

# 4640 and 4840 Tractors



## TECHNICAL MANUAL 4640 and 4840 Tractors

TM1183 (01NOV86) English

**John Deere Tractor Works**  
**TM1183 (01NOV86)**

LITHO IN U.S.A.  
ENGLISH



# 4640 AND 4840 TRACTORS TECHNICAL MANUAL TM-1183 (OCT-85)

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

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# Section 10 GENERAL

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## Group 00 SPECIFICATIONS AND SPECIAL TOOLS GENERAL TRACTOR SPECIFICATIONS

4640

4840

**HORSEPOWER (Factory observed PTO**

horsepower at 2200 rpm)	155 hp (116 kW)	180 hp (134 kW)
-------------------------	-----------------	-----------------

**ENGINE:**

Type	6-cylinder, in-line, valve-in-head, diesel, turbocharged, intercooled	6-cylinder, in-line, valve-in-head, diesel, turbocharged, intercooled
Slow idle speed	800 rpm	800 rpm
Working speed range	1500 to 2200 rpm	1500 to 2200 rpm
Bore and stroke	4.56 x 4.75 in. (116 x 121 mm)	4.56 x 4.75 in. (116 x 121 mm)
Displacement	466 cu. in. (7.6 L)	466 cu. in. (7.6 L)
Compression ratio	14.9 to 1	14.9 to 1
Firing order	1-5-3-6-2-4	1-5-3-6-2-4
Valve clearance		
Intake	0.018 in. (0.46 mm)	0.018 in. (0.46 mm)
Exhaust	0.028 in. (0.71 mm)	0.028 in. (0.71 mm)
Injection pump timing	TDC	TDC
Lubrication system	force-feed, pressurized with full-flow filter	force-feed, pressurized with full-flow filter

	4640	4840
<b>FUEL SYSTEM:</b>		
Type	direct injection	direct injection
Injection pump type	in-line	in-line
Air cleaner	dry type with safety element	dry type with safety element
<b>COOLING SYSTEM:</b>		
Type	dual-pressure with centrifugal pump	dual-pressure with centrifugal pump
Temperature control	dual heavy duty thermostats	dual heavy duty thermostats
<b>CAPACITIES</b>		
Fuel tank	83 U.S. gal. (314 L)	103 U.S. gal. (390 L)
Cooling system	38 U.S. qt. (36 L)	40 U.S. qt. (38 L)
Crankcase (with filter change)	20 U.S. qt. (19 L)	20 U.S. qt. (19 L)
Transmission-hydraulic system (Drain and fill)		
Power Shift Transmission	16.5 U.S. gal. (62.5 L)	16.5 U.S. gal. (62.5 L)
QUAD-RANGE Transmission	22.5 U.S. gal. (85.2 L)	
Add for Power Front-wheel Drive	4.0 U.S. gal. (15.1 L)	4.0 U.S. gal. (15.1 L)
Transmission-hydraulic system (Dry, production fill)		
Power Shift Transmission	20.8 U.S. gal. (78.8 L)	20.8 U.S. gal. (78.8 L)
QUAD-RANGE Transmission	26.0 U.S. gal. (98.4 L)	
Add for Power Front-wheel Drive	5.0 U.S. gal. (18.9 L)	5.0 U.S. gal. (18.9 L)
<b>POWER SHIFT TRANSMISSION:</b>		
Type	planetary gears, hydraulically actuated wet disk clutches and brakes	planetary gears, hydraulically actuated wet disk clutches and brakes
Gear selections	8 forward and 4 reverse	8 forward and 4 reverse
Shifting	hydraulic, on-the-go and under load	hydraulic, on-the-go and under load
<b>QUAD-RANGE TRANSMISSION</b>		
Type	2-speed, power-shifted planetary and 8-speed synchronized	
Gear selections	16 forward and 6 reverse	
Perma-Clutch	hydraulically-operated, multiple-disk wet clutch	
<b>POWER TAKE-OFF:</b>		
Type	fully independent	fully independent
Speed (2200 engine rpm)	1000 rpm	1000 rpm
Size	1-3/4 in. (45 mm)	1-3/4 in. (45 mm)
Clutch	hydraulically-operated, multiple-disk wet clutch	hydraulically-operated, multiple-disk wet clutch
<b>POWER FRONT-WHEEL DRIVE:</b>		
Type	hydraulic motor with planetary gear reduction, constant torque and variable speed	
Controls	solenoid-operated valves, synchronized with transmission controls	
<b>HYDRAULIC SYSTEM:</b>		
Type	closed-center, constant-pressure	closed-center, constant-pressure
Standby pressure	2250 psi (155 bar) (15 500 kPa)	2250 psi (155 bar) (15 500 kPa)
<b>BRAKES:</b>		
Type	hydraulically-operated wet disk	hydraulically-operated wet disk

	4640	4840
<b>ELECTRICAL SYSTEM:</b>		
Type	12-volt, negative ground	12-volt, negative ground
Batteries	two, 6-volt, 5D group, 800 amps cold cranking, 376 minutes reserve capacity	two, 6-volt, 5D group, 800 amps cold cranking, 376 minutes reserve capacity
Alternator	72-amp with Sound-Gard Body, 61-amp without	72-amp
<b>TIRES AND TREADS</b>		
	see page 10-05-6 in this section	see page 10-05-6 in this section
<b>DIMENSIONS:</b>		
Wheelbase	118.5 in. (3010 mm)	118.5 in. (3010 mm)
Overall length	171.1 in. (4350 mm)	176.2 in. (4500 mm)
Height to muffler cover*	129.3 in. (3283 mm)	129.3 in. (3283 mm)
Height to top of Sound-Gard Body*	118.3 in. (3005 mm)	118.3 in. (3005 mm)
Overall width (regular axle)	96 in. (2440 mm)	96 in. (2440 mm)
Width at fender	82 in. (2082 mm)	82 in. (2082 mm)
Width at roof	54.4 in. (1382 mm)	54.4 in. (1382 mm)
Turning radius	161 in. (4100 mm)	161 in. (4100 mm)
<b>SHIPPING WEIGHT**</b>		
	14,350 lbs. (6510 kg)	14,900 lbs. (6760 kg)

\*Tractor equipped with 20.8-38 R1 rear tires and 11.00-16 front tires.

\*\*Equipped for average field service, without fuel and ballast. Add approximately 1000 lbs. (450 kg) if equipped with power front-wheel drive.

**GROUND SPEEDS**

Approximate ground speeds are given in the following charts. Speeds are shown in miles per hour, with kilometers per hour in parentheses.

Speeds are for a Tractor with 18.4-38 tires.

**POWER SHIFT TRANSMISSION GROUND SPEEDS**

Gear	1500 Engine RPM	2200 Engine RPM
1st	1.2 (1.9)	1.7 (2.8)
2nd	1.7 (2.7)	2.5 (4.0)
3rd	2.6 (4.2)	3.9 (6.2)
4th	3.4 (5.5)	5.0 (8.1)
5th	4.5 (7.3)	6.6 (10.6)
6th	5.9 (9.5)	8.6 (13.9)
7th	7.5 (12.1)	11.0 (17.7)
8th	12.9 (20.7)	18.8 (30.3)
1st rev.	1.5 (2.4)	2.2 (3.6)
2nd rev.	2.2 (3.5)	3.2 (5.1)
3rd rev.	3.4 (5.5)	5.0 (8.0)
4th rev.	4.4 (7.1)	6.5 (10.4)

**QUAD-RANGE TRANSMISSION GROUND SPEEDS**

Range	Speed	1500 Engine RPM	2200 Engine RPM
A	1	1.4 (2.2)	2.0 (3.2)
	2	1.7 (2.8)	2.5 (4.0)
	3	2.4 (3.9)	3.5 (5.7)
	4	3.1 (5.0)	4.5 (7.3)
	1R	2.5 (4.1)	3.7 (6.0)
	2R	3.2 (5.2)	4.7 (7.6)
B	1	3.0 (4.8)	4.4 (7.1)
	2	3.8 (6.1)	5.6 (9.0)
	3	5.4 (8.7)	8.0 (12.8)
	4	6.9 (11.1)	10.1 (16.3)
	1R	5.7 (9.1)	8.3 (13.4)
	2R	7.2 (11.6)	10.6 (17.0)
C	1	3.5 (5.7)	5.2 (8.3)
	2	4.5 (7.2)	6.6 (10.6)
	3	6.4 (10.3)	9.4 (15.1)
	4	8.1 (13.1)	11.9 (19.1)
	1R	6.6 (10.7)	9.8 (15.7)
	2R	8.5 (13.6)	12.4 (20.0)
D	1	5.7 (9.2)	8.4 (13.5)
	2	7.3 (11.7)	10.7 (17.2)
	3	10.3 (16.6)	15.2 (24.4)
	4	13.1 (21.1)	19.3 (31.0)

(Specifications and design subject to change without notice.)

## PREDELIVERY, DELIVERY, AND AFTER-SALE SERVICES

Item	Specification
Toe-in .....	1/8 to 3/8 inch (3 to 9 mm)
Injection pump timing .....	TDC
Engine speeds	
Slow idle .....	780 to 820 rpm
Fast idle .....	2325 to 2425 rpm
Rated speed at full load .....	2200 rpm

### Torque

	ft-lbs	N·m	kgm
Sound-Gard Body or Four-Post Roll-Gard mounting bolts .....	150	200	20
Front axle-to-knee bolts .....	445	600	60
Front wheel-to-hub bolts .....	100	135	14
Special bolts on rear hubs .....	300	410	41
Steel wheel-to-hub bolts .....	240	325	33
Rimclamp-to-wheel bolts .....	170	230	23
Rockshaft lift arm retaining bolts .....	300	410	41
Other nuts and cap screws:			

### TORQUE CHART

Bolt Diameter	Plain Head*			Three Radial Dashes*			Six Radial Dashes*		
	ft-lbs	N·m	kgm	ft-lbs	N·m	kgm	ft-lbs	N·m	kgm
1/4 in. (6.35 mm)	6	8	0.8	10	14	1.4	14	19	1.9
5/16 in. (7.93 mm)	13	18	1.8	20	27	2.7	30	41	4.1
3/8 in. (9.53 mm)	23	31	3.1	35	47	4.7	50	70	7.0
7/16 in. (11.11 mm)	35	47	4.7	55	75	7.5	80	110	11
1/2 in. (12.70 mm)	55	75	7.5	85	115	12	120	160	16
9/16 in. (14.29 mm)	75	100	10	130	175	18	175	240	24
5/8 in. (15.88 mm)	105	140	14	170	230	23	240	325	33
3/4 in. (19.05 mm)	185	250	25	300	410	41	425	575	58
7/8 in. (22.23 mm)	160	220	22**	445	600	60	685	930	93
1 in. (25.40 mm)	250	340	34**	670	900	90	1030	1400	140

\*The types of bolts and cap screws are identified by head markings as follows:

Plain Head: regular machine bolts and cap screws.

3-Dash Head: tempered steel high-strength bolts and cap screws.

6-Dash Head: tempered steel extra high-strength bolts and cap screws.

\*\*Machine bolts and cap screws 7/8-inch and larger are sometimes formed hot rather than cold, which accounts for the lower torque.



## TUNE-UP

Item	Specification
PTO horsepower	
4640 .....	155 hp (116 kW)
4840 .....	180 hp (134 kW)
Compression .....	330 to 370 psi (22.5 to 25.5 bar)
Vacuum (full speed, full load, clean air filters) .....	10.5 to 11.5 in. (26 to 29 mbar)
Air cleaner indicator switch closing vacuum .....	24 to 26 in. (60 to 65 mbar)
Manifold pressure (full speed, full load, clean air filters) .....	18 to 23 psi (1.2 to 1.6 bar)
Thermostat opening temperature .....	160 to 180°F (71 to 82°C)
Radiator cap pressure release	
Low pressure cap .....	6.25 to 7.50 psi (0.4 to 0.5 bar)
High pressure cap .....	14 to 17 psi (0.9 to 1.2 bar)
Engine speeds	
Slow idle .....	780 to 820 rpm
Fast idle .....	2325 to 2425 rpm
Rated speed at full load .....	2200 rpm

## LUBRICATION

Engine crankcase oil capacity .....	20 U.S. qt. (19 L)
Transmission-hydraulic system	
(Drain and fill):	
Power Shift .....	16.5 U.S. gal. (62.5 L)
QUAD-RANGE Transmission .....	22.5 U.S. gal. (85.2 L)
Add for power front-wheel drive .....	4.0 U.S. gal. (15.1 L)
Transmission-hydraulic system	
(Dry, production fill):	
Power Shift Transmission .....	20.8 U.S. gal. (78.8 L)
QUAD-RANGE Transmission .....	26.0 U.S. gal. (98.4 L)
Add for power front wheel drive .....	5.0 U.S. gal. (18.9 L)
Service intervals	
Check engine oil level .....	Every 10 hours
Change engine oil .....	Every 100 hours
Replace engine oil filter .....	Every 200 hours
Clean crankcase breather filter .....	Every 200 hours
Check transmission-hydraulic system oil level .....	Every 200 hours
Replace transmission-hydraulic system oil filter (Quad-Range) .....	Every 200 hours
Replace transmission-hydraulic system oil filters (Power Shift) .....	Every 600 hours
Change transmission-hydraulic oil .....	Every 1200 hours
Clean main hydraulic pump screen .....	Every 1200 hours
Clean and repack front wheel bearings .....	Every 1200 hours
Lubricate grease fittings	
Front axle pivot pins, steering spindles, tie rods (10 fittings) .....	Every 10 hours
Wide-swing drawbar rollers (if equipped) .....	Every 10 hours
Front wheel bearings (only in extremely wet conditions) .....	Every 10 hours
3-point hitch .....	Every 200 hours
Rear axle bearings .....	Every 600 hours

## SEPARATION

ITEM	SPECIFICATION
Fan belt tension	
New Belt	
Single belt.....	130-140 lbs. (572-622 N)
Dual belt.....	95-104 lbs. (423-467 N)
After Run In	
All belts.....	85-94 lbs. (378-423 N)
ITEM	TORQUE
SOUND-GARD Body retaining cap screws.....	150 ft-lbs (203 N·m) (20.3 kgm)
ROLL-GARD (4-post) mounting cap screws.....	150 ft-lbs (203 N·m) (20.3 kgm)
Engine-to-clutch housing cap screws.....	1/2 in.—85 ft-lbs (115 N·m) (11.5 kgm) 3/4 in.—300 ft-lbs (406 N·m) (40.6 kgm)
Clutch housing-to-engine cap screws.....	300 ft-lbs (406 N·m) (40.6 kgm)
Hydraulic pump support-to-engine cap screws.....	85 ft-lbs (115 N·m) (11.5 kgm)
Hydraulic pump coupler lock nuts.....	30 ft-lbs (41 N·m) (4.1 kgm)
Hydraulic pump drive coupling.....	35 ft-lbs (47 N·m) (4.7 kgm)
Side frames-to-engine.....	5/8 in.—275 ft-lbs (373 N·m) (37.3 kgm) 3/4 in.—425 ft-lbs (578 N·m) (57.8 kgm)
Clutch housing-to-transmission case cap screws.....	5/8 in.—170 ft-lbs (230 N·m) (23 kgm) 3/4 in.—300 ft-lbs (406 N·m) (40.6 kgm)
Oil filter inlet pipe elbow cap screws.....	45 ft-lbs (61 N·m) (6.1 kgm)
Axle housing-to-transmission case cap screws.....	170 ft-lbs (230 N·m) (23 kgm)
Radiator hose clamps (clean and dry).....	36 in-lbs (4 N·m) (0.4 kgm)
Transmission pump elbow-to-clutch housing cap screws.....	45 ft-lbs (61 N·m) (6.1 kgm)
Oil pan-to-clutch housing cap screws.....	85 ft-lbs (115 N·m) (11.5 kgm)
Hose clamps.....	30 in-lbs (3.4 N·m) (0.3 kgm)

**SPECIAL TOOLS**

**Predelivery, Delivery, and After-Sale Services**

**TOOL**

**USE**

JDG-18 Snap Ring Tool

Remove and install snap rings on ends of rear axles

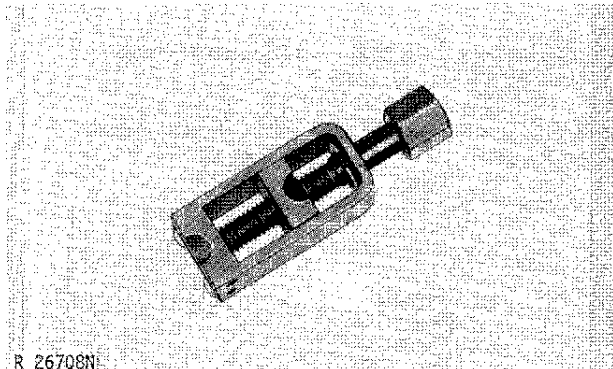
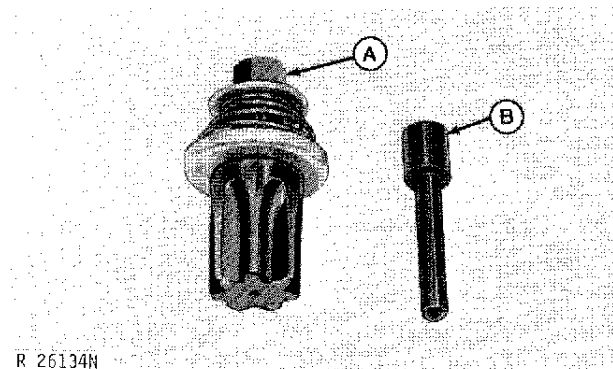


Fig. 1-JDG-18 Snap Ring Tool\*

JDE-81-1 Engine Rotation Tool and JDE-81-4 Timing Pin

Turn engine to TDC to check injection pump timing

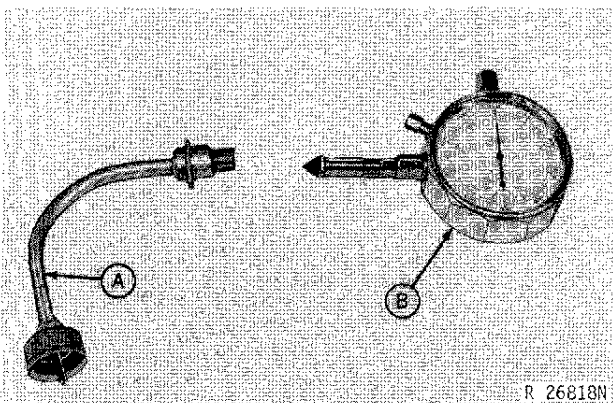


A—JDE-81-1 Engine Rotation Tool\*  
B—JDE-81-4 Timing Pin\*

Fig. 2-Tools Required for Checking Timing

JDE-28 Adapter and Hand Tachometer

Check engine speeds



A—JDE-28 Adapter\*      B—Hand Tachometer

Fig. 3-Tools Required for Checking Engine Speeds

**Tune-Up**

**TOOL**

**USE**

JDE-81-1 Engine Rotation Tool and JDE-81-4 Timing Pin

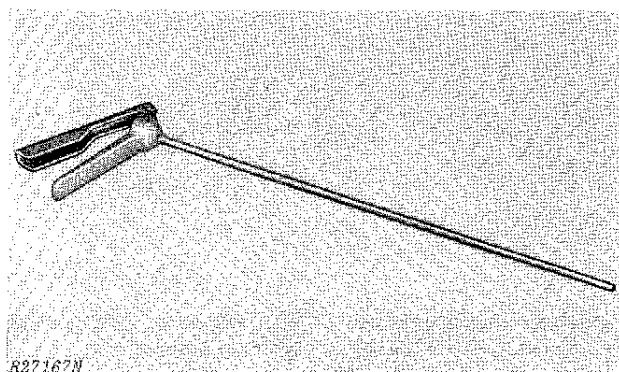
Turn engine to TDC to check injection pump timing

JDE-28 Adapter and Hand Tachometer

Check engine speeds

AR62377 Dry Element Cleaning Gun

Clean primary element of air cleaner

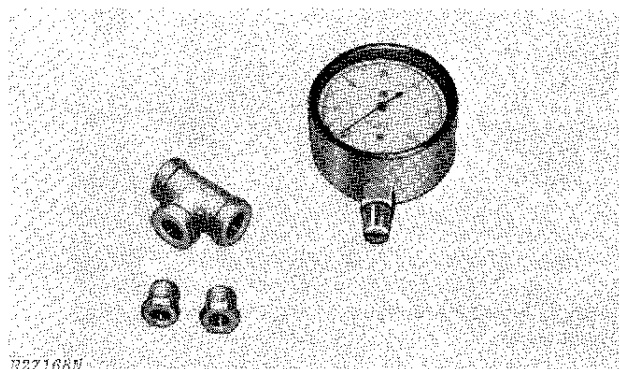


R27167N

Fig. 4-AR62377 Dry Element Cleaning Gun

D-05022ST Water Vacuum Gauge

Measure air intake vacuum



R27168N

Fig. 5-D-05022ST Water Vacuum Gauge\*  
(Formerly JDST-11)

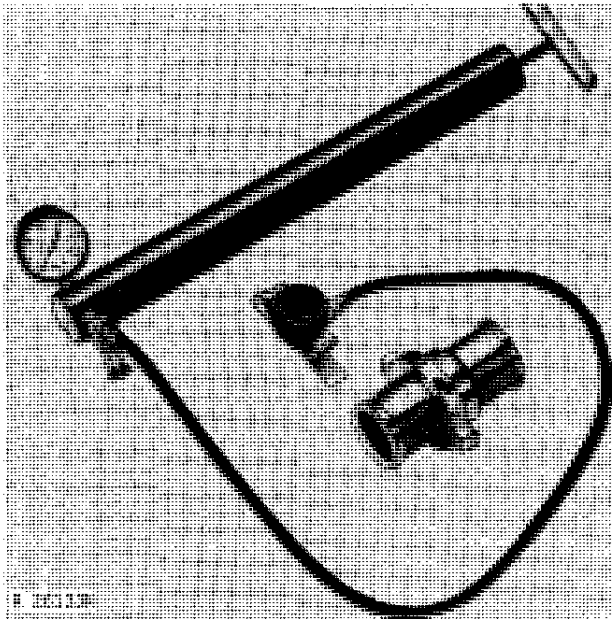
**TOOL**

**NUMBER**

**USE**

**BT-11-52 Radiator Tester**

**Pressure test cooling system and radiator caps**

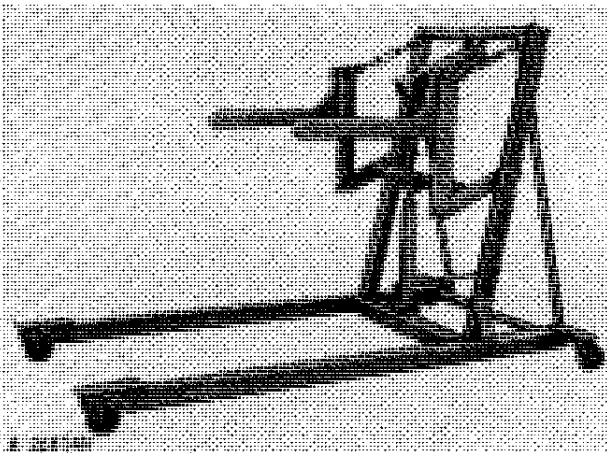


*Fig. 6-BT-11-52 Radiator Tester\**

**Separation**

**Brown Body Lift**

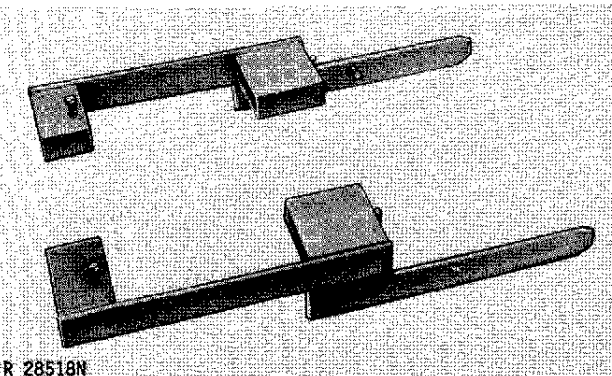
**To remove Sound-Gard Body.**



*Fig. 7-Brown Body Lift*

**JDG-21 Fork Lift Adapters**

**To remove Sound-Gard Body Adapters**



*Fig. 8-Fork Lift Adapters*

Separation—Continued

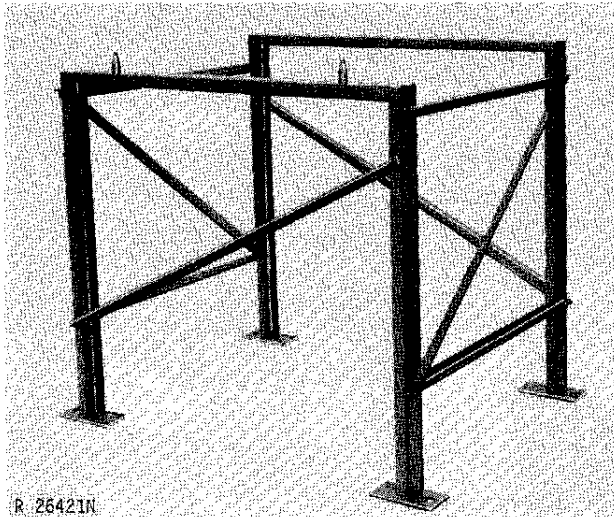
TOOL

NUMBER

USE

JDG-10-2

To support Sound-Gard Body after removal.



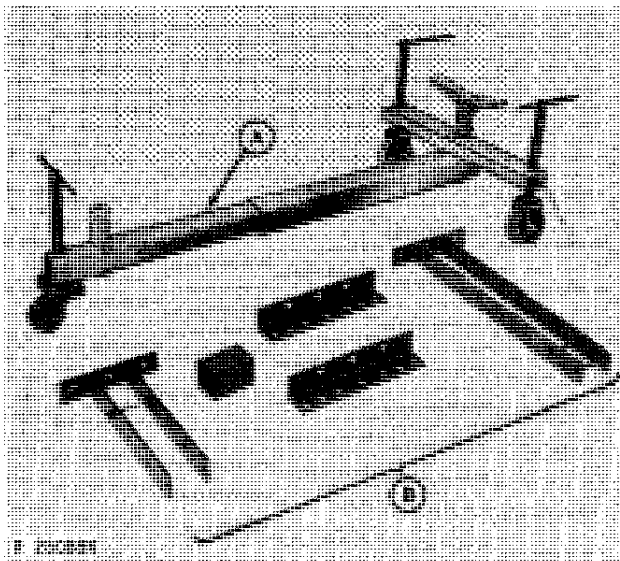
R 26421N

Fig. 9-Sound-Gard Body Stand\*

A-D-05007ST  
Splitting Stand

To support tractor in various separations.

B-D-05149ST  
Attachments

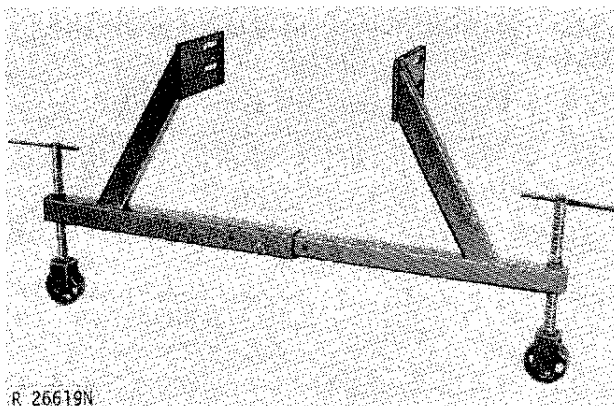


R 26421N

Fig. 10-Splitting Stand\*

JDG-12-1  
Splitting Stand

To support front end of tractor.



R 26619N

Fig. 11-Splitting Stand\*

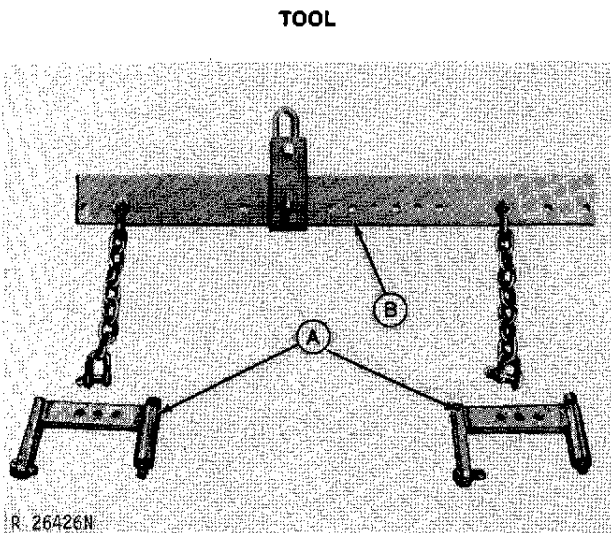


Fig. 12-Engine Removal Tools\*

TOOL	NUMBER	USE
	A-JDE-63 Engine Lift Brackets	To remove engine
	B-JDG-23 Engine Lift Sling	

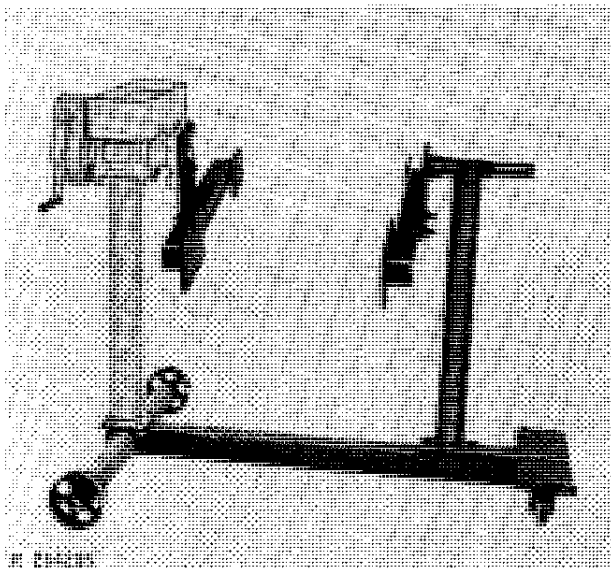


Fig. 13-Engine Repair Stand\*

	D-05001ST Repair Stand	To support engine during repair.
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\*Tools marked with an asterisk can be ordered from Service Tools, Box 314, Owatonna MN 55060.





## Group 05

# PREDELIVERY, DELIVERY, AND AFTER-SALE SERVICES

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 purpose 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 copy to the factory and file the original with the shop order for the job. This will certify that the proper predelivery service has been completed.

### DEALER PREDELIVERY SERVICE

Using the first part of the predelivery form along with the following illustrated procedures, perform all services listed and check each job off as it is completed.

#### Lubricating Grease Fittings

Grease all fittings with John Deere AT30408 High Temperature Grease (1 lb. [0.45 kg] can) or its equivalent. TY6281 Lubricant is the same John Deere High Temperature Grease in a 14 oz. (0.39 kg) cartridge. Lubricant must be an extreme-pressure grease with non-soap base and NGLI No. 2 consistency, and must meet John Deere JDM J13 E4 specifications.

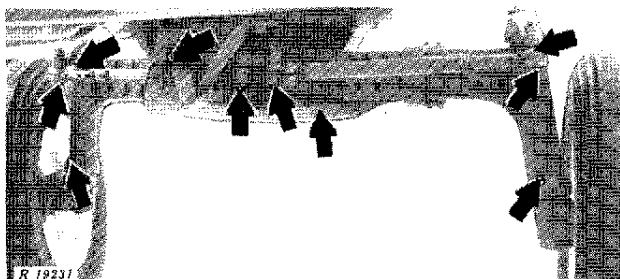
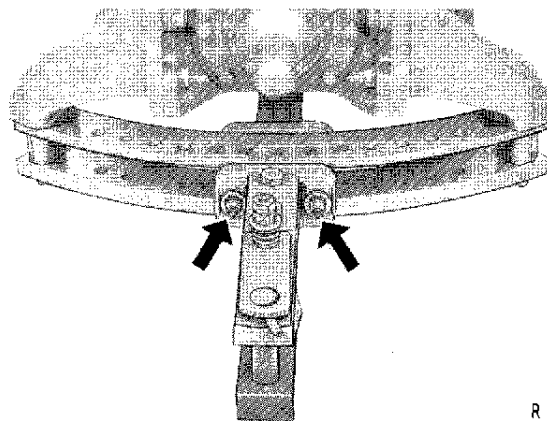


Fig. 1-Grease Fittings

1. Apply several shots of grease to tie rods, pivot pins, and the steering spindles (10 fittings).



R 29779

Fig. 2-Wide Swing Drawbar Grease Fittings

2. If tractor is equipped with a wide-swing drawbar (Fig. 2), apply several shots of John Deere High Temperature Grease or its equivalent to drawbar rollers.

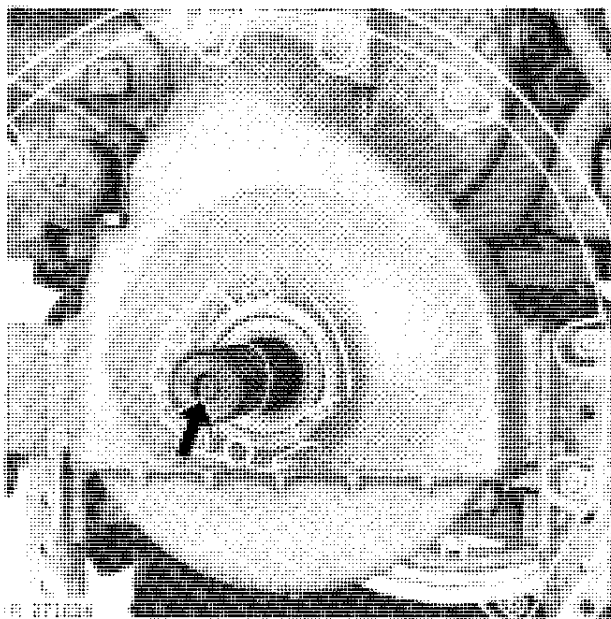


Fig. 3-Hi-Crop Rear Axle Grease Fitting

3. On Hi-Crop tractors, apply several shots of John Deere High Temperature Grease or its equivalent to grease fittings on ends of rear axles.

## Lubricating Grease Fittings—Continued

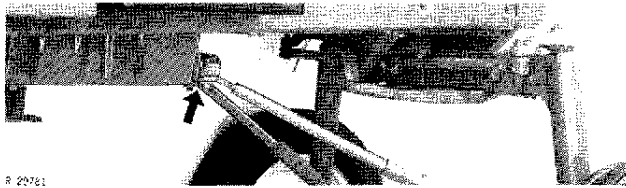


Fig. 4-Radius Rod Pivot Grease Fitting

4. On Hi-Crop tractors, apply several shots of John Deere High Temperature Grease or its equivalent to grease fittings.

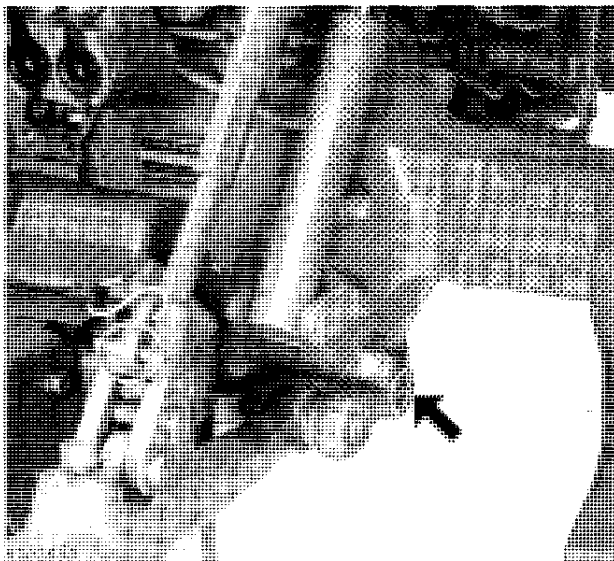


Fig. 5-Load Control Shaft Bushing Grease Fitting

5. Apply several shots of John Deere High Temperature Grease or its equivalent to each load control shaft bushing.

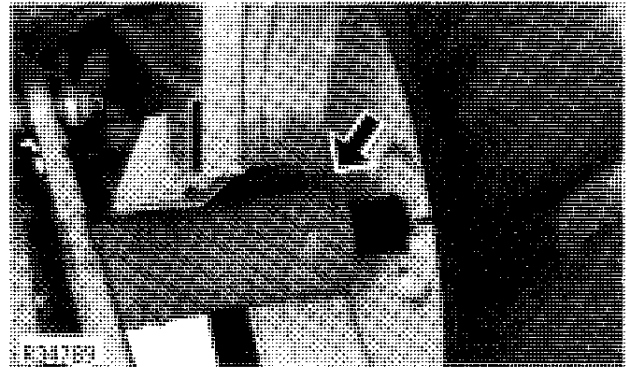


Fig. 6-Rear Axle Grease Plug

6. Grease the rear axle bearings by removing the pipe plug on each end of the axle housing, installing a grease fitting and applying John Deere High Temperature Grease or its equivalent at each fitting. Apply grease until grease appears at seals, or a maximum of 25 shots.

### Install Ether Aid Solenoid Wiring (if equipped)

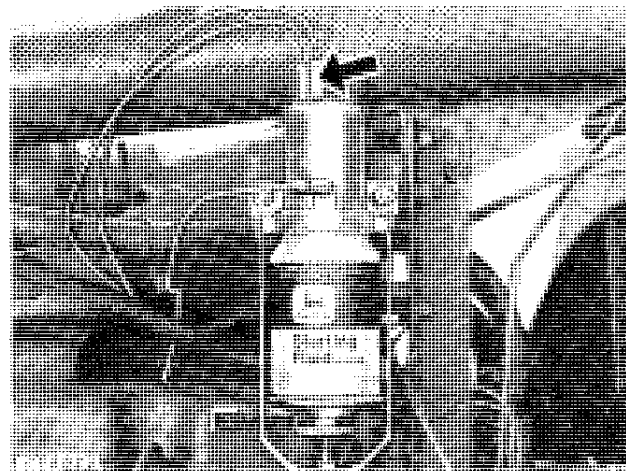


Fig. 7-Electric Starting Aid Connector

Connect starting aid wiring to starting aid solenoid (if equipped).

### Align Muffler and Air Stack

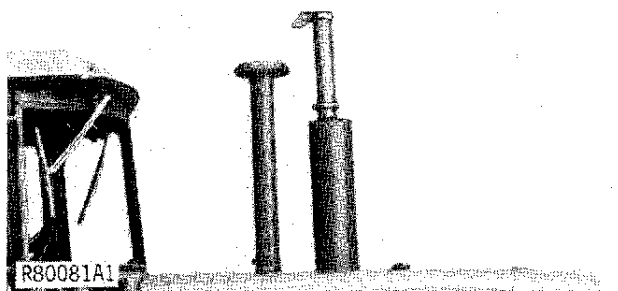


Fig. 8-Muffler and Air Stack

If necessary, align muffler and air stack so they are perpendicular to tractor hood.

### Adjust All Lamps

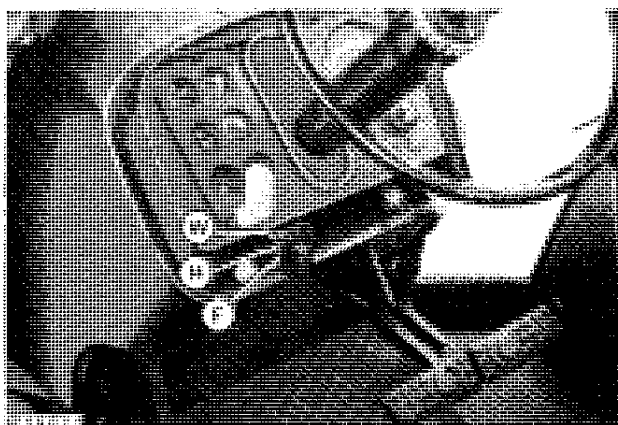
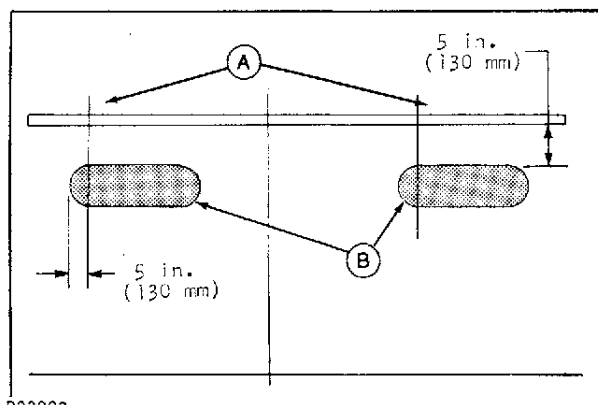


Fig. 9-Light Switch

Make sure lights work properly in the following positions:

- OFF - To turn off lights.
- W - To turn on the warning lamps.
- H - To turn on the dual-beam head lamps, warning lamps, and red tail lamps.
- F - To turn on the dual-beam head lamps and flood lamps.

### Head Lamps



A—Points Directly in Front of Lamps  
B—Small Zones of Bright Light

Fig. 10-Checking Head Lamp Positions

1. Park tractor on level ground, 25 feet (8 m) from a wall.
2. Measure height of lamps above ground, and place a strip of masking tape on wall at same height.
3. Sight across steering wheel and hood ornament to locate tractor centerline. Mark this spot, and measure out one foot (300 mm) in each direction. This locates a spot directly in front of each lamp.
4. Turn light switch to "H" and dimmer switch to low beam.
5. Locate small zone of bright light projected by each lamp. Top of bright zone should be five inches (130 mm) lower than lamp, and left edge of zone should be five inches (130 mm) to left of lamp. Cover other lamp if necessary.

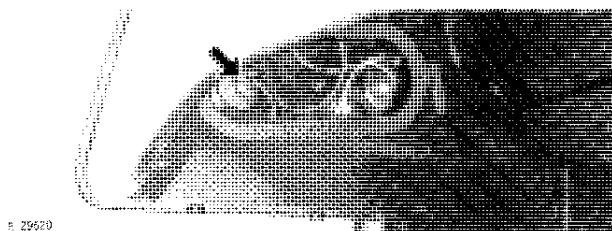


Fig. 11-Head Lamp Adjusting Nut

6. To readjust a bulb, loosen nut behind bulb. Hold lamp in correct position, and tighten securely.