650 and 750 Tractors

JOHN DEERE

TECHNICAL MANUAL

650 and 750
Tractors

TM1242 (01SEP84) English

John Deere
Lawn & Grounds Care Division
TM1242 (01SEP84)

LITHO IN U.S.A.
ENGLISH

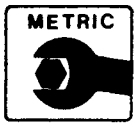
650 AND 750 TRACTORS TECHNICAL MANUAL TM-1242 (MAR-81)

CONTENTS—REPAIR SECTIONS

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.

U03;GEN A 080181

CONTENTS—OPERATION AND TEST SECTIONS



This tractor is of metric design. All hardware is therefore metric. Make sure you use the specified metric hardware when replacement becomes necessary. For your convenience most specifications are given in metric measurement with customary U.S. measurement following.

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GEN B 090181

Section 10
GENERAL

CONTENTS

Continued

010CON A 080181

CONTENTS—Continued

GROUP 20 - SEPARATION

GROUP 25 - 750 SEPARATION

010CON B 080181

GENERAL TRACTOR SPECIFICATIONS

	650 TRACTOR	750 TRACTOR
HORSEPOWER		
(Official PTO horsepower)	10.8 kW (14.5 hp) at 2600 rpm	13.4 kW (18.0 hp) at 2400 rpm
ENGINE:		
Type	2-cylinder, in line, valve-in-head, diesel	3-cylinder, in-line, valve-in-head, diesel
Slow idle speed	800 rpm	800 rpm
Working speed range	1825 to 2600 rpm	1650 to 2400 rpm
Bore and stroke	80 x 85 mm (3.15 x 3.35 in.)	80 x 85 mm (3.15 x 3.35 in.)
Displacement	0.9 L (52.0 cu. in.)	1.3 L (78.0 cu. in.)
Compression ratio	22.5 to 1	22.5 to 1
Firing order (No. 1 in rear)	1-2	1-3-2
Valve clearance		
Intake	0.2 mm (0.008 in.)	0.15 mm (0.006 in.)
Exhaust	0.20 mm (0.008 in.)	0.15 mm (0.006 in.)
Injection pump timing	22°BTDC	22°BTDC
Lubrication system	force-feed, pressurized with full-flow filter	force-feed, pressurized with full-flow filter
FUEL SYSTEM:		
Type	precombustion chamber	precombustion chamber
Injection pump type	plunger	plunger
Air cleaner	dry type	dry type
COOLING SYSTEM:		
Type	pressurized with centrifugal pump	pressurized with centrifugal pump
Temperature control	heavy duty thermostat	heavy duty thermostat
CAPACITIES		
Fuel tank	23.5 L (6.2 U.S. gal.)	23.5 L (6.2 U.S. gal.)
Cooling system	3.5 L (3.7 U.S. qt.)	4.2 L (4.4 U.S. qt.)
Crankcase (with filter change)	2.5 L (2.6 U.S. qt.)	4.0 L (4.2 U.S. qt.)
Transmission-hydraulic system	13 L (14 U.S. qt.)	14 L (15 U.S. qt.)
Front-wheel drive axle housing	3.0 L (3.2 U.S. qt.)	6.5 L (6.9 U.S. qt.)
TRANSMISSION:		
Type	2-speed range selector and 4-speed gear selector	2-speed range selector and 4-speed gear selector
Gear selections	8 forward and 2 reverse	8 forward and 2 reverse
Clutch	single-disk, dry	single-disk, dry
POWER TAKE-OFF:		
Type	transmission driven, with overrunning clutch	transmission driven, with overrunning clutch
PTO Speed (engine speed)	540 rpm (2350 rpm)	540 rpm (2300 rpm)
Size	35 mm (1-3/8 in.)	35 mm (1-3/8 in.)
Clutch	uses transmission clutch	uses transmission clutch

Continued

GENERAL TRACTOR SPECIFICATIONS—Continued

	650 TRACTOR	750 TRACTOR
HYDRAULIC SYSTEM:		
Type	open center, constant flow	open center, constant flow
Working pressure	13790 kPa (138 bar) (2000 psi)	13790 kPa (138 bar) (2000 psi)
Pump	gear pump, driven by engine	gear pump, driven by engine
BRAKES		
Type	mechanical dry, internal expanding shoe	mechanical dry, internal expanding shoe
ELECTRICAL SYSTEM:		
Type	12-volt, negative ground	12-volt, negative ground
Battery	one, 12-volt, BCI group, 24 370 amps cold cranking, 106 minutes reserve capacity	one, 12-volt, BCI group, 24 370 amps cold cranking, 106 minutes reserve capacity
Alternator	15-amp	15-amp
TIRES AND TREADS:	See page 10-05-5	See page 10-05-5
DIMENSIONS:		
Wheelbase	1425 mm (56 in.)	1550 mm (61 in.)
Overall length	2606 mm (102.5 in.)	2845 mm (112.0 in.)
Height to muffler top*	1965 mm (77.4 in.)	2004 mm (78.9 in.)
Height to top of ROLL-GARD frame*	1865 mm (73.4 in.)	1904 mm (75.0 in.)
Overall width	1041 mm (41.0 in.)	1132 mm (44.6 in.)
Turning radius with brakes	1.9 m (6.2 ft.)	2.2 m (7.2 ft.)
SHIPPING WEIGHT**		
Tractor without MFWD	645 kg (1450 lbs.)	770 kg (1700 lbs.)
Tractor with MFWD	695 kg (1530 lbs.)	860 kg (1896 lbs.)

*650 Tractor equipped with 9.5-16 rear tires and 5.00-12 front tires. 750 Tractor equipped with 9.5-24 rear tires and 4.00-15 front tires.

**Equipped for average field service, without fuel and ballast.

DETERMINING 650 TRACTOR TRAVEL SPEED

Travel speeds shown are for tractor with 9.5-16 rear tires.

Due to difference in tire radius, all speeds would be six percent faster with 31/15.50-15 rear tires.

650 TRACTOR TRAVEL SPEEDS

Range	Gear	Lowest Working Speed (1825 rpm) km/h (mph)	Standard PTO Speed (2350 rpm) km/h (mph)	Rated Engine Speed (2600 rpm) km/h (mph)
	1	0.9 (0.6)	1.1 (0.7)	1.1 (0.7)
L	2	1.1 (0.7)	1.4 (0.9)	1.6 (1.0)
	3	1.6 (1.0)	2.1 (1.3)	2.3 (1.4)
	4	2.6 (1.6)	3.4 (2.1)	3.8 (2.3)
	5	3.6 (2.2)	4.7 (2.9)	5.2 (3.2)
H	6	5.0 (3.1)	6.5 (4.0)	7.2 (4.5)
	7	7.1 (4.4)	9.1 (5.7)	10.1 (6.3)
	8	11.6 (7.2)	15.0 (9.3)	16.6 (10.3)
R	1	0.8 (0.5)	1.0 (0.6)	1.1 (0.7)
	2	1.1 (0.7)	1.4 (2.7)	4.9 (3.1)

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DETERMINING 750 TRACTOR TRAVEL SPEEDS

Travel speeds shown are for tractor with 9.5-24 rear tires.

Due to difference in tire radius, all speeds would be eight percent faster with 13.6-16 rear tires.

750 TRACTOR TRAVEL SPEEDS

Range	Gear	Lowest Working Speed (1650 rpm) km/h (mph)	Standard PTO Speed (2300 rpm) km/h (mph)	Rated Engine Speed (2400 rpm) km/h (mph)
	1	0.9 (0.6)	1.3 (0.8)	1.3 (0.8)
L	2	1.1 (0.7)	1.6 (1.0)	1.8 (1.1)
	3	1.8 (1.1)	2.5 (1.5)	2.6 (1.6)
	4	2.8 (1.7)	4.0 (2.5)	4.2 (2.6)
	5	3.9 (2.4)	5.6 (3.5)	5.8 (3.6)
H	6	5.2 (3.2)	7.4 (4.6)	7.7 (4.8)
	7	7.6 (4.7)	10.8 (6.7)	11.3 (7.0)
	8	12.3 (7.6)	17.5 (10.8)	18.3 (11.4)
R	1	0.9 (0.6)	1.3 (0.8)	1.4 (0.9)
	2	4.1 (2.5)	5.9 (3.7)	6.2 (3.9)

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PREDELIVERY

Toe-in	3 to 9 mm (1/8 - 3/8 in.)

ENGINE SPEEDS

Slow Idle	800 rpm
650 Fast Idle	2800 rpm
750 Fast Idle	2600 rpm
650 at Full Load	2600 rpm
750 at Full Load	2400 rpm

CLUTCH PEDAL FREE TRAVEL

650 Tractor	16 mm (5/8 in.)
750 Tractor	22 mm (7/8 in.)
Fan Belt Tension	13 mm (1/2 in.) 98 N (22 lbs.) force
Battery Specific Gravity	1.260 at 27°C (80°F)

TORQUES

650 Front and Rear Wheel Bolts	133 N.m (98 ft-lbs)
750 Front Wheel Bolts	133 N.m (98 ft-lbs)
750 Rear Wheel Bolts	186 N.m (137 ft-lbs)

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GENERAL TRACTOR SPECIFICATIONS—Continued

TUNE-UP

PTO Horsepower	
650 Tractor at 2600 rpm	10.8 kW(14.5 hp)
750 Tractor at 2409 rpm	13.4 kW(18.0 hp)
Compression	3914-4403 kPa (39.0-44.0 bar) (568-639 psi)
Thermostat Opening Temperature	71°C (160°F)
Radiator Cap Pressure Release	98 kPa (1.0 bar) (14 psi)
650 Engine Speeds	
Slow Idle	800 rpm
Fast Idle	2800 rpm
Rated Speed at Full Load	2600 rpm
750 Engine Speeds	
Slow Idle	800 rpm
Fast Idle	2600 rpm
Rated Speed at Full Load	2400 rpm
Injection Pump Timing	TDC
Battery Specific Gravity	1.260 at 27°C (80°F)
Front Wheel Toe-In	3-9 mm (1/8 - 3/8 in.)

LUBRICATION

Engine Crankcae Oil Capacity (with filter change)	2.5 L (2.6 U.S. qt.)
Transmission-Hydraulic System Capacity	
650 Tractor	13 L (14 U.S. qt.)
750 Tractor	14 L (15 U.S.qt.)
Front Wheel Drive Axle Housing	
650 Tractor	3.0 L (3.2 U.S. qt.)
750 Tractor	6.5 L (6.9 U.S. qt.)
Service Intervals	
Check Engine Oil Level	Every 10 hours
Change Engine Oil	After first 50 hours and again at 100 hours and then every 200 hours
Replace Engine Oil Filter	Every 200 hours
Clean Crankcase Breather Tube	Every 600 hours
Check Transmission-Hydraulic Oil Level	Every 50 hours
Change Transmission-Hydraulic Oil	
Without Hydraulic Filter	Every 200 hours
With Hydraulic Filter	Every 600 hours
Clean Transmission-Hydraulic Oil Screen	
Without Hydraulic Filter	Every 200 hours
With Hydraulic Filter	Every 600 hours
Replace Transmission-Hydraulic Oil Screen	
Without Hydraulic Filter	Every 600 hours
With Hydraulic Filter	Every 1200 hours
Replace Transmission-Hydraulic Oil Filter	AFter first 100 hours then every 200 hours
Check Oil Level MFWD Axle	Every 50 hours
Change Oil in MFWD Axle	After first 100 hours then every 600 hours

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LUBRICATION

Clean and Repack Front Wheel Bearings	Every 600 hours
Lubricate Grease Fittings	
Front Axle Pivot Pin	Every 10 hours
Drag Link Ends	Every 10 hours
Tie Rod Ends	Every 10 hours
Clutch and Brake Pedal Fittings	Every 50 hours
Right-Hand Hitch Lift Link	Every 50 hours
Steering Spindles (without MFWD)	Every 50 hours

SEPARATION

Fan Belt Deflection (at 98 N (22 lbs.) force)	13 mm (1/2 in.)
ROLL-GARD Protection Structure Cap Screws	
Rear	100 N.m (74 ft-lbs)
Side	245 N.m (181 ft-lbs)
Fender-to-Axle Housing	90 N.m (65 ft-lbs)
Fender-to-Step	30 N.m (22 ft-lbs)
Step-to-Transmission Case	50 N.m (36 ft-lbs)
Axle Housing-to-Transmission Case	50 N.m (36 ft-lbs)
Drag Link-to-Pitman Arm	50 N.m (36 ft-lbs)
Clutch Housing-to-Transmission Case	120-150 N.m (87-108 ft-lbs)
Clutch Housing-to-Engine	90 N.m (65 ft-lbs)
Side Frames-to-Engine	90 N.m (65 ft-lbs)
Hydraulic Lines-to-Pump	8 N.m (5.8 ft-lbs)

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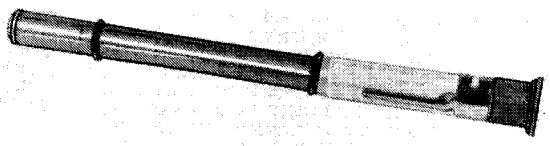
SPECIAL TOOLS

NOTE: Order tools from your Service-Gard Catalog, unless otherwise indicated.

JDST-28 Belt Tensioning Tool is used for checking fan belt tension.



R 26415N

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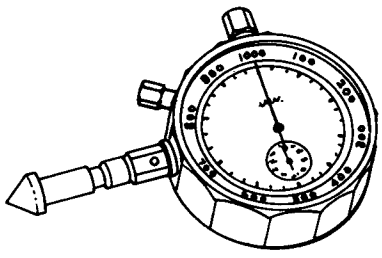
Hand Tachometer is used for checking engine speed.



R 30607

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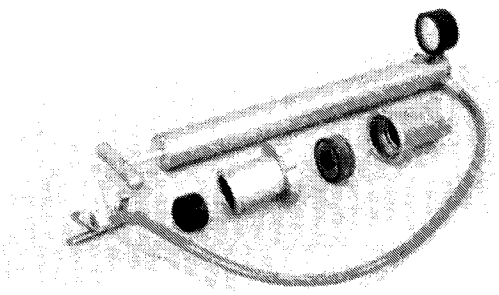
D-05104ST Radiator Tester is used for pressure testing cooling system and radiator caps.



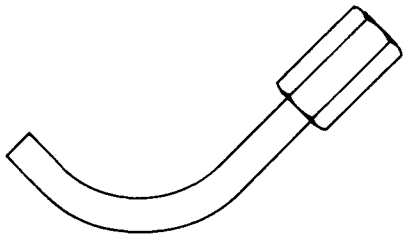
A14;T75866 U03;01000 I 260784

AR62377 Dry Element Cleaning Gun is used for cleaning air filter.

R27167N

A14;R27167 N U03;01000 J 080181

JDF-14 Timing Fixture is used for checking pump beginning of injection timing on engine.



R 30234

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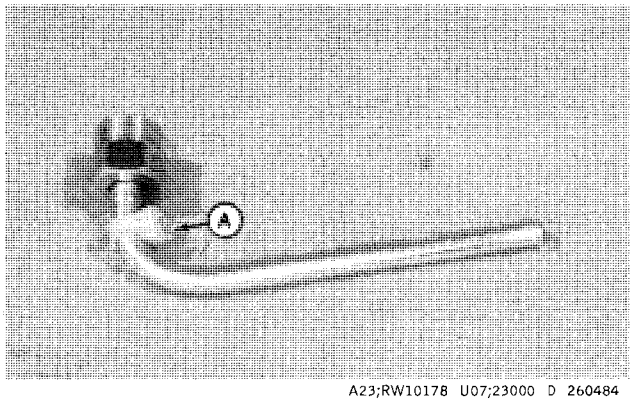
INJECTION PUMP TIMING TOOL

NOTE: Two injection pump timing tools can be made from one CH18358 Injection Line.

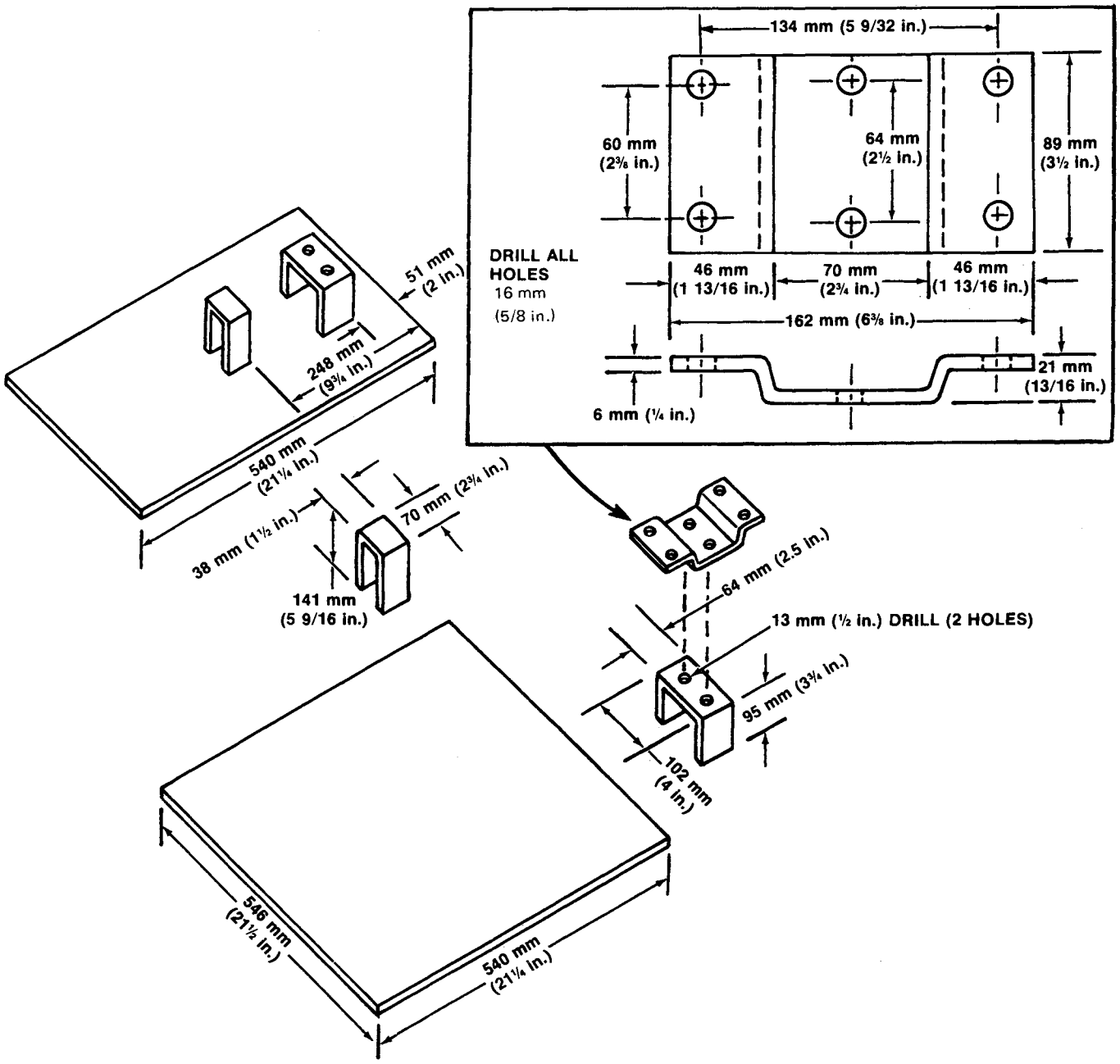
Obtain from dealer stock:

1—CH18358 Injection Line
2—H77628 Band

Cut injection line, on straight portion of line, approximately 133 mm (5-1/4 in.) from each end. Install band (A) around injection line to prevent loss of nut.



A23;RW10178 U07;23000 D 260484



650 Transmission Disassembly Stand is used for supporting transmission and differential.

NOTE: Make sure all joints are welded properly.

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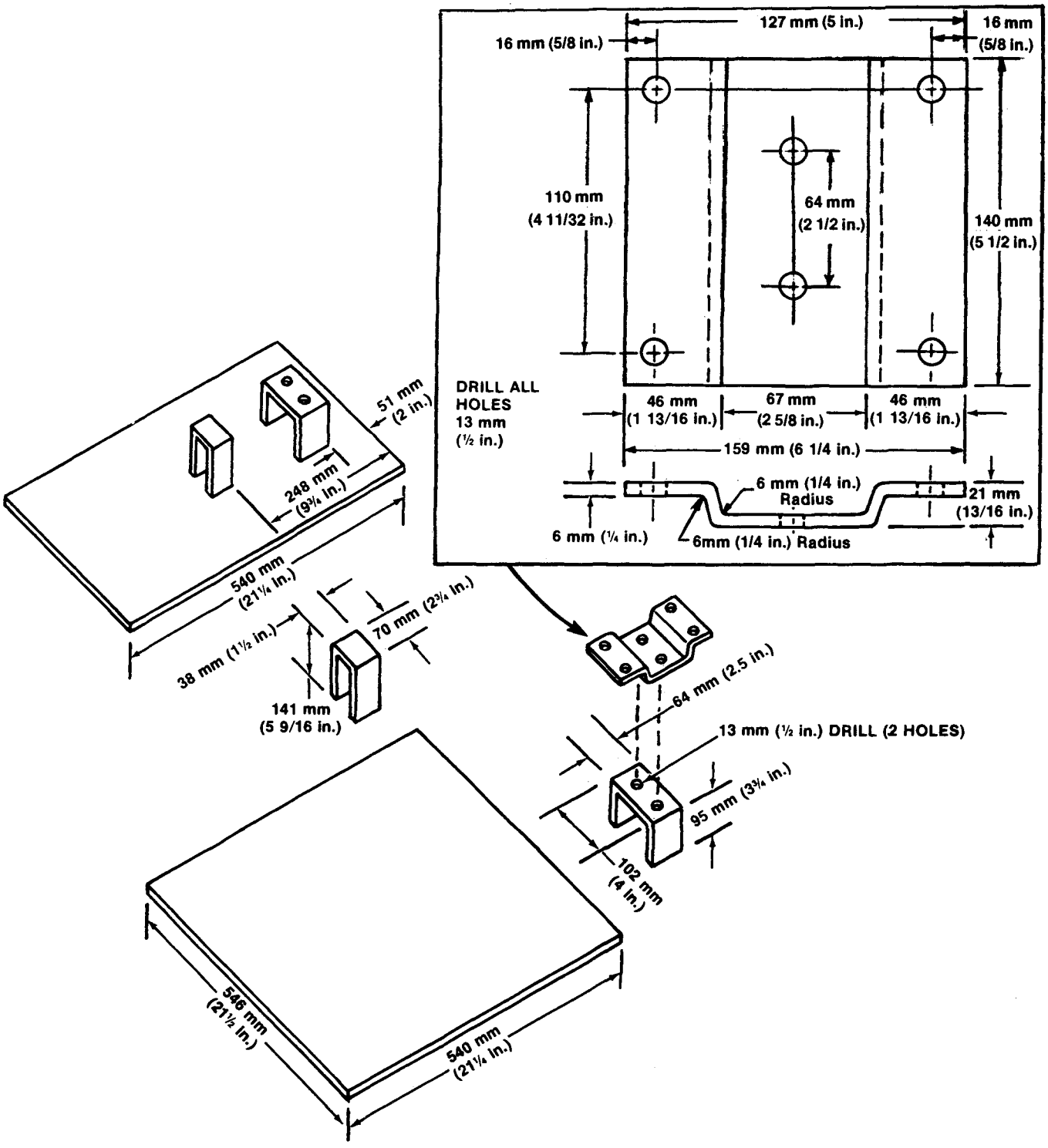
SPECIAL TOOLS—Continued



750 Transmission Disassembly Stand is used for supporting transmission and differential cases.

NOTE: Make sure all joints are welded properly.

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PREDELIVERY SERVICE - GENERAL INFORMATION

The John Deere delivery receipt, when properly filled out and signed by the dealer and customer, verifies that predelivery and delivery services were satisfactorily performed. When delivering the tractor, give the customer his copy of the delivery receipt and operators manual. Be sure to explain their purposes to him.

Because of the shipping factors involved, plus extra finishing touches necessary to promote customer satisfaction, there are certain predelivery services that must be performed by the dealer. These services are listed in the first of two sections on the predelivery form which is attached to the tractor. The second section is a list of factory inspections that must be verified by the dealer.

Fill the form in completely and sign it. Send a copy to the factory and file the orignal with the shop order for the job. This will certify that the proper predelivery service has been completed.

DEALER PREDELIVERY SERVICE

Using the following illustrated procedures, perform all services listed and check each job off as it is completed.

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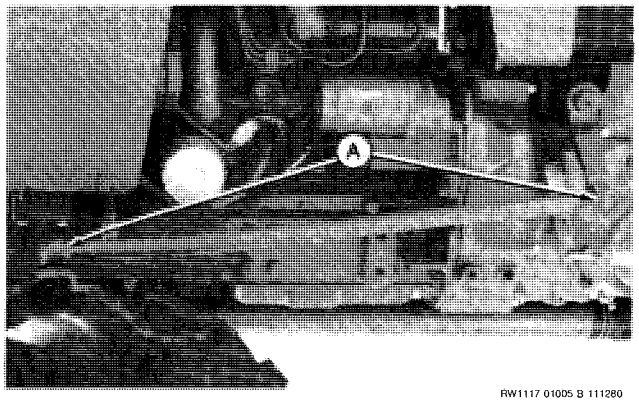
LUBRICATE GREASE FITTINGS

1. Lubricate drag link ends (A) with several shots of grease.



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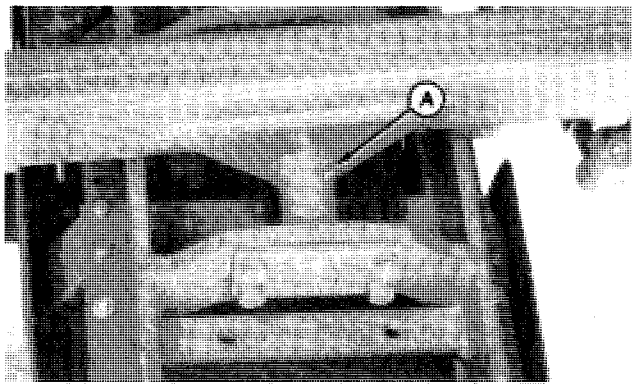
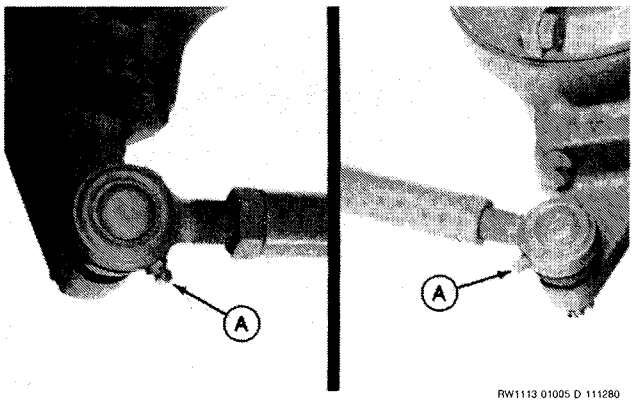
2. Lubricate front axle pivot pin (A) on tractors without front-wheel drive, with several shots of grease.



RW1110 01005 C 111280

3. Lubricate tie rod ends (A) with several shots of grease.



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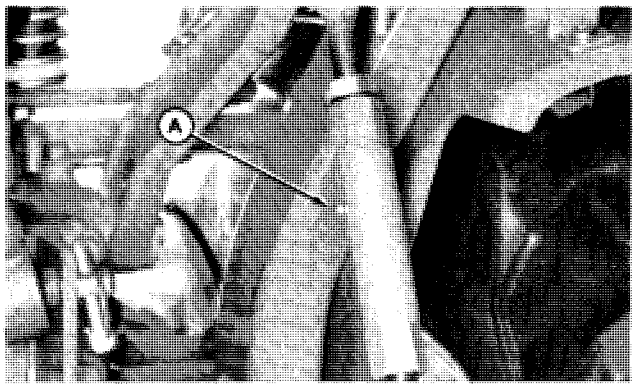
4. Lubricate right-hand hitch lift link (A) with several shots of grease.



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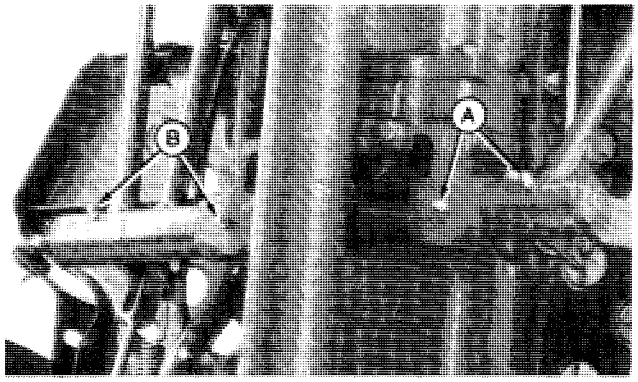
5. Lubricate clutch pedal (A) and brake pedal (B) with several shots of grease.



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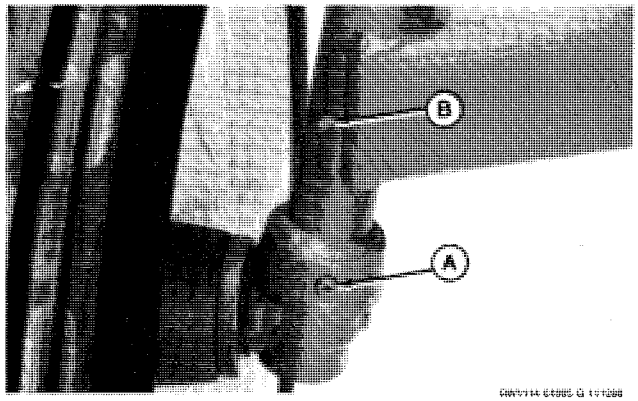
6. Lubricate steering spindles on tractors without MFWD. Remove relief plugs (A) and apply several shots of grease to steering spindle fittings (B). Reinstall relief plugs.



ALIGN MUFFLER

1. Make sure muffler extension pipe is perpendicular to the tractor hood.

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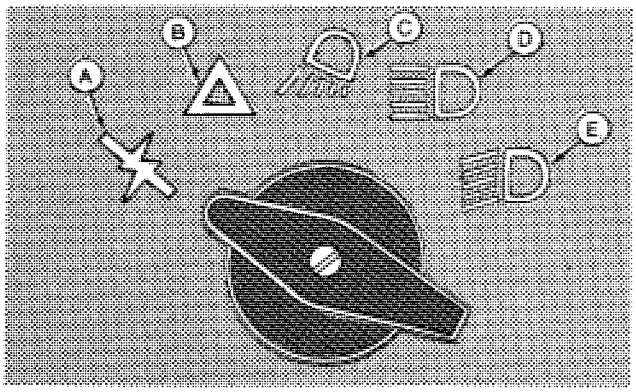
ADJUST ALL LAMPS



1. Check operation of lamps in all switch positions.

(A)—Turns off all lamps.

(B)—Turns on warning lamps. Use for daytime highway driving only.

(C)—Turns on bright head lamps and rear flood lamp. For field use only. Do not use on roads. Flood lamp might blind or confuse other drivers.

(D)—Turns on bright head lamps, tail lamps, and warning lamps. For highway driving during daytime or night-time.

(E)—Turns on dim head lamps, tail lamp, and warning lamps.

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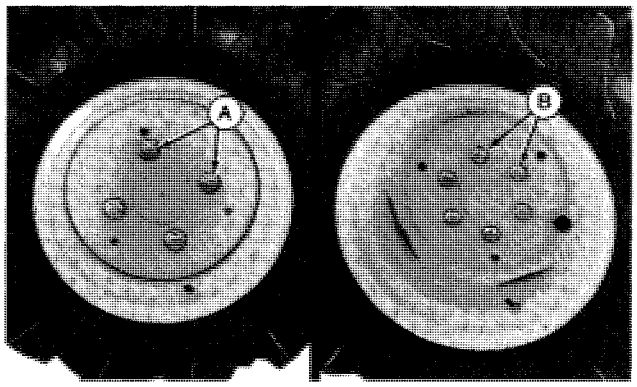
TORQUE WHEEL HARDWARE

1. Torque 650 tractor front (A) and rear (B) wheel bolts to 133 N.m (98 ft-lbs).



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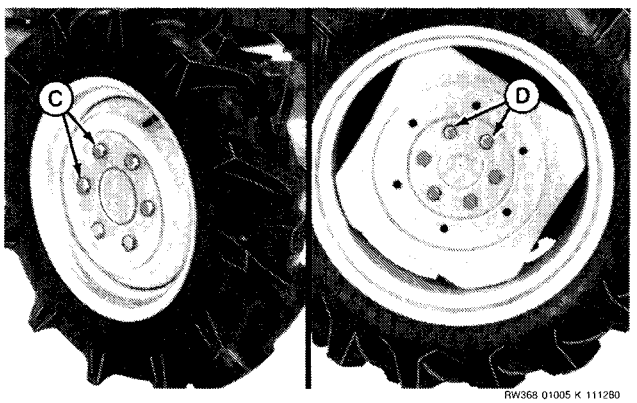
2. Torque 750 tractor wheel bolts (C) to 133 N.m (98 ft-lbs) and rear wheel bolts (D) to 186 N.m (137 ft-lbs).



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CHECK TIRE PRESSURE

Check tire pressure to be sure it is within the specifications listed in the chart.

TIRE SIZE	PLY RATING	†MINIMUM kPa (bar) (psi)	MAXIMUM kPa (bar) (psi)
Front			
5.00-12	4	140(1.4) (20)	280(2.8) (41)
6-12	4	140(1.4) (20)	200(2.0) (29)
23/8.50-12	2	70(0.7) (10)	70(0.7) (10)
6-14	4	160(1.6) (23)	200(2.0) (29)
25/8.50-14	2	70(0.7) (10)	160(1.6) (23)
4.00-15	4	250(2.5) (36)	360(3.6) (52)
Rear			
31/15.50-15	4	80(0.8) (12)	140(1.4) (20)
9.5-16	4	80(0.8) (12)	140(1.4) (20)
13.6-16	4	80(0.8) (12)	100(1.0) (14)
9.5-24	4	80(0.8) (12)	140(1.4) (20)

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ADJUST WHEEL SPACING - FRONT TREAD

Width in chart for tractors with wheels dished in to narrowest position.

IMPORTANT: Mounting wheels with dish out to increase tread width is not recommended.

650 TRACTOR			
Standard Axle	Tread mm (in.)	Front-wheel Drive	Tread mm (in.)
5.00-12	830 (33)	6-12	870 (34)
23/8.50-12	915 (36)	23/8.50-12	985 (39)

750 TRACTOR			
Standard Axle	Tread mm (in.)	Front-wheel Drive	Tread mm (in.)
4.00-15	900 (35)	6-14	922 (36)
25/8.50-14	934 (37)	25/8.50-14	1014 (40)

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ADJUST WHEEL SPACING - REAR THREAD

1. Wheels with regular tires should be mounted in wide tread position whenever possible. If necessary, wheels can be mounted in narrow tread position.

2. Wheels with turf tires should be mounted only with wheels dished out to wide tread position.

3. Tread width dimensions are shown in chart. Tread width is measured between centers of tires.

REAR TREAD WIDTH		
Tire Size	Wide Tread mm (in.)	Narrow Tread mm (in.)
31/15.50-15 (Turf)	950 (37)	DO NOT USE
9.5-16	900 (35)	800 (32)
13.6-16 (Turf)	1020 (40)	DO NOT USE
9.5-24	1000 (39)	900 (35)

WT06G 01005 N 111280

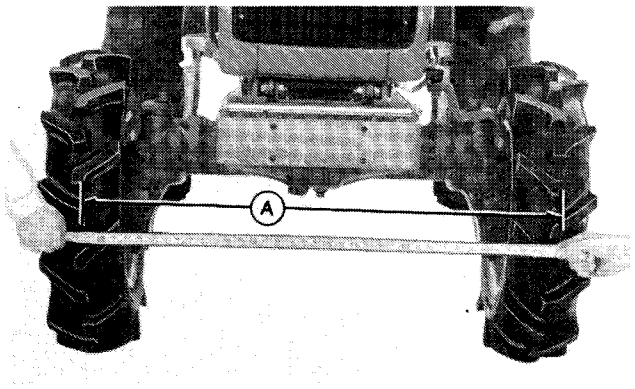
ADJUST FRONT WHEEL TOE-IN

NOTE: Check toe-in before making any adjustments.

1. Steer front wheels straight ahead.

2. Measure distance between tires at hub level (A). Mark the point at which you measured.

3. Move tractor back about one meter (3 ft.), so mark is at hub level behind the axle. Again measure distance between tires at same point on tire. Tires should be 3 to 9 mm (1/8 to 3/8 in.) closer at front.



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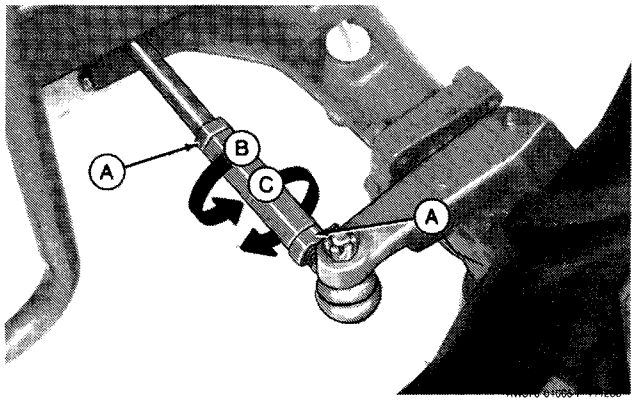
ADJUST 650 TRACTOR TOE-IN

Loosen lock nuts (A).

2. Change tie rod length to adjust toe-in. Rotate turnbuckle clockwise (B) to shorten tie rod. Rotate counterclockwise (C) to lengthen tie rod. Adjust toe-in to 6 mm (1/4 in.).

3. Retighten lock nuts.

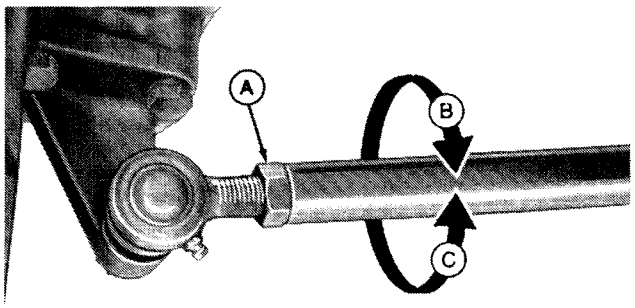


ADJUST 750 TRACTOR TOE-IN

Loosen lock nuts at each end of tie rod (A).

2. Change tie rod length to adjust toe-in. Rotate tie rod clockwise (B) to shorten it. Rotate counterclockwise (C) to lengthen it. Adjust toe-in to 6 mm (1/4 in.).

3. Retighten lock nuts.



RW371 01005 Q 111280

ENGINE BREAK-IN

Follow procedure for engine break-in as instructed in Section 220, Group 10.

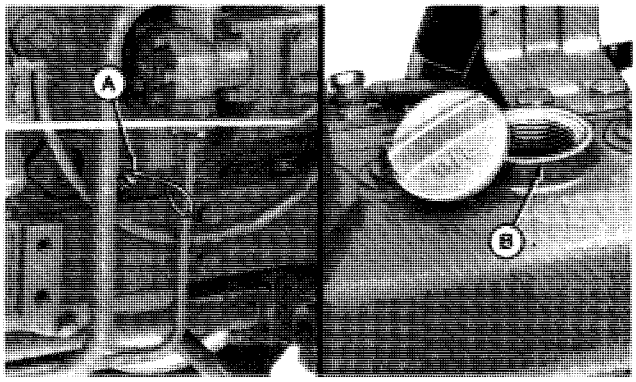
01005 R 111280

VERIFY PREDELIVERY SERVICE

The second part of the predelivery form is a list of factory inspections that should be verified by the dealer. Use this part of the predelivery form along with the following illustrated procedures to check and verify each item on the list.

01005 S 111280

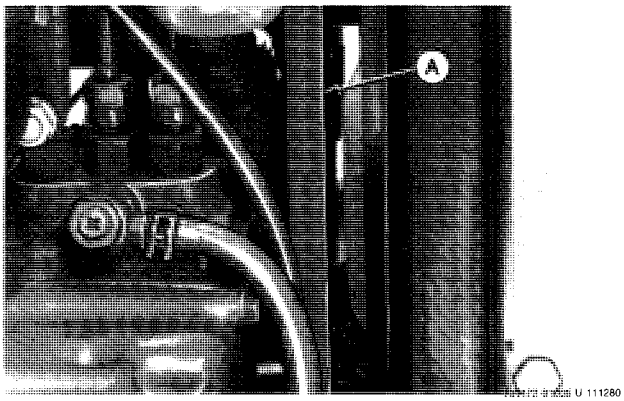
1. Check the engine oil level. Wipe dipstick (A) off and reinsert it fully. Bring level to full mark by adding oil through filler (B) in valve cover. 650 tractor capacity is 2.5 L (2.6 U.S. qts.) including filter; 750 tractor capacity is 4.0 L (4.2 U.S. qts.) including filter.



RW226 01005 T 111280

2. Check belt tension with engine stopped, press belt midway between pulleys (A). Belt should deflect 13 mm (1/2 in.) with a 98 N (22 lbs) force.

IMPORTANT: Belt must be cool when tension is checked.



U 111280

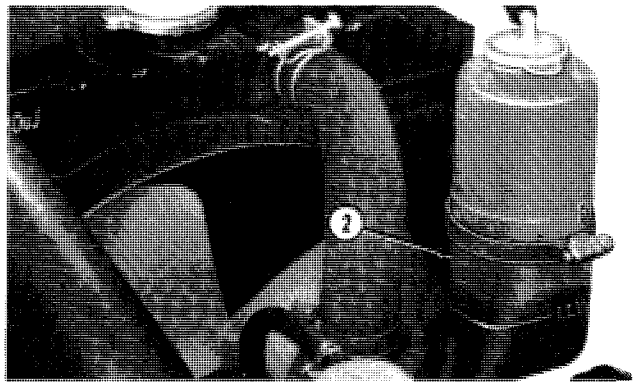
3. Remove air cleaner cover and check installation of air cleaner element (A).

RW1116 01005 V 111280

Continued

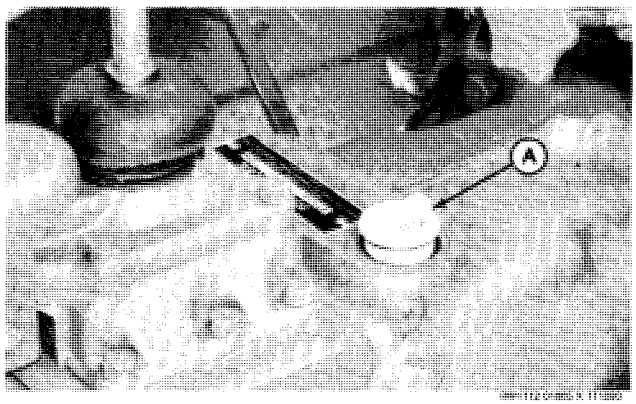
VERIFY PREDELIVERY SERVICE—Continued

4. Check coolant level in recovery tank (A). If engine is cool and level is below "LOW" add coolant to recovery tank to bring level to "FULL". 650 tractor capacity is 3.5 L (3.7 U.S. qts.); 750 tractor is 4.2 L (4.4 U.S. qts.).

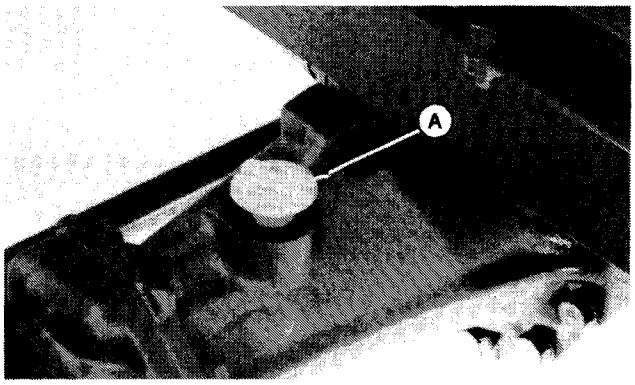


RW227 01005 W 111280

5. Check transmission-hydraulic system oil level. Remove dipstick (A) and wipe it clean. Insert dipstick to rest on threads, but do not screw it in. Oil level should be between full mark and end of dipstick. If low add enough JOHN DEERE HY-GARD Transmission and Hydraulic Oil or equivalent to bring level to the full mark.



6. Check front axle oil level on MFWD equipped tractors. Remove dipstick (A) and wipe it clean. Insert dipstick to rest on threads, but do not screw it in. Oil level should be between full mark and end of dipstick. If low add enough John Deere SAE 90 Gear Lubricant or an equivalent to bring level to the full mark.



RW1118 01005 Y 121280

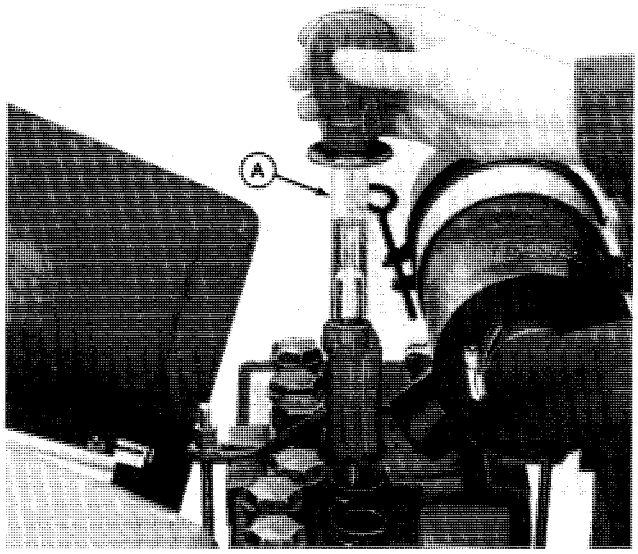
7. Check installation of safety shields, handrails and steps. Be sure mounting hardware is tight.

8. Check installation of ROLL-GARD Protective Structure. Be sure mounting hardware is tight.

01005 Z 121280

9. To check battery condition, use a battery hydrometer (A). Check specific gravity of electrolyte in each cell. Charge battery if reading is below 1.215. Replace battery if difference between cells is more than 0.050.

Always correct specific gravity reading for electrolyte temperature variation. Add 0.007 for every 10°C above 27°C. (Add 0.004 for every 10°F above 80°F). Subtract at same rate if electrolyte temperature is below 27°C (80°F). Corrected specific gravity of a fully charged battery is 1.260.



RW491 01005 AA 121280

10. Tractor light switch has five position:

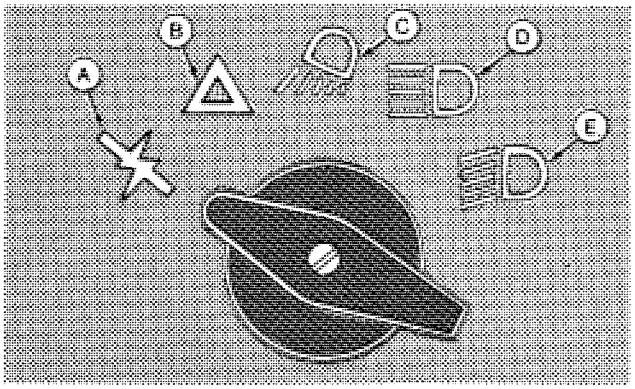
(A)—Turns off all lamps.

(B)—Turns on warning lamps only. For driving on highway during daytime.

(C)—Turns on bright head lamps and rear flood lamp. For field use only. Do not use on roads. Flood lamp might blind or confuse other drivers.

(D)—Turns on bright head lamps, tail lamps, and warning lamps. For highway driving during daytime or night-time.

(E)—Turns on dim head lamps, tail lamp, and warning lamps.



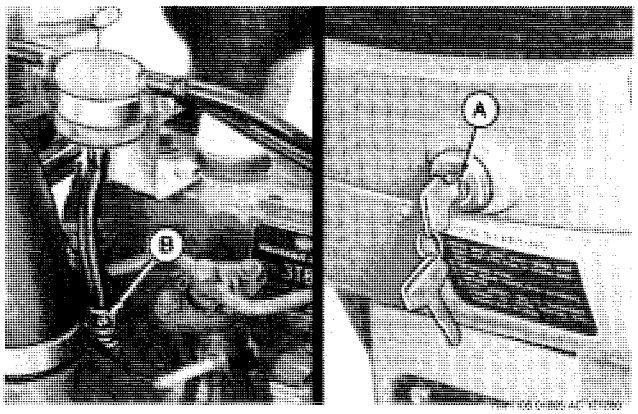
Continued

RW380 01005 AB 121280

VERIFY PREDELIVERY SERVICE—Continued

11. Check operation of neutral start switch. Engine should not turn over unless shift lever is in neutral position.

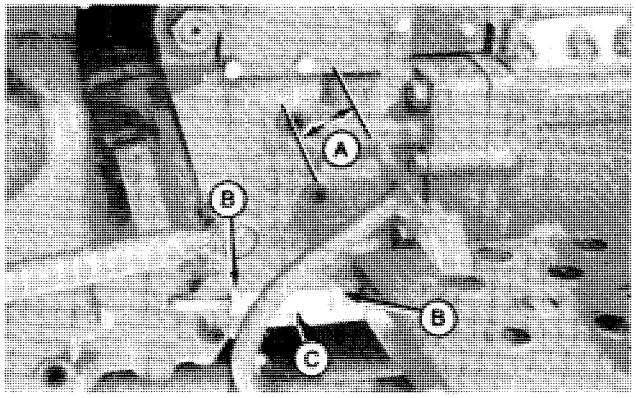
12. Check operation of Thermo-Start. Turn key switch (A) counterclockwise and hold it there 10 or 15 seconds. An electric glow plug (B) ignites a small amount of fuel in the intake manifold. Quickly turn key switch clockwise and start engine.



13. Check clutch pedal adjustment as instructed in the following procedure:

Measure free travel at top of pedal stroke (A). If 650 tractor free travel is 10 mm (3/8 in.) or less, adjust linkage to obtain 16 mm (5/8 in.) travel. If 750 tractor is 16 mm (5/8 in.) or less, adjust linkage to obtain 22 mm (7/8 in.) travel.

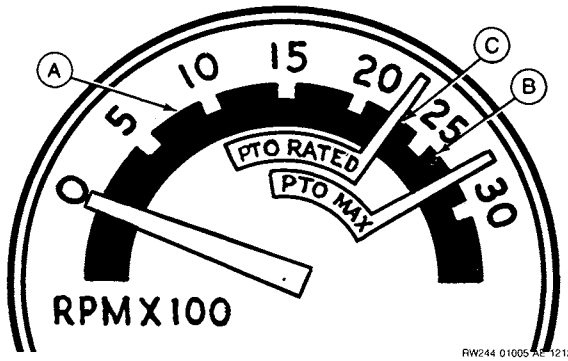
To adjust linkage, loosen lock nuts (B) and rotate turn-buckle (C). Recheck travel and retighten lock nuts.



RW1111 01005 AD 121280

14. Check engine slow and fast idle speeds. Slow idle speed should be 800 rpm (A).

Full throttle speed at full load should be 2600 rpm (B) for the 650 tractor and 2400 rpm (C) for the 750 tractor. Use tachometer on dash for checking slow and fast idle speeds.



RW244 01005 AD 121280

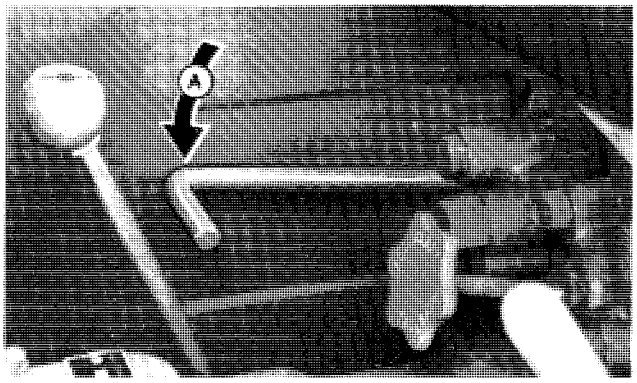
15. Check operation of full turn steering.

16. Check operation of brakes-Check with engine running and stopped.

17. Check transmission operation: Operate in all gears. If any problem is found, refer to Section 250.

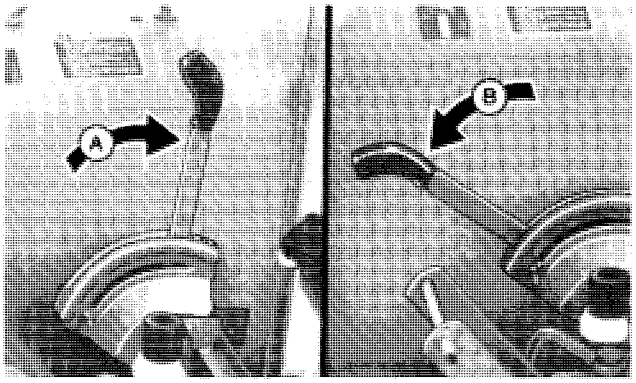
01005 AF 121280

18. Check operation of differential lock. Differential lock may be engaged by foot pedal (A). Differential lock cannot be engaged on-the-go. Unequal traction will keep the lock engaged. When traction equalizes, lock will disengage itself by spring action. If lock does not disengage, depress one brake pedal and then the other.



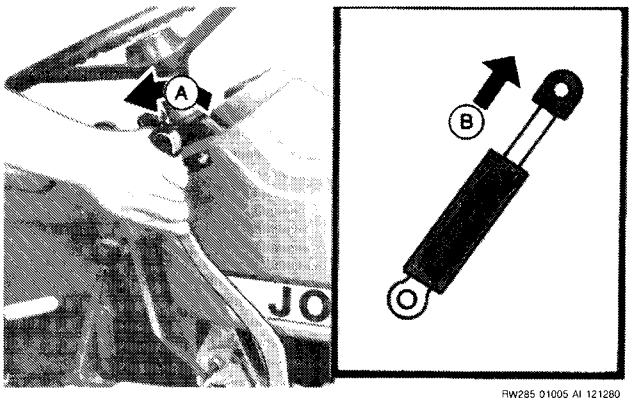
RW257 01005 AG 121280

19. Check operation of rockshaft. Rockshaft should raise and lower smoothly. Pull rockshaft control lever (A) rearward to raise rockshaft and push lever (B) forward to lower it.



RW265 01005 AH 121280

20. Check operation of Selective Control Valve. Install remote cylinder. Pull SCV lever slightly to rear of neutral (A) and hold it against spring pressure. This extends cylinder (B) and in most cases raises implement. Lever returns to neutral when released.

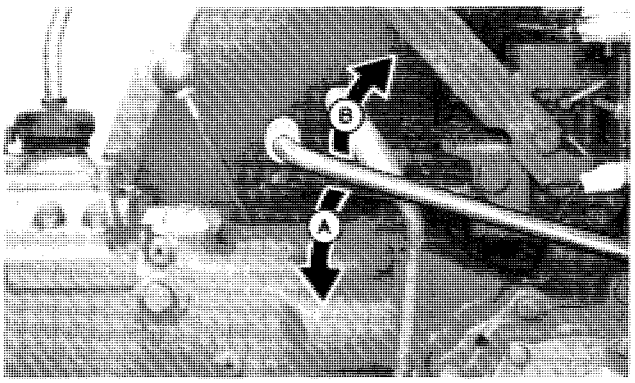


RW285 01005 AI 121280

21. Check PTO operation. With transmission in neutral and engine running, depress clutch fully and engage PTO by pushing control lever down (A). Pull control lever up to disengage PTO (B).

22. Check operation of neutral-start switch. Place shift lever and range shift lever in neutral positions. Tractor will start if PTO lever is in the disengaged position.

Continued



RW302 01005 AJ 121280

VERIFY PREDELIVERY SERVICE—Continued

23. Check installation of seat belts. Be sure mounting hardware is tight.

24. Check for any signs of leakage in oil lines.

25. Check for any signs of leakage in fuel lines. Tighten connections as necessary.

26. Check paint and decals. Be sure all decals are smooth and neat. Check for overspray on decals.

Clean and touch up tractor as necessary.

01005 AK 121280

DELIVERY SERVICE

A thorough discussion of the operation and service of a new tractor at the time of delivery helps to assure complete customer satisfaction. Proper delivery should be an important phase of a dealer's program. A portion of the John Deere Delivery Receipt emphasizes the importance of proper delivery service.

Many complaints have arisen simply because the owner was not shown how to operate and service his new tractor properly. Enough time should be devoted, at the customer's convenience, to introducing the owner to his new tractor and explaining to him how to operate and service it.

The following procedure is recommended before the serviceman and owner complete the delivery acknowledgments portion of the delivery receipt.

01005 AL 121280

Using the tractor operator's manual as a guide, be sure the owner understands these points thoroughly:

1. Controls and instruments.
2. How to start and stop the engine.
3. The importance of the break-in period.
4. How to use liquid or cast-iron ballast.
5. All functions of the hydraulic system.
6. Using the power takeoff.
7. The importance of safety.
8. The importance of lubrication and periodic services.

Give particular emphasis to rockshaft speed-of-drop, rockshaft selector lever (load and depth control), engine oil pressure indicator light, coolant temperature indicator light, and charging system indicator light. These areas are very often misunderstood.

After explaining and demonstrating the above features, have the owner sign the delivery receipt and give him the operator's manual.

01005 AM 121280

AFTER-SALE INSPECTION

The purchaser of a new John Deere tractor is entitled to a free inspection within the warranty period after the equipment has been "run-in". The terms of this after-sale inspection are outlined on the back of the John Deere Delivery Receipt.

The purpose of this inspection is to make sure that the customer is receiving satisfactory performance from his tractor. At the same time, the inspection should reveal whether the tractor is being operated, lubricated, and serviced properly.

If the recommended after-sale service inspection is followed, the dealer can eliminate a needless volume of service work by preventing minor irregularities from developing into serious problems later on. This will promote strong dealer-customer relations and present the dealer and opportunity to answer questions that may have arisen during the first few days of operation.

Continued

01005 AN 121280

AFTER-SALE INSPECTION—Continued

The following inspection program is recommended within the first 100 hours of tractor operation.

01005 AO 121280

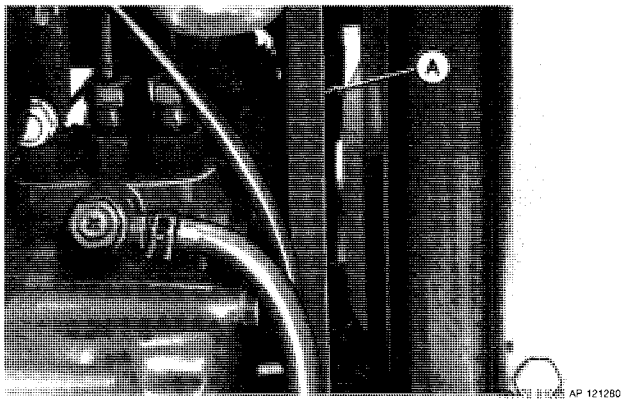
ENGINE

1. Check for signs of leakage in fuel and oil lines.

2. Check all hoses and connections for leaks in cooling system. Correct as necessary.

IMPORTANT: Belt must be cool when tension is checked.

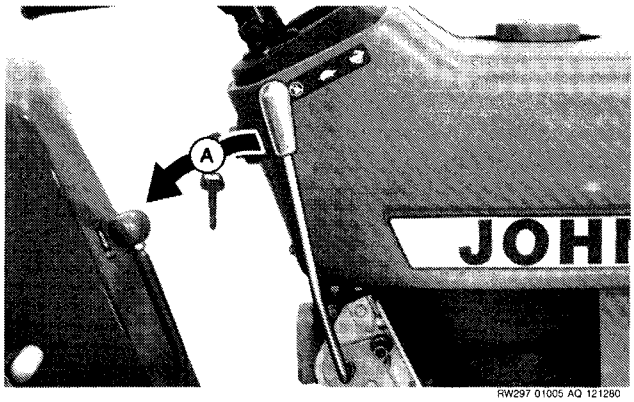
3. Check fan belt (A) tension and adjust as necessary. Belt should deflect 13 mm (1/2 in.) with a 98 N (22 lbs.) force.



AP 121280

4. Check engine slow and fast idle speeds. With no load, 650 tractor fast idle speed should be 2725 rpm. 750 tractor no load fast idle speed should be 2550 rpm. Slow idle speed for either tractor is 800 rpm.

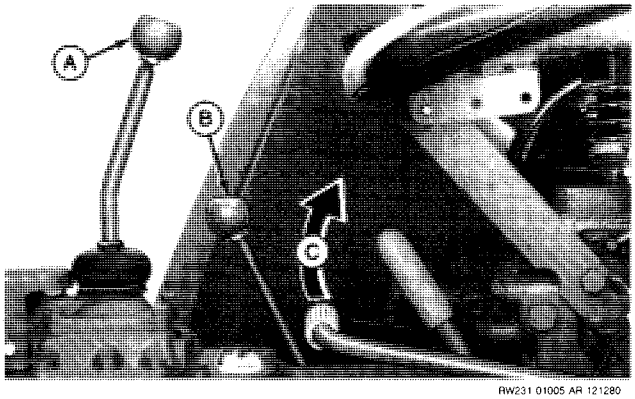
5. Check operation of hand throttle (A) stop position. Be sure engine stops immediately after hand throttle is pulled all the way to the rear.



RW297 01005 AQ 121280

ELECTRICAL

1. Check operation of neutral start switches. Engine should not turn over unless gear shift lever (A) and range shift lever (B) are in neutral position and PTO lever (C) is in disengaged position.



RW231 01005 AR 121280

2. Check operation of all lights.

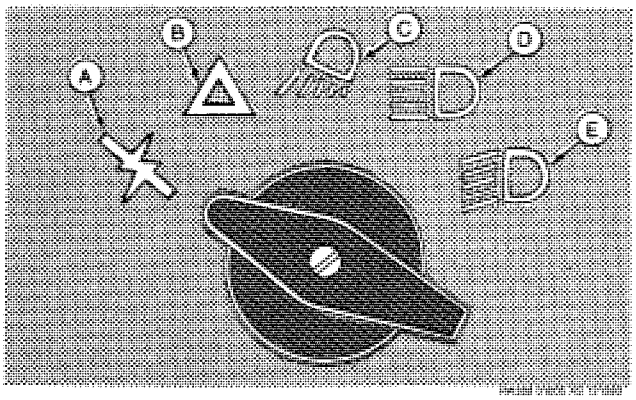
(A)-Turns off all lamps.

(B)-Turns on warning lamps only.

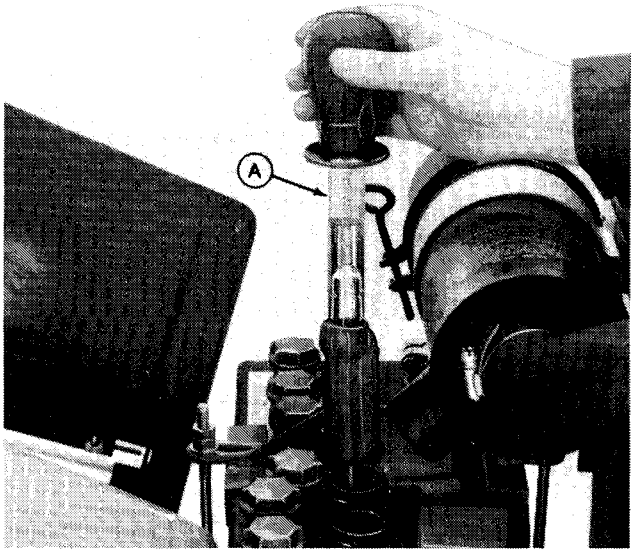
(C)-Turns on bright head lamps and rear flood lamp.

(D)-Turns on bright head lamps, tail lamp, and warning lamps.

(E)-Turns on dim head lamps, tail lamp, and warning lamps.



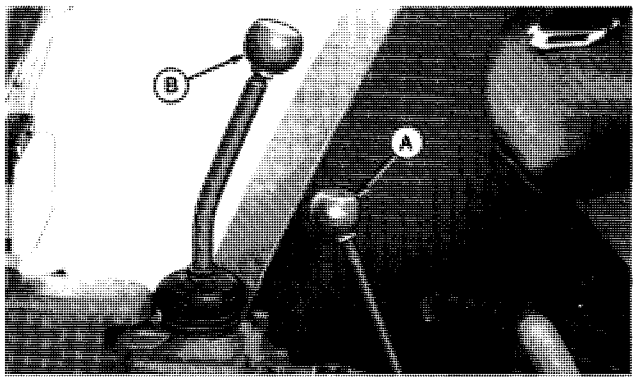
3. Check specific gravity of battery. Use a battery hydrometer (A). Corrected specific gravity of a fully charged battery is 1.260. Add 0.007 for every 10°C above 27°C. (Add 0.004 for every 10°F above 80°F). Subtract at same rate if electrolyte temperature is below 27°C (80°F).



RW491 01005 AT 121280

POWER TRAIN

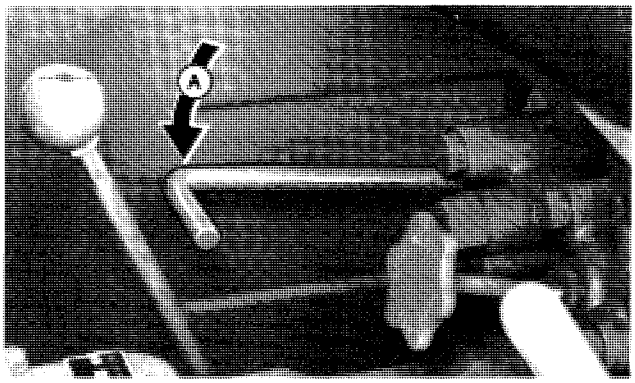
1. Check operation of transmission. Range shift lever (A) provides two speed ranges. Low range speeds are generally below 4 km/h (2.5 mph), and high range speeds are above. Gear shift lever (B) provides four forward speeds and reverse in each range. Be sure transmission operates smoothly in all gears.



RW253 01005 AU 121280

2. Check operation of differentail lock. When one wheel starts to spin, engage differential lock by depressing pedal (A). When traction equalizes, lock will disengage itself by spring action.

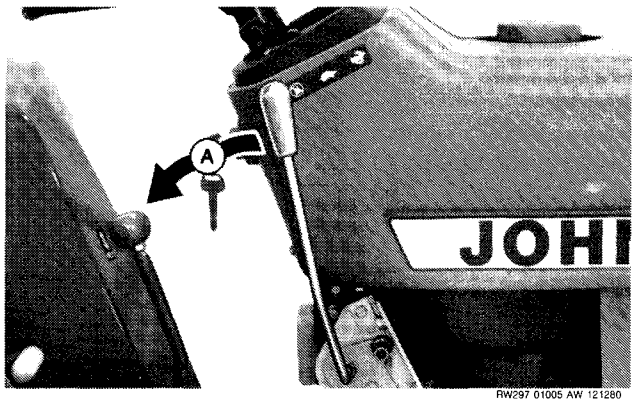
Continued



RW257 01005 AV 121280

POWER TRAIN—Continued

3. Check PTO operation and be sure master shield is in place. Push control lever down to engage PTO (A). Pull Control lever up to disengage PTO (B).

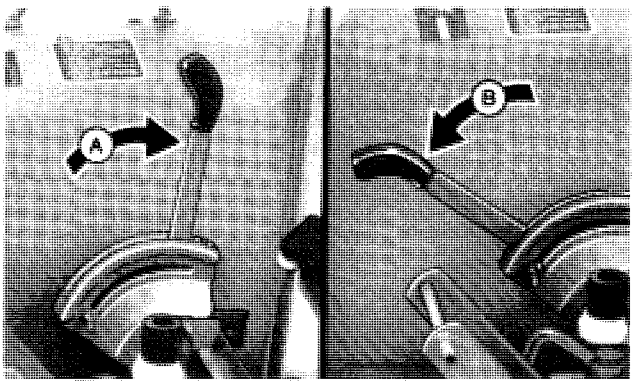


RW297 01005 AW 121280

HYDRAULICS

1. Check operation of rockshaft. To raise rockshaft, pull rockshaft control lever rearward (A) and to lower rockshaft, push lever forward (B).

2. Check hydraulic lines and connections for any leaks.



RW265 01005 AX 121280

STEERING/BRAKES

1. Check operation of brakes. Check with engine running and with engine stopped.

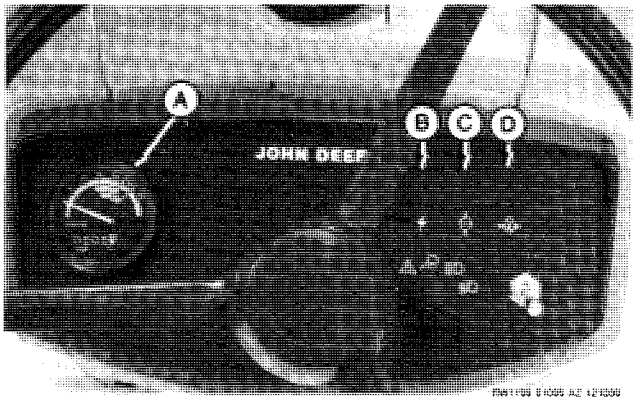
2. Check steering operation. Be sure steering operates smoothly in both directions.

01005 AY 121280

OPERATORS STATION

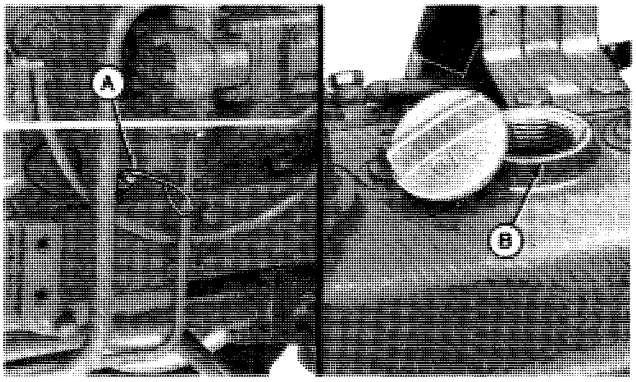
1. Check installation of ROLL-GARD Protective Structure. Be sure all mounting hardware is tight.

2. Check operation of all gauges. Tach hourmeter (A) shows engine speed in rpms and hours of operation in full hours and tenths. Charging system lamp (B) will glow when alternator output is too low. Temperature lamp (C) will glow if engine coolant temperature becomes too high. Oil pressure lamp (D) glows if engine oil pressure falls too low.



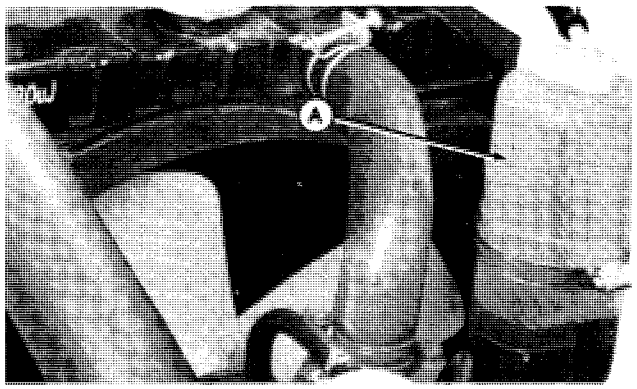
FLUID LEVELS

1. Check engine oil level. With tractor level and engine stopped for 10 minutes or more, remove dipstick (A) and check oil level. If low, add oil through filler hole (B) in valve cover and add enough JOHN DEERE TORQ-GARD SUPREME® engine oil or an equivalent to bring level to full mark.



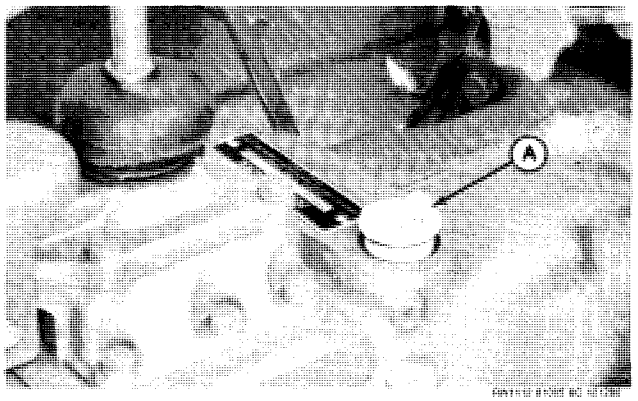
RW226 01005 BA 121280

2. Check coolant level. If coolant level is below "LOW", add coolant to recovery tank (A) to level to "FULL" mark.



RW1119 01005 BB 121280

3. Check hydraulic oil level. With tractor level and engine stopped for 10 minutes or more, remove dipstick (A) and wipe it clean. Insert dipstick to rest on threads, but do not screw it in. Oil level should be between full mark and end of dipstick. If low add enough JOHN DEERE HY-GARD Transmission and Hydraulic Oil or an equivalent to bring level to the full mark.



4. Check level of electrolyte in batteries. Electrolyte should be to bottom of filler necks. If low, add distilled water only to bring level to bottom of filler necks.

01005 BD 121280

MAKE PRELIMINARY ENGINE TESTS

Before tuning up a tractor, determine if a tune-up will restore operating efficiency. Performing the following preliminary tests will help determine if engine can be tuned up.

1. After engine has been stopped for several hours, loosen crankcase drain plug and check for water seepage. A few drops could be due to condensation, but any more would indicate the need for engine repair. Refer to Section 220.

2. With engine stopped, inspect coolant for oil film. With engine running, inspect coolant for air bubbles. Either condition would indicate the need for engine repair. Refer to Section 220.

3. Perform dynamometer test as instructed in Section 220, Group 10. Record horsepower. Repeat test after tune-up and compare horsepower.

Engine output for 650 tractors should be 10.8 PTO kW (14.5 horsepower) at 2600 rpm. Engine output for 750 tractors should be 13.4 PTO kW (18 horsepower) at 2400 rpm.

4. Perform compression test as instructed in Section 220, Group 10. If test is performed as outlined, compression should be 3914-4403 kPa (39-44 bar) (568-639 psi).

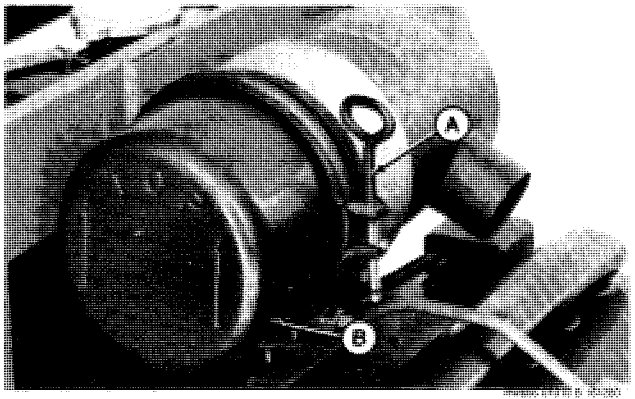
NOTE: Tune-up is a good chance to do periodic maintenance such as replacing filters.

A14 U03;01010 A 161280

REMOVE AND INSPECT AIR CLEANER ELEMENT

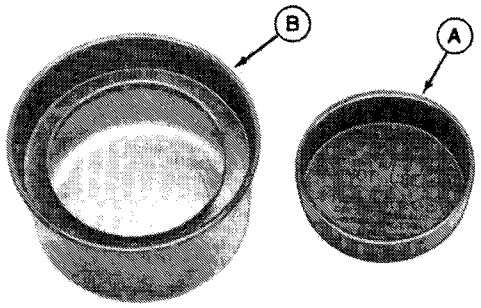
1. Raise hood.

2. Loosen clamp (A) and remove dust cup (B).



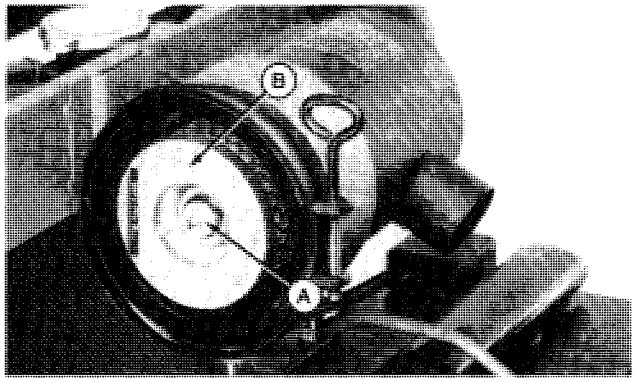
3. Remove dust cup baffle (A) and clean out any dirt collected in dust cup (B).

IMPORTANT: Check dust cup frequently. Empty dust cup as often as needed to keep it from filling with dust. If cup is allowed to fill, air cleaner element will quickly become plugged.



RW466 01010 C 161280

4. Remove wing nut (A) and remove air cleaner element (B).



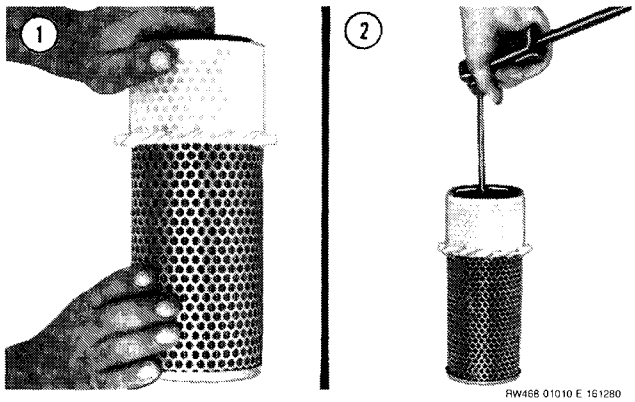
RW667 01010 D 161280

CLEAN FILTER ELEMENT

1. Pat side of element gently to loosen dirt. Do not tap element against hard surface.

2. Clean element using John Deere AR62377 Dry Element Cleaning Gun.

IMPORTANT: Do not direct air against outside of element, as it may force dirt through to inside.



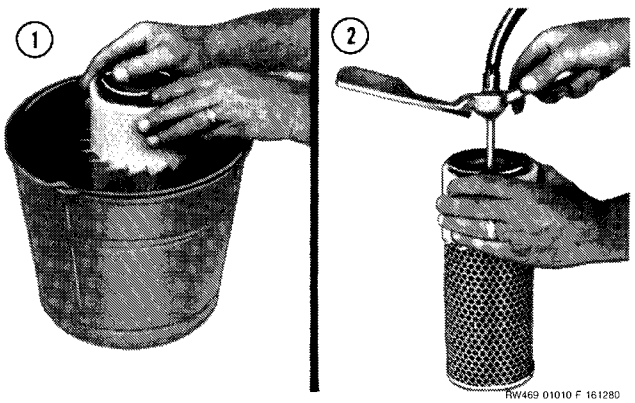
RW468 01010 E 161280

WASH FILTER ELEMENT

IMPORTANT: Never wash element in gasoline or any solvent. Never use compressed air on a wet element. Do not oil element.

1. If element is coated with oil or soot, wash in a solution of warm water and John Deere R36751 Filter Element Cleaner or its equivalent.

2. Rinse element thoroughly from inside with clean water. Use element cleaning gun or a free-running hose. Keep pressure low to avoid damaging element.



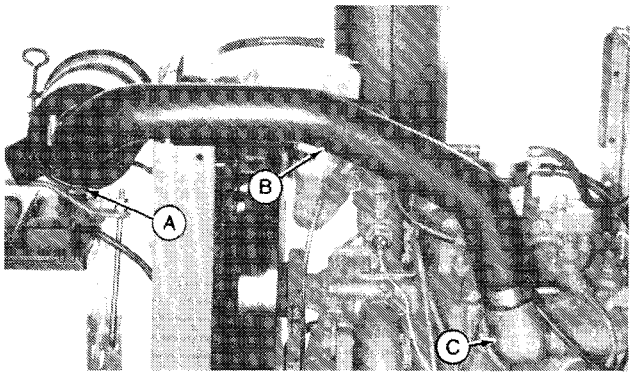
RW469 01010 F 161280

TIGHTEN AIR INTAKE CONNECTIONS

1. Tighten air intake connections at air cleaner (A) and intake manifold (C).

2. Inspect intake hose (B) for cracks or hardening and replace as necessary.

3. Inspect exhaust system for leaks or restrictions.



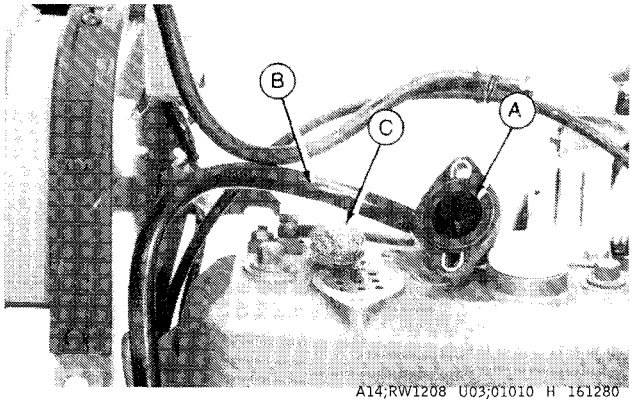
A14;RW1191 U03;01010 G 161280

CLEAN CRANKCASE BREATHER SYSTEM

1. Remove two cap screws and remove housing (A) from rockerarm cover.

2. Remove tube (B) and baffle (C). Wash parts in solvent and reinstall.

3. Be sure tube is not bent or kinked.



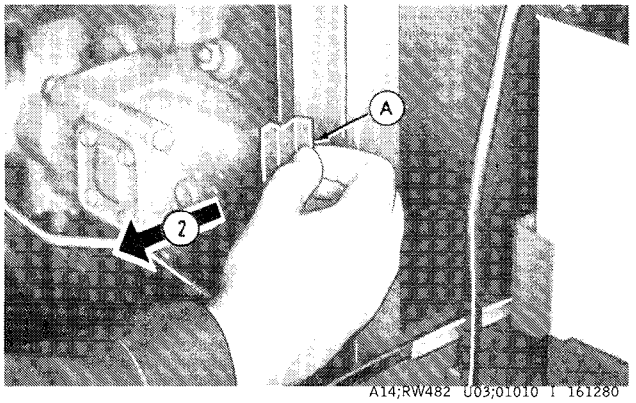
A14;RW1208 U03;01010 H 161280

CLEAN RADIATOR SCREEN

1. Raise tractor hood.

2. Pull tab (A) forward and slide screen out from front of radiator.

3. Clean off any accumulated trash and reinstall.



A14;RW482 U03;01010 I 161280

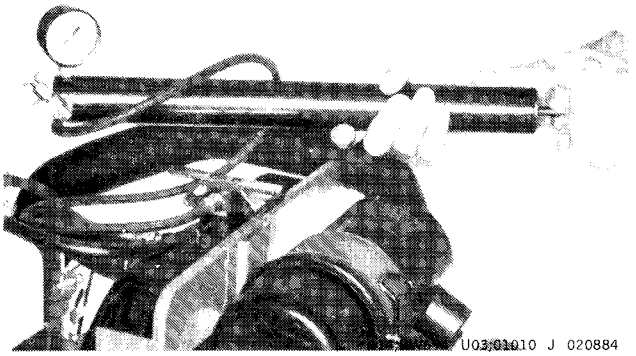
TEST COOLING SYSTEM

1. Raise tractor hood.

2. Visually inspect radiator for leaks.

3. Attach D-05104 ST Tester to radiator as illustrated.

4. Apply 98 kPa (0.98 bar) (14 psi) to radiator and check for leaks.

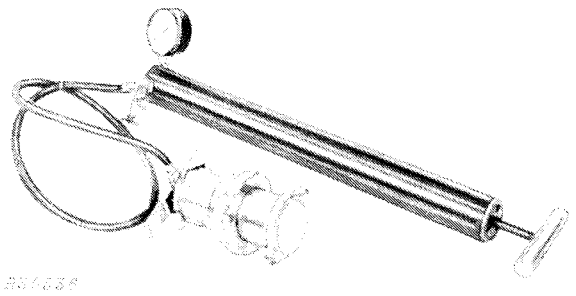


U03;01010 J 020884

5. Attach D-051045ST Tester to radiator cap as illustrated.

6. When pressurized, cap should maintain 76-104 kPa (0.76-1.03 bar) (11-15 psi).

7. Replace radiator cap as necessary.



A14;R30336 U03;01010 K 260784

FLUSHING COOLING SYSTEM EVERY YEAR

1. Remove radiator cap (A).

2. Open drain fitting (B) and drain system.

3. Close drain fitting and fill system with clean water. Then replace radiator cap.

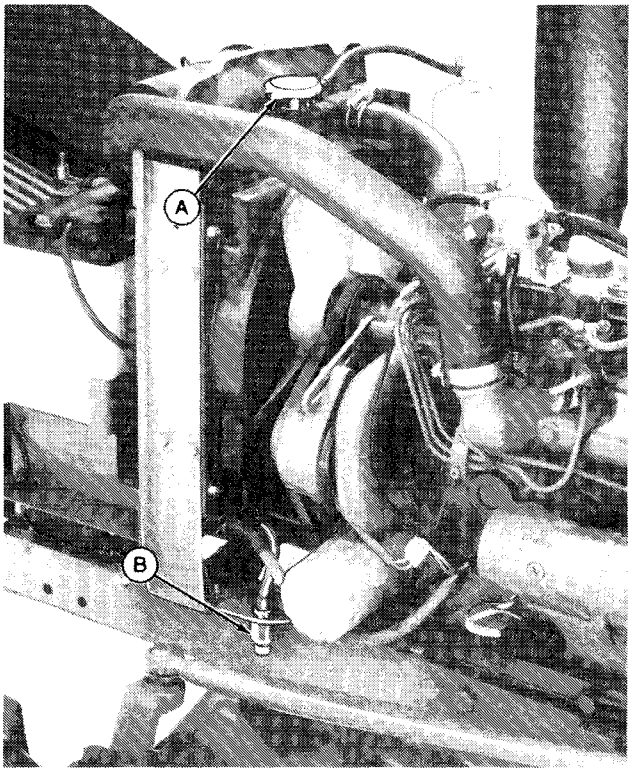
4. Run engine until it reaches operating temperature.

5. Stop engine. Remove radiator cap and drain out water before rust or sediment settles.

6. Close drain fitting and fill system with a solution of John Deere Cooling System Cleaner or its equivalent. Follow instructions with cleaner.

7. After using cleaner, flush system with clean water.

8. Fill cooling system using proper amount of antifreeze. 650 capacity is 3.5 L (3.7 U.S. qts.), 750 capacity is 4.2 L (4.4 U.S. qts.).



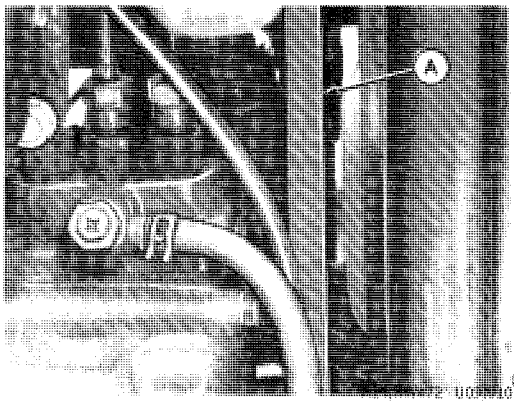
A14;RW484 U03;01010 L 161280

CHECK AND ADJUST FAN BELT TENSION

IMPORTANT: Belt must be cool when tension is checked.

1. WITH ENGINE STOPPED, press belt midway between pulleys (A). Belt should deflect 13 mm (1/2 in.) with a 98 N(22 lbs.) force.

2. Adjust tension if necessary.

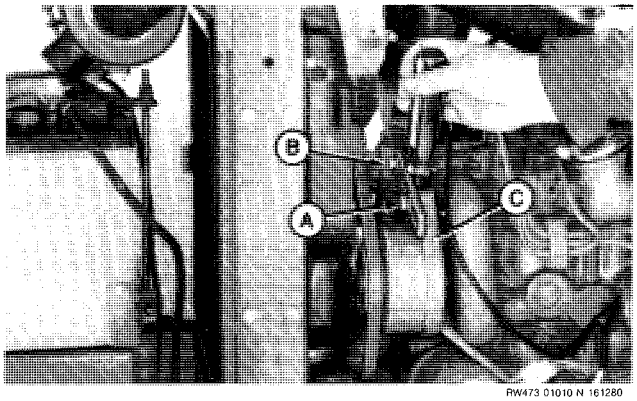


U03;01010 M 161280

IMPORTANT: Belt must be cool when tension is adjusted.

3. Loosen cap screw (A) and mounting cap screw (B).

4. Pry on alternator frame (C) only and tighten cap screws when correct tension is obtained.



RW473 01010 N 161280

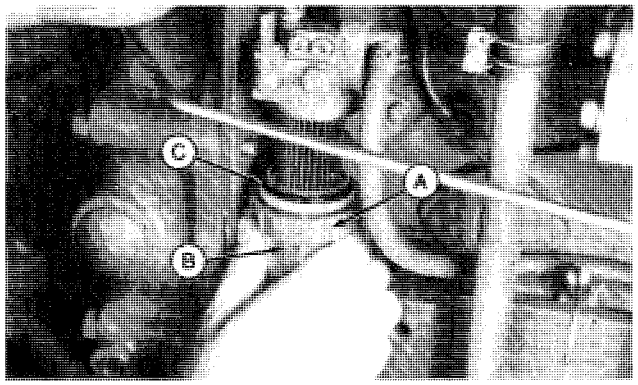
CLEAN FUEL FILTER

1. Move fuel shut-off lever up to closed position.

2. Unscrew retaining nut (A) and remove sediment bowl (B).

3. Clean out water and sediment from bowl.

4. Reinstall bowl making sure O-ring (C) is in good condition and properly positioned on bowl.



RW714 01010 O 161280

CHECK AND ADJUST INJECTION PUMP TIMING

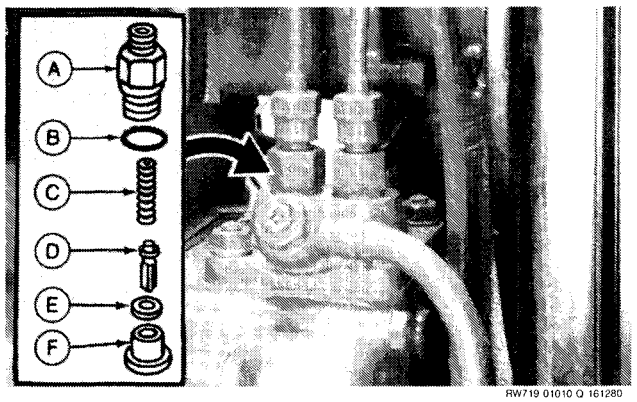
1. Shut off fuel at fuel filter and disconnect No. 1 injection line from pump.

IMPORTANT: Remember that No. 1 cylinder or injection line is the one closest to engine flywheel.

01010 P 161280

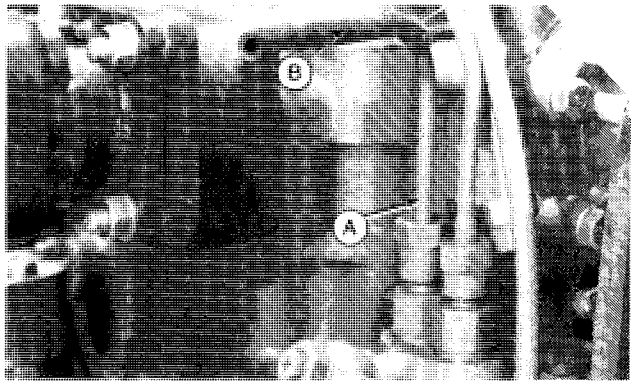
2. Unscrew delivery valve holder (A) from pump. Remove spring (C) and delivery valve (D).

3. Reinstall holder and copper washer (E) and tighten securely.



RW719 01010 O 161280

4. Install JDF-14 Adapter (A) with a sufficient length of rubber hose (B) to allow running fuel to clear tractor, or Injection Pump Timing Tool (Fabricated) on delivery valve holder. (See instructions for making Injection Pump Timing Tool in Specifications and Special Tools, Group 00, in this Section).



A14;RW720 U03;01010 R 070884

5. Place a ratchet with 27 mm (1 1/16 in.) socket on crankshaft pulley.

NOTE: If tractor is equipped with front PTO, engine can be rotated by placing a wrench on the PTO pulley capscrews.

6. Rotate engine clockwise (as viewed from front of tractor) until No. 1 piston approaches TDC of its compression stroke.

U03;01010 S 161280

7. Place a small contaner under JDF-14 Adapter with hose to collect fuel. Turn on fuel supply.

NOTE: Since the delivery valve was removed from the pump, fuel will flow from timing fixture in a continuous stream, but will stop at a point of crankshaft rotation. The point at which the fuel just stops flowing is known as "beginning of injection".

U03;01010 T 161280

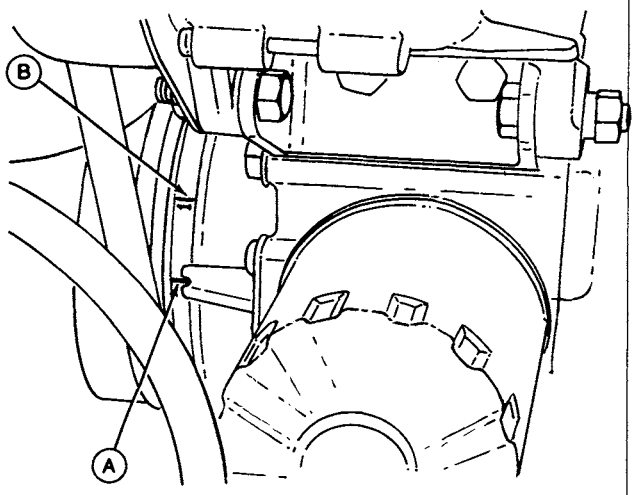
NOTE: If the fuel does not stop flowing, even when the TDC mark (B) has passed the pointer, it is an indication that No. 1 piston was on the exhaust stroke instead of the compression stroke.

8. Rotate engine until fuel flow just stops. During this step, the fuel flow will change from a steady stream to droplets, and then stop when the beginning of injection point is reached. Disregard the last drop of accumulated fuel from the end of hose.

9. Check position of beginning of injection mark (A). If pump is correctly timed, beginning of injection mark will be aligned with pointer on timing gear cover.

10. If mark has gone past pointer, remove shims from between pump mounting flange and timing gear cover.

11. If mark has not reached pointer, add shims between pump and timing gear cover.



RW721 01010 U 161280

A 0.1 mm (0.004 in.) shim change corresponds to a one and one half degree difference in crankshaft position.

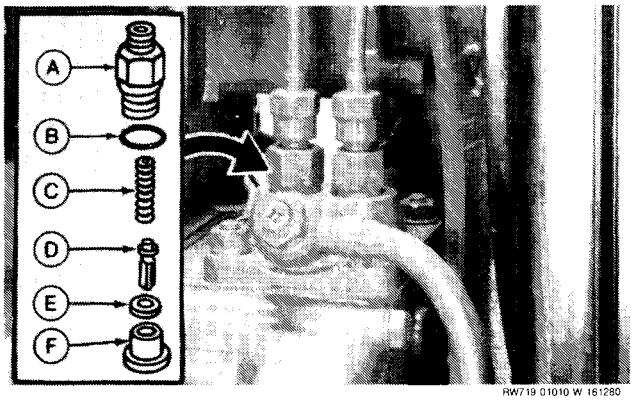
NOTE: Beginning of injection mark is at 22±2 degrees before TDC on both 650 and 750 Tractors.

12. When pump timing is correct, remove timing fixture and rubber hose.

01010 V 161280

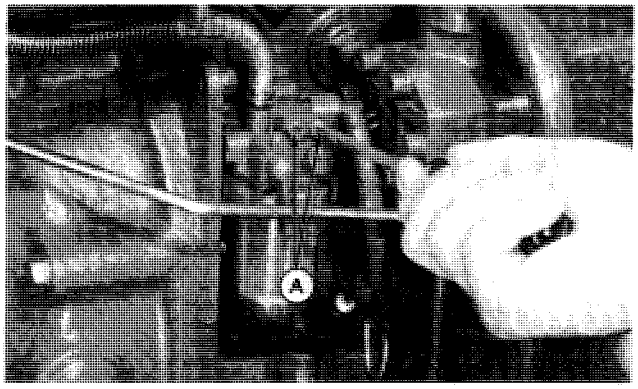
13. Install delivery valve (D) in housing while wet with clean diesel fuel. Place a new rubber O-ring (B) on delivery valve holder. Install spring (C) and NEW copper washer (E) in holder and install holder on pump. Torque to 42 N.m (31 ft-lb).

14. Loosen holder i/4 turn, then retorque to 42 N.m (31 ft-lbs). Connect fuel lines to pump and torque to 27 N.m (20 ft-lb).



RW719 01010 W 161280

BLEED FUEL SYSTEM



CAUTION: Diesel fuel escaping under pressure can have enough force to penetrate the skin. Before disconnecting lines, relieve all pressure. Before applying pressure to system, be sure all lines, pipes and hoses are in good condition. Fuel escaping under pressure from small holes can be nearly invisible. Use a piece of cardboard or wood, NOT YOUR HANDS, to check for suspected leaks.

If injured by escaping fuel, see a doctor at once. Serious infection will develop if not properly and immediately cared for.

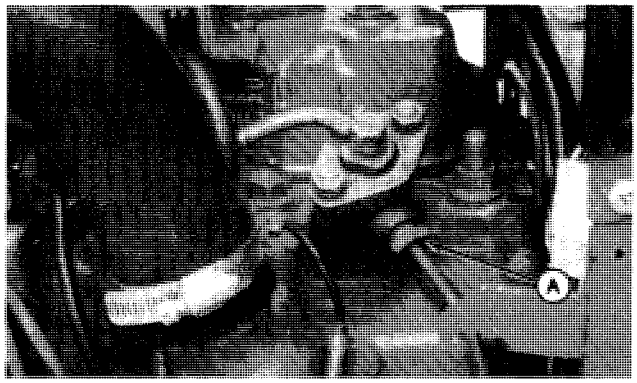
Whenever the fuel system has been opened up for services (lines disconnected or filter removed, it will be necessary to bleed the air from system.

1. Turn fuel on at filter. loosen both bleed screws (A) and allow fuel to flow until free of air bubbles.

2. Tighten bleed screws securely. Start tractor and test operation.

RW715 01010 X 161280

3. If tractor does not start, it may be necessary to bleed fuel lines at the injection nozzles.



4. Loosen fuel line connections (A) at injection nozzles, crank engine with starter until fuel flows from connectors.

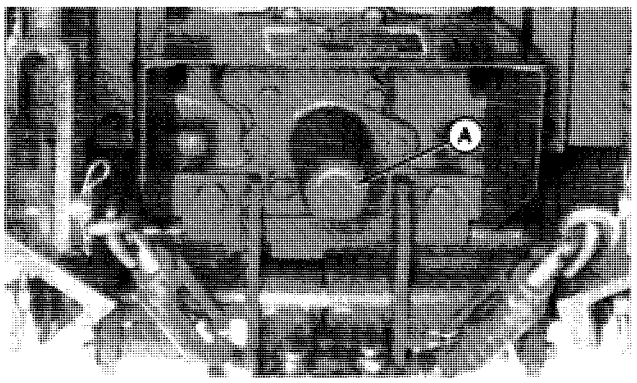
5. Tighten connectors, start tractor and check operation.

NOTE: If engine does not start, bleed fuel system as instructed in Section 230, Group 10.

RW722 01010 Y 161280

CHECK AND ADJUST SLOW IDLE SPEED

IMPORTANT: Before adjusting control linkage for slow idle speed, be sure that injection pump fast idle speed is correct. Adjust as instructed on page 230-10-11.



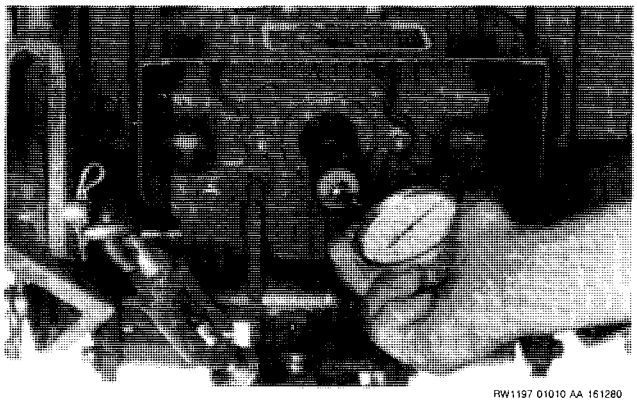
1. Remove PTO shaft cover (A).

2. Start engine and bring to operating temperature.

RW1205 01010 Z 161280

3. Pull hand throttle back to slow idle position. Be sure that spring-loaded ball is seated in detent hole in mounting bracket.

4. Measure PTO speed using a hand tachometer as illustrated.



RW1197 01010 AA 161280

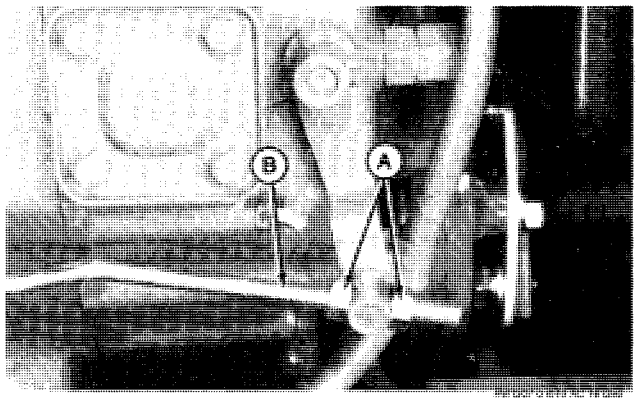
5. PTO speed should be 183 rpm for 650 tractors and 188 rpm for 750 tractors.

6. The listed PTO speeds are for specified slow idle speed of 800 rpm.

01010 AB 161280

7. If necessary, loosen locknuts (A) on speed control rod (B) and move rod forward or rearward until correct speed is obtained.

8. Tighten locknuts securely and reinstall PTO shaft cover.

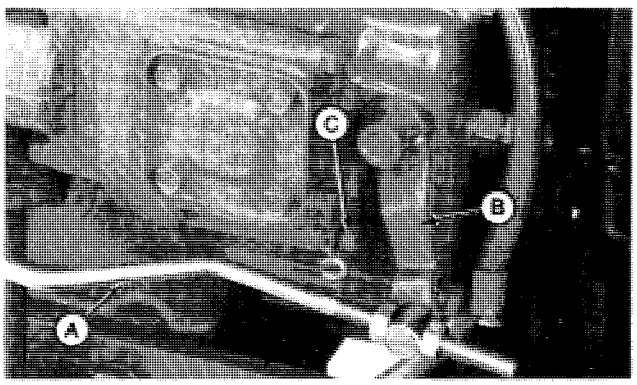


CHECK AND ADJUST FAST IDLE SPEED

1. Start tractor and bring to operating temperature.

2. Remove retaining nut and disconnect throttle linkage (A) from injection pump throttle lever (B).

3. Use a piece of string or wire to tie pump throttle lever in fast idle position against fast idle stop screw.

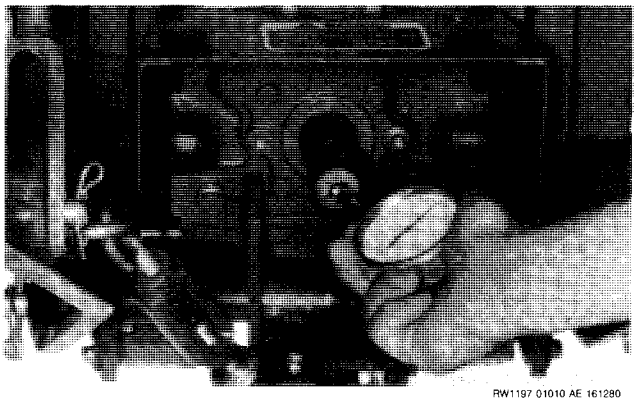


RW1196 01010 AD 161280

4. Remove PTO shaft cover and check PTO speed with a hand tachometer as illustrated.

5. If fast idle speed is correct, PTO speed will be 625 rpm for 650 tractors or 600 for 750 tractors.

6. Correct engine speed is 2725 rpm for 650 tractors and 2540 rpm on 750 tractors.



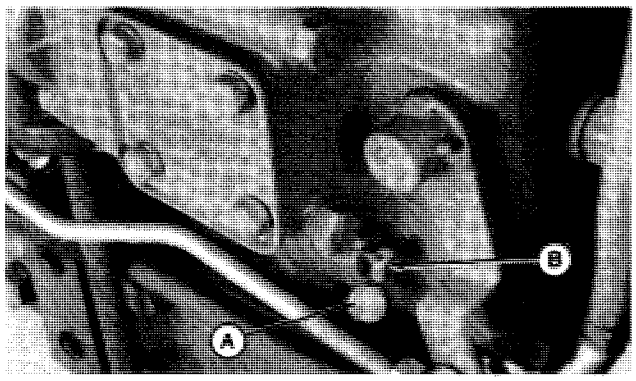
RW1197 01010 AE 161280

7. If adjustment is necessary, remove lead seal wire (A) and turn fast idle stop screw (B) in or out to obtain correct speed.

8. Install new lead seal wire and reconnect throttle linkage.

9. If correct fast idle speed cannot be obtained, injection pump is defective and must be replace.

10. Reinstall PTO shaft cover.

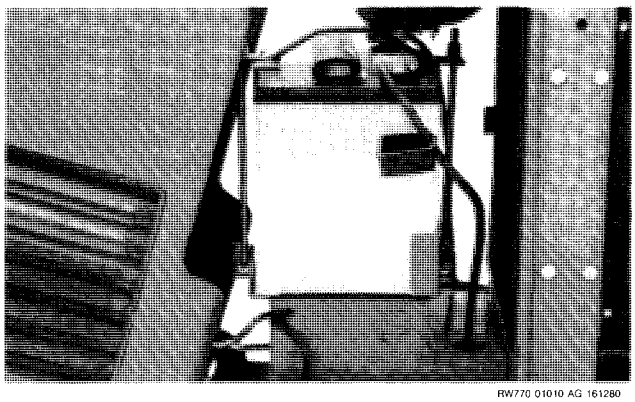


RW1196 01010 AF 161280

CLEAN AND TEST BATTERY

1. Clean battery, cables, and compartment with a damp cloth. Remove any corrosion from terminals with a solution of baking soda and water.

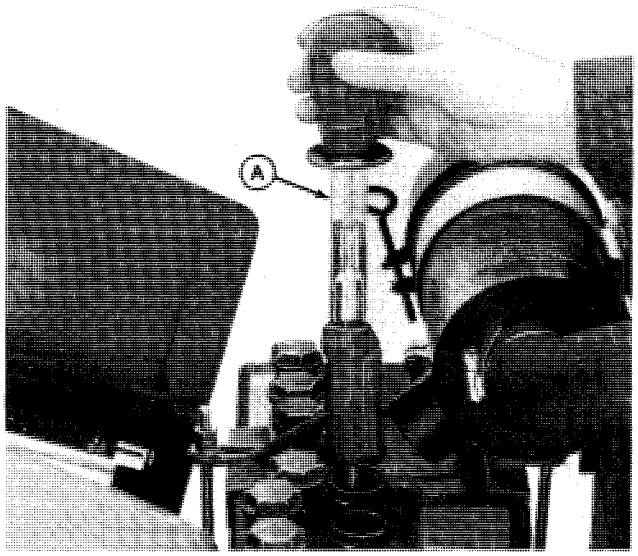
2. Coat battery terminals and connectors (after installation) with a mixture of petroleum jelly and baking soda.



RW770 01010 AG 161280

3. To check battery condition, use a battery hydrometer (A). Check specific gravity of electrolyte in each cell. Charge battery if reading is below 1.215. Replace battery if difference between cells is more than 0.050.

4. Always correct specific gravity reading for electrolyte temperature variation. Add 0.007 for every 10°C above 27°C. (Add 0.004 for every 10°F above 80°F). Subtract at same rate if electrolyte temperature is below 27°C (80°F). Corrected specific gravity of a fully charged battery is 1.260.



RW491 01010 AH 161280

MAKE FINAL ENGINE TEST

Repeat dynamometer test as instructed in Section 220, Group 10. Compare performance with previous test, and record for future reference.

Engine output for 650 tractors should be 10.3 PTO kW (14.5 horsepower) at 2600 rpm. Engine output for 750 tractors should be 13.4 PTO kW (18 horsepower) at 2400 rpm.

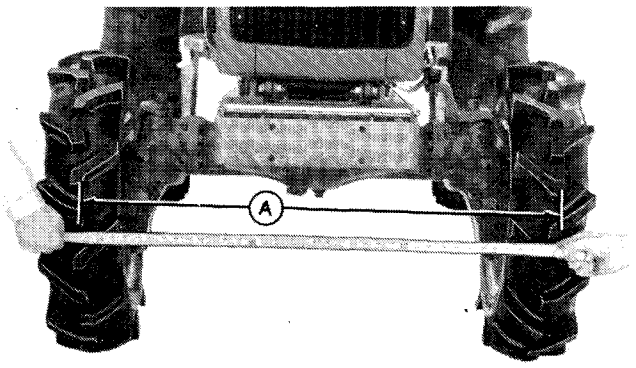
01010 AI 161280

CHECK TOE-IN

1. Steer front wheels straight ahead.

2. Measure distance between tires at hub level (A). Mark the point at which you measured.

3. Move tractor back about one meter (3 ft.), so mark is at hub level behind the axle. Again measure distance between tires, at same point on tire. Tires should be 3 to 9 mm (1/8 to 3/8 in.) closer at front.



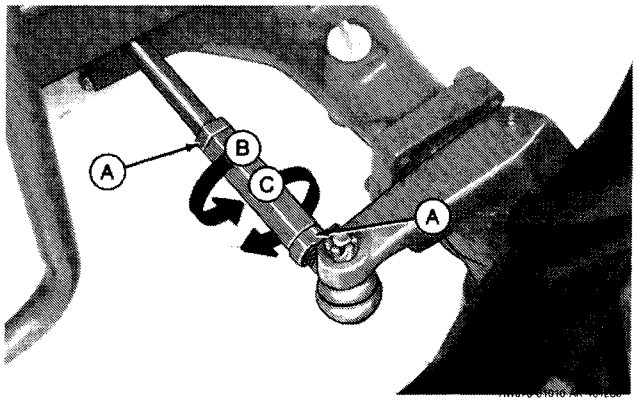
RW369 01010 AJ 161280

ADJUSTING 650 TRACTOR TOE-IN

1. Loosen lock nuts (A).

2. Change tie rod length to adjust toe-in. Rotate turnbuckle clockwise (B) to shorten tie rod. Rotate counter-clockwise (C) to lengthen tie rod. Adjust toe-in to 6 mm (1/4 in.).

3. Retighten lock nuts.

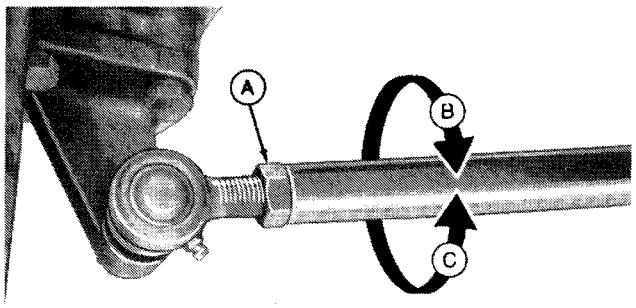


ADJUSTING 750 TRACTOR TOE-IN

1. Loosen lock nuts at each end of tie rod (A).

2. Change tie rod length to adjust toe-in. Rotate tie rod clockwise (B) to shorten it. Rotate counterclockwise (C) to lengthen it. Adjust toe-in to 6 mm (1/4 in.).

3. Retighten lock nuts.



RW371 01010 AL 161280

MISCELLANEOUS

1. Torque the following bolts as specified:

Front Wheel-to-Hub .....133 N.m (98 ft-lbs)
Rear Wheel-to-Hub
650 tractor .....133 N.m (98 ft-lbs)
750 tractor .....186 N.m (137 ft-lbs)
ROLL-GARD frame to
transmission case .....245 N.m (180 ft-lbs)
ROLL-GARD frame bolting plate to
transmission case .....100 N.m (75 ft-lbs)

2. Check all accessable nuts and cap screws and torque according to the chart in Group 05.

01010 AM 161280

LUBRICATE TRACTOR PROPERLY

IMPORTANT: Correct selection and proper use of lubricating oils and grease is very important in keeping upkeep costs low, while providing long tractor life with satisfactory service.

Use only lubricants specified in this section. Lubricate at the intervals listed and according to the following instructions.

A14 U03,01015 A 081280

USE CORRECT ENGINE OIL

John Deere TORQ-GARD SUPREME® engine oil is recomended. If other oils are used, they must be premium engine oils meeting performance requirements of:

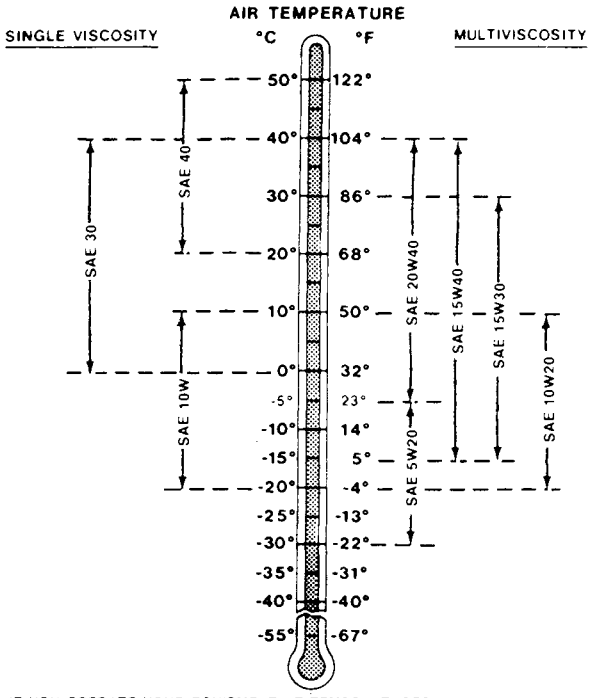
- API Service Classification
  CD/SC
- Military Specification
  MIL-L-2104C

For low temperature operation, where oils meeting the above requirements may not be available in appropriate viscosity grade, oils meeting the performance requirements of API Service Classification CC/SC or Military Specification MIL-L-46152 may be used, but at a shorter drain interval.

Quality engine oils are blended, so additives are neither required nor recommended.

NOTE: 1. If air temperature is below -10°C (11°F), use an engine heater. SAE 5W-20 oils may also be used to insure optimum lubrication of engine.

2. Some increase in oil consumption may be expected when SAE 5W-20 or SAE 5W oils are used. Check oil level more frequently.



IF YOU OPERATE YOUR EQUIPMENT AT TEMPERATURES BELOW THE LIMITS SHOWN, CONSULT YOUR DEALER FOR SPECIAL LUBRICANTS AND STARTING AIDS.

RW389 01015 B 081280

TRANSMISSION - HYDRAULIC OILS

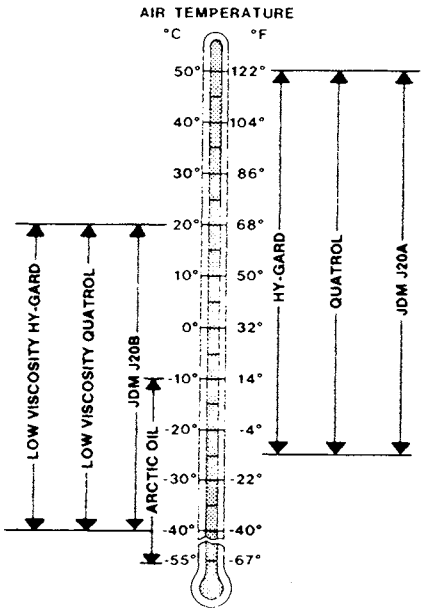
Depending upon the expected air temperature range during the drain interval, use oil viscosity shown on the adjoining temperature chart.

John Deere HY-GARD® transmission and hydraulic oil is recommended.

You may also use oils that meet John Deere standards, or other oils meeting John Deere Standard JDM J20A or J20B.

At temperature below −40°C (−40°F), use arctic oils such as those meeting Military Specification MIL-L-46167.

If low viscosity HY-GARD® oils are used, be sure to drain and refill system with a regular viscosity oil at temperature indicated on chart. Steering circuit should be drained to take full advantage of low viscosity oils.



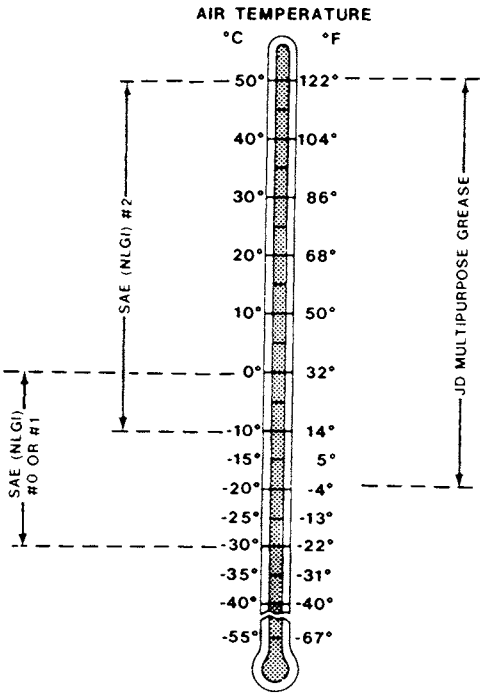
AK1;X9312 U01;FL05A X2 140983

USE CORRECT GREASE

John Deere Multipurpose grease is recommended for all grease fittings. It is also recommended for front wheel bearings on tractors not equipped with front-wheel drive. If other greases are used, use:

-SAE Multipurpose Grease

-SAE Multipurpose Grease containing 3 to 5 percent molybenum disulfide.



IF YOU OPERATE YOUR EQUIPMENT AT TEMPERATURES BELOW THE LIMITS SHOWN, CONSULT YOUR DEALER FOR SPECIAL LUBRICANTS AND STARTING AIDS.

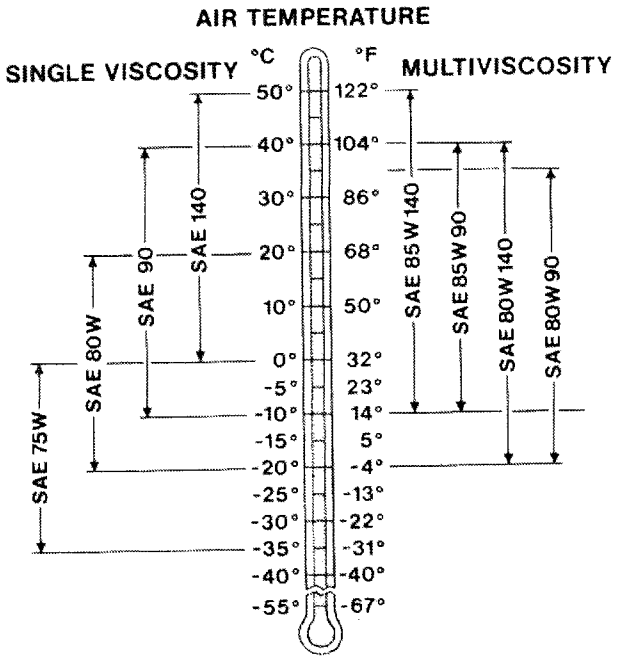
A14;RW391 U03;01015 D 081280

MFWD GEAR LUBRICANT

Depending upon the expected air temperature range during the service interval, use lubricant viscosity as shown on the adjoining temperature chart.

John Deere GL-5 Gear Lubricant, is recommended. If other oils are used, they must be oils meeting:

— API Service Classification GL-5
— Military Specification MIL-L-2105B
— Military Specification MIL-L-2105C



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USE APPROVED ALTERNATIVE LUBRICANTS

Conditions in certain geographical areas outside the United States and Canada may require different lubricant recommendations than those printed in the operator's manual.

U03;01015 E 081280

STORE LUBRICANTS CORRECTLY

A tractor can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture, and other contamination.

U03;01015 F 081280

LUBRICATION SERVICES

COMPONENT	CAPACITY	LUBRICANT*	SERVICE ITEM	INTERVAL (HOURS)
Engine Crankcase		Engine Oil	Check level	10
650 Tractor	2.5L (2.6 U.S. qt)		Change oil and filter	200
750 Tractor	4.0L (4.2 U.S. qt)		Clean vent system	600
Transmission-Hydraulic System**		Transmission-Hydraulic Oil	Check level	50
			Change oil	200
650 Tractor	13.0L (14.0 U.S. qt)		Clean filter screen	200
750 Tractor	14.0L (15.0 U.S. qt)		Replace screen	600
Transmission-Hydraulic System***		Transmission-Hydraulic Oil	Check level	50
			Replace filter	200
650 Tractor	13.0L (14.0 U.S. qt)		Change oil	600
750 Tractor	14.0L (15.0 U.S. qt)		Clean screen	600
			Replace screen	1200
Front Axle Housing (MFWD Only)		John Deere GL-5 or SAE 90 Gear Lubricant	Check level	50
			Change oil	600
650 Tractor	3.0L (3.2 U.S. qt)			
750 Tractor	6.5L (6.9 U.S. qt)			
Front Wheel Bearings (Without MFWD)		Grease	Repack	600
Grease Fittings		Grease		
Axle Pivot Pin			Lubricate	10
Drag Links			Lubricate	10
Tie Rod Ends			Lubricate	10
Steering Spindles			Lubricate	10
Clutch and Brake			Lubricate	50
Hitch Lift Link			Lubricate	200
Hitch Center Link			Lubricate	200
Front PTO Shaft Bearing			Lubricate	200

**See previous pages for lubricant specifications.*
***Tractors not equipped with power steering or hydraulic filter.*
****Tractors equipped with power steering or hydraulic filter.*

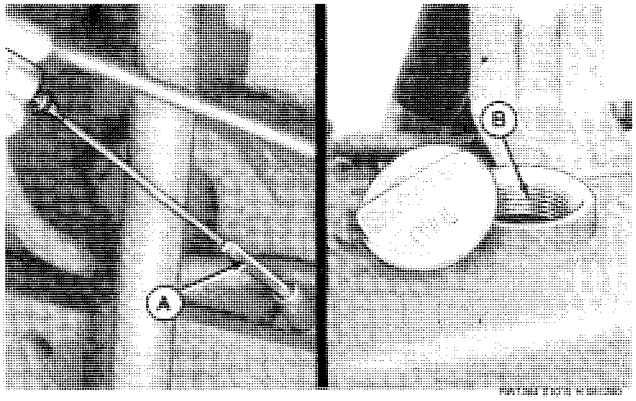
U03;01015 G 300784

CHECK ENGINE OIL LEVEL

SERVICE INTERVAL: 10 Hours.

Wipe dipstick (A) clean and reinsert it fully. Oil level should be between two marks on dipstick.

If level is low, add oil through filler hole in valve cover (B). Use engine oil as specified on page 1.



CHANGE ENGINE OIL AND OIL FILTER

SERVICE INTERVAL: 200 Hours.

1. Run engine approximately five minutes to warm up oil. Shut off engine.

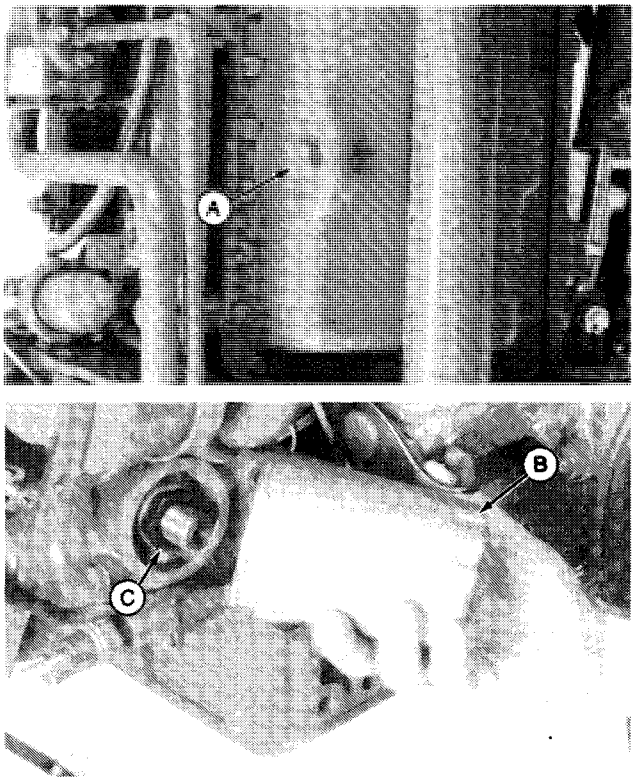
2. While oil is still warm, remove oil drain plug (A). Allow oil to drain out. Reinstall drain plug.

3. Remove oil filter element (B). Be sure lock nut (C) on filter mounting stud it tight.

4. Remove old filter packing and clean filter mounting pad. Oil new packing and install new element. Hand tighten only.

5. Add oil as specified on page 1. 650 Tractor capacity is 2.5L (2.6 U.S. qts.). 750 Tractor capacity is 4.0L (4.2 U.S. qts.).

6. Run engine for approximately ten minutes after filling. Shut engine off and check for leaks around filter and drain plug. Recheck oil level with dipstick.



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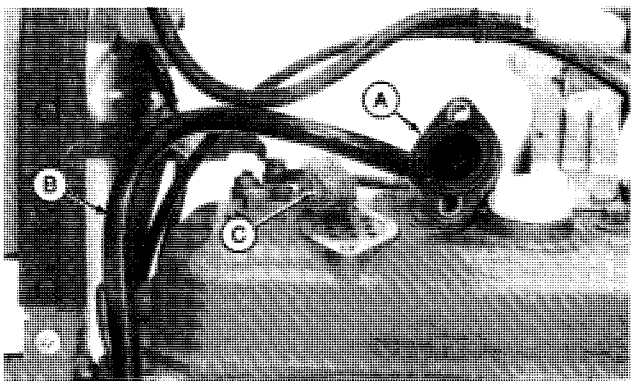
CLEAN CRANKCASE VENT SYSTEM

SERVICE INTERVAL: 600 Hours

1. Remove breather vent (A), tube (B), and baffle (C) from engine.

2. Wash them in solvent.

3. Reassemble tube, baffle, and vent to engine. Be sure that tube is not kinked or pinched.



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Thank you very much for your reading.

Please Click Here Then Get More Information.