KOBELCO

OPERATOR'S MANUAL

HYDRAULIC EXCAVATOR

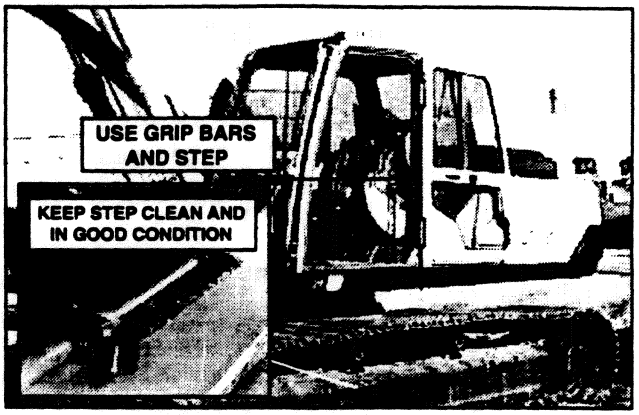
SK300 IV
SK300LC IV

Applicable: SK300 IV LCU0101~
Applicable: SK300LC IV YCU0500 ~

SK3004KMMC2-R2 11/03

M. MOUNTING & DISMOUNTING MACHINE

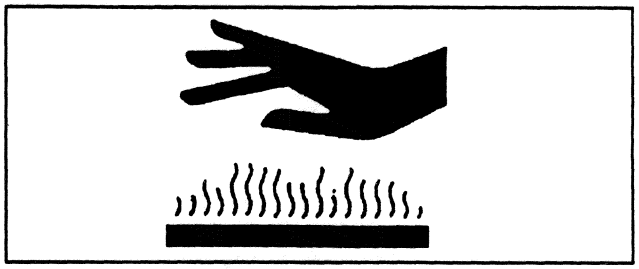
When getting on and off the machine, always maintain three point contact by using the handrails and step. Inspect and clean handrails, step, and mounting parts. Remove slippery materials, such as lubricants.



MOUNTING/DISMOUNTING MACHINE

N. AVOID HOT SURFACES & AREAS

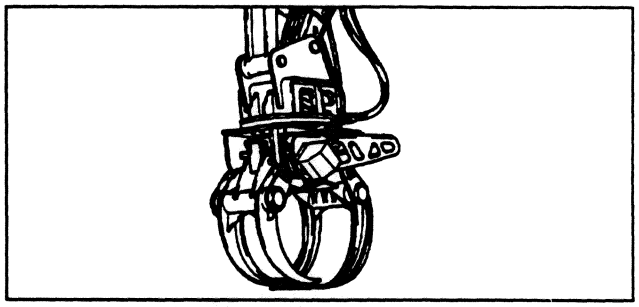
Immediately after the machine is operated, the temperature and pressure of the engine coolant, engine oil, and hydraulic oil are very high. Burns may result if caps are removed, or oil, water, or filters are changed under these conditions. Wait until the temperature goes down, before attempting to check fluids or change filters.



HOT SURFACES

O. USE THE PROPER OPTIONAL ATTACHMENT

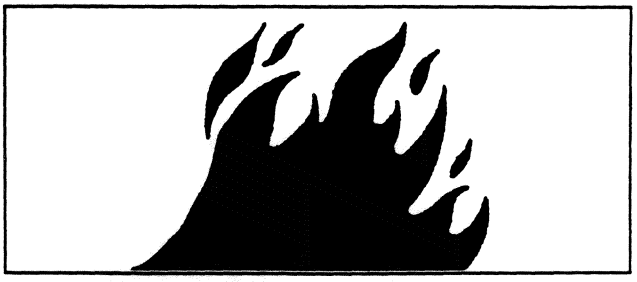
Use only Optional Attachments designed for and approved by KOBELCO. Read, understand and Follow all instructions in the Manual accompanying the Optional Attachment. Use of any Optional Attachment not approved by KOBELCO in writing, can cause serious injury to personnel, damage to the machine and its components and shorten the life of the machine. Contact an authorized KOBELCO distributor for Optional Attachments available for the machine.



USE PROPER ATTACHMENT

P. PREVENT FIRES

Leaking or spilled fuel, lubricants and Hydraulic oil are fire hazards. Clean and properly dispose of spills as they occur. Repair or replace all leaking components to prevent fire. Also, clean the machine regularly removing all debris to help prevent fires, pay particular attention to removal of leaves, sticks, paper, etc. Keep fire extinguisher in an accessible area and know how to use the fire extinguisher should a fire occur.



PREVENT FIRES– CLEAN UP SPILLS

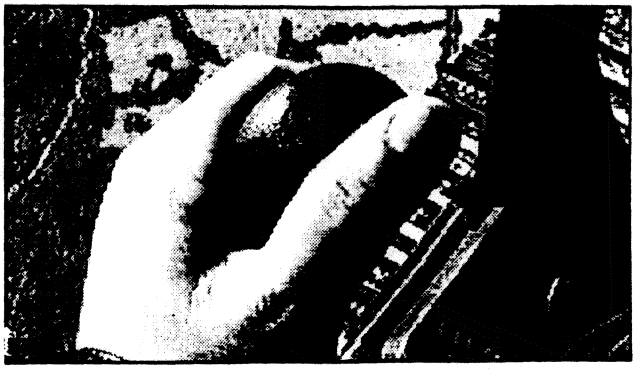
1.5 SAFETY DURING OPERATION

A. STARTING ENGINE

Sit in the operator's seat.

Sound the horn before starting the engine to alert people the machine is being started.

Do not short circuit the starter circuit or battery to start the machine. This may cause serious injury or cause damage the electrical system.

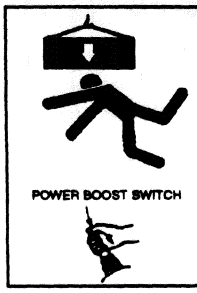


SOUND HORN BEFORE STARTING

19. POWER BOOST SWITCH– WARNING

Located inside cab on R.H. Window.

Part Number– YN20T01004P1



⚠ WARNING

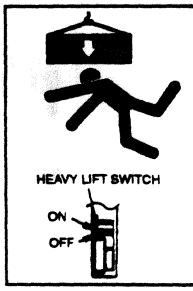
Releasing power boost switch while lifting a load can cause unexpected lowering of load, resulting in severe injury or death.
Never use power boost switch for lifting a load.

YN20T01004P1

20. HEAVY LIFT SWITCH– WARNING

Located inside cab on R.H. Window.

Part Number– YN20T01005P1



⚠ WARNING

Turning off heavy lift switch while lifting a load can cause unexpected lowering of load, resulting in severe injury or death.
Never turn off heavy lift switch while lifting a load.

YN20T01005P1

21. FRONT WINDOW– CAUTION

Located inside cab, above and behind operators seat on R.H. Side.

Part Number– LE20T01019P1

⚠ CAUTION

Falling front window can cause injury.
Always lock securely in place with lock pins on both sides.

LE20T01019P1

22. HANDRAIL– WARNING

Located inside of cab door.

Part Number– 2432T6109

⚠ WARNING

DO NOT INSTALL ANY OBJECTS ON THE HANDRAIL This can cause welds that fasten the handrail to the operators cab to fatigue and crack due to excessive vibration during machine operation.

Injury to the operator may result if he falls to ground because of the unexpected breakage of the welds.

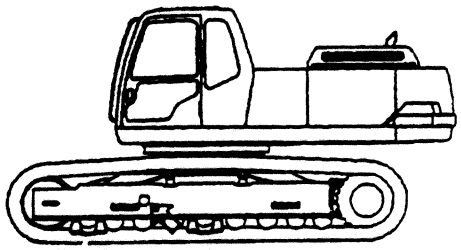
2432T6109

23. ADJUSTING TRACK TENSION– WARNING

Located inside of cab door.

Part Number– 2432T6110

⚠ WARNING



Extreme high pressure in track adjustment cylinder can cause personal injury when adjusting crawler tension.
Loosen grease nipple with care to relieve pressure gradually.

2432T6110

24. GENERAL PRECAUTIONS– WARNING

Located inside of cab door.

Part Number– YN20T01016P1

⚠ WARNING

Read and understand the operators manual before operating or performing maintenance on this machine.
Failure to follow or pay attention to instructions in operators manual can result in injury or death.
It is your responsibility to be aware of and follow all local laws and regulations.
Before starting machine, make sure hydraulic control lever is in lockout position and all control levers are in neutral.
Sound horn to alert people.
Ensure bystanders and obstacles are clear of machine before moving machine or its attachments.
Do not carry riders on machine.
Before leaving operators compartment, park on level ground, lower attachments to ground, make sure hydraulic control lever is in lockout position and stop engine.

YN20T01016P1

25. CALIFORNIA PROPOSITION 65– WARNING

Located inside of cab in front of ashtray.

Part Number– 2432T6457

⚠ WARNING

CALIFORNIA Proposition 65

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

2432T6457

B. LEFT HAND OPERATOR CONSOLE

1. Swing Flasher Switch– FIGURE 2.11

The Swing Flasher Switch is located on the Left Hand Control console and is the leftmost switch in the top row. The Swing Flasher is a 2 position rocker switch which is used to turn on the swing flashers for use during swinging operations.

"ON"– Push the symbol side of switch down to turn swing flashers ON.

"OFF"– Push the empty side of switch down to turn swing flashers OFF.

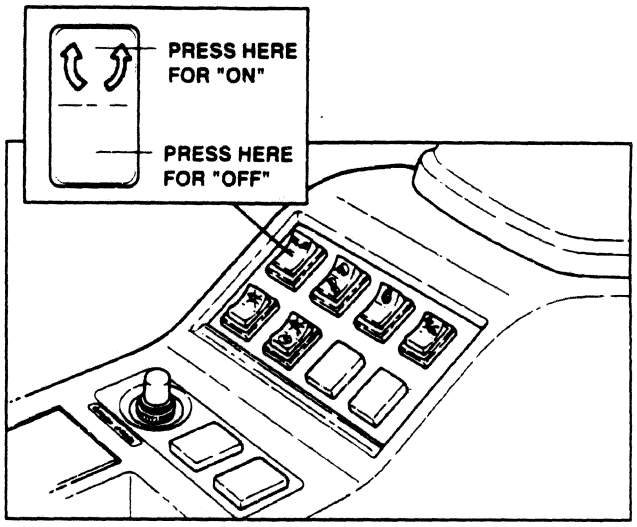


FIGURE 2.11

NOTE

TURN SWING FLASHERS ON FOR USE DURING ALL SWINGING OPERATIONS.

2. Working Lights Select Switch– FIGURE 2.12

The Working Lights Select Switch is located beside the Swing Flasher Switch. This 3 position rocker switch is used to turn working lights ON and OFF.

– Depress this side of switch to turn on Boom and Front Frame working lights.

– Depress this side of switch to turn on all working lights.

Return switch to Center position to turn off all working lights.

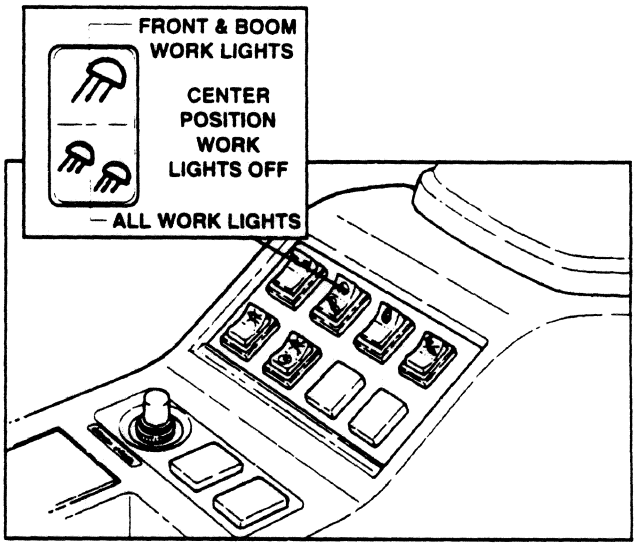


FIGURE 2.12

3. Auto Decel Select Switch– FIGURE 2.13

The Auto Decel Select Switch is located to the right of the Working Lights Select Switch. The Auto Decel Select Switch is a 2 position rocker switch and when "ON" will automatically decrease engine RPM approximately 4 seconds after all hydraulic controls have been placed in their neutral positions then, upon operation of any hydraulic control, will automatically increase engine RPM.

– Depress this side of switch to turn Auto Decel "ON".

Depress back side of switch to turn Auto Decel "OFF".

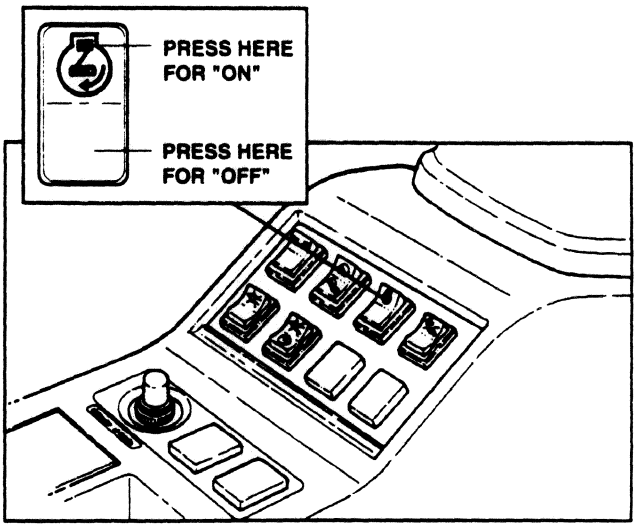


FIGURE 2.13

3. Opening & Closing Windshield

a. To open windshield disconnect the wiper motor wiring harness as shown in Figure 2.34.

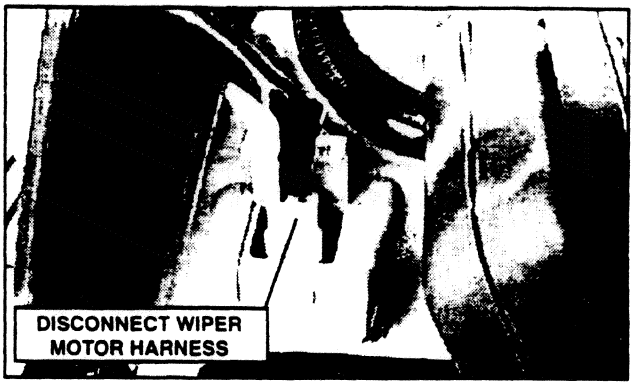


FIGURE 2.34

b. Release the two windshield locks by pulling toward center of window and rotating up into locked position. See Figure 2.35.

FIGURE 2.35

c. Grasp each windshield handle and carefully move windshield up and over the operator seat until top of windshield stops at rear locking tabs. See Figure 2.36.

FIGURE 2.36

3. **Turning Machine**
   - **a.** Push the L.H. Travel Lever toward front of machine to turn machine RIGHT in Forward Motion. See Figure 3.26.
   - **b.** Pull the L.H. Travel Lever back toward operator seat to turn machine to the LEFT in reverse motion. See Figure 3.26.
   - **c.** Push the R.H. Travel Lever toward front of machine to turn machine to the LEFT in forward motion. See Figure 3.27.
   - **d.** Pull R.H. Travel Lever toward operator seat to turn machine to the RIGHT in reverse motion. See Figure 3.27

4. **Spinning Machine**
   - **a.** Pull L.H. Travel Lever BACK and Push R.H. Travel Lever FORWARD to spin machine to the LEFT. See Figure 3.28.
   - **b.** Pull R.H. Travel Lever BACK and Push L.H. Travel Lever FORWARD to spin machine to the RIGHT. See Figure 3.29.

NOTE

All the functions explained with use of Travel Levers can also be performed using the Travel Pedals.

WARNING

USE TRAVEL ALARM DURING ALL TRAVEL OPERATIONS

CAUTION

1. Depending on Shoe type and ground conditions this machine has a maximum climbing ability of 35° (70%) Maximum.
2. When approaching or descending a slope, operate the Travel Slowly.
3. For Braking, slowly return Travel Levers or pedals to the Neutral (center) position. Brakes are engaged automatically.
4. Do Not Travel the Machine for more than two (2) hours.
5. In extremely cold conditions, below -20°C (-40°F), the Travel Lever or Pedal action may be "heavier" than normal. This is normal due to the viscosity of the Hydraulic Oil in Frigid Climates.

FIGURE 3.26

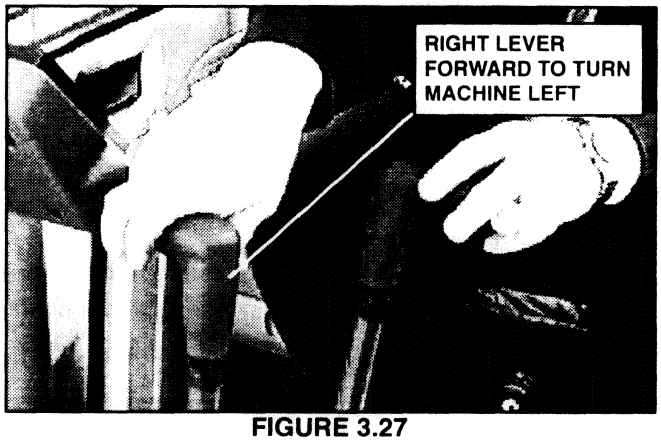


FIGURE 3.27

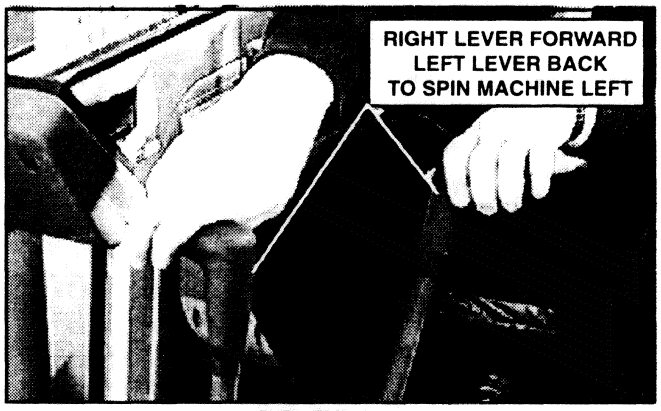


FIGURE 3.28

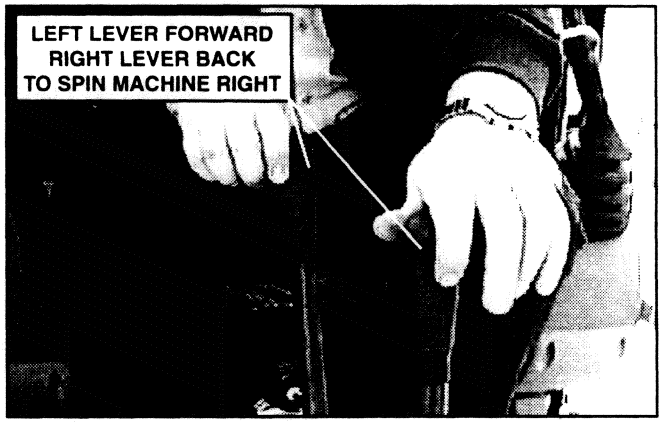


FIGURE 3.29

E. RAISE BOOM

Face Machine Operator, extend right arm out horizontally from shoulder, make a fist with thumb up. See Figure 3.52.

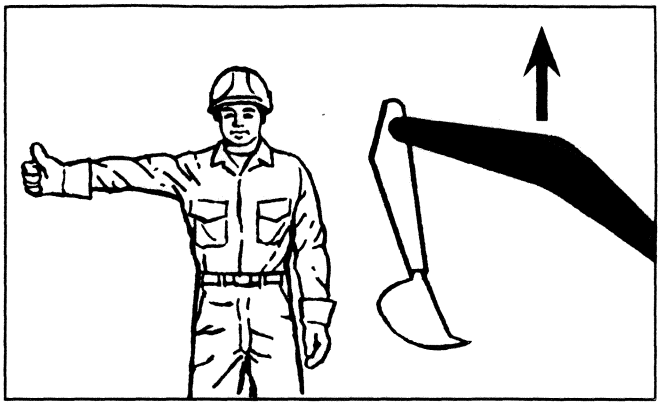


FIGURE 3.52

F. LOWER BOOM

Face Machine Operator, extend right arm out horizontally from shoulder, make a fist with thumb down. See Figure 3.53.

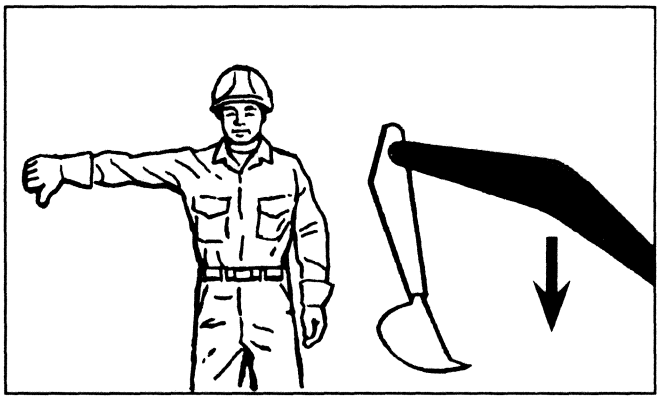


FIGURE 3.53

G. SWING LEFT

Face Machine Operator, extend right arm out horizontally from shoulder, make a fist with index finger pointing in swing direction. See Figure 3.54.

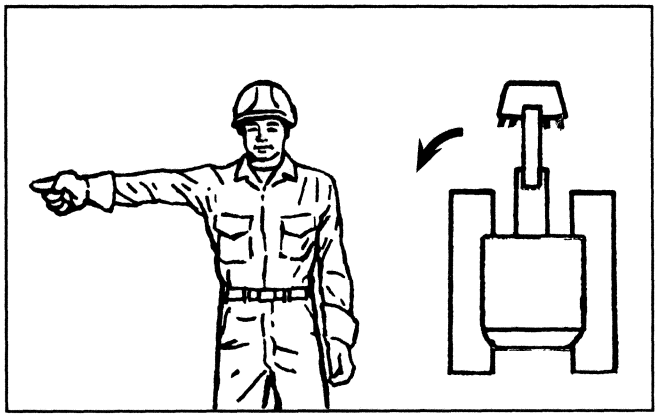


FIGURE 3.54

H. SWING RIGHT

Face Machine Operator, extend left arm out horizontally from shoulder, make a fist with index finger pointing in swing direction. See Figure 3.55.

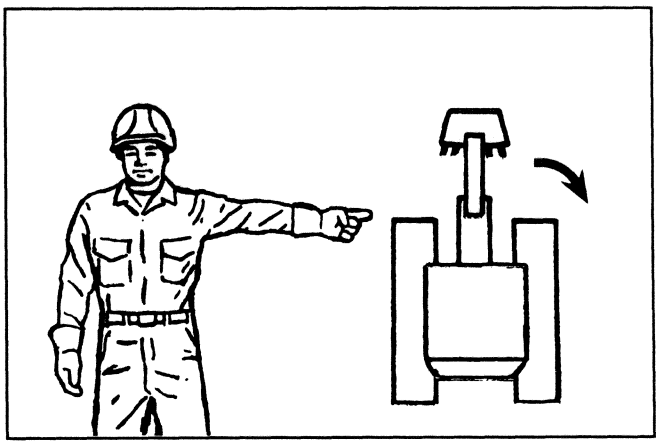


FIGURE 3.55

4.3 INSPECTION & MAINTENANCE CHART

Follow the chart below for recommended intervals of regular inspection and maintenance procedures.

⚠ WARNING ⚠

READ, UNDERSTAND AND FOLLOW ALL SAFETY PRECAUTIONS FOUND IN THIS MANUAL BEFORE PERFORMING INSPECTION & MAINTENANCE.

SYSTEM	MAINTENANCE TO PERFORM	COMPONENT LOCATION	INTERVAL (HOURS ON HOURMETER)							
			8	50	120	250	500	1,000	2,000	REF. PAGE #
ENGINE	CHECK OIL LEVEL	L.H. SIDE OF ENGINE	○							4-8
	CHECK COOLANT LEVEL	RESERVOIR	○							4-8
	CHECK FOR FLUID LEAKS	COMPLETE ENGINE	○							4-9
	CHECK BELT TENSION	FRONT OF ENGINE	○							4-9
	CHECK FUEL LEVEL	GAUGE CLUSTER	○							4-9
	DRAIN WATER SEPARATOR	R.H. SIDE OF ENGINE	○							4-10
	CHECK AIR CLEANER	AIR CLEANER	○							4-11
	CHECK ENGINE ELECTRICAL	COMPLETE ENGINE	○							4-12
	DRAIN WATER FROM FUEL	FUEL TANK BOTTOM	○							4-12
	CHANGE ENGINE OIL	OIL PAN		◆		○				4-22
	CHANGE OIL FILTER	COUNTERWIEGHT		◆		○				4-22
	CHANGE COOLANT FILTER	L.H. SIDE OF ENGINE				○				4-25
	CHANGE FUEL FILTER	L.H. SIDE OF ENGINE		◆			○			4-23
	CHANGE WATER SEPARATOR	L.H. SIDE OF ENGINE		◆			○			4-23
	CHECK AIR INTAKE SYSTEM	HOSES & CLAMPS		◆			○			4-24
	CHECK FAN ASSEMBLY	FRONT OF ENGINE		◆				○		4-24
	CHECK BELT TENSIONER	FRONT OF ENGINE		◆				○	•	4-24
	CHECK VIBRATION DAMPER	FRONT OF ENGINE		◆					○	4-24
	CLEAN RADIATOR	RADIATOR		○						4-25
	CLEAN DEBRIS SCREEN	BETWEEN RADIATOR AND OIL COOLER		○						4-25
	CHANGE ENGINE COOLANT	RADIATOR						○		4-36
	CHANGE AIR CLEANER ELEMENTS	AIR CLEANER						○		4-11
	ADJUST VALVE CLEARANCE	ENGINE TOP						◆	○	ENG. MAN.
	CHANGE ETHER CYLINDER	OIL COOLER DOOR	CHANGE AS REQUIRED							4-46
HYDRAULIC	HYDRAULIC OIL LEVEL	SIDE OF HYD TANK	○							4-12
	CHECK HYD FUNCTIONS	CAB	○							4-14
	CHECK FOR OIL LEAKS	HYDRAULIC SYSTEM	○							4-14
	CHECK HOSES/LINES	HYDRAULIC SYSTEM	○							4-14
	CLEAN SUCTION SCREEN	HYDRAULIC TANK					○			4-35
	CHANGE RETURN FILTERS	HYDRAULIC TANK		◆			○			4-26
	CLEAN PILOT MANIFOLD FILTER/SCREEN	PILOT MANIFOLD		◆			○			4-27
	CHANGE HYDRAULIC OIL	HYDRAULIC TANK							○	4-38 ~ 4-40
	CLEAN HYDRAULIC TANK	HYDRAULIC TANK							○	4-38 ~ 4-40
ELECTRICAL	INSPECT ALL WIRING	COMPLETE MACHINE	○							4-14
	BATTERY ELECTROLYTE	BATTERIES		◆	○					4-27
	BATTERY SERVICE	BATTERIES		◆		○				4-28 ~ 4-29

○– Regular Inspection & Maintenance Required.
◆– Break-In (After first 50 Hours) Inspection & Maintenance Required.

K. HYDRAULIC FUNCTIONS

1. Check all Hydraulic Controls for proper functionality before operating the machine. See Figure 4.35.

WARNING

NEVER OPERATE THE MACHINE WITH A FAULTY CONTROL OR FUNCTION. MAKE ALL NECESSARY REPAIRS BEFORE ALLOWING ANY OPERATION.

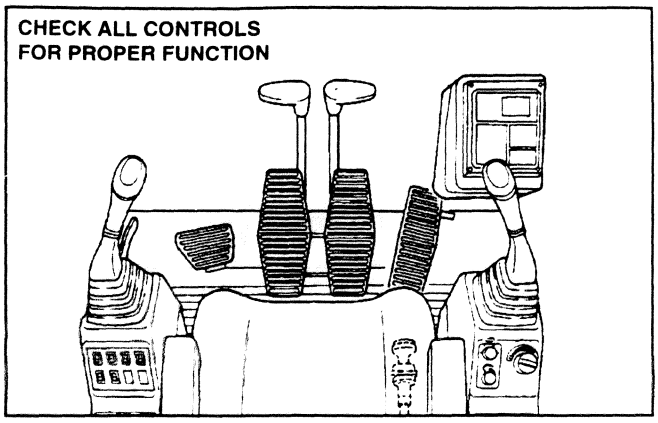


FIGURE 4.35

L. HYDRAULIC OIL LEAKS

1. Check complete hydraulic system for leaks. Use a small piece of cardboard when checking areas with high pressure. See Figure 4.36.

CAUTION

Never use hands to check for leaks. High pressure fluid leaks will penetrate the skin and cause severe injury.

2. Check all hoses and lines for signs of damage.
3. Repair or replace damaged hoses and lines before allowing any operation.

FIGURE 4.36

WARNING

CLEAN UP ALL SPILLED OIL TO PREVENT FIRES. DISPOSE OF HAZARDOUS WASTE ACCORDING TO ENVIRONMENTAL LAWS AND REGULATIONS.

M. MACHINE ELECTRICAL

1. Check all switches for proper operation.
2. Visually check all wiring and connectors for signs of damage, corrosion etc..
3. Repair or replace all damaged or faulty electrical components before allowing any operation of the machine.
4. Check all Gauges and L.E.D. Display on the Gauge Cluster Display for proper operation. See Figure 4.37.

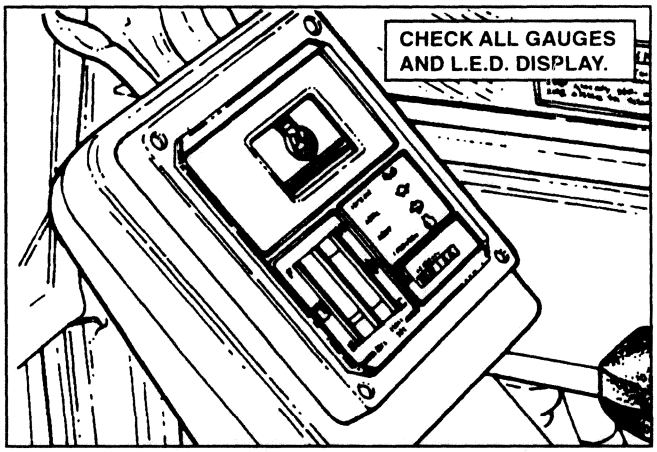


FIGURE 4.37

WARNING

DAMAGED OR FAULTY ELECTRICAL COMPONENTS CAN CAUSE SEVERE DAMAGE TO THE MACHINE AND CAUSE SERIOUS PERSONAL INJURY OR DEATH.

D. AIR INTAKE SYSTEM

Inspect all hoses and clamps of the Air Intake System on a new machine after the first 50 hours of operation. Then at every 500 hours of engine operation.

1. Inspect all hoses for damage and tighten all hose clamps. See Figure 4.72.
2. Replace any hose found to be damaged before allowing any operation of the machine.

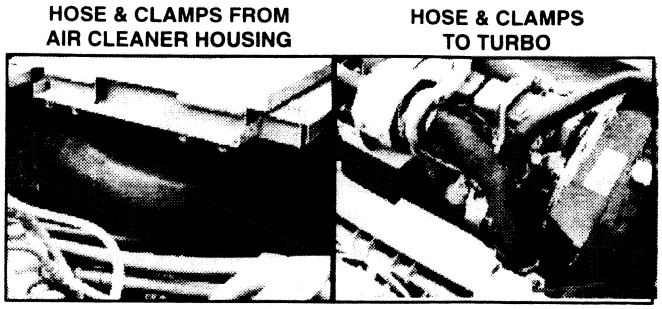


FIGURE 4.72

E. FAN

Inspect Fan assembly on a new machine after the first 50 hours of operation. Then at every 1,000 hours of engine operation.

1. Inspect all fan blades and hub for damage. Also check torque of fan mounting bolts. Proper torque value is 6kgf/m (43 ft lbs). See Figure 4.73.
2. Replace Fan assembly immediately should any damage to blades or hub be found.

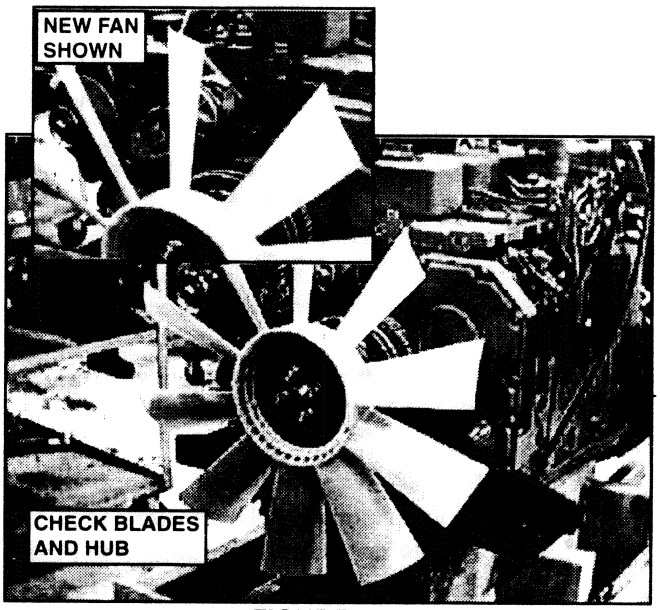


FIGURE 4.73

F. BELT TENSIONER

Inspect Belt Tensioner assembly on a new machine after the first 50 hours of operation. Then at every 1,000 hours of engine operation.

1. Inspect Belt tensioner bearing for wear, inspect idler for damage. Also check torque of mounting bolt. Proper torque value is 4kgf/m (32 ft lbs). See Figure 4.74.
2. Replace Belt Tensioner assembly immediately should any damage or excessive wear is found.

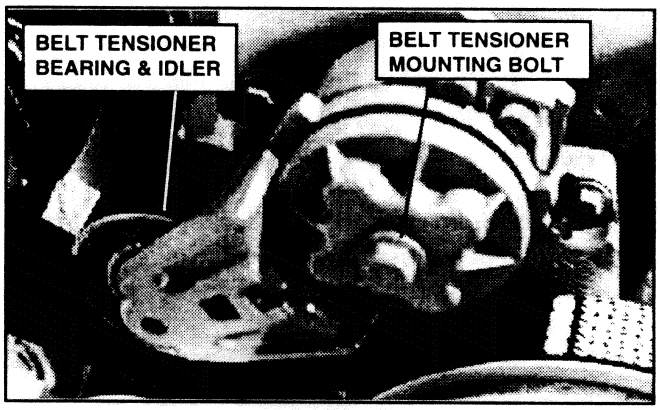


FIGURE 4.74

G. VIBRATION DAMPER

Inspect Vibration Damper on a new machine after the first 50 hours of operation. Then at every 2,000 hours of engine operation.

1. Inspect Vibration Damper for damage such as pieces of the rubber missing. Also, check for movement of the damper hub from the inertia member. See Figure 4.75.
2. If pieces of rubber are missing or movement of the damper hub alignment mark is more than 1.59mm (1/16") apart from the inertia member mark, replace vibration damper immediately.

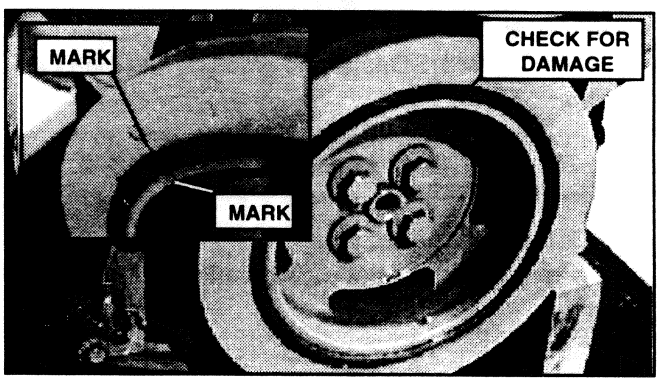


FIGURE 4.75

6. Arm to Boom Pin. See Figure 4.105.

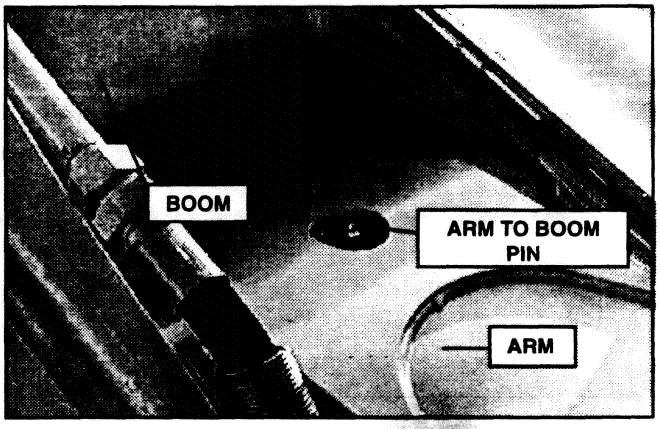


FIGURE 4.105

7. Bucket Link Pins. See Figure 4.106.

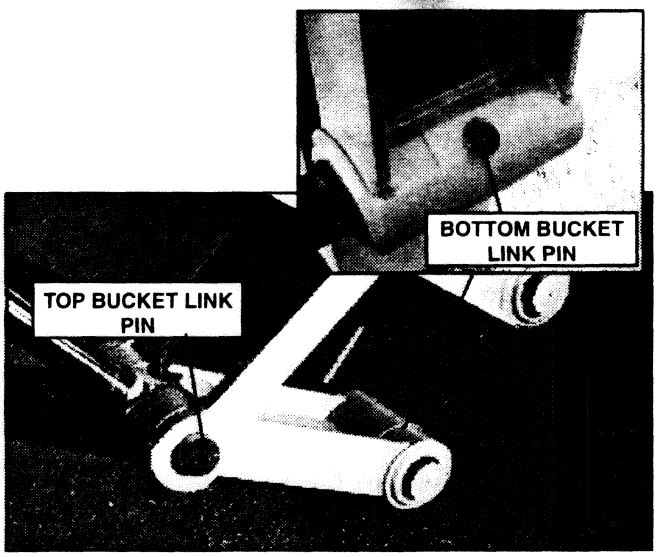


FIGURE 4.106

8. Idler Link to Arm Pin and Arm to Bucket Pin. See Figure 4.107

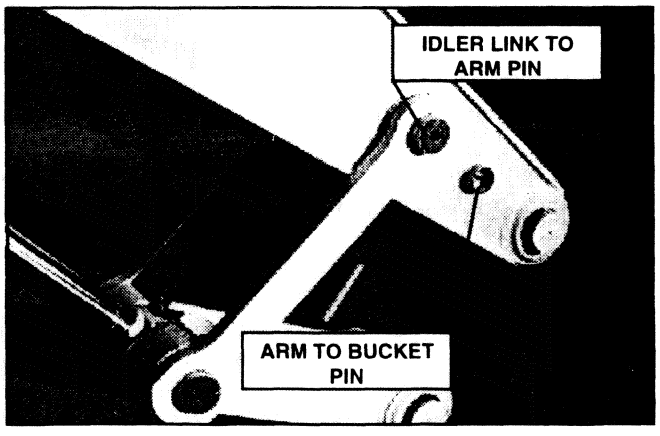


FIGURE 4.107

B. TOWING THE MACHINE

1. If the machine should become stuck in soft soil areas it may be necessary to tow the machine. Attach a wire rope or chain with the capacity to pull the machine out to the lower frame eye. See Figure 4.139.
2. Attach other end to the vehicle used to pull the machine. Operate the Machine's Travel Controls in the proper direction while pulling with the other vehicle.

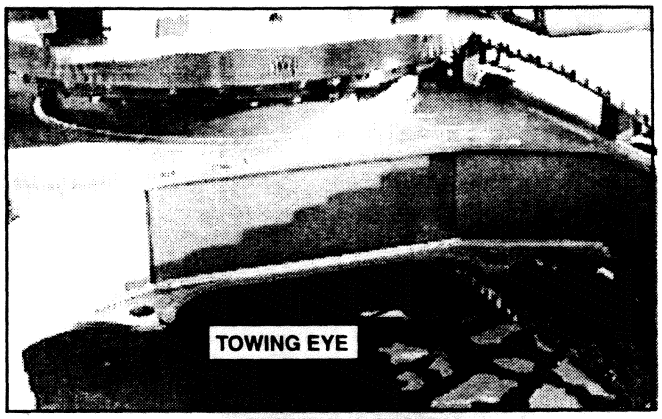


FIGURE 4.139

C. PERIODICAL INSPECTION ITEMS

Since there is no definite time table for the replacement of hydraulic lines, tubes and hoses, inspect the following periodically for tightness and signs of damage. Replace all damaged lines, tubes and hoses with new parts. Refer to the Parts Manual for correct part numbers when ordering.

⚠ WARNING ⚠

DO NOT BEND, STRIKE OR DAMAGE HIGH PRESSURE LINES. DO NOT INSTALL BENT OR DAMAGED LINES, TUBES OR HOSES.
REPLACE ALL DAMAGED LINES, TUBES AND HOSES IMMEDIATELY.
TIGHTEN ALL LOOSE FITTINGS AND CONNECTIONS TO THE PROPER TORQUE VALUE.
CLEAN UP ALL FUEL AND OIL SPILLS IMMEDIATELY TO HELP PREVENT FIRES.
NEVER USE HANDS TO CHECK FOR LEAKS

CAREFULLY INSPECT ALL LINES, TUBES AND HOSES FOR:
1. **FITTINGS & CONNECTIONS DAMAGED OR LEAKING.**
2. **OUTER COVERING OF HOSES WORN, CUT OR DAMAGED EXPOSING WIRE REINFORCEMENT.**
3. **HOSE SWELLING OR "BALLOONING".**
4. **EVIDENCE OF HOSE BEING KINKED OR COLLAPSED.**
5. **STEEL PROTECTIVE COVERING WORN OR DAMAGED.**
6. **LOOSE FITTINGS AND CONNECTIONS.**

MAKE CERTAIN ALL CLAMPS, GUARDS AND HEAT SHIELDS ARE IN PLACE AND SECURE. THIS WILL HELP PREVENT VIBRATION, EXCESSIVE WEAR OF COMPONENTS AND EXCESSIVE HEAT DURING OPERATION.

1. Heater Hoses

Inspect the Heater Hoses between Heater and Engine for signs of damage and wear. See Figure 4.140.

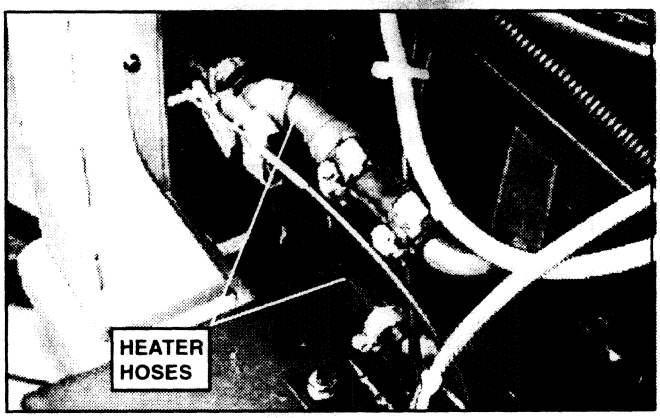


FIGURE 4.140

2. Boom Hoses & Tubes

Inspect Boom Head and Rod Hoses and Tubes for damage, wear and loose connections. See Figure 4.141.

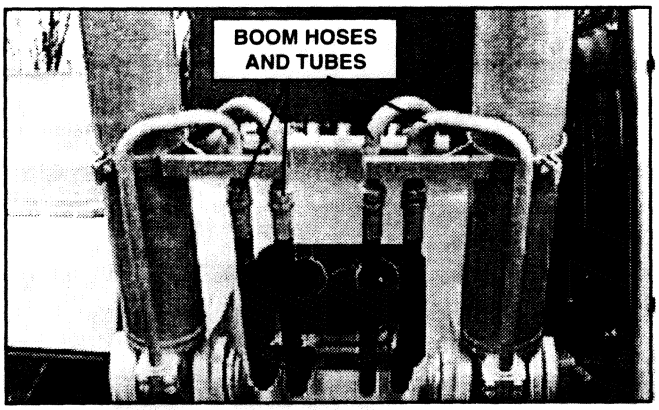


FIGURE 4.141

3. Arm Hoses & Tubes

Inspect Arm Head and Rod Hoses and Tubes for damage, wear and loose connections. See Figure 4.142.

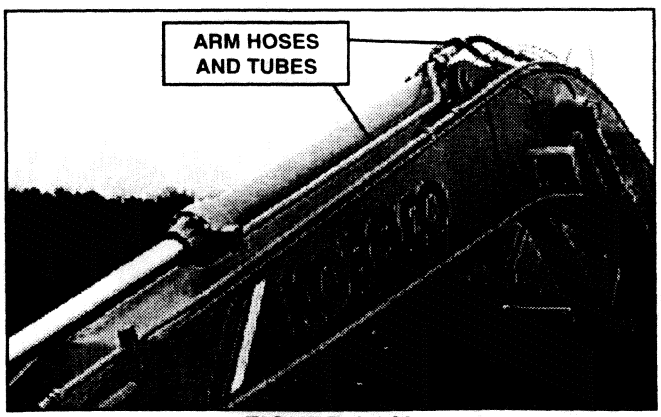


FIGURE 4.142

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⚠ WARNING ⚠

READ, UNDERSTAND AND FOLLOW ALL SAFETY PRECAUTIONS AND PROCEDURES FOUND IN THIS MANUAL BEFORE ATTEMPTING ANY OPERATION, INSPECTION OR MAINTENANCE OF THIS MACHINE, ATTACHMENT OR SYSTEMS.

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⚠ WARNING ⚠

READ, UNDERSTAND AND FOLLOW ALL SAFETY PRECAUTIONS AND PROCEDURES FOUND IN THIS MANUAL BEFORE ATTEMPTING ANY OPERATION, INSPECTION, MAINTENANCE OR REPAIR OF THIS MACHINE, ATTACHMENT OR ANY OF ITS SYSTEMS.