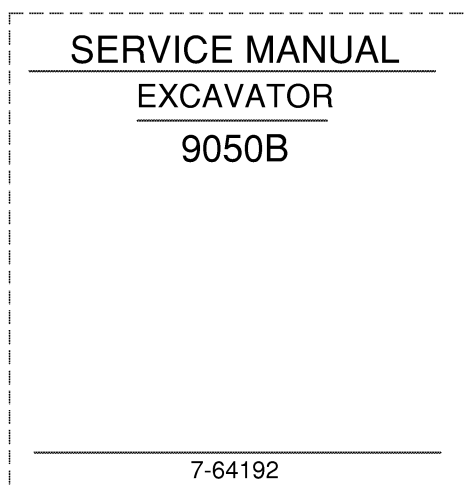
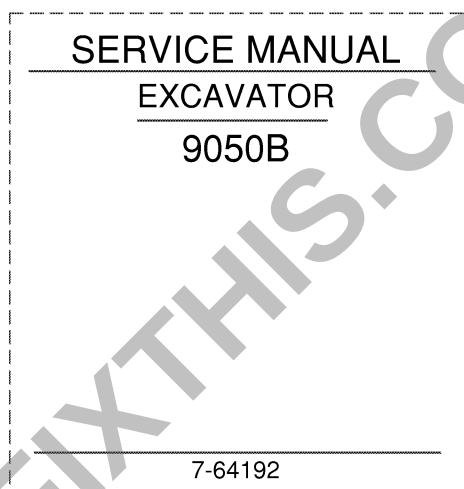




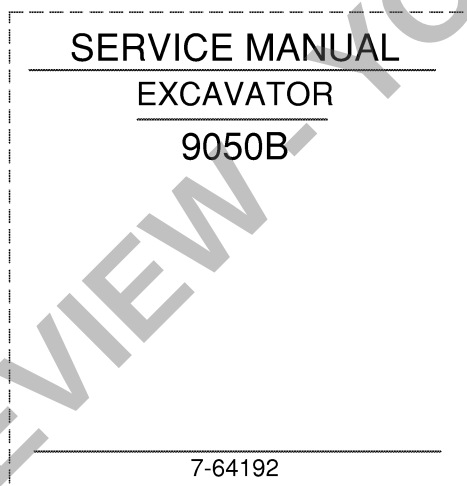
1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



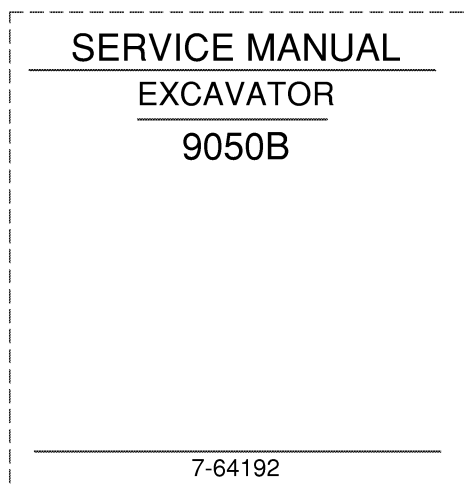
1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4

# 9050B Excavator

## Service Manual No. 7-64192

### Table of Contents

| Description                                                                                   | Section No.    | Form No. |
|-----------------------------------------------------------------------------------------------|----------------|----------|
| General                                                                                       | Tab 1          |          |
| Loctite Product Chart                                                                         |                | 8-98900  |
| Safety, General Information and Torque Specifications                                         | 1001           | 7-62010  |
| Specifications                                                                                | 1002           | 7-64260  |
| Engines                                                                                       | Tab 2          |          |
| Engine                                                                                        | 2000           | 7-64660  |
| Radiator, Oil Cooler and Cooling System Reservoir                                             | 2001           | 7-64580  |
| Fuel System                                                                                   | Tab 3          |          |
| Fuel Tank, Filters and Lines                                                                  | 3001           | 7-64490  |
| Electrical                                                                                    | Tab 4          |          |
| Electrical Specifications and Troubleshooting                                                 | 4001           | 7-63690  |
| Electrical Schematic Foldout                                                                  | In Rear Pocket | 7-15340  |
| Battery Testing, Maintenance and Booster Battery Connections                                  | 4002           | 7-64500  |
| Controller                                                                                    | 4003           | 7-62070  |
| Tracks                                                                                        | Tab 5          |          |
| Tracks, Rollers and Idlers                                                                    | 5002           | 7-64560  |
| Power Train                                                                                   | Tab 6          |          |
| Drive Motor and Final Drive Transmission                                                      | 6002           | 7-64690  |
| Swing Motor and Swing Reduction Gear                                                          | 6003           | 7-64570  |
| Hydraulics                                                                                    | Tab 8          |          |
| Cleaning the Hydraulic System                                                                 | 8000           | 7-64510  |
| Hydraulic Specifications, Troubleshooting and Pressure Checks                                 | 8001           | 7-63700  |
| Hydraulic Schematic Foldout                                                                   | In Rear Pocket | 7-15340  |
| Main Hydraulic Pump                                                                           | 8002           | 7-64590  |
| Main Hydraulic Control Valve                                                                  | 8003           | 7-64600  |
| Cylinders                                                                                     | 8004           | 7-64700  |
| Hand Control Valves, Foot Left and Right Travel Control Valves, Shuttle Valve and Accumulator | 8005           | 7-64520  |
| Eight Spool Solenoid Valve, Swing Lock and Swing Brake Solenoid Valve                         | 8006           | 7-64530  |
| Cushion Control Valve                                                                         | 8007           | 7-64540  |
| Auxiliary Hydraulics                                                                          | 8008           | 7-62180  |
| Hydraulic Reservoir Pressurization System                                                     | 8009           | 7-64710  |
| Hydraulic Pilot Filter, Hydraulic Inline Filter and Bypass Oil Filter                         | 8011           | 7-64550  |
| Hydraulic Swivel                                                                              | 8013           | 7-64610  |

**CASE CORPORATION**  
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**CASE CANADA CORPORATION**  
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Burlington, ON L7N 3M6 CANADA

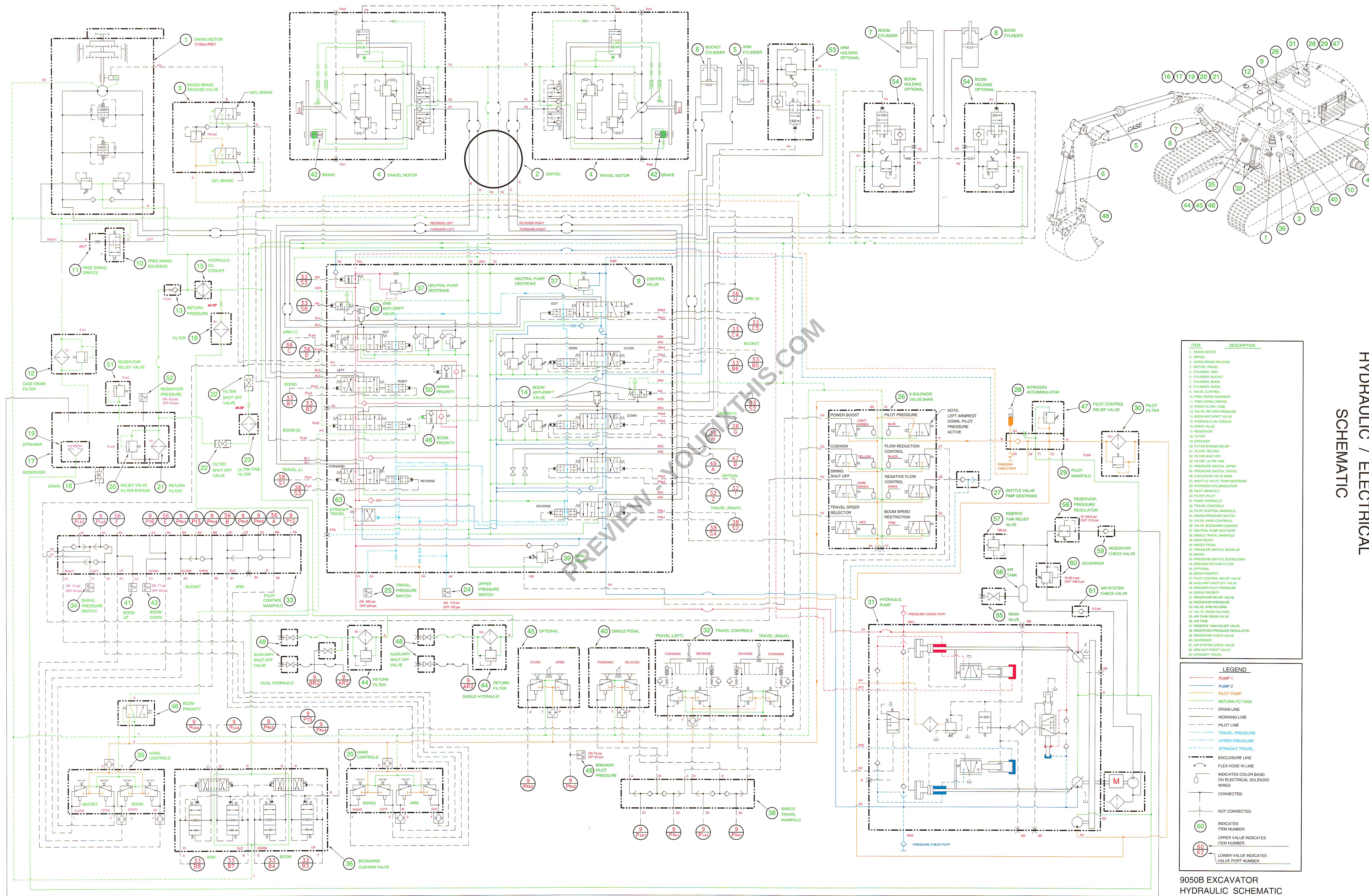
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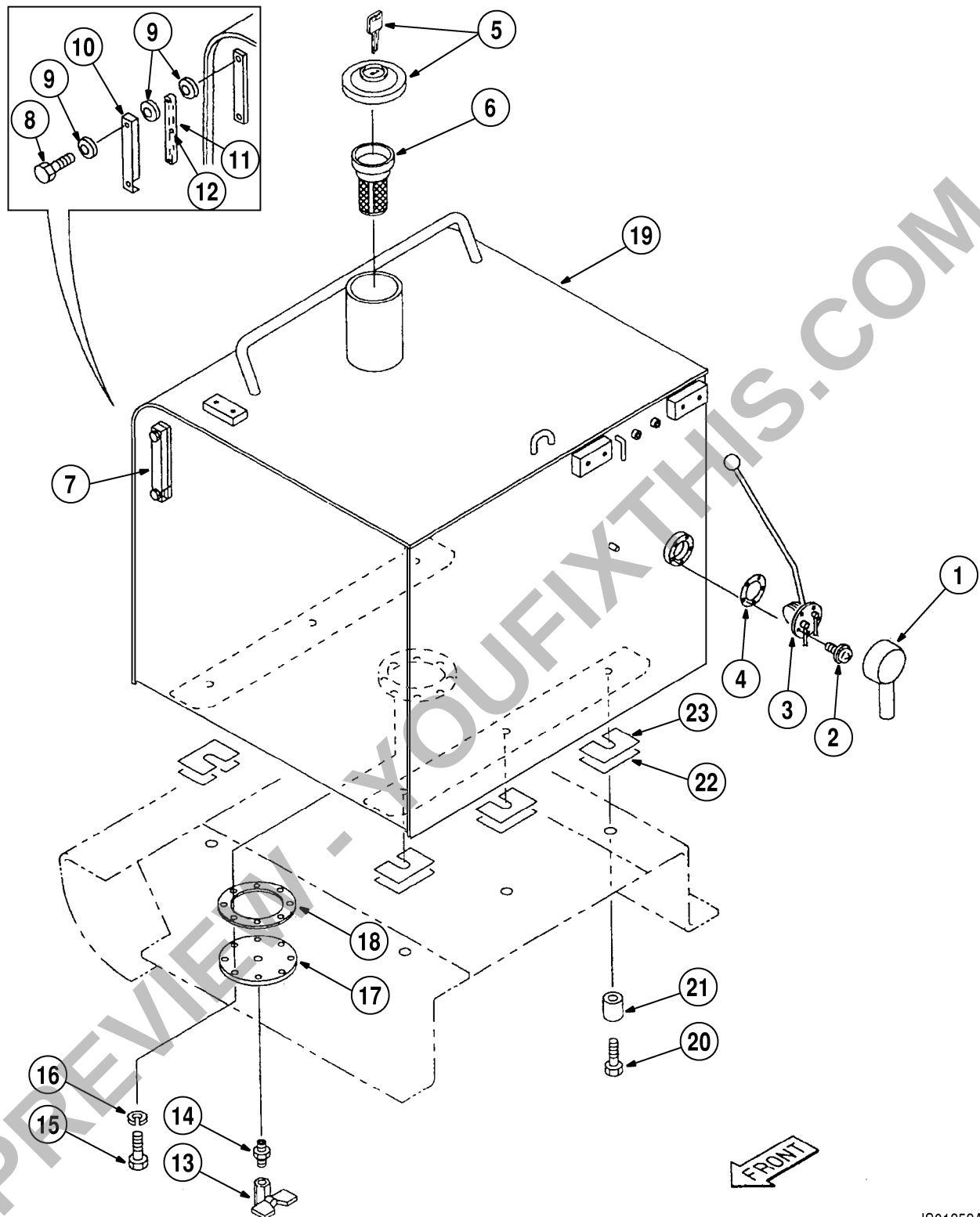
Rac 7-52701



# 9050B EXCAVATOR HYDRAULIC / ELECTRICAL SCHEMATIC



# 9050B EXCAVATOR HYDRAULIC SCHEMATIC



### Fuel Tank

JS01252A

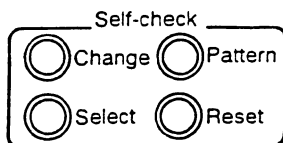
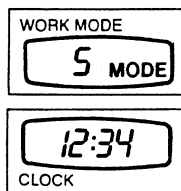
- |                      |                           |                  |               |
|----------------------|---------------------------|------------------|---------------|
| 1. Cover             | 7. Fuel Level Sight Gauge | 12. Indicator    | 18. Gasket    |
| 2. Screw             | 8. Cap Screw              | 13. Drain Valve  | 19. Fuel Tank |
| 3. Fuel Level Sender | 9. Seal Washer            | 14. Adapter      | 20. Cap Screw |
| 4. Gasket            | 10. Cover                 | 15. Cap Screw    | 21. Spacer    |
| 5. Cap and Key       | 11. Body                  | 16. Lock Washer  | 22. Shim      |
| 6. Filter            |                           | 17. Access Cover | 23. Shim      |

## 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 |

## SELF-CHECK MODE



Message



= Engine Running

|    | SWITCH USED   | MODE CLOCK                 | MONITOR MESSAGE DISPLAY | DESCRIPTION OF MESSAGE                                                                                                                                                                                          |
|----|---------------|----------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Key switch ON | S<br>1200                  | S: Standard mode        | S Mode Clock                                                                                                                                                                                                    |
| 1  | Change        | 1<br>C300                  | CH: MN                  | Mode: Language No. 0, 1, 2, 3, 4, 5, 6, 7, 8, H, L, F, E, C<br>Clock: First Digit - C = Case<br>Clock: Last 3 Digits - Machine No. 120 = 9010B, 150 = 9020B, 200 = 9030B, 220 = 9040B, 300 = 9050B, 400 = 9060B |
| 2  | Select        | S<br>2100                  | CH: RPM                 | Clock: Displays Actual Engine (RPM) Revolutions obtained from sensor on Flywheel                                                                                                                                |
| 3  | Select        | S<br>0300                  | CH: PWM (mA)            | Clock: Displays Pump Current Value (mA) Amperage to Components - Range 000-600 (mA) Approx.                                                                                                                     |
| 4  | Select        | S<br>1023                  | CH: PLS                 | Clock: Displays Throttle Motor Position (Pulse Number) 0-1023 Range                                                                                                                                             |
| 5  | Select        | S<br>0095                  | CH: OS                  | Clock: Displays Actual Oil Temp. (°C)                                                                                                                                                                           |
| 6  | Select        | S<br>0101                  | CH: WS                  | Clock: Displays Actual Water Temp. (°C)                                                                                                                                                                         |
| 7  | Select        | S<br>0080                  | CH: FS                  | Clock: Displays Resistance of Fuel Sensor ( $\Omega$ ) ohm's 0 - 80 ( $\Omega$ ) Range                                                                                                                          |
| 8  | Select        | S<br>0045                  | CH: TV                  | Clock: Throttle Volume Voltage Displayed<br>0 Idling 45 Max. (Actual 4.5 V)<br>0 - 45 Range                                                                                                                     |
| 9  | Select        | S<br>0101<br>4 3 2 1 Digit | CH: TR                  | Clock: Displays Transister Output State<br>0 = OFF 1 = ON<br>See Controller Transistor Output Diagram                                                                                                           |
| 10 | Select        | S<br>0010<br>4 3 2 1 Digit | CH: PS                  | Clock: Check of Pres. SW. 0 = OFF 1 = ON<br>Clock: 2nd Digit-upper Pres. SW.<br>Clock: 1st Digit - Travel Pilot Pres. SW. Swing Pilot Pres. SW.<br>Boom Pilot Pres. SW. Aux. Pilot Pres. SW.                    |
|    | Change        | S<br>1200                  | S: Standard mode        |                                                                                                                                                                                                                 |

## ENGINE

### Removal

**NOTE:** Make sure engine is cool before starting removal procedures.

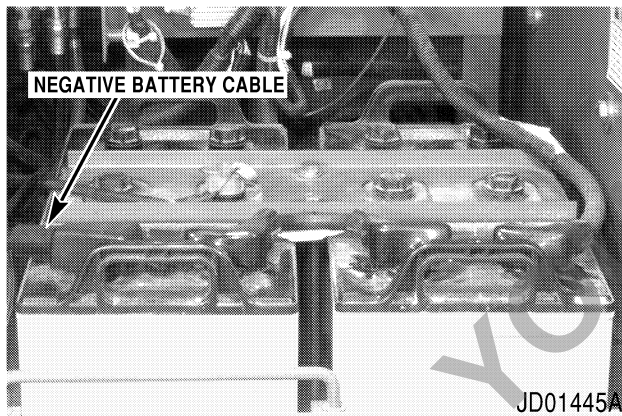
#### STEP 1

Remove the hydraulic pump (see Section 8002).

#### STEP 2

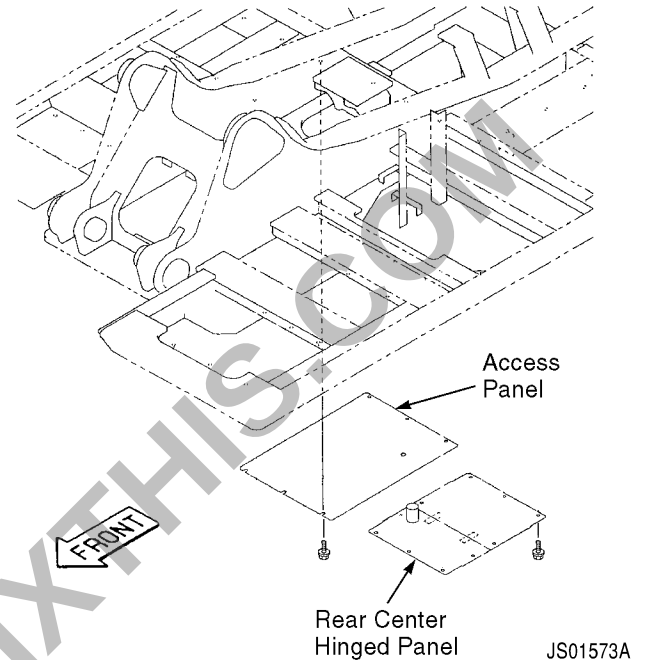
Remove the radiator, oil cooler, and the cooling system reservoir (see Section 2001).

#### STEP 3



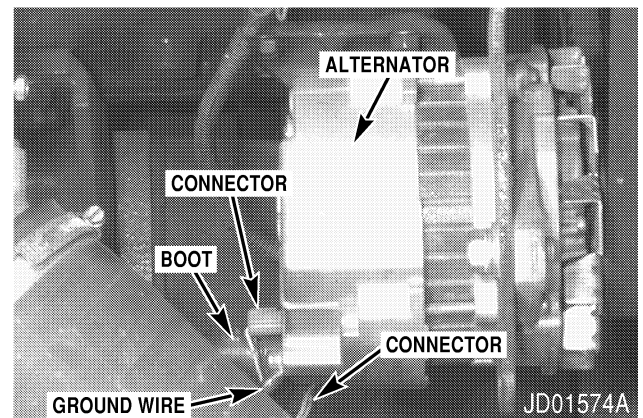
Open the left side access doors. Disconnect the negative battery cable from the battery.

#### STEP 4



Remove the bottom right rear access panel. Remove the five cap screws securing the rear center hinged panel below the engine. Swing the panel down for access to the engine two left mounts.

#### STEP 5



Tag and disconnect the two wiring harness connectors and the ground wire from the alternator. Pull the boot away from the alternator output terminal and tag and disconnect the wiring harness wire from the alternator. Cut, remove, and discard the tie strap securing the wiring harness to the alternator mounting bracket.

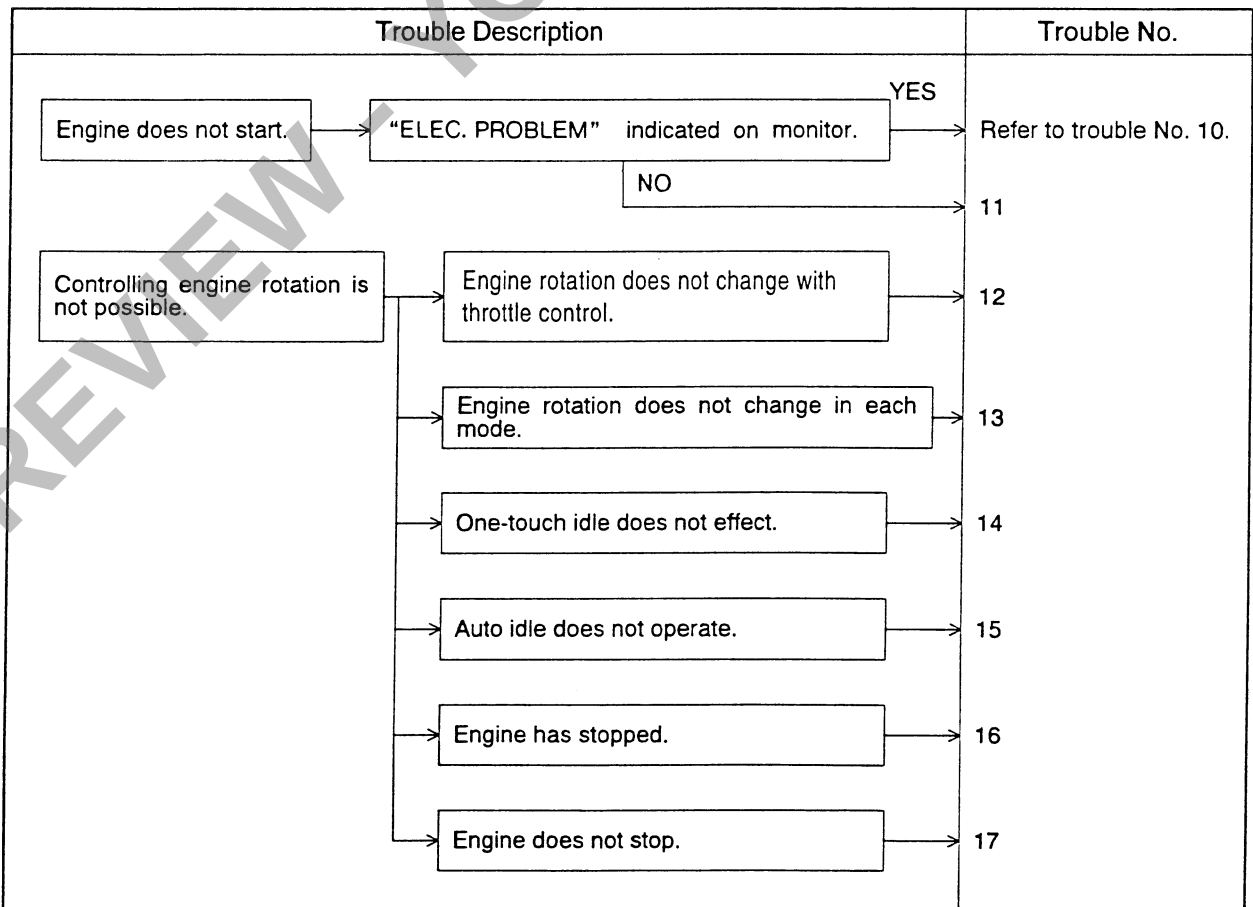
## TROUBLESHOOTING

- a. 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. |
|------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 1    | Engine emergency stop      | Engine emergency stop (emergency stop switch "ON" is displayed.                                                                                       | 1           |
| 2    | Refuel                     | Fuel amount indicated is low. Check, and supply fuel.                                                                                                 | 2           |
| 3    | Refill coolant             | Refill coolant level if low.                                                                                                                          | 3           |
| 4    | Replenish battery fluid    | Battery fluid level indicated is low. Check, and replenish battery fluid.                                                                             | 4           |
| 5    | Air cleaner clogged        | Air cleaner element is clogged. Wash or replace element.                                                                                              | 5           |
| 6    | Engine oil pressure low    | Pressure of engine oil low. Check engine oil quantity, and replenish if low.                                                                          | 6           |
| 7    | Over heat                  | Engine coolant or hydraulic oil temperature is high. Run engine at low idle to lower the water or oil temperature.<br>(Check radiator, and clean it.) | 7           |
| 8    | Battery charging deficient | Abnormal charging system is displayed. Check the electrical circuit.                                                                                  | 8           |
| 9    | Electrical system problem  | Abnormal electrical system (ELEC> problem) is displayed. Check the electrical circuit.                                                                | 9           |
| 10   | Engine filter clogged      | Engine oil filter clogged. Replace engine oil filter. (When replacing engine oil filter, also replace engine oil.)                                    | 10          |

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

### 1) Engine control area



## GENERAL SPECIFICATIONS

### Capacities

|                                       |               |                   |
|---------------------------------------|---------------|-------------------|
| Engine Crank Case Capacity .....      | 29.3 liters   | 7.75 US gallons   |
| Engine Cooling System .....           | 38 liters     | 10 US gallons     |
| Fuel Tank .....                       | 580 liters    | 153 US gallons    |
| Hydraulic Oil Tank Capacity .....     | 152 liters    | 40 US gallons     |
| Total Hydraulic System Capacity ..... | 320 liters    | 85 US gallons     |
| Final Drive Case Capacity .....       | 6.8 liters    | 1.8 US gallons    |
| Swing Drive Case Capacity .....       | 14.5 liters   | 3.8 US gallons    |
| Track Front Idlers .....              | 200 to 210 cc | 6.60 to 6.93 oz   |
| Track Lower Rollers .....             | 360 to 370 cc | 11.88 to 12.21 oz |
| Track Upper Roller .....              | 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 ..... | 23900 kg | 52700 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 .....                          | Mitsubishi Electric Corp. |
| Output .....                                | 40 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 .....                          | Mitsubishi Electric Corp. |
| Voltage .....                               | 24 volts                  |

## TABLE OF CONTENTS

|                       |    |
|-----------------------|----|
| SPECIAL TORQUES ..... | 3  |
| SPECIAL TOOLS .....   | 3  |
| BOOM CYLINDER .....   | 5  |
| Removal .....         | 5  |
| Installation .....    | 9  |
| ARM CYLINDER .....    | 13 |
| Removal .....         | 13 |
| Installation .....    | 17 |
| BUCKET CYLINDER ..... | 20 |
| Removal .....         | 20 |
| Installation .....    | 23 |
| CYLINDERS .....       | 26 |
| Disassembly .....     | 26 |
| Boom Cylinder .....   | 26 |
| Arm Cylinder .....    | 26 |
| Bucket Cylinder ..... | 26 |
| Inspection .....      | 36 |
| Assembly .....        | 37 |
| Boom Cylinder .....   | 46 |
| Arm Cylinder .....    | 46 |
| Bucket Cylinder ..... | 47 |

## SAFETY

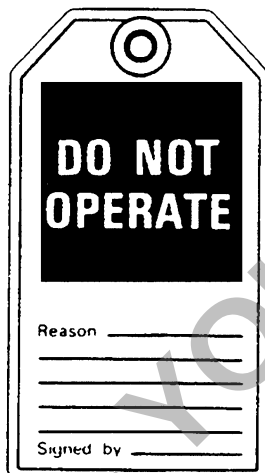


*This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death.*

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.

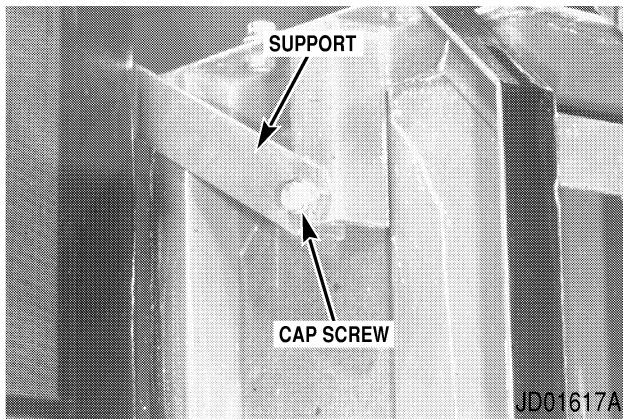
47-45

# LOCTITE PRODUCT CHART

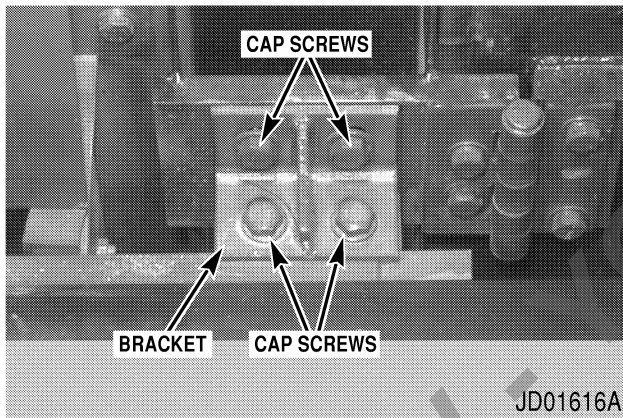
| Product | Color       | Similar Products | Gap (In Inches) | Strength (Steel/Steel) | Working Temperature Range-Fahrenheit | Fixture/Full Cure (Steel/Steel) Time | Primer | Description                                            |
|---------|-------------|------------------|-----------------|------------------------|--------------------------------------|--------------------------------------|--------|--------------------------------------------------------|
| #3      | Dark Brown  |                  |                 |                        |                                      | 24 hr                                | N/A    | Form a Gasket (works with oil, fuel or grease) Pliable |
| 80      | Yellow      |                  |                 |                        |                                      | Fast                                 | N/A    | Weatherstrip Adhesive                                  |
| 123     | Clear       |                  |                 |                        |                                      | N/A                                  | N/A    | Parts Cleaner Fluid                                    |
| 220     | Blue        | 290              | 0.003           | 57/143 in lbs          | -65 to +250                          | 6 min/24 hrs                         | 747    | Wicking Threadlocker                                   |
| 221     | Purple      | 222              | 0.005           | 75/44 in lbs           | -65 to +300                          | 2 min/24 hrs                         | 747    | Low Strength Threadlocker                              |
| 222     | Purple      |                  | 0.005           | 53/30 in lbs           | -65 to +300                          | 20 min/24 hrs                        | 764    | Low Strength Threadlocker (Small Screws)               |
| 225     | Brown       | 222              | 0.010           | 45/25 in lbs           | -65 to +300                          | 7 min/24 hrs                         | 747    | Low Strength Threadlocker                              |
| 242     | Blue        |                  | 0.005           | 80/50 in lbs           | -65 to +300                          | 10 min/24 hrs                        | 764    | Medium Strength Threadlocker                           |
| 262     | Red         | 271              | 0.005           | 160/190 in lbs         | -65 to +300                          | 5 min/24 hrs                         | 747    | High Strength Threadlocker                             |
| 270     | Green       | 271              | 0.007           | 160/320 in lbs         | -65 to +300                          | 3 min/24 hrs                         | 747    | High Strength Threadlocker                             |
| 271     | Red         | 262              | 0.007           | 160/320 in lbs         | -65 to +300                          | 10 min/24 hrs                        | 764    | High Strength Threadlocker                             |
| 272     | Red         | 620              | 0.007           | 180/220 in lbs         | -65 to +450                          | 30 min/24 hrs                        | 764    | High Temperature, High Strength                        |
| 275     | Green       | 277              | 0.010           | 210/300 in lbs         | -65 to +300                          | 3 min/24 hrs                         | 747    | High Strength Threadlocker                             |
| 277     | Red         |                  | 0.010           | 225/300 in lbs         | -65 to +300                          | 60 min/24 hrs                        | 764    | High Strength Threadlocker                             |
| 290     | Green       |                  | 0.003           | 85/350 in lbs          | -65 to +300                          | 6 min/24 hrs                         | 764    | Wicking Threadlocker                                   |
| *404    | Clear       | 495              | 0.006           | 3200 psi               | -65 to +180                          | 30 sec/24 hrs                        | NA     | Instant Adhesive                                       |
| *406    | Clear       |                  | 0.004           | 3200 psi               | -65 to +180                          | 15 sec/24 hrs                        | N/A    | Surface Insensitive Adhesive                           |
| *409    | Clear       | 454              | 0.008           | 2500 psi               | -65 to +180                          | 50 sec/24 hrs                        | N/A    | Gel Instant Adhesive                                   |
| *414    | Clear       |                  | 0.006           | 2500 psi               | -65 to +180                          | 30 sec/24 hr                         | N/A    | Instant Adhesive                                       |
| *415    | Clear       | 454              | 0.010           | 2500 psi               | -65 to +180                          | 50 sec/24 hrs                        | N/A    | Gap Filling Instant Adhesive (Metals)                  |
| *416    | Clear       | 454              | 0.010           | 2500 psi               | -65 to +180                          | 50 sec/24 hrs                        | N/A    | Gap Filling Instant Adhesive (Plastics)                |
| *420    | Clear       |                  | 0.002           | 2500 psi               | -65 to +180                          | 15 sec/24 hrs                        | N/A    | Wicking Instant Adhesive                               |
| *422    | Clear       | 454              | 0.020           | 2800 psi               | -65 to +180                          | 60 sec/24 hrs                        | N/A    | Gap Filling Instant Adhesive                           |
| *430    | Clear       |                  | 0.005           | 2500 psi               | -65 to +180                          | 20 sec/24 hrs                        | N/A    | Metal Bonding Adhesive                                 |
| *445    | White/Black |                  | 0.250           | 2000 psi               | -65 to +180                          | 5 min/24 hrs                         | N/A    | Fast Setting 2 Part Epoxy                              |
| *454    | Clear       |                  | 0.010           | 3200 psi               | -65 to +180                          | 15 sec/24 hrs                        | N/A    | Surface Insensitive Gen Instant Adhesive               |
| *495    | Clear       |                  | 0.004           | 2500 psi               | -65 to +180                          | 20 sec/24 hrs                        | N/A    | General Purpose Instant Adhesive                       |
| *496    | Clear       |                  | 0.005           | 2500 psi               | -65 to +180                          | 20 sec/24 hrs                        | N/A    | Metal Bonding Adhesive                                 |
| 504     | Brn Orange  | 515              | 0.030           | 750 psi                | -65 to +300                          | 90 min/24 hrs                        | None   | Rigid Gasket Eliminator                                |
| 509     | Light Blue  |                  | 0.020           | 750 psi                | -65 to +320                          | 6 hr/72 hrs                          | 764    | Flange Sealant                                         |
| 510     | Red         |                  | 0.020           | 1000 psi               | -65 to +400                          | 30 min/24 hrs                        | 764    | High Temperature, Gasket Eliminator                    |
| 515     | Purple      |                  | 0.010           | 750 psi                | -65 to +300                          | 1 hr/24 hrs                          | 764    | Gasket Eliminator 515                                  |

Rac 8-98902 \* Products 404-496 (except for #445) are all instant adhesives (super glues) they differ mostly in viscosity

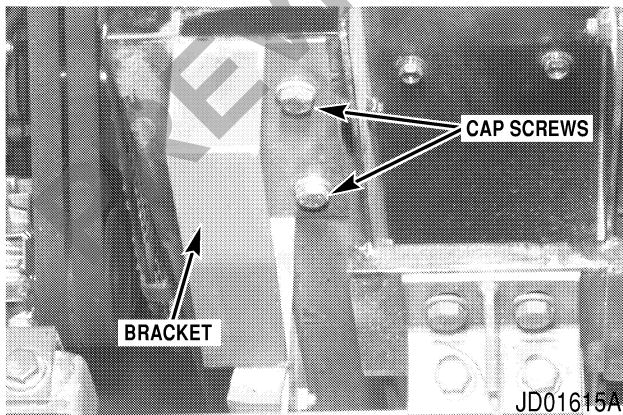
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**STEP 7**

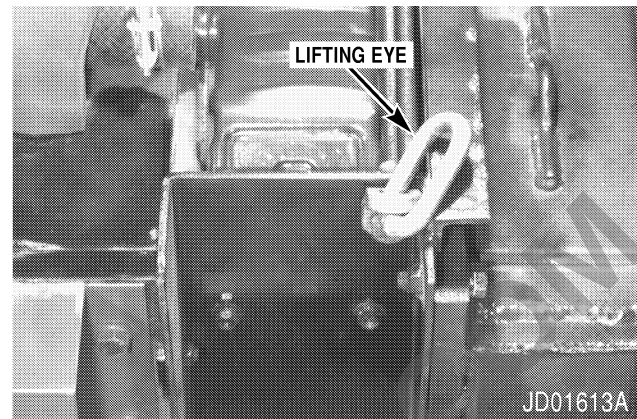
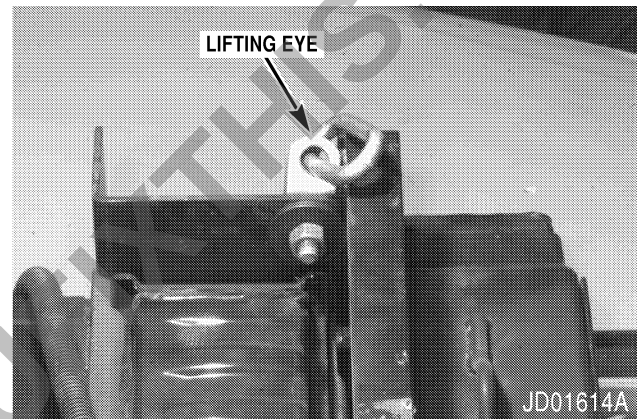
Install the spacer between the side of the radiator and the support then install the flat washer and the cap screw. Secure the support to the side of the machine using a flat washer and cap screw. Tighten the cap screws securely.

**STEP 8**

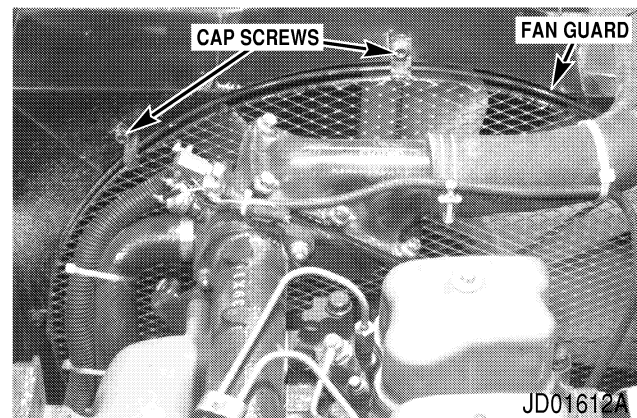
Position the bracket on the machine and the radiator. Secure the bracket using the four flat washers and cap screws.

**STEP 9**

Position the bracket on the radiator and install the two flat washers and cap screws.

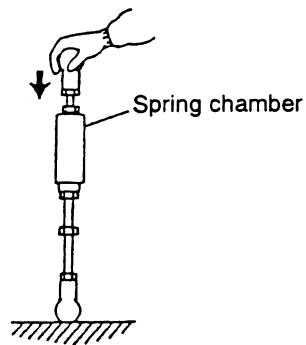
**STEP 10**

Disconnect the lifting equipment from the lifting eyes installed in the radiator frame and remove the lifting eyes.

**STEP 11**

Position and support the fan guard on the radiator. Install the seven cap screws to secure the fan guard.

## THROTTLE MOTOR AND THROTTLE LINK REPLACEMENT (CONTINUED)



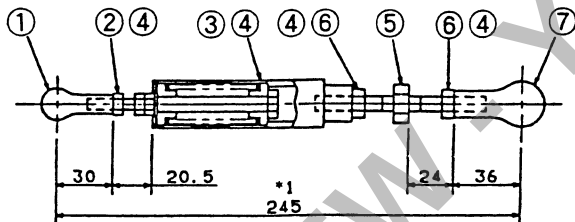
### 3. Checking of throttle link.

Confirm that the spring chamber of the link operates normally before installing the throttle motor.

Stand the link upright and press down on it from the top, confirm that the spring has compressed. (spring elasticity is approximately 20 mm)

If the throttle is used when the spring does not compress properly, the throttle motor will be damaged.

When the spring does not bend, replace the spring chamber with a new spring.



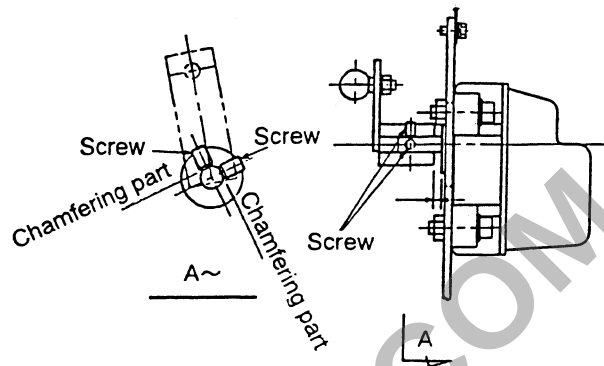
(Control link side)

(Throttle motor side)

### 4. Replacement of the throttle link.

If one part of the throttle link was replaced, assemble it according to the dimensions of the above diagram. After degreasing, coat the thread section of 1 and 7 with Loctite 4 at this time. Then, tighten the 2 and 6 jam nuts.

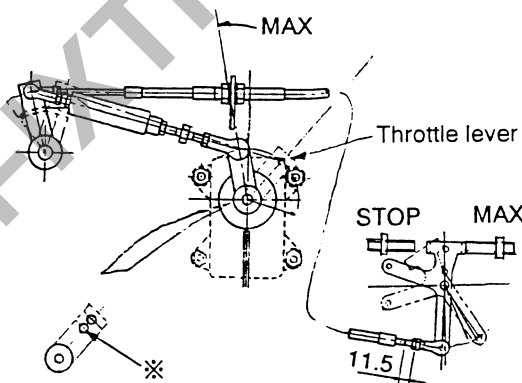
**\*1** These dimensions are for your reference because they differ with each machine.



### 5. Installation of the throttle link lever.

Install the lever onto the new throttle motor. Install the lever, but do not tighten at this time.

Coat the screw with Loctite, and tighten.



### 6. Installation of the throttle link.

After installing the throttle motor, install the throttle links to the throttle lever and the control link.

### 7. Adjustment after installation of the throttle link.

Switch it to redundancy and, adjust engine side governor link so that it hits the stopper bolt on the side of MAX. with the throttle switch (UP). After confirmation of hitting the screw in the spring chamber back out 3 more rotations (counterclockwise) from that position. Adjust the length of the link so that the elasticity of the spring chamber amounts to 1.5 (5 mm).

### 8. Confirmation of throttle motor operation.

Confirm that "ELEC. PROBLEM" is not displayed in the monitor when the key switch is ON.

With the throttle control at engine MAX. position, confirm that the spring chamber contracts after the link of the engine side governor hits the stop.

Similarly at the STOP side, with the throttle control at engine MIN. position, confirm that the spring chamber contracts after the key switch is OFF.

Do the automatic adjustment procedures after completing the spring chamber checks above.

## Inspection

**NOTE:** Numbers in parentheses in the following steps refer to numbers shown in illustration on page 25.

### STEP 1

Clean all parts in cleaning solvent.

### STEP 2

Inspect the bushing surfaces on the shaft (6) for scoring, pitting, and other damage. Measure the diameter of the shaft in four places opposite of each other. If the diameter of the shaft is 2.716 inches (69 mm) or less, replace the shaft.

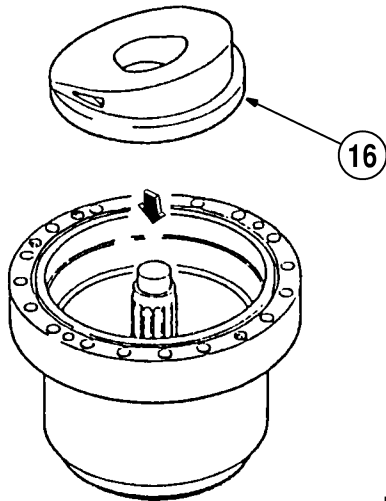
### STEP 3

Inspect bushings (8) for wear and damage. Measure the ID of the bushing. If the ID of the bushing is 2.815 inches (71.5 mm) or more, replace the bushing. Measure the width of the bushing. If the width of the bushing is 3.209 inches (81.5 mm) or less, replace the bushing (Disassembly, step 6).

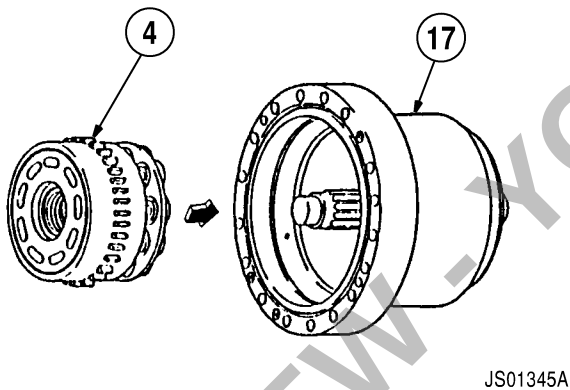
### STEP 4

Inspect the bore in each bracket and in the track roller for damage that will result in leakage. Use new parts as required.

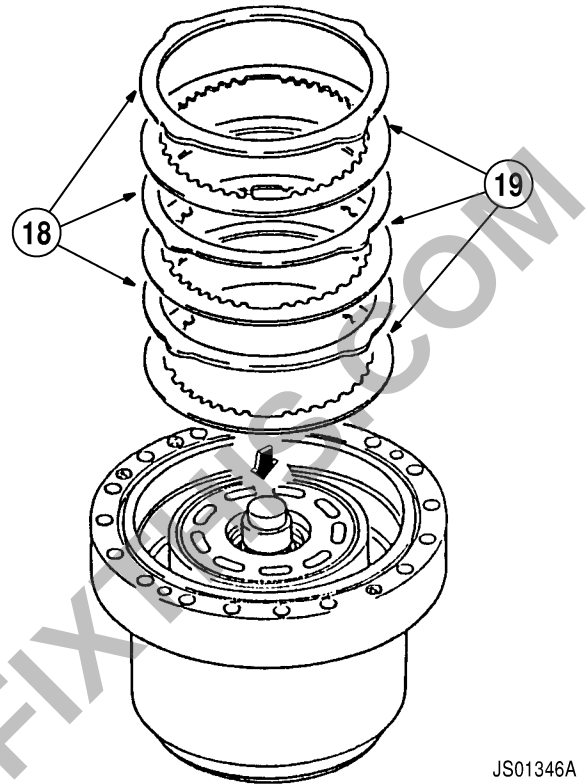
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**STEP 7**

Install the swash plate (16) on the shaft. Apply hydraulic oil to the swash plate before assembling the cylinder block.

**STEP 8**

Place the housing (17) on the work bench horizontally and install the cylinder block (4) into the housing.

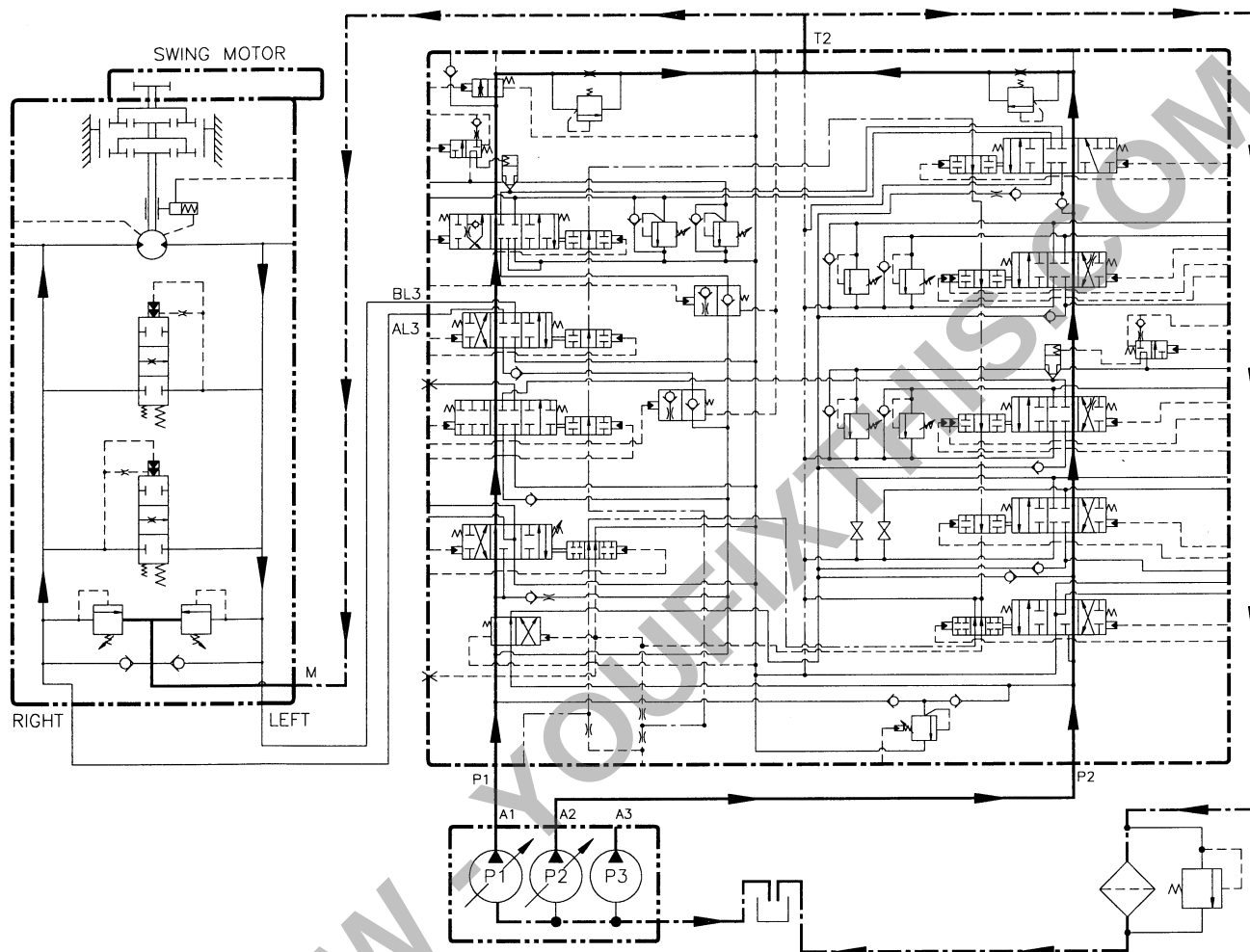
**STEP 9**

Install the three disks (18) and the three friction plates (19) in order, starting with a disk and alternating. Check to see that the cylinder block rotates smoothly and the pistons moves back and forth by rotating the shaft.

**STEP 10**

Grease and install new D-rings (39 and 40) on brake piston (20).

## SWING BRAKE OPERATION



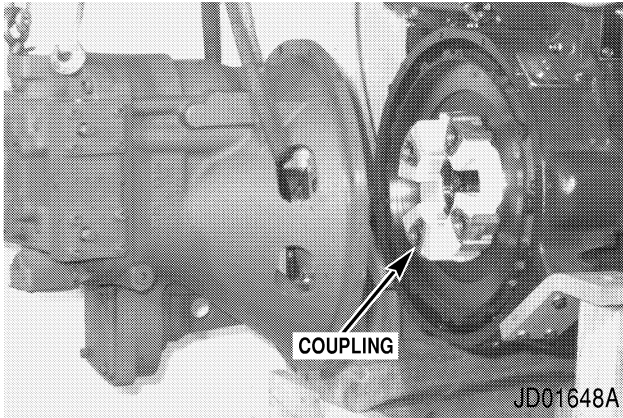
MA95K086

When the swing hand control is returned to neutral the swing control valve spool shifts to neutral. The oil flow from P1 (pump) to the swing motor is diverted and the supply and return ports of the swing motor are blocked.

The inertia from the swing movement will cause a pressure spike in the blocked return side of the motor. To prevent spike pressure damage, a built in crossover relief valve is activated and pressurized oil flows through a makeup check valve to the supply side of the motor or to the reservoir. When the pressure is equalized between the return and supply ports, the motor acts as a brake and swing motion is stopped. Between the time the supply and return ports are

blocked by the control spool and the crossover relief opens, pressurized oil from the main return circuit is available at port M of the swing motor to pass through the makeup check valve to the supply side of the motor.

Five seconds after the swing lever is returned to neutral, the mechanical swing brake is applied at 50% brake.

**STEP 26**

Pull the hydraulic pump away from the engine to disengage the wedges from the coupling. Remove the hydraulic pump from the machine and place on suitable supports on a clean work bench.

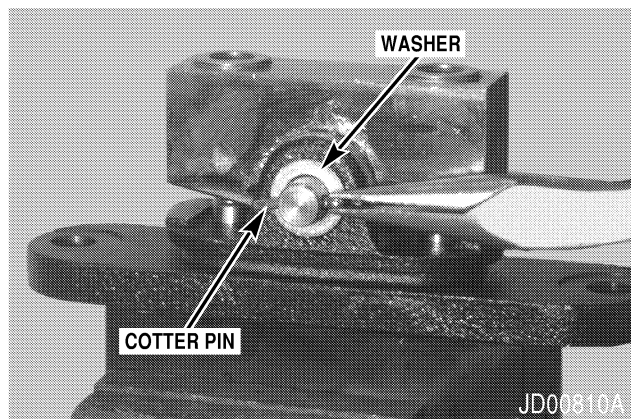
**NOTE:** Do the following step only if a new hydraulic pump is to be installed.

**STEP 27**

Remove the fittings from the hydraulic pump just removed and install on the replacement hydraulic pump. Remove and install the fittings one at a time to prevent incorrect installation of the fittings on the new hydraulic pump.

## Assembly

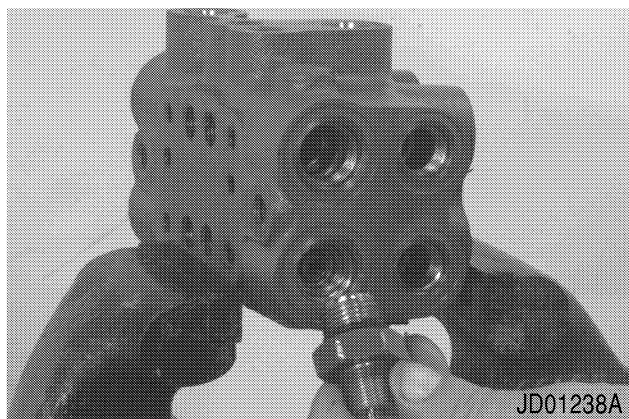
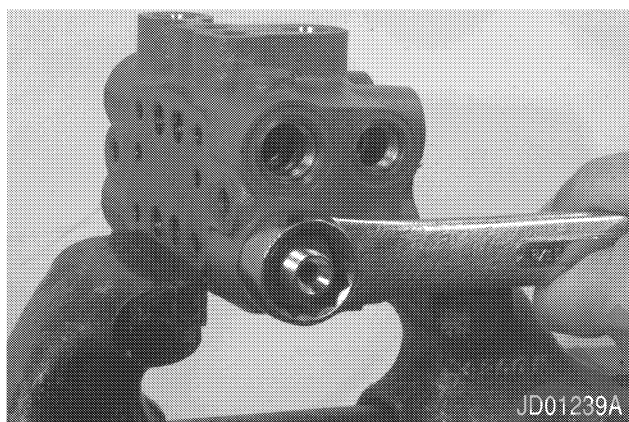
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**STEP 11**

Install the remaining flat washer and cotter pin on the pivot shaft. Bend the end of both cotter pins to prevent the cotter pins from falling off the pivot shaft.

**STEP 12**

Install the dust cover over the pedal.

**STEP 5**

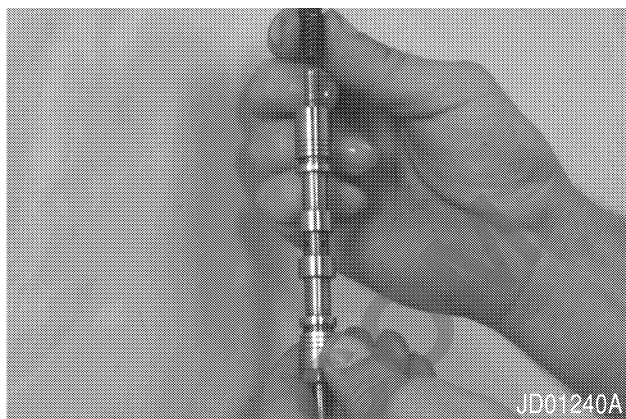
Install a new O-ring (15) on the flow restriction adapter (14). Install the flow restriction adapter in the housing and tighten.

**STEP 6**

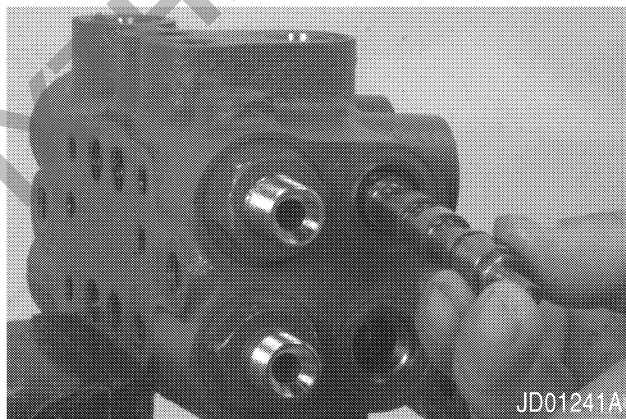
Repeat steps 1 through 5 for the remaining three spools.

**STEP 7**

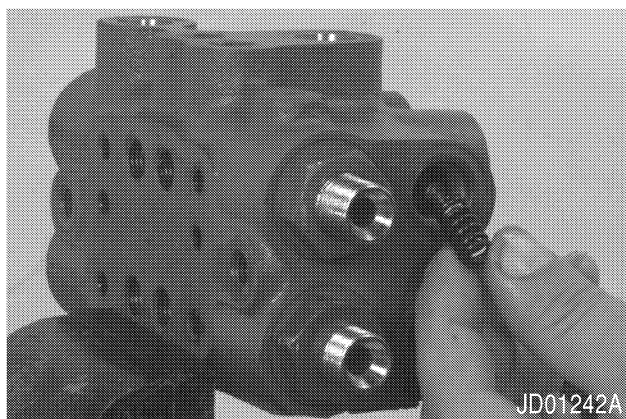
Install spring guide (3) with new O-ring (4) on spool (2).

**STEP 8**

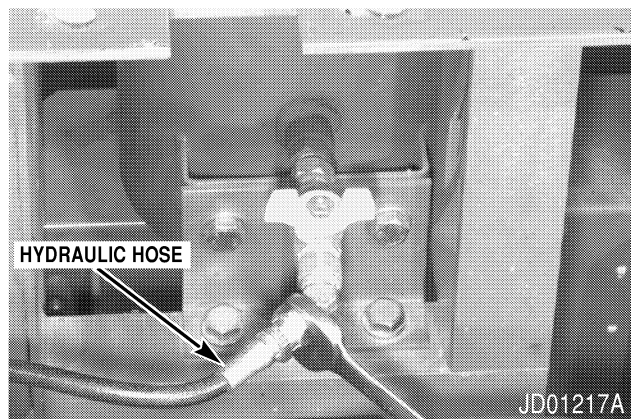
Install spring (5) on spool (2).

**STEP 9**

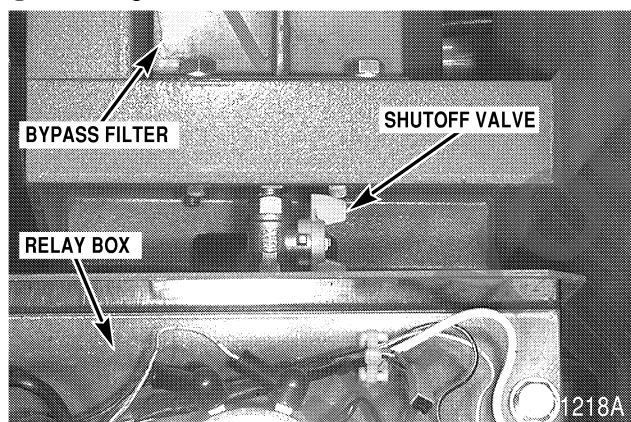
Install spring (5), spring guide (3) and spool (2) in housing bore.

**STEP 10**

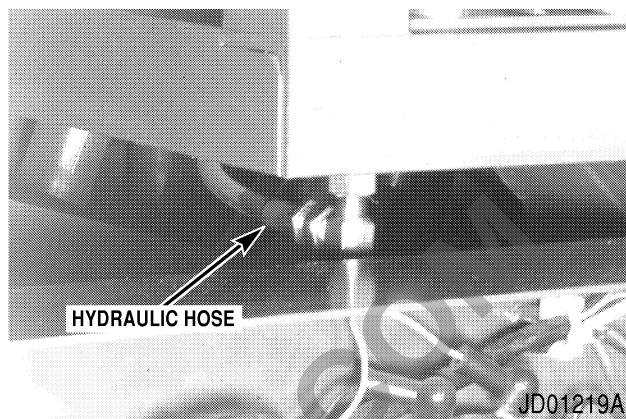
Install the spring (5).

**STEP 14**

Position a one gallon (3.8 liter) container beneath the shutoff valve to catch any hydraulic oil that may drain from the hydraulic hose when the hose is disconnected. Tag, disconnect, and plug the hose. Remove the container from the machine.

**STEP 15**

Open the left side access doors. In the battery compartment, reach between the top of the relay box and the bottom of the bypass filter and close the shutoff valve.

**STEP 16**

Position a two gallon (7.6 liter) container beneath the shutoff valve to catch any hydraulic oil that may drain from the hydraulic hose when the hose is disconnected. Tag, disconnect, and plug the hose.

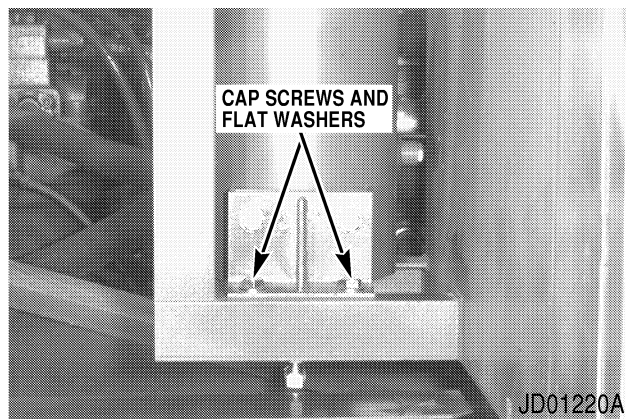
**STEP 17**

Turn off the vacuum pump connected to the hydraulic reservoir.

**STEP 18**

Open the shutoff valve at the bottom of the bypass filter and drain the hydraulic oil into the two gallon (7.6 liter) container. When all the oil has drained from the bypass filter housing, close the shutoff valve. Remove the container from the machine.

**NOTE:** The numbers in parentheses in the following step refer to the numbers shown in the illustration on page 19.

**STEP 19**

Remove the four cap screws (1), flat washers (2), and nuts (3) securing the bypass filter housing. Remove the bypass filter from the machine.

# **Section**

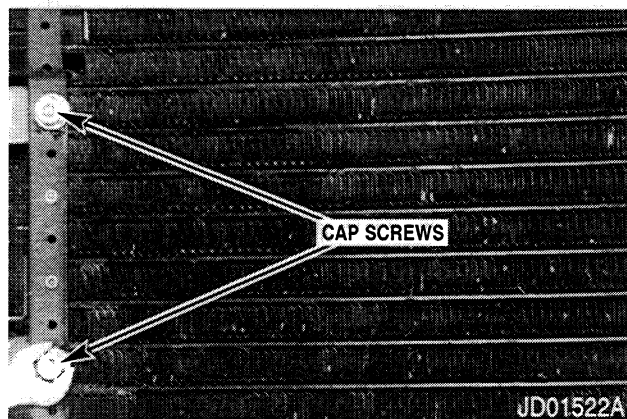
# **9005**

## **CAB AND CAB EQUIPMENT**

**9005**

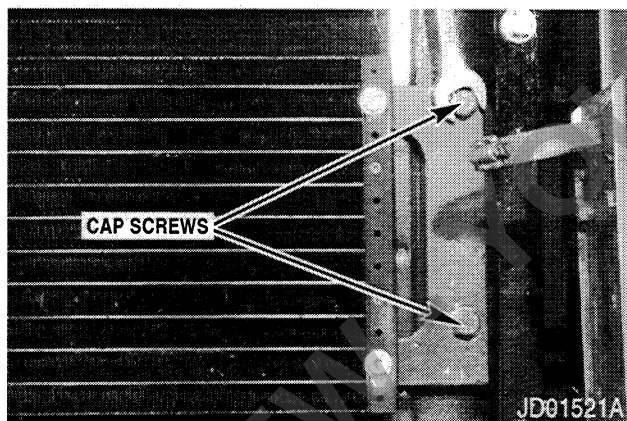
## Installation

### STEP 1



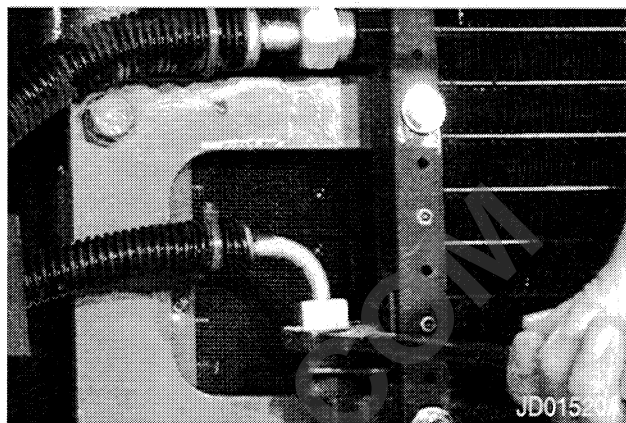
Install the bracket on the condenser. Secure with two cap screws, lock washers, and flat washers. Repeat this step to install the other bracket.

### STEP 2



Install the brackets, with the condenser attached, on the machine. Secure the condenser brackets to the oil cooler with four cap screws and lock washers.

### STEP 3



Remove the plugs and caps from the ports and fittings. Connect the two hose fittings to the condenser and tighten.

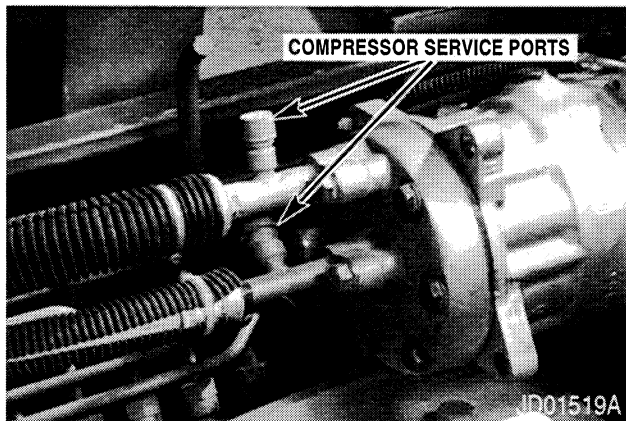
### STEP 4

Close the left side rear access door.

### STEP 5

Remove the DO NOT OPERATE tag from the ignition key.

### STEP 6



Charge the air conditioner system. (See Page 26.) Disconnect the charging station from the compressor service ports.

### STEP 7

Release the hood lock and close the engine hood.

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