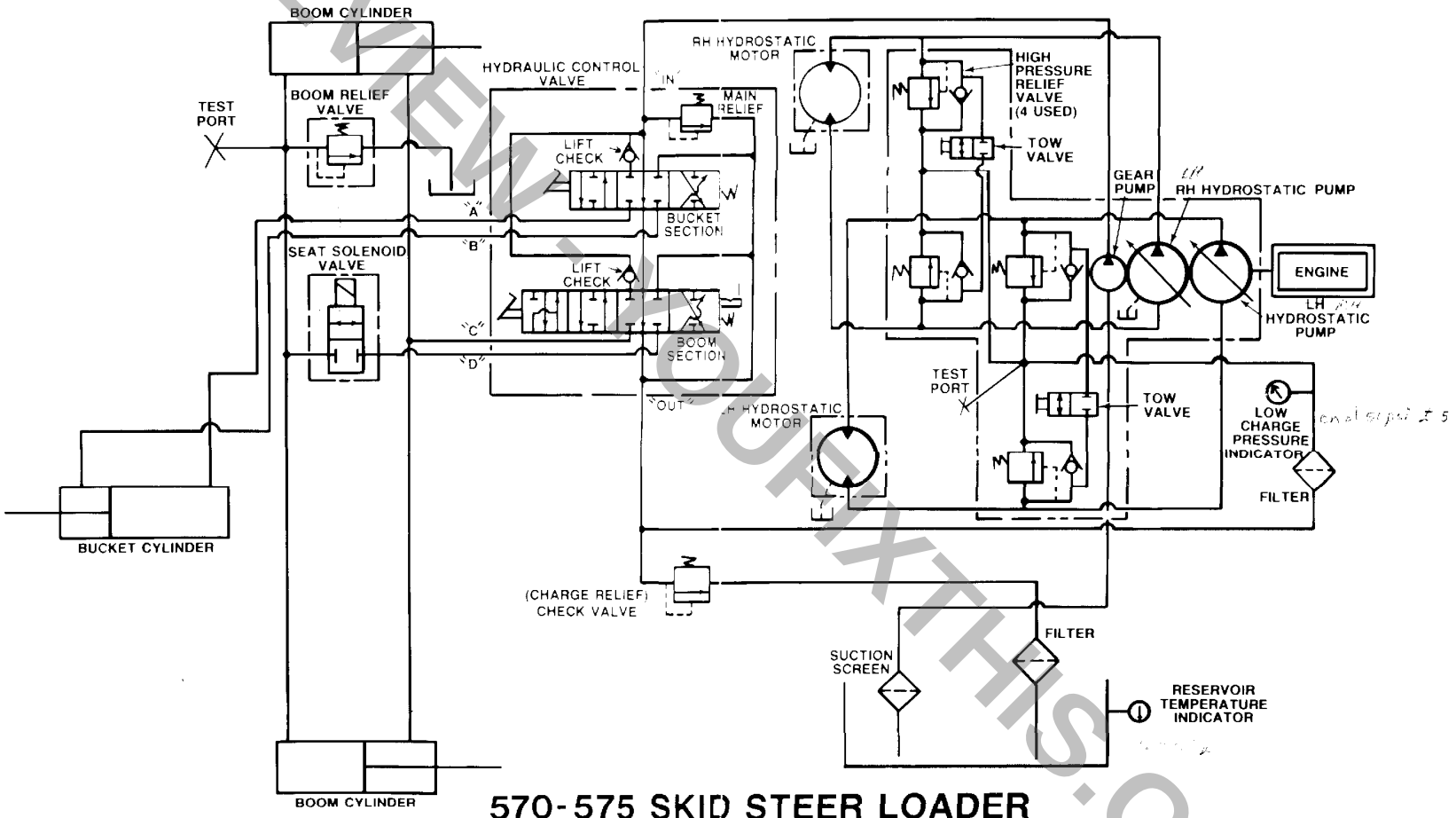
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570-575 SKID STEER LOADER

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REMOVE ENGINE

CAUTION: Skid steer is very unbalanced if bucket or attachment is on lift arms. Remove bucket or attachment before removing engine.

1. Remove bucket or any lift arm attachment.

2. Park skid steer safely. Put lift arms on lift arm stops. Open engine shield.

3. Remove radiator. (See Remove Radiator in Section 20, Group 10.)

4. Remove battery.



M38993 -UN-29AUG88

M21,2005U,C -19-09APR86

5. Remove three lower cap screws on engine shield.



M50482 -UN-03JAN90

M21,2005U,D -19-09APR86

CAUTION: Engine shield is heavy. Handle this weight safely.

6. Open engine shield. Remove three cap screws on each side of engine shield. Remove engine shield.



M50484 -UN-04JAN90

M21,2005U,E -19-09APR86

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METRIC HARDWARE TORQUE SPECIFICATIONS

Metric Standard Thread

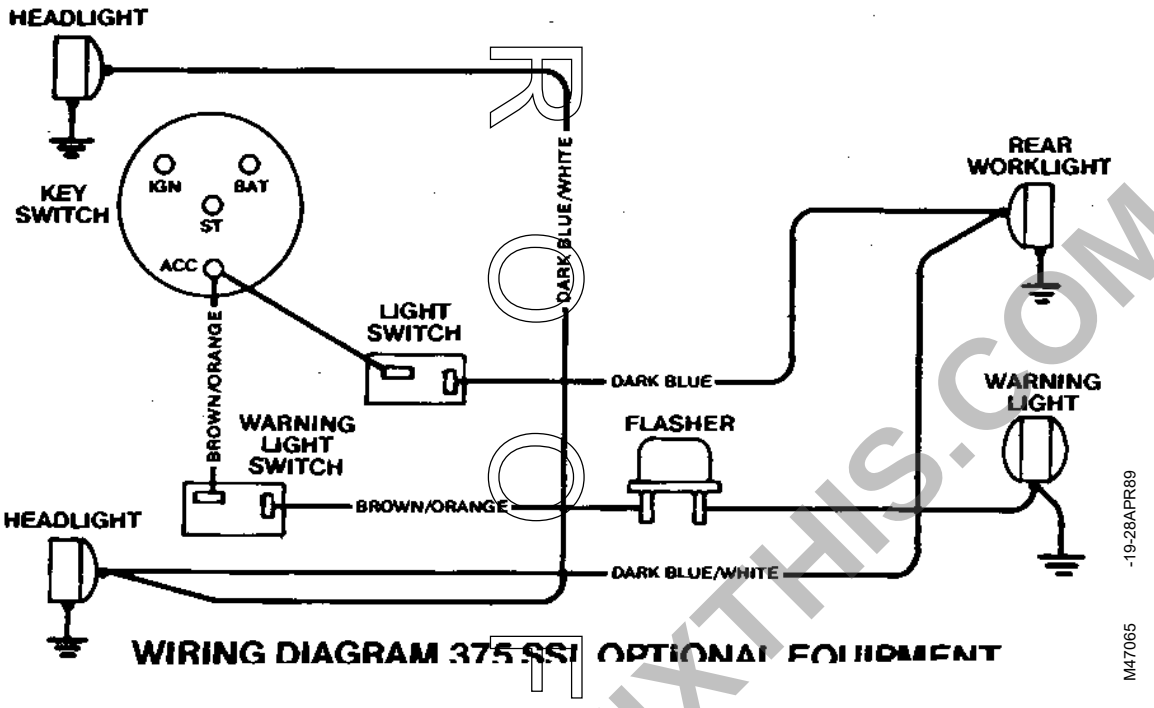
Thread	8.8		10.9		12.9	
	N·m	(lb-ft)	N·m	(lb-ft)	N·m	(lb-ft)
M5	5.9	(4.4)	7.9	(5.8)	9.8	(7.2)
M6	9.8	(7.2)	13.8	(10.2)	16.7	(12.3)
M8	24.6	(18.1)	34.4	(25.4)	40.2	(29.6)
M10	48.1	(35.5)	67.8	(50.0)	81.5	(60.1)
M12	84.4	(62.2)	118.0	(87.0)	142.0	(105.0)
M14	133.0	(98.0)	187.0	(138.0)	226.0	(187.0)
M16	206.0	(152.0)	290.0	(214.0)	348.0	(257.0)
M18	285.0	(210.0)	398.0	(294.0)	476.0	(351.0)
M20	402.0	(296.0)	570.0	(420.0)	677.0	(499.0)
M22	540.0	(398.0)	765.0	(564.0)	914.0	(674.0)
M24	697.0	(514.0)	980.0	(723.0)	1180.0	(870.0)

Metric Fine Thread

Thread	8.8		10.9		12.9	
	N·m	(lb-ft)	N·m	(lb-ft)	N·m	(lb-ft)
M8 x 1	26.5	(19.5)	37.3	(27.5)	44.2	(32.6)
M10 x 1	47.1	(34.7)	68.8	(50.7)	81.5	(60.1)
M12 x 1.5	88.4	(65.2)	123.0	(91.0)	147.0	(106.0)
M14 x 1.5	147.0	(108.0)	206.0	(152.0)	246.0	(181.0)
M16 x 1.5	221.0	(163.0)	309.0	(228.0)	373.0	(275.0)
M18 x 1.5	319.0	(235.0)	451.0	(333.0)	540.0	(398.0)
M20 x 1.5	451.0	(333.0)	628.0	(463.0)	755.0	(557.0)
M22 x 1.5	599.0	(442.0)	845.0	(623.0)	1030.0	(760.0)
M24 x 2	765.0	(564.0)	1080.0	(796.0)	1275.0	(940.0)
M26 x 2	1130.0	(833.0)	1570.0	(1158.0)	1915.0	(1412.0)

O53,TORQUE -19-13MAR85

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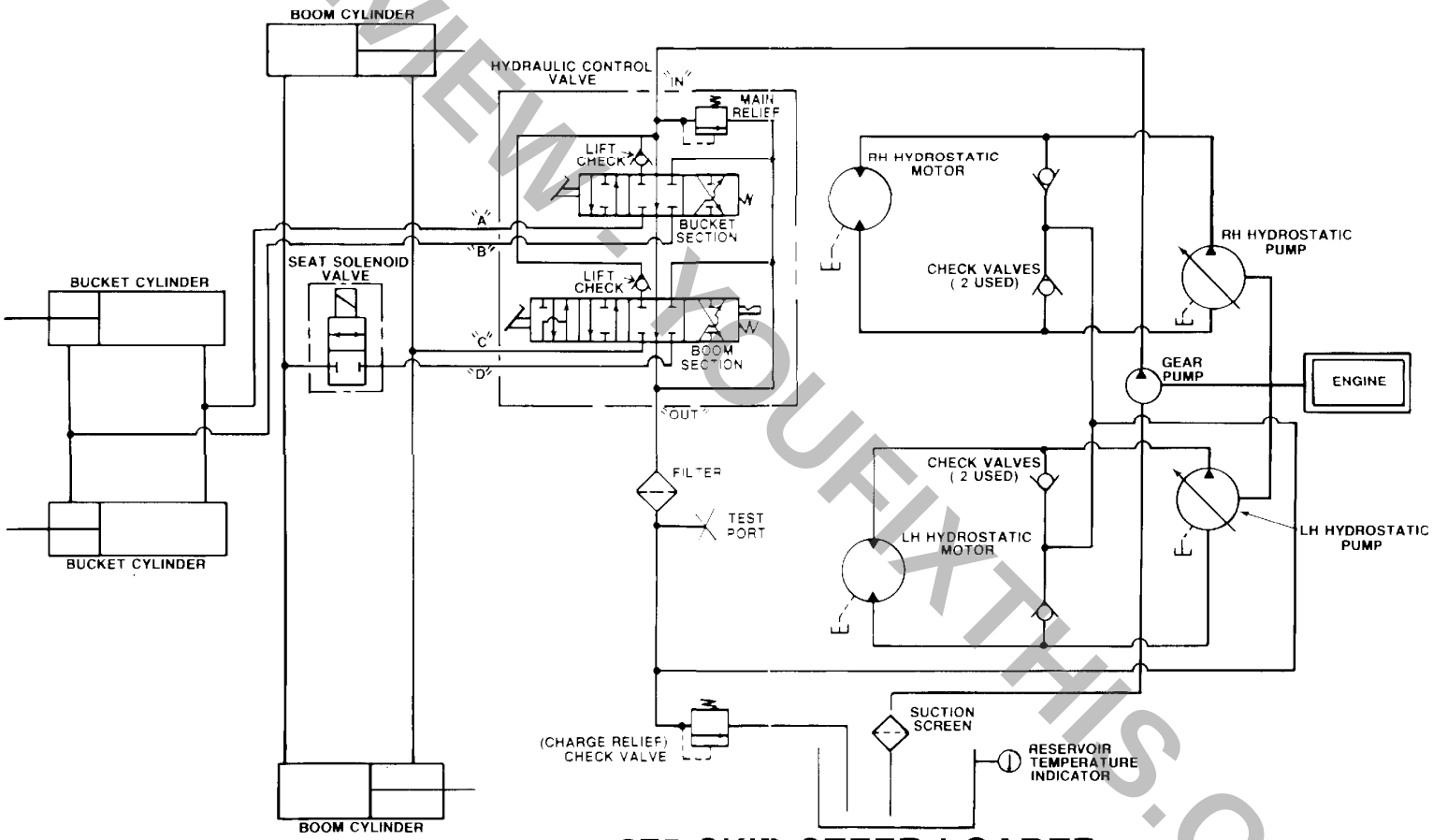


M21,24015U,6 -19-24NOV86

240
15
6

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375 SKID STEER LOADER

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INSTALL ENGINE MOUNTS

1. Install mounting pads n mounting brackets.

2. Install angle bracket (A). Tighten cap screws to 43 N·m (32 lb-ft).

3. Install mounting pads and brackets. Tighten cap screws to 89 N·m (66 lb-ft).



M21,2005U,W -19-09APR86

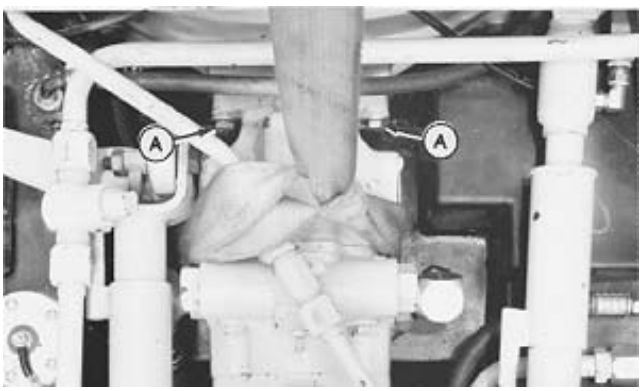
INSTALL ENGINE

1. Carefully lower engine into skid steer. Slide engine forward and tilt engine to align splines on pump shaft with splines on center flex coupler. Make sure pump housing fits into flywheel cover.



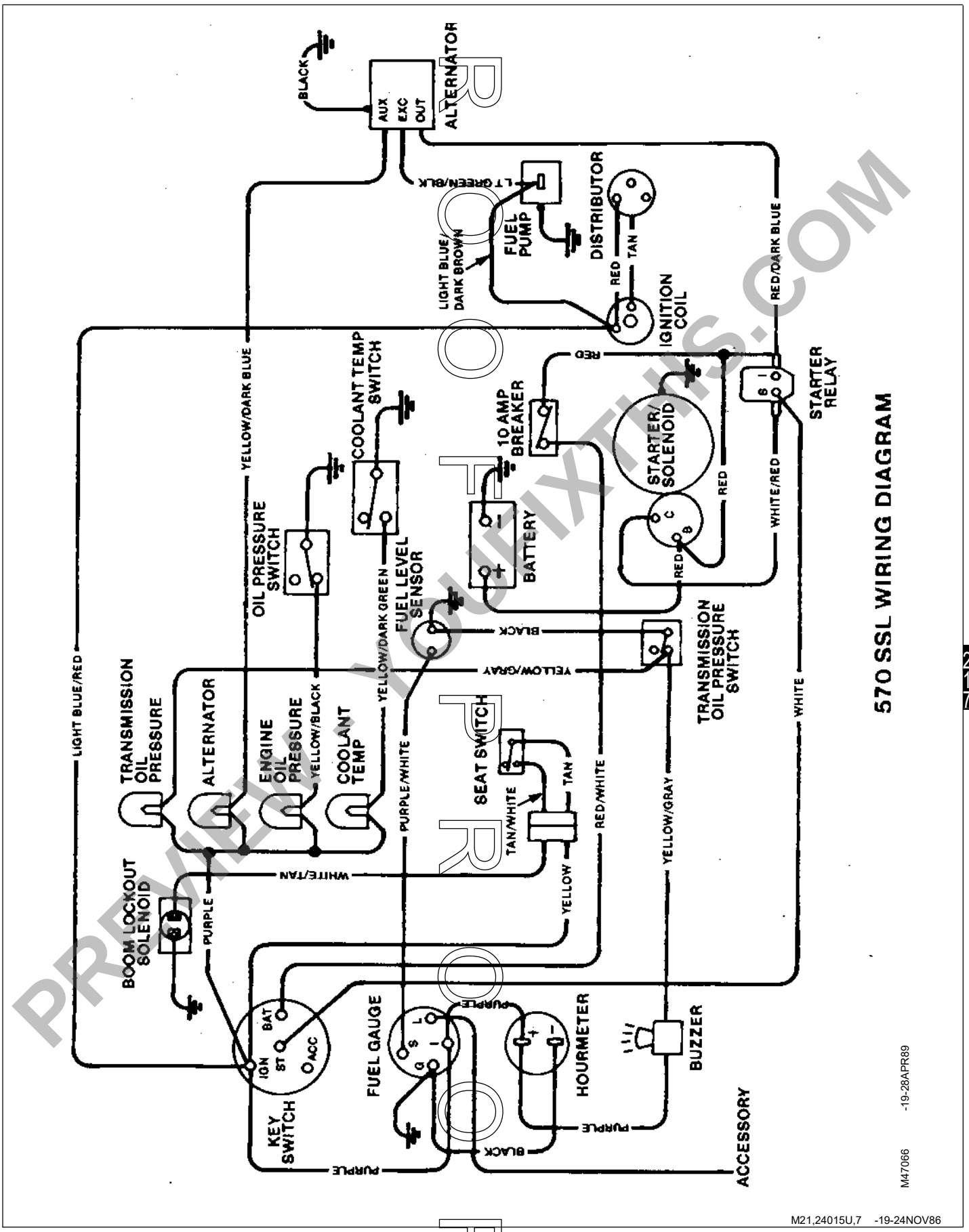
M21,2005U,X -19-09APR86

2. Install and tighten pump mounting cap screws (A) to 37—42 N·m (27—31 lb-ft). Remove lifting strap.



M21,2005U,Y -19-09APR86

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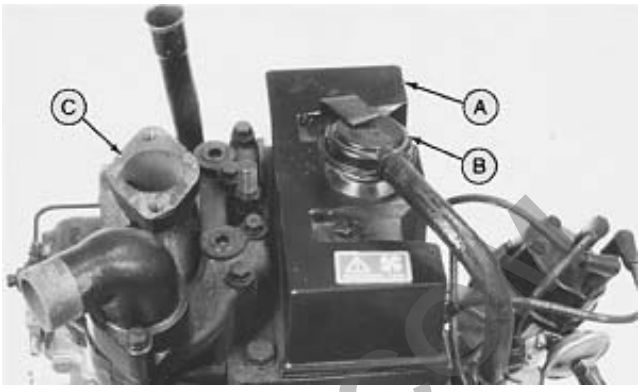
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REMOVE CYLINDER HEAD ASSEMBLY

NOTE: Cylinder head or water header can be removed with engine in unit.

1. Remove valve cover (A), filler cap (B), rocker arm assembly, and pushrods. (See Group 10 in this section).

2. Remove intake and exhaust manifold (C). (See Group 15 in this section).



-UN-04JAN90
M50516

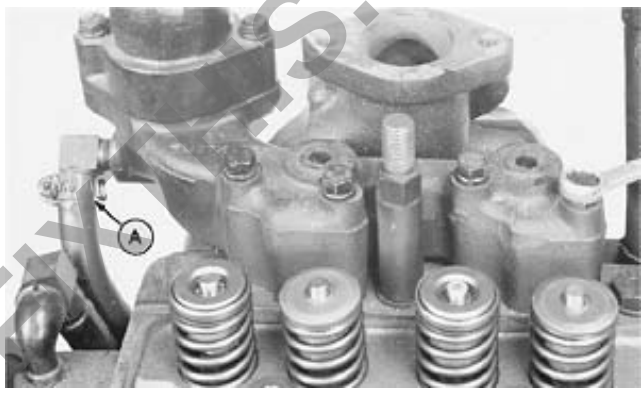
M21,2515U,K -19-19MAR86

25
15
6

NOTE: Head assembly can be removed without removing header, however, if head assembly is to be disassembled, water header should be removed for ease of handling.

3. Disconnect oil cooler hose (A).

4. Remove four cap screws to remove water header and gasket.

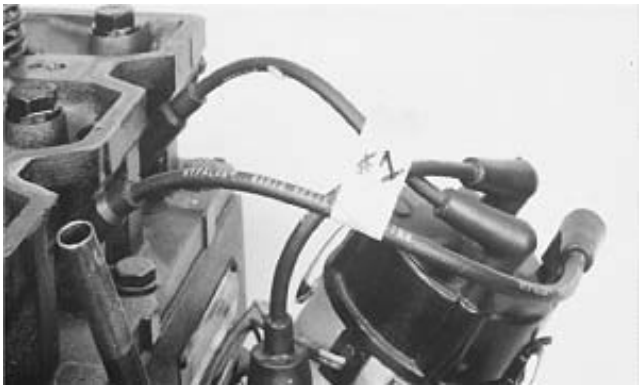


-UN-04JAN90
M50517

M21,2515U,L -19-19MAR86

5. Mark a spark plug wire for location purposes during reassembly.

6. Disconnect spark plug wires and remove spark plugs.



-UN-04JAN90
M50518

M21,2515U,M -19-19MAR86

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A John Deere ILLUSTRUCTION™ Manual

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FEATURES OF THIS TECHNICAL MANUAL

John Deere ILLUSTRUCTION format emphasizing illustrations and concise instructions in easy-to-use modules.

Emphasis on diagnosis, analysis, and testing so you can understand the problem and correct it.

Diagnostic information presented with the most logical and easiest to isolate problems first to help you identify the majority of routine failures quickly.

Step-by-step instructions for teardown and assembly.

Summary listing at the beginning of each group of all applicable specifications, wear tolerances, torque values, essential tools, and materials needed to do the job.

An emphasis throughout on safety—so you do the job right without getting hurt.

This technical manual was planned and written for you—an experienced service technician. Keep it in a permanent binder in the shop where it is handy. Refer to it when you need to know correct service procedures or specifications.



RW5560 -UN-23AUG88

O53,INTRO3 -19-07OCT85

SAFETY AND YOU

CAUTION: This safety symbol is used for important safety messages. When you see this symbol, follow the safety message to avoid personal injury.



T81389 -UN-07DEC88

M45,1005A,3 -19-09JAN85

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10
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25
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INDX

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3. Install and tighten engine mounting bracket cap screws to 89 N·m (66 lb-ft).



M21,2005U,Z -19-09APR86

4. Install oil fill tube (B).

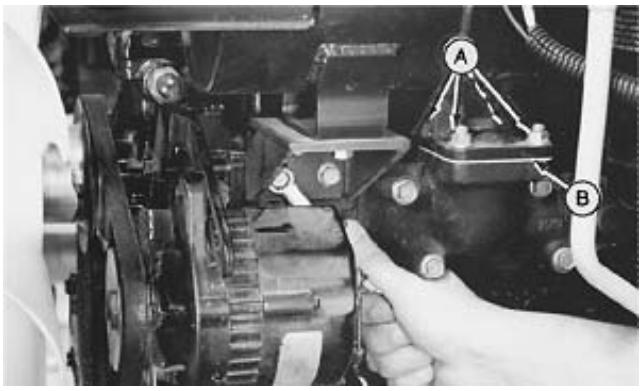
5. Remove engine lifting strap (A). Install wiring harness strap in its place.



M21,2005U,AA -19-09APR86

6. Install gasket (B) and muffler assembly on engine. Install and tighten four cap screws (A).

7. Install and tighten two mounting cap screws.



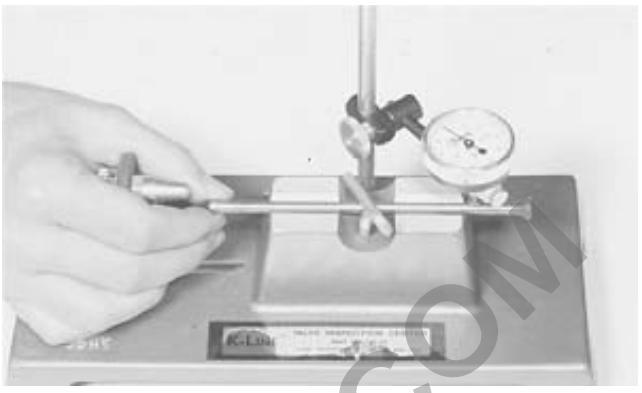
M21,2005U,AB -19-09APR86

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2. Measure pushrod total indicator runout (TIR) using valve inspection center.

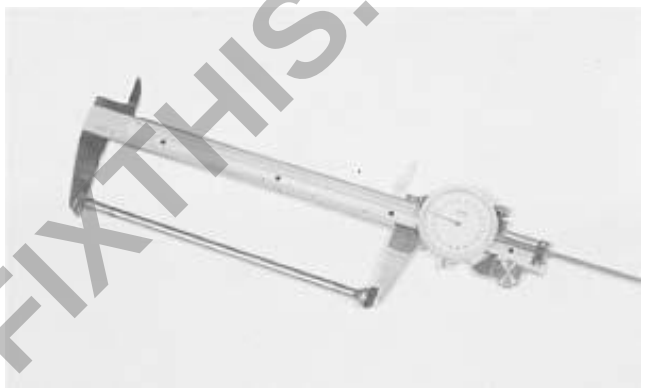
If pushrod TIR is above 0.3 mm (0.012 in.), replace it.



M21,2510U,O -19-09JUN86

3. Measure pushrod length. New pushrod length specification is 294.6—296.0 mm (11.60—11.65 in.).

If pushrod length is below 293.8 mm (11.57 in.), replace it.



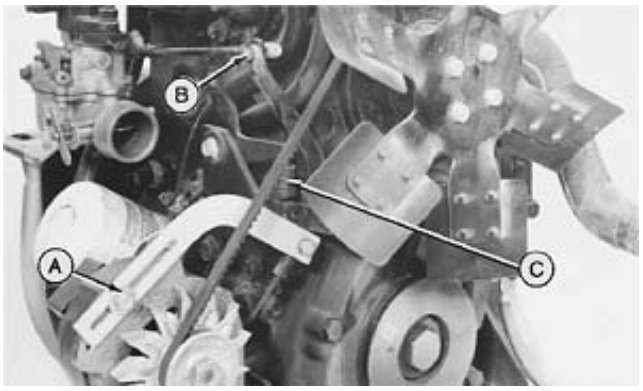
M21,2510U,P -19-09JUN86

REMOVE CAMSHAFT

1. Remove engine. (See Group 05, this section.)

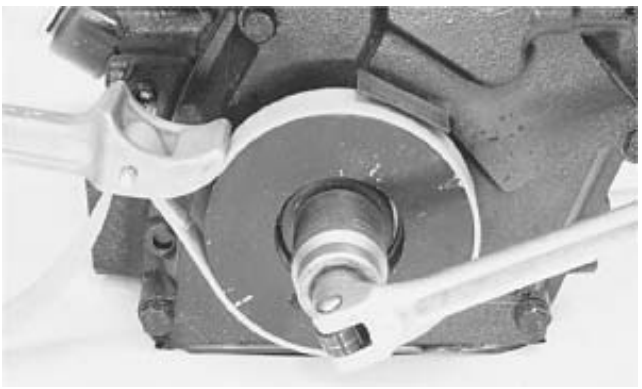
2. Loosen cap screw (A) to remove alternator belt.

3. Disconnect governor linkage (B) and spring (C).



M21,2510U,Q -19-19MAR86

4. Hold crankshaft pulley in place with a strap wrench. Remove cap screw and washer.

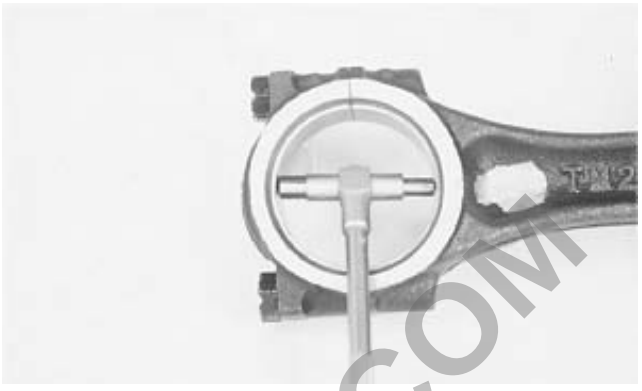


M21,2510U,R -19-19MAR86

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3. Install connecting rod cap and bearing insert on connecting rod. Tighten connecting rod cap screws to 20—26 N·m (175—225 lb-in.).

4. Measure connecting rod bearing diameter and connecting rod bearing clearance.



-UN-20DEC89
M50584

CONNECTING ROD BEARING SPECIFICATIONS

Bearing I.D. (new part)	40.00—40.042 mm (2.0615—2.0620 in.)
Bearing Clearance (bearing I.D. minus journal O.D.)	0.020—0.072 mm (0.008—0.00228 in.)

OVERSIZE CONNECTING ROD BEARING SPECIFICATIONS

Bearing I.D.	39.75—39.792 mm (1.565—1.567 in.)
Bearing I.D. (wear tolerance)	39.82 mm (1.568 in.)
Bearing Clearance (bearing I.D. minus journal O.D.)	0.020—0.072 mm (0.0008—0.0028 in.)
Bearing Clearance (maximum)	0.12 mm (0.0048 in.)

M21,2525U,V -19-09JUN86

5. Measure connecting rod bearing thickness.



-UN-20DEC89
M50585

CONNECTING ROD BEARING SPECIFICATION

Thickness (new part)	1.554—1.567 mm (0.0612—0.0617 in.)
Wear Tolerance	1.542 mm (0.0607 in.)

If bearing is worn but journal is not, install new bearings.

If bearing diameter thickness and clearance are within specifications and bearings are not damaged, bearings can be used.

M21,2525U,W -19-09JUN86

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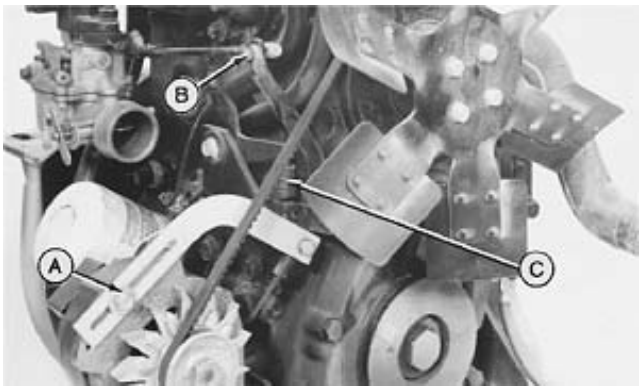
SPECIFICATIONS

Item	Measurement	Specification
OIL PUMP		
Gear	Backlash	0.089 mm (0.0035 in.)
Oil Pump Cap Screws	Torque	20—24 N·m (5—18 lb-ft)
GEAR HOUSING		
Gear Housing Cover Cap Screw	Torque	34—40 N·m (25—30 lb-ft)
Crankshaft Pulley Cap Screw	Torque	163—176 N·m 120—130 lb-ft
Alternator Belt	Deflection	13 mm (0.5 in.) applied halfway between pulleys
OIL PAN		
Oil Pan to Block Cap Screw	Torque	14—19 N·m (10—14 lb-ft)

M21,2540U,BA -19-09JUN86

REMOVE OIL PUMP

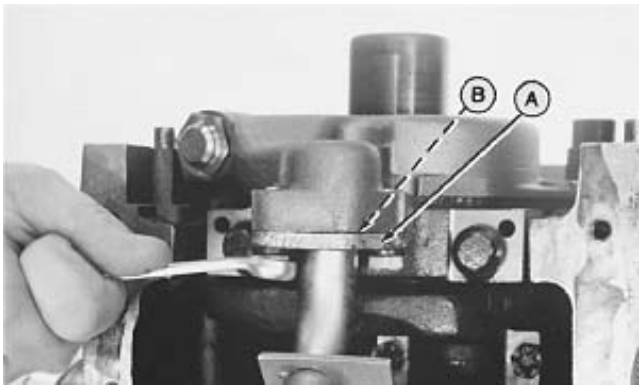
1. Remove engine, (See Group 05 in this section.)
2. Loosen cap screw (A) to remove alternator belt.
3. Disconnect governor linkage (B) and spring (C).
4. Drain and remove oil pan.



M50538 -UN-04JAN90

M21,2540U,C -19-21MAR86

5. Remove three cap screws, oil tube flange (A), and O-ring (B).



M50575 -UN-04JAN90

M21,2540U,D -19-21MAR86

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FUEL AND AIR SYSTEM (GASOLINE)

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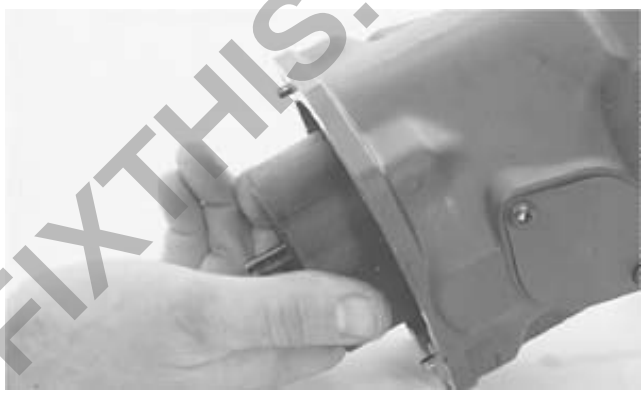
2. Gently tap back plate assembly with a plastic hammer to separate from pump housing.



M50643 -UN-20DEC89

M21,5005U,Q -19-11APR86

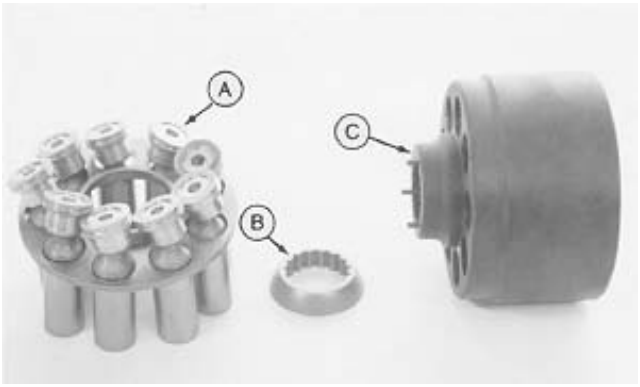
3. Remove piston block assembly intact by tipping pump housing into hand.



M50644 -UN-20DEC89

M21,5005U,R -19-11APR86

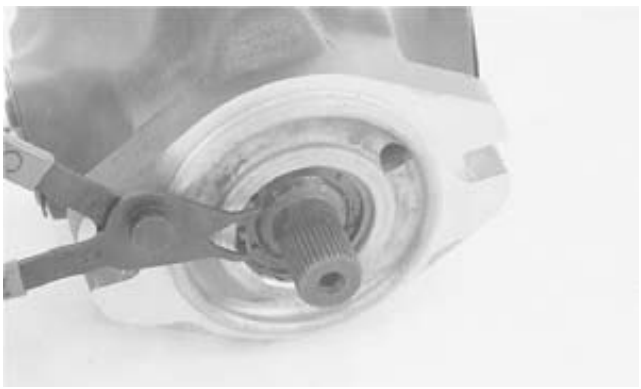
4. Remove piston assembly (A) and pivot (B) from piston block (C).



M50645 -UN-20DEC89

M21,5005U,S -19-11APR86

5. Remove retaining ring.



M50649 -UN-20DEC89

M21,5005U,T -19-11APR86

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ASSEMBLE HYDROSTATIC MOTOR

1. Dip parts in hydraulic oil.

2. Install one retaining ring (A) in groove on drive shaft.

3. Install one bearing race (B), bearing (C), and second bearing race (B).

4. Install remaining retaining ring in second groove on shaft.





M21,5010U,AO -19-11APR86

5. Install washer (B) on drive shaft (C).

6. Install new oil seal (A) on shaft with lip toward washer.



M21,5010U,AP -19-11APR86

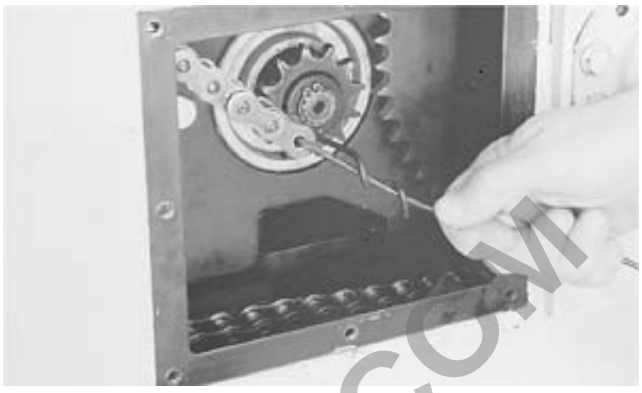
7. Install drive shaft assembly in housing. Press firmly on oil seal to seat shaft.



M21,5010U,AQ -19-11APR86

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6. Pull chain to center opening. Put wire over idler sprocket and between idler sprocket and final drive sprocket. Pull chain over idler sprocket.

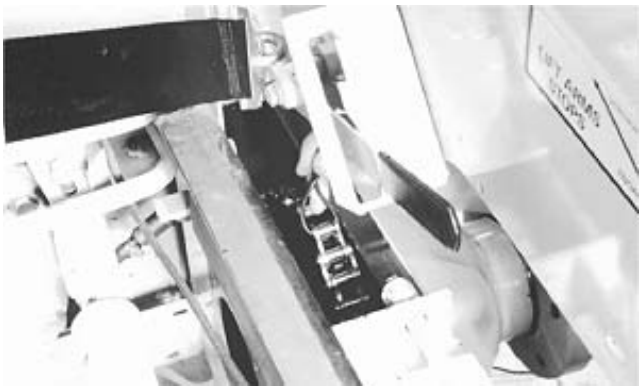




M21,5015U,BO -19-06JUN86

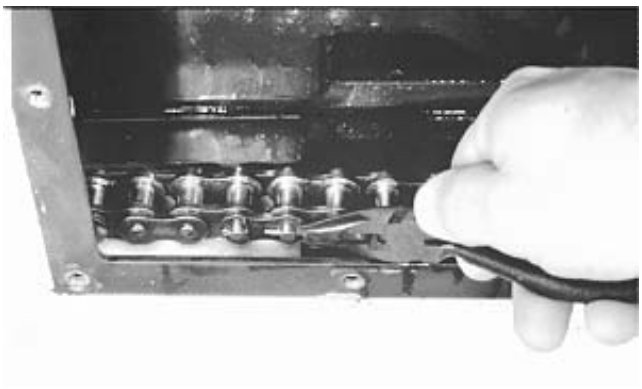
7. Put wire under final drive sprocket and up to top case opening. Pull chain over final drive sprocket and match ends of final drive chain on to of rear sprocket.

8. Slide master link into ends of drive chain and rotate wheel hub until master link is at center chain case opening.



M21,5015U,BP -19-06JUN86

9. Install drive chain side bar and cotter pins.



M21,5015U,BQ -19-06JUN86

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OTHER MATERIAL

Number	Name	Use
	John Deere HY-GARD® Oil	To lubricate pump parts and fill chain case.

M21,7005U,A -19-06JUN86

SERVICE PATS KITS

The following kits are available through your parts catalog:

Seal Repair Kit

M21,7005U,B -19-06JUN86

SPECIFICATIONS

Item	Measurement	Specification
Charge Pump Body Cap Screws	Torque	34—37 N·m (25—27 lb-ft)
Charge Pump Mounting Cap Screws	Torque	37—42 N·m (27—31 lb-ft)

M21,7005U,C -19-06JUN86

REMOVE HYDRAULIC CHARGE PUMP

1. Park skid steer safely.
2. Remove seat.
3. Remove front covers (A).



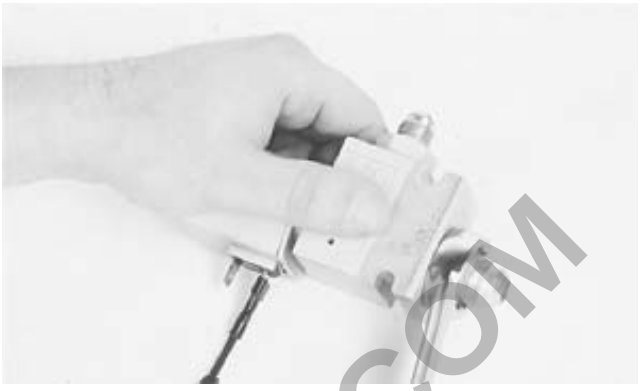
M50465 -UN-03JAN90

M21,7005U,D -19-15MAY86

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DISASSEMBLE BOOM LOCKOUT SOLENOID VALVE

1. Remove hydraulic hose fittings.

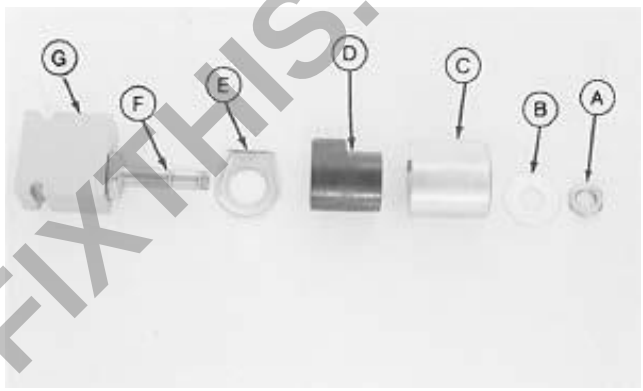


M21,7020U,D -19-15MAY86

2. Remove nut (A), data plate (B), cover (C), coil (D), and plate (E).

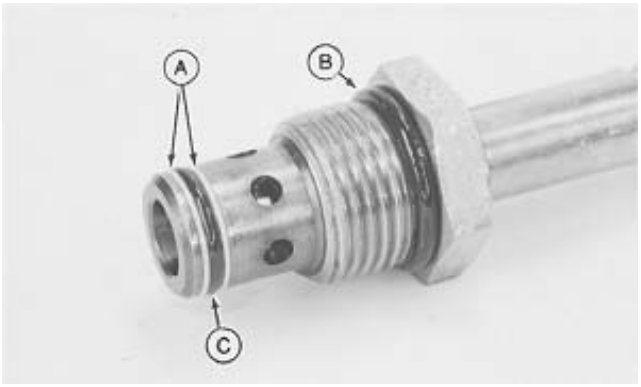
3. Remove valve spool (F) from housing (G).

A—Nut
B—Data Plate
C—Cover
D—Coil
E—Plate
F—Spool
G—Housing



M21,7020U,L -19-15MAY86

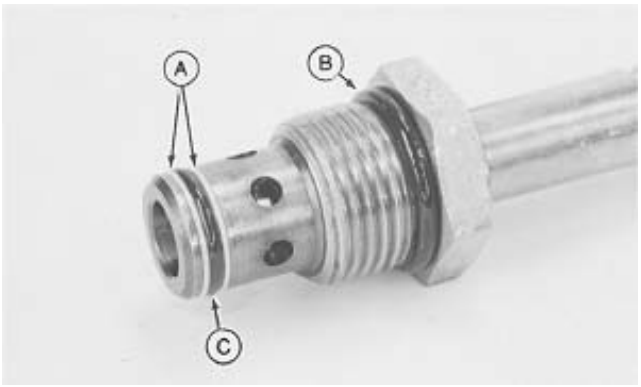
4. Remove washers (A) and O-rings (B and C).



M21,7020U,M -19-15MAY86

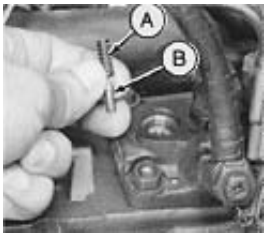
ASSEMBLE BOOM LOCKOUT SOLENOID VALVE

1. Install new washers (A) and new O-rings (B and C).



M21,7020U,E -19-15MAY86

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M43917 -UN-09JAN90

Apply clean diesel fuel on delivery valve (B). Install delivery valve and spring (A).

Install new O-ring on delivery valve fitting.

Install and tighten delivery valve fitting to 42 N·m (369 lb-in.).

Install wheel and access plate.

Install fuel injection line. See CTM-3.

Bleed fuel system. GO TO ❺

M21,22010U,38 -19-16DEC86

❾ **FUEL INJECTION PUMP TIMING ADJUSTMENT FOR 375**

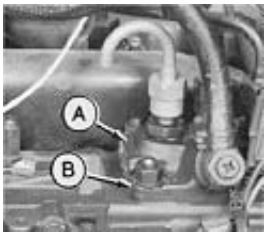
Determine the distance between injection timing mark and timing index mark. The timing is off 1˚ for every 2.2 mm (0.09 in.) that the timing marks are misaligned when fuel injection begins.

NOTE: Keep in mind that the flywheel turns counterclockwise (viewed from flywheel end).

If injection timing mark on flywheel has not reached timing index mark, RETARD injection pump timing by increasing total shim thickness under injection pump.

If timing mark has passed timing index mark, ADVANCE timing by decreasing total shim thickness under injection pump.

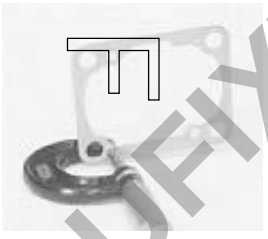
M21,22010U,39 -19-15DEC86



M43923 -UN-09JAN90

Remove fuel injection pump (A) and shims (B). See CTM-3.

Remove sealant from pump and gear housing.


M43976 -UN-09JAN90

IMPORTANT: DO NOT use old shims. Injector pump timing will be affected if old shims are used.

Measure old shims to determine total thickness. Record this measurement.

M21,22010U,40 -19-22OCT86

Use the following chart to change shim thickness.

SHIM PACK CHART

Shim Size	Approximate Timing Change on Flywheel
0.2 mm (0.008 in.)	2˚ or 4.5 mm (0.18 in.)
0.3 mm (0.012 in.)	3˚ or 6.5 mm (0.26 in.)
0.5 mm (0.020 in.)	5˚or 11 mm (0.43 in.)

For every 0.1 mm (0.004 in.) of shim thickness, there is approximately a 1˚ or 2.2 mm (0.09 in.) change in flywheel timing.

M21,22010U,41 -19-16DEC86

Install new shims with the thickest shim against the injection pump body and the thinnest shim against the gear housing.

Install fuel injection pump. See CTM-3.

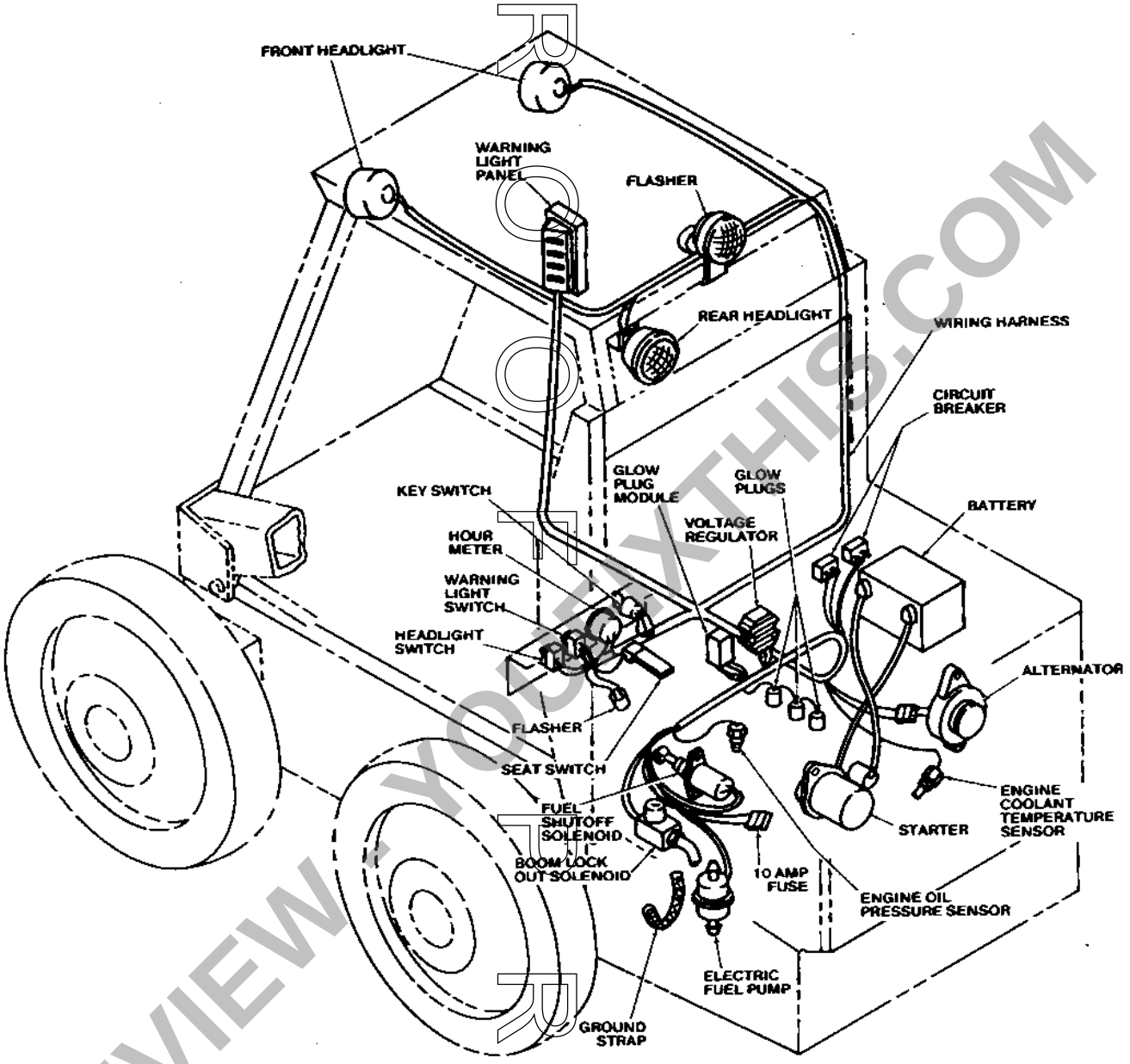
Recheck fuel injection pump timing in ❽

When timing is correct....GO TO ❽A to complete assembly.

M21,22010U,42 -19-22OCT86

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375 COMPONENT LOCATIONS



M21,24015U,2 -19-15DEC86

240
15
2

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