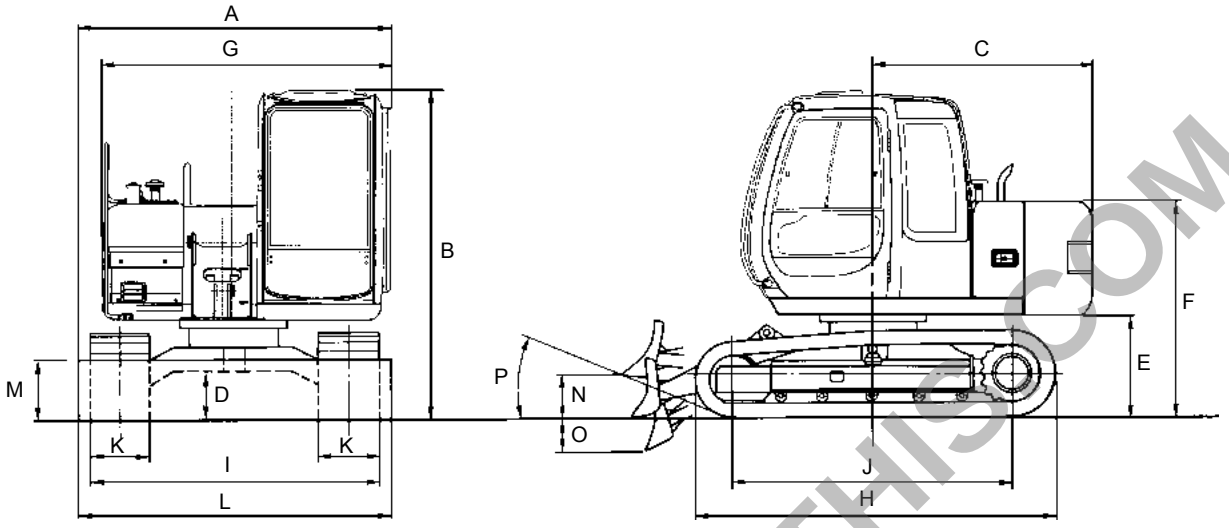
SPECIFICATIONS



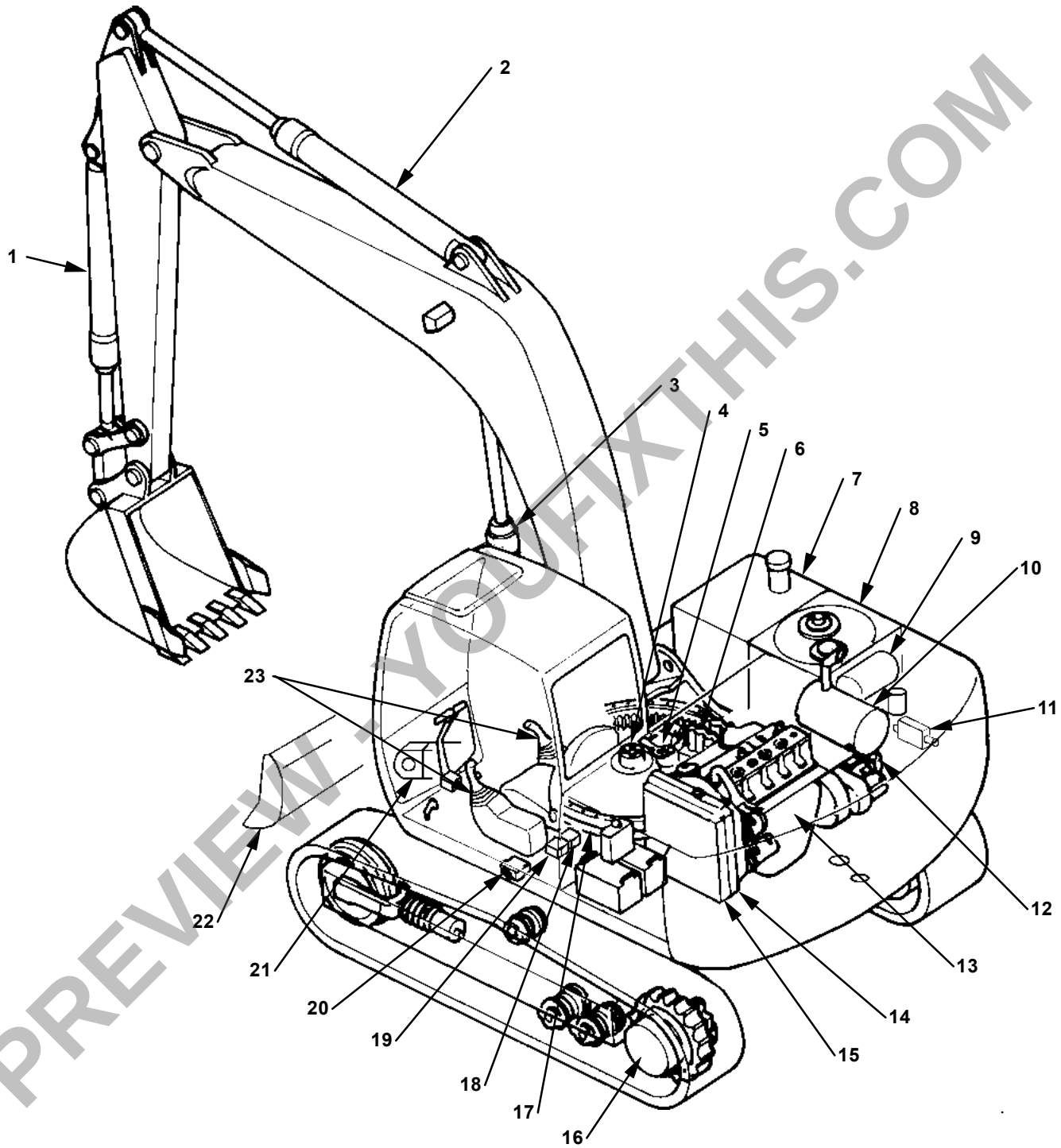
	Unit	Standard	With Blade
Type of Front-End Attachment	-	1.62 m Arm	
Std. Bucket Capacity (Heaped)	$m^3(yd^3)$	PCSA : 0.28(0.37), CECE : 0.25	
Operating Weight	kg(lb)	6390(14090)	6920(15260)
Basic Machine Weight	kg(lb)	5140(11330)	5670(12500)
Engine	-	Nissan A-BD30 41 kW/2200 min^{-1}(55 PS/2200 rpm)	
A: Overall Width	mm(ft in)	2390(7’ 10”)	2390(7’ 10”)
B: Cab Height	mm(ft in)	2570(8’ 5”)	2570(8’ 5”)
C: Rear End Swing Radius	mm(ft in)	1750(5’ 9”)	1750(5’ 9”)
D: Minimum Ground Clearance	mm(ft in)	*360(1’ 2”)	*360(1’ 2”)
E: Counterweight Clearance	mm(ft in)	*760(2’ 6”)	*760(2’ 6”)
F: Engine Cover Height	mm(ft in)	*1690(5’ 7”)	*1690(5’ 7”)
G: Overall Width of Upperstructure	mm(ft in)	2255(7’ 5”)	2255(7’ 5”)
H: Undercarriage Length	mm(ft in)	2920(9’ 7”)	2920(9’ 7”)
I: Undercarriage Width	mm(ft in)	2300(7’ 7”)	2300(7’ 7”)
J: Sprocket Center to Idler Center	mm(ft in)	2290(7’ 6”)	2290(7’ 6”)
K: Track Shoe Width	mm(ft in)	450(1’ 6”)	450(1’ 6”)
L: Blade Width	mm(ft in)	-	2300(7’ 7”)
M: Blade Height	mm(ft in)	-	420(1’ 5”)
N: Blade Bottom Height Position	mm(ft in)	-	*425(1’ 5”)
O: Blade Bottom Lowest Position	mm(ft in)	-	*290(11.5”)
P: Maximum Approach Angle	Deg.	-	25.4
Ground Pressure	kPa(kgf/cm^2, psi)	27.8(0.28, 4)	30.1(0.31, 4.4)
Swing Speed	min^{-1}(rpm)	15.0	15.0
Travel Speed (Fast / Slow)	km/h(mph)	4.8/3.7(3.0/2.3)	4.8/3.7(3.0/2.3)
Gradeability	%(Deg.)	70(35)	70(35)

* Dimensions with this mark do not include the shoe lug height.

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MAIN COMPONENTS

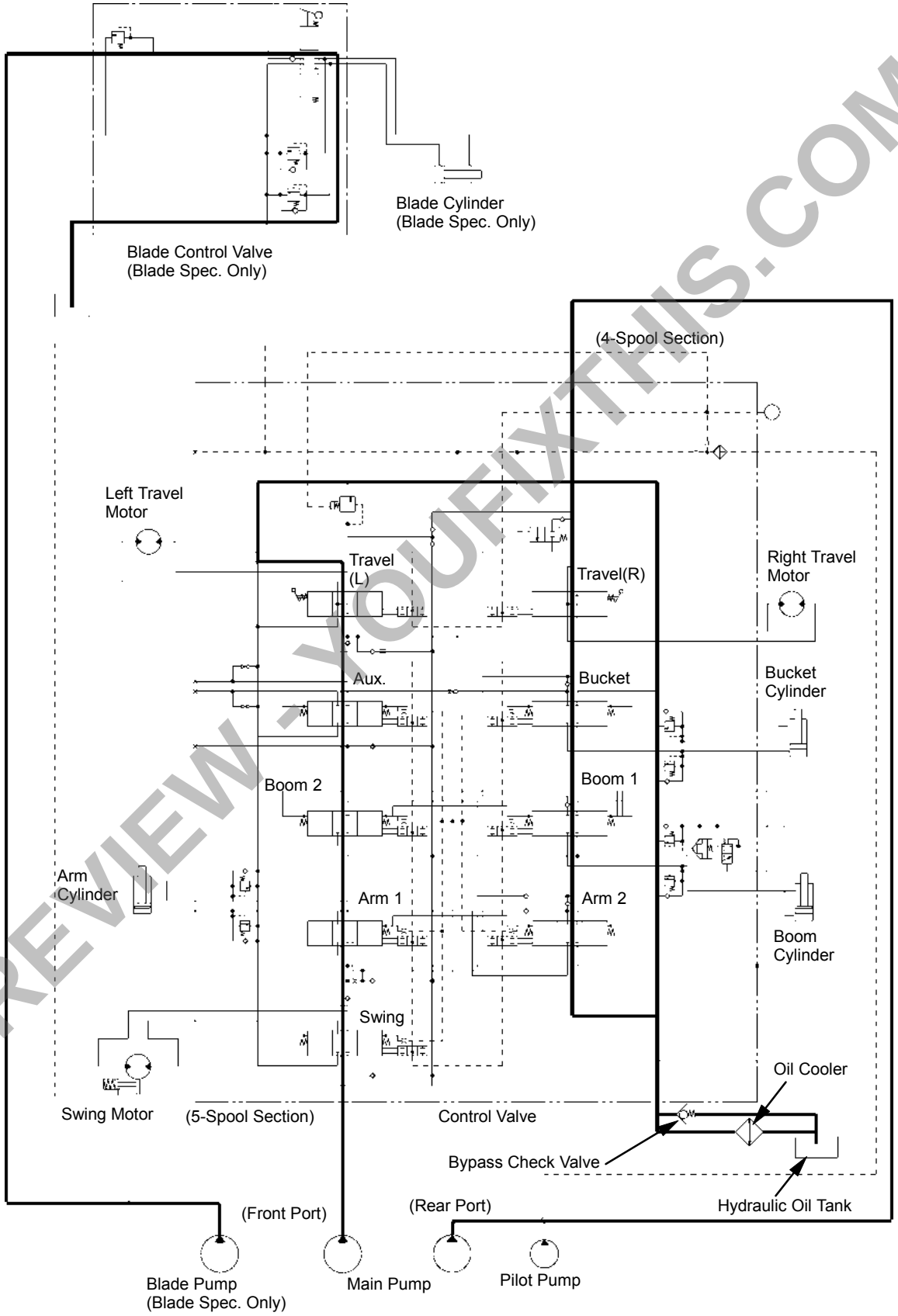
NOTE: The drawing shows the machine with a blade.



1 - Bucket Cylinder
2 - Arm Cylinder
3 - Boom Cylinder
4 - Center Joint
5 - Swing Device
6 - Control Valve
7 - Fuel Tank
8 - Hydraulic Oil Tank
9 - Air Cleaner
10 - Muffler
11 - Blade Control Valve
12 - Pump Device
13 - Engine
14 - Radiator
15 - Oil Cooler
16 - Travel Device
17 - Swing Bearing
18 - Shockless Valve (For Swing)
19 - Shockless Valve (For Front)
20 - Pilot Shut-Off Valve
21 - Blade Cylinder
22 - Blade
23 - Front/Swing Pilot Valve

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NOTE: The drawing shows the hydraulic circuit in the machine with a blade.



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Attach to Vol. No. :TT152E-NA

EX80-5 ELECTRICAL CIRCUIT DIAGRAM (1)

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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 6 groups: the diagnosing procedure, the component layout, the troubleshooting A (using fault codes), troubleshooting B (starting with symptoms), troubleshooting C (gauges and indicators), and the electrical system inspection procedures.

- Component Layout Diagrams

- 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

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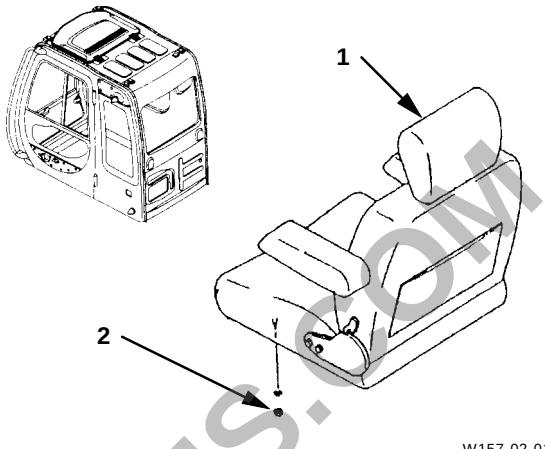
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REMOVE AND INSTALL CAB

Removal

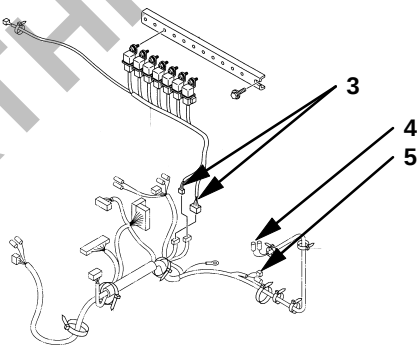
1. Remove nuts (2) from seat (1) to remove seat (1).

   : 13 mm



W157-02-01-005

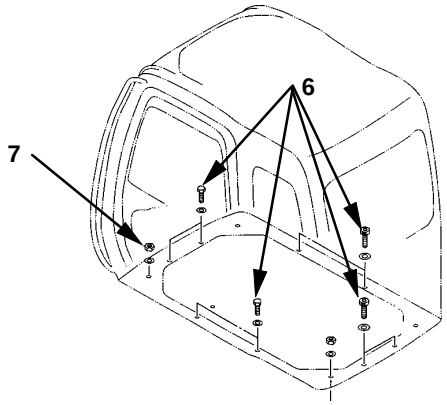
2. Disconnect cable connectors (3, 4, and 5) inside the cab at the rear.



W152-03-01-001

3. Remove cab mounting bolts (6) and nut (7).

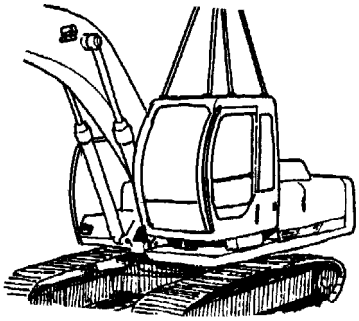
   : 17 mm, 24 mm
   : 8 mm



W157-02-01-010

CAUTION: Cab weight : 250 kg (550 lb)

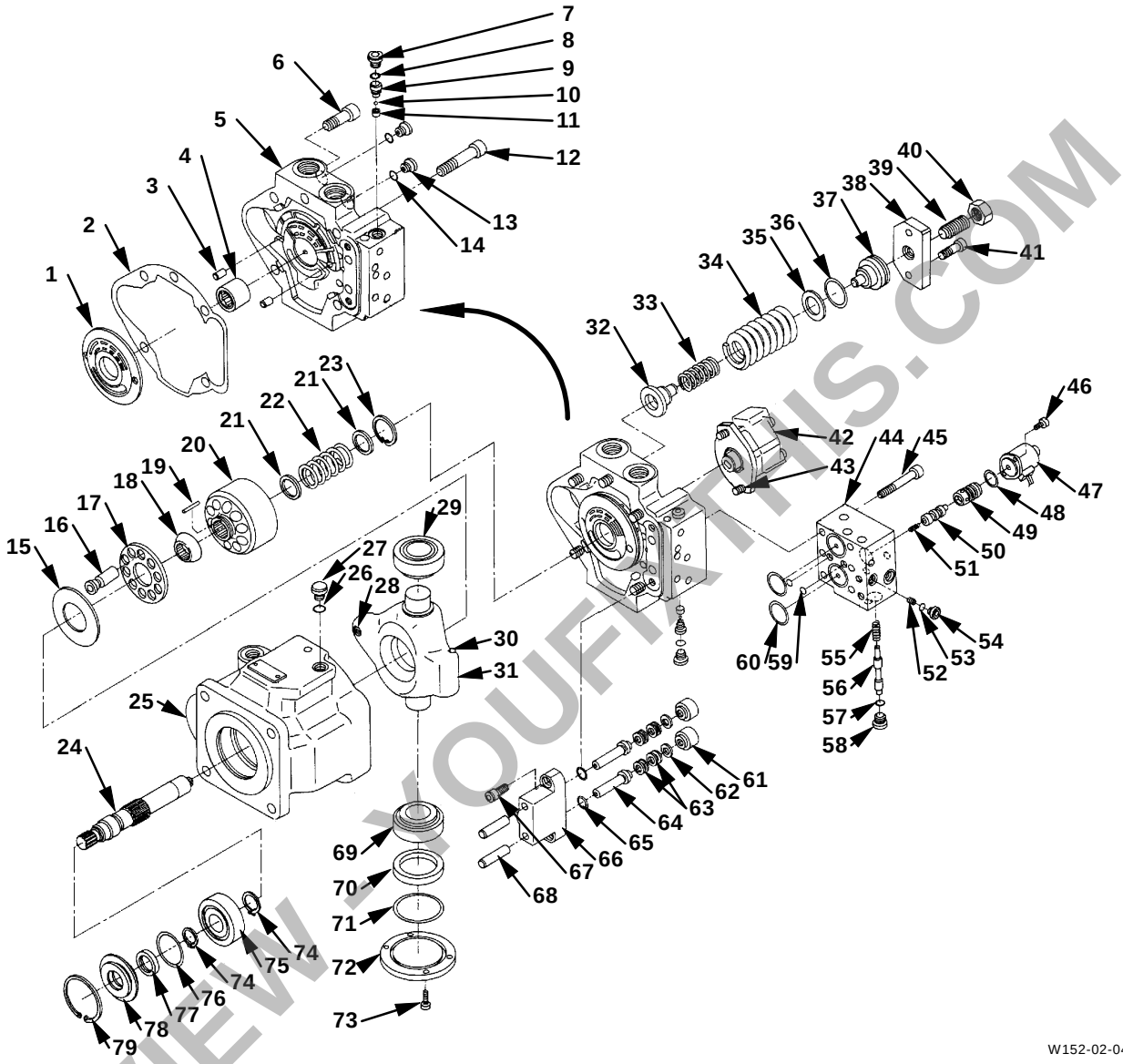
4. Attach the cab to a crane using lifting straps. Carefully remove the cab.



W157-02-02-001

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DISASSEMBLE PUMP DEVICE



W152-02-04-001

1 - Valve Plate
2 - Packing
3 - Knock Pin (2 Used)
4 - Needle Bearing
5 - Cover
6 - Socket Bolt (3 Used)
7 - Plug (2 Used)
8 - O-Ring (2 Used)
9 - Seat (2 Used)
10 - Steel Ball (2 Used)
11 - Guide (2 Used)
12 - Socket Bolt (2 Used)
13 - Plug (2 Used)
14 - O-Ring (2 Used)
15 - Plate
16 - Plunger (10 Used)
17 - Retainer
18 - Spherical Bushing
19 - Pin (3 Used)
20 - Cylinder Block
21 - Washer (2 Used)
22 - Spring
23 - Retaining Ring
24 - Shaft
25 - Housing
26 - O-Ring
27 - Plug
28 - Rod
29 - Bearing
30 - Pin
31 - Hanger
32 - Spring Seat
33 - Spring
34 - Spring
35 - Shim (3 Used)
36 - O-Ring
37 - Spring Seat
38 - Cover
39 - Adjusting Screw
40 - Lock Nut
41 - Socket Bolt (2 Used)
42 - Pilot Pump
43 - Socket Bolt (2 Used)
44 - Body
45 - Socket Bolt (6 Used)
46 - Socket Bolt (2 Used)
47 - Solenoid
48 - O-Ring
49 - Sleeve
50 - Spool
51 - Spring
52 - Orifice
53 - O-Ring
54 - Plug
55 - Spring
56 - Spool
57 - O-Ring
58 - Plug
59 - O-Ring (2 Used)
60 - O-Ring (2 Used)
61 - Piston (2 Used)
62 - Shim (2 Used)
63 - Disc Spring (8 Used)
64 - Piston (2 Used)
65 - O-Ring (2 Used)
66 - Cylinder
67 - Socket Bolt (2 Used)
68 - Pin (2 Used)
69 - Bearing
70 - Distant Piece
71 - O-Ring
72 - Cover
73 - Socket Bolt (4 Used)
74 - Retaining Ring (2 Used)
75 - Bearing
76 - O-Ring
77 - Oil Seal
78 - Cover
79 - Retaining Ring

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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-0001



SA-001

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**.
- **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.

002-E01A-1223



SA-1223

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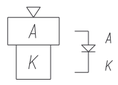
Attach to Vol. No. :TT152E-NA

EX80-5 ELECTRICAL CIRCUIT DIAGRAM (2)

CONECTOR APPLCATION LIST

(Drawings are shown in face view of the harness side connector.)

DIODE



PH065-02010

SPEAKER



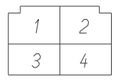
PH065-02010

WWES



C02 FW

CHECKER



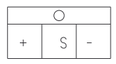
YAZAKI 7323-2043
SJD PH025-04010
N-SLC-4F(N)

WIPER



MWP04F_B

ENG CONT DIAL



C03 FW

PRESS.SW

TTRAVEL



YAZAKI 7323-9327
OR EQUIVALENT 090-2-WP

WASHER (OPTION)



PH065-02010

CN.UNLOCK

FUEL SENSOR



EARTH SIDE
(注) POLARITY

Z02F-GY

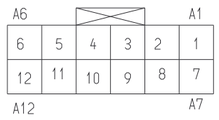
BUZZER

#4258403



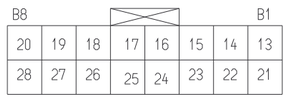
C02 FW

MONITER-A



AMP-174045-2

MONITER-B



AMP-174046-2

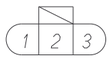
RELAY



M05FB-R

EC SENSOR

G/S



Z03F-GY

EC MOTER



Z04F-GY

STARTER SW



SJD DSD 06F_W
PH776-06015

THERMO SENSOR



EGI

ALTERNATOR



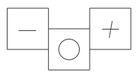
YAZAKI 7323-2228

PRESS SW FRT



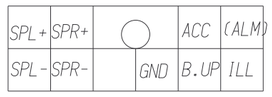
PACKARD-12020599

HEATER,AIRCON



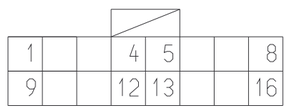
C02FB

RADIO_CAB/H



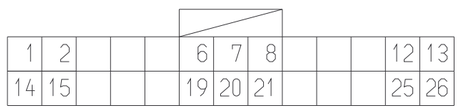
C10FW

CONTROLLER-B



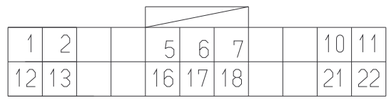
AMP-174514-6

CONTROLLER-A



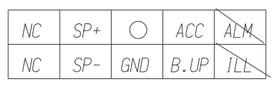
AMP-174516-6

CONTROLLER-D



AMP-174515-6

RADIO AM-SANYO



7119-3090
(PA-9P)

RADIO AM-FM
FUJITU-TEN



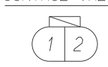
YAZAKI 0902-10P
AUDIO
YAZAKI 7283-1100

RELAY;STARTER



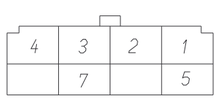
Z04F-GY

DIRECTIONAL CONTROL VALVE



Z02F-GY

QHS CONTROLLER



YAZAKI 7123-2186

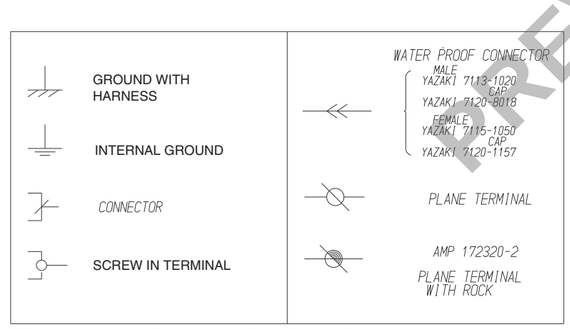
RELAY;HEATER



YAZAKI7323-2215

HARNESS CIRCUIT No.

PARTS	TERMINAL NO.	HARNESS CIRCUIT No.
CONT. A	1~26	1~26
CONT. B	1~16	31~46
CONT. D	1~22	51~72
BE RELATED TO CONTROLLER		229~261
MONITOR CONTROLLER	1~28	201~228
QHS CONTROLLER	1~8	550~555
BE RELATED TO MONITOR		100~120
BE RELATED TO ACCESSORY		500~620



The meanings of the ground symbols above are different from the meaning in IEC.

FIG 1

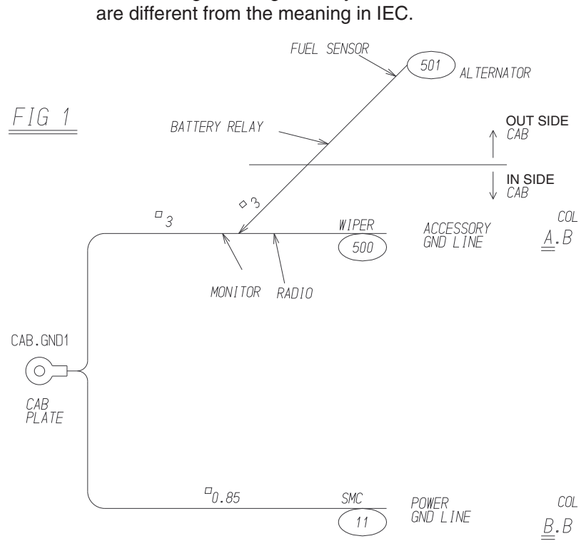
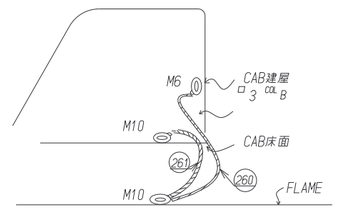


FIG 2



PREVIEW

SWING PARKING BRAKE
Type ..... Multiple-wet-plate negative type
Cracking pressure for release(full stroke) ..... 1.18±0.15 MPa (12±1.5 kgf/cm^2, 171±21 psi)

TRAVEL DEVICE
Type ..... Two-stage planetary reduction gear

TRAVEL MOTOR
Model HMF054AF
Type ..... Radial plunger motor

TRAVEL BRAKE VALVE
Type ..... Counter balance type
Relief pressure..... 31.9 MPa (325 kgf/cm^2, 4620 psi)

TRAVEL PARKING BRAKE
Type ..... Multi-wet-plate negative type
Cracking pressure for release ..... 0.88 MPa (9.0 kgf/cm^2, 128 psi))

CYLINDER	Boom	Arm	Bucket
Rod Dia.	65 mm(2.6 in)	60 mm(2.4 in)	55 mm(2.2 in)
Cylinder bore	115 mm(4.5 in)	95 mm(3.7 in)	85 mm(3.3 in)
Stroke	885 mm(34.8 in)	900 mm(35.4 in)	730 mm(27.8 in)
Fully retracted length	1311 mm(51.6 in)	1300 mm(51.2 in)	1120 mm(44.1 in)
Plating thickness	30 μm	30 μm	30 μm

CYLINDER	Blade
Rod Dia.	70 mm(2.8 in)
Cylinder bore	120 mm(4.7 in)
Stroke	145 mm(5.7 in)
Fully retracted length	568 mm(22.4 in)
Plating thickness	30 μm

FRONT ATTACHMENT PILOT VALVE
Type HVP04D-040-101

SHOKELESS VALVE
Type ..... Flow regulator

PILOT SHUT-OFF VALVE
Type ..... Rotary type

OIL COOLER BYPASS CHECK VALVE
Cracking pressure ..... 294 kPa (3.0 kgf/cm^2, 43 psi) at 5 L/min

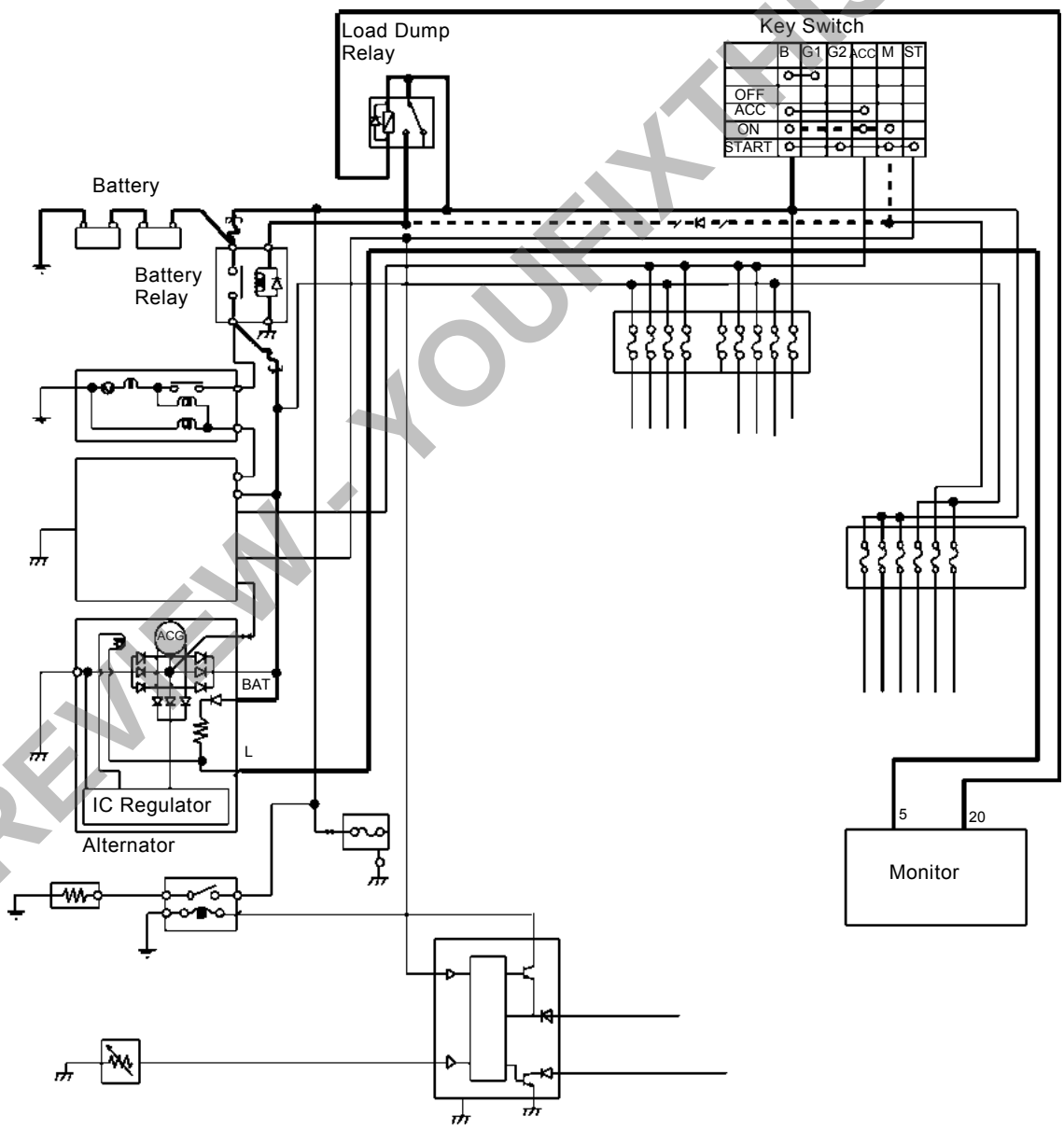
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SURGE VOLTAGE PREVENTION CIRCUIT

When the key switch is turned OFF to stop the engine, the battery relay is turned off as electrical current from key switch terminal M is cut. Immediately after the key switch was turned OFF, the engine is still running, causing the alternator to continue generating. Since the generated current does not flow to the batteries, surge voltage rises in the circuit, possibly damaging electronic components and parts such as the controller. The surge voltage prevention circuit is provided to protect the electronic components from being damaged.

While the batteries are being charged, generated electrical current from alternator terminal L is routed to monitor terminal No. 5, turning on an output transistor provided between monitor terminals No. 5 and No. 20. Consequently, electrical current flows to the excitation circuit in the load dump relay, activating the load dump relay. For this reason, the battery relay is excited by electrical current from the batteries via the load dump relay after the key switch is turned off until the alternator stops generating current.

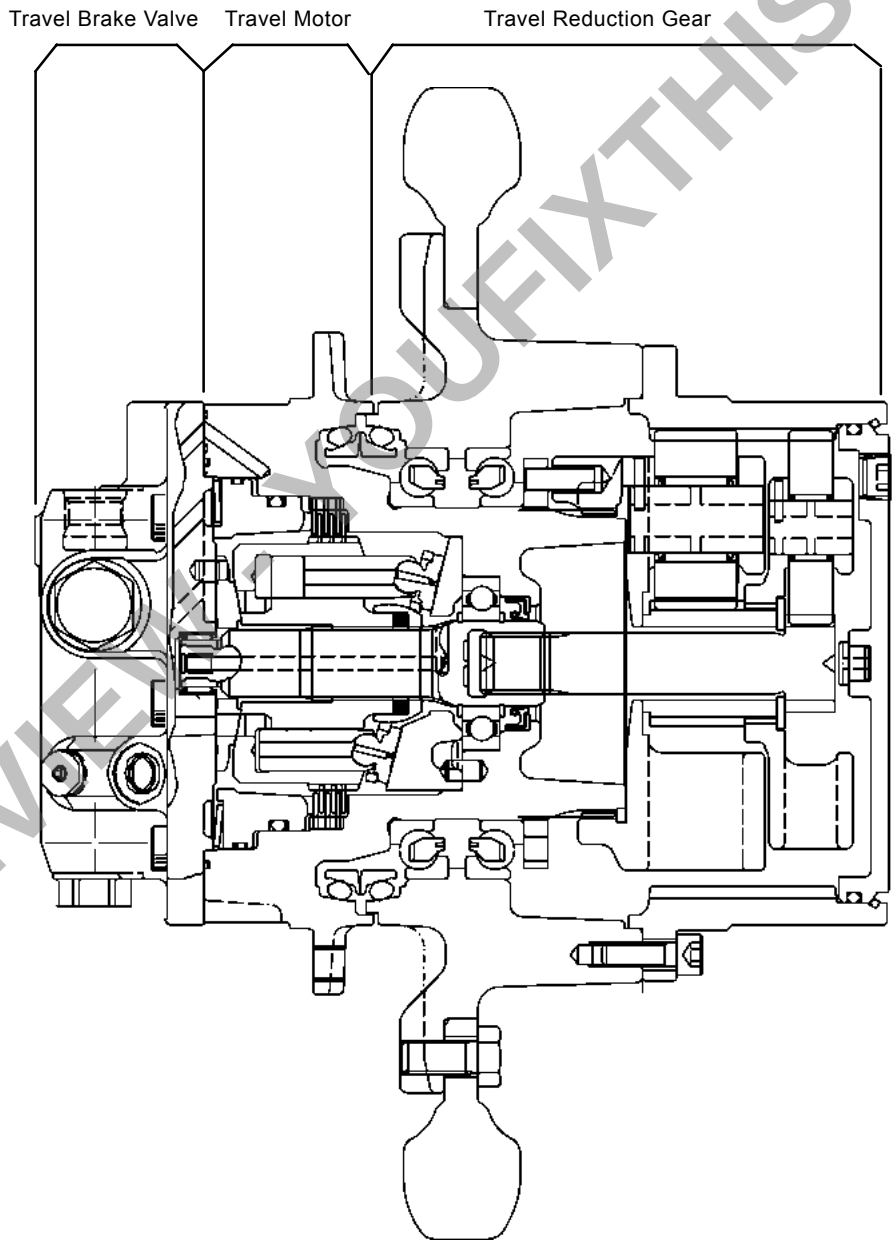


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TRAVEL DEVICE

The travel device consists of the travel motor, the travel reduction gear, and the travel brake valve.
The travel motor is a swash-plate type fixed displacement axial plunger motor. The travel motor is driven by hydraulic oil from the hydraulic pump and transfers rotary power to the travel reduction gear. The travel reduction gear is a two stage reduction planetary gear unit which converts the rotary power from the travel motor to a slow and large torque to rotate the sprocket. The sprocket drives the track link. The travel brake valve protects the travel hydraulic circuit from overloading.



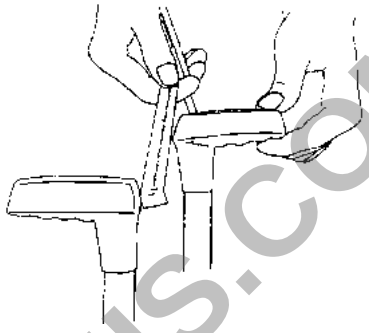
T152-03-05-001

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CONTROL LEVER STROKE

Summary:

1. To measure each control lever stroke as well as the lever stroke end play and operation smoothness.
2. Measure the stroke at the lever grip center.
3. When the lever play is provided in the neutral position, divide the play equally to measure the stroke.



T107-06-03-005

Preparation:

1. Maintain hydraulic oil temperature at 50±5 °C (122±9 °F).

Measurement:

1. Stop the engine.
2. Measure the operation strokes of the boom, arm, bucket, swing, and travel levers at the lever grip top from neutral to the stroke end using a ruler.
3. Measure the chord length from neutral to the stroke end.
4. Repeat step 2. three times and calculate the average values.

Evalution:

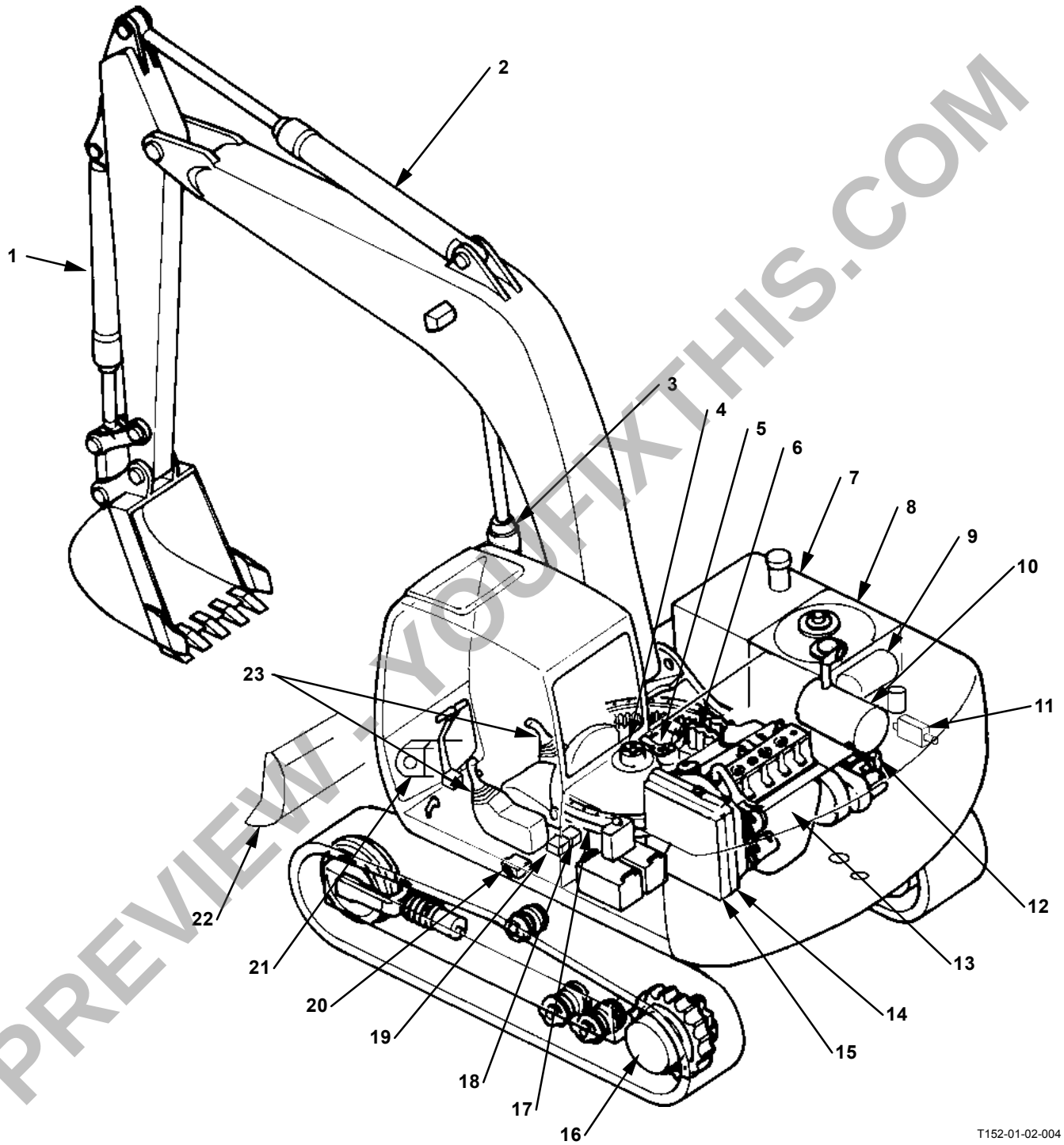
Refer to Performance Standard Table in Group T4-5.

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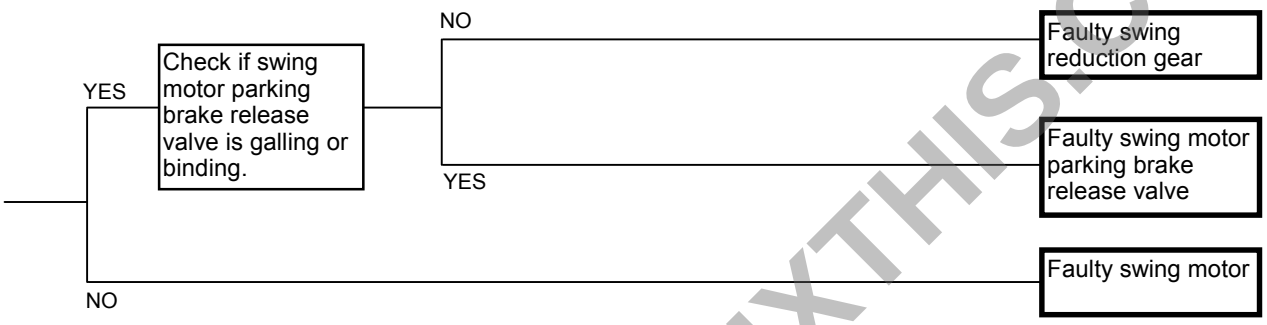
MAIN COMPONENTS

NOTE: The drawing shows the machine with a blade.



1 - Bucket Cylinder
2 - Arm Cylinder
3 - Boom Cylinder
4 - Center Joint
5 - Swing Device
6 - Control Valve
7 - Fuel Tank
8 - Hydraulic Oil Tank
9 - Air Cleaner
10 - Muffler
11 - Blade Control Valve
12 - Pump Device
13 - Engine
14 - Radiator
15 - Oil Cooler
16 - Travel Device
17 - Swing Bearing
18 - Shockless Valve (For Swing)
19 - Shockless Valve (For Front)
20 - Pilot Shut-Off Valve
21 - Blade Cylinder
22 - Blade
23 - Front/Swing Pilot Valve

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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

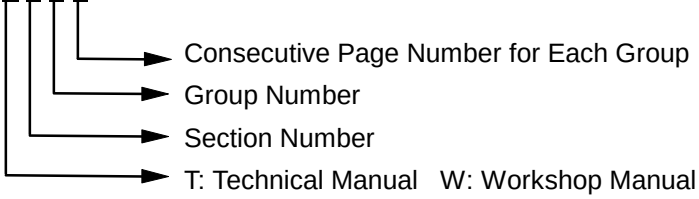
MANUAL COMPOSITION

- 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

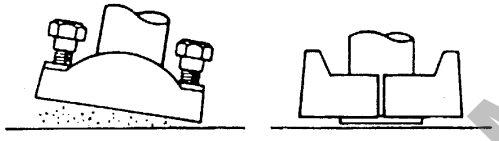


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Service Recommendations for Spilt Flange

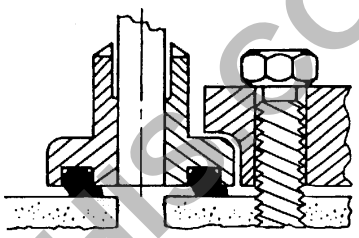
IMPORTANT:

1. **Be sure to clean and Inspect sealing surfaces. Scratches / roughness cause leaks and seal wear.**
   Unevenness causes seal extrusion. If defects cannot be polished out, replace the component.
2. **Be sure to use only specified O-rings. Inspect O-rings for any damage. Take care not to file O-ring surfaces. When installing an O-ring into a groove, use grease to hold it in place.**
3. **While lightly tightening split flange halves, check that split is centered and perpendicular to the port. Hand-tighten bolts to hold parts in place. Take care not to pinch the O-ring.**
4. **Tighten bolts alternately and diagonally, as shown, to ensure even tightening.**
5. **Do not use air wrenches. Using an air wrench often causes tightening of one bolt fully before tightening of the others, resulting in damage to O-rings or uneven tightening of bolts.**

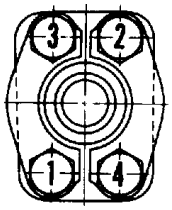


W105-01-01-015

WRONG

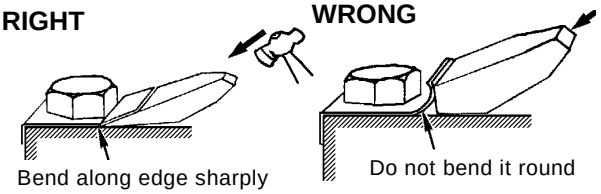


W105-01-01-016



W105-01-01-008

RIGHT **WRONG**



Bend along edge sharply

Do not bend it round

Nut and Bolt Locking

- Lock Plate

IMPORTANT: Do not reuse lock plates. Do not try to bend the same point twice.

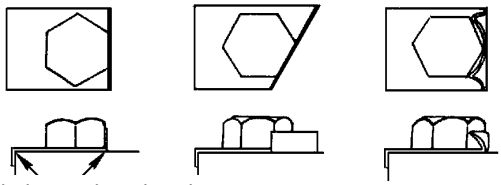
- Cotter Pin

IMPORTANT: Do not reuse cotter pins. Match the holes in the bolt and nut while tightening, not while loosening.

- Lock Wire

IMPORTANT: Apply wire to bolts in the bolt-tightening direction, not in the bolt-loosening direction.

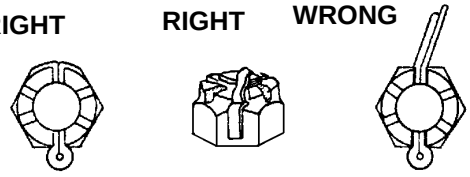
RIGHT **RIGHT** **WRONG**



Bend along edge sharply

W105-01-01-009

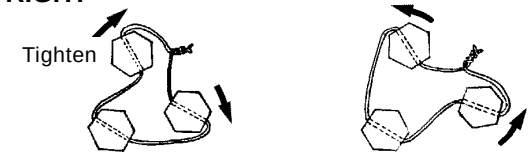
RIGHT **RIGHT** **WRONG**



RIGHT

Tighten

Loosen **WRONG**



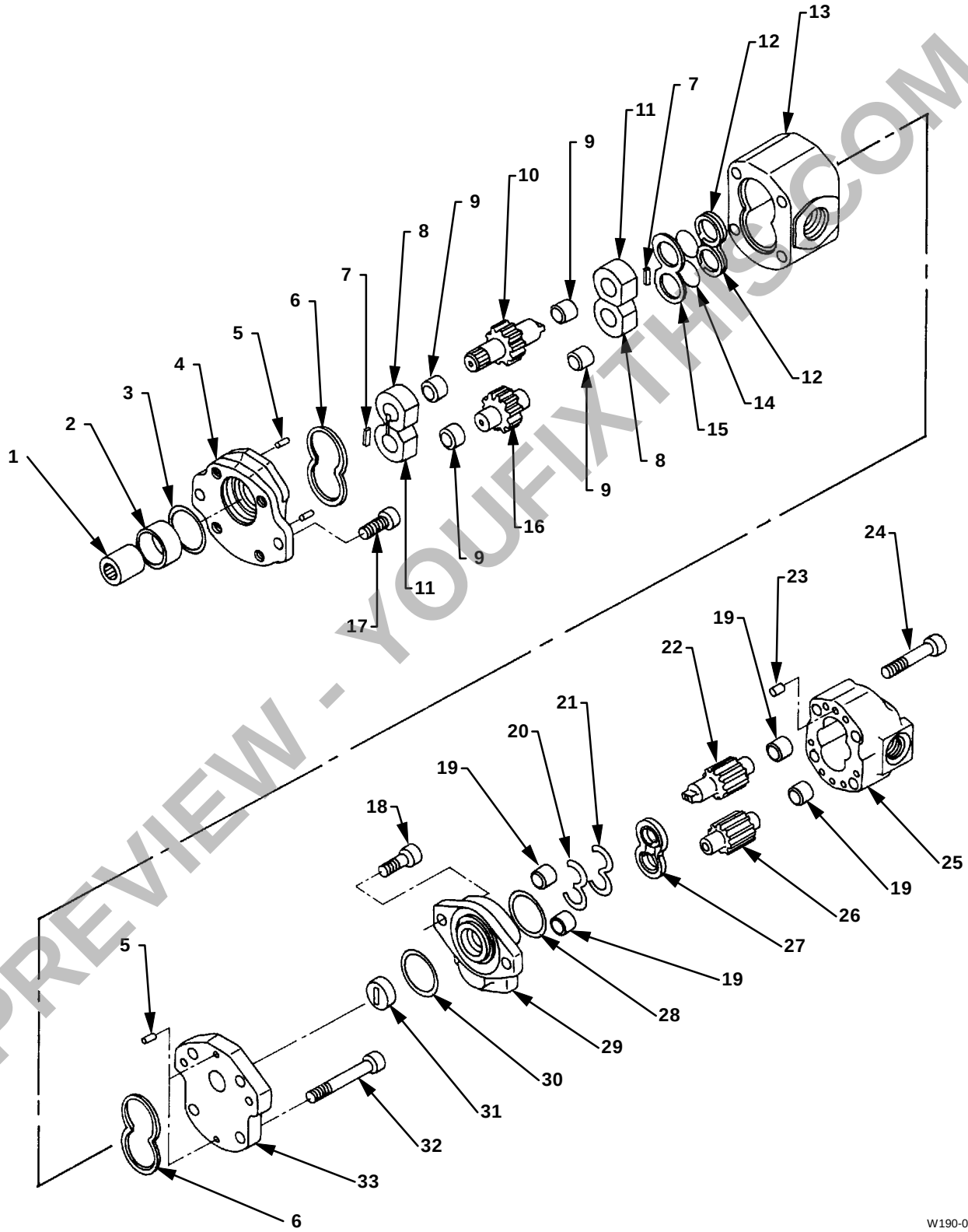
W105-01-01-010

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DISASSEMBLE AND ASSEMBLE BLADE PUMP AND PILOT PUMP

(Blade Spec. Only)



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9. Press shaft (27) out of housing (22).

10. Press guide (26) and roller bearing (24) inner race out of shaft (27).

11. Remove oil seal (21) and dust seal (25) from housing (22).

IMPORTANT: Do not remove roller bearing (20) or roller bearing (24) outer race from housing (22). Otherwise, press-fit force on the outer races of roller bearings (20 and 24) will be reduced, affecting bearing life. If required to be removed, replace them along with housing (22) with new ones.

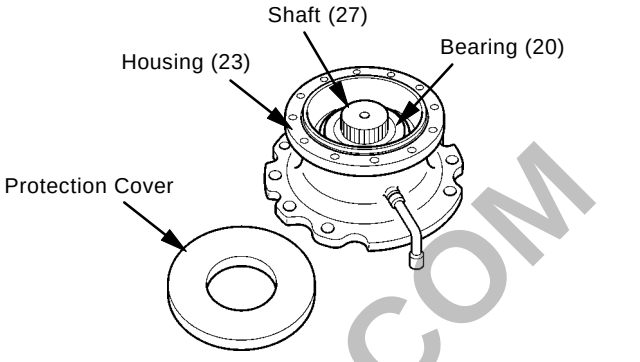
CAUTION: Before pressing shaft (27), provide a protection cover (outer diameter: 180 mm (7.1”), inner diameter: 65 mm (2.5”), thickness: 25 to 30 mm). Then, use the press to remove shaft (27) while covering housing (23) and bearing (20) with the protection cover. Failure to use the protection cover may result in personal injury due to metal fragments flying out if housing (23) and/or breaking bearing (20). Use a press with the capacity less than 30 tons (66000 lb). Be sure to degrease the housing inside before heating bearing (20). Failure to degrease may cause a fire.

10. Remove shaft (27) from housing (23) using a press.

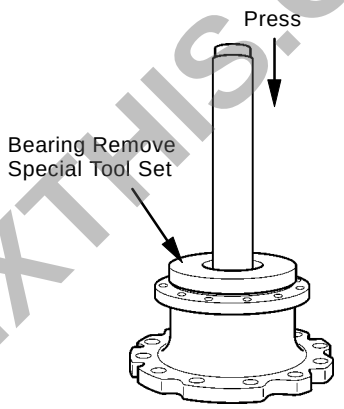
11. Attach shaft (27) assembly to the special tool bearing removal set.

NOTE: Use the following parts as the special tool set for removing bearing (24).

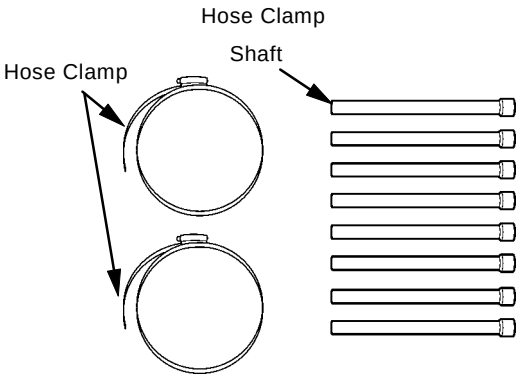
Part	Size	Remarks
Shaft or Bolt	Length: 160 mm (6.3 in) Diameter: 12 mm (1/2 in)	6 to 8 used. All should be identical in length with no wear and deformation on both ends. Material: S35C (JIS), 1035 (AISI)
Hose Clamp	Standard Diameter: 6” (Applicable Diameter: 125 to 155 mm)	2 used.
Guide	Height: 120 mm (4.7 in) Outer Diameter: 170 mm (6.7 in) Inner Diameter: 150 mm (5.9 in)	



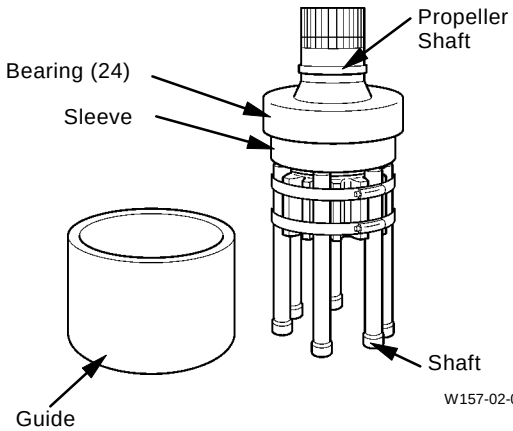
W157-02-06-010



W157-02-06-011



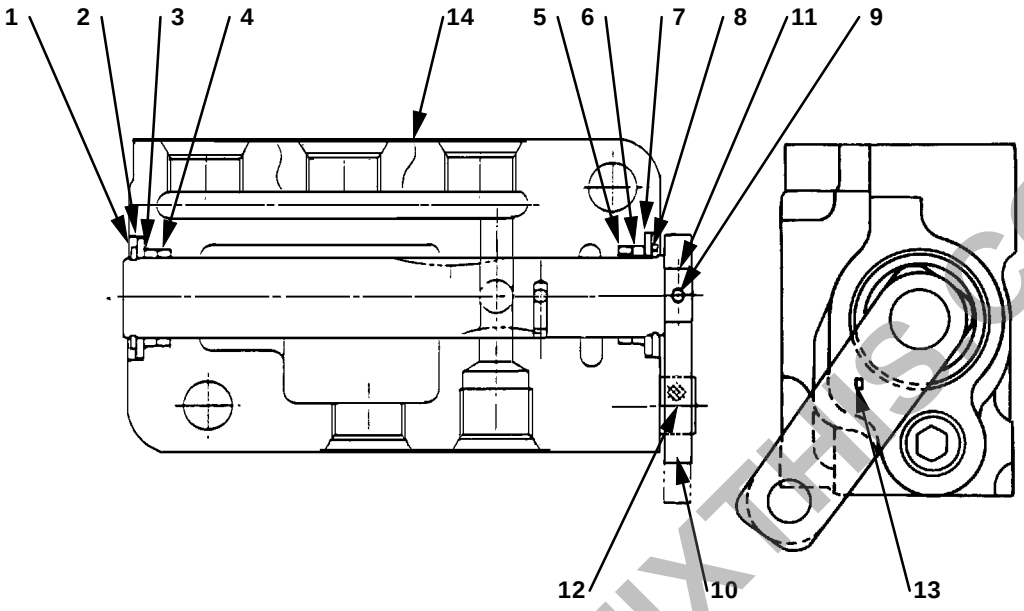
W157-02-06-012



W157-02-06-013

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ASSEMBLE PILOT SHUT-OFF VALVE



W157-02-08-002

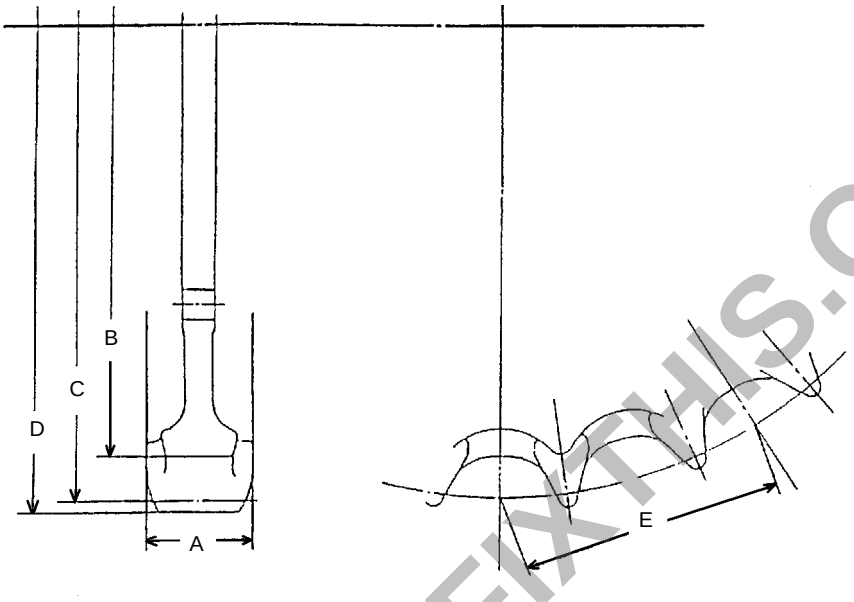
1 - Retaining Ring
2 - Washer
3 - Backup Ring
4 - O-Ring
5 - O-Ring
6 - Backup Ring
7 - Washer
8 - Retaining Ring
9 - Spring Pin
10 - Lever
11 - Spool
12 - Socket Bolt
13 - Steel Ball
14 - Body

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MAINTENANCE STANDARD

Sprocket



W105-03-02-241

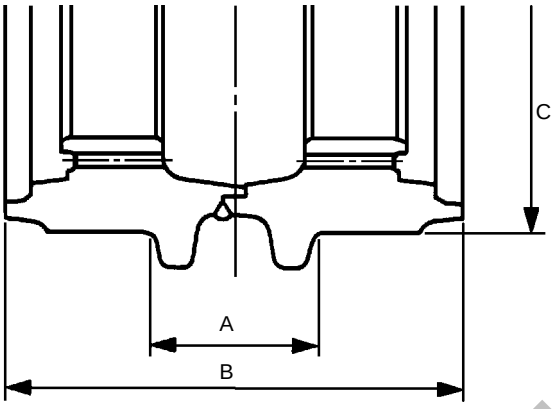
Unit : mm

	Standard	Allowable Limit	Remedy
A	53.4	43.0	Cladding by welding and finishing
B	471.7	462.0	
C	PCD 522.5	–	
D	533.6	524.0	
E	154.0	–	

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Lower Roller



W102-03-06-006

Unit : mm (in)

	Standard	Allowable Limit	Remedy
A	44 (1.8)	–	Cladding by welding and finishing or replace
B	143 (5.6)	–	
C	110 (4.3)	100 (3.9)	

Axle and Bushing

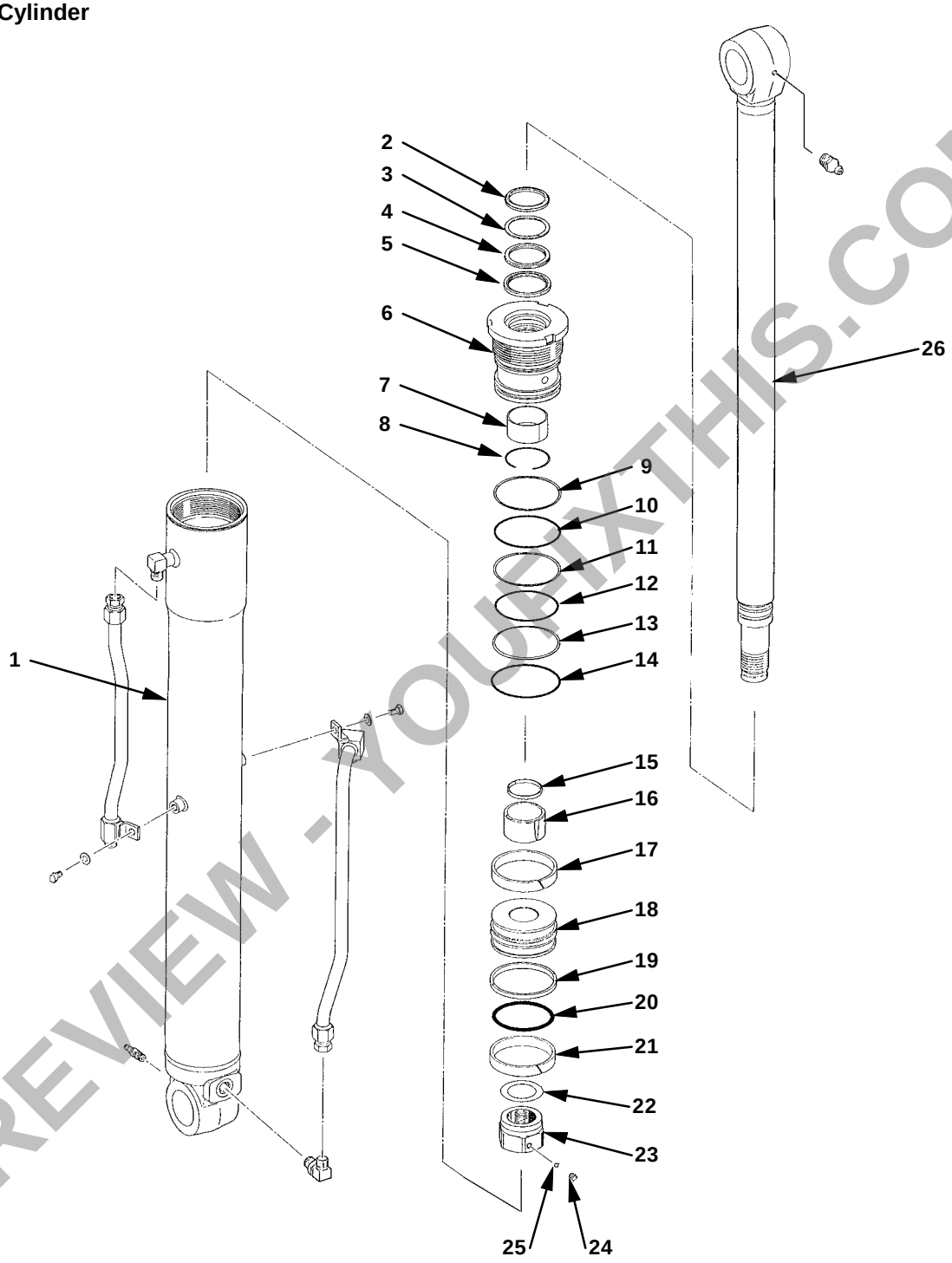
Unit : mm (in)

		Standard	Allowable Limit	Remedy
Axle	Outside Dia.	40 (1.6)	39.2 (1.5)	Replace
Bushing	Inside Dia.	40 (1.6)	41 (1.6)	
	Flange Thickness	2 (0.08)	1.2 (0.05)	

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Boom Cylinder



1 - Cylinder Tube
2 - Wiper Ring
3 - Backup Ring
4 - U-Ring
5 - Buffer Ring
6 - Cylinder Head
7 - Bushing
8 - Snap Ring
9 - O-Ring
10 - Backup Ring
11 - O-Ring
12 - Backup Ring
13 - O-Ring
14 - Backup Ring
15 - Cushion Seal
16 - Cushion Bearing
17 - Slide Ring
18 - Piston
19 - Seal Ring
20 - O-Ring
21 - Slide Ring
22 - Shim
23 - Nut
24 - Set Screw
25 - Steel Ball
26 - Piston Rod

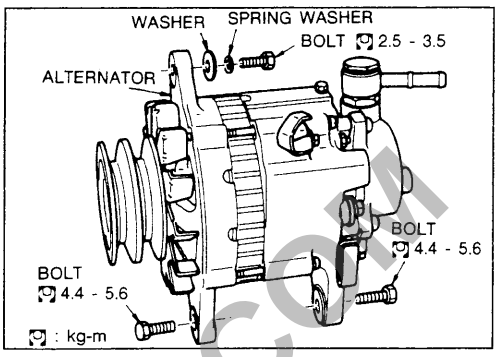
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ELECTRICAL SYSTEM

ALTERNATOR

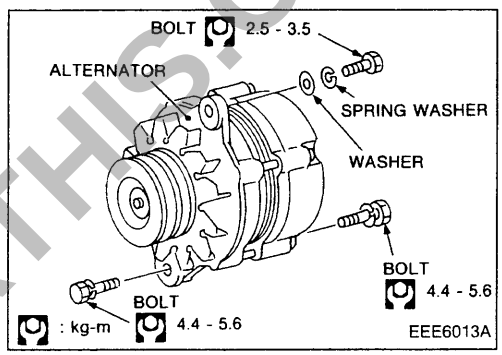
(Automotive use)

Generating voltage	(V)	12 V
		14.1 - 14.7



(Industrial use)

Generating voltage	(V)	12 V (STD)	24 V (OPT)
		14.2 - 14.8	28.0 - 29.0
			27.9 - 29.1



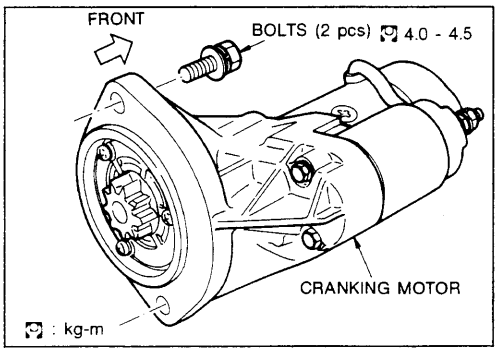
STARTER

(Automotive use)

Output	(kW)	12 V
		2.1

(Industrial use)

Output	(kW)	12 V (STD)	24 V (OPT)
		2.1	3.0

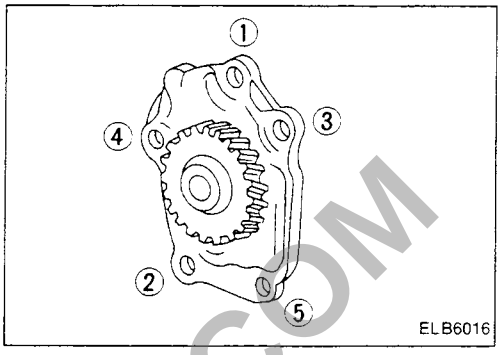


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[Point 1] Installing oil pump

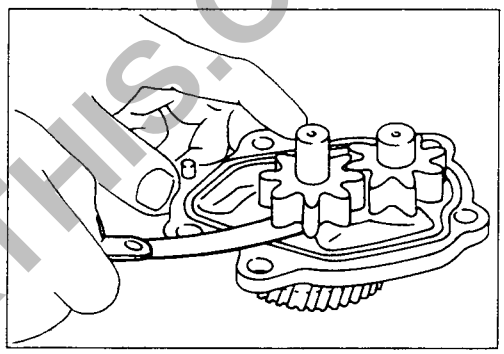
- To install, temporarily tighten the mounting bolts in numerical order, then tighten to specified torque.
- After installation, rotate the drive gear by hand to check for smooth rotation.
- Be sure to use a new gasket.



[Point 2] Checking gears

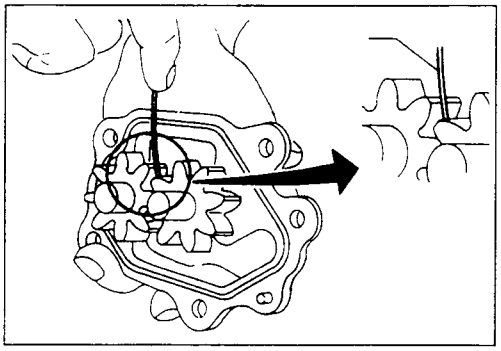
- Check the clearance between the drive or driven gear and oil pump housing.

  Gear to pump housing clearance
  0.05 - 0.13 mm (0.0020 - 0.0051 in)



- Check the gear backlash between drive gear and driven gear.

  Service limit of gear backlash
  0.07 - 0.43 mm (0.0028 - 0.0169 in)



Note:

- **After installing, make certain that the oil pressure rises normally.**

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