John Deere
690D Excavator
690D-LC Excavator

JOHN DEERE

OPERATORS MANUAL

John Deere 690D Excavator
690D-LC Excavator

OMT84751 Issue B9 English

John Deere Davenport Works
OMT84751 Issue B9
(This manual replaces T107457)

LITHO IN U.S.A.
ENGLISH

PRACTICE SAFE MAINTENANCE

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate or service machine while it is moving. Keep hands, feet and clothing from power-driven parts.

Before servicing machine.
—Park machine on level ground.
—Lower bucket to the ground.
—Turn auto idle switch off.

IMPORTANT: Turbocharger may be damaged if engine is not properly shut down.

—Run engine at half speed without load for two minutes.
—Move the speed control lever all the way forward.
—Turn key switch to OFF. Remove key from switch.
—Move pilot control shutoff lever to locked position.
—Allow engine to cool.

If maintenance procedure must be performed with engine running, do not leave machine unattended.

Securely support any machine elements that must be raised for service work. Never work under a machine raised by the boom. If the machine must be raised, keep a 90-100° angle between boom and arm.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

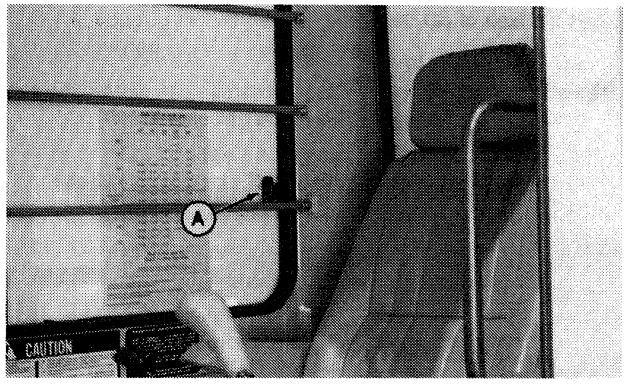
TS218 -UN-23AUG88

TX,FF,7 -19-14DEC88

OPENING SIDE WINDOWS

CAUTION: Avoid serious crushing injury from boom. Never place any part of body beyond window bar or frame. It could be crushed by the boom if boom control lever is accidentally bumped or otherwise engaged.

Do not remove window bars. If window or bars are missing or broken, replace immediately.



T6450BF -UN-26OCT88

Both right side window and cab door window can be opened.

1. Press lever (A) to open latch.

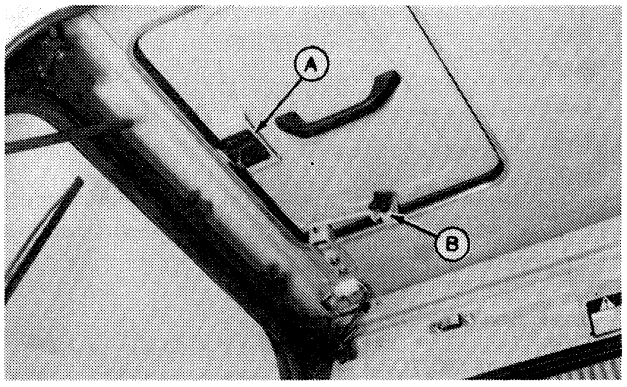
2. Slide front pane to the rear or rear pane to the front. Front pane opens approximately 100 mm (4 in.).

02T,10,R7 -19-24MAR87

OPENING THE ROOF VENT

1. Squeeze latch (A) to unlock the vent.

2. Remove locking rod from stored position (B).

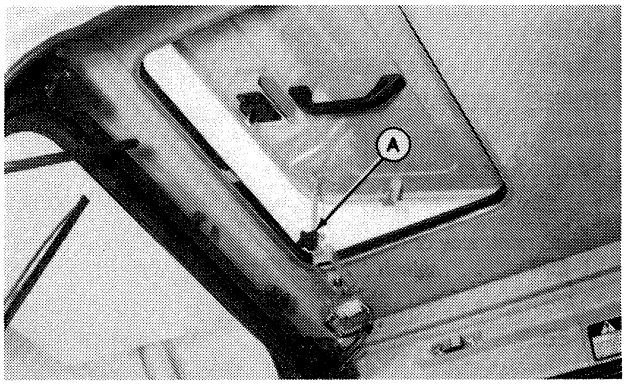


T6457FF -UN-18OCT88

02T,10,FF8 -19-24MAR87

3. Push up on vent and tighten knob (A) to hold vent open.

4. Loosen knob (A) and lay vent door back against roof to open vent fully.



T6457FE -UN-26OCT88

02T,10,FF9 -19-17MAR87

020289

ENGINE COOLANT TEMPERATURE INDICATOR

IMPORTANT: Do not stop engine when coolant temperature light comes on or temperature will rise further. Reduce load and run engine at reduced engine speed.

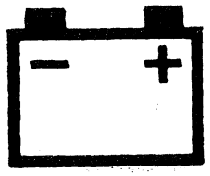
Red indicator will light and buzzer will sound when the engine coolant overheats. Reduce load immediately and run engine at reduced engine speed. Inspect for plugged radiator or low coolant level.

T6201BC -UN-18OCT88

02T,25,C12 -19-03APR87

ALTERNATOR VOLTAGE INDICATOR

Indicator will light with low alternator output. Check battery charge or electrical system.



T6201BD -UN-18OCT88

TX,FF,37 -19-20DEC88

ENGINE OIL PRESSURE INDICATOR

IMPORTANT: If engine oil pressure light comes on while operating, stop engine immediately.

Red indicator will light and buzzer will sound when engine oil pressure is low. Stop engine immediately.

NOTE: Cold oil, low oil level, or extreme off level operation may cause indicator to light.

T6201BB -UN-18OCT88

02T,25,C9 -19-01APR87

CONTROL LEVER PATTERN CONVERSION

Your excavator pilot control levers can be changed from the standard pattern to a John Deere pattern. To change to John Deere pattern:

1. Remove hydraulic reservoir cap to release air pressure.

2. Disconnect top arm control valve pilot cap hose (A) and top boom control valve pilot hose (B).

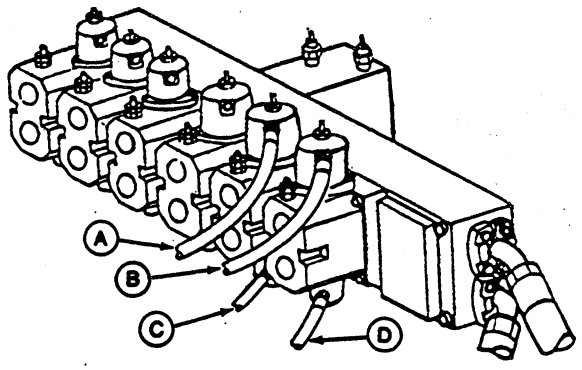
3. Connect pilot hose (A) to boom pilot cap and pilot hose (B) to arm pilot cap.

4. Disconnect bottom arm control valve pilot cap (C) and bottom boom control valve pilot cap hose (D).

5. Connect pilot hose (C) to boom pilot cap and pilot hose (D) to arm pilot cap.

6. Bleed the air out of the two top valve pilot caps. (See Hydraulic Control Valve Pilot Cap Air Bleed Procedure in this chapter.)

7. Install new decals on control consoles near the base of control levers. Decals are enclosed in Operator Manual package.



T6475AS -UN-26OCT88

02T,35,FF12 -19-31MAR87

OPERATING TIPS—LONG FRONT EXCAVATOR

The long front excavator is designed for dredging mud, silt, and organic material. The long front excavator should not be used for general excavation work.

Perform digging operation primarily with the bucket function, then retract arm, and raise boom.

Do not sideload bucket. For example, do not swing bucket to level material or do not strike objects from the side with the bucket.

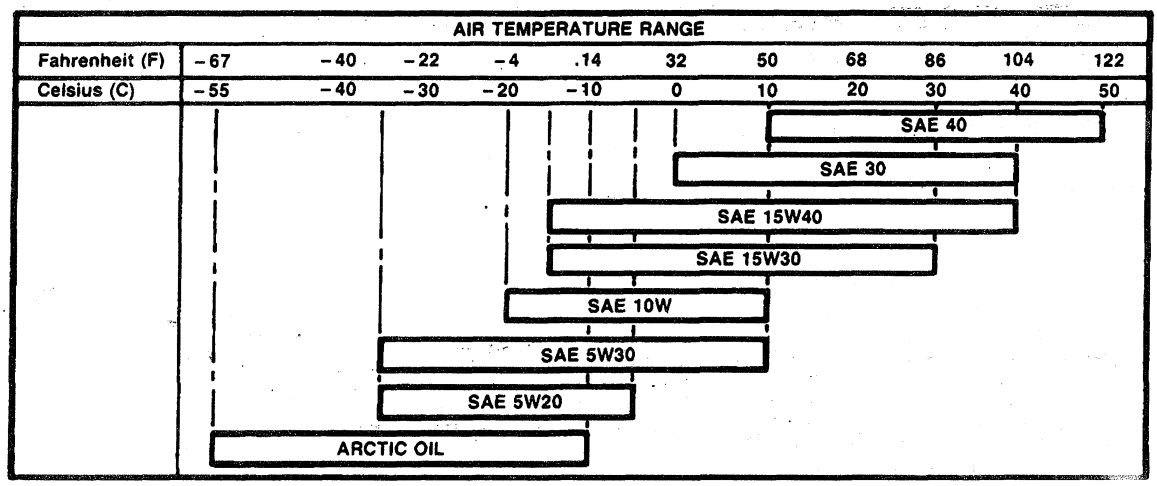
Do not strike bucket against the ground.

Do not strike the undercarriage with the bucket.

Before adding attachments, check with your John Deere dealer.

TX,FF,127 -19-20JAN89

ENGINE OIL



T6921AP -UN-06DEC88

Depending upon the expected air temperature range between oil changes, use oil viscosity shown on the temperature chart above.

Additives are not required nor recommended.

JOHN DEERE TORQ-GARD SUPREME® ENGINE OIL IS RECOMMENDED BECAUSE IT IS A SPECIFICALLY BALANCED FORMULATION TO PROVIDE MAXIMUM ENGINE LIFE. It provides excellent protection against mechanical wear, carbon deposits, and lacquer formation, plus providing superior cold weather starting performance.

If other oils are used, they must have one of the following specifications:

Oil Specification	Use
API Service: CD/SF, CD/SE, CD/SD, CD/SC, or MIL-L-2104C, MIL-L-2104D	Recommended
*API Service CC/SF, CC/SE, CC/SD, CC/SC or *MIL-L-46152, *MIL-L-46152B	For SAE 5W20, SAE 5W30 and arctic oil only, use if recommended oil is not available.
*MIL-L-46167A	For arctic oil only

Change oil at one-half the normal interval.

02T,45,K56 -19-16DEC88

MAINTENANCE AND REPAIR RECORD KEEPING SYSTEM

SERVICE INTERVALS

Service your machine at intervals shown on this chart. Also, perform service on items at multiples of the original requirement. For example, at 500 hours also service those items (if applicable) listed under 250 hours, 100 hours, 50 hours and 10 hours or daily.

As Required

- Check and adjust track sag
- Drain fuel tank sump
- Clean and lubricate battery terminals
- Check propel drive oil level
- Clean or replace engine air cleaner elements
- Check and clean engine air cleaner dust valve
- Inspect and adjust belt tension

Every 10 Hours or Daily

- Check coolant level at recovery tank
- Check engine oil level
- Check hydraulic oil level

Every 50 Hours

- Lubricate boom, arm, and bucket linkage

REQUIRED PARTS

Insure machine performance and availability; use only genuine John Deere parts. Verify part numbers are current and that any associated parts are also on hand, i.e., filter O-rings.

	Part Number	250 Hours	500 Hours	1000 Hours	2000 Hours
Engine Oil Filters	T19044	2	2	2	2
Fuel Filter	AR50041		1	1	1
Hydraulic System Return Oil Filter	AT112393		2	2	2
Hydraulic Reservoir Breather Filter	AT79590				1
Air Filter Primary	AR79679			1	1
Air Filter Secondary	AR79680			1	1
TORQ-GARD SUPREME® Oil		5 gal	5 gal	5 gal	5 gal
HY-GARD® Transmission and Hydraulic Oil					66 gal
API GL-5 Gear Oil					3 gal
Texaco TEXCLAD® 2 Grease			1 lb	1 lb	1 lb
Coolant Conditioner	RE23182		32 oz	32 oz	32 oz
OILSCAN Kit	IPSKIT1	1	1	1	4

TX,FF,61 -19-19JAN89

020289

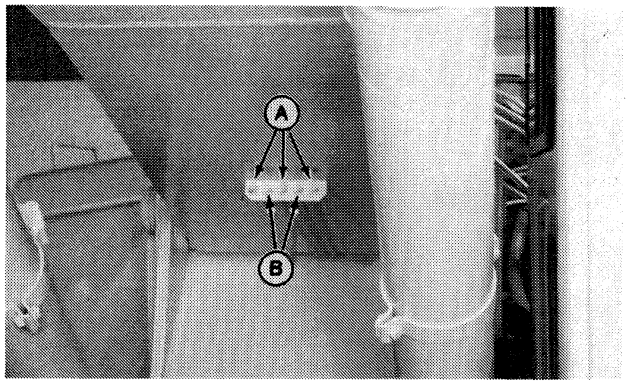
LUBRICATE BOOM, ARM, AND BUCKET

Grease working tool pivots daily for first 100 hours and when working in mud and water.

Lubricate boom base (A) and head end of arm cylinder (A) with ten shots of grease each.

Lubricate boom cylinder rod end fittings (B) on lube bank until grease escapes at joint. (See Fuels and Lubricants chapter.)

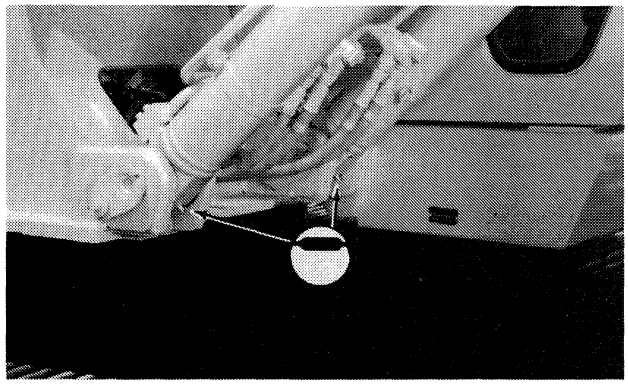
NOTE: Lubrication of boom, arm, and bucket can be done from the ground.



T6450AW -UN-26OCT88

03T,65,R1 -19-04APR87

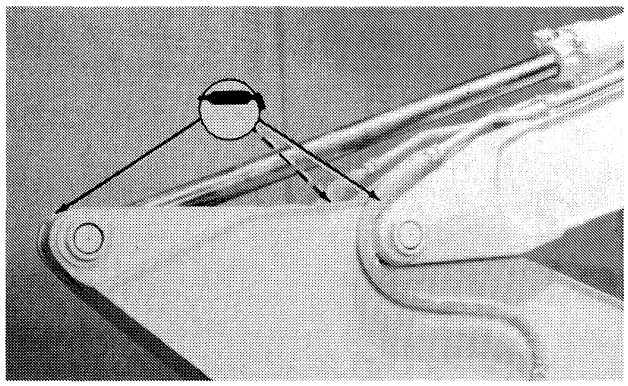
Lubricate remaining fittings until grease escapes at joint.



Two Points

T6450AS -UN-26OCT88

TX,FF,75 -19-05JAN89



Three Points

T6450AY -UN-26OCT88

03T,65,R3 -19-18NOV86

CLEAN FUEL TANK OUTLET SCREEN

1. Remove cap from fuel fill tube.

2. Fuel tank capacity is 266 L (70 gal). Open valve (A) to drain tank.

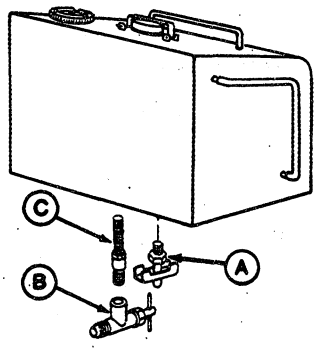
3. Remove valve (B) to remove filter (C).

4. Clean debris from filter with solvent or diesel fuel. Replace damaged filter.

5. Flush debris from tank.

6. Install filter.

7. Apply medium strength Thread Lock and Sealer to fittings. Install valves.



T6452AI -UN-26OCT88

03T,85,R5 -19-17MAR87

SPECIFICATION

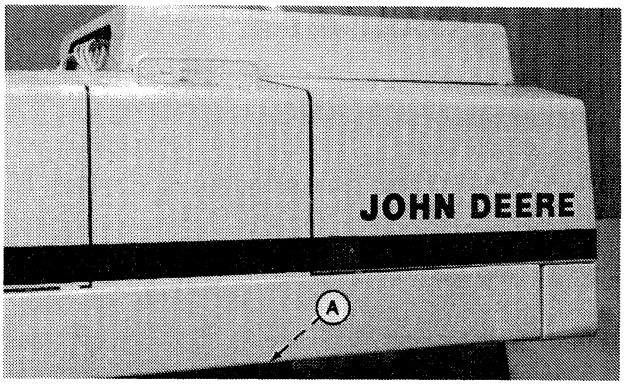
Hydraulic Reservoir Capacity . . . . . 250 L (66 gal.)

13. Remove drain plug (A) to drain oil.

14. Clean the reservoir thoroughly.

15. Install reservoir cover.

16. Install drain plug.



T6450DU -UN-26OCT88

17. Disconnect hydraulic pump case drain hose (C).

18. Install plug (B) in pump case drain hose.

19. Add oil to hydraulic reservoir until oil is at mid mark on sight glass. (See Fuels and Lubricants chapter.)

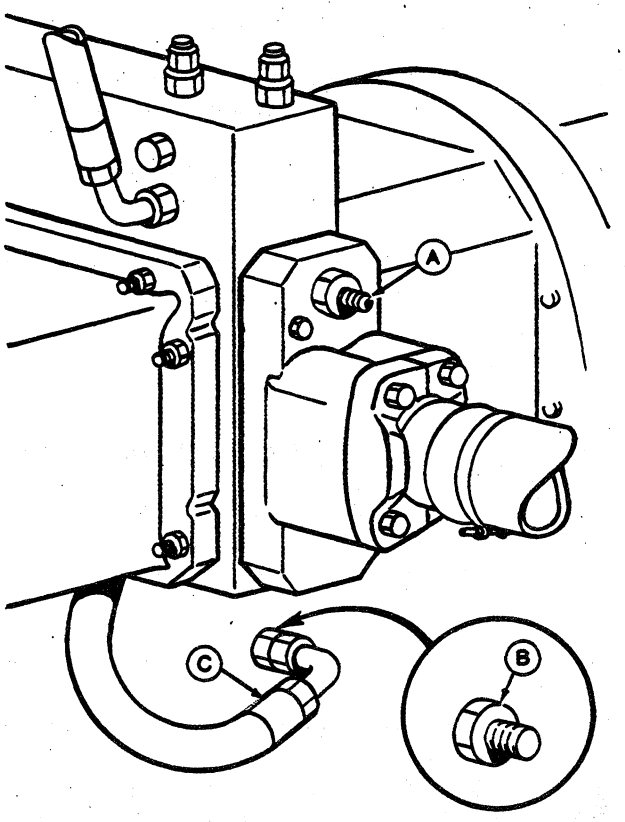
20. When hydraulic oil flows out of pump case drain fitting (A), connect case drain hose. Install reservoir cap.

NOTE: It will take approximately 10 minutes before oil will flow out of pump case drain fitting.

21. Run engine at reduced engine speed for 10—15 minutes while operating each cylinder. Stop engine.

22. Check oil level. Add oil if necessary.

NOTE: Adding 11.4 L (3.0 gal) of hydraulic oil raises the oil level in the sight glass approximately 25.4 mm (1 in.).



T6475BB -UN-26OCT88

TX,FF,94 -19-19JAN89

USING BATTERY CHARGER

CAUTION: Disconnect battery ground before you charge batteries in the machine to prevent damage to electrical components.

Do not charge a battery if the battery is frozen or it may explode. Warm battery to 60°F (16°C).

IMPORTANT: Do not use a battery charger as a booster if a battery has a 1.150 specific gravity reading or lower. Turn off charger before connecting or disconnecting it.

A battery charger may be used as a booster to start engine.

TX,FF,121 -19-19JAN89

REPLACE BATTERIES

Your machine has two or four 12 volt batteries with negative (-) ground. Batteries must meet one of the specifications below.

BATTERY SPECIFICATIONS

	Two-Battery Option	Four Battery Option
Cold cranking amps at -18°C (0°F)	625	925
Minutes reserve capacity at 25 amps	160	180

If one battery in a 24-volt system has failed but the other is still good, replace the failed battery with one of the same type. For example, replace a failed maintenance-free battery with a new maintenance-free battery. Different types of batteries may have different rates of charge. This difference could overload one of the batteries and cause it to fail.

04T,90,R6 -19-02APR87

REPLACING BUCKET TOOTH TIP—HEAVY-DUTY BUCKET

1. Clean tooth (A) and tooth tip (B).

2. Insert lock removal tool under U-shaped pin (C).

CAUTION: Pin may fly after it is released from tooth tip. Keep a firm grip on pin to prevent injury.

3. Remove pin.

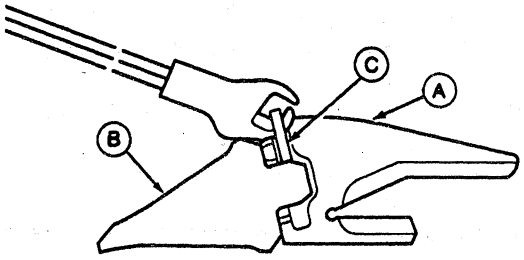
4. Turn tooth tip counterclockwise and pull it towards you to remove.

5. Clean tooth shank.

6. Replace U-shaped pin at same time you replace tooth tip.

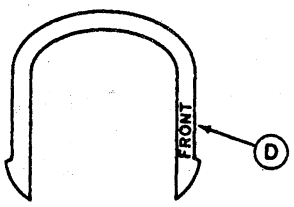
7. Insert tooth tip on shank turning tip clockwise.

8. Install U-shaped pin. Side of pin marked "FRONT" (D) must face tooth tip. Make sure pin is firmly engaged over tooth tip.



T6879EE -UN-06DEC88

T6879EE



T6879EF -UN-06DEC88

T6879EF

04T,90,K273 -19-05JAN89

SERVICE RECOMMENDATIONS FOR FLARED CONNECTIONS—STRAIGHT OR TAPERED THREADS

1. Inspect flare and flare seat. They must be free of dirt or obvious defects.

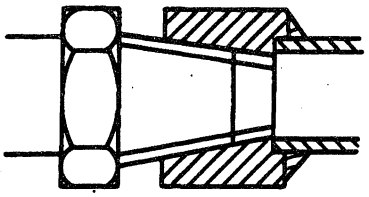
2. Defects in the tube flare cannot be repaired. Over tightening a defective flared fitting will not stop leaks.

3. Align the tube with the fitting before attempting to start the nut.

4. Lubricate the male threads with hydraulic fluid or petroleum jelly.

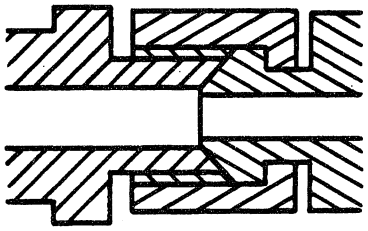
5. Index angle fittings and tighten by hand.

6. Tighten fitting or nut to torque value shown on the chart. Do not allow hoses to twist when tightening fittings.



T6873AD -UN-18OCT88

Straight Threads



T6873AE -UN-18OCT88

Tapered Threads

TORQUE CHART*

Thread Size	Straight Thread**		Tapered Thread	
	N·m	lb-ft	N·m	lb-ft
1/8	15	11		
1/4	20	15	45	33
3/8	29	21	69	51
1/2	49	36	93	69
3/4	69	51	176	130
1	157	116	343	253
1-1/2	196	145	539	398
2	255	188	588	434

NOTE: If female thread is cast iron (control valves, brake valves motors, etc.), torque must be reduced approximately 10%.

**Torque tolerance is ±10%.*

***With seat face.*

04T,90,M171 -19-19JAN89

OK: Go to next check.

NOT OK: Inspect cap gasket. Replace.

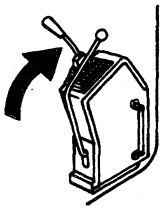
05T,95,J14 -19-06JAN89

PILOT SHUT OFF VALVE CHECKS

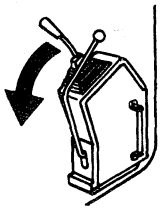
Engine at slow idle.

Pilot shut off lever in OFF position.

NOTE: Travel alarm will not sound when operating propel with pilot control shut-off lever in OFF position.



T6479AU -UN-19OCT88



T6479AV -UN-19OCT88

Actuate all dig and propel function controls.

LOOK: ALL dig and propel functions must NOT operate.

Move pilot shut-off lever to ON position FORWARD; operate all dig and propel functions.

NOTE: Travel alarm will sound when operating propel.

LOOK: All functions must operate.

Raise bucket off ground. Stop engine.

Move boom control lever to lower boom.

LOOK: Boom must NOT lower with engine off.

NOTE: Functions cannot be actuated or lowered to ground without engine operating.

OK: Go to next check.

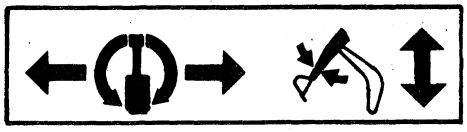
NOT OK: Go to your John Deere dealer.

05T,95,M124 -19-25JAN89

PILOT CONTROLLER PATTERN CHECK

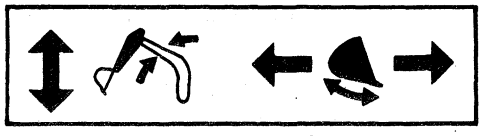
Engine at slow idle.

Operate machine in clear area.



LEFT CONTROL

T6479AW -UN-09DEC88



RIGHT CONTROL

T6479AX -UN-09DEC88

Move pilot shut-off lever to "ON". Slowly move hydraulic levers to all positions on decals.

LOOK: Bucket, boom, arm and swing must move as decals show.

NOTE: See John Deere control lever pattern in Operating the Excavator chapter.

OK: Go to next check.

NOT OK: Install decals for pattern (operator preference). Go to your John Deere dealer.

05T,95,K163 -19-06JAN89

Troubleshooting

NOTE: Troubleshooting charts are arranged from the simplest to verify, to least likely, more difficult to verify. When diagnosing a problem, use all possible means to isolate the problem to a single component or system. Use the following steps to diagnose problems:

Step 1. Operational Checkout Procedure.
Step 2. Troubleshooting charts.
Step 3. Adjustments.
Step 4. See your John Deere dealer.

TX,FF,105 -19-25JAN89

HYDRAULIC SYSTEM

Symptom	Problem	Solution
Slow Hydraulic System	Flow control switch in slow position.	Move switch to fast position.
	Low oil level.	Correct oil level.
	Cold oil.	Operate hydraulic system to normal operating temperatures.
	Wrong oil.	Use correct oil.
	Engine speed too low.	See your John Deere dealer.
	Improperly adjusted hydraulic system.	See your John Deere dealer.
	Worn pump.	See your John Deere dealer.
Individual Hydraulic Function Is Slow	Pilot control hoses pinched or kinked between cab and control valve.	Inspect and correct.
	Pilot controller malfunction.	See your John Deere dealer.
	Control valve malfunction.	See your John Deere dealer.
	Circuit relief valve for the function is set low or malfunctioning.	See your John Deere dealer.
	Improperly adjusted hydraulic system.	See your John Deere dealer.
Slow Propel System, Does Not Propel	Flow control switch in slow	Move switch to fast position.
	Bent, kinked, or damaged oil lines.	Inspect and correct.
	Pilot system malfunction.	See your John Deere dealer.
	Pilot controller malfunction.	See your John Deere dealer.
	Control valve malfunction.	See your John Deere dealer.
	Rotary manifold malfunction.	See your John Deere dealer.
	Propel motor, brake, or gear box malfunction.	See your John Deere dealer.
	Rotary manifold malfunction.	See your John Deere dealer.

Continued on next page

690D-LC LIFT CAPACITY—KG (LB)

Undercarriage: 4.17 m (13 ft 8 in.) x 2.28 m (7 ft 6 in.)
Arm: 2.90 m (9 ft 6 in.)

Ratings at bucket lift point, machine situated on firm, uniform supporting surface. Total load includes weight of cables, etc. Figures marked with an * are hydraulically limited capacities. Hydraulically limited capacities are not increased by an additional counterweight. Remaining figures are stability-limited capacities. Figures do not exceed 87% of hydraulic capacities or 75% of weight needed to tip machine.

LIFTING OVER FRONT OR REAR

Load Point Height	Horizontal Distance from Centerline of Rotation				
m (ft)	3.05 (10)	4.57 (15)	6.10 (20)	7.62 (25)	9.14 (30)
6.10 (20)				2 650 (5,840)*	
4.57 (15)			3 770 (8,200)*	3 000 (6,600)	2 010 (4,420)*
3.05 (10)	8 830 (19,470)*	5 740 (12,660)*	4 290 (9,460)	2 900 (6,390)	2 080 (4,580)
1.52 (5)	4 120 (9,080)*	6 510 (14,360)	4 050 (8,920)	2 780 (6,130)	2 020 (4,450)
Ground Line:	3 280 (7,240)*	6 270 (13,710)	3 870 (8,530)	2 690 (5,920)	1 990 (4,390)
-1.52 (-5)	6 330 (13,960)*	6 140 (13,530)	3 790 (8,350)	2 640 (5,830)	
-3.05 (-10)	11 370 (25,070)*	6 190 (13,650)	3 800 (8,380)	2 700 (5,950)	
-4.57 (-15)	9 180 (20,240)*	6 370 (14,030)	3 950 (8,700)		

LIFTING OVER THE SIDE OR 360°

6.10 (20)				1 940 (4,290)	
4.57 (15)			2 910 (6,420)	1 880 (4,140)	1 300 (2,860)
3.05 (10)	8 670 (19,110)	4 370 (9,630)	2 700 (5,950)	1 790 (3,940)	1 230 (2,710)
1.52 (5)	4 120 (9,080)*	3 890 (8,580)	2 480 (5,470)	1 680 (3,700)	1 170 (2,590)
Ground Line:	3 280 (7,240)*	3 640 (8,020)	2 320 (5,110)	1 590 (3,510)	1 150 (2,530)
-1.52 (-5)	6 330 (13,960)*	3 570 (7,870)	2 250 (4,950)	1 550 (3,420)	
-3.05 (-10)	7 390 (16,290)	3 610 (7,960)	2 260 (4,980)	1 600 (3,530)	
-4.57 (-15)	7 650 (16,870)	3 760 (8,300)	2 390 (5,270)		

Stability-limited lift capacities are increased:
a. 3% if machine is equipped with 750 mm (30 in.) shoes.
b. 8% if machine is equipped with 500 kg (1100 lb) optional counterweight.
c. 16% if machine is equipped with 1000 kg (2200 lb) optional counterweight.

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DEALER COPY 2

The following inspections must be performed by you, the dealer. Check off each item as it is completed. Refer to the Operator's Manual for detailed information.

	PDI OK	ASI OK	Comments
1. Check propel gearbox oil level	☐	☐	
2. Check propel drive oil condition		☐	
3. Check swing gear grease	☐	☐	
4. Check swing bearing grease	☐	☐	
5. Check hydraulic oil level	☐	☐	
6. Check hydraulic oil condition		☐	
7. Change hydraulic return filter elements		☐	
8. Clean engine compartment		☐	
9. Check engine oil level	☐	☐	
10. Check engine oil condition		☐	
11. Change engine oil		☐	
12. Change engine oil filters		☐	
13. Check starting aid--if equipped	☐	☐	
14. Check belt tension	☐	☐	
15. Check air intake hose		☐	
16. Clean air cleaner dust valve		☐	
17. Check battery electrolyte level and clean terminals	☐	☐	
18. Check coolant level	☐	☐	
19. Check coolant freeze protection level		☐	
20. Drain fuel tank sump	☐	☐	
21. Change fuel filters		☐	
22. Check engine speeds	☐	☐	
23. Check windshield wiper operation	☐	☐	

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OWNER COPY 3

	PDI OK	ASI OK	Comments
24. Check operating lights--if equipped	☐	☐	
25. Check seat control levers	☐	☐	
26. Check instruments before starting	☐	☐	
27. Check control lever operation	☐	☐	
28. Check horn operation	☐	☐	
29. Check pedal operation	☐	☐	
30. Check heater-air conditioner controls	☐	☐	
31. Check track sag	☐	☐	
32. Check track shoe bolts		☐	
33. Lubricate all grease points (If unit is shipped without a bucket, several pounds of grease will be required to fill bucket-to-arm cavity.)	☐	☐	
34. Check torque of accessible hardware	☐	☐	
35. Check locks and latches	☐	☐	
36. Perform air flow pre-test	☐	☐	
37. Check appearance	☐		
38. Check decals, including safety and service	☐		
39. Check viscous fan drive operation	☐	☐	
40. Check travel alarm operation (SN 520777—)	☐	☐	
41. Check for fluid leaks	☐	☐	
42. Check for safety and operator's manuals	☐	☐	