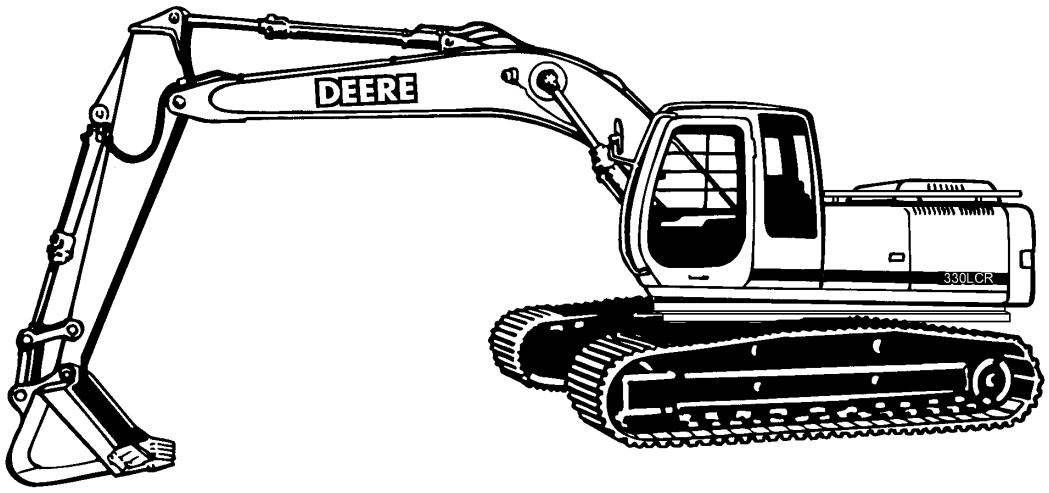
TECHNICAL MANUAL

OPERATOR'S MANUAL

HYDRAULIC EXCAVATOR
JOHN DEERE
MODEL 330LCR
NSN 3805-01-463-0805



HEADQUARTERS, DEPARTMENT OF THE ARMY

15 FEBRUARY 2000

TABLE OF CONTENTS (Continued)

Page

USE HANDHOLDS AND STEPS

Falling is one of the major causes of personal injury.

When you get on and off the machine, always maintain a three point contact with the steps and handrails and face the machine. Do not use any controls as handholds.

Never jump on or off the machine. Never mount or dismount a moving machine.

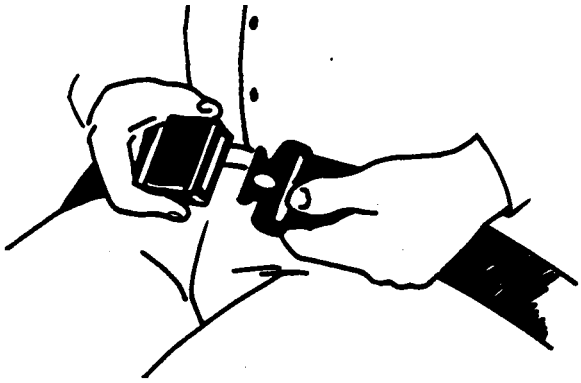
Be careful of slippery conditions on platforms, steps, and handrails when leaving the machine.

T6981AN –UN–15JUN89

TX,05,DH832 –19–16MAR92–1/1

USE SEAT BELT

Always use the seat belt when operating your machine.



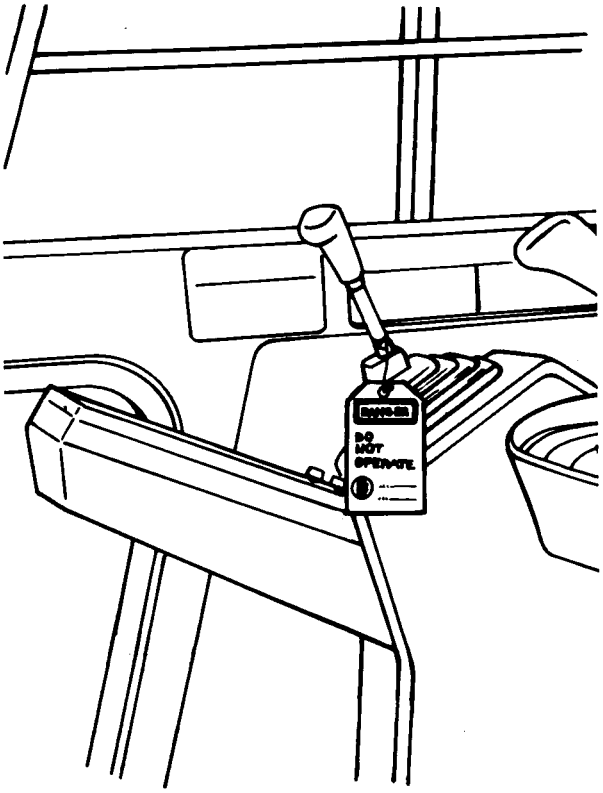
TS175 –UN–23AUG88

TX,05,DH3732 –19–18AUG95–1/1

WARN OTHERS OF SERVICE WORK

Unexpected machine movement can cause serious injury.

Before performing any work on the machine, attach a "Do Not Operate" tag on the right control lever.



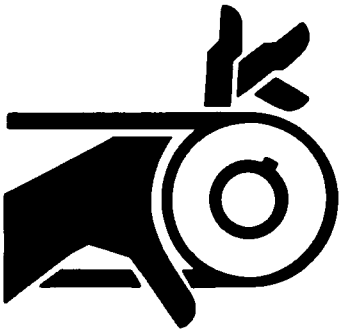
T7273AP –UN–08JUN90

TX,05,RR,566 –19–23JUL91–1/1

STAY CLEAR OF MOVING PARTS

Entanglements in moving parts can cause serious injury.

To prevent accidents, use care when working around rotating parts.



T7273AS –UN–08JUN90

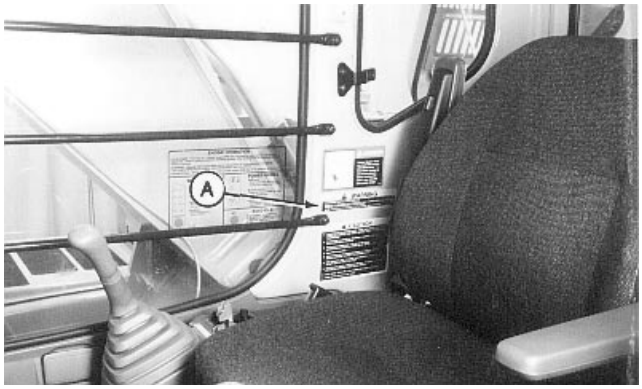
TX,05,RR,572 –19–12JUN90–1/1

WARNING

- AVOID SERIOUS CRUSHING INJURY FROM BOOM
- NEVER place any part of body beyond window bars 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 is missing or broken, replace immediately.

T146668

T7748DA –19–14OCT92



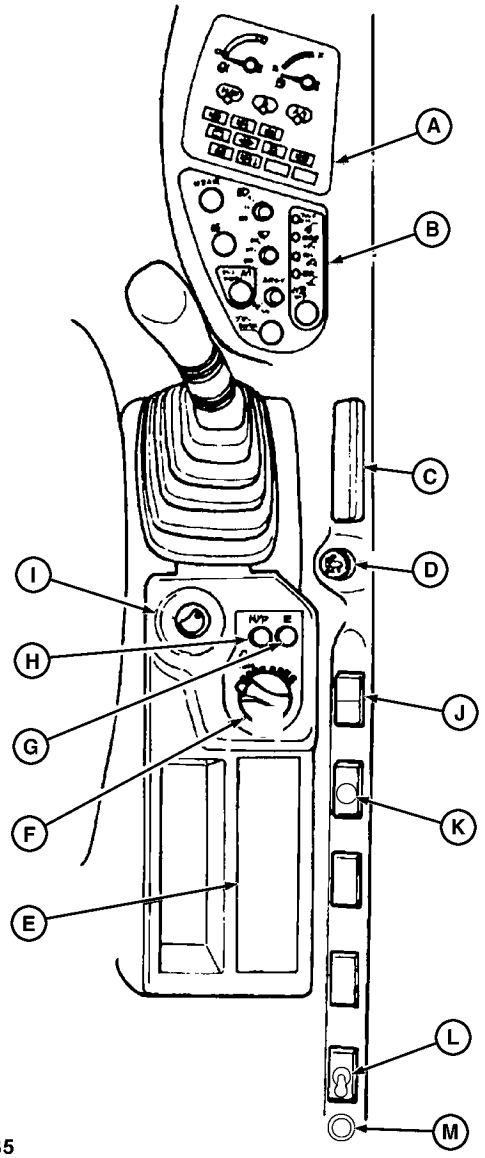
T101485 –UN–27JUN96

A—Warning Decal Location

Continued on next page

CED,OUOE042,5057 –19–14APR99–3/11

RIGHT FRONT PANEL AND RIGHT CONSOLE PANEL



T121035

T121035 –UN–14APR99

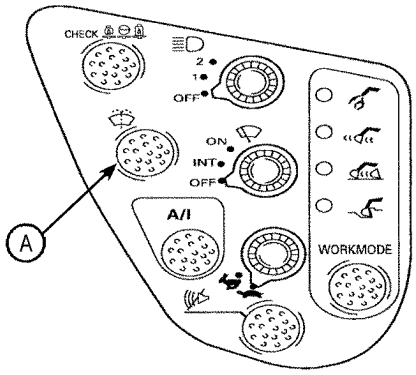
A—Monitor Panel
B—Switch Panel
C—Ash Tray
D—Cigar Lighter
E—Air Conditioner Panel-If Equipped
F—Engine rpm Dial
G—E (Economy) Mode Switch
H—H/P (High Power) Mode Switch
I—Key Switch
J—Rear Light Switch
K—Overload Alarm/Indicator
L—Artic Heater Switch
M—Artic Heater Indicator

TX,10,DH5709 –19–21APR97–1/1

WASHER SWITCH

IMPORTANT: Washer motor may be damaged if washer switch is held down for more than 20 seconds, or continually operated with no fluid in container.

Push switch (A) to squirt windshield washer fluid on windshield. Do not hold down switch for more than 20 seconds.



T101627 –UN–20JUN96

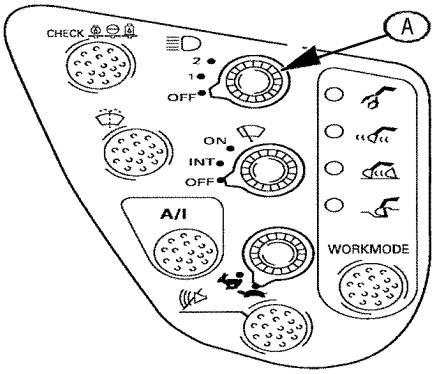
A—Washer Switch

TX,10,DH5018 –19–04JUN96–1/1

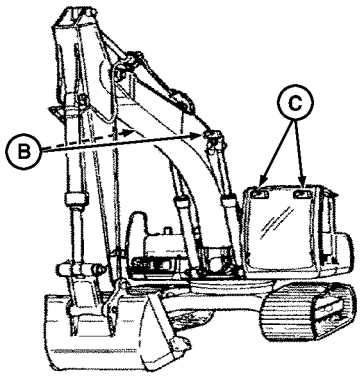
OPERATING LIGHTS SWITCH

Turn light switch (A) to first position to turn on light (C).

Turn light switch to second position to turn on lights (B and C).



T101591 –UN–27JUN96



T120793 –UN–25MAR99

T120793

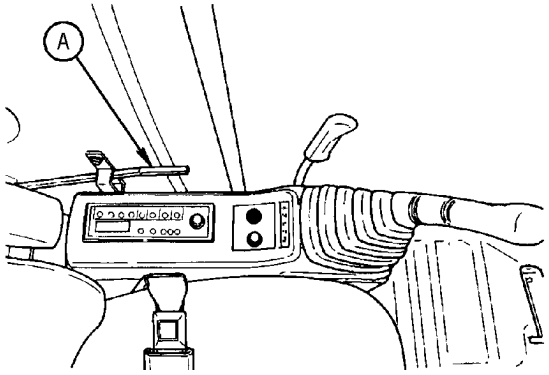
A—Light Switch
B—Operating Light
C—Operating Light

CED,OUOE042,5060 –19–14APR99–1/1

CAB DOOR RELEASE LEVER

The cab door can be locked in the open position. Open the door all the way until it locks in the latch on the side of the cab.

To release the door from this locked position, push down on lever (A).



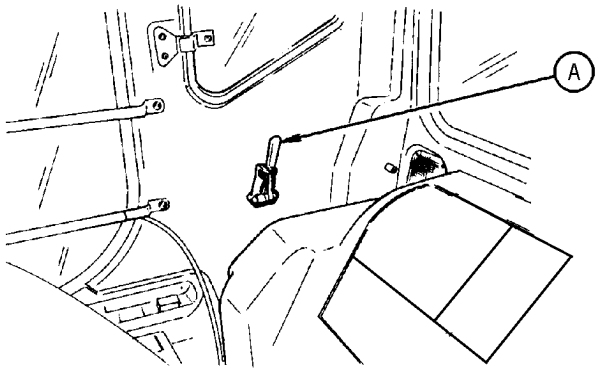
T101648 –UN–07AUG96

A—Cab Door Release Lever

TX,10,DH5034 –19–04JUN96–1/1

SECONDARY EXIT TOOL

IMPORTANT: FOR SECONDARY EXIT. Use tool (A) to break window. Always keep tool in machine.



T105379 –UN–26NOV96

A—Secondary Exit Tool

TX,10,DH5967 –19–26NOV96–1/1

BLANK

BLANK

STARTING THE ARCTIC STARTER

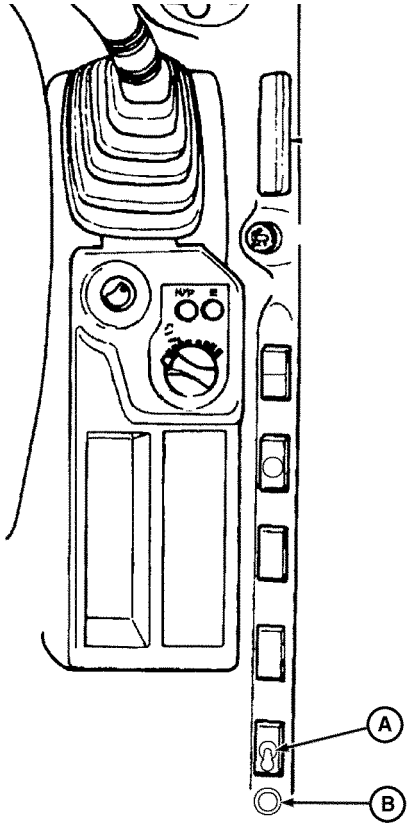
Move switch (A) to ON position.

A continuous green on the LED light (B) indicates the system is operating properly. There is a normal delay of up to 90 seconds before actual ignition of the heater burner.

If the LED light (B) flashes green something in the system sequence did not occur properly and default sensors have shut down the heater start-up. If this occurs, move switch (A) to OFF position for 15 seconds and then move switch to ON position.

If the LED light (B) does not stay a continuous green after four consecutive tries, move switch (A) to OFF position and see your authorized dealer.

NOTE: Move switch (A) to ON position for two minutes with a continuous green LED light (B) once a month when it is not used. This will prevent the water pump and combustion engine from seizing.



T125068 –UN–28OCT99

T125068

A—Heater Switch
B—LED Light

CED,OUOE020,14 –19–01MAR99–1/1

CHECK INSTRUMENTS AFTER STARTING

IMPORTANT: Prevent possible damage to engine. If indicator lights do not go out after starting engine, IMMEDIATELY STOP THE ENGINE. Find and correct the problem.

After the engine is started, the indicator lights should go out. If they do not, stop the engine immediately. Find and correct the problem.

TX,25,DH3613 –19–27JUN95–1/1

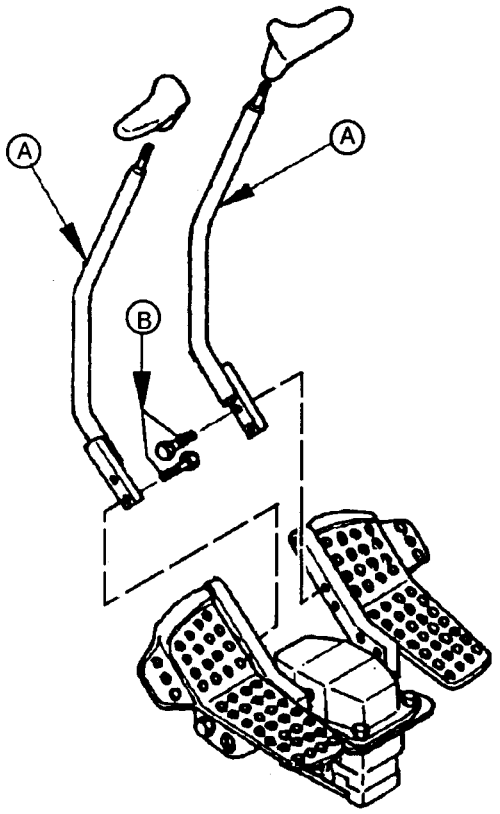
COLD WEATHER OPERATION: Propel lever dampers are provided for smooth control. In extremely cold weather, lever effort will increase. Operate lever several times with pilot control shut-off lever in locked position.

CED,TX14740,6007 –19–23JAN98–2/2

REMOVING PROPEL LEVERS

Propel levers may be removed if desired.

Remove cap screws (B) (two on each lever) to remove levers (A) from brackets.

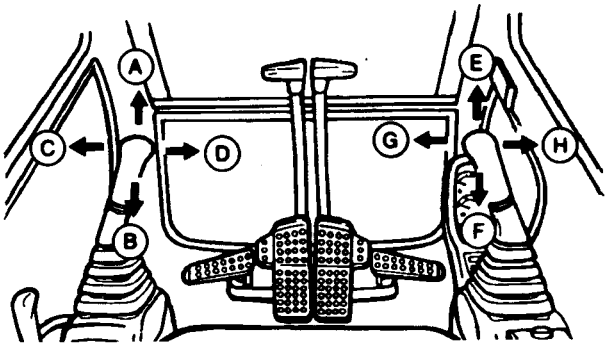


T7396EA –UN–12NOV91

A—Lever
B—Cap Screw

TX,90,FF2018 –19–14NOV91–1/1

CONTROL LEVERS JOHN DEERE PATTERN



T7364AT –UN–10OCT90

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

Prevent possible injury from unexpected machine movement. Make sure you know the location and function of each control before operating.

Never place any part of the body beyond the window frame. Replace missing or broken windows immediately.

A conversion kit is available from your John Deere dealer to change your controls to the pattern shown.

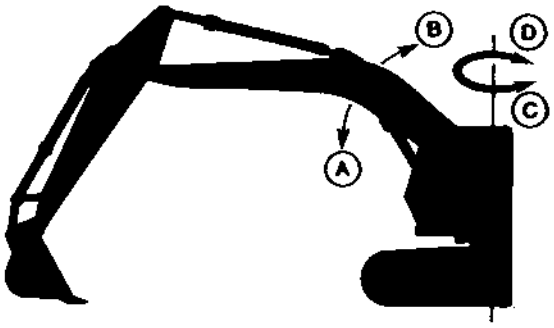
IMPORTANT: Prevent possible machine damage. When digging, avoid contacting tracks with boom cylinders or bucket.

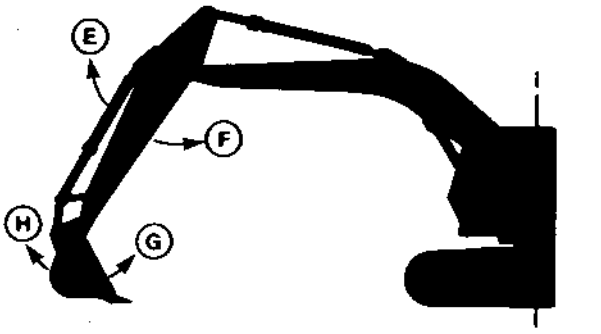
When digging over the end of the tracks, propel motors should be at the rear to minimize chain and sprocket wear and to maximize machine stability and lift capacity.

NOTE: With this control pattern, functions must correspond to the black-on-yellow labels located on the control console.

Do not contact tracks with boom cylinders or bucket. When digging over the end of tracks, propel motors should be at the rear of machine.

When a lever is released, it will return to neutral. The machine will remain positioned.





T6811AD –UN–18OCT88

A—Boom Down
B—Boom Up
C—Swing Left
D—Swing Right
E—Arm Out
F—Arm In
G—Bucket Load
H—Bucket Dump

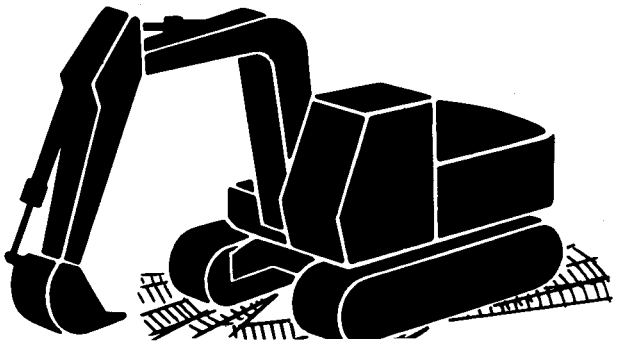
TX,35,FF2006 –19–13AUG91–1/1

LEVELING MACHINE

Operating on a firm, level surface optimizes machine stability.

To create a level surface:

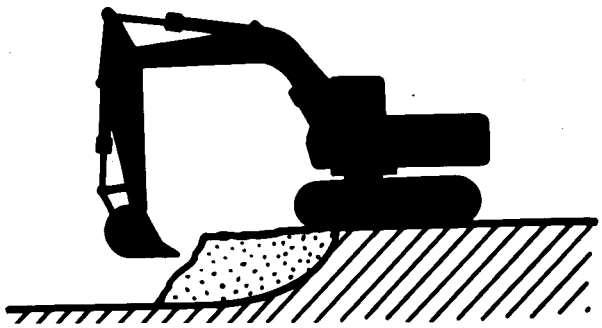
- Counterrotate tracks 30° to each side.



T7527CU –UN–15JUL91

TX,35,FF2324 –19–13FEB92–1/2

- Use bucket to add or remove material to level the worksite. When adding material to the worksite, drive over new material to compact it until the worksite feels stable.



T7527DE –UN–15JUL91

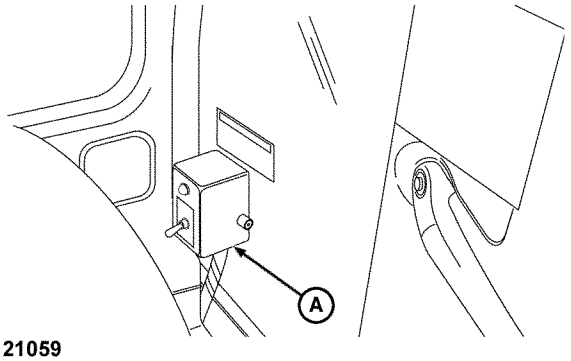
TX,35,FF2324 –19–13FEB92–2/2

USING QUICK-DISCONNECT HITCH

1. The cylinder in the Quick-Disconnect Hitch is powered by hydraulic oil from the excavator bucket cylinder which is diverted to the Quick-Disconnect by an electric solenoid valve.

NOTE: The solenoid coil is energized only in the unlatch position.

2. To attach the Quick-Disconnect Hitch to an attachment manually lift and rotate the safety lock pin lever on the top rear of the Quick-Disconnect Hitch. Fully extend the bucket cylinder and set the Quick-Disconnect Hitch switch (A) to the unlatch position. Extend the bucket cylinder again to place the oil over relief. This will activate the cylinder to the open position.



T121059

T121059 –UN–28OCT99

Continued on next page

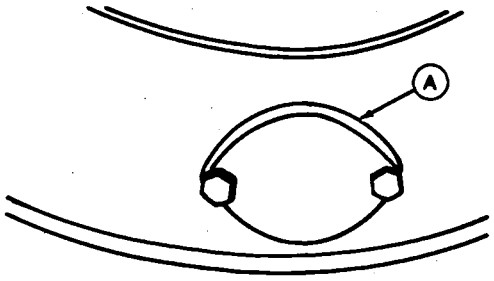
CED,OUOE042,66 –19–09DEC99–1/8

OPERATING IN WATER AND MUD

Be careful not to operate the machine in water or mud above the upper deck surface of the undercarriage, causing the swing bearing and rotary manifold to be submerged.

If the swing bearing and rotary manifold are submerged, remove cover from underneath center of machine. Remove drain plug (A) to drain water and mud.

Clean swing gear area. Install plug and cover. Lubricate swing gear and swing bearing. (See Maintenance—Every 500 Hours chapter.)



T6274AR –UN–20APR89

A—Drain Plug

TX,35,FF2007 –19–06JUL94–1/1

CLEAN TRACK FRAME AREA

1. Swing upperstructure 90°.

CAUTION: Prevent possible injury from machine sliding backwards. Keep angle between boom and arm 90-110°.

2. Lower bucket (round side down) to raise track off ground, keeping angle (A) between boom and arm 90-110°.

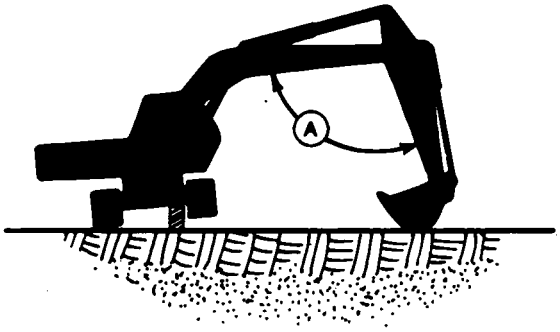
3. Run track back and forth to remove mud and dirt.

4. Turn engine off.

CAUTION: Prevent possible injury from unexpected machine movement. Place blocks under machine frame to support machine while cleaning track frame area when track is stationary.

5. Place blocks under machine frame if further cleaning of track frame area is performed while track is stationary.

   Clean track often during cold weather to prevent damage to track components.

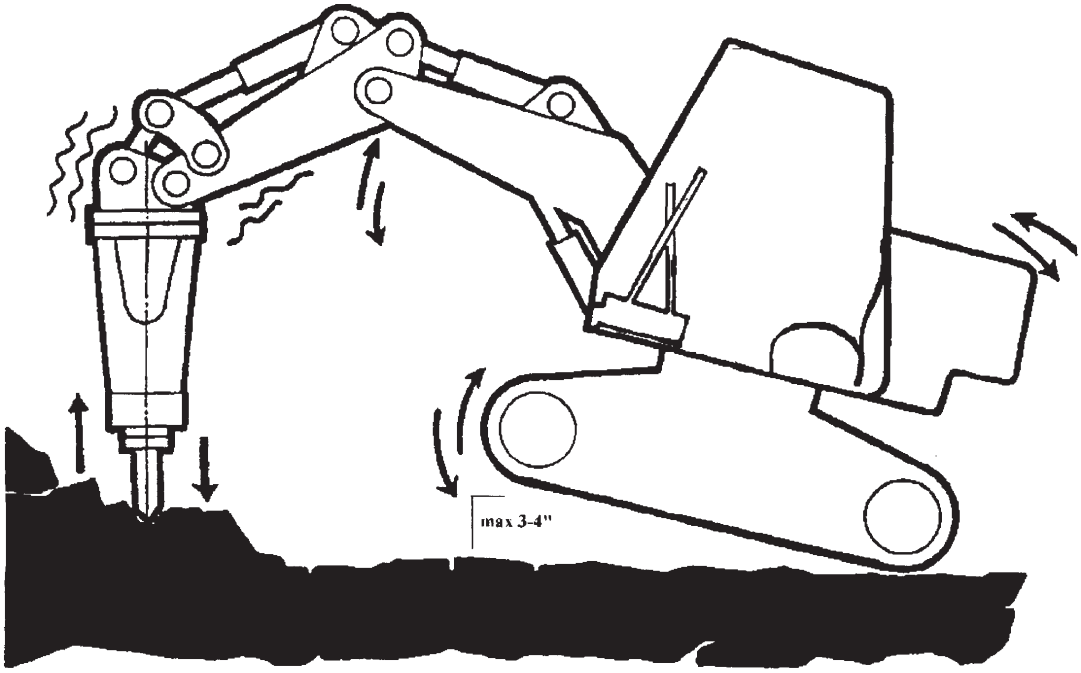


T6879AT –UN–06DEC88

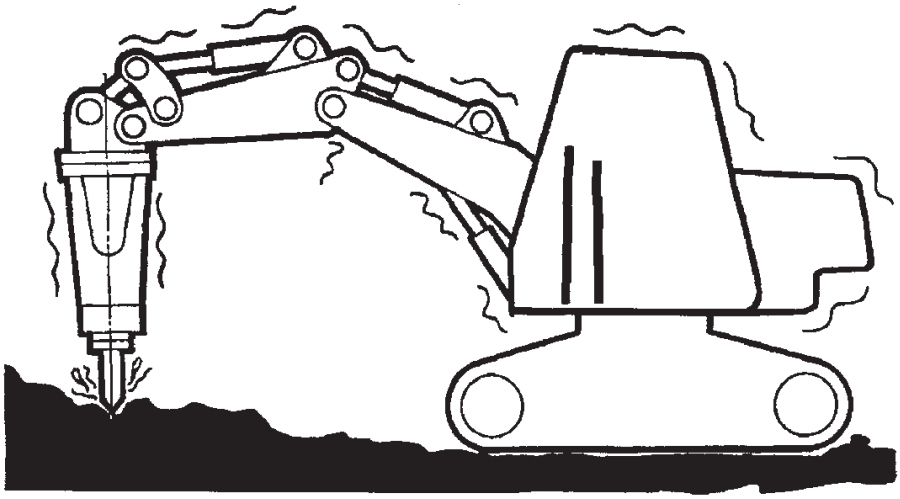
A—Boom-To-Arm Angle

TX,FF,42 –19–06AUG91–1/1

c) Maintaining an even pressure from the carrier to the hammer, start the hammer. If the downward pressure from the boom is too weak, you will hear metallic (rather than sharp) strokes, because the hammer is not striking the tool correctly. If the downward pressure is excessive, it will produce strong vibrations in the carrier and the tool, retaining axle, bushings, etc.

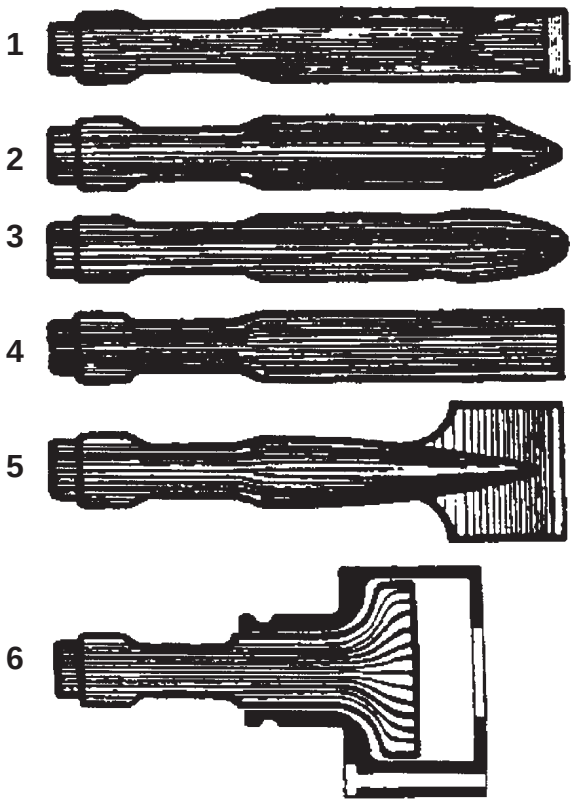


d) If the hammer is in the correct position, and the hammer and case are vibrating, the downward pressure from the carrier is insufficient. If exerting further pressure from the carrier does not solve the problem, it may be that internal hydraulic leaks from the rams or valves may not be allowing the carrier to exert the correct amount of pressure. In this case, replace the carrier cylinder seals and/or check the control valve seals.



BREAKER TOOL SELECTION

Choose the most suitable tool for the operation required. For the breaking of boulders, use **MOIL or OLGIVE** points. In restricted areas, such as trenches, use **CHISEL** points and proceed in-line with the work face. In particularly narrow places, progress gradually, through small sections of material, making the most of the regularity of the striking fre quency. Keep the front of the hammer parallel to the operator, with the machine arm drawn up. This will avoid damage to the tool, especially during cutting and squaring orks. The **COBRA** point is recommended for EARTH-MOVING jobs, or for particularly difficult materials.



Point and Recommended Use

1) Chisel All earth-moving duties or excavations in narrow trenches or stratified soil or rock up to medium rock.

2) Moil Demolition of rocks and materials, not stratified rock, up to medium hardness.

3) Olgive Demolition of hard to very hard rock.

4) Blank or Blunt Demolition of rocks up to medium hardness to be broken into smaller pieces.

5) Asphalt Cutter or Spade Cutting of concrete paving, brick walls or turf.

6) Pole or Pipe Cutter Driving pipes, poles or preshaped metal objects (IE. shaped metal gaurdrail poles) into different materials.

TOOL BREAKAGE ANALYSIS

DESCRIPTION OF TYPICAL STRESS

IN ORDER TO UNDERSTAND THE COMPLEXITY OF THE STRESS PHENOMENA THAT RESULTS IN TOOL BREAKAGE, SOME GENERAL INFORMATION NEEDS TO BE ADDRESSED. THE TOOL IS CONSIDERED AN ELASTIC ELEMENT DESIGNED TO TRANSMIT SHOCK OR KINETIC ENERGY FROM THE HAMMER PISTON TO THE MATERIAL TO BE DEMOLISHED.

* The typical tool break starts as a small fracture in the surface of the tool that is the most stressed area. Eventually a surface crack is created from: micro-welds from surface work hardening; localized heating and cooling on the tool surface; and tension and

If machine cannot be transported with arm fully retracted, remove bucket or attachment and retract arm.

5. Lower bucket onto blocks.

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

6. Run engine at 1/2 speed without load for 2 minutes.

7. Move engine speed rpm dial to slow idle position.

8. Turn key switch to OFF. Remove key from switch.

9. Pull pilot control shut-off lever to locked position.

IMPORTANT: Prevent cab electrical component damage from bad weather. Always close windows, roof vent, and cab door.

10. Close windows, roof vent, and cab door.

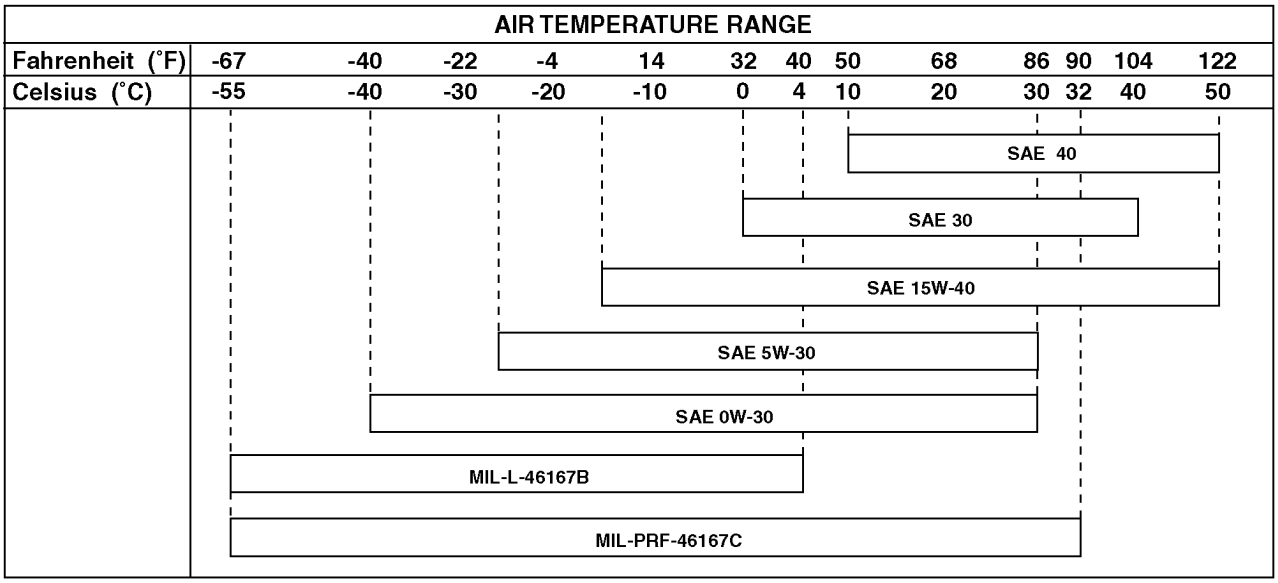
11. Cover exhaust opening to prevent entry of wind and water.

IMPORTANT: Prevent possible damage to hydraulic lines, rods, and hoses. Fasten chains to machine frame.

12. Install chock blocks, 2 transport brackets over track shoes, and blocking under arm. Fasten machine to trailer with 8 chains and nylon strap.

TX,40,DH5642 –19–26MAR97–2/2

DIESEL ENGINE AND PUMP GEARBOX OILS



T125427

T125427 –19–28OCT99

Use oil viscosity based on the expected air temperature range during the period between oil changes.

Other oils may be used if they meet one or more of the following:

- MIL-PRF-2104G
- MIL-L-46167B
- MIL-PRF-46167C
- API CG-4
- API CF-4

Multi-viscosity diesel engine oils are preferred.

If diesel fuel with sulfur content greater than 0.5% is used, reduce the service interval by 50%.

CED,OUOE020,3 –19–12FEB99–1/1

PREPARE MACHINE FOR MAINTENANCE

Before performing maintenance procedures given in the following chapters and before leaving the operator's seat, park the machine as described below unless another position is specified in the procedure.

1. Park machine on a level surface.
2. Lower bucket to the ground.
3. Turn auto-idle switch off.

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

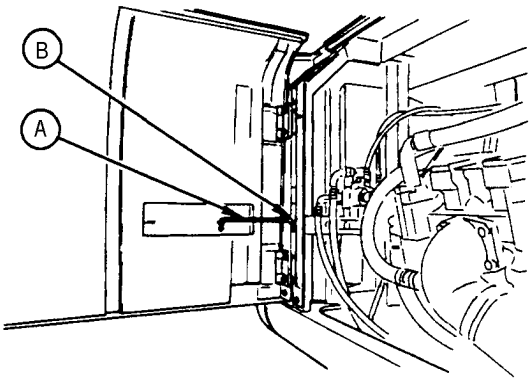
4. Run engine with engine rpm dial at 1/3 position without load for 2 minutes.
5. Move engine rpm dial to slow idle position.
6. Turn key switch to OFF. Remove key from switch.
7. Pull pilot control shut-off lever to locked position.

TX,50,DH5079 –19–02JUL96–1/1

OPEN ACCESS DOORS FOR SERVICE

CAUTION: Prevent possible injury from door closing. Secure door in the OPEN position.

To hold door open, remove rod from stored position (A) and insert in tab (B) on door.



T102125 –UN–26JUL96

Right Side Access Door

A—Stored Position
B—Door Tab

Continued on next page

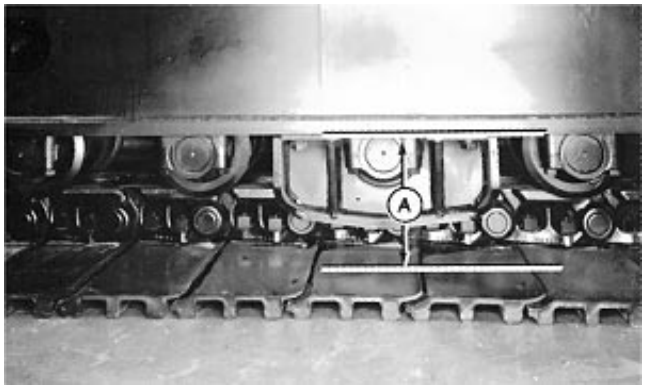
TX,50,DH5095 –19–22APR98–1/2

5. Measure distance (A) at middle track roller from bottom of track frame to top surface of track shoe.

Track—Specification

Sag ..... 340—380 mm (13-3/8—15.0 in.)

For general information on track sag, see Maintenance chapter.



T7869AP –UN–22OCT92

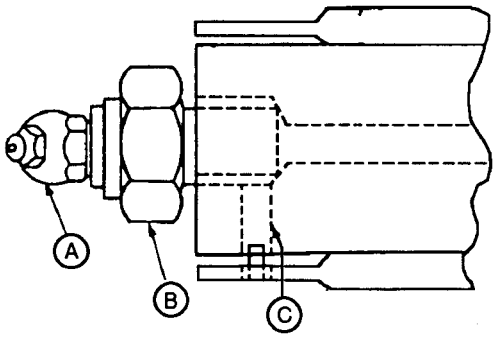
A—Track Roller Distance

TX,55,DH5720 –19–25APR97–2/2

ADJUSTING TRACK SAG

IMPORTANT: Prevent possible damage to track components. DO NOT use the grease fitting on the track adjusting cylinder for lubrication. Use this fitting ONLY for track adjustment.

To tighten track, connect a grease gun to grease fitting (A) (located through access hole (D) in track frame. Add grease until sag is within recommended limits.



T7396DZ –UN–28NOV90

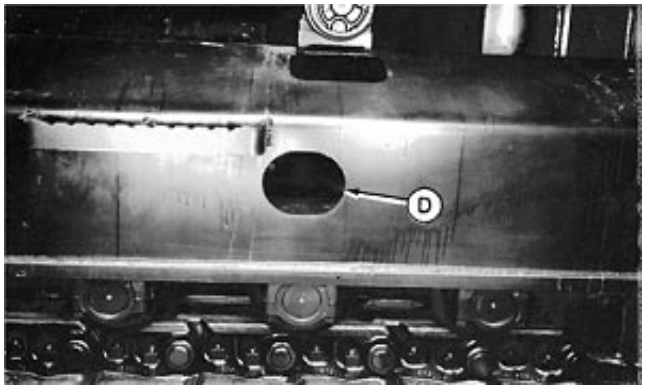
CAUTION: Prevent possible injury from high pressure grease. Do not remove grease fitting (A) from nut (B).

To loosen, slowly turn nut (B) counterclockwise; grease will escape through the bleed hole (C).

Fitting—Specification

Torque ..... 147 N•m (108 lb-ft)

When amount of track sag is satisfactory, turn nut clockwise to tighten.

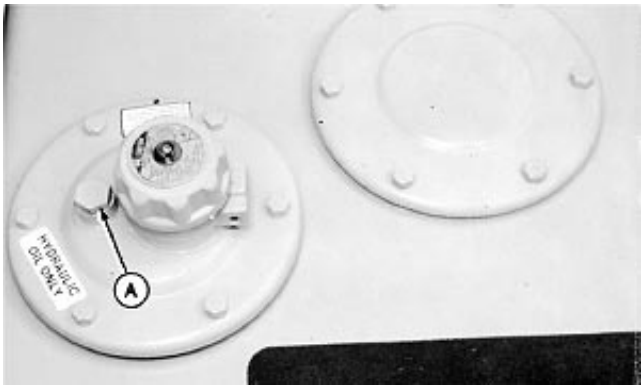


T7869AQ –UN–22OCT92

A—Grease Fitting
B—Nut
C—Bleed Hole
D—Access Hole

TX,55,FF2991 –19–29OCT92–1/1

16. Tighten plug (A).



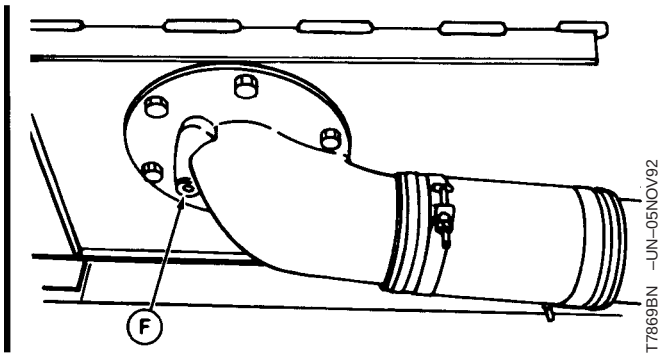
T7869AT –UN–12NOV92

A—Vent Plug

TX,60,DH5096 –19–08JUL96–5/5

2. Loosen plug (F) for several seconds to drain water and sediment into a container. Do not remove plug completely. Dispose of waste properly.

3. Tighten sump plug and vent plug.



F—Hydraulic Sump Drain Plug

TX,75,DH5108 –19–11JUL96–2/2

CHECK PUMP DRIVE GEARBOX OIL LEVEL

To check oil:

1. Remove dipstick (A) to release air pressure.

2. Wipe dipstick clean and insert completely into tube.

3. Pull dipstick.

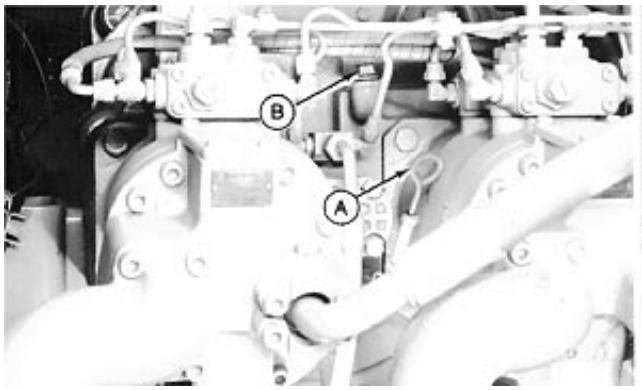
4. Oil must be approximately halfway below the "H" (level) mark.

To add oil:

1. Remove filler cap (B).

2. Add oil. (See Fuels and Lubricants chapter.)

3. Install filler cap.



A—Pump Drive Gearbox Oil Dipstick
B—Pump Drive Gearbox Oil Filler Cap

CED,TX14740,6099 –19–23APR98–1/1

BLANK

12. Remove spring (C), valve (E), and element (D).

13. Remove filter case and discard element and O-ring (F).

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.

NOTE: Remove element and inspect for metal particles and debris in bottom of filter can. Excessive amounts of brass and steel particles can indicate a hydraulic pump, motor, or valve malfunction, or a malfunction in process. A rubber type of material can indicate cylinder packing problem.

14. Clean filter case with diesel fuel and dry with compressed air.

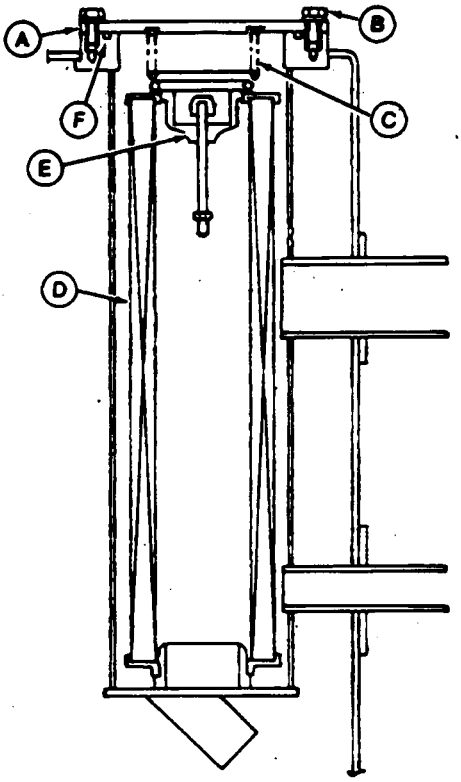
15. Install filter case, valve (E), and spring (C) in reservoir.

16. Install cover (A) and tighten cap screws (B).

Cap Screw—Specification

Torque ..... 49 N•m (36 lb-ft)

17. Tighten vent plug.



T6457ED –UN–18OCT88

A—Cover
B—Cap Screw
C—Spring
D—Element
E—Valve
F—O-Ring

TX,80,DH5100 –19–08JUL96–4/4

BLANK

FIRING ORDER 6—CYLINDER ENGINE:

NOTE: Firing order is 1—5—3—6—2—4

1. Adjust No. 1, 3, and 5 exhaust valves and No. 1, 2, and 4 intake valves.

Exhaust Valves (E)—Specification

VALVE CLEARANCE ..... 0.46 mm (0.018 in.)

Intake Valves (I)—Specification

VALVE CLEARANCE ..... 0.36 mm (0.014 in.)

2. Rotate engine 360° and repeat step 7 for the remaining intake and exhaust valves.

3. Tighten jam nut to 27 N•m (20 lb-ft).

Jam Nut—Specification

Torque ..... 27 N•m (20 lb-ft)

4. Clean cylinder head and rocker arm cover mating surfaces.

5. Install rocker arm cover gasket. Do not use sealant on the gasket

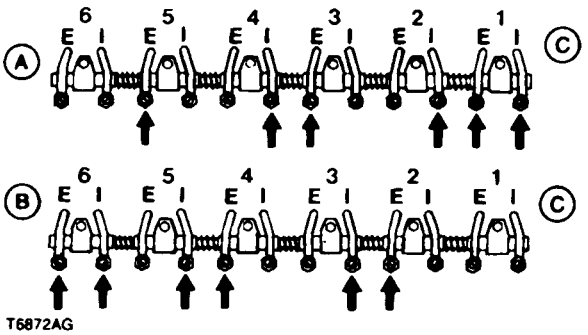
6. Install rocker arm cover. Tighten cap screws to 35 N•m (26 lb-ft). Do not over tighten cap screws.

Cap Screws—Specification

Torque ..... 35 N•m (26 lb-ft)

7. Remove turning tool and timing pin.

8. Install parts. Center muffler to turbocharger inlet tube before fastening muffler into place.



T6872AG –UN–18MAY94

A—No. 1 TDC Compression Stroke
B—No. 1 TDC Exhaust Stroke
C—Fan End of Engine

TX,85,DH5514 –19–18DEC96–1/1

COOLING SYSTEM FILL AND DEAERATION PROCEDURE

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.

Cooling System—Specification

Capacity..... Approx. 30 L (32 qt)

Fill surge tank to bottom of 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.

Continued on next page

ADDING 12—VOLT ACCESSORIES

IMPORTANT: This machine has a 24-volt electrical system. Installing 12-volt accessories without addition of 24-volt to 12-volt converter may cause battery failure.

When possible, use 24-volt accessories. If 12-volt accessories are added, use a 24-volt to 12-volt converter. Converters are available from your authorized dealer. (See the Industrial Equipment Attachment Guide.)

Converter capacity requirements depend on the load of the accessories installed. Follow electronic dealer and manufacturer's recommendations to determine the capacity of the converter required and its installation requirements.

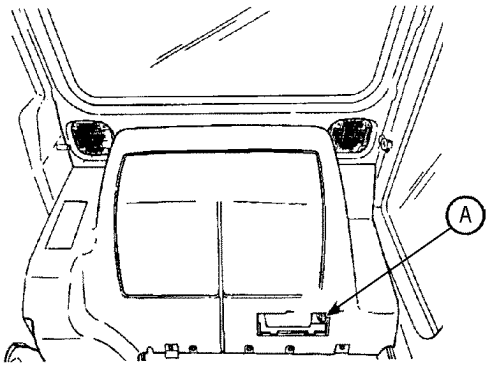
IMPORTANT: DO NOT connect an accessory to one battery. Connecting a 12-volt accessory to one battery will cause one battery to overcharge, and the other battery to undercharge, causing battery failure.

TX,90,DH3734 –19–18AUG95–1/1

REPLACING FUSES

The fuse box is located behind the seat.

Remove cover (A).



T105381 –UN–26NOV96

A—Fuse Box Cover

Continued on next page

TX,90,DH5331 –19–26NOV96–1/2

ADDITIONAL METRIC CAP SCREW TORQUE VALUES

CAUTION: Use only metric tools on metric hardware. Other tools may not fit properly. They may slip and cause injury.

Check tightness of cap screws periodically. Torque values listed are for general use only. Do not use these values if a different torque value or tightening procedure is listed for a specific application.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

Make sure fastener threads are clean and you properly start thread engagement. This will prevent them from failing when tightening.

Tighten cap screws having lock nuts to approximately 50 percent of amount shown in chart.

T6873AA

T6873AA –UN–18OCT88

T6873AB

T6873AB –UN–18OCT88

T6873AC

T6873AC –UN–18OCT88

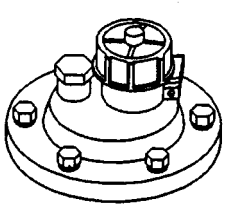
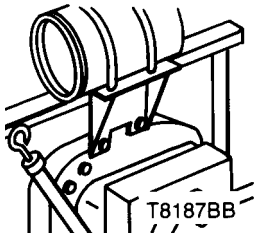
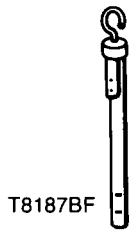
METRIC CAP SCREW TORQUE VALUES[a]						
	T-Bolt		H-Bolt		M-Bolt	
Nominal Dia	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft
8	29	21	20	15	10	7
10	63	46	45	33	20	15
12	108	80	88	65	34	25
14	176	130	137	101	54	40
16	265	195	206	152	78	58
18	392	289	294	217	118	87
20	539	398	392	289	167	125
22	735	542	539	398	216	159
24	931	687	686	506	274	202
27	1372	1012	1029	759	392	289
30	1911	1410	1421	1049	539	398
33	2548	1890	1911	1410	735	542
36	3136	2314	2401	1772	931	687
[a]Torque tolerance is ±10%.						

04T,90,M170 –19–01AUG94–1/1

BLANK

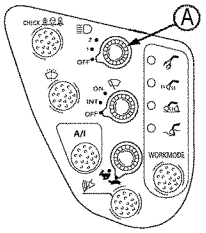
HYDRAULIC SYSTEM CHECKS

– – –1/1

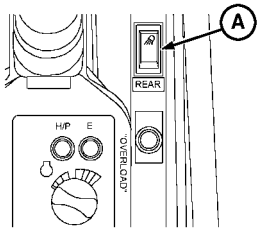
PRESSURIZED RESERVOIR CHECK	 T7884AG –UN–12NOV92	Raise boom to full height, then lower boom to ground. *NOTE: Ensure that engine is properly shut down.* Slowly loosen vent plug on hydraulic reservoir. Is air heard escaping from vent plug? *NOTE: The pressurized reservoir creates pressure at the inlet to the hydraulic pumps. If filler cap does not seal, hydraulic pumps could cavitate and be damaged.*	**YES:** Go to next check. **NO:** Replace cap. Go to your authorized dealer. – – –1/1
PUMP GEARBOX OIL LEVEL CHECK	 T8187BB –UN–08MAR94	*NOTE: Ensure that engine is properly shut down.* Pull dipstick from tube, check oil level. Is oil level halfway below “H” (level) mark?	**YES:** Go to next check. **NO:** Add oil if low. – – –1/1
SWING GEARBOX OIL LEVEL CHECK	 T8187BF –UN–08MAR94	*NOTE: Ensure that engine is properly shut down.* Pull dipstick from tube, check oil level. Is oil between marks?	**YES:** Go to next check. **NO:** Add oil if low. – – –1/1

ACCESSORIES CHECKS

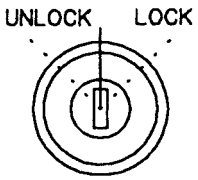
– – –1/1

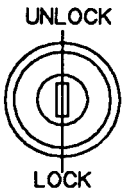
LIGHT CIRCUIT CHECKS	 T102105 –UN–26JUL96	**A—Light Switch** **IMPORTANT: All accessories are powered from the fuse block. If any accessories do not function, check fuses in fuse block.** Turn key switch ON. Turn light switch (A) to 1st on position. Are monitor panel back lights on? Turn light switch to 2nd position. Do work lights on boom come on also?	**YES:** Go to next check. **NO:** Check fuse and/or monitor panel back light bulbs. Go to your authorized dealer.

– – –1/1

REAR LIGHT CIRCUIT CHECKS	 **T121043** T121043 –UN–14APR99	**IMPORTANT: All accessories are powered from the fuse block. If any accessories do not function, check fuses in fuse block.** Turn key switch ON. Turn light switch (A) to the on position. Are the rear lights on?	**YES:** Go to next check. **NO:** Check fuse and/or monitor panel back light bulbs. Contact maintenance shop.

– – –1/1

CAB DOOR LOCK CHECK	 T7425AH –UN–10DEC90	From outside cab, close cab door. Insert ignition key into door lock, turn clockwise 1/4 turn to lock. Allow key to return to vertical. Try to open door. Turn key 1/4 turn counterclockwise to unlock. Allow key to return to vertical. Remove key from lock. Does lock turn easily? Does lock prevent door from opening when locked?	**YES:** Go to next check. **NO:** Inspect. Repair. – – –1/1

LEFT AND RIGHT ACCESS DOORS LOCK CHECK	 T7425AG –UN–28NOV90	Insert ignition key into lock and turn 180° clockwise to lock. Turn key 180° counterclockwise to unlock. Does lock turn easily and lock door and cap in position? Are all parts free of any visible damage?	**YES:** Go to next check. **NO:** Inspect. Repair. – – –1/1

Symptom	Problem	Solution
	Turbocharger	Go to your authorized dealer.
	Injection pump	Go to your authorized dealer.
	Engine malfunction	Go to your authorized dealer.
	Charge air cooler core clogged	Clean.
Engine Overheats	Coolant level low	Add coolant.
	Thermostat	Go to your authorized dealer.
	Radiator screen clogged	Remove and clean screen.
	Radiator core or oil cooler core clogged	Clean radiator and oil cooler.
	Charge air cooler core clogged	Clean.
	Air filter clogged	Clean or replace elements.
	Radiator cap	Install new cap.
	Surge tank cap	Install new cap.
	Fan belt malfunction	Go to your authorized dealer.
	Fan	Replace fan.
	Alternator/fan belt loose	Go to your authorized dealer.
	Engine overloaded	Check hydraulic relief valves.
	Cooling system passages dirty	Flush cooling system.
	Temperature gauge or sending unit	Go to your authorized dealer.
	Injection pump	Go to your authorized dealer.
	Pulley grooves worn	Replace pulleys.
Coolant Temperature Too Low	Thermostat	Go to your authorized dealer.
	Temperature gauge or sending unit	Go to your authorized dealer.

Continued on next page

HYDRAULIC SYSTEM

Symptom	Problem	Solution
Control Lever Moves Hard	Corroded joint, worn out pusher	Go to your authorized dealer.
Control Lever Does Nothing	Worn out pusher	Go to your authorized dealer.
	Pilot valve	Go to your authorized dealer.
Control Lever Does Not Return To Neutral	Pilot valve	Go to your authorized dealer.
Too Much Play In Control Lever	Worn out pivot joint	Go to your authorized dealer.
Control Lever Is Not Vertical In Neutral	Pilot valve	Go to your authorized dealer.
No Hydraulic Functions	Lack of hydraulic oil	Add oil.
	Pilot shut-off valve	Go to your authorized dealer.
	Pilot pump	Go to your authorized dealer.
	Pilot pressure regulating valve	Go to your authorized dealer.
	System relief valve	Go to your authorized dealer.
	Pressure switches	Go to your authorized dealer.
	Clogged suction filter	Clean.
	Damaged suction line or hose	Go to your authorized dealer.
	Hydraulic pump	Go to your authorized dealer.
Some Functions Do Not Work	Pilot controller	Go to your authorized dealer.
	Pilot shut-off valve not released	Go to your authorized dealer.
	Pilot controller hoses pinched	Inspect and correct
	Control valve	Go to your authorized dealer.
	Circuit relief valves	Go to your authorized dealer.
	Cylinders	Go to your authorized dealer.

Continued on next page

IMPORTANT: Prevent possible engine damage. During cold temperatures, check viscosity of engine oil on dipstick. If the oil appears waxy and/or jelly-like rather than liquid, DO NOT attempt to start engine. Use external heat source to warm the crankcase until oil appears fluid.

T6181AU –UN–18OCT88

3. Check all fluid levels. If low, check for leaks and add oil as required.
4. Check belt.
5. Check condition of all hoses and connections.
6. Check electrolyte level. Charge and install battery.
7. Fill fuel tank. (See Fuels and Lubricants chapter.)
8. Start engine. Run engine at 1/2 speed for 5 minutes. Do not run at fast or slow idle.
9. Bleed fuel system. If engine fails to start or runs poorly after starting, change fuel filter(s). Bleed fuel system again.

CAUTION: Prevent possible injury from unexpected machine movement. Clear the area of all persons before running machine through the operation procedure.

10. Make sure that area is clear to allow for movement. Operate (cycle) boom, arm, and bucket functions for three complete cycles.
11. Operate the swing function for three complete revolutions in each direction.
12. Check condition of tracks. Check track sag.

Continued on next page

TX,105,FF,400 –19–06SEP94–2/4

330LCR LIFT CAPACITY—KG (LB)

NOTE: Ratings are at bucket lift hook, using standard counterweight, situated on firm, level, uniform supporting surface.

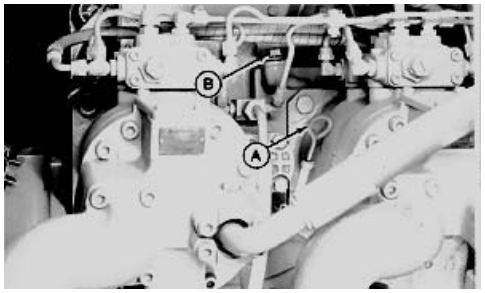
Figures do not exceed 87 percent of hydraulic capacity or 75 percent of weight needed to tip machine. Figures marked with an (*) are hydraulically-limited capacities. Remaining figures are stability-limited capacities.

LIFTING OVER FRONT—Power Boost On						
Arm: 2.66 m (8 ft 9 in.)		**Bucket: 1161 kg (2560 lb) 1.76 m³ (2.3 yd³)**			**Shoe: 600 mm (24 in.)**	
Load Point Height	**Horizontal Distance from Centerline of Rotation**					
m (ft)	**1.52 (5)**	**3.05 (10)**	**4.57 (15)**	**6.10 (20)**	**7.62 (25)**	**9.14 (30)**
6.10 (20)	7082 (15614)[a]					
4.57 (15)	8846 (19503) [a]	7652 (16870) [a]	6785 (14958)			
3.05 (10)	10665 (23512) [a]	8521 (18786) [a]	6636 (14630)			
1.52 (5)	12182 (26856) [a]	8690 (19159)	6463 (14249)			
Ground (Line)	12050 (26567)	8448 (18625)	6336 (13969)			
-1.52 (-5)	11209 (24712) [a]	11956 (26359)	8348 (18404)	6310 (13912)		
-3.05 (-10)	16452 (36270) [a]	10197 (22481) [a]	11489 (25330) [a]	8406 (18532)		
-4.57 (-15)	11338 (24997) [a]	9131 (20131) [a]				
LIFTING OVER SIDE—Power Boost On						
m (ft)	**1.52 (5)**	**3.05 (10)**	**4.57 (15)**	**6.10 (20)**	**7.62 (25)**	**9.14 (30)**
6.10 (20)	5971 (13164)					
4.57 (15)	8397 (18511)	5735 (12644)	4049 (8927)			
3.05 (10)	7711 (17000)	5406 (11918)	3913 (8626)			
1.52 (5)	7136 (15732)	5092 (11225)	3755 (8277)			
Ground (Line)	6833 (15064)	4874 (10745)	3638 (8021)			
-1.52 (-5)	10738 (23674)	6752 (14885)	4784 (10548)	3614 (7967)		
-3.05 (-10)	16452 (36270) [a]	10197 (22481) [a]	6829 (15055)	4836 (10662)		
-4.57 (-15)	11285 (24880)	7081 (15612)				

[a]Hydraulically-limited capacity

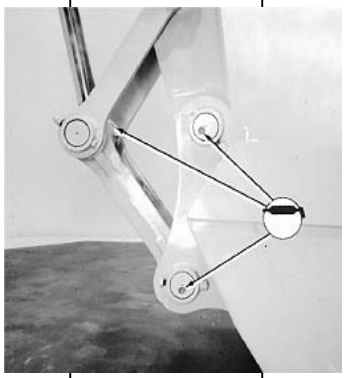
Continued on next page

OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR HYDRAULIC EXCAVATOR 330LCR

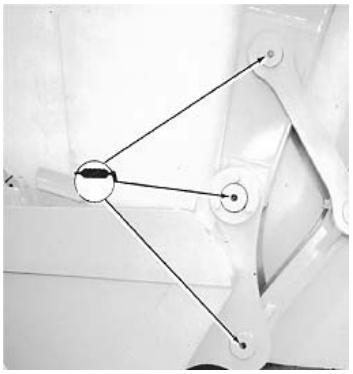
ITEM NO.	INTERVAL	ITEM TO BE INSPECTED PROCEDURE: DO THE PMCS AND HAVE ITEM REPAIRED, FILLED, OR ADJUSTED AS NEEDED	EQUIPMENT IS NOT READY/AVAILABLE IF:
		NOTE: Note the Arm, Boom, and Bucket position on the placard located to the left of the hydraulic sight gauge. This information will be used with the hydraulic oil level check to be performed later. 	
		(3) Check oil level window (A) on hydraulic tank. Oil must be visible in sight gauge within safe operating range as indicated on sight gauge.	No hydraulic oil visible or not within safe operating range
		(4) If empty or low, add oil (see Check Hydraulic Oil Level under During - Start and After-Start Checks).	
12	Before	Check Pump Drive Gearbox Oil Level	
		(1) Pull dipstick (A) from tube, check oil level.	No oil in pump gearbox or below the ADD or SAFE mark on the dipstick
		(2) Add oil if below “H” mark (see Monthly - Check Pump Drive Gearbox Oil Level). 	
		NOTE: Ensure that access door is closed securely after inspection is complete.	

OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR HYDRAULIC EXCAVATOR 330LCR

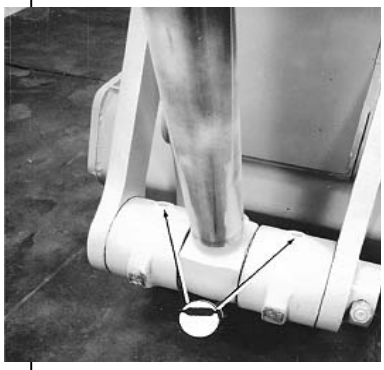
ITEM NO.	INTERVAL	ITEM TO BE INSPECTED PROCEDURE: DO THE PMCS AND HAVE ITEM REPAIRED, FILLED, OR ADJUSTED AS NEEDED	EQUIPMENT IS NOT READY/AVAILABLE IF:
		NOTE: The following checks and services are to be performed weekly <u>or sooner as required</u> by adverse environmental conditions.	
29	Weekly	Inspect Quick-Disconnect Hitch Attachment Points	
		(1) Ensure that attachment is secure in front hooks and rear saddle.	
		(2) Inspect quick-disconnect hitch and wedge for excessive wear, damage, or failure.	Any damage that would prevent operation
30	Weekly	Inspect Quick-Disconnect Hitch Lifting Hook	
		(1) Visually inspect lifting hook for wear or damage.	Any damage that would prevent operation
31	Weekly *As Required	Grease Working Tool Pivots	
		(1) Pump grease (see Fuels and Lubricants, Chapter 9) into the 20 indicated grease points. Grease until grease escapes from joint.	Grease fittings are damaged or missing
		(2) *As required:	
		a. Grease every 4 hours during the first 20 hours.	
		b. Grease daily during the first 30—100 hours and when working in mud and water or sand.	



Three Points



Three Points



Two Points

Section II. COMPONENTS OF END ITEM

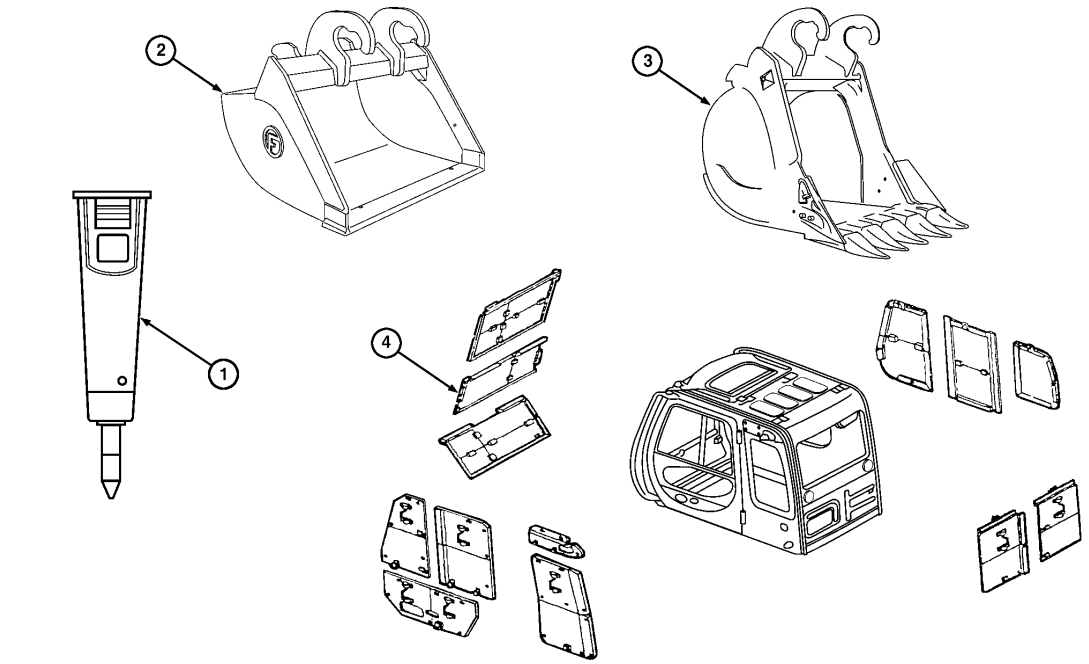


Table 1. Components of End Item

(1) ILLUST NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGE & PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
1		Hydraulic Impact Breaker (75755) AT187048		EA	1
2		Rock Bucket, 42 in. (75755) AT188614		EA	1
3		Heavy Duty Bucket, 48 in. (75755) AT188609		EA	1
4		Vandal Protection Kit (75755) AP33356		EA	1