# 450DLC, 650DLC and 850DLC Excavator

## OPERATOR'S MANUAL
## 450DLC, 650DLC and 850DLC Excavator

**OMT221101 Issue A9 (ENGLISH)**

CALIFORNIA
Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

If this product contains a gasoline engine:

**⚠ WARNING**

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

The State of California requires the above two warnings.

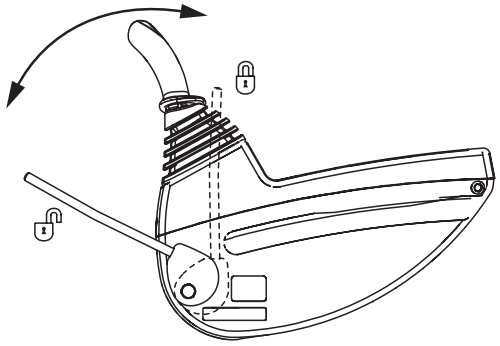
**Worldwide Construction And Forestry Division**
LITHO IN U.S.A.

**Continued on next page**

## Prevent Unintended Machine Movement

Be careful not to accidentally actuate control levers when co-workers are present. Pull pilot shutoff lever to locked position during work interruptions. Pull pilot shutoff lever to locked position, and stop engine before allowing anyone to approach machine.

Always lower work equipment to the ground, and pull pilot shutoff lever to locked position before standing up or leaving the operator's seat. Stop engine before exiting.

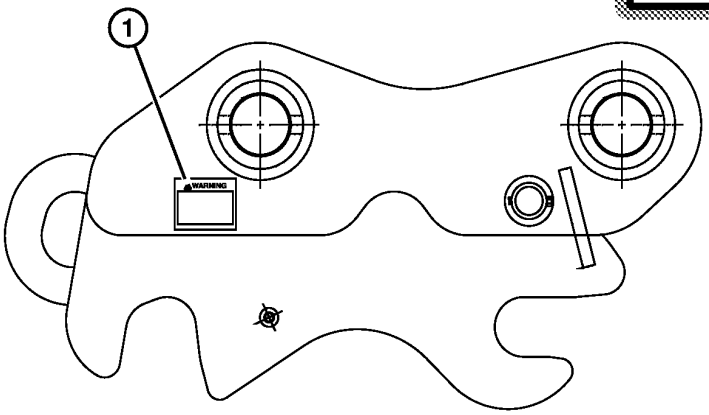


T216779 –UN–22NOV05

DW90712,000005B –19–03FEB06–1/1

1. Install four warning decals to right window inside of cab next to electrical box.

DW90712,0000457 –19–25JAN08–2/3


**TX1025652**

TX1025652 –19–03JUL07

**1—Warning Decal**

2. Install warning decals (1) to both sides of hydraulic coupler as shown.

DW90712,0000457 –19–25JAN08–3/3

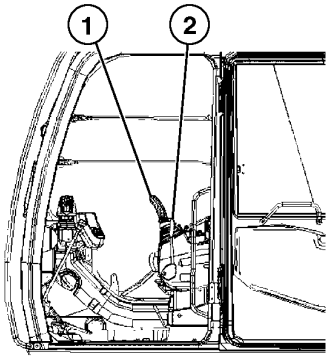
## Reversing Cooling Fan Switch—If Equipped

**IMPORTANT: In case the pilot control shutoff lever (2) is not in the LOCK position, the fan rotating direction switch device deactivates. Air conditioner may be damaged if the fan rotating direction switch (4) is pressed with using air conditioner.**

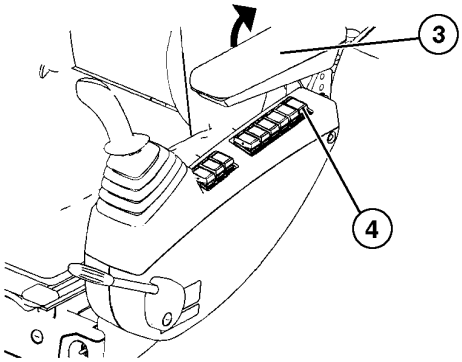
When fan rotating direction switch (4) is turned ON, the fan rotates in reverse, and the radiator, the oil cooler, and the inter cooler core can be cleaned.

1. Turn all control levers (1) to neutral with engine running. Pull the pilot control shutoff lever (2) up to the LOCK position.
2. Turn off the air conditioner switch.
3. Raise the armrest (3), press fan rotating direction switch (4) to down the engine speed. After approx. 20 seconds, the fan rotates in reverse for approx. 60 seconds.
4. After approx. 20 seconds, the fan rotating direction returns to normal.

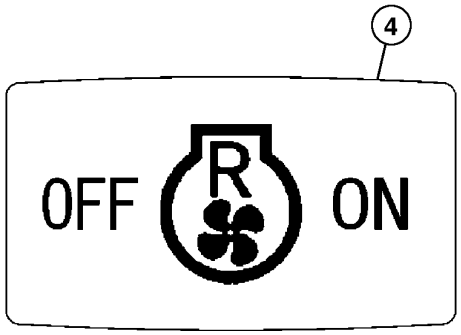
**1—Control Levers**
**2—Pilot Control Shutoff Lever**
**3—Armrest**
**4—Fan Rotating Direction Switch**




TX1003472 –UN–08FEB06




TX1003473 –UN–08FEB06




TX1003474 –UN–08FEB06

DW90712,0000063 –19–31OCT06–1/1

## Monitor Functions

**1. Button 1:** Press button to key in the number 1, or use as instructed depending on current screen.

**2. Button 2:** Press button to key in the number 2, or use as instructed depending on current screen.

**3. Button 3:** Press button to key in the number 3, or use as instructed depending on current screen.

**4. Button 4:** Press button to key in the number 4, or use as instructed depending on current screen.

**5. Button 5:** Press button to key in the number 5, or use as instructed depending on current screen.

**6. Button 6 / Return to Default Screen Button:** Press button to key in the number 6 / Press button to return to the default screen.

**7. Button 7 / F1 Function Button:** Press button to key in the number 7 / Press button to select the desired preset optional function from any screen.

**8. Button 8 / F2 Function Button:** Press button to key in the number 8 / Press button to select the desired preset optional function from any screen.

**9. Button 9 / F3 Function Button:** Press button to key in the number 9 / Press button to select the desired preset optional function from any screen.

**10. Button 0 / F4 Function Button:** Press button to key in the number 0 / Press button to select the desired preset optional function from any screen.

**11. Select Button:** Use button as instructed depending on current screen.

**12. Back Button:** Use button as instructed depending on current screen.

**13. Menu Button:** Press button to display main menu from any screen.

**14. Hour Meter Button:** Without key inserted or with key switch OFF, press and hold button to display default screen and hour meter.

**15. Alarm Indicator Light:** Lights when an abnormality has occurred.

**16. Coolant Temperature Gauge:**

**IMPORTANT: If needle points to "RED" zone, idle engine to bring back to "BLUE" zone before stopping engine. If needle continues to rise, stop engine.**

Indicates the engine coolant temperature. Needle should be around the center of the scale during operation.

**17. Work Mode Indicator:** The icon for the current attachment being used displays.

**18. Auto-Idle Indicator:** When selecting auto-idle from the front switch panel, the auto idle icon displays.

**19. Auxiliary Indicator:** Optional auxiliary data icon displays.

**20. Auxiliary Indicator:** Optional auxiliary data icon displays.

**21. Auxiliary Indicator:** Optional auxiliary data icon displays.

**22. Engine Preheat Indicator:**

**IMPORTANT: Prevent engine damage. Do not use ether in machines equipped with the preheat option.**

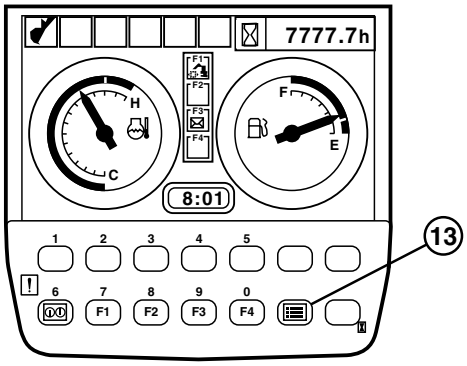
When preheating is required, the preheat icon is automatically lit. If preheating is not required, the icon will not be lit.

**Continued on next page**

## Maintenance Settings

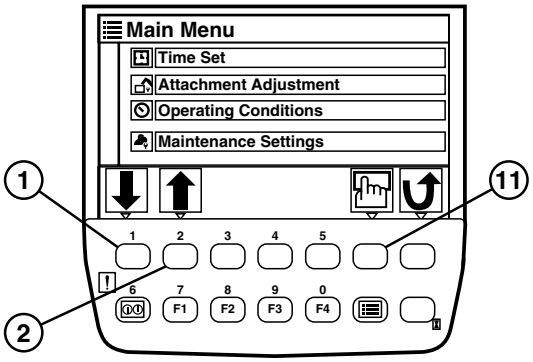
1. When the default screen appears, push the menu button (13) to display the main menu.
2. Select Maintenance Settings from the main menu by using buttons (1) and (2).
3. Push the select button (11) to display the maintenance settings screen.

**1—Button 1**
**2—Button 2**
**3—Button 3**
**4—Button 4**
**11—Select Button**
**12—Back Button**
**13—Menu Button**




TX1001142 –UN–12DEC05

*Default Screen*

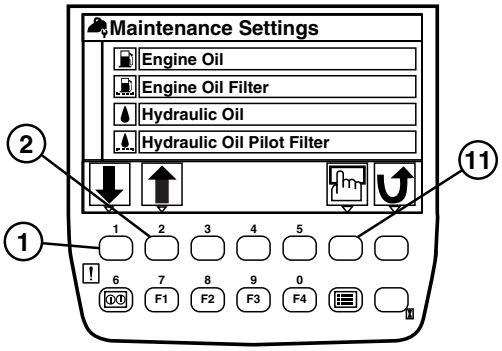



TX1001143 –19–05JAN06

*Main Menu Screen*

DW90712,0000039 –19–24JAN07–1/5

4. Select an item to be set from among the list of maintenance settings by using buttons (1) or (2). In this example, engine oil was selected.




TX1001285 –19–19DEC05

*Maintenance Settings Screen*

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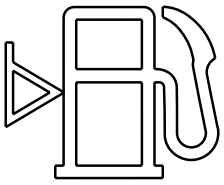
DW90712,0000039 –19–24JAN07–2/5

**Remaining Fuel Alarm**

Fuel level is low. Refill fuel tank as soon as possible.




*Remaining Fuel Alarm*

VD76477,0000387 –19–31OCT06–6/11

**Hydraulic Oil Filter Alarm—If Equipped**

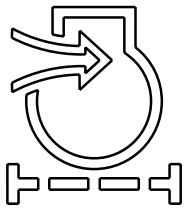
Hydraulic oil filter is clogged. Replace filter.


*Hydraulic Oil Filter Alarm*

VD76477,0000387 –19–31OCT06–7/11

**Air Filter Clogged Alarm**

Air filter elements are clogged. Clean or replace air filter elements.

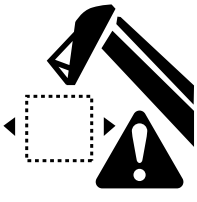



*Air Filter Clogged Alarm*

VD76477,0000387 –19–31OCT06–8/11

**Work Mode Alarm**

Work Mode system is abnormal. Consult your authorized dealer.




*Work Mode Alarm*

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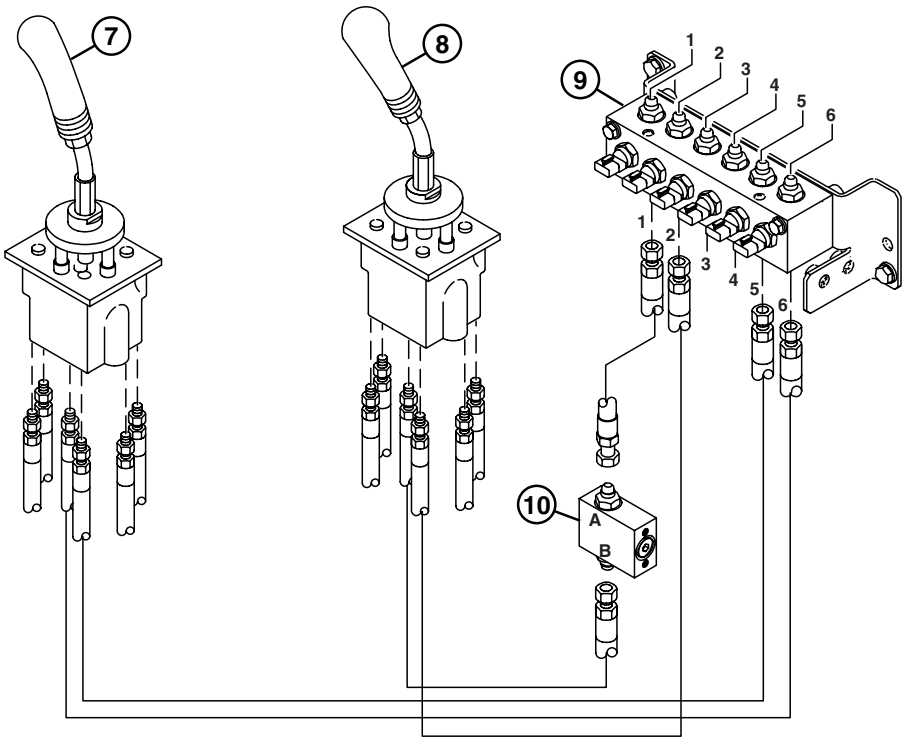
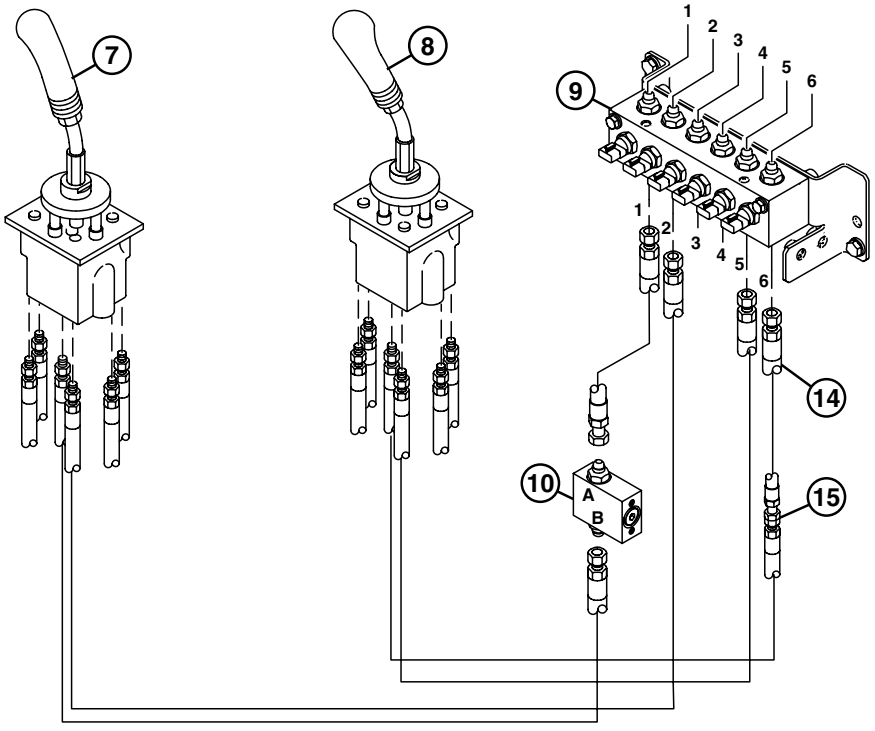
VD76477,0000387 –19–31OCT06–9/11




TX1013016 –UN–13OCT06

**TX1013016**

*Excavator Pattern*




TX1013015 –UN–26OCT06

**TX1013015**

*Backhoe Pattern*

**7—Left Control Lever**
**8—Right Control Lever**
**9—Digging Sensor Manifold**
**10—Boom Up Shockless Valve**
**14—Fabricated Hose**
**15— -6 M 37° x -6 M 37° Union**

**Continued on next page**

DW90712,000039F –19–17NOV06–5/6

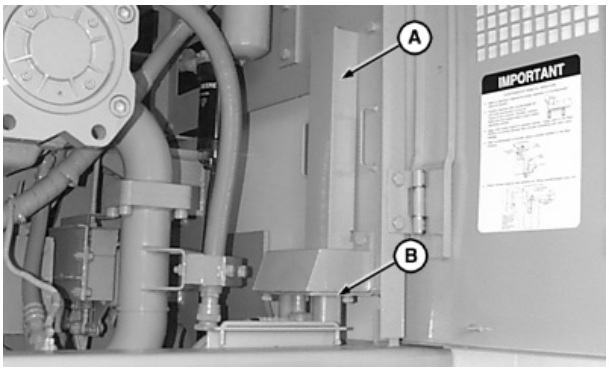
13. Open left rear access door and pull off lever cover (A) of counterweight pilot control valve (B).

14. Start engine. Run machine at slow idle.

15. Leave pilot shutoff lever in locked (UP) position.

**CAUTION: To ensure good footing and visibility always stand on the machine service walk when operating counterweight pilot control valve.**

16. Slowly move counterweight pilot control valve lever UP and DOWN several times to check response of cylinder control.




**A—Cover**
**B—Control Valve**

DW90712,00001F0 –19–12SEP08–8/12

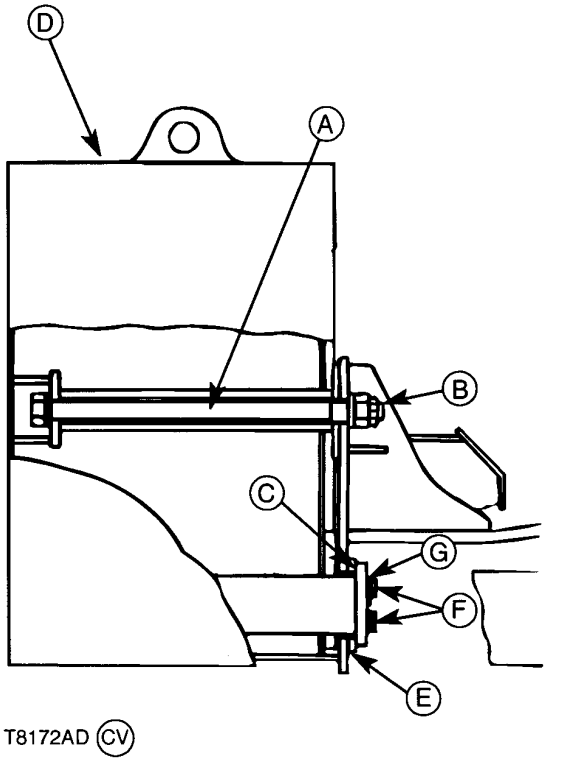
17. Remove both lock pins from slotted nuts (B) on counterweight tie bolts (A).

18. Alternately loosen each counterweight tie bolt two or three turns.

19. Using a standard screwdriver, pry corner of lock plate (G) away from head of each of the lower counterweight boss cap screws (F).

20. Loosen each cap screw 5 mm (0.20 in.)

**A—Tie Bolt (2 used)**
**B—Slotted Nut (2 used)**
**C—Boss Plate (2 used)**
**D—Counterweight**
**E—Shim (as required)**
**F—Cap Screws (4 used)**
**G—Lock Plate (2 used)**

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DW90712,00001F0 –19–12SEP08–9/12

*NOTE: Do not operate attachment when the supplemental lock is used as the primary locking device. Doing so could result in hydraulic coupler failure.*

4. Continue to slowly uncurl hydraulic coupler. Verify attachment is properly locked. Toggle switch on the control box should be in LOCK position.

DW90712,0000450 –19–27JUN07–2/2

## Unlocking the Hydraulic Coupler From the Attachment

1. Keep attachment close to ground. Toggle switch should be in LOCK position.

*NOTE: The hydraulic coupler must be held over relief in order to unlock the hydraulic coupler cylinder.*

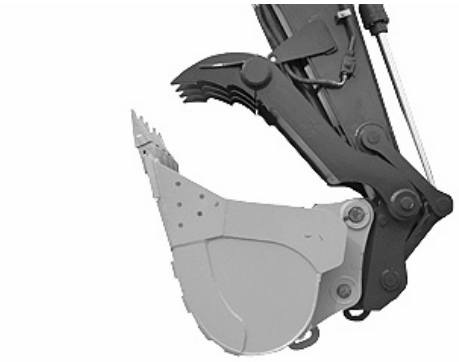
2. Rotate hydraulic coupler to full-curl position to release supplemental lock. Toggle switch should be in LOCK position.

*NOTE: A safety buzzer will sound to alert personnel the unlock function has been activated.*

3. Move toggle switch to UNLOCK position. Hold in full-curl position for 5 seconds.

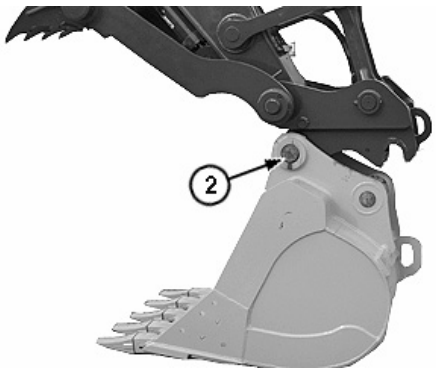
4. Slowly uncurl hydraulic coupler. Front hook (1) will release from pin (2). Toggle switch should be in UNLOCK position.

**1—Front Hook**
**2—Pin**

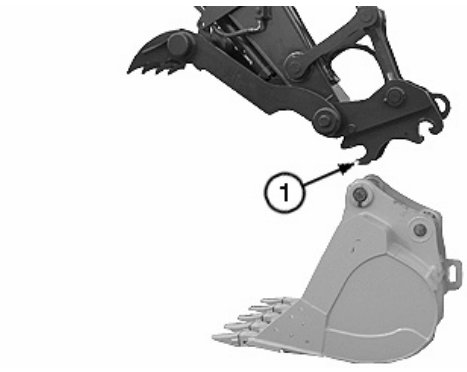


TX1017663A –UN–17JAN07

*Bucket Rotated to Full-Curl Position*




TX1017662A –UN–17JAN07




TX1017664A –UN–17JAN07

DW90712,0000451 –19–27JUN07–1/1

The following oil is preferred:

**4000 hour change interval:**

• Zinc-Free Super EX 46HN Hitachi excavator oil from John Deere

**2500 hour change interval:**

• Zinc-Free Daphne Super Hydro A 32 (For low temperature operation.)

• Shell Tellus Oil S46

**1500 hour change interval:**

The following products can be used provided a complete hydraulic system flush has been performed. Contact your dealer for this procedure.

Other Premium AW oils may be used:

**The following oils are zinc-based and must not be mixed with 2500 hour and 4000 hour zinc-free oils.**

- Texaco Inc.: Rando Oil HD46 or 32 (For low temperature operation.)
- Mobil Oil: DTE25-46 or 32 (For low temperature operation.)
- Shell Oil: Tellus Oil T46 or T32 (For low temperature operation.)

**Biodegradable Hydraulic Oil:**

Use only Exxon Mobil EAL Envirosyn 46H Synthetic Esther Oil when a biodegradable oil is required. (Contact your John Deere dealer for Registration and Routine Oil Analysis to meet warranty requirements.)

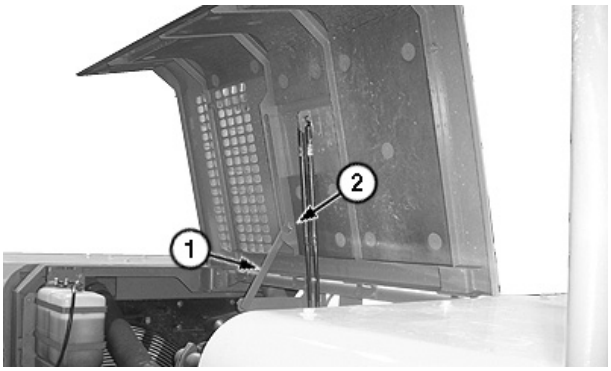
DW90712,0000766 –19–07JUN07–2/2

## Open Engine Cover for Service (450DLC and 650DLC Only)

**CAUTION: Prevent possible injury. Unlock latches. Pull open latches to unlock cover. Raise the cover until lock stay completely engages with lock groove inside the cover.**

Raise cover using handle on cover until lock stay (1) completely engages lock groove (2) inside the cover.

**1—Lock Stay**
**2—Lock Groove**




*650DLC Shown*

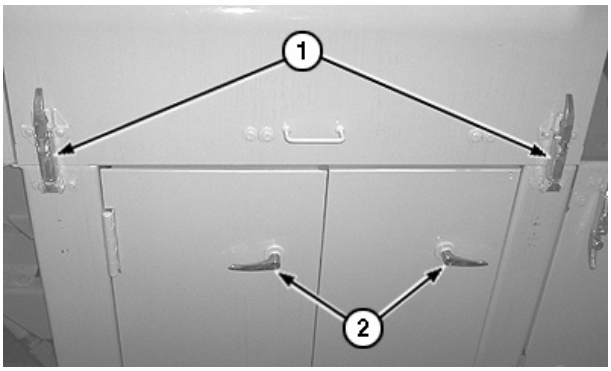
DW90712,000005E –19–07FEB06–1/1

## Open Engine Cover for Service (850DLC)

**CAUTION: Prevent possible injury. Unlock latches. Pull open latches to unlock cover. Raise the cover until lock stay completely engages with lock groove inside the cover.**

To open the engine cover:

1. Unlatch engine cover latches (1).
2. Turn engine door handles (2) inwards and pull door backward.
3. Swing engine door to the left.
4. Raise engine cover using handle on cover until lock stay completely engages lock groove inside the cover.




**1—Engine Cover Latches**
**2—Engine Door Handles**

DW90712,0000065 –19–09FEB06–1/1

## Check Air Cleaner Element — 450DLC and 650DLC

1. Unscrew wing nut (1), and remove outer cover.
2. Unscrew wing nut (2) to remove primary element.
3. Pull primary element (3) straight back to remove.
4. Tap primary element with the palm of your hand, NOT ON A HARD SURFACE.

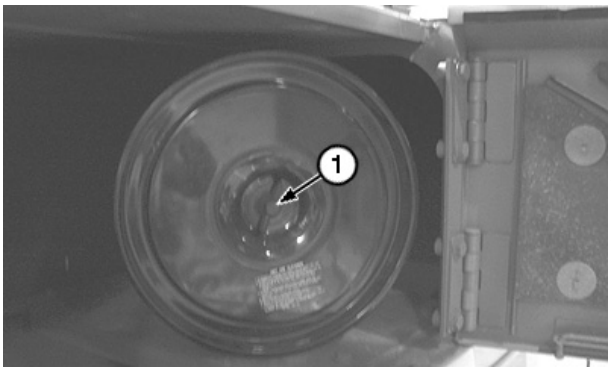
**CAUTION: Prevent possible injury from flying chips if compressed air is more than 210 kPa (2.1 bar) (30 psi). Reduce compressed air to less than 210 kPa (2.1 bar) (30 psi) when using for cleaning purposes. Clear area of bystanders, guard against flying chips, and wear personal protection equipment including eye protection.**

5. If this does not remove dust, use compressed air under 210 kPa (2.1 bar) (30 psi).

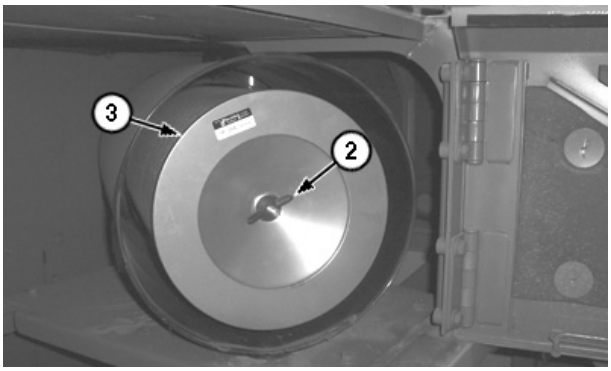
**Specification**

Compressed Air—Pressure..... Under 210 kPa (2.1 bar) (30 psi)

6. Direct air up and down from inside to outside. Be careful not to make a break in the element.
7. Install primary element (3), and securely screw on wing nut (2).
8. Install outer cover, and securely screw on wing nut (1).




TX1001778A –UN–21DEC05




TX1001781A –UN–03JAN06

**1—Outer Cover Wing Nut**
**2—Primary Element Wing Nut**
**3—Primary Element**

DW90712,000000F –19–31OCT06–1/1

## Check Engine Oil Level

**IMPORTANT: Prevent engine damage. Do not run engine when oil level is below the ADD mark.**

The most accurate oil level reading is obtained when the engine is cold before starting the engine for the day's operation.

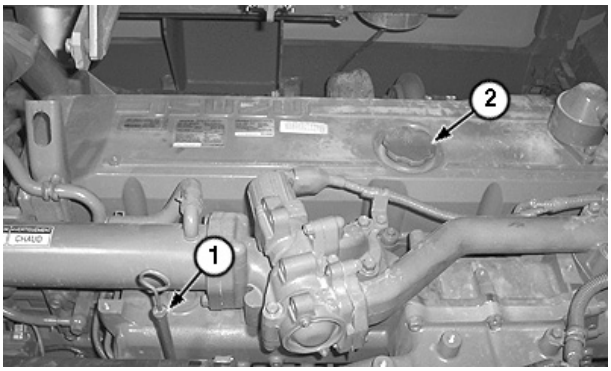
There are two ways to check the engine oil level:

**Using the dipstick:**

1. Make sure dipstick (1) is fully seated.
2. Remove dipstick to check oil level.

   BEFORE THE ENGINE IS STARTED: The engine is full when oil level is between the circle marks.

   AFTER THE ENGINE HAS BEEN RUN: Allow the oil to drain into the oil pan for 10 minutes before checking the oil level. Ten minutes after shutdown the engine oil level must be between the circle marks.
3. If necessary, remove filler cap (2) to add oil. (See Engine Oil in Section 3-1.)




**1—Dipstick**
**2—Filler Cap**

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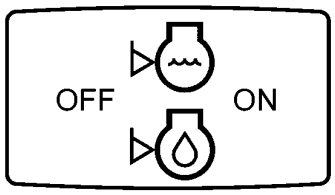
DW90712,000000E –19–20JAN06–1/2

1. Turn the key switch to the ON position.
2. Press and hold the engine oil level/coolant level switch.

*NOTE: If the coolant level indicator is red, the oil level is low. If the coolant level indicator is green, the oil level is normal.*

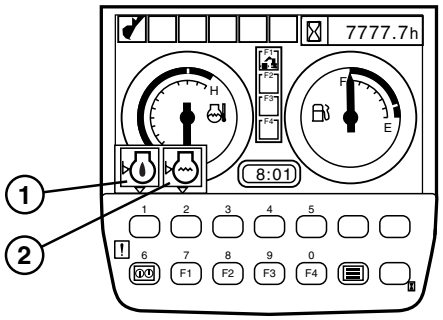
3. Check the coolant level indicator (1) on the default screen of the monitor.
4. If it is necessary to add coolant, follow the above steps under “Visually checking coolant level”.




TX1001993 –UN–04JAN06

*Engine Oil Level/Coolant Level Switch*

**1—Engine Oil Level Indicator**
**2—Coolant Level Indicator**



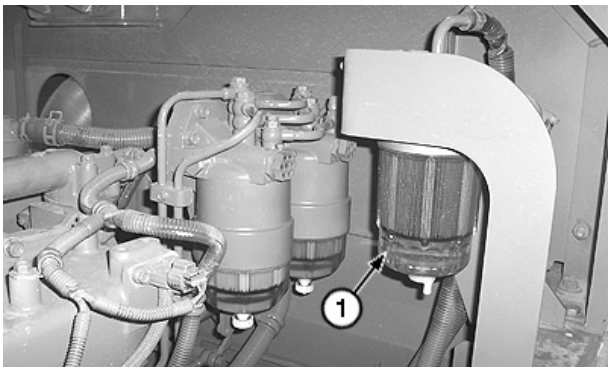

TX1001986 –UN–05JAN06

*Default Screen*

DW90712,0000013 –19–05JAN06–2/2

## Replace Water Separator

1. Turn canister (1) counterclockwise to remove filter. Allow sediment to drain into a container. Dispose of waste properly.
2. Clean bowl.
3. Install new filter. (Follow instructions on filter.)
4. Install new O-rings.
5. Install canister.
6. Bleed fuel system. (See Bleed Fuel System in Section 3-3.)




*650DLC Shown*

**1—Canister**

DW90712,0000027 –19–11JAN06–1/1

## Check Air Intake Hose

Check air intake hoses for cracks. Replace as necessary.

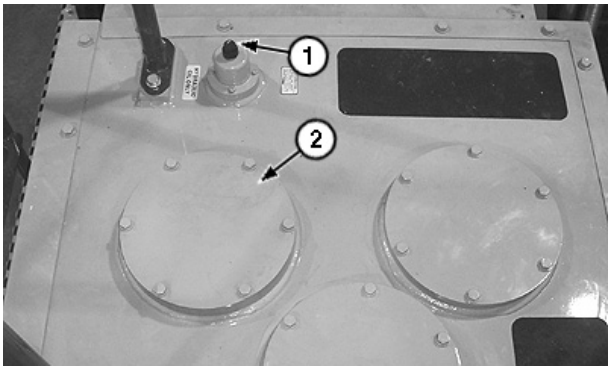
TX14740,0001C82 –19–04NOV00–1/1

## Replace Pump Case Drain Filter

**CAUTION: High pressure release of oil from pressurized system can cause serious burns or penetrating injury. The hydraulic tank is pressurized. DO NOT remove hydraulic cap. Relieve pressure by pushing the pressure release button (1).**

1. Push the pressure release button (1) to relieve pressure.

**1—Pressure Release Button**
**2—Hydraulic Oil Tank Cover**




*650DLC Shown*

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DW90712,000001E –19–25MAY06–1/2

## Change Pump Drive Gearbox Oil — 650DLC and 850DLC only

1. Remove drain plug (3). Open ball valve (4). Allow oil to drain into a container. Dispose of waste oil properly.
2. Close ball valve, and install drain plug.
3. Remove fill cap (2).
4. 

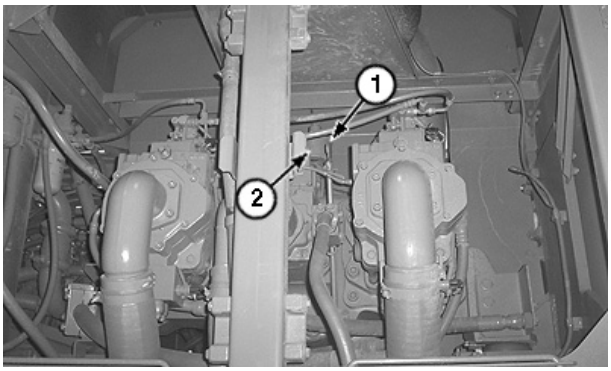
**Specification**

| | |
|---|---|
| Pump Drive Gearbox—Oil Capacity | 6.2 L<br>1.6 gal |

Add oil per specifications. (See Section 3-1.)

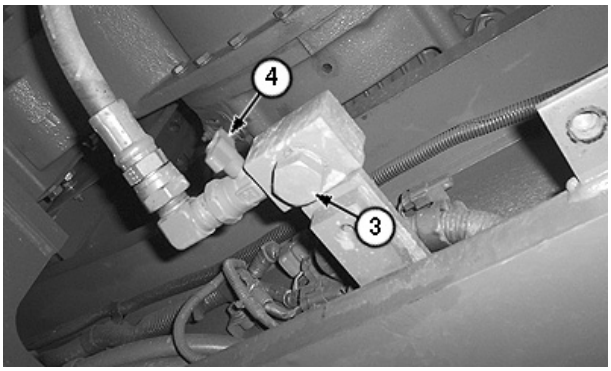
5. Remove dipstick (1), and check oil level. Oil level must be approximately halfway below "H" mark. Install dipstick.
6. Install fill cap.

**1—Dipstick**
**2—Fill Cap**
**3—Drain Plug**
**4—Ball Valve**

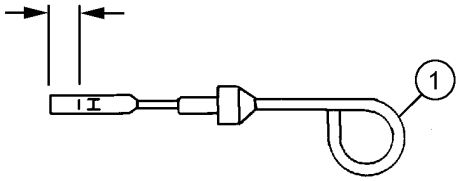


TX1001870A –UN–28DEC05

*650DLC Shown*



TX1002388A –UN–06JAN06



T145092 –UN–31AUG01

DW90712,0000022 –19–23JAN06–1/1

## Cooling System Fill and Deaeration Procedure

| Specification | |
|---|---|
| 450DLC—Refill Capacity | 48.0 L<br>12.7 gal |
| 650DLC—Refill Capacity | 56.0 L<br>14.8 gal |
| 850DLC—Refill Capacity | 81.4 L<br>21.5 gal |

**IMPORTANT: Use only permanent-type low silicate ethylene glycol base antifreeze in coolant solution. Other types of antifreeze may damage cylinder seals.**

FREEZING TEMPERATURES: Fill with permanent-type, low silicate, ethylene glycol antifreeze (without stop-leak additive) and clean, soft water.

**Fill**

Fill radiator to the bottom of the radiator fill neck.

Fill the recovery tank to FULL mark.

**Deaeration**

The cooling system requires several warm-up and cool down cycles to deaerate. It will NOT deaerate during normal operation. Only during warm-up and cool down cycles will the system deaerate.

1. Start engine. Run engine until coolant reaches a warm temperature.
2. Stop engine. Allow coolant to cool.
3. Check coolant level at recovery tank.
4. Repeat Steps 1—3 until recovery tank coolant level is repeatedly at the same level (stabilized).

*NOTE: The level of the coolant in the cooling system MUST BE repeatedly checked after all drain and refill procedures to insure that all air is out of the system which allows the coolant level to stabilize. Check coolant level only when the engine is cold.*

5. If necessary, fill recovery tank to FULL mark.

DW90712,00000EB –19–28MAR06–1/1

## Welding On Machine

**IMPORTANT: Disconnect battery ground strap or turn battery disconnect switch to "OFF" to prevent voltage spikes through alternator or monitor.**

**Disable electrical power before welding. Turn off main battery switch or disconnect positive battery cable.**

**Separate harness connectors to engine and vehicle microprocessors.**

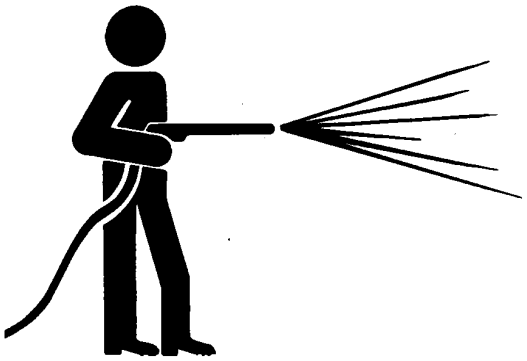
**Connect welder ground clamp close to each weld area so electrical current does not arc inside any bearings.**

TX,90,DH5140 –19–03JAN07–1/1

## Clean the Machine Regularly

Remove any grease, oil, fuel, or debris build-up to avoid possible injury or machine damage.

**IMPORTANT: Directing pressurized water at electronic/electrical components or connectors, bearings and hydraulic seals, fuel injection pumps or other sensitive parts and components may cause product malfunctions. Reduce pressure and spray at a 45 to 90 degree angle.**



T6642EJ –UN–18OCT88

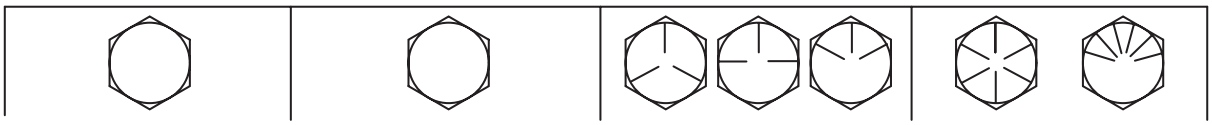
High pressure washing (greater than 1379 kPa (13.8 bar) (20 psi) can damage freshly painted finishes. Paint should be allowed to air dry for 30 days minimum after receipt of machine before cleaning with high pressure. Use low pressure wash operations until 30 days have elapsed.

Do not spray oil cooler fins at an angle. Fins may bend.

TX03679,00017E0 –19–28JUN06–1/1

## Unified Inch Bolt and Screw Torque Values

TS1671 –UN–01MAY03



| Bolt or | SAE Grade 1 | | | | SAE Grade 2[a] | | | | SAE Grade 5, 5.1 or 5.2 | | | | SAE Grade 8 or 8.2 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Screw | Lubricated[b] | | Dry[c] | | Lubricated[b] | | Dry[c] | | Lubricated[b] | | Dry[c] | | Lubricated[b] | | Dry[c] | |
| Size | N•m | lb-in | N•m | lb-in | N•m | lb-in | N•m | lb-in | N•m | lb-in | N•m | lb-in | N•m | lb-in | N•m | lb-in |
| 1/4 | 3.7 | 33 | 4.7 | 42 | 6 | 53 | 7.5 | 66 | 9.5 | 84 | 12 | 106 | 13.5 | 120 | 17 | 150 |
| | | | | | | | | | | | | | N•m | lb-ft | N•m | lb-ft |
| 5/16 | 7.7 | 68 | 9.8 | 86 | 12 | 106 | 15.5 | 137 | 19.5 | 172 | 25 | 221 | 28 | 20.5 | 35 | 26 |
| | | | | | | | | | N•m | lb-ft | N•m | lb-ft | | | | |
| 3/8 | 13.5 | 120 | 17.5 | 155 | 22 | 194 | 27 | 240 | 35 | 26 | 44 | 32.5 | 49 | 36 | 63 | 46 |
| | | | N•m | lb-ft | N•m | lb-ft | N•m | lb-ft | | | | | | | | |
| 7/16 | 22 | 194 | 28 | 20.5 | 35 | 26 | 44 | 32.5 | 56 | 41 | 70 | 52 | 80 | 59 | 100 | 74 |
| | N•m | lb-ft | | | | | | | | | | | | | | |
| 1/2 | 34 | 25 | 42 | 31 | 53 | 39 | 67 | 49 | 85 | 63 | 110 | 80 | 120 | 88 | 155 | 115 |
| 9/16 | 48 | 35.5 | 60 | 45 | 76 | 56 | 95 | 70 | 125 | 92 | 155 | 115 | 175 | 130 | 220 | 165 |
| 5/8 | 67 | 49 | 85 | 63 | 105 | 77 | 135 | 100 | 170 | 125 | 215 | 160 | 240 | 175 | 305 | 225 |
| 3/4 | 120 | 88 | 150 | 110 | 190 | 140 | 240 | 175 | 300 | 220 | 380 | 280 | 425 | 315 | 540 | 400 |
| 7/8 | 190 | 140 | 240 | 175 | 190 | 140 | 240 | 175 | 490 | 360 | 615 | 455 | 690 | 510 | 870 | 640 |
| 1 | 285 | 210 | 360 | 265 | 285 | 210 | 360 | 265 | 730 | 540 | 920 | 680 | 1030 | 760 | 1300 | 960 |
| 1-1/8 | 400 | 300 | 510 | 375 | 400 | 300 | 510 | 375 | 910 | 670 | 1150 | 850 | 1450 | 1075 | 1850 | 1350 |
| 1-1/4 | 570 | 420 | 725 | 535 | 570 | 420 | 725 | 535 | 1280 | 945 | 1630 | 1200 | 2050 | 1500 | 2600 | 1920 |
| 1-3/8 | 750 | 550 | 950 | 700 | 750 | 550 | 950 | 700 | 1700 | 1250 | 2140 | 1580 | 2700 | 2000 | 3400 | 2500 |
| 1-1/2 | 990 | 730 | 1250 | 930 | 990 | 730 | 1250 | 930 | 2250 | 1650 | 2850 | 2100 | 3600 | 2650 | 4550 | 3350 |

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For plastic insert or crimped steel type lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application. Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Replace fasteners with the same or higher grade. If higher grade fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

[a]Grade 2 applies for hex cap screws (not hex bolts) up to 6. in (152 mm) long. Grade 1 applies for hex cap screws over 6 in. (152 mm) long, and for all other types of bolts and screws of any length.

[b]"Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C zinc flake coating.

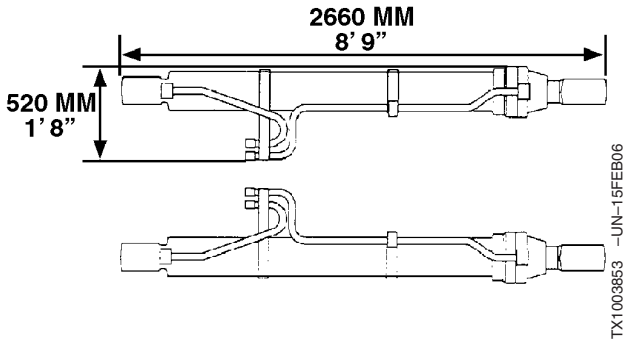
[c]"Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B zinc flake coating.

DX,TORQ1 –19–24APR03–1/1

**Boom Cylinder**

Weight: 420 kg (926 lb) x 2

Maximum Height: 330 mm (1 ft 1 in)




DW90712,0000071 –19–18JAN07–10/11

**Hose**

Weight: 9 kg (20 lb) x 4


DW90712,0000071 –19–18JAN07–11/11

## Retracting or Extending the Side Frame

**IMPORTANT: Remove debris stuck to contact areas of the track frame and side frame or mounting cap screws may be loosened.**

**Extend the side frames when operating the machine at job sites. Retraction of the side frames is designed only for easy transportation of the machine by trailer. When the side frames are retracted overside balance of the machine will be reduced, potentially causing damage to the track frame, side frames, and cap screws.**

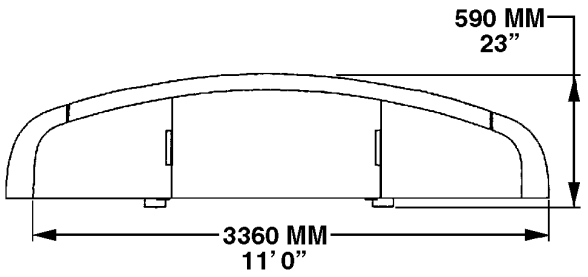
AG,OUOE003,9835 –19–11AUG99–1/1

*NOTE: Steps on the track frame and the side hydraulic oil tank, hand rails on the upper battery box, upper fuel tank, and the side hydraulic oil tank must be removed to comply with the overall width dimensions above.*

**650DLC Counterweight**

Weight: 11,100 kg (24,500 lb)

Maximum Height: 1550 mm (5 ft 1 in)

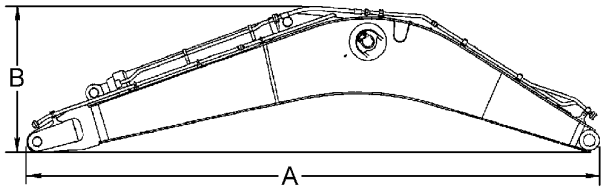



TX1003805 –UN–15FEB06

DW90712,000008D –19–18JAN07–2/13

**Boom**

| Boom Length m (ft-in.) | A mm (ft-in.) | B mm (ft-in.) | Overall Width mm (ft-in.) | Weight kg (lb) |
|---|---|---|---|---|
| 6.8 (23’ 4") | 7140 (23’ 5") | 2510 (8’ 3") | 1390 (4’ 7") | 6110 (13,470) |
| 7.8 (27’ 1") | 8130 (26’ 8") | 2330 (7’ 8") | 1390 (4’ 7") | 6550 (14,450) |




T124015 –UN–27AUG99

T124015

**A—Overall Length**
**B—Overall Height**

**Continued on next page**

DW90712,000008D –19–18JAN07–3/13

**CAUTION: Slowly operate the boom, or the lever block and/or cable or chain may be damaged and may disengage, possibly causing severe personal injury. Stay away from the machine when operating the boom.**

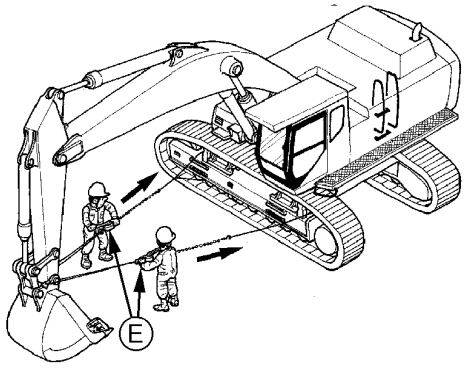
9. Slowly slacken cable or chain tension by operating lever blocks (E) and raise the boom to lower the track frame (B).
10. After lowering track frame, tighten cap screws (A) by hand.
11. Repeat steps (9) and (10) three to four times until the track frame is completely lowered to the ground.
12. Slacken the lever blocks. Remove the lever blocks and cables or chains.

**IMPORTANT: Be sure to apply a film of lubricant to the cap screw threads.**

13. Tighten cap screws with the power boost wrench and torque wrench to specification.

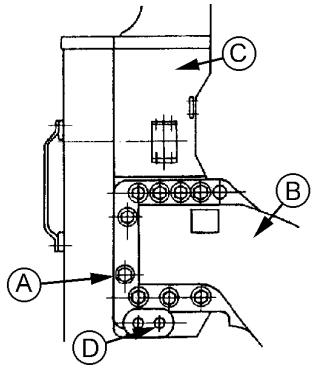
**Specification**

650DLC Side Frame Cap Screw—Torque..... 2800 N•m (2030 lb-ft)




T122566

T122566 –UN–05AUG99




T122567

T122567 –UN–05AUG99

**A—Cap Screw**
**B—Track Frame**
**C—Side Frame**
**D—Guide Cap Screw**
**E—Lever Block**

14. Extend the side frame (C) on the opposite side using the same procedure.

| | | | Torque | |
|---|---|---|---|---|
| Model | Bolt Size | Width Across Flats (mm) | N•m | kgf-m |
| 650DLC | M33-Pitch 3 | 50 | 2800 | 286 |

AM40430,0000305 –19–18JAN07–5/5

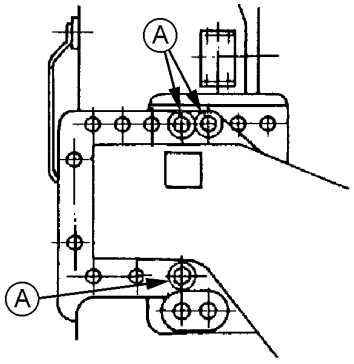
4. Slowly lower the track to the ground. Tighten six mounting cap screws (A) (3 used for each side) to specification.

**Specification**

850DLC Side Frame Mounting Cap Screw—Torque ..... 2800 N•m (2025 lb-ft)

5. Retract the opposite side, following steps 1 to 4 above.

**A—Mounting Cap Screw (6 used)**




T122589

T122589 –UN–05AUG99

DW90712,00000A2 –19–18JAN07–2/2

## Extending the Side Frame

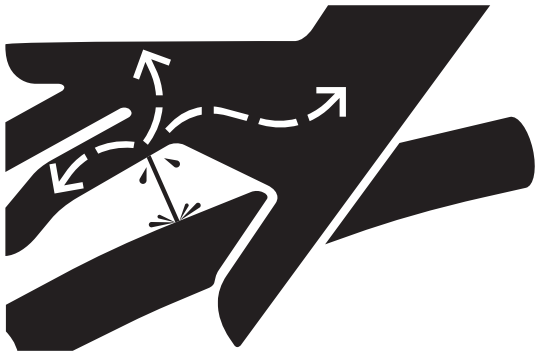
Necessary Equipment

1. Slinging Rope (20 mm dia. x 8 m, 6 x 37 Ordinary Z lay Class A, Applicable Max. Load: 3 tons) (4 Used). Before Slinging, make sure no broken wire strands and/or kinks exist.
2. Lever Block (JIS B8819 equivalent to L3.2T) (2 Used). Check that there is no damage on the lever block.
3. Power Boost Wrench (including accessories), width across flats of the torque wrench: 50 mm
4. Air Compressor (slide surface cleaning)
5. Soft Protectors

**Continued on next page**

DW90712,00000A3 –19–18JAN07–1/5

**CAUTION: High pressure release of oil from pressurized system can cause serious burns or penetrating injury. The hydraulic tank is pressurized. Relieve pressure by pushing the pressure release button (1).**



X9811 –UN–08DEC08

DW90712,0000076 –19–09FEB06–5/7

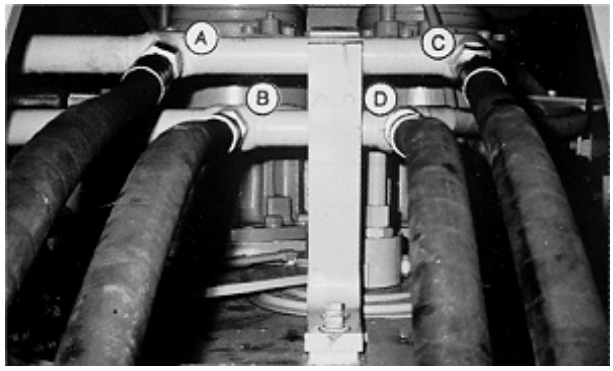
9. Slowly remove hydraulic tube caps and connect hoses (A—D).

10. Connect boom cylinder hoses.

**Specification**

650DLC and 850DLC Boom Hose
Flange Cap Screws—Torque ..... 180 N•m
130 lb-ft

**A—Right Boom Cylinder Head End**
**B—Right Boom Cylinder Rod End**
**C—Left Boom Cylinder Head End**
**D—Left Boom Cylinder Rod End**




T6912AC –UN–28OCT88

*450DLC Shown*

DW90712,0000076 –19–09FEB06–6/7

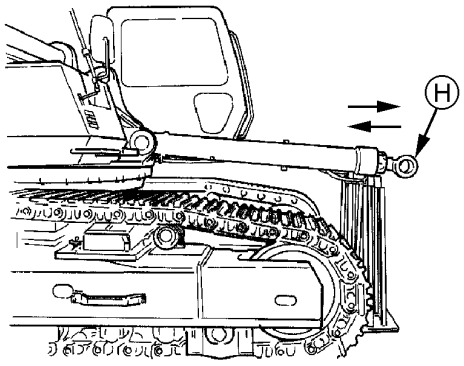
11. To prevent the seal from damage, bleed the air from the boom cylinders in the following procedures:

    a. Run the engine at slow idle.

    b. Slowly extend and retract boom cylinder rod (H).

    c. Repeat step (b) above until cylinder rod (H) moves smoothly.

**H—Cylinder Rod**




T122533

T122533 –UN–05AUG99

DW90712,0000076 –19–09FEB06–7/7

## Installing Bucket

1. Install the O-rings around the bucket bosses at the arm connecting section.
2. Start the engine. Raise the arm tip approximately 2.5 m (2.7 yd) above the ground.
3. Lift bucket (D) with a crane. Align pin (C) with pin hole (B) of the arm.

**CAUTION: When aligning the centers of the pin and pin hole, Do Not put fingers into the pin hole.**

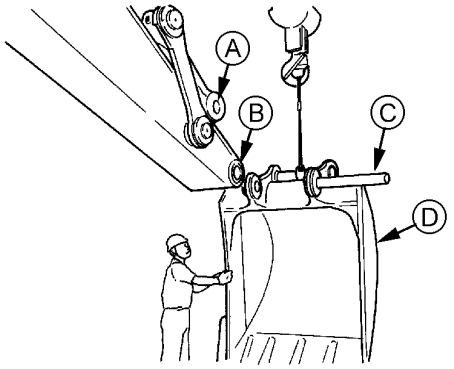
**When using a hammer, wear safety equipment to protect against injury from flying pieces of metal.**

**While installing the bucket pin, Do Not allow anyone to enter the area under the bucket.**

4. Install pin into the pin bosses. Secure pin with cap screw (F) and nuts (G).
5. While extending or retracting the bucket cylinder, align pin hole (A) of the link with that of bucket (D).
6. Install the pin into the bucket and link. Secure the pin with cap screw (E) and nuts (H). Install double nuts and tighten.

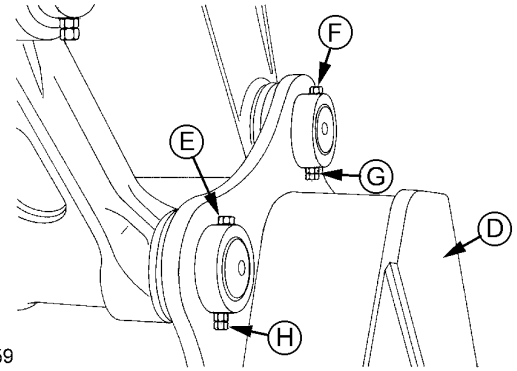
**Specification**

| | |
|---|---|
| Pin in Bucket and Link Cap Screws—Torque | 400 N•m<br>290 lb-ft |




T122558

T122558 –UN–05AUG99




T122559

T122559 –UN–05AUG99

**A—Pin Hole**
**B—Pin Hole**
**C—Pin**
**D—Bucket**
**E—Cap Screw**
**F—Cap Screw**
**G—Nut**
**H—Nut**

DW90712,000007B –19–08FEB06–1/1

## Retracting the Side Frame

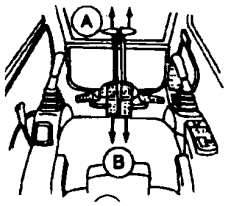
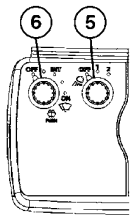
See Retracting the Side Frame. (Section 4-2.)

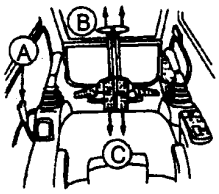
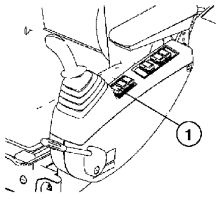
DW90712,000007D –19–08FEB06–1/1

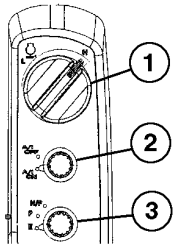
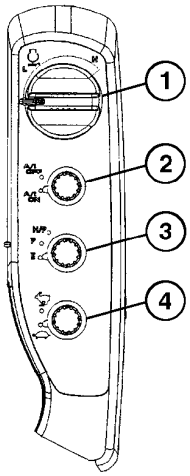
## Extending the Side Frame

See Extending the Side Frame. (Section 4-2.)

DW90712,000007F –19–08FEB06–1/1

| | | | |
|---|---|---|---|
| **Travel Lever and Pedal Neutral Checks** |  <br>T7531AO –UN–07JUN91 | **A—Travel Lever and Pedal Forward**<br>**B—Travel Lever and Pedal Reverse**<br><br>Push both travel levers and pedals forward (A), then release.<br><br>Pull both travel levers and pedals rearward (B), then release.<br><br>*FEEL: Do levers and pedals require equal effort to operate in forward and reverse?*<br><br>*LOOK: Do levers and pedals return to neutral at the same time when released?* | **YES:** Go to next check.<br><br>**NO:** See your authorized dealer.<br><br>– – –1/1 |
| **Light Circuit Checks** |  <br>TX1000880 –UN–01DEC05 | **5—Work Light Switch**<br>**6—Windshield Wiper and Washer Switch**<br><br>Turn work light switch (5) to 1st position.<br><br>*LOOK: Are monitor panel back lights and drive lights on?*<br><br>Turn light switch to 2nd position.<br><br>*LOOK: Do monitor panel back lights and drive lights remain on and boom work lights come on?* | **YES:** Go to next check.<br><br>**NO:** Check work and drive lights 20 A fuse (F1) and controller 5 A fuses (F19).<br><br>**NO:** See your authorized dealer.<br><br>– – –1/1 |

| | | | |
|---|---|---|---|
| **Travel Alarm Check** |  <br>T7850AF –UN–22OCT92 | **A—Pilot Shutoff Lever**<br>**B—Travel Lever and Pedal Forward**<br>**C—Travel Lever and Pedal Rearward**<br><br>**CAUTION: Machine will move during this check. Make sure area is clear and large enough to operate the machine.**<br><br>Place pilot shutoff lever (A) to UNLOCKED position (forward).<br><br>Push travel pedals or levers forward (B).<br><br>*LISTEN: Does travel alarm sound?*<br><br>Push travel pedals or pull levers rearward (C).<br><br>*LISTEN: Does travel alarm sound?* | **YES:** Go to next check.<br><br>**NO:** Check travel alarm 5 A fuse (F5).<br><br>**NO:** See your authorized dealer.<br><br>– – –1/1 |
| **Travel Alarm Cancel Switch Circuit Check** |  <br>TX1000876 –UN–03DEC05 | **1—Travel Alarm Cancel Switch**<br><br>**CAUTION: Machine will move during this check. Make sure area is clear, and large enough to operate the machine.**<br><br>*NOTE: Travel alarm must operate for this check.*<br><br>Place pilot shutoff lever (A) to UNLOCKED position (forward).<br><br>Push travel pedals or levers and allow travel alarm to operate for a minimum of 12 seconds.<br><br>*LISTEN: Does travel alarm sound?*<br><br>While continuing travel, push travel alarm cancel switch (A).<br><br>*LISTEN: Does travel alarm stop sounding?* | **YES:** Go to next check.<br><br>**NO:** Check travel alarm 5 A fuse (F5).<br><br>**NO:** See your authorized dealer.<br><br>– – –1/1 |

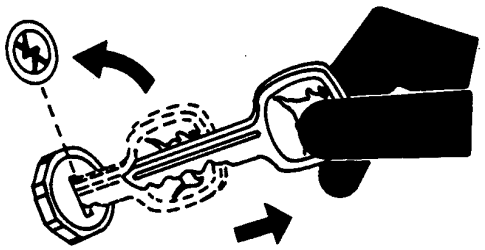
| | | | |
|---|---|---|---|
| **Bucket Regenerative Valve Operation Check** |  <br>TX1000170 –UN–10NOV05 | **1—Engine Speed Dial**<br>**2—Auto-Idle Switch**<br>**3—Power Mode Switch**<br><br>Turn engine speed dial (1) to fast idle (H) position.<br><br>Turn power mode switch (3) to P (power) mode.<br><br>Actuate boom up, arm out and bucket dump functions.<br><br>Actuate boom down function, arm in function and then the bucket curl function.<br><br>*LOOK: Does the bucket move smoothly through the complete cycle and not hesitate when it goes to the curl position?* | **YES:** Go to next check.<br><br>**NO:** See your authorized dealer.<br><br>– – –1/1 |
| **Travel Speed Selection Check** |  <br>TX1000744 –UN–29NOV05 | **1—Engine Speed Dial**<br>**2—Auto-Idle Switch**<br>**3—Power Mode Switch**<br>**4—Travel Speed Switch**<br><br>Turn engine speed dial (1) to fast idle (H) position.<br><br>Turn travel speed switch (4) to slow speed (turtle) mode.<br><br>Actuate travel function to full speed.<br><br>Turn travel speed switch (4) to fast speed (rabbit) mode.<br><br>*LOOK: Does machine travel speed increase?*<br><br>Actuate a dig function and then return to neutral.<br><br>*LOOK: Does machine travel speed decrease and then increase as dig function is actuated and then released?*<br><br>Turn travel speed switch (4) to slow speed (turtle) mode.<br><br>*LOOK: Does machine travel speed decrease?* | **YES:** Go to next check.<br><br>**NO:** See your authorized dealer.<br><br>– – –1/1 |

| Symptom | Problem | Solution |
|---|---|---|
| **Engine Knocks, Runs Irregularly, Or Stops** | Air filter clogged | Clean or replace elements. Clean system. |
| | Fuel filter clogged | Replace filter. Bleed air. Clean fuel tank strainer. |
| | Water separator clogged or air in water separator | Check water separator. Bleed. |
| | Air in water separator | Bleed air from fuel system. |
| | Engine oil level low | Add oil. |
| | Contaminated fuel | Drain tank. Add clean fuel. Replace water separator. |
| | Coolant temperature low | Thermostat not working correctly or too "cool." |
| | Injection pump | Go to your authorized dealer. |
| **Engine Not Developing Full Power** | Air filters clogged | Clean or replace filter elements. |
| | Fuel filter clogged | Change filter. Bleed air. |
| | Water separator | Change. Bleed air. |
| | Contaminated fuel | Drain fuel tank. Change water separator, change fuel filter, bleed air. Add clean fuel. |
| | Incorrect fuel | Use correct fuel. |
| | Fuel line restricted | Repair or replace fuel line. Bleed air. |
| | Exhaust restriction | Install new muffler. |
| | Incorrect valve clearance | Check and adjust valves. |
| | Incorrect oil | Use correct oil. |

**Continued on next page**

## Keep Machines Secure

1. Install vandal-proof devices.
2. When machine is in storage:
   - Lower equipment to the ground
   - Set tracks to widest position to make loading more difficult
   - Remove any keys and batteries
3. When parking indoors, put large equipment in front of exits, and lock your storage buildings.
4. When parking outdoors, store in a well-lighted and fenced area.
5. Make note of suspicious activity, and report any thefts immediately to law enforcement agencies.
6. Notify your John Deere dealer of any losses.



TS230 –UN–24MAY89

DW90712,0000050 –19–23JAN06–1/1

| LIFTING OVER FRONT—Power Dig ON | | | | |
|---|---|---|---|---|
| **BE-Boom: 6.3 m (20 ft 8 in.)** | **BE-Arm: 2.9 m (9 ft 6 in.)** | | **Bucket: 2.5 m³ (3.3 yd³)** | **Shoe 750 mm (30 in.)** |
| **Load Point Height** | **Horizontal Distance from Centerline of Rotation** | | | |
| **m (ft)** | **4.6 (15)** | **6.1 (20)** | **7.6 (25)** | **9.1 (30)** |
| 6.1 (20) | | 11521 (25400)[a] | 10206 (22500)[a] | |
| 4.6 (15) | 16420 (36200)[a] | 13109 (28900)[a] | 11385 (25100)[a] | |
| 3.0 (10) | | 15286 (33700)[a] | 12383 (27300)[a] | 8029 (17700)[a] |
| 1.5 (5) | | 17191 (37900)[a] | 13381 (29500)[a] | 10297 (22700)[a] |
| Ground Line | 24993 (55100)[a] | 18098 (39900)[a] | 13925 (30700)[a] | 9072 (20000)[a] |
| -1.5 (-5) | 23496 (51800)[a] | 17781 (39200)[a] | 13698 (30200)[a] | |
| -3.0 (-10) | 20684 (45600)[a] | 16057 (35400)[a] | 12156 (26800)[a] | |
| -4.6 (-15) | 15876 (35000)[a] | 12247 (27000)[a] | | |
| **LIFTING OVER SIDE—Power Dig ON** | | | | |
| **BE-Boom: 6.3 m (20 ft 8 in.)** | **BE-Arm: 2.9 m (9 ft 6 in.)** | | **Bucket: 2.5 m³ (3.3 yd³)** | **Shoe 750 mm (30 in.)** |
| **Load Point Height** | **Horizontal Distance from Centerline of Rotation** | | | |
| **m (ft)** | **4.6 (15)** | **6.1 (20)** | **7.6 (25)** | **9.1 (30)** |
| 6.1 (20) | | 11521 (25400)[a] | 9707 (21400) | |
| 4.6 (15) | 16420 (36200)[a] | 13109 (28900)[a] | 9435 (20800) | |
| 3.0 (10) | | 13063 (28800) | 9026 (19900) | 6486 (14300) |
| 1.5 (5) | | 12247 (27000) | 8618 (19000) | 6305 (13900) |
| Ground Line | 18461 (40700) | 11748 (25900) | 8301 (18300) | 6169 (13600) |
| -1.5 (-5) | 18416 (40600) | 11521 (25400) | 8165 (18000) | |
| -3.0 (-10) | 18643 (41100) | 11612 (25600) | 8210 (18100) | |
| -4.6 (-15) | 15876 (35000)[a] | 11975 (26400) | | |
| [a]Hydraulically-limited capacity | | | | |

**Continued on next page**

## 650DLC Engine Specifications

| Item | Measurement | Specification |
|---|---|---|
| Isuzu 6WG1TC | Type | 4-Cycle Water-Cooled, OHC, Vertical In-Line, Direct Injection, Turbocharged and with inter cooler |
| | Cylinders | 6 |
| | Displacement | 15.7 L<br>957 cu in. |
| | Power At 2000 RPM | 338 kW Net SAE<br>453 hp Net SAE |
| | Net Torque @ 2000 RPM | 1960 N•m<br>1446 lb-ft |

VD76477,0000322 –19–22MAY06–1/1

## 650DLC Drain and Refill Capacities

| Item | Measurement | Specification |
|---|---|---|
| Fuel Tank | Capacity | 900.0 L<br>238.0 gal |
| Cooling System | Capacity | 56.0 L<br>14.8 gal |
| Engine | Oil Capacity, Including Filter Change | 51.6 L<br>13.6 gal |
| Hydraulic Tank | Oil Capacity | 380 L<br>100.4 gal |
| Hydraulic System | Oil Capacity | 680 L<br>179.7 gal |
| Swing Gearbox (Each) | Oil Capacity | 10.5 L<br>2.8 gal |
| Travel Gearbox (Each) | Oil Capacity | 16 L<br>4.2 gal |
| Pump Drive Gearbox | Oil Capacity | 3.8 L<br>4 qt |

DW90712,0000059 –19–03JUL07–1/1

| LIFTING OVER FRONT—Power Dig ON | | | | | |
|---|---|---|---|---|---|
| **BE-Boom: 6.8 m (22 ft 4 in.)** | | **BE-Arm: 2.9 m (9 ft 6 in.)** | | **Bucket: 3.5 m³ (4.6 yd³)** | **Shoe 750 mm (30 in.)** |
| **Load Point Height** | **Horizontal Distance from Centerline of Rotation** | | | | |
| **m (ft)** | **3.0 (10)** | **4.6 (15)** | **6.1 (20)** | **7.6 (25)** | **9.1 (30)** |
| 7.6 (25) | | | | 13018 (28700)[a] | |
| 6.1 (20) | | | | 13698 (30200)[a] | 9163 (20200)[a] |
| 4.6 (15) | | | 18098 (39900)[a] | 15105 (33300)[a] | 13562 (29900)[a] |
| 3.0 (10) | | | 21636 (47700)[a] | 16919 (37300)[a] | 14379 (31700)[a] |
| 1.5 (5) | | | 24449 (53900)[a] | 18552 (40900)[a] | 14560 (32100) |
| Ground Line | | | 25583 (56400)[a] | 19323 (42600) | 14243 (31400) |
| -1.5 (-5) | | | 25129 (55400)[a] | 19051 (42000) | 14152 (31200) |
| -3.0 (-10) | 27760 (61200)[a] | 29574 (65200)[a] | 23224 (51200)[a] | 18008 (39700)[a] | |
| -4.6 (-15) | | 24131 (53200)[a] | 19142 (42200)[a] | 13653 (30100)[a] | |
| **LIFTING OVER SIDE—Power Dig ON** | | | | | |
| **BE-Boom: 6.8 m (22 ft 4 in.)** | | **BE-Arm: 2.9 m (9 ft 6 in.)** | | **Bucket: 3.5 m³ (4.6 yd³)** | **Shoe 750 mm (30 in.)** |
| **Load Point Height** | **Horizontal Distance from Centerline of Rotation** | | | | |
| **m (ft)** | **3.0 (10)** | **4.6 (15)** | **6.1 (20)** | **7.6 (25)** | **9.1 (30)** |
| 7.6 (25) | | | | 13018 (28700)[a] | |
| 6.1 (20) | | | | 13698 (30200)[a] | 9163 (20200)[a] |
| 4.6 (15) | | | 18098 (39900)[a] | 14878 (32800) | 10614 (23400) |
| 3.0 (10) | | | 20366 (44900) | 14107 (31100) | 10206 (22500) |
| 1.5 (5) | | | 19142 (42200) | 13381 (29500) | 9843 (21700) |
| Ground Line | | | 18507 (40800) | 12927 (28500) | 9571 (21100) |
| -1.5 (-5) | | | 18280 (40300) | 12701 (28000) | 9435 (20800) |
| -3.0 (-10) | 27760 (61200)[a] | 29574 (65200)[a] | 18370 (40500) | 12746 (28100) | |
| -4.6 (-15) | | 24131 (53200)[a] | 18779 (41400) | 13200 (29100) | |

[a]Hydraulically-limited capacity

**Continued on next page**

## 850DLC Engine Specifications

| Item | Measurement | Specification |
|---|---|---|
| Isuzu 6WG1TC | Type | 4-Cycle Water-Cooled, OHC, Vertical In-Line, Direct Injection, Turbocharged and with inter cooler |
| | Cylinders | 6 |
| | Displacement | 15.7 L<br>957 cu in. |
| | Power At 2000 RPM | 338 kW Net SAE<br>453 hp Net SAE |
| | Net Torque @ 2000 RPM | 1960 N•m<br>1446 lb-ft |

VD76477,000031B –19–22MAY06–1/1

## 850DLC Drain and Refill Capacities

| Item | Measurement | Specification |
|---|---|---|
| Fuel Tank | Capacity | 1120.0 L<br>296.0 gal |
| Cooling System | Capacity | 81.4 L<br>21.5 gal |
| Engine | Oil Capacity, Including Filter Change | 52.5 L<br>13.9 gal |
| Hydraulic Tank | Oil Capacity | 500 L<br>132.1 gal |
| Hydraulic System | Oil Capacity | 790 L<br>208.7 gal |
| Swing Gearbox (Each) | Oil Capacity | 15 L<br>4 gal |
| Travel Gearbox (Each) | Oil Capacity | 19 L<br>5 gal |
| Pump Drive Gearbox | Oil Capacity | 3.78 L<br>4 qt |

DW90712,000005A –19–03JUL07–1/1

| LIFTING OVER FRONT—Power Dig ON | | | | | |
|---|---|---|---|---|---|
| **BE-Boom: 7.10 m (23 ft 4 in.)** | **BE-Arm: 2.95 m (9 ft 8 in.)** | | **Bucket: 4.5 m³ (5.89 yd³)** | **Shoe 750 mm (30 in.)** | |
| **Load Point Height** | **Horizontal Distance from Centerline of Rotation** | | | | |
| **m (ft)** | **4.6 (15)** | **6.1 (20)** | **7.6 (25)** | **9.1 (30)** | **10.7 (35)** |
| 9.1 (30) | | | 15785 (34800)[a] | | |
| 7.6 (25) | | | 16556 (36500)[a] | 11204 (24700)[a] | |
| 6.1 (20) | | | 17735 (39100)[a] | 16375 (36100)[a] | |
| 4.6 (15) | | 24721 (54500)[a] | 19913 (43900)[a] | 17327 (38200)[a] | |
| 3.0 (10) | | | 22498 (49600)[a] | 18643 (41100)[a] | 13018 (28700)[a] |
| 1.5 (5) | | | 24585 (54200)[a] | 19777 (43600)[a] | 14923 (32900)[a] |
| Ground Line | | | 25628 (56500)[a] | 20412 (45000)[a] | |
| -1.5 (-5) | | 32477 (71600)[a] | 25310 (55800)[a] | 20049 (44200)[a] | |
| -3.0 (-10) | 36560 (80600)[a] | 29665 (65400)[a] | 23451 (51700)[a] | 18053 (39800)[a] | |
| -4.6 (-15) | 29620 (65300)[a] | 24630 (54300)[a] | 19096 (42100)[a] | | |
| **LIFTING OVER SIDE—Power Dig ON** | | | | | |
| **BE-Boom: 7.10 m (23 ft 4 in.)** | **BE-Arm: 2.95 m (9 ft 8 in.)** | | **Bucket: 4.5 m³ (5.89 yd³)** | **Shoe 750 mm (30 in.)** | |
| **Load Point Height** | **Horizontal Distance from Centerline of Rotation** | | | | |
| **m (ft)** | **4.6 (15)** | **6.1 (20)** | **7.6 (25)** | **9.1 (30)** | **10.7 (35)** |
| 9.1 (30) | | | 15785 (34800)[a] | | |
| 7.6 (25) | | | 16556 (36500)[a] | 11204 (24700)[a] | |
| 6.1 (20) | | | 17735 (39100)[a] | 15921 (35100) | |
| 4.6 (15) | | 24721 (54500)[a] | 19913 (43900)[a] | 15468 (34100) | |
| 3.0 (10) | | | 20230 (44600) | 14832 (32700) | 11068 (24400) |
| 1.5 (5) | | | 19187 (42300) | 14197 (31300) | 10750 (23700) |
| Ground Line | | | 18507 (40800) | 13744 (30300) | |
| -1.5 (-5) | | 26127 (57600) | 18144 (40000) | 13472 (29700) | |
| -3.0 (-10) | 36560 (80600)[a] | 26172 (57700) | 18098 (39900) | 13472 (29700) | |
| -4.6 (-15) | 29620 (65300)[a] | 24630 (54300)[a] | 18416 (40600) | | |
| [a]Hydraulically-limited capacity | | | | | |

DW90712,000000D –19–23OCT08–10/10

| LIFTING OVER FRONT—Power Dig ON | | | | | | |
|---|---|---|---|---|---|---|
| **BE-Boom: 7.10 m (23 ft 4 in.)** | **BE-Arm: 2.95 m (9 ft 8 in.)** | | | **Bucket: 4.50 $m^3$ (5.89 $yd^3$)** | **Shoe 1020 mm (40 in.)** | |
| **Load Point Height** | **Horizontal Distance from Centerline of Rotation** | | | | | |
| **m (ft)** | **3.0 (10)** | **4.6 (15)** | **6.1 (20)** | **7.6 (25)** | **9.1 (30)** | **10.7 (35)** |
| 9.1 (30) | | | | 15785 (34800)[a] | | |
| 7.6 (25) | | | | 16556 (36500)[a] | 11204 (24700)[a] | |
| 6.1 (20) | | | | 11735 (39100)[a] | 16375 (36100)[a] | |
| 4.6 (15) | | | 24721 (54500)[a] | 19913 (43900)[a] | 17327 (38200)[a] | |
| 3.0 (10) | | | | 22498 (49600)[a] | 18643 (41100)[a] | 13018 (28700)[a] |
| 1.5 (5) | | | | 24585 (54200)[a] | 19777 (43600)[a] | 14923 (32900)[a] |
| Ground Line | | | | 25628 (56500)[a] | 20412 (45000)[a] | |
| -1.5 (-5) | | | 32477 (71600)[a] | 25310 (55800)[a] | 20049 (44200)[a] | |
| -3.0 (-10) | | 36560 (80600)[a] | 29665 (65400)[a] | 23451 (51700)[a] | 18053 (39800)[a] | |
| -4.6 (-15) | | 29620 (65300)[a] | 24630 (54300)[a] | 19096 (42100)[a] | | |
| **LIFTING OVER SIDE—Power Dig ON** | | | | | | |
| **BE-Boom: 7.10 m (23 ft 4 in.)** | **BE-Arm: 2.95 m (9 ft 8 in.)** | | | **Bucket: 4.50 $m^3$ (5.89 $yd^3$)** | **Shoe 1020 mm (40 in.)** | |
| **Load Point Height** | **Horizontal Distance from Centerline of Rotation** | | | | | |
| **m (ft)** | **3.0 (10)** | **4.6 (15)** | **6.1 (20)** | **7.6 (25)** | **9.1 (30)** | **10.7 (35)** |
| 9.1 (30) | | | | 15785 (34800)[a] | | |
| 7.6 (25) | | | | 16556 (36500)[a] | 11204 (24700)[a] | |
| 6.1 (20) | | | | 17735 (39100)[a] | 16284 (35900) | |
| 4.6 (15) | | | 24721 (54500)[a] | 19913 (43900)[a] | 15785 (34800) | |
| 3.0 (10) | | | | 20638 (45500) | 15150 (33400) | 11340 (25000) |
| 1.5 (5) | | | | 19595 (43200) | 14515 (32000) | 11022 (24300) |
| Ground Line | | | | 18915 (41700) | 14061 (31000) | |
| -1.5 (-5) | | | 26717 (58900) | 18552 (40900) | 13789 (30400) | |
| -3.0 (-10) | | 36560 (80600)[a] | 26762 (59000) | 18507 (40800) | 13835 (30500) | |
| -4.6 (-15) | | 29620 (65300)[a] | 24630 (54300)[a] | 18824 (41500) | | |

[a]Hydraulically-limited capacity

DW90712,0000123 –19–23OCT08–10/10