9040B Excavator
Troubleshooting and Schematic Set No. 7-63132

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NOTE: Case Corporation reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

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Bur 7-63142

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SAFETY

This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death. SB001

To prevent injury always follow the Warning, Caution and Danger notes in this section and throughout the manual.

Put the warning tag shown below on the key for the keyswitch when servicing or repairing the machine. One warning tag is supplied with each machine. Additional tags Part Number 331-4614 are available from your service parts supplier.



1001-01

WARNING: *Read the operator's manual to familiarize yourself with the correct control functions.* 46-27

WARNING: *Operate the machine and equipment controls from the seat position only. Any other method could result in serious injury.* 48-55

WARNING: *This is a one man machine, no riders allowed.* 35-8

WARNING: *Before starting engine, study Operator's Manual safety messages. Read all safety signs on machine. Clear the area of other persons. Learn and practice safe use of controls before operating.*
It is your responsibility to understand and follow manufacturers instructions on machine operation, service and to observe pertinent laws and regulations. Operator's and Service Manuals may be obtained from your Case dealer. SA055

WARNING: *If you wear clothing that is too loose or do not use the correct safety equipment for your job, you can be injured. Always wear clothing that will not catch on objects. Extra safety equipment that can be required includes hard hat, safety shoes, ear protection, eye or face protection, heavy gloves and reflector clothing.* 45-3A

WARNING: *When working in the area of the fan belt with the engine running, avoid loose clothing if possible, and use extreme caution.* 35-4

WARNING: *When doing checks and tests on the equipment hydraulics, follow the procedures as they are written. DO NOT change the procedure.* 47-44

WARNING: *When putting the hydraulic cylinders on this machine through the necessary cycles to check operation or to remove air from a circuit, make sure all people are out of the way.* 47-45

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GENERAL SPECIFICATIONS

Capacities

Engine Crank Case Capacity	23.2 liters	6.1 US gallons
Engine Cooling System	25.8 liters	6.8 US gallons
Fuel Tank	310 liters	82 US gallons
Hydraulic Oil Tank Capacity	120 liters	31.7 US gallons
Total Hydraulic System Capacity	224 liters	59 US gallons
Final Drive Case Capacity	4.7 liters	1.2 gallons
Swing Drive Case Capacity	6.0 liters	1.6 gallons
Swing Ring Gear	20 kg	44 pounds
Track Front Idlers	360 to 370 cc	11.8 to 12.21 oz
Track Lower Rollers	190 to 200 cc	6.27 to 6.60 oz

NOTE: *These capacities are only a guide to the quantities. Always use the dipstick, sight gauges or level plug to make sure that fluid levels are correct.*

Drawbar Pull

Drawbar Pull	18400 kg	40565 lb

Drive Speed

Drive Speed: High	5.0 km/h	3.1 mph
Drive Speed: Middle	3.5 km/h	2.2 mph
Drive Speed: Low	2.5 km/h	1.5 mph

Electrical System

Type of System	24 volts negative ground
Alternator	
Manufacturer	Robert Bosch
Output	65 amperes
Batteries	
Number of batteries required	2
Voltage of each battery	12 volts
Reserve capacity	160 minutes
Cold cranking capacity at -17˚C (0˚F)	800 amperes
Load for capacity (load) test	400 amperes
Starter Motor	
Manufacturer	DelcoRemy
Voltage	24 volts

Fluids and Lubricants

Batteries	add drinking or distilled water
Engine Coolant Solution	refer to page 16
Engine Lubrication	refer to page 16
Fuel	refer to entry on page 5
Hydraulic System	CASE MS-1210 TCH FLUID
Final Drive Lubricant	API GL-4, SAE 90
Swing Drive Case Lubricant	API GL-4, SAE 90
Track Roller and Front Idler Lubricant	Case IH No. 1 Single Grade engine oil SAE 30
Turntable Ring Gear Lubricant	No. 2 EP lithium grease
Grease Fitting Lubricant	No. 2 EP lithium grease

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TORQUE TABLE

Tighten cap screws and nuts according to the table below if there are no other special instructions.

Cap Screw Name Size (Size)			M6	M8	M10	M12	M14	M16	M18	M20
Cap Screw	Spanner	[mm]	10	13	17	19	22	24	27	30
		[in.]	0.39	0.51	0.67	0.75	0.87	0.95	1.06	1.18
	Tightening torque	[Nm]	6.9	15.7	32.3	58.8	98.0	137.2	196.0	274.0
		[lb-ft]	5.1	11.6	23.9	43.4	72.3	101.2	144.6	202.4
Socket Head Cap Screw	Spanner	[mm]	5	6	8	10	12	14	14	17
		[in.]	0.20	0.24	0.32	0.39	0.47	0.55	0.55	0.67
	Tightening torque	[Nm]	8.8	21.6	42.1	78.4	117.6	176.4	245.0	343.0
		[lb-ft]	6.5	15.9	31.1	57.8	86.8	130.1	180.8	253.1

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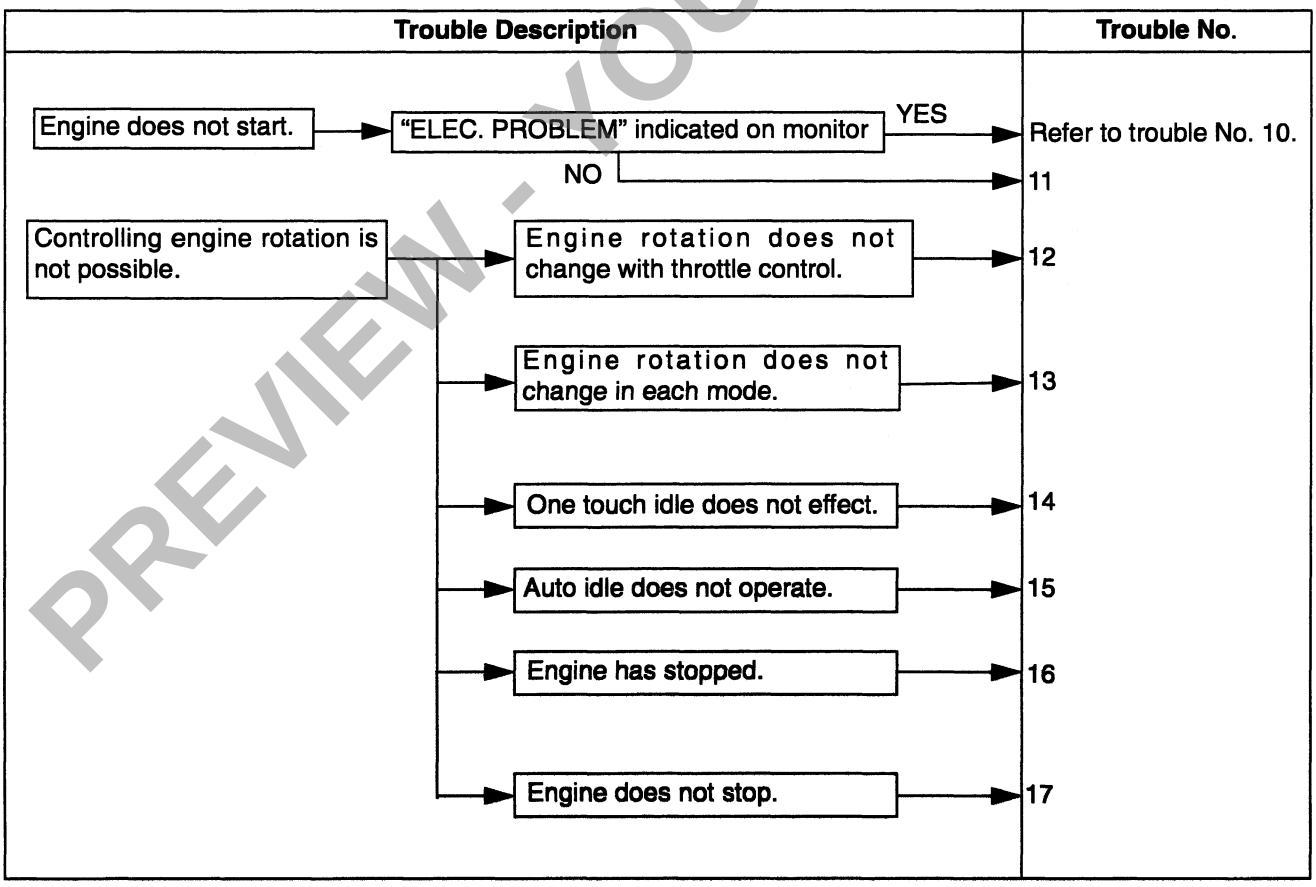
TROUBLESHOOTING

1. The following explains how to troubleshoot in the event that the message does not go out even though suitable measures are taken to correct the warning message.

Mark	Message Display	Trouble Description	Trouble No.
!	Engine Emergency Stop	Engine emergency stop (emergency stop switch ON) is displayed.	1
!	Refuel	Fuel amount indicated is low. Check and supply fuel.	2
!	Refill Coolant	Refill coolant level if low.	3
!	Replenish Battery Fluid	Battery fluid level is low. Check and replenish battery fluid.	4
!	Air Cleaner Clogged	Air cleaner element is clogged. Wash or replace element.	5
!	Engine Oil Pressure Low	Pressure of engine oil is low. Check engine oil quantity and replenish if low.	6
!	Over Heat	Engine coolant or hydraulic oil temperature is high. Run engine at low idle to lower the water or oil temperature. (Check radiator and clean if necessary.)	7
!	Battery Charging Deficient	Abnormal charging system is displayed. Check the electrical circuit.	8
!	"ELEC. PROBLEM"	Abnormal electrical system. Check the electrical circuit.	9

2. This explains how to troubleshoot when an operation is not indicated on a message, but it does not operate normally.

A. Engine Control Area



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TRACK

Removal

STEP 1

Park the machine on a hard level surface. Rotate the upper structure of the machine so that the cab is over the track to be removed.

STEP 2

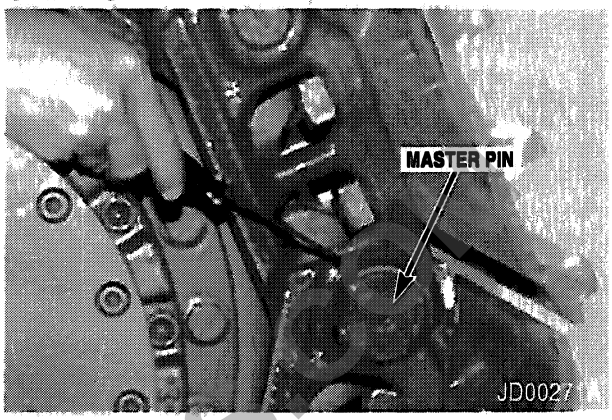


Lower the bucket or tool to raise the machine until the track to be removed is one to two inches from the ground.

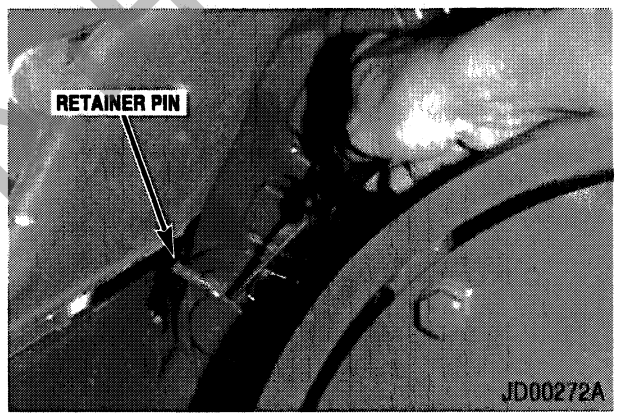
NOTE: *If the machine does not have a bucket or tool installed, install wood blocks under the arm and lower the arm onto the wood blocks. Then, lower the arm to raise the machine.*

> **WARNING:** *Do not put your feet under the tracks of the machine when the tracks are raised above the ground. Injury can result if the machine is accidently lowered back to the ground.* SA158

STEP 3



Master pin is identified by the hole in the center of the pin and retainer pin on opposite end.

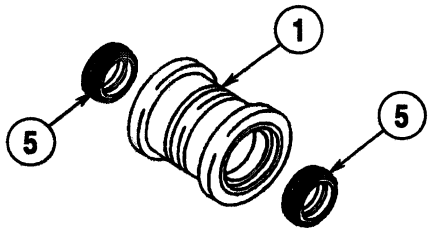


Operate machine until master pin is near center of sprocket. Operate machine to lower track to be removed to ground. Rotate the upper structure of the machine so that the cab is facing the front. Stop the engine.

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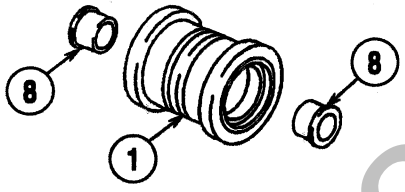
STEP 5



JS00305A

Remove and discard face seal (5) from track roller (1) or shaft (6).

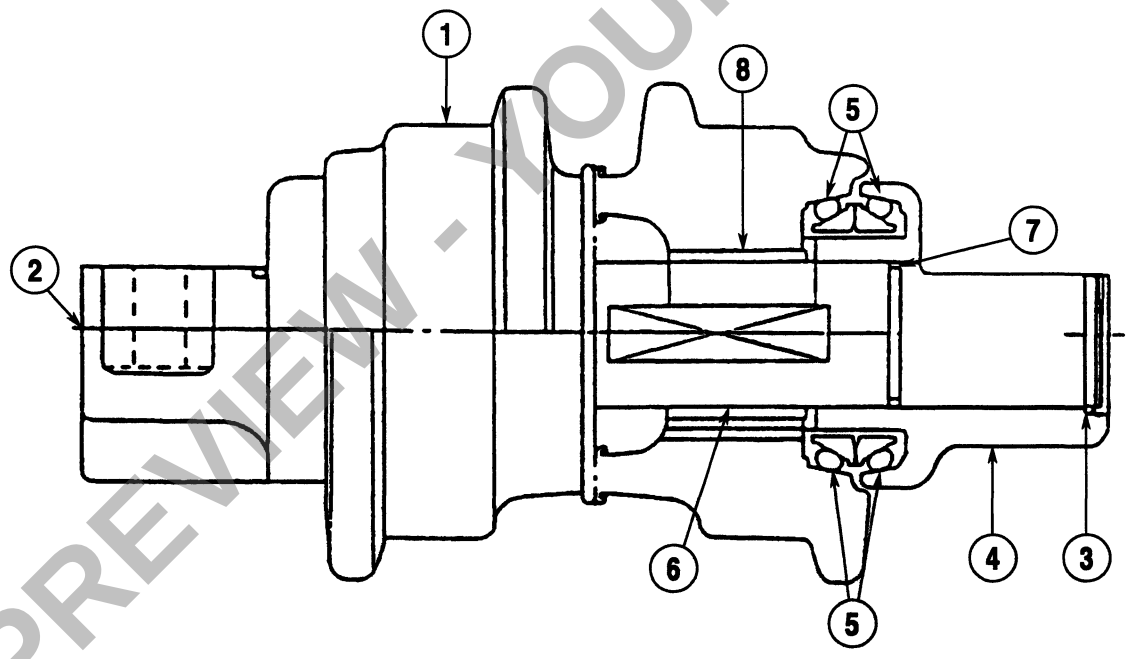
STEP 6



JS00306A

NOTE: *Do this step only if Inspection step 3, page 24 indicates bushings (8) require replacement.*

Using a hammer and brass punch, drive the bushings (8) from the track roller (1). Be careful not to damage the seal bore in the track roller. Discard bushings.



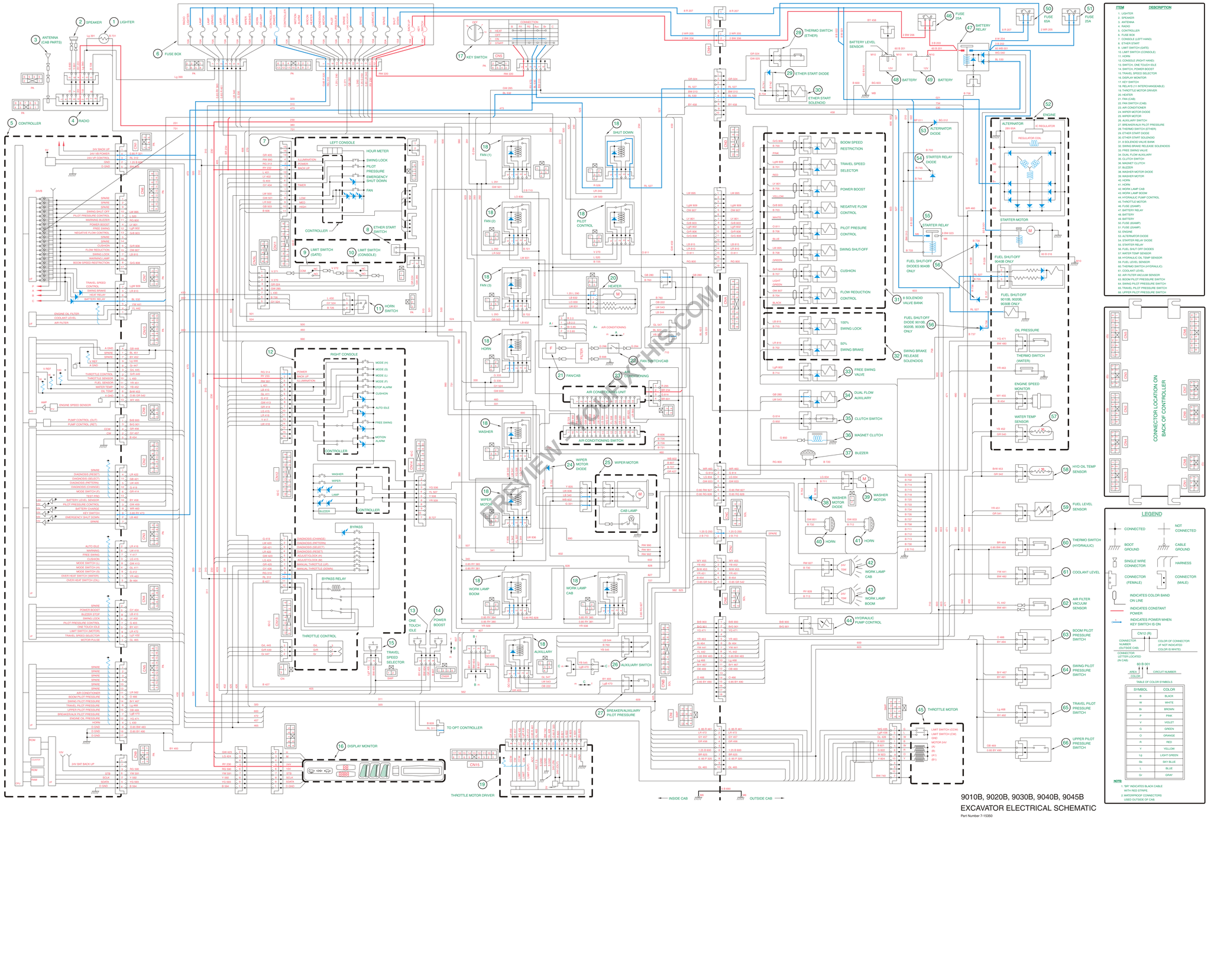
JS00307A

Track Roller (Side View)

1. Track Roller
2. Drain Plug
3. Retaining Ring
4. Bracket
5. Face Seal
6. Shaft
7. O-ring
8. Bushing

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ITEM	DESCRIPTION
1.	LIGHTER
2.	SPEAKER
3.	ANTENNA
4.	RADIO
5.	CONTROLLER
6.	FUSE BOX
7.	CONSOLE (LEFT HAND)
8.	ETHER START
9.	LIMIT SWITCH (GATE)
10.	LIMIT SWITCH (CONSOLE)
11.	HORN
12.	CONSOLE (RIGHT HAND)
13.	SWITCH, ONE TOUCH IDLE
14.	SWITCH, POWER BOOST
15.	TRAVEL SPEED SELECTOR
16.	DISPLAY MONITOR
17.	KEY SWITCH
18.	RELAYS (11 INTERCHANGEABLE)
19.	THROTTLE MOTOR DRIVER
20.	HEATER
21.	FAN (CAB)
22.	FAN SWITCH (CAB)
23.	AIR CONDITIONER
24.	WIPER MOTOR DIODE
25.	WIPER MOTOR
26.	AUXILIARY SWITCH
27.	BREAKER/AUX PILOT PRESSURE
28.	THERMO SWITCH (ETHER)
29.	ETHER START DIODE
30.	ETHER START SOLENOID
31.	8 SOLENOID VALVE BANK
32.	SWING BRAKE RELEASE SOLENOIDS
33.	FREE SWING VALVE
34.	DUAL FLOW AUXILIARY
35.	CLUTCH SWITCH
36.	MAGNET CLUTCH
37.	BUZZER
38.	WASHER MOTOR DIODE
39.	WASHER MOTOR
40.	HORN
41.	HORN
42.	WORK LAMP CAB
43.	WORK LAMP BOOM
44.	HYDRAULIC PUMP CONTROL
45.	THROTTLE MOTOR
46.	FUSE 25A
47.	BATTERY RELAY
48.	BATTERY
49.	BATTERY
50.	FUSE 65A
51.	FUSE 25A
52.	ENGINE
53.	ALTERNATOR DIODE
54.	STARTER RELAY DIODE
55.	STARTER RELAY
56.	FUEL SHUT-OFF DIODES
57.	WATER TEMP SENSOR
58.	HYDRAULIC OIL TEMP SENSOR
59.	FUEL LEVEL SENSOR
60.	THERMO SWITCH (HYDRAULIC)
61.	COOLANT LEVEL
62.	AIR FILTER VACUUM SENSOR
63.	BOOM PILOT PRESSURE SWITCH
64.	SWING PILOT PRESSURE SWITCH
65.	TRAVEL PILOT PRESSURE SWITCH
66.	UPPER PILOT PRESSURE SWITCH

CONNECTOR LOCATION ON BACK OF CONTROLLER

LEGEND

- CONNECTED
- NOT CONNECTED
- BOOT GROUND
- CABLE GROUND
- SINGLE WIRE CONNECTOR
- HARNESS
- CONNECTOR (FEMALE)
- CONNECTOR (MALE)
- INDICATES COLOR BAND ON LINE
- INDICATES CONSTANT POWER
- INDICATES POWER WHEN KEY SWITCH IS ON

CN12 (R)
CONNECTOR NUMBER (OUTSIDE CAB)
CONNECTOR LETTER LOCATED (IN CAB)
COLOR OF CONNECTOR (IF NOT INDICATED)
COLOR IS WHITE)

60 B 001
AREA / COLOR
CIRCUIT NUMBER

TABLE OF COLOR SYMBOLS

SYMBOL	COLOR
B	BLACK
W	WHITE
Br	BROWN
P	PINK
V	VIOLET
G	GREEN
O	ORANGE
R	RED
Y	YELLOW
Lg	LIGHT GREEN
Sb	SKY BLUE
L	BLUE
Gr	GRAY

NOTE
1. "BR" INDICATES BLACK CABLE WITH RED STRIPE.
2. WATERPROOF CONNECTORS USED OUTSIDE OF CAB.

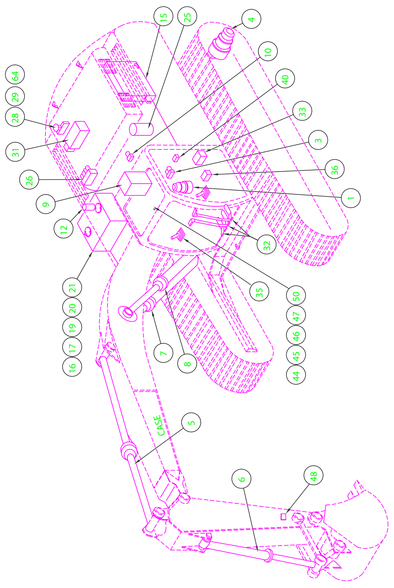
9010B, 9020B, 9030B, 9040B, 9045B EXCAVATOR ELECTRICAL SCHEMATIC

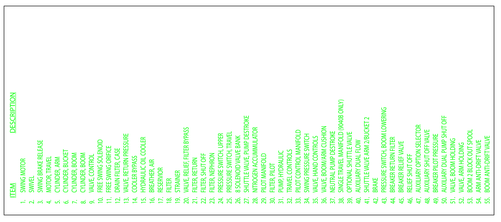
Part Number 7-15350

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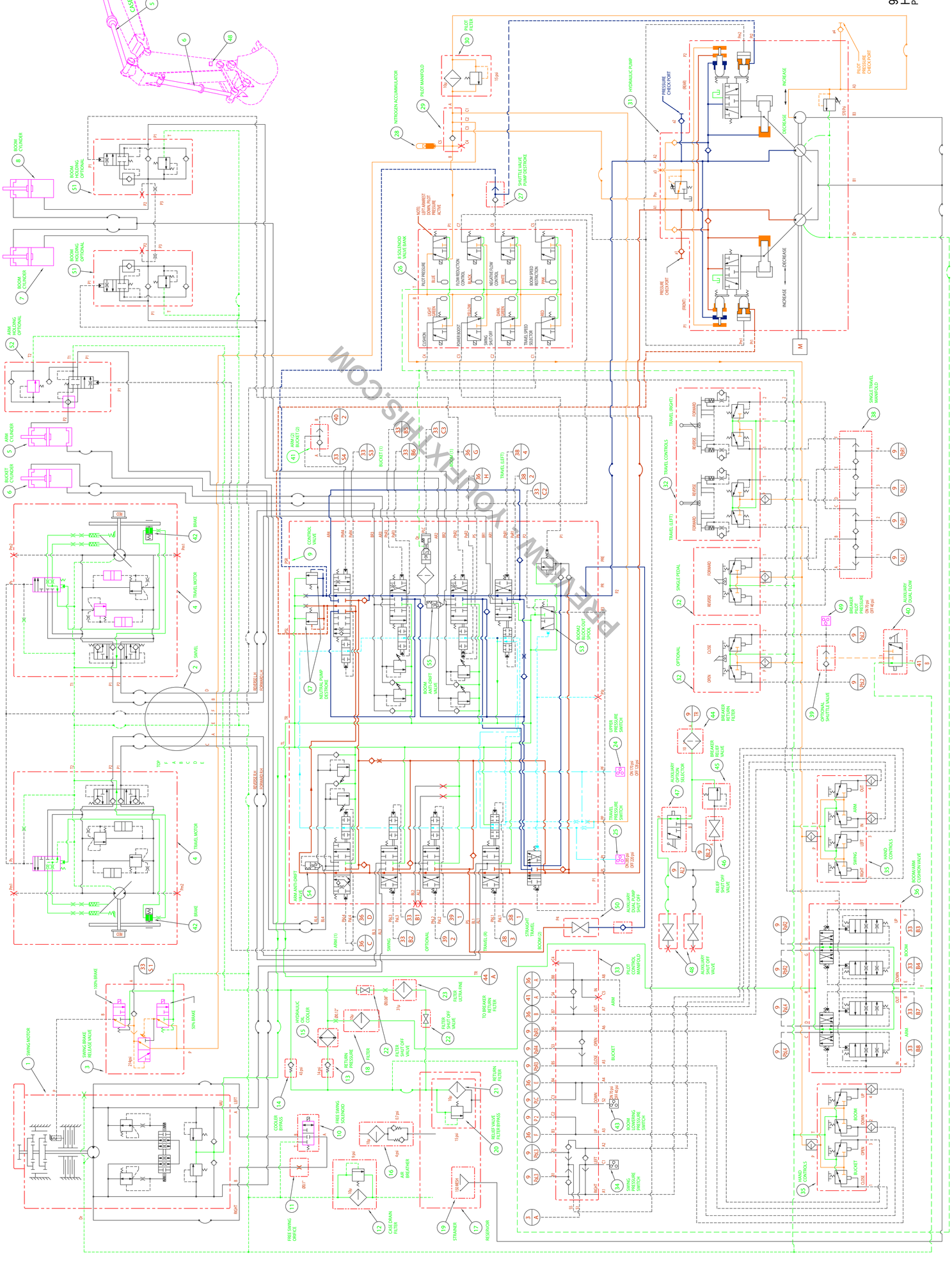
9030B, 9040B, 9045B EXCAVATOR HYDRAULIC/ELECTRICAL SCHEMATIC







9030B, 9040B, 9045B EXCAVATOR
HYDRAULIC SCHEMATIC
Part number 7-15360


BOOM CYLINDER
BOOM HOLDING OPTIONAL
ARM CYLINDER
ARM HOLDING OPTIONAL
BUCKET CYLINDER
SWING MOTOR
SWING BRAKE RELEASE VALVE
TRAVEL MOTOR
BRAKE
HYDRAULIC COOLER
FREE SWING SOLENOID
FREE SWING ORIFICE
CASE DRAIN FILTER
RESERVOIR
STRAINER
RETURN FILTER
RELIEF VALVE SETTINGS
AUX BREATHER
FILTER BYPASS VALVE
TO BREAKER RETURN FILTER
PILOT FILTER
NITROGEN ACCUMULATOR
PILOT MANIFOLD
SOLENOID VALVE BANK
SHUTTLE VALVE PUMP DESTROKE
HYDRAULIC PUMP
PRESSURE CHECK PORT
PILOT PRESSURE CHECK PORT
CONTROL VALVE
BOOM ASSIST VALVE
BOOM PRIORITY VALVE
ARM 1/2 BUCKET (2)
BUCKET (1)
TRAVEL (LEFT)
TRAVEL (RIGHT)
SWING
OPTIONAL
STRAIGHT TRAVEL
AUXILIARY DUAL PUMP SHUT OFF
BREAKER SHUT OFF VALVE
AUXILIARY CONTROL SELECTOR
RELIEF SHUT OFF VALVE
AUXILIARY SHUT OFF VALVE
BREAKER RETURN FILTER
BREAKER PRESSURE ON Psw OFF PUMP
AUXILIARY FLOW
OPTIONAL SHUTTLE VALVE
SINGLE TRAVEL MANIFOLD
TRAVEL CONTROLS
SINGLE PEDAL
BOOM CONTROLS
ARM CONTROLS
BUCKET CONTROLS
PILOT CONTROL MANIFOLD
SWING PRESSURE SWITCH
BOOM LOWERING PRESSURE SWITCH
TRAVEL PRESSURE SWITCH
ARM PRESSURE SWITCH
BUCKET PRESSURE SWITCH
ARM IN PRESSURE SWITCH
BOOM DOWN PRESSURE SWITCH
ARM OUT PRESSURE SWITCH
BUCKET CURL PRESSURE SWITCH
BUCKET DUMP PRESSURE SWITCH
ENGINE SPEED SENSOR
ENGINE OIL PRESSURE SWITCH
ENGINE COOLANT TEMPERATURE SENSOR
ALTERNATOR
STARTER
ENGINE
ECM
ENGINE HARNESS CONNECTOR
CAB HARNESS CONNECTOR
CAB
CAB ROOF HARNESS
CAB FLOOR HARNESS
CAB DOOR HARNESS
CAB DOOR SWITCH
CAB DOOR SWITCH
CAB DOOR SWITCH

Warning Display (Message Display)

Key Switch ON

Message Display
! Overheat
! Electric System Problem
! Refuel
! Refill Coolant
! Engine Emergency Stop
Idling
Free Swing
Engine Warm-up

Key Switch ON and Engine Running

Message Display
! Battery Charging Deficient
! Engine Oil Pressure Down
! Air Cleaner Clogged
! Replenish Battery Fluid
Auto Warm-up
One-touch Power Boost

!	Engine emergency stop	Engine emergency stop (emergency stop switch ON) is displayed.
!	Refuel	Fuel amount indicated is low. Check and supply fuel.
!	Refill coolant	Refill coolant level if low.
!	Replenish battery fluid	Battery fluid level indicated is low. Check and replenish battery fluid.
!	Air cleaner clogged	Air cleaner element is clogged. Wash or replace element.
!	Engine oil pressure low	Pressure of engine oil low. Check engine oil quantity and replenish if low.
!	Over heat	Engine coolant or hydraulic oil temperature is high. Run engine at low idle to lower the water or oil temperature. (Check radiator and clean it.)
!	Battery charging deficient	Abnormal charging system is displayed. Check the electrical circuit.
!	Electrical system problem	Abnormal electrical system (ELEC. PROBLEM) is displayed. Check the electrical circuit.

The monitor is designed to indicate the condition of the machine and alert the operator when a problem exists.

When there is a problem, the warning mark "!" and message appear on the monitor and the warning buzzer sounds.

When more than one warning is indicated, they will be displayed alternately every 5 seconds.

When AUTO GLOW warm-up is complete the buzzer sounds for 3 seconds.

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AUTOMATIC ADJUSTMENT

Always perform automatic adjustment when the controller and the throttle motor are replaced and when the throttle link at the engine side is adjusted.

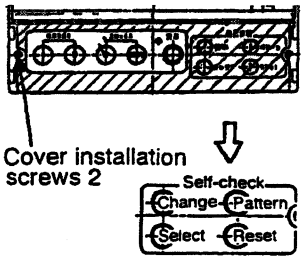
- If the controller was replaced, perform steps 6 through 11 and perform automatic adjustment.
- If the throttle motor was replaced and the throttle link was adjusted, perform steps 1 through 11 and perform automatic adjustment. (Steps 1 through 5 are to erase what is memorized at present. Steps 6 through 11 are for new input.)

For setting breaker, breaker 2, auto idle time or battery selection, refer to optional reset procedures.

NOTE: *When the ambient temperature is below 30° F, warm the engine to 120° F before starting this procedure.*

Automatic Adjustment Procedures

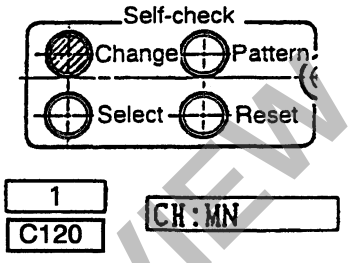
STEP 1



BS98F264

Self-check switches are under the cover for the clock adjustment, manual throttle, and backup switches on the right rear control panel. Remove 2 screws holding cover then remove cover.

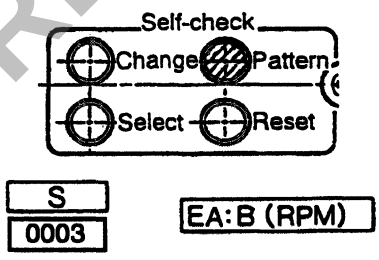
STEP 2



BS98F265

Turn key switch ON and press change switch once.

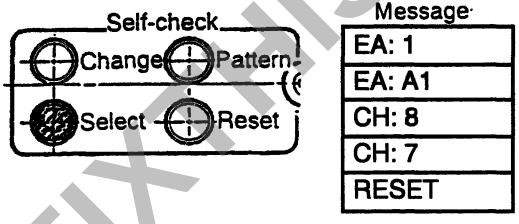
STEP 3



BS98F266

Press the pattern switch once.

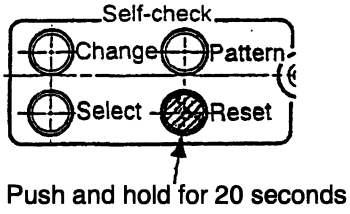
STEP 4



BS98F267

Press select switch 4 or 5 times until RESET appears in message display.

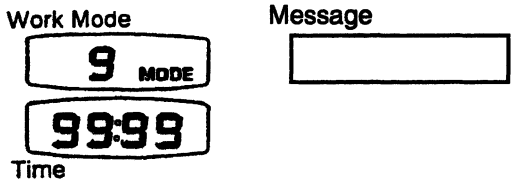
STEP 5



BS98F268

Press and hold reset switch for 20 seconds until a confirmation beep sounds. When beep is heard, turn key switch OFF. The controller is ready to be reprogrammed.

STEP 6



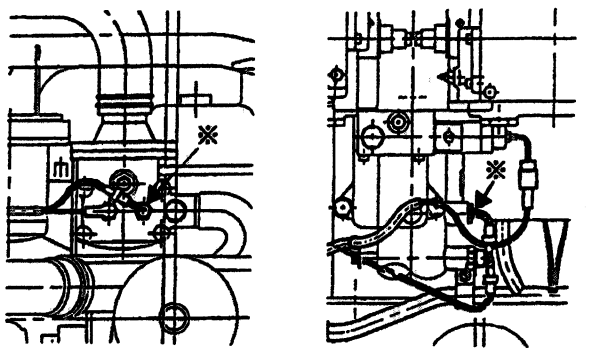
BS98F269

Turn key switch ON. When controller is not programmed, only 9's are indicated in work mode and clock displays. No messages are displayed in message panel.

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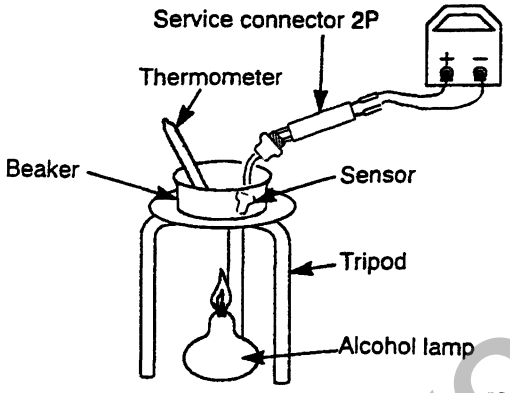
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Water Temperature Sensor and Oil Temperature Sensor



BS98F256

1. Remove the water temperature sensor or the oil temperature sensor.



BS98F257

2. Connect the service connector for 2P to the sensor which was removed.
3. To connect to the tester, connect the red/black terminal to the spade terminal of a service connector.

Water Temp. (Oil Temp.)	Lower Value	Upper Value
20° C	8.00k Ω	10.20k Ω
30° C	5.35k Ω	6.50k Ω
40° C	3.60k Ω	4.55k Ω
50° C	2.50k Ω	3.10k Ω
60° C	1.70k Ω	2.20k Ω
70° C	1.20k Ω	1.55k Ω
80° C	0.85k Ω	1.15k Ω

4. After completing the connection, increase temperature gradually and confirm the resistance.

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