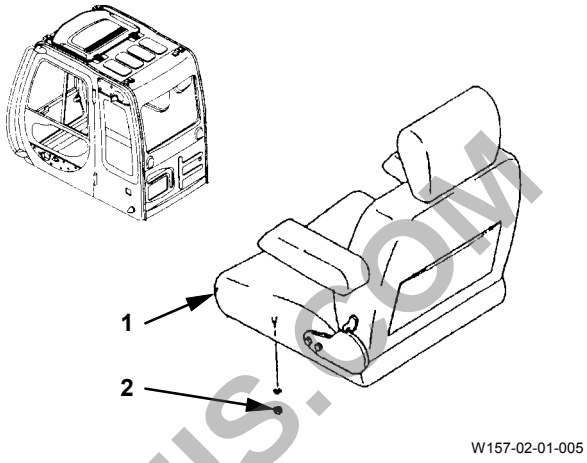
REMOVE AND INSTALL CAB

Removal

1. Remove nuts (2) and seat (1).

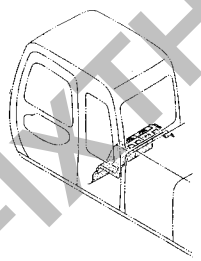
   : 13 mm



W157-02-01-005

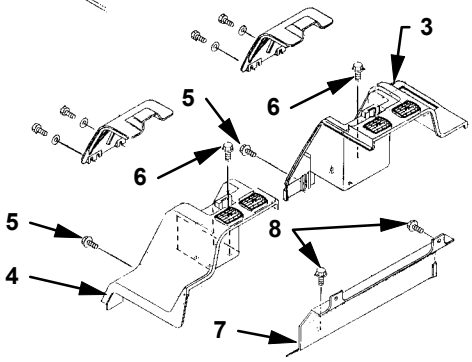
2. Loosen bolts (5) behind the cab and bolts (6) in rear boxes (3 and 4).
   Remove rear boxes (3 and 4).

   : 13 mm



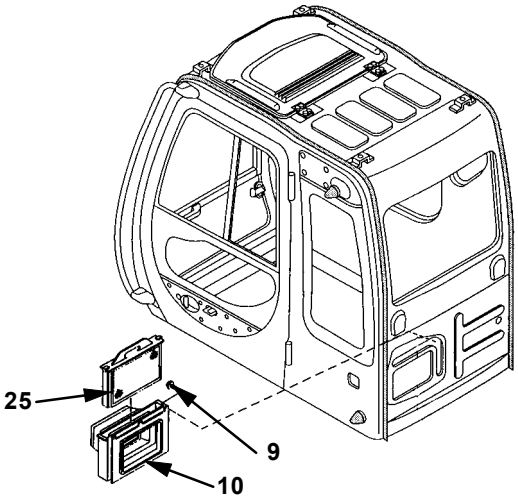
3. Loosen bolts (8) to remove rear box lower cover (7).

   : 13 mm



W157-02-01-017

4. Remove filter (25). Loosen screws (9) to remove duct (10) from the cab.



W158-02-01-001

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INTRODUCTION

Each troubleshooting section group is presented in an orderly fashion so as to make the inspecting and troubleshooting procedures easy to follow. Use the troubleshooting section to guide you in locating the source of any problems that may arise.

The troubleshooting section consists of 7 groups: the diagnosing procedure, the component layout, the troubleshooting A (using fault codes), troubleshooting B (starting with symptoms), troubleshooting C (gauges and indicators), the electrical system inspection procedures, and harness check groups.

- Component Layout Drawing

- Troubleshooting A (using fault codes)
  Use these charts when the self-diagnosing function of Dr.EX shows any fault codes.
  (The controller automatically diagnoses and memorizes malfunctions that have occurred in the signal sending system.)

  Example: Fault Code 01: EC Sensor Failure

- Troubleshooting B (starting with symptoms)
  Use these charts when the machine is exhibiting trouble and when Dr.EX does not indicate any fault codes.

  Example: Even if engine control dial is operated, engine speed does not change.

- Troubleshooting C (Gauges and indicators)
  Use these charts when any gauges or indicators malfunction.

  Example: The fuel gauge does not operate.

- Electrical System Inspection Procedure
  Refer to this group for precautions and inspection procedures of the electrical system when or before performing inspections on the electrical system.

  Example: Fuse Inspection

- Harness Check
  Refer to this group for information about the test harnesses.

  Example: ST 7129

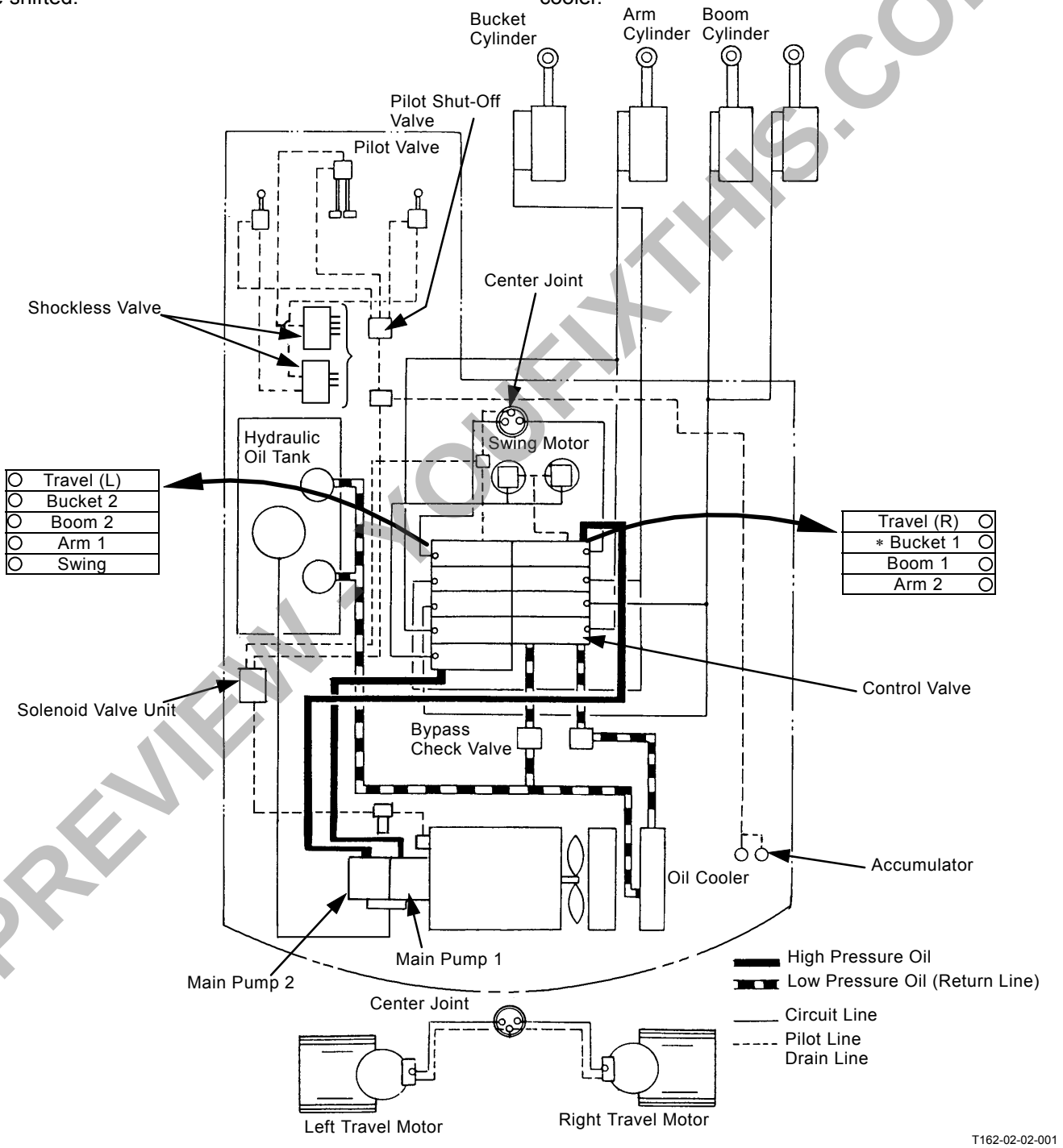
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MAIN CIRCUIT

Main pumps 1 and 2 draw hydraulic oil from the hydraulic oil tank. Main pump 1 supplies pressure oil to the 5-spool control valve block while main pump 2 supplies pressure oil to the 4-spool control valve block. Main pump discharged oil is routed to cylinders and motors via the control valve as control valve spool(s) are shifted.

Return oil from cylinders and motors is routed to the hydraulic oil tank via the control valve and oil cooler cooling hydraulic oil. If oil resistance through the oil cooler is high, i.e. if oil temperature is low and viscosity is high, the bypass check valve opens to directly route hydraulic oil to the hydraulic oil tank, bypassing the oil cooler.



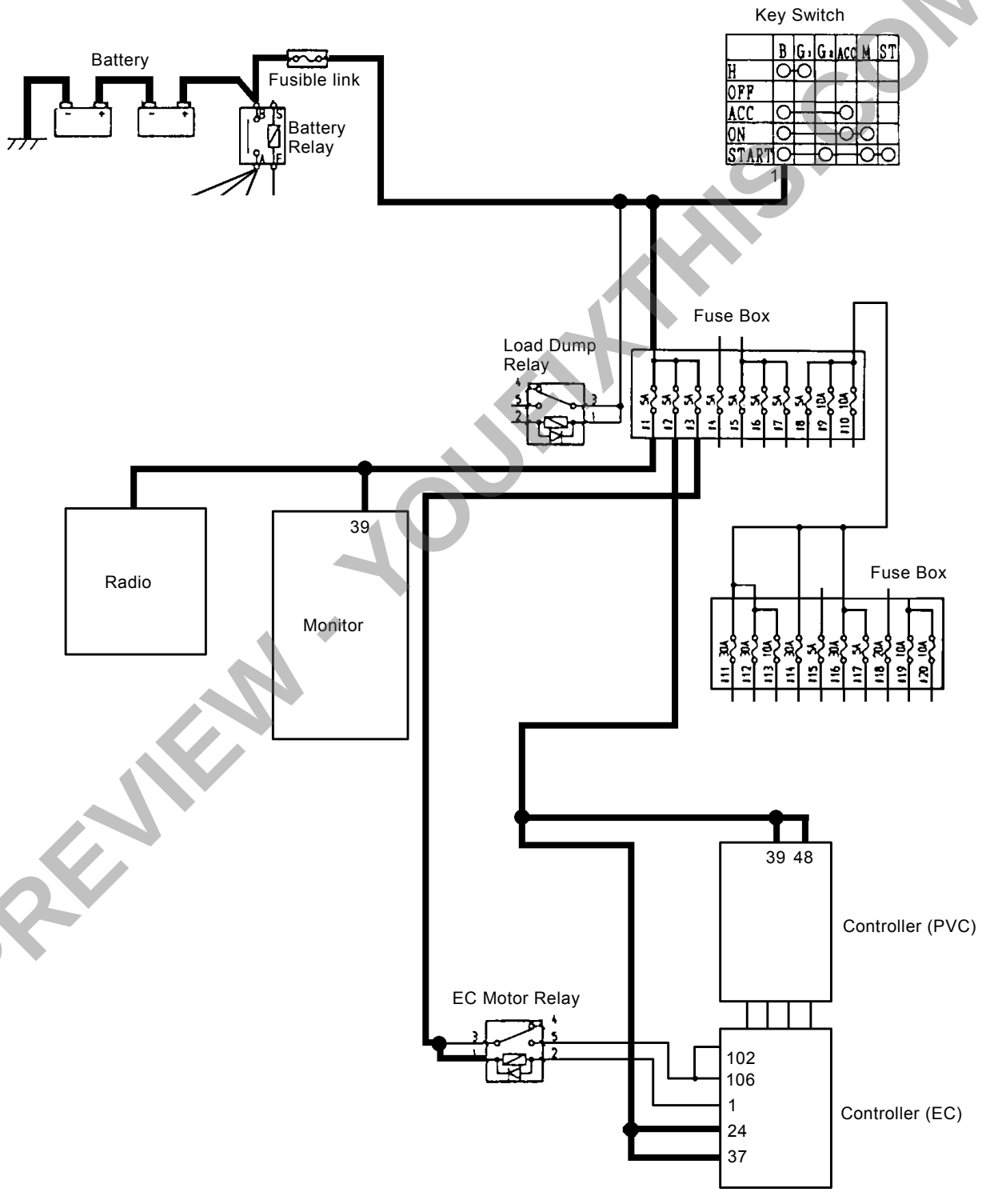
T162-02-02-001

*NOTE: * In the case of loading shovel specification (bottom dump), this valve is used for bucket open/close.*

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POWER CIRCUIT

Since the negative terminal of the battery is grounded to the vehicle frame, the battery supplies electricity to the monitor, controller (PVC) and the radio as back-up power source, and to the controller (EC) as main power souce while the key switch is turned off.



T162-02-03-001

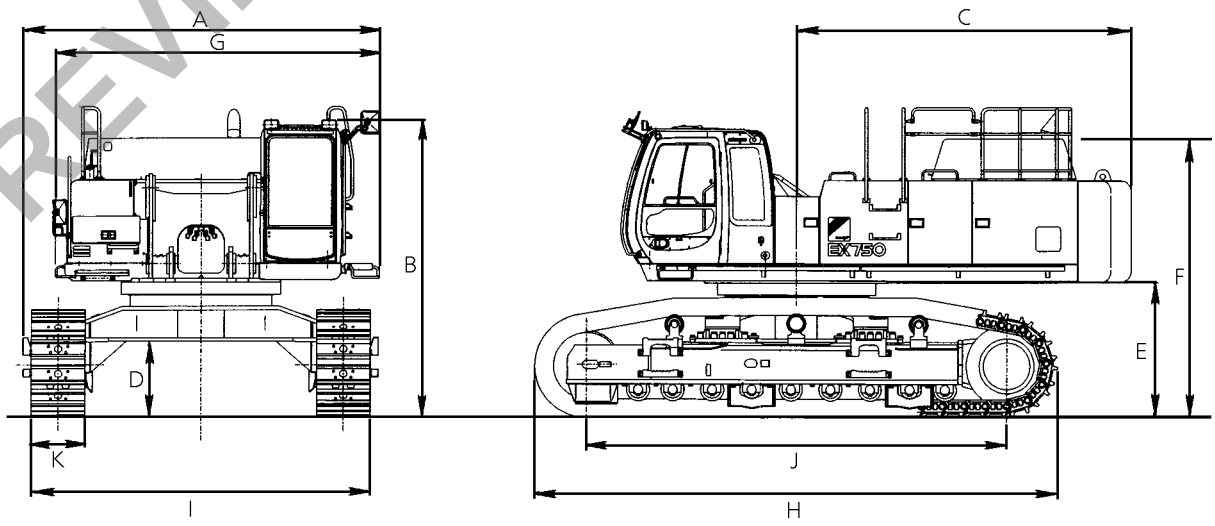
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SPECIFICATIONS

(BACKHOE)

Model		EX750-5 Hydraulic Excavator			
Type of Front-End Attachment		BE Front	3.6 m Arm	4.4 m Arm	5.4 m Arm
Bucket Capacity	PCSA Heaped	4.1 m^3 (5.4 yd^3)	3.3 m^3 (4.3 yd^3)	2.8 m^3 (3.7 yd^3)	2.0 m^3 (2.6 yd^3)
	CECE Heaped	3.6 m^3	2.9 m^3	2.4 m^3	1.8 m^3
Operating Weight		75000 kg (165300 lb)	73200 kg (161400 lb)	73200 kg (161400 lb)	73500 kg (162000 lb)
Basic Machine Weight		56800 kg (125200 lb)	56800 kg (125200 lb)	56800 kg (125200 lb)	57300 kg (126300 lb)
Engine		Cummins Engine N14C 324 kW/1800 min^{-1} (440 PS/1800 rpm)			
A:Overall Width (Excluding Rear-view Mirrors)		4310 mm (14 ft 2 in)			
B:Cab Height (Excluding Head Lights)		3530 mm (11 ft 7 in)			
C:Rear End Swing Radius		4160 mm (13 ft 8 in)			
D:Minimum Ground Clearance		*870 mm (2 ft 10 in)			
E:Counterweight Clearance		*1580 mm (5 ft 2 in)			
F:Engine Cover Height		*3330 mm (10 ft 11 in) [EU Standard-3430 mm (11 ft 3 in)]			
G :Overall Width of Upperstructure		3920 mm (12 ft 10 in)			
H :Undercarriage Length		6350 mm (20 ft 10 in)			
I :Undercarriage Width		4100 mm (13 ft 5 in) /3480 mm (11 ft 5 in) (Extended/Retracted)			
J :Sprocket Center to Idler Center		5110 mm (16 ft 9 in)			
K :Track Shoe Width		650 mm (26 in) (Grouser shoe)			
Ground Pressure		100 kPa (1.02 kgf/cm^2, 14.5 psi)			
Swing Speed		8.6 min^{-1} (rpm)			
Travel Speed (fast/slow)		4.6/3.3 km/h (2.9/2.1 mph)			
Gradeability		35 ° (tan θ=0.70)			

* Dimension does not include shoe lug height.



Base Machine Dimensions

M162-11-001

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INTRODUCTION

TO THE READER

- This manual is written for an experienced technician to provide technical information needed to maintain and repair this machine.
  - Be sure to thoroughly read this manual for correct product information and service procedures.
- If you have any questions or comments, at if you found any errors regarding the contents of this manual, please contact using “Service Manual Revision Request Form. at the end of this manual.
  (Note: Do not tear off the form. Copy it for usage.):
  Publications Marketing & Product Support
  Hitachi Construction Machinery Co. Ltd.
  TEL: 81-298-32-7173
  FAX: 81-298-31-1162

ADDITIONAL REFERENCES

- Please refer to the materials listed below in addition to this manual.
  - The Operator’s Manual
  - The Parts Catalog
  - Operation Manual of the Engine
  - Parts Catalog of the Engine
  - Hitachi Training Material

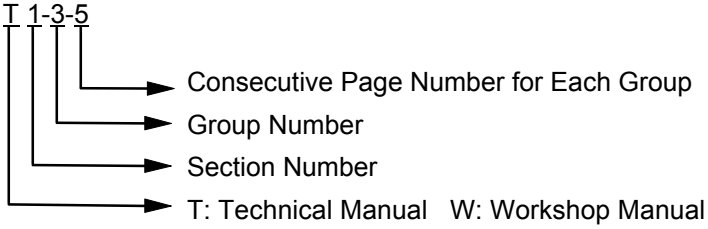
MANUAL COMPOSITION

- This manual consists of three portions: the Technical Manual (Operational Principle), the Technical Manual (Troubleshooting) and the Workshop Manual.
  - Information included in the Technical Manual (Operational Principle):
    technical information needed for redeliver and delivery, operation and activation of all devices and systems.
  - Information included in the Technical Manual (Troubleshooting):
    technical information needed for operational performance tests, and troubleshooting procedures.
  - Information included in the Workshop Manual:
    technical information needed for maintenance and repair of the machine, tools and devices needed for maintenance and repair, maintenance standards, and removal/installation and assemble/disassemble procedures.

PAGE NUMBER

- Each page has a number, located on the center lower part of the page, and each number contains the following information:

Example : T 1-3-5



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RECOGNIZE SAFETY INFORMATION

- This is the **SAFETY ALERT SYMBOL**.
  - When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.
  - Follow recommended precautions and safe operating practices.



001-E01A-0688

SA-688

UNDERSTAND SIGNAL WORDS

- On machine safety signs, signal words designating the degree or level of hazard - DANGER, WARNING, or CAUTION - are used with the safety alert symbol.
  - **DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
  - **WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
  - **CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
  - **DANGER or WARNING safety signs** are located near specific hazards. General precautions are listed on **CAUTION safety signs**.
  - Some safety signs don't use any of the designated signal words above after the safety alert symbol are occasionally used on this machine.
- **CAUTION** also calls attention to safety messages in this manual.
- To avoid confusing machine protection with personal safety messages, a signal word **IMPORTANT** indicates a situation which, if not avoided, could result in damage to the machine.
- ***NOTE*** indicates an additional explanation for an element of information.



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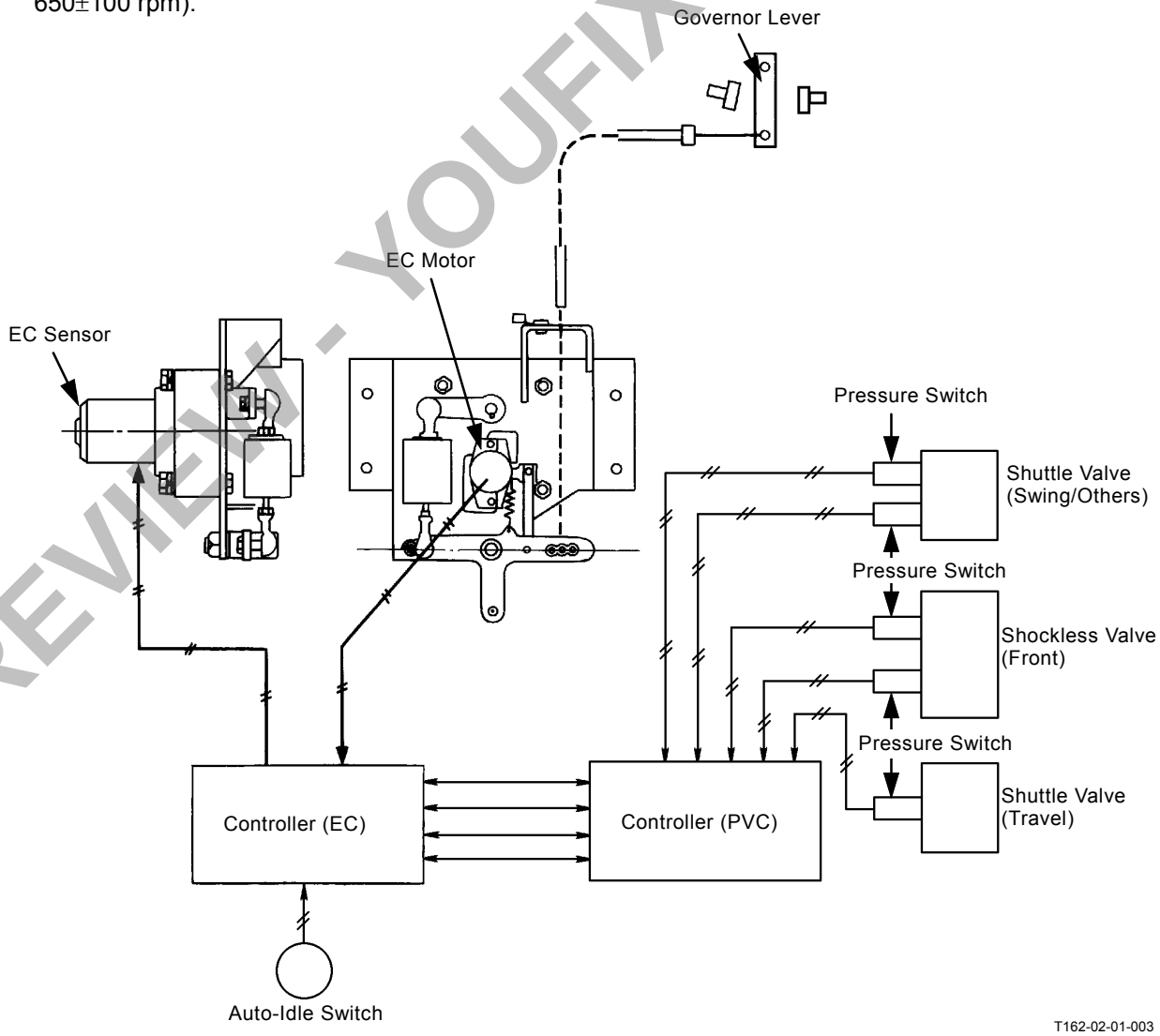
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Auto-Idle Control

Purpose: To save fuel and to lower noise by lowering the engine speed while all control levers are in neutral.

Operation: When all control levers are in neutral, the front att. pressure switch located on the shockless valve and the travel, swing, and other pressure switches located on the shuttle valves are turned off. At this moment, if the auto-idle switch is in the ON position, the controller (PVC) detects that all pressure switches are off, and sends a signal indicating that all pressure switches are off, to the EC. Approximately four seconds later, the EC sends a signal to the EC motor. The EC motor then moves the governor lever, lowering the engine speed to 1650±100 min^{-1} (1 650±100 rpm).

When a control lever is operated, the respective pressure switch is turned on. Then the EC stops sending the electrical signals to lower the engine speed to the EC motor. As a result, the engine speed increases to the speed set by the engine control dial.



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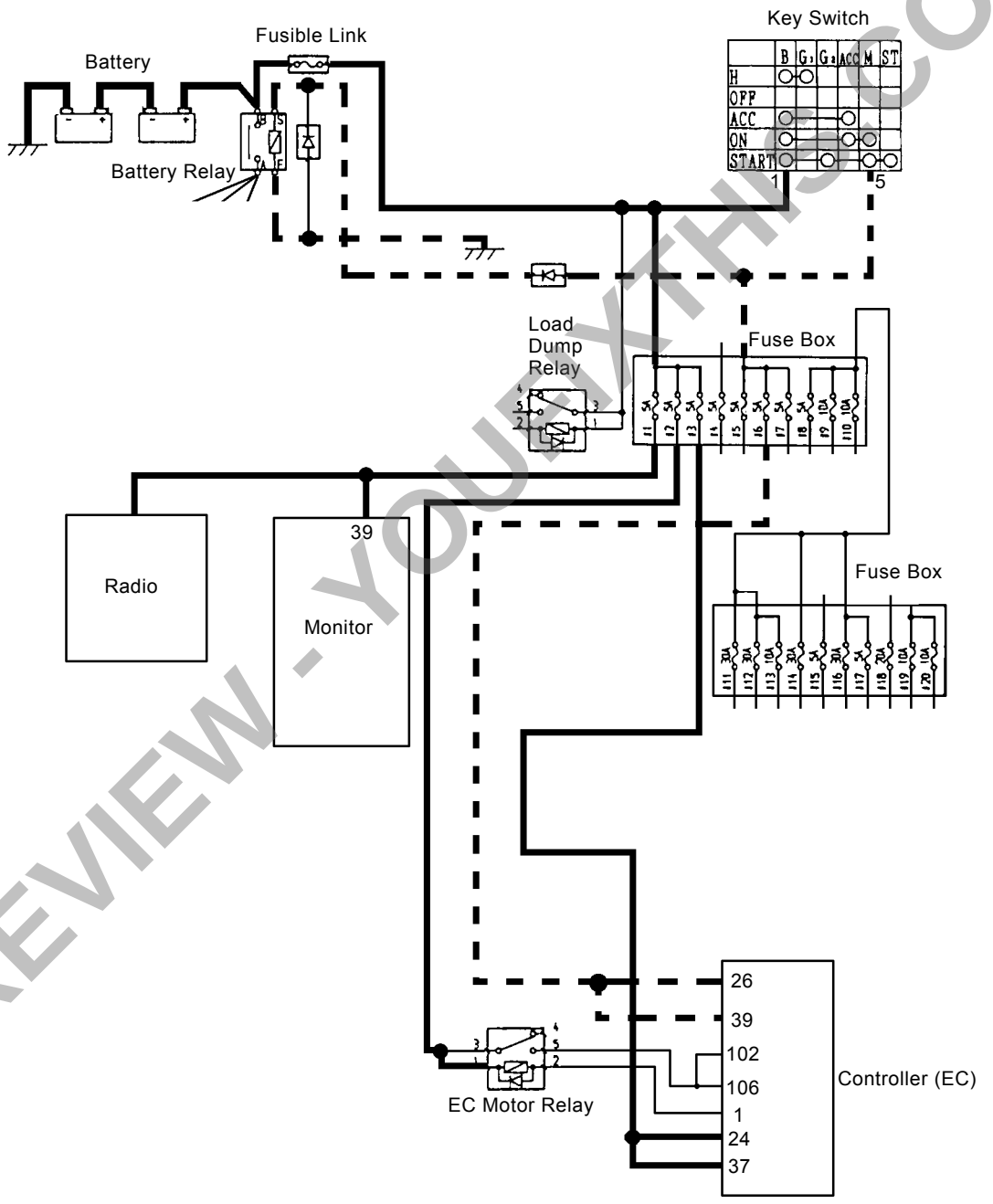
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ENGINE STOP CIRCUIT

When the key switch is turned OFF with the engine running, the signal, flowing from terminal M to the controller (EC) terminals No. 26 and No.39, i.e. indicating that the key switch is in the ON position, is cut.

The EC actuates EC motor to the engine stop position, stopping the engine.
Subsequently, the EC opens the EC motor relay coil side circuit, cutting electrical current flowing into EC motor via the EC.



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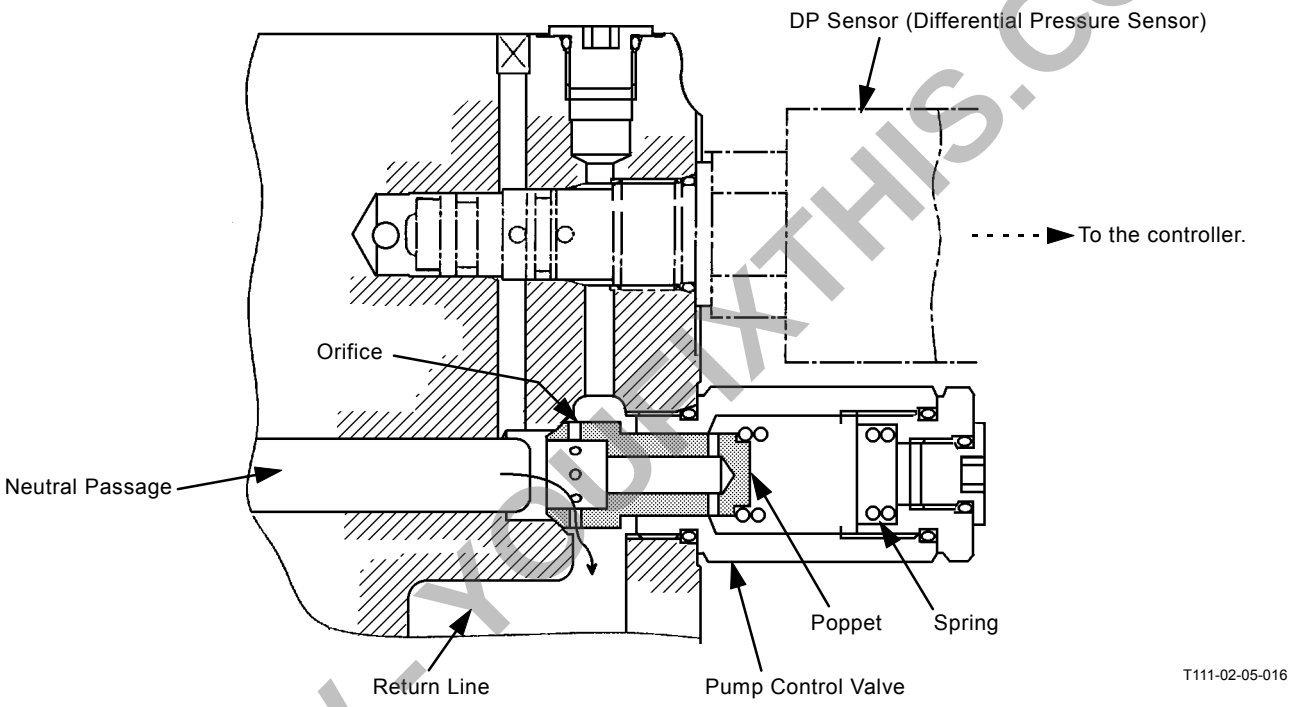
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Pump control valve operation when control valve spools are in neutral.

When the control valve spools are in neutral, all oil flowing from the main control valve goes through the orifice before it is returned to the hydraulic oil tank. The pressure difference between before and after the orifice becomes large, reducing the main pump flow rate to the minimum.

Pump control valve operation when control levers are operated.

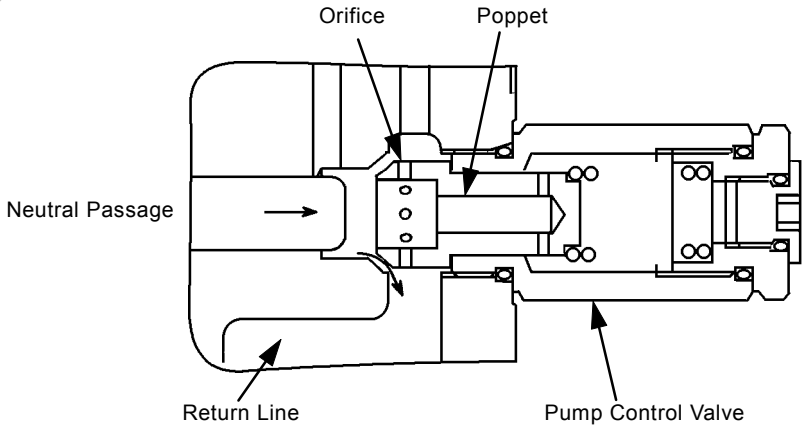
When a control lever is operated, a control valve spool is shifted to route oil flow to an actuator, reducing the oil flow rate in the neutral passage. As a result, the pressure difference between before and after the orifice becomes small, increasing the main pump flow rate.



T111-02-05-016

Pump Control Valve Operation as a Relief Valve

Normally the pump control valve does not act as a relief valve. However, if oil flow in the neutral passage becomes excessive, a poppet opens to provide an extra passage to the return line, in addition to the orifice passage, to release excessive pressure.



T111-02-05-017

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USE HANDHOLDS AND STEPS

- Falling is one of the major causes of personal injury.
  - When you mounting and dismounting the machine, always face the machine and maintain a three-point contact with the steps and handrails.
  - Do not use any controls as hand-holds.
  - Never jump on or off the machine. Never mount or dismount a moving machine.
  - Be careful of slippery conditions on platforms, steps, and handrails when mounting and dismounting the machine.



SA-439

008-E01B-0439

ADJUST THE OPERATOR'S SEAT

- A poorly adjusted seat for either the operator or for the work at hand may quickly fatigue the operator leading to misoperations.
  - The seat should be adjusted whenever changing the operator for the machine.
  - The operator should be able to fully depress the pedals and to correctly operate the control levers with his back against the seat back.
  - If not, move the seat forward or backward, and check again.



SA-378

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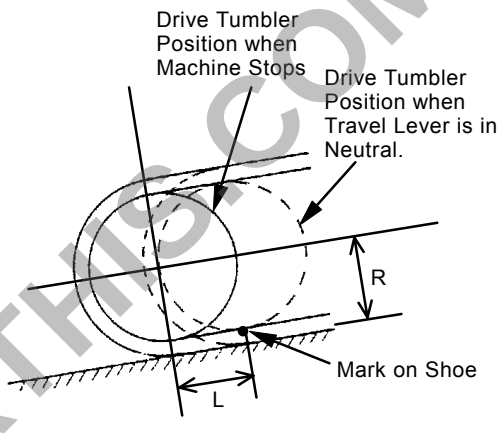
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(NOTE)
The drive tumbler rotation angle until the parking brake is applied can also measured as follows.
The 1/6 turns of the drive tumbler corresponds to the 1/6 circumference of the drive tumbler, which is approximately equal to the drive tumbler radius (R).
Because,
$L = 1/6 \times 2 \times 3.14\ R = \text{Approx. } R$
Where:
L: Shoe displacement along the outer circumference of the drive tumbler
R: Drive tumbler radius including the shoe height

Mark the contact point between the shoe and drive tumbler with the travel lever in neutral, check if displacement (L) satisfies the following range after the machine sops to evaluate the parking brake performance.

Mark Displacement (L) $\leq$ Drive Tumbler Radius (R)



T118-04-03-002

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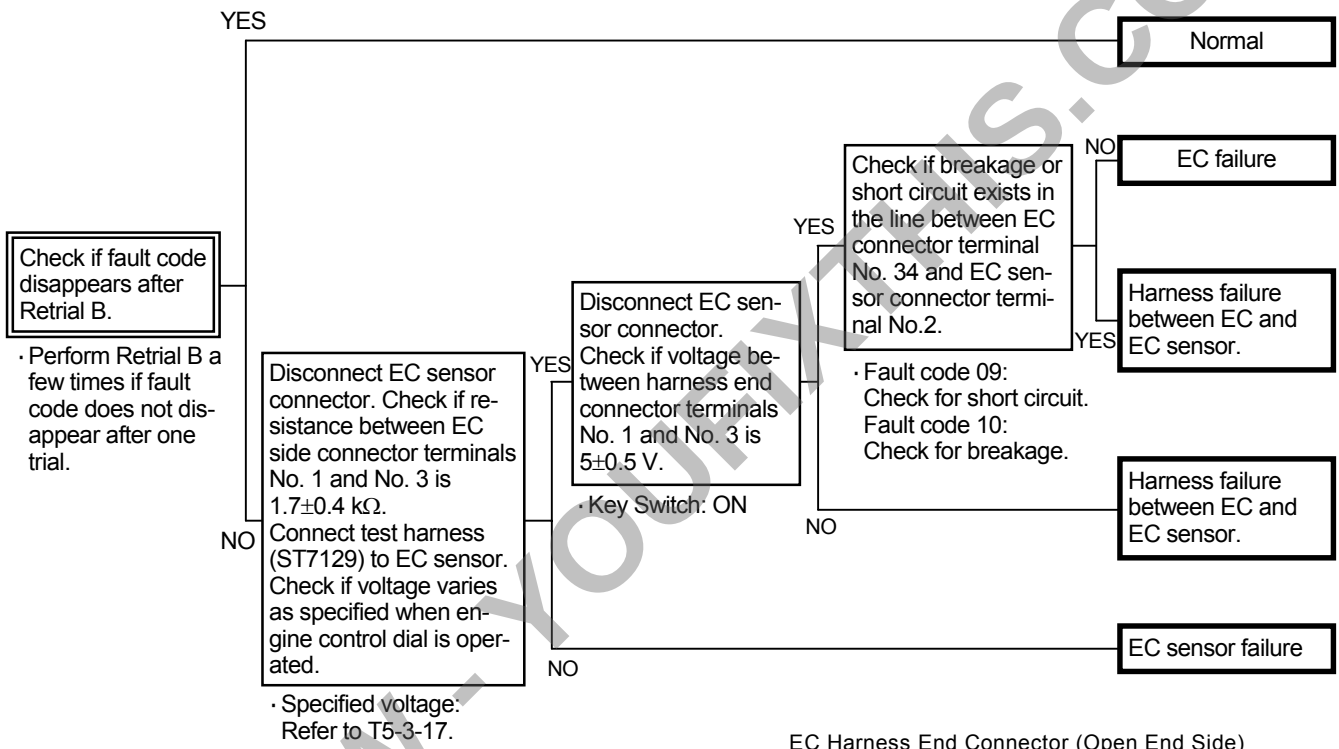
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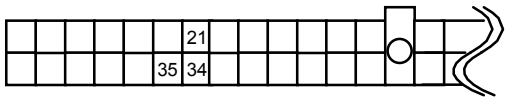
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FAULT CODES 09, 10 (EC Sensor Failure)

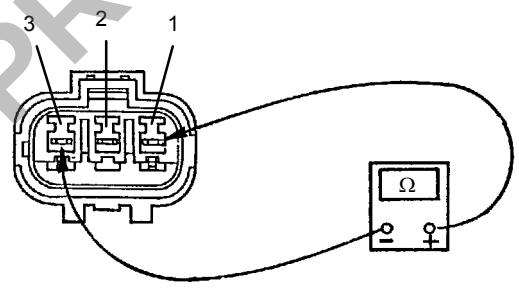
- Be sure to inspect wiring connections prior to troubleshooting.
- Fault code 09 indicates the input voltage from the EC sensor is 4.75 V or more.
  Fault code 10 indicates the input voltage from the EC sensor is 0.25 V or less.



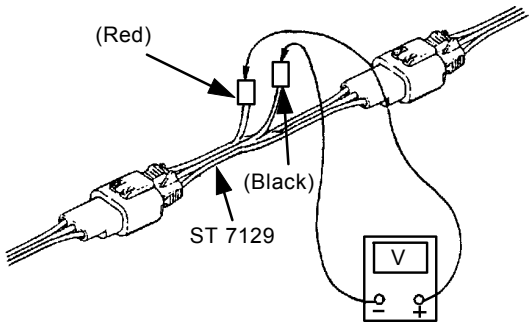
EC Harness End Connector (Open End Side)



EC Sensor Side Connector (Open End Side)

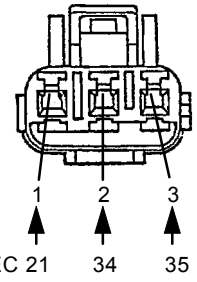


T107-07-03-008



T107-07-03-009

Harness End Connector (Open End Side) EC Sensor



T162-05-03-005

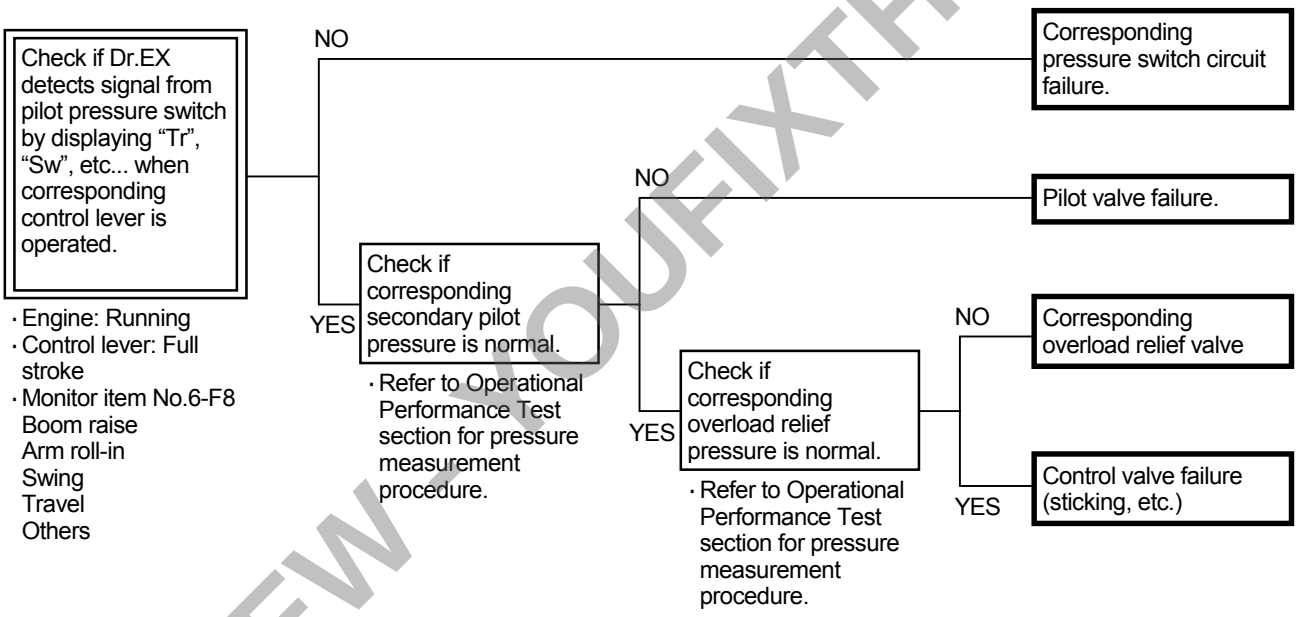
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FRONT ATTACHMENT SYSTEM TROUBLESHOOTING

F-1 Front attachment cylinder(s) move slowly or do not move.

- Be sure to inspect wiring connections prior to troubleshooting.
- The corresponding pilot valve, overload relief valve, or pressure switches may have failed.
- If only boom raise in swing/boom raise combined operation is slow, go to troubleshooting A-4.

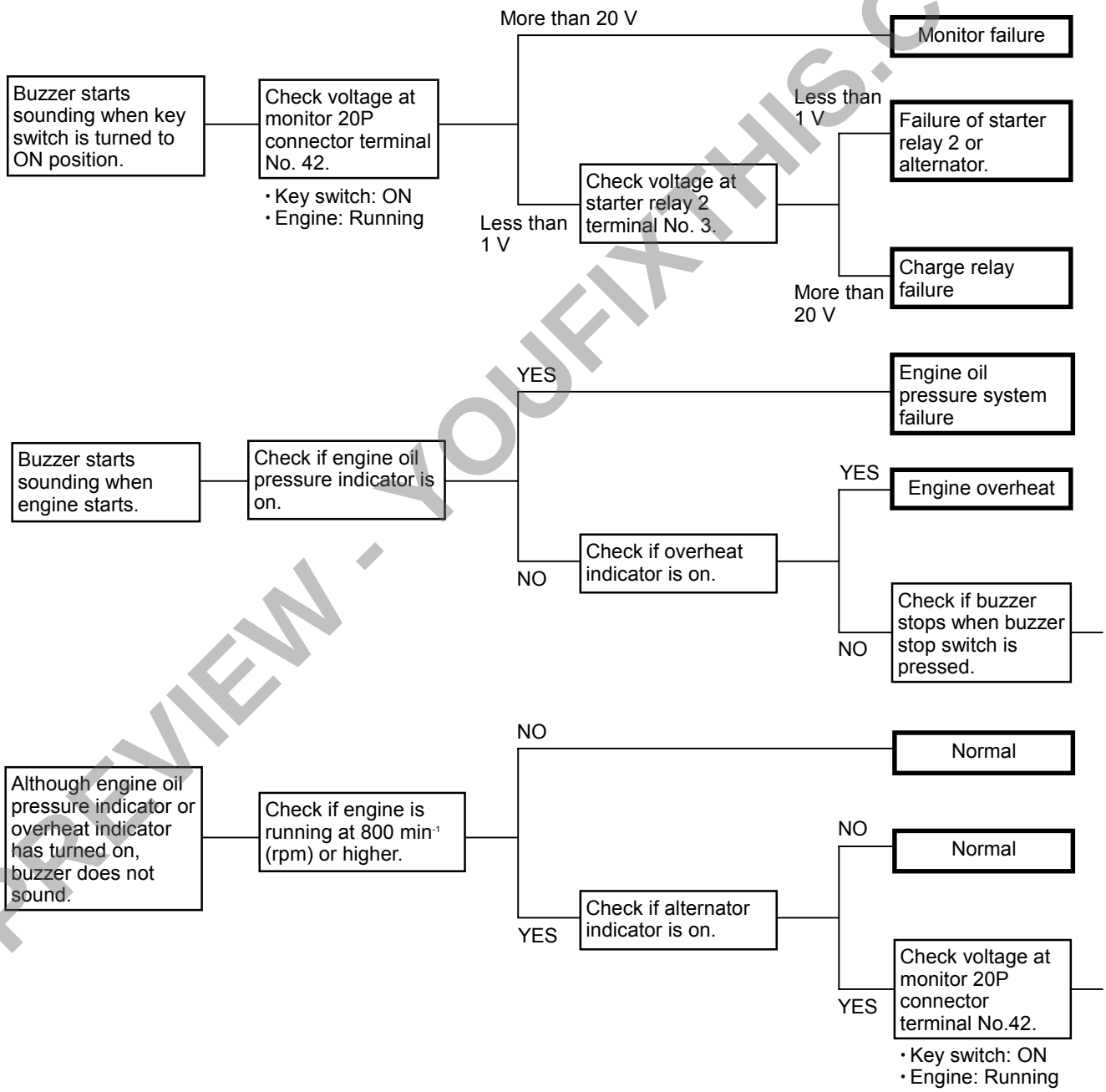


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MALFUNCTION OF BUZZER

- Be sure to inspect wiring connections prior to troubleshooting.
- Also, check continuity between starter relay 2 terminal No. 1 and alternator terminal R and between starter relay 2 terminal No. 3 and charge relay terminal No. 2.



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HANDLE FLUIDS SAFELY—AVOID FIRES

- Handle fuel with care; it is highly flammable. If fuel ignites, an explosion and/or a fire may occur, possibly resulting in serious injury or death.
  - Do not refuel the machine while smoking or when near open flame or sparks.
  - Always stop the engine before refueling the machine.
  - Fill the fuel tank outdoors.
- All fuels, most lubricants, and some coolants are flammable.
  - Store flammable fuids well away from fire hazards.
  - Do not incinerate or puncture pressurized containers.
  - Do not store oily rags; they can ignite and burn spontaneously.
  - Securely tighten the fuel and oil filler cap.



SA-018



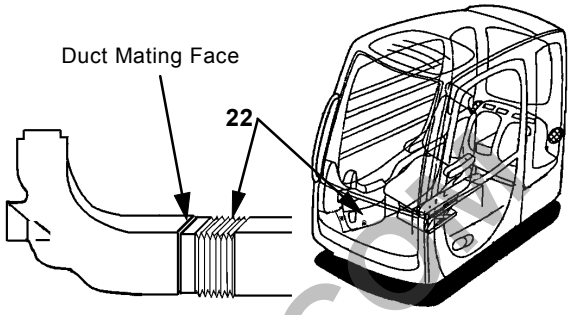
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SA-019

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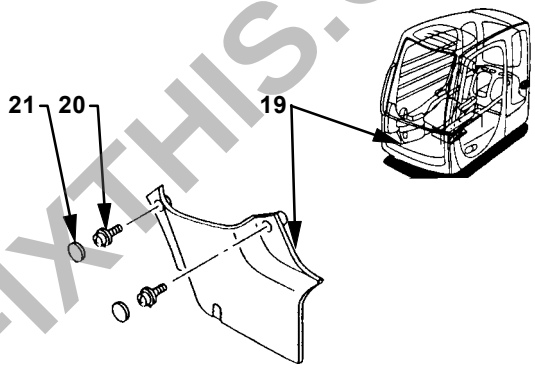
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9. While pushing duct (22) to the front of the cab, insert duct (22) into the front duct until the mating faces come in contact with each other.



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10. Install duct cover (19) with screws (20). Install caps (21).

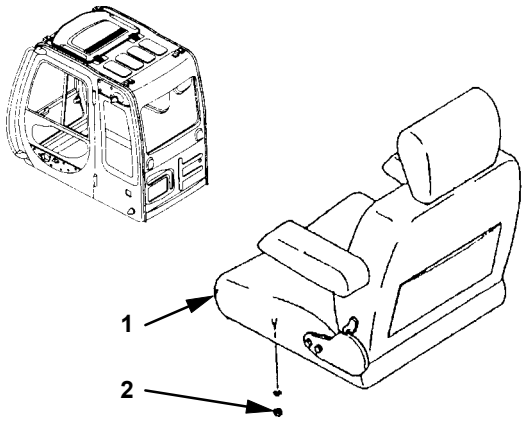


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11. Secure seat (1) with nuts (2).

: 13 mm

: 19.5 N·m (2 kgf·m, 14.5 lbf·ft)

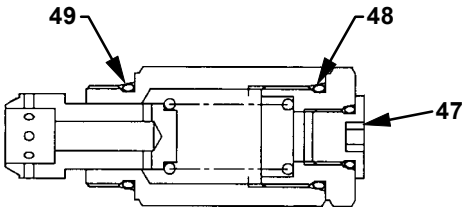


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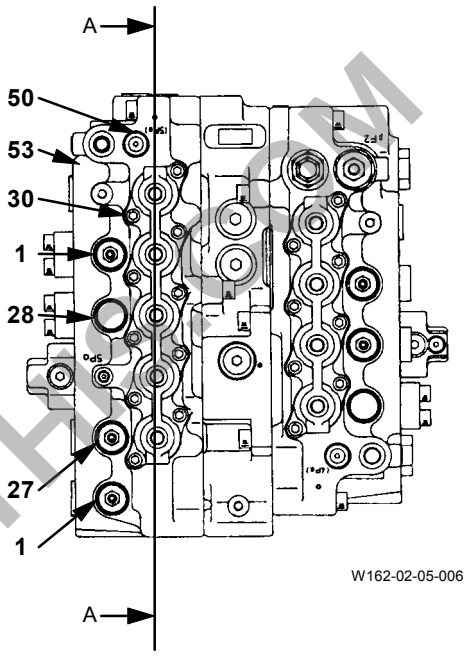
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Pump Control Valve (50)



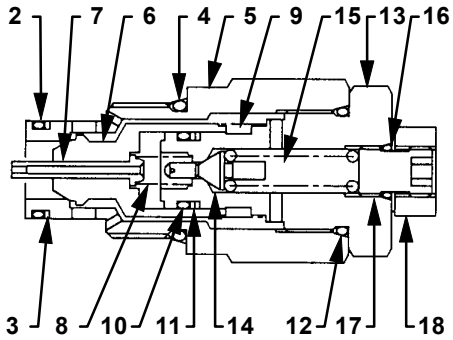
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Top Face of Control Valve



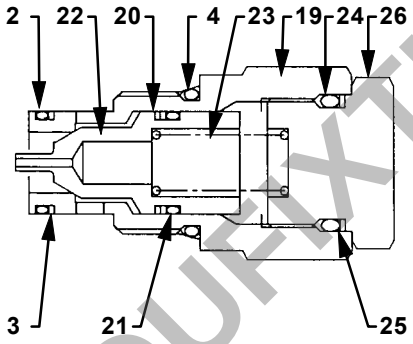
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Overload Relief Valve (1 and 27)

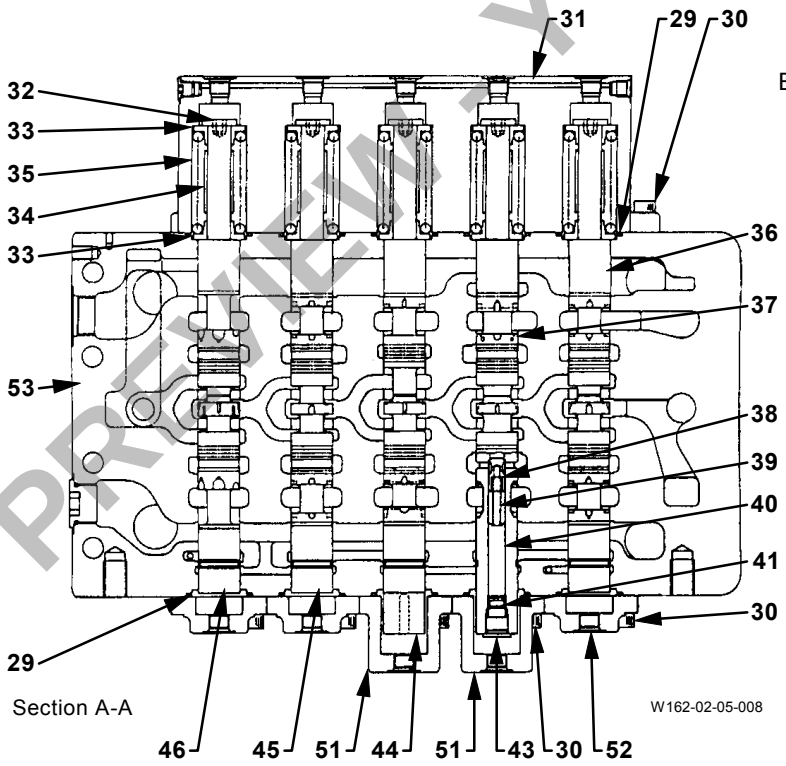


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Makeup Valve (28)



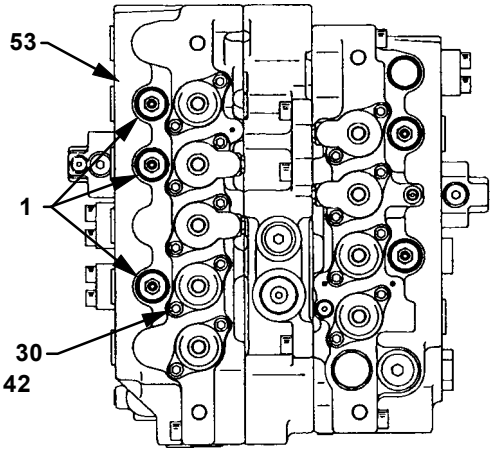
W162-02-04-028



Section A-A

W162-02-05-008

Bottom Face of Control Valve



W162-02-05-016

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CAUTION: Shaft (29), bearing (23), and other parts assembly weight: Approx. 100 kg (220 lb)

12. Pull bearing (23) out of shaft (29) using a press.

13. Remove sleeve (27) from shaft (29). Remove O-ring (28) from sleeve (27).

14. Remove oil seal (26) from cover (25).



15. Remove bearing (10) from housing (22).



16. Drive spring pin (13) out of first stage carrier (6) using a round bar and a hammer.



(Dia. : 5.0 mm, length: 50 mm or longer)

17. Remove three pins (18), three first stage planetary gears (17), six thrust plates (15), and three needle bearings (16) from first stage carrier (6).

18. Remove thrust plates (5) from first stage carrier (6).

19. Disassemble second stage carrier (8) assembly referring to steps 16 to 18 above.

NOTE: No needle bearings are used on second stage planetary gear (12).

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9. Remove one special tool (ST 7925) and temporarily tighten holder (9) with two socket bolts (6).

10. Remove the other special tool (ST 7925) and temporarily tighten holder (9) with two socket bolts (6). Tighten both socket bolts (6) to specification.

    : 8 mm
    : 49 N·m (5 kgf·m, 36 lbf·ft)

11. Turn over casing (16) and fasten with a vise. With the smaller end of piston (17) facing the pusher side, insert piston (17) into each of four spools (18).

12. Install O-ring (13) to each of four plugs (12). Install plugs (12) to casing (16).

    : 8 mm
    : 49 N·m (5 kgf·m, 36 lbf·ft)

IMPORTANT: When installing pin (8), face the pin end closer to the spring pin hole outward.

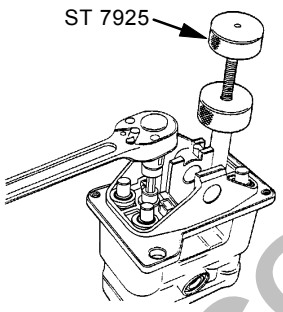
13. Turn casing (16) over and fasten with a vise. Apply a film of grease to the top of pushers (24). Aligning pin holes on holder (9) and cam (5), install pins(8).

IMPORTANT: Install spring pins (3) and (4) until their heads are sunk approx. 3 mm from cam (5) surface. Then, crimp the cam hole edge with a punch to prevent spring pins (3) and (4) from coming out.

14. Install spring four pins (3 and 4) with special tool (ST 1237).

15. Install cover (1) on holder (9) with two sems bolts (2).

    : 10 mm
    : 2 N·m (0.2 kgf·m, 1.5 lbf·ft)



W105-02-07-050

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Removal

This procedure starts on the premise that the track link has already been removed. Refer to page W3-7-1 for Remove and Install Track Link.

1. Remove cover. Disconnect hoses (2) to (5).
   : 22 mm
   : 177 N·m (18 kgf·m, 130 lbf·ft)
   : 27 mm
   : 93 N·m (9.5 kgf·m, 69 lbf·ft)
   : 10 mm
   : 108 N·m (11 kgf·m, 80 lbf·ft)

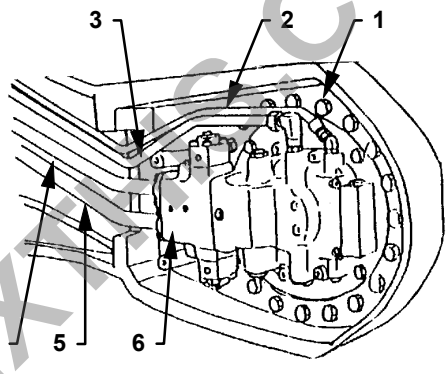
NOTE: Install caps on all disconnected hose and line ends.

2. Remove counterbalance valve (6).
   : 10 mm
   : 108 N·m (11 kgf·m, 80 lbf·ft)

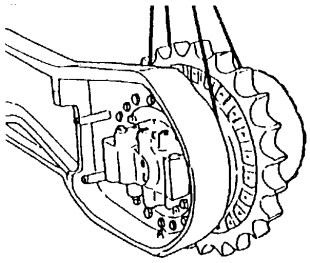
3. Attach the travel device to a crane using a wire rope. Remove any slack from the wire rope so as to secure the travel device when the mounting bolts are removed.

CAUTION: Travel device weight: Approx. 1730 kg (3820 lb)

4. Remove bolts (1). Remove the travel device using the crane.
   : 41 mm
   : 1370 N·m (140 kgf·m, 1010 lbf·ft)



W111-03-02-001



W111-03-02-002

Installation

1. Install the travel device using bolts (1).
2. Connect hoses (2) to (5).
3. Install cover.

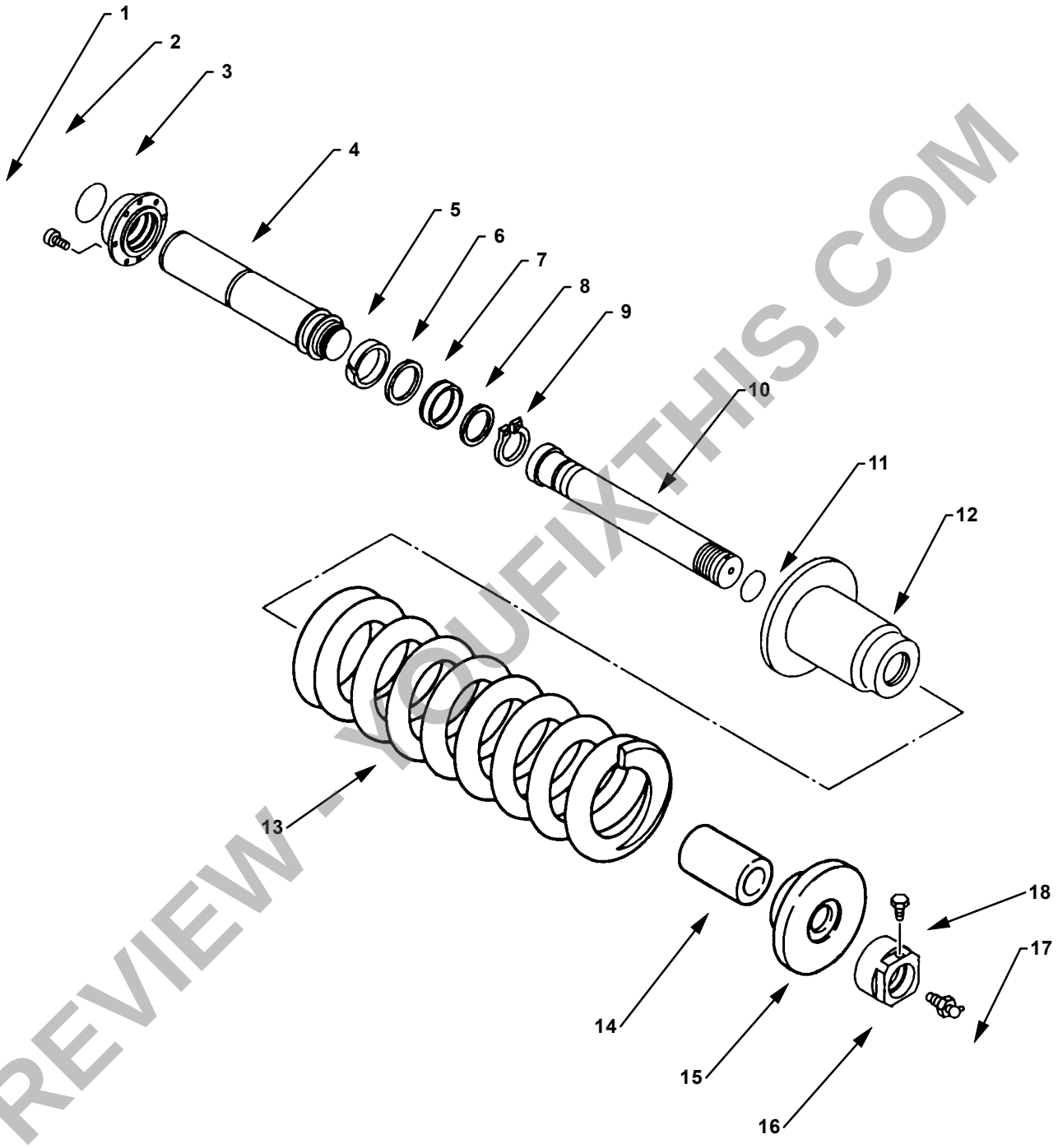
IMPORTANT: After completing travel motor installation, be sure to fill the travel motor with hydraulic oil. After installing the travel motor or the travel device, be sure to perform this test driving to prevent motor seizure. Test drive as follows:

1. **Run the engine with the engine control dial in the slow idle position.**
2. **Turn the travel speed mode switch to the slow speed position.**
3. **Test drive for more than 2 minutes.**

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DISASSEMBLE TRACK ADJUSTER

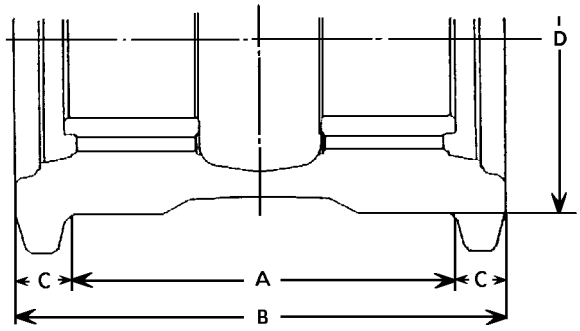


W162-03-04-001

1 - Socket Bolt (6 Used)
2 - O-Ring
3 - Guide
4 - Piston Rod
5 - Wear Ring
6 - Backup Ring
7 - U-Ring
8 - Plate
9 - Retaining Ring
10 - Rod
11 - O-Ring
12 - Cylinder
13 - Spring
14 - Spacer
15 - Bracket
16 - Nut
17 - Valve
18 - Bolt

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Lower Roller



W157-03-06-003

Unit: mm (in)

	Standard	Allowable Limit	Remedy
A	274 (10.79)	298 (11.73)	Cladding by welding and finish or replace
B	356 (14.02)	–	
C	41 (1.61)	–	
D	240 (9.45)	230 (9.06)	

Axle and Bushing

Unit: mm (in)

		Standard	Allowable Limit	Remedy
Axle	Outside Dia.	110 (4.30)	109.2 (4.30)	Replace
Bushing	Inside Dia.	110 (4.30)	111 (4.37)	
	Flange Thickness	6 (0.24)	5.2 (0.20)	

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