PART NO. EM11L-1-3

Operator's Manual

EX100WD-3C

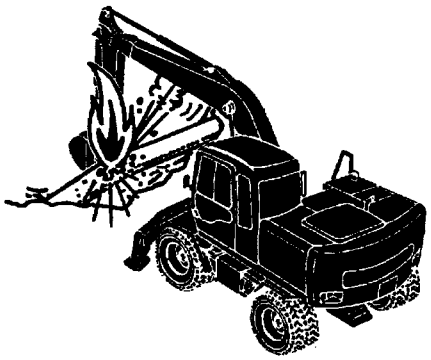
WHEELED EXCAVATOR

Serial No. 04002 and up

HITACHI

DIG WITH CAUTION

Before digging, check the location of cables, gas lines, and water lines.



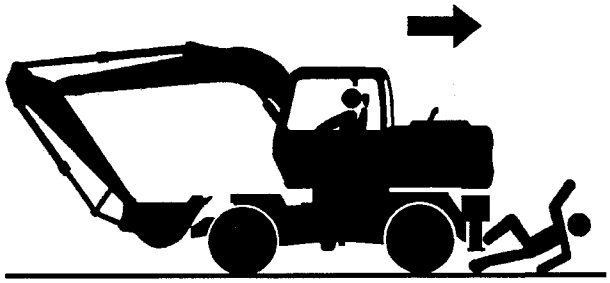
SA-086

MOVE AND OPERATE MACHINE SAFELY

Bystanders are in danger of being run over.
Confirm the location of bystanders before moving, swinging, or operating the machine.

Always keep the travel alarm in good working condition. (if equipped.)
It warns people when the machine starts to move.

Use a signal person when moving, swinging, or operating the machine in congested areas. Coordinate hand signals before starting the machine.



SA-083

OPERATE MACHINE SAFELY

Clear all persons from area of operation and machine movement.

Make sure worksite footing has sufficient strength to firmly support the machine.
When working close to an excavation, operate the machine with the chassis frame positioned perpendicular to the cliff face, so that the machine can more easily evacuate if the cliff face collapses.

When digging deeply, avoid hitting bottom of boom or bucket cylinder hoses against the ground.

Use the bucket only for digging. To avoid accidents, do not use it as a jack hammer or wrecking ball.

SA-085

PREVENT FIRES

SA-019

1. Check for Oil Leaks:

   · Fuel, hydraulic oil and lubricant leaks can lead to fires that may result in serious injury.

   · Check for missing or loose clamps, kinked hoses, lines or hoses that rub against each other,damaged oil-cooler, and loose oil-cooler flange bolts, for oil leaks.

   · Search for leaks with a piece of cardboard.
   Escaping fluid under pressure can penetrate the skin causing serious injury.
   Do not use your bare hand to check for oil leaks.

   · Tighten, repair or replace any missing, loose or damaged clamps, lines, hoses, oil-cooler and oil-cooler flange bolts.
   Do not bend or strike high-pressure lines.
   Never install bent or damaged lines, pipes or hoses.

2. Check for Shorts:

   · Short circuits can cause fires that may result in serious injury.

   · Clean and tighten all electrical connections.
   Check before each shift or after eight (8) hours of operation for loose, kinked, hardened or frayed electrical cables and wires.
   Check before each shift or after eight (8) hours of operation for missing or damaged terminal caps.

   · DO NOT OPERATE MACHINE if cable or wires are loose, kinked, etc..
   Tighten, repair or replace any loose or damaged electrical cables, wires, and terminal caps before operating the machine.

3. Clean Flammables:

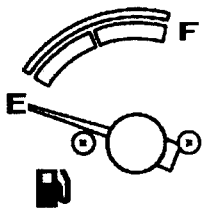
   Spilled fuel and oils, and accumulated coal dust and other flammables may cause fires and serious personal injury.
   Prevent fires by keeping machine clean every day.

4. Repair Switches:

   Always check key switch function before operating the machine every day. If any abnormalities are found, be sure to repair them immediately.
   If fire breaks out, failure to stop the engine will escalate fire, hindering fire fighting and possibly resulting in serious injury.

FUEL GAUGE AND INDICATOR

Fuel machine before needle reaches E.



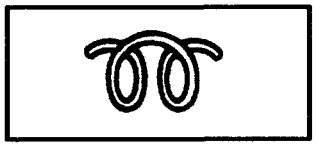
When red fuel indicator lights, approximately 30 liter (8 US gal) of fuel remain.

M104-01-009

M104-01-010

PREHEAT INDICATOR

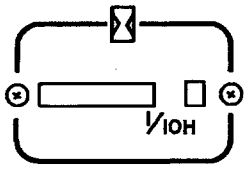
Red indicator will light when key switch is turned counterclockwise to the preheat position. Light will turn off after approximately 20 seconds, indicating that the preheat is completed.



M104-01-042

HOUR METER

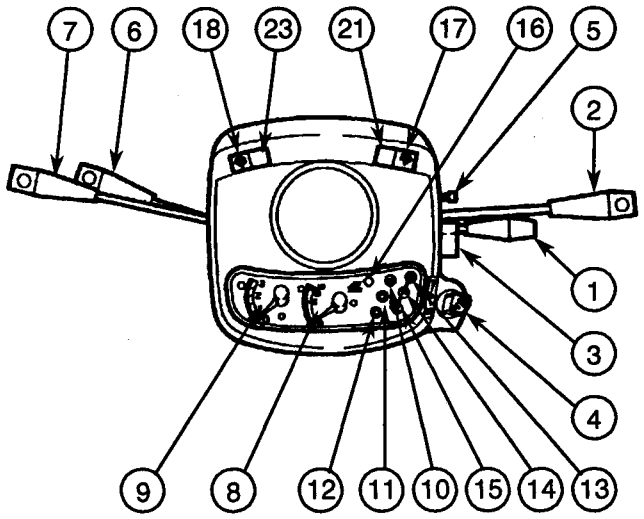
The right hand number indicate tenths (six minutes) of an hour.



M104-01-014

STEERING COLUMN CONSOL

1 – F-N-R Lever
2 – Turn Signal Switch
3 – Light Switch
4 – Brake Switch
5 – Hazard Light Switch
6 – Wiper Switch
7 – Travel Mode Switch
8 – Air Pressure Gauge
9 – Tachometer
10 – Hihg-Beam Indicator
11 – Air Pressure Indicator
12 – Hazard Indicator Light
13 – Axle Lock Indicator
14 – Parking Brake Indicator
15 – Work Brake Indicator
16 – Travel Mode Indicator
17 – Right Turn Indicator
18 – Left Turn Indicator
19 – Axle Lock Switch
20 – Soft Ground Extrication Switch
21 – Soft Ground Extrication Indicator
22 – Spare Switch
23 – Spare Indicator



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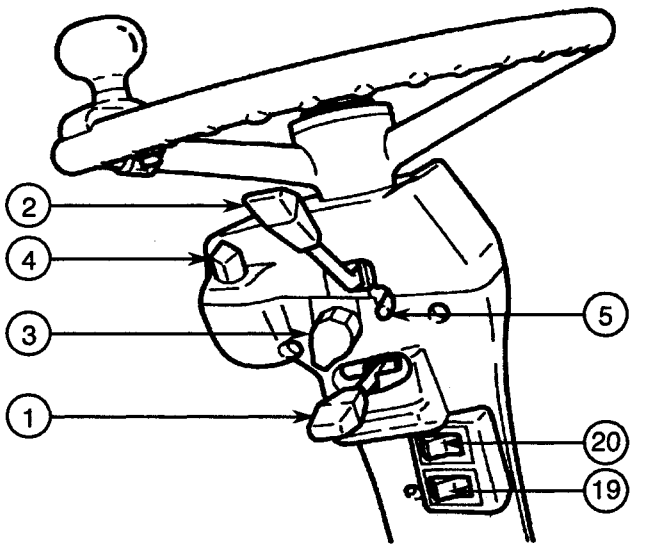

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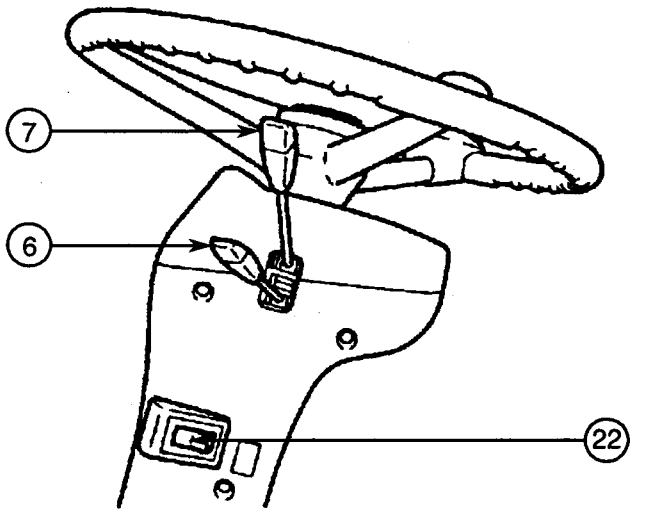


M201-01-012

FAST/ SLOW TRAVEL SWITCH

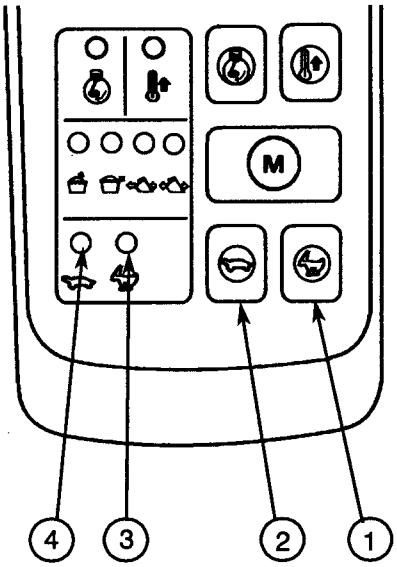
IMPORTANT:

1. **Always stop the machine when shifting fast/ slow travel. If travel speed is changed while the machine is moving, the transmission will be damaged.**

2. **After shifting travel speed, confirm that the gears are correctly engaged by lightly depressing the accelerator pedal. Damage to the transmission will result if the machine is traveled with the gears not fully shifted.**

To shift to fast travel speed, press fast travel switch ① rabbit mark) located on the switch panel. The fast-speed gears will engage and fast travel indicator ③ will come on.

To shift to slow travel speed, press slow travel switch (② turtle mark) located next to the fast travel switch on the switch panel. The slow-speed gears will engage and slow travel indicator ④ will come on.



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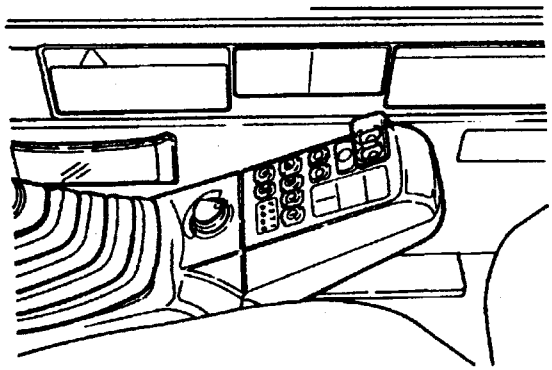
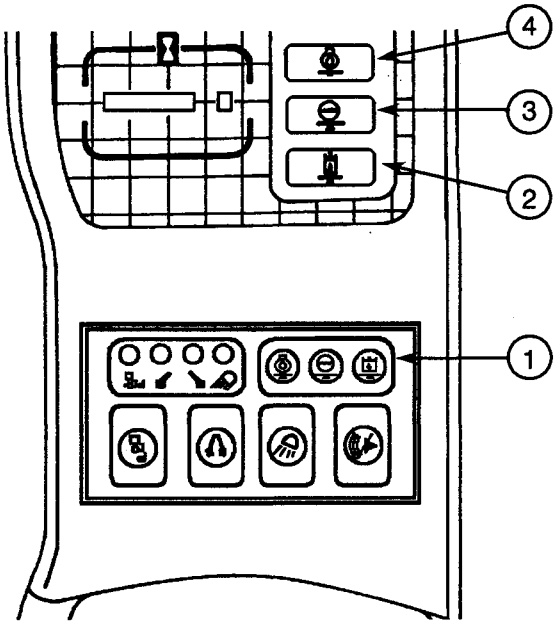


M202-01-043

LEVEL CHECK

1. Turn key switch to ON position.
2. Depress level check switch ①.
   Hydraulic oil level ②, coolant level ③ and engine oil level ④ indicators will light if levels are adequate for operation.

IMPORTANT: The level check does not take the place of daily check at hydraulic oil level window, engine coolant reserve tank and engine oil level dipstick.

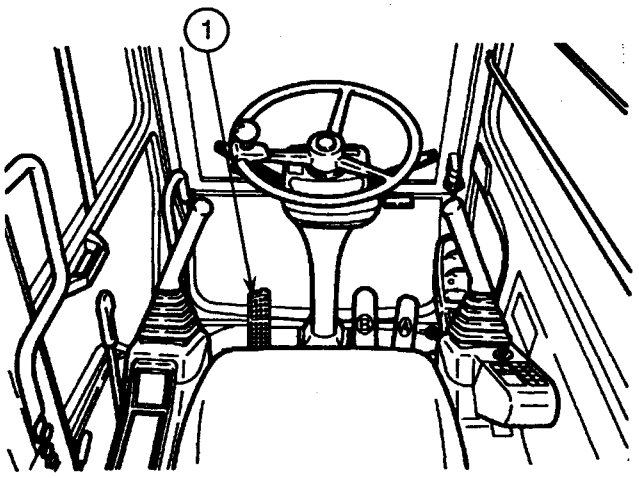


M202-03-001

ATTACHMENT PEDAL --- IF EQUIPPED

The breaker, crusher, etc., can be operated using attachment pedal ① located to the right front of the seat, as illustrated.

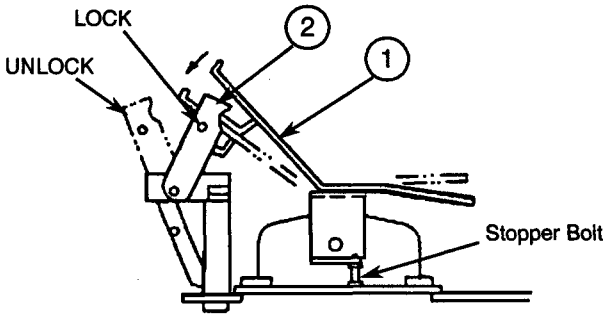
⚠ CAUTION: Be sure to lock attachment pedal ① with pedal lock ② when the attachment pedal is not in use.



M201-01-008

To operate the breaker

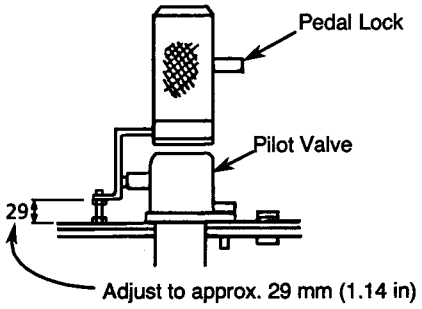
1. Move pedal lock ② forward to unlock attachment pedal ①.
2. Push down on attachment pedal ① to operate the breaker.
3. Remove foot from attachment pedal ① to stop the breaker.
4. Always keep attachment pedal ① locked with pedal lock ② when the attachment pedal is not in use.



M107-01-042

To operate the crusher

1. Move pedal lock ② forward to unlock attachment pedal ①.
2. Push down on attachment pedal ① either forward or backward to open or close the crusher.
3. Remove foot from attachment pedal ① to stop the crusher.
4. Always keep attachment pedal ① locked with pedal lock ② when attachment pedal ① is not in use.



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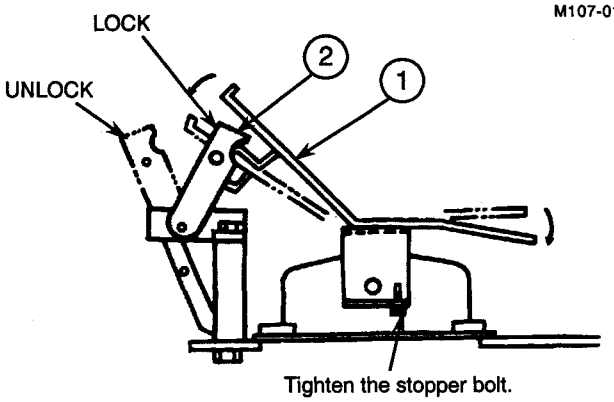


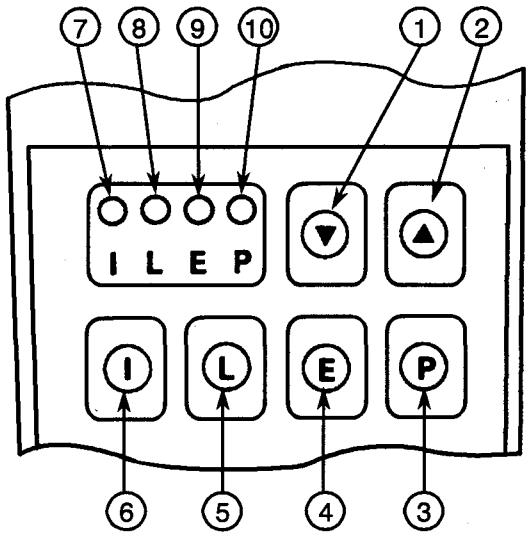
M107-01-018

POWER MODE (ENGINE SPEED) SELECTOR (E-P CONTROL)

Power mode select switches ① to ⑥ are used for selecting the most appropriate engine speed for the work to be done.
Four pre-set power modes can be selected by pushing one of the switches marked P, E, L, or I (③ to ⑥). See the table below for engine speed at each preset mode.
To decrease engine speed in small increments, briefly press decelerator switch ①.
To increase engine speed in small increments, briefly press accelerator switch ②.
Holding switch ① or ② down will increase engine speed to fast idle or decrease to slow idle.
When the engine is started, I (Slow Idle) mode is automatically selected.

Mode	Engine Speed
P (Power) Mode	2 000 min^{-1} (rpm)
E (Economy) Mode	1 800 min^{-1} (rpm)
L (Light) Mode	1 500 min^{-1} (rpm)
I (Slow Idle) Mode	850 min^{-1} (rpm)

Use the following table for making the best choice:



M104-05-007

1 —Decelerator Switch
2 —Accelerator Switch
3 —P Mode Switch
4 —E Mode Switch
5 —L Mode Switch
6 —I Mode Switch
7 —I mode Indicator
8 —L Mode Indicator
9 —E Mode Indicator
10 —P Mode Indicator

Mode Selection Guide

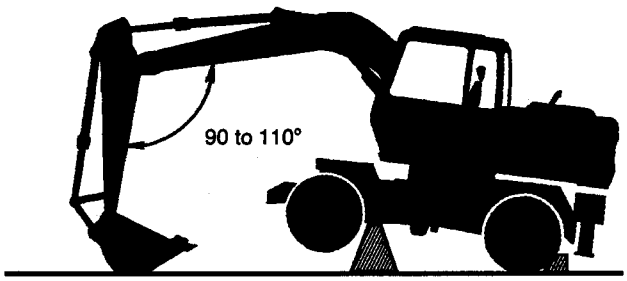
Mode	Features	Operational Requirements
P (Power) Mode	High Productivity	1. When high speed operation and maximum productivity are required. 2. When many dump trucks are waiting for loading.
E (Economy) Mode	High Efficiency	1. When used for general digging and loading work. 2. When improved fuel efficiency is required. 3. When a lower noise level is required.
L (Light) Mode	High Precision, Low Noise	1. When used for light digging and loading work. 2. When even lower noise levels are required. 3. When fuel efficiency has priority over productivity.
I (Slow Idle) Mode	Fuel Saving, Low Noise	· When temporarily stopping operation such as wait time between trucks.

RAISE ONE AXLE USING BOOM AND ARM

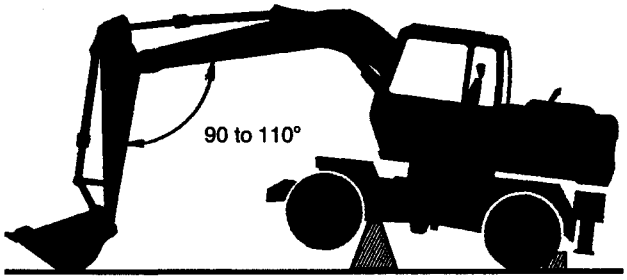
⚠ **CAUTION: Keep the angle between boom and arm 90 to 110°and position the bucket's round side on the ground.**

Swing upperstructure 90° and lower bucket to raise chassis frame off ground. Do not dig bucket teeth into ground when using the hoe bucket reversed.

Place blocks under machine frame to support machine.



SA-096

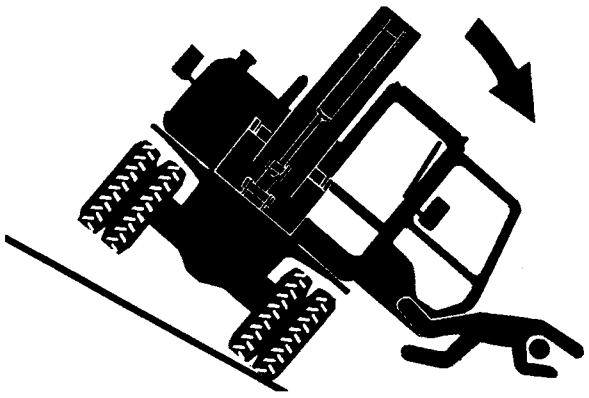


SA-097

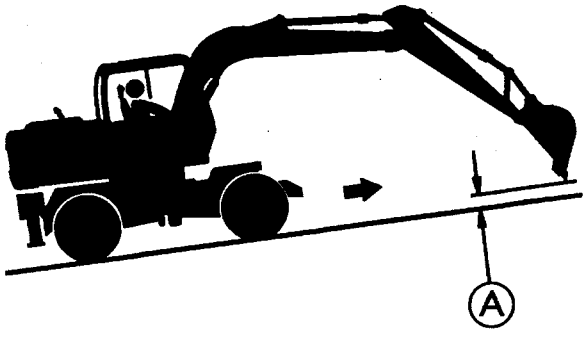
AVOID TIPPING

Avoid traveling across the face of a slope. When traveling on a slope tracks should be pointed uphill. Keep the bucket point in direction of travel, approximately 200 to 300 mm (8 to 12 in) above ground, when ascending or descending slopes. If machine starts to slip or becomes unstable lower the bucket immediately.

Avoid tipping the machine when swinging heavy loads. Keep the bucket on the uphill side. Do not swing load to downhill side. Reduce swing speed as necessary.



SA-088



SA-090

HYDRAULIC BREAKER OPERATING TIPS --- IF EQUIPPED

Select a breaker that is correct size and weight for the machine. See your authorized dealer for correct breaker information.

Carefully study the operation manuals of the machine and breaker, and perform the required checks and or inspection before connecting the breaker to the arm.

Precautions for connecting breaker piping.

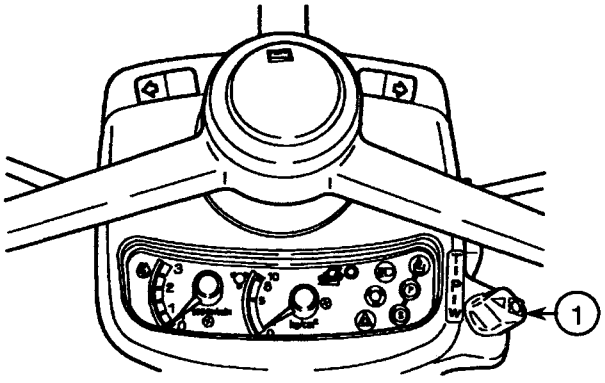
(1) When the breaker is not used, apply cover to the pipe end on the arm top and install plug into the hose end of the breaker to prevent entry of contamination into the system.

(2) Be sure to provide spare covers and plugs in the tool box in order to use them when needed.

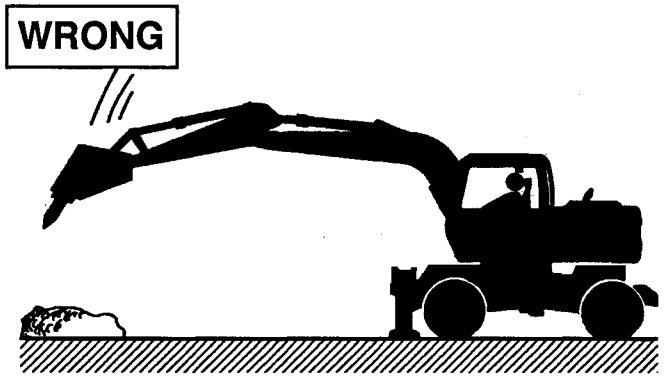
(3) Avoid entry of contamination into the system when switching the breaker with the bucket.

(4) After connecting, check the connecting seal fitting for oil leakage, and pipe clamp bolts for looseness.

1. Perform the required checks and inspection daily before operation.
2. Operate machine slowly, breaker is heavier than bucket.
   The breaker is heavier than bucket, making the machine relatively unstable. Use the stabilizer (or blade) and work in front of the stabilizer or blade if equipped.
3. Turn brake switch ① W (working) position.
4. Avoid hammering operation of breaker. Do not use boom and arm functions to crush objects, machine damage may result.



M202-02-006

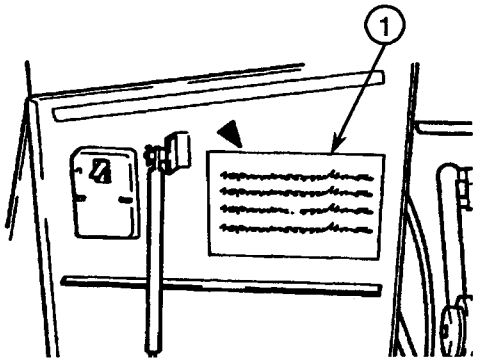


M202-05-052

SERVICE YOUR MACHINE AT SPECIFIED INTERVALS

Perform all recommended service procedures in maintenance guide.

Lubricate, make service checks and adjustments at intervals shown on the periodic maintenance chart ① located on the inside of the tool box cover or following pages.

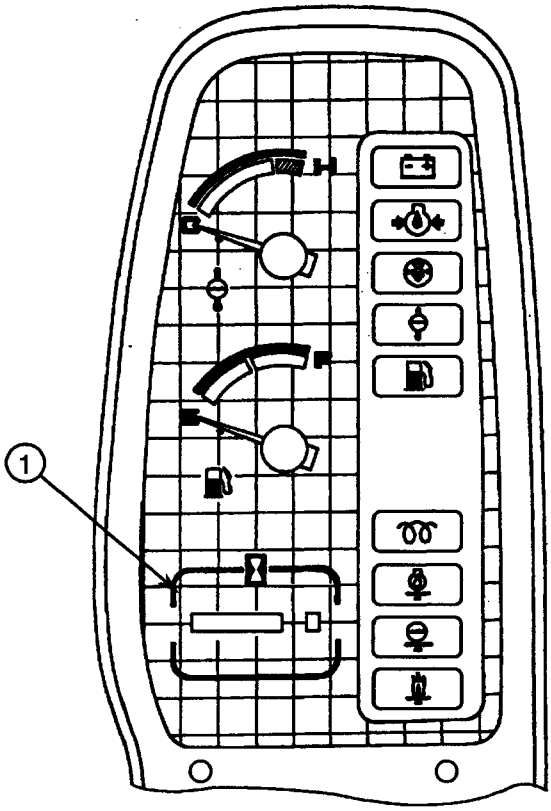


M104-07-095

CHECK THE HOUR METER REGULARLY

Use the hour meter ① to determine when your machine needs periodic maintenance.

Intervals on the periodic maintenance chart are for operating in normal conditions. If you operate your machine in difficult conditions, you should service it at SHORTER INTERVALS.



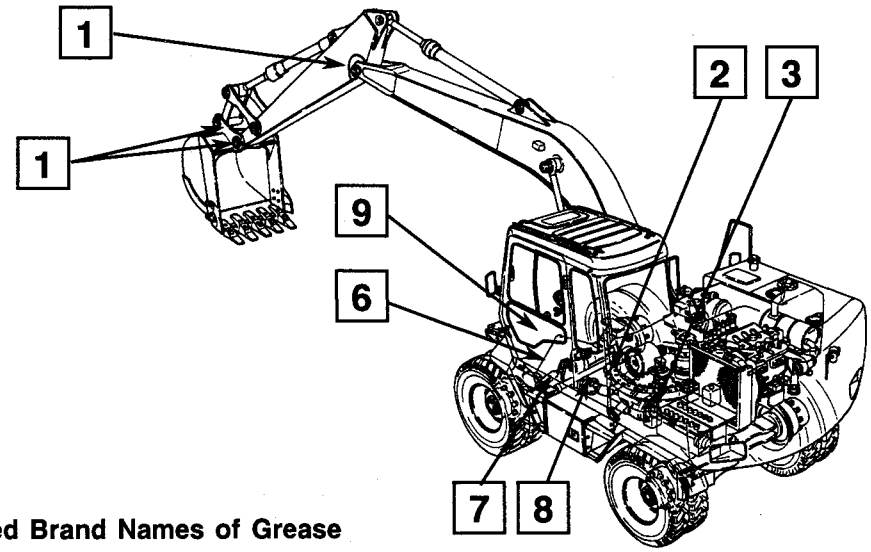
M104-01-003

USE CORRECT FUELS AND LUBRICANTS

IMPORTANT: Refer to the Fuels and Lubricants Chapter when performing maintenance on your machine.

A. GREASING

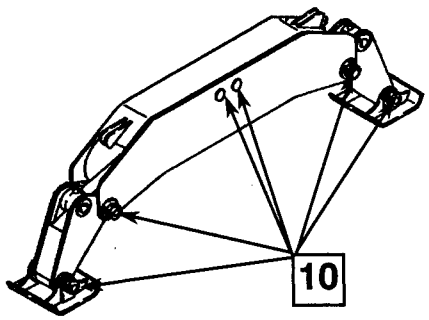
Parts		Quantity	Interval (hours)						
			8	50	100	250	500	1000	2000
1. Front Joint Pins	Boom Pivot, Boom Cylinder Bottom End, Bucket and Link Pins	10	★	▒					
	Others	7	★		▒				
2. Swing Bearing		2					▒		
3. Swing Internal Gear		1					▒		
4. Offset Arm Front Joint pin	Boom Pivot, Boom Cylinder Bottom End, Bucket and Link Pins	10	★ ★★	▒					
	Others	7	★★		▒				
5. Clamshell Bucket		12	▒						
6. Front Axle		6					▒		
7. Steering Cylinder		4					▒		
8. Propel Shaft (Front and Rear)		6					▒		
9. Equalizer Pin		1			▒				
10. Stabilizer (Optional)		8					▒		
11. Blade(Optional)		12					▒		



Recommended Brand Names of Grease

Application / Air Temp. / Manufacturer	Bucket, Arm and Boom, Swing Gear, Swing Bearing, etc.	
	−20 to 40°C (-4 to 104°F)	
Hitachi Genuine	Doubrex	HK*
British Petroleum	BP Energrease	LS-EP2
Caltex Oil	Multifax	EP2
Esso	Beacon	EP2
Apollo America	Daphne Coronex Grease	EP2
Mobil Oil	Mobilux	EP2
Nippon Oil	Epinoc Grease	AP2
Shell Oil	Shell Alvania EP Grease	2

M202-07-001



M202-07-044

*NOTE: The machine shipped from the factory is filled with lubricants marked with *.* ▒

B. ENGINE

Parts		Quantity	Interval (hours)						
			8	50	100	250	500	1000	2000
1. Engine Oil	Oil Level Check	-	▒						
2. Engine Oil	Change	14.7 L (3.9 US gal)					▒		
3. Engine Oil Main Filter	Replacement	1					▒		
4. Engine Oil Bypass Filter	Replacement	1					▒		

Recommended Engine Oil
Depending upon the expected air temperature range between oil changes, use the oil viscosity shown on the temperature chart below.

API CD Class
SAE 30 or equivalent (both summer and winter)
High temperature areas, SAE 40 or equivalent
Low temperature areas, SAE 10W or equivalent

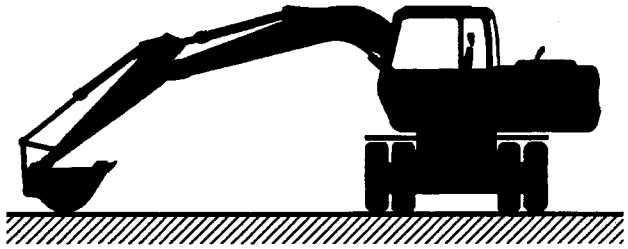
The Brand Name of Engine Oil Recommended

Kind of Oil	Engine Oil		
Application / Air Temp. / Manufacturer	Engine crank case fuel injection pump and governor		
	−20 to 0 °C (−4 to 32 °F)	−10 to 35 °C (14 to 95 °F)	25 to 40 °C (77 to 104 °F)
British Petroleum	BP Vanellus C3		
	10W	30	40
Caltex Oil	RPM DELO 300 Oil		
	10W	30	40
Esso Standard Oil	Essolube D-3		
	10W	30	40
Apollo America	Apolloil diesel motive		
	S-310	S-330	S-340
	−15 to 40 °C (5 to 104 °F) Apolloil custom wide 15W-40		
	▒ Apolloil super wide 15W-40		
Mobil Oil	Mobil Delvac		
	1310	1330	1340
Nippon Oil	Hidiesel S 3		
	-20 to 35 °C (-6 to 95 °F) 10W-30	10 to 40 °C (14 to 104 °F) 15W-40	
Shell Oil	Rymla zoil white pilot super		
	10W	30	40

- The machine shipped from the factory is filled with lubricants marked with*. ▒

MEMO

2 Drain Hydraulic Tank Sump --- every 250 hours



M202-07-065

IMPORTANT: Never run the engine without oil in hydraulic oil tank.

1. Park the machine on a level surface with the upperstructure rotated 90° for easier access.
2. Lower the bucket to the ground.
3. Turn the auto-idle switch off.

IMPORTANT: The turbocharger may be damaged if the engine is not properly shut down.

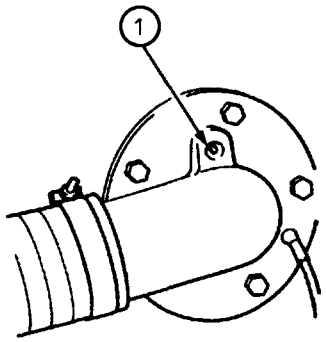
4. Run the engine at slow idle speed without load for three minutes.
5. Turn the key switch OFF. Remove the key from the key switch.
6. Pull the pilot shut-off lever to the LOCK position.

CAUTION: The hydraulic oil tank is pressurized. Push the pressure release button on the tank cap to release pressure.

7. Push the pressure release button on the cap to release pressure.

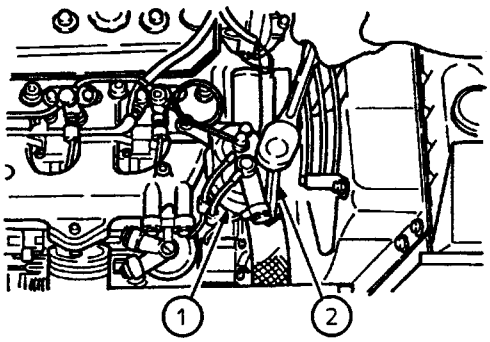
CAUTION: Do not loosen the drain plug until oil is cool. Hydraulic oil may be hot, potentially causing serious injury.

8. After oil is cool, loosen drain plug ① to drain water and sediment. Do not remove the plug completely, only loosen it enough to drain water and sediment.
9. After draining water and sediment, retighten the plug.



M104-07-023

3 Replace Fuel Filter --- every 500 hours



M104-07-039

1. For safety and to protect the environment, always use proper containers when draining fuel. Do not pour fuel into the ground, down a drain or into a stream, pond or lake. Dispose of waste fuel properly.
2. Remove cartridge filter ① using filter wrench ②.
3. Apply a thin film of clean fuel to the gasket of the new filter ①.
4. Tighten the filter by hand until the gasket makes contact with the sealing surface.
5. Using a filter wrench ②, tighten the filter about 2/3 turn more. Do not overtighten filter.
6. After replacing the filter, bleed air from the fuel system.

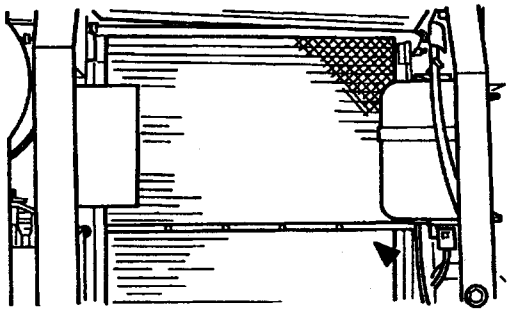
4 **Clean Radiator Core --- every 500 hours**

CAUTION: Reduce compressed air pressure when using for cleaning purposes. Clear area of by standers, guard against flying chips, and wear personal protection equipment including eye protection.

1. Open radiator access door and hood.
2. Remove air conditioner condenser bolts and nuts to lay condenser flat in front of oil cooler. DO NOT disconnect air conditioner lines.
3. Remove oil cooler front screen and clean.
4. Clean both radiator and oil cooler using compressed air or water.

5 **Clean Oil Cooler Front Screen --- every 500 hours**

IMPORTANT: When operating the machine in dusty environment, check the screen every day for dirt and clogging. If clogged, remove, clean and reinstall screen.



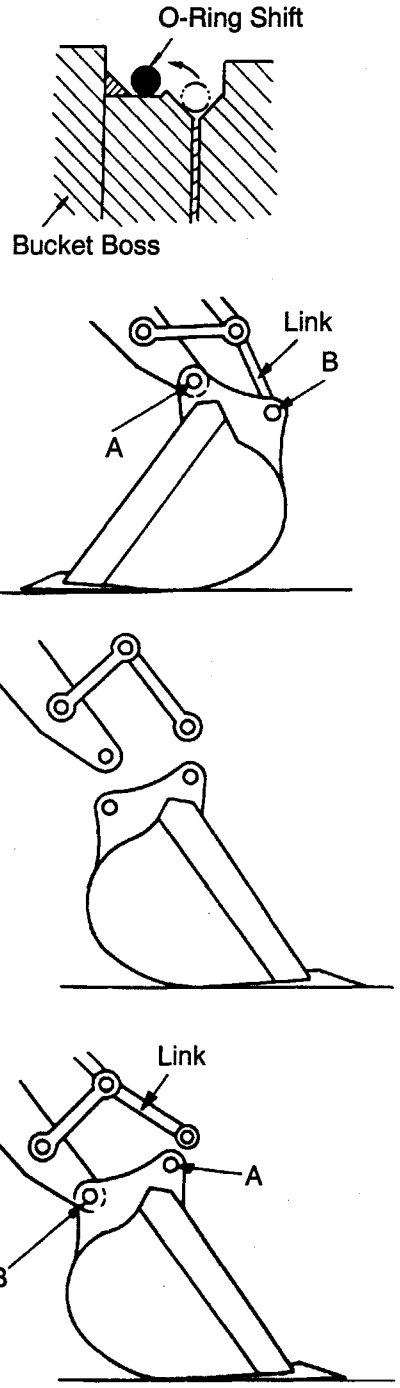
M104-07-053

3 Convert Bucket Connection Into Face Shovel

CAUTION: When driving the connecting pins in or out, guard against injury from flying pieces of metal or debris; wear goggles or safety glasses, and safety equipment appropriate to the job.

IMPORTANT: Provide ample space for turning the bucket 180°. Before starting converting work, keep bystanders clear of the machine. When using a signal person, coordinate hand signals before starting.

1. Park the machine on a level surface. Lower the bucket to the ground and position it with the flat surface resting on the ground. Be sure the bucket will not roll when the pins are removed.
2. Slide the O-rings out of the way, as shown.
3. Remove the bucket pins A and B to separate the arm and bucket. Clean the pins and pin bores. Apply sufficient grease to the pins and pin bores.
4. Turn the bucket 180°. Be sure the bucket will not roll.
5. Align the arm and bucket. Install bucket pins A and B, then install the locking pins and snap rings on pin A and B.
6. Apply grease to pin joints A and B.
7. Start the engine and run at slow idle. Slowly operate the bucket in both directions and check for any interference in bucket movement. Do not operate a machine that has any movement interference. Correct interference problem.

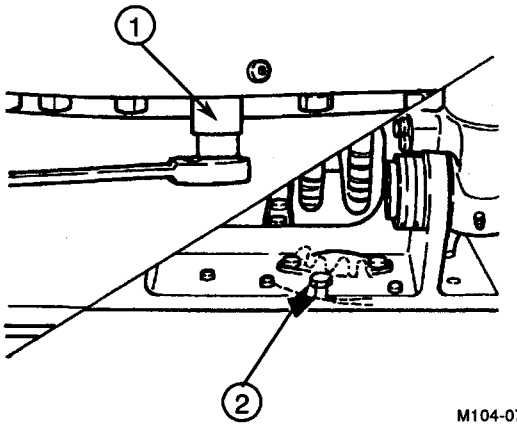


M104-07-064

12. Retighten swing bearing mounting bolts ① to upperstructure.

    Tool : 27 mm

    Torque : 390 N·m (40 kgf·m, 290 lbf·ft)



M104-07-086

    Retighten swing bearing mounting bolts ② to undercarriage.

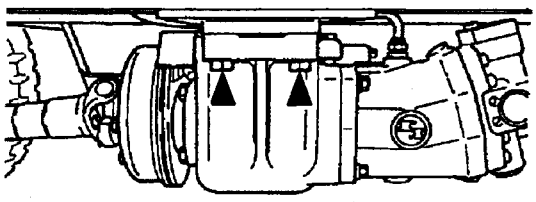
    Tool : 24 mm

    Torque : 265 N·m (27 kgf·m, 195 lbf·ft)

13. Retighten transmission mounting bolts

    Tool : 30 mm

    Torque : 540 N·m (55 kgf·m, 400 lbf·ft)

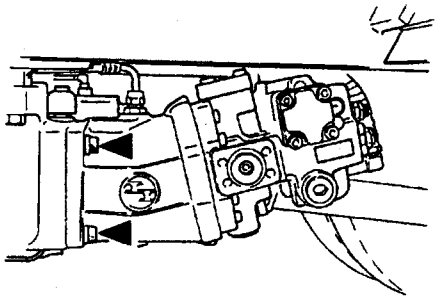


M201-07-029

14. Retighten travel motor mounting bolts.

    Tool : 14 mm

    Torque : 225 to 275 N·m
    (23 to 28 kgf·m, 166 to 205 lbf·ft)



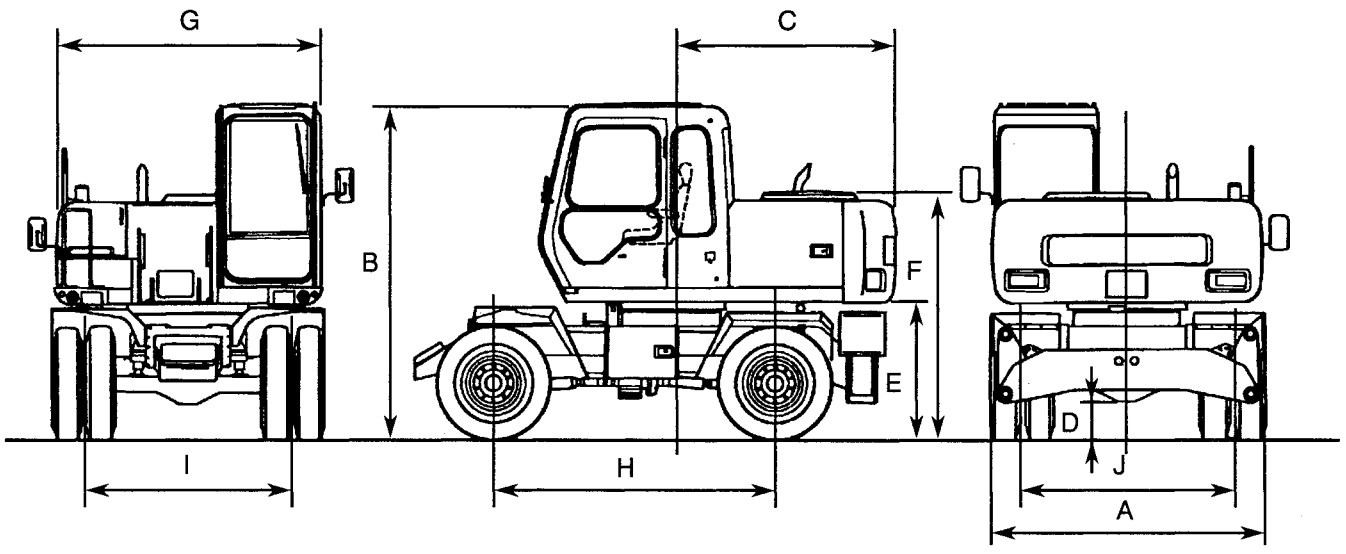
M201-07-030

ELECTRICAL SYSTEM

Problem	Cause	Solution
Engine Cranks Slowly	Battery discharged or will not hold a charge	Replace battery.
	Starter "dragging"	See your authorized dealer.
	Low battery voltage	Recharge or replace battery.
Starter Motor Continues To Run After Engine Starts	Start relay stuck	See your authorized dealer.
	Starter solenoid stuck	See your authorized dealer.
	Starter not disengaging	See your authorized dealer.
	Key switch	See your authorized dealer.
Charging Indicator Light On-Engine Running	Loose or glazed alternator belt	Check belt. Replace if glazed, tighten if loose.
	Engine rpm low	Adjust rpm to specification.
	Excessive electrical load from added accessories	Remove accessories or install higher output alternator.
	Loose or corroded electrical connections on battery, ground strap, starter, or alternator	Inspect, clean, or tighten electrical connections.
	Battery voltage low	Change or replace battery.
	Alternator or regulator	See your authorized dealer.
	Indicator circuit	See your authorized dealer.
Noisy Alternator	Worn drive belt	Replace belt.
	Worn pulleys	Replace pulleys and belt.
	Pulley misaligned	Adjust alternator mount.
	Alternator bearing	Loosen alternator belts. Turn pulley by hand. If any roughness is felt, repair alternator.
No Monitor Panel Indicators Work	Fuse	Replace fuse.
	Wiring harness	See your authorized dealer.
Individual Light in Monitor Panel is Not Working	Bulb	Replace bulb.
	Fuse	Replace fuse.
	Wiring harness	See your authorized dealer.

SPECIFICATIONS

Model			EX100WD-3C Hydraulic Excavator	
Tape of Front Attachment			2.26 m (7 ft 5 in) Arm	Offset Front 1.96 m (6 ft 5 in) Arm
Bucket Capacity (Heaped)			PCSA 0.46m³ (0.60 yd³) , CECE 0.4m³	
Operating Weight (without stabilizer)		kg (lb)	10 700 (23 600)	11 400 (25 100)
Basic Machine Weight		kg (lb)	8 600 (19 000)	8 200 (18 100)
Engine			110 ps / 2 400 rpm (81 kw / 2 400 min^{-1})	
A: Over Width		mm (ft·in)	2 485 (8'11")	
B: Cab Height		mm (ft·in)	3 020 (9'11")	
C: Rear End Swing Radius		mm (ft·in)	2 100 (6'11")	
D: Minimum Ground Clearance		mm (ft·in)	325 (1'1")	
E: Counterweight Clearance		mm (ft·in)	1 190 (3'11")	
F: Engine Cover Height		mm (ft·in)	2 200 (7'11")	
G: Over Width of Upperstructure		mm (ft·in)	2 460 (9'3")	
H: Wheel Base		mm (ft·in)	2 600 (8'6")	
I: Tread of Front Axle		mm (ft·in)	1 895 (6'3")	
J: Tread of Rear Axle		mm (ft·in)	1 895 (6'3")	
Tire Size			9.00-20-12PR	
Swing Speed			11.0 min^{-1} (rpm)	
Travel Speed km/h (mph)	Both Forward and Reverse	Slow	12.7 (7.79)	
		First	34.5 (21.4)	
Gradeability		degree (%)	33 (65)	



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