CONTENTS

CHAPTER 1
GENERAL CAUTIONS FOR MAINTENANCE WORK

1-1 Correct Work 1-1
1-2 Safety Precautions 1-1
1-3 Preparations 1-1
1-4 Cautions for Disassembly and Reassembly 1-1
1-5 Cautions for Removal and Installation of Hydraulic Equipment 1-2
1-6 Cautions for Removal and Installation of Hydraulic Piping 1-2
1-7 Cautions for Handling Seals 1-3
1-8 Correct Installation of Hydraulic Hose 1-3
1-9 Specifications of Hydraulic Hose 1-6
1-10 Air Release of Hydraulic Equipment 1-8

CHAPTER 2
TECHNICAL DATA

2-1 Specifications 2-1-1
2-2 Outline Drawing and Working Area 2-2-1
2-3 Weight List of Main Parts 2-3-1
2-4 Lifting Capacity List 2-4-1
2-5 Specifications for Attachment 2-5-1
2-6 Periodic Inspection and Servicing 2-6-1
2-7 Fuel, Lube Oil and Grease Recommended 2-7-1
2-8 Hydraulic Circuit Schematic 2-8-1
2-9 Wiring Diagram 2-9-1

CHAPTER 3
SERVICE STANDARDS

3-1 Machine Performance 3-1-1
3-2 Engine 3-2-1
3-3 Undercarriage 3-3-1
    3-3-1 Rubber Crawler Specifications 3-3-1
    3-3-2 Common Specifications of Rubber Crawlers 3-3-2
3-4 Controls 3-4-1
3-5 Hydraulic Equipment 3-5-1
    3-5-1 Hydraulic Cylinders 3-5-1
3-6 Implement 3-6-1
    3-6-1 Front Attachments 3-6-1
    3-6-2 Blade Moving Device 3-6-2
    3-6-3 Bucket Teeth 3-6-3
3-7 List of Tightening Torque 3-7-1
    3-7-1 Machine 3-7-1
    3-7-2 Engine 3-7-6
    3-7-3 Tightening Torque for General Bolts and Nuts 3-7-7
    3-7-4 Hydraulic Fitting 3-7-8
3-8 Pressure Adjustment 3-8-1
    3-8-1 Relief Valves 3-8-1
    3-8-2 Swing Brake Valve 3-8-4

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

FOREWORD

This service manual outlines procedures for servicing construction machinery. It contains specifications, servicing instructions and handling cautions. To obtain the maximum life and performance from construction machinery, read this manual carefully and follow its instructions.
Please note that all dimensions and numerical values in this manual are for service reference, and are not inspection standards. Descriptions and specifications in this manual are subject to change without notice due to design improvements, etc.

⚠ WARNING

California
Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

⚠ WARNING

California
Proposition 65 Warning

Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm.
Wash hands after handling.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2. TECHNICAL DATA

2. Technical Data

2-1 Specifications

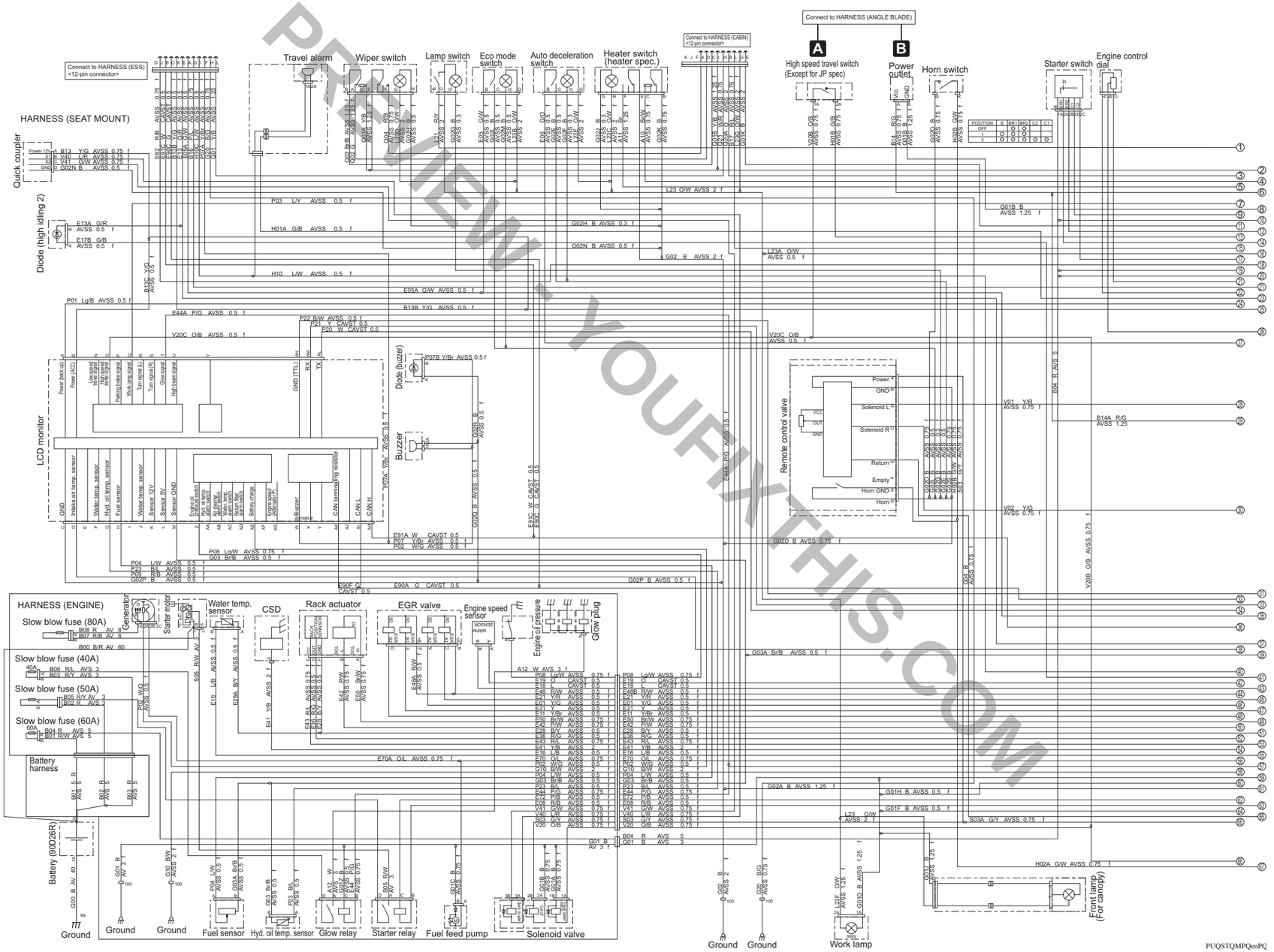
Item				Unit	Quick coupler
Main specifications of machine					
Dimensions					
Overall length (Transportation position)				in. (mm)	187.8 (4770)
Cabin	Overall height	Transportation position		in. (mm)	97.2 (2470)
		Traveling position		in. (mm)	97.2 (2470)
	Overall width	Full machine width		in. (mm)	68.5 (1740)
Canopy	Overall height	Transportation position		in. (mm)	97.2 (2470)
		Traveling position		in. (mm)	97.2 (2470)
	Overall width	Full machine width		in. (mm)	68.5 (1740)
Tumbler center distance (rubber)				in. (mm)	67.3 (1710)
Track gauge				in. (mm)	56.7 (1440)
Minimum ground clearance				in. (mm)	12.6 (320)
Traveling performance					
Travel speed	Rubber crawler	Low speed (Forward/Reverse)		MPH (km/hr)	1.6 (2.7)
		High speed (Forward/Reverse)		MPH (km/hr)	2.7 (4.5)
Permissible water depth limit				in. (mm)	19.7 (500)
Work performance					
Bucket	Width (Standard) *including side cutter			in. (mm)	23.2 (590)
	[Standard. JIS heaped capacity]			cu.ft. (cu.m)	3.88 (0.11)
	Number of teeth / Installation method			pcs.	4 / rubber pin lock type
Maximum digging depth	With blade raised			in. (mm)	128.0 (3250)
	With blade on the ground			in. (mm)	135.4 (3440) <135.0 (3430)>
Maximum depth of vertically digging				in. (mm)	94.9 (2410)
Maximum dumping height				in. (mm)	134.3 (3410)
Minimum front swing radius (with boom in front)				in. (mm)	85.4 (2170)
Minimum front swing radius (at boom swing)			Cabin	in. (mm)	76.8 (1950)
			Canopy	in. (mm)	76.8 (1950)
Rear end swing radius				in. (mm)	30.5 (775)
Boom swing angle		Cabin	Left	degrees	43
			Right	degrees	65
		Canopy	Left	degrees	43
			Right	degrees	65
Main specifications of machine					
Work performance					
Maximum digging force		Bucket		lbs. (k•N)	5643 (25.1)
		Arm		lbs. (k•N)	4226 (18.8)

< >: Angle blade spec.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

1) Standard spec.

1/2

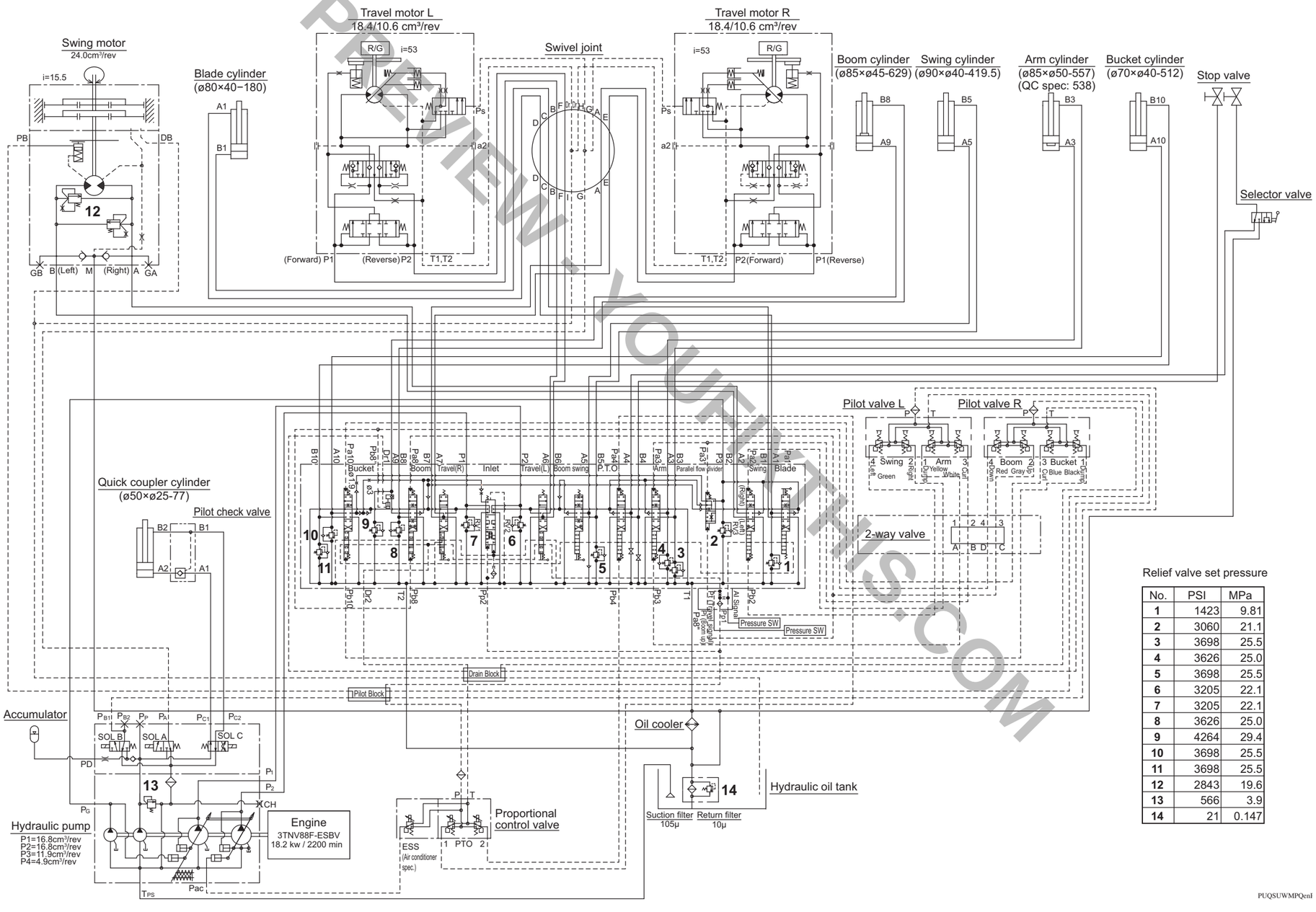


PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2-8 Hydraulic Circuit Schematic

(Standard)



Relief valve set pressure

No.	PSI	MPa
1	1423	9.81
2	3060	21.1
3	3698	25.5
4	3626	25.0
5	3698	25.5
6	3205	22.1
7	3205	22.1
8	3626	25.0
9	4264	29.4
10	3698	25.5
11	3698	25.5
12	2843	19.6
13	566	3.9
14	21	0.147

PUQSUWMPQenI

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

4-1-5 2-Valve Cylinder Head

2-Valve Cylinder Head Components

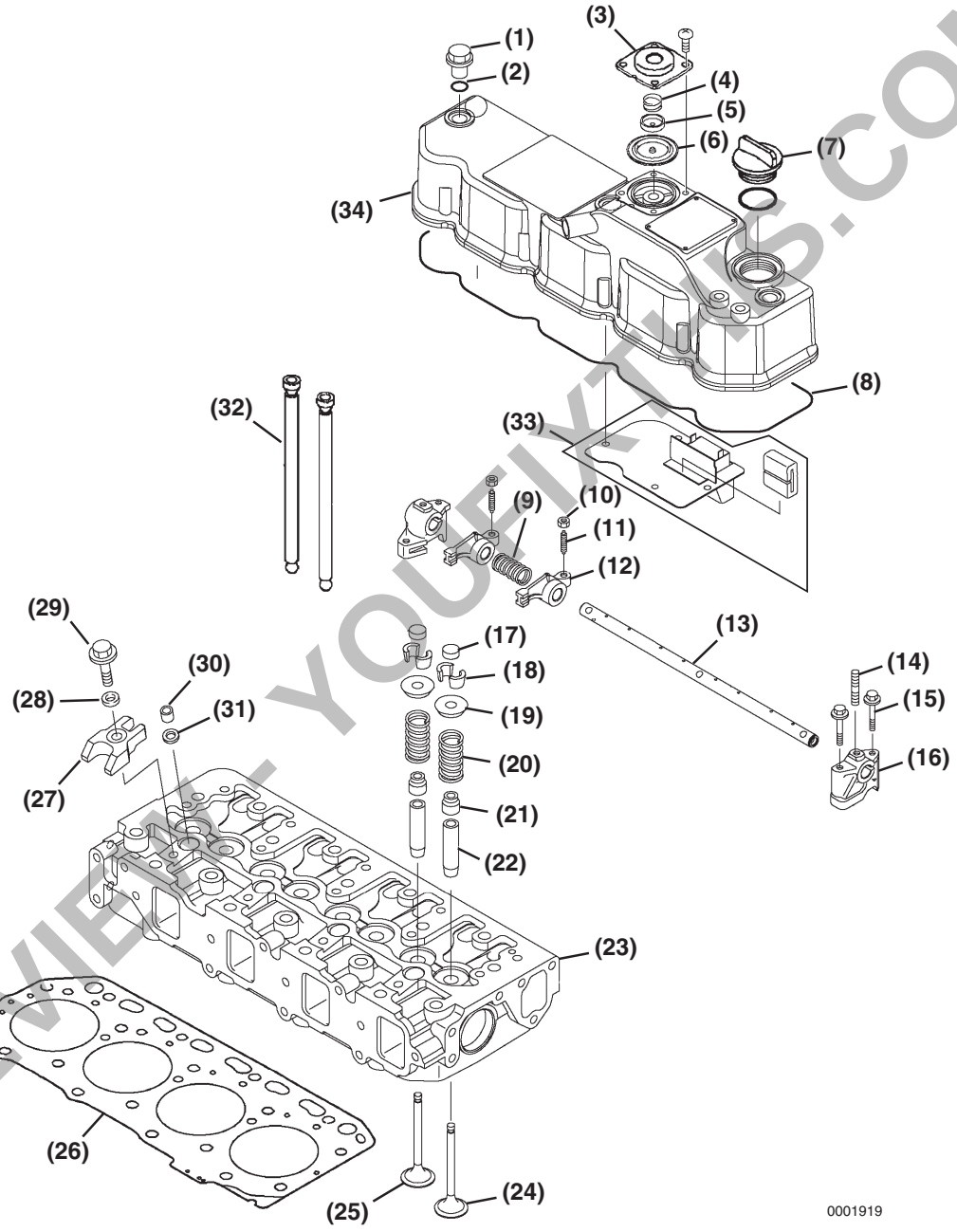


Figure 4-1-1

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

3-7 List of Tightening Torque

3-7-1 Machine

Applicable model					
Equipment			Thread size	Tightening torque ft•lbf (N•m)	Adhesive
	No	Tightening part			
Engine / Electrical equipment					
	1	Engine mount vibroisolating rubber	Nut 12	32.5 to 43.4 (44.1 to 58.8)	-
	2	Engine mount CMP L × Turning frame	M12×40 (10.9T)	79.6 to 94.0 (107.9 to 127.5)	ThreeBond 1324
	3	Engine mount CMP R × Turning frame	M12×35 (10.9T)	79.6 to 94.0 (107.9 to 127.5)	ThreeBond 1324
	4	Engine bracket × Turning frame	M12×35 (10.9T)	79.6 to 94.0 (107.9 to 127.5)	ThreeBond 1324
	5	Engine × Engine bracket CMP	M10×35 (11T)	47.0 to 54.2 (63.7 to 73.5)	ThreeBond 1324
	6	Engine × Plate L	M10×35 (11T)	47.0 to 54.2 (63.7 to 73.5)	ThreeBond 1324
	7	Engine × Bracket CMP (Engine FR)	M10×35 (11T)	47.0 to 54.2 (63.7 to 73.5)	ThreeBond 1324
	8	Engine × Bracket CMP (Engine FL)	M10×35 (11T)	47.0 to 54.2 (63.7 to 73.5)	ThreeBond 1324
	9	Canopy mount CMP A × Turning frame	M16×55 (10.9T)	123.0 to 151.9 (166.7 to 206)	ThreeBond 1324
	10	Canopy mount CMP A × Canopy mount CMP B	M10×30 (10.9T)	47.0 to 54.2 (63.7 to 73.5)	ThreeBond 1324
	11	Canopy mount CMP B × Turning frame	M12×45 (10.9T)	79.6 to 94.0 (107.9 to 127.5)	ThreeBond 1324
	12	Canopy mount CMP A × Cabin mount CMP B	M10×30 (10.9T)	47.0 to 54.2 (63.7 to 73.5)	ThreeBond 1324
	13	Cabin mount CMP B × Turning frame	M12×45 (10.9T)	79.6 to 94.0 (107.9 to 127.5)	ThreeBond 1324
	14	Clamp (Exhaust pipe)	M10×65	18.7 to 23.9 (25.4 to 32.4)	ThreeBond 1324
	15	Air cleaner	M8×25	17.3 to 20.3 (23.5 to 27.5)	-
	16	Air cleaner intake hose (Engine side)	Hose clip 70	1.8 to 2.5 (2.5 to 3.4)	-
	17	Air cleaner intake hose (Air cleaner intake side)	Hose clip 70	1.8 to 2.5 (2.5 to 3.4)	-
	18	Cooling water hose	Hose clip 41	2.9 to 3.6 (3.9 to 4.9)	-
	19	Cooling water hose	Hose clip 48	3.6 to 4.4 (4.9 to 5.9)	-
	20	Fuel gauge unit	M5×12 (Pan-head machine screw)	0.87 to 1.08 (1.18 to 1.47)	-
	21	Fuel gauge hose	Hose band 13	0.72 to 1.08 (0.98 to 1.47)	-
	22	Fuel drain valve	R3/8	14.5 to 21.7 (19.6 to 29.4)	Loctite 577
	23	Fuel tank holding band	Nut 10	1.81 to 2.17 (2.45 to 2.94) (Tank holding side)	18.1 to 23.8 (24.5 to 32.3) (Lock nut side)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

5-5 Error Code List

Error code	Classification	Error description	Detection condition	Causes	Corrective measures
00 000091.00	Caution	Accelerator sensor malfunction: above normal operating range (SAEJ1843)	Sensor voltage is 4.6 V or more, or 0.2 V or less.	• Connection failure of connectors • Harness wiring failure (engine control dial wiring disconnected or short circuited to GND) • Defective accelerator sensor • Engine ECU internal circuit failure	Check the connectors, harnesses and engine control dial. Turn the starter switch to the “OFF” position and then to the “ON” position to check if the error code is displayed again.
00 000091.01	Caution	Accelerator sensor failure: below normal operating range (SAEJ1843)	Sensor voltage is 4.6 V or more, or 0.2 V or less.	• Connection failure of connectors • Harness wiring failure (engine control dial wiring disconnected or short circuited to GND) • Defective accelerator sensor • Engine ECU internal circuit failure	Check the connectors, harnesses and engine control dial. Turn the starter switch to the “OFF” position and then to the “ON” position to check if the error code is displayed again.
00 000091.02	Caution	Accelerator sensor malfunction: intermittent failure	Sensor voltage is 4.6 V or more, or 0.2 V or less.	• Connection failure of connectors • Harness wiring failure (nearly broken wiring of sensor signal line, sensor 5 V line or sensor GND line) • Defective accelerator sensor • Engine ECU internal circuit failure	Check the connectors, harnesses and accelerator sensor. Turn the starter switch to the “OFF” position and then to the “ON” position to check if the error code is displayed again.
00 000091.03	Caution	Accelerator sensor malfunction: short circuit to high voltage side	Sensor voltage is 4.6 V or more, or 0.2 V or less.	• Connection failure of connectors • Harness wiring failure (sensor GND line disconnected or sensor signal line short circuited to power supply) • Defective accelerator sensor • Engine ECU internal circuit failure	Check the connectors, harnesses and accelerator sensor. Turn the starter switch to the “OFF” position and then to the “ON” position to check if the error code is displayed again.
00 000091.04	Caution	Accelerator sensor malfunction: short circuit to low voltage side	Sensor voltage is 4.6 V or more, or 0.2 V or less.	• Connection failure of connectors • Harness wiring failure (sensor signal line disconnected or short circuited to GND, or sensor 5V line disconnected or short circuited to GND) • Defective accelerator sensor • Engine ECU internal circuit failure	Check the connectors, harnesses and accelerator sensor. Turn the starter switch to the “OFF” position and then to the “ON” position to check if the error code is displayed again.
00 000091.15	Caution	Accelerator sensor malfunction: disabled (SAEJ1843)	Sensor voltage is 4.6 V or more, or 0.2 V or less.	Engine ECU map data setting fault	Turn the starter switch to the “OFF” position and then to the “ON” position to check if the error code is displayed again.
00 000100.01	Warning	Abnormal engine oil pressure	Engine oil pressure switch is on after engine has started.	• Low engine oil pressure • Defective engine oil system • Harness wiring failure (engine oil pressure switch wiring short circuited to GND) • Defective engine oil pressure switch • Engine ECU internal circuit failure	Inspect the engine oil system. Check the harnesses and engine oil pressure switch. Turn the starter switch to the "OFF" position and then to the "ON" position to check if the error code is displayed again.
00 000100.04	Warning	Engine oil pressure switch failure	Engine oil pressure switch is off while engine is stopped with starter switch in the "ON" position.	• Connection failure of connectors • Harness wiring failure (engine oil pressure switch wiring disconnected or short circuited to power supply) • Defective engine oil pressure switch • Engine ECU internal circuit failure	Check the connectors, harnesses and engine oil pressure switch. Turn the starter switch to the "OFF" position and then to the "ON" position to check if the error code is displayed again.
00 000110.00	Warning	Engine coolant temperature sensor malfunction: too high	Sensor voltage is 4.8 V or more.	• Engine overheating • Insufficient amount of engine coolant • Defective engine cooling system • Defective coolant temperature sensor system	Inspect the engine cooling system. Check the connectors, harnesses and coolant temperature sensor. Turn the starter switch to the “OFF” position and then to the “ON” position to check if the error code is displayed again.
00 000110.02	Warning	Engine coolant temperature sensor malfunction: intermittent failure	Error undefined is detected 10 times.	• Connection failure of connectors • Harness wiring failure (nearly broken wiring of sensor signal line, sensor 5 V line or sensor GND line) • Defective coolant temperature sensor • Engine ECU internal circuit failure	Check the connectors, harnesses and coolant temperature sensor. Turn the starter switch to the “OFF” position and then to the “ON” position to check if the error code is displayed again.
00 000110.03	Warning	Engine coolant temperature sensor malfunction: short circuit to high voltage side	Sensor voltage is 4.8 V or more.	• Connection failure of connectors • Harness wiring failure (sensor signal line disconnected or short circuited to power supply, or sensor GND line disconnected) • Defective coolant temperature sensor • Engine ECU internal circuit failure	Check the connectors, harnesses and coolant temperature sensor. Turn the starter switch to the “OFF” position and then to the “ON” position to check if the error code is displayed again.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

8-2 Quick Reference Table for Troubleshooting

The following table summarizes the general trouble symptoms and their causes.
If any trouble symptom occurs, take corrective action before it becomes a serious problem.

Trouble symptoms are shown in columns and their causes are shown in rows.

Whether boxes where the column and rows intersect are marked with a circle should be checked.

Example: When the bucket does not move at all
Trouble symptom: Implement does not move at all. (Bucket)
Items relevant to causes whose corresponding boxes are marked with a circle must be inspected and repaired.

Cause \ Symptoms and conditions of failures		Implement does not move at all										Implement's force			
		All implements	Boom	Arm	Bucket	Boom swing	Swing	Blade	Travel R	Travel L	P.T.O.	Boom	Arm	Bucket	Boom swing
1. Hydraulic pump	Hydraulic pump ASSY	○													
	Piston pump P1			○		○				○	○		○		○
	Piston pump P2		○		○				○			○		○	
	Gear pump P3						○	○							
	Pilot pump P4		○	○	○	○	○		○	○	○	○	○	○	○
	Cut-off valve	○	○	○	○	○	○		○	○	○	○	○	○	○
	Travel speed switch valve														
2. Control valve	Sections related to P1 flow														
	Sections related to P2 flow														
	Sections related to P3 flow														
	Boom section		○									○			
	Arm section			○									○		
	Bucket section				○									○	
	Boom swing section					○									○
	Blade section							○							
	Swing section						○								
	Travel R section								○						

051124-00EN00

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2-6 Periodic Inspection and Servicing

◇ : Check ○ : Supply ● : Replace □ : Adjust (clean) ■ : Oil & grease

Check & service items			Daily	Every 50 hrs	Every 100 hrs	Every 250 hrs	Every 500 hrs	Every 1000 hrs	Every 1500 hrs	Every 2000 hrs	Every 3000 hrs
General	Check falling off, breakage of parts		◇								
	Check loosened bolts & nuts, retighten		◇								
	Check engine condition		◇								
	Clean		□								
Fuel oil	Check & supply of oil to the tank		◇(○)								
	Drain the fuel tank			□							
	Water separator	Check, drain	◇								
		Clean			□						
	Replace the fuel filter element						●				
Lube oil	Engine oil	Check, resupply	◇								
		Replace		● 1st time			●				
	Replace the engine oil filter element			● 1st time			●				
	Travel reduction gear oil	Check, resupply				○					
		Replace			● 1st time			●			
Cooling water	Check & supply of cooling water		◇								
	Check cooling water leakage		◇								
	Check & clean radiator fins						□				
	Check & adjust the fan-belt tension		◇			□					
	Replace the cooling water							● within one year			
	Clean & check the cooling water system									● within two years	
Rubber hose	Check & replace fuel oil pipe, cooling water pipe		◇							●	
Air cleaner	Clean air cleaner					□					
	Replace air cleaner element						●				
Hydraulic system	Hydraulic oil	Check, resupply	◇								
		Replace						●			
	Clean suction filter					□ 1st time		□			
	Replace return filter					● 1st time	●				
	Check for abnormality of hydraulic pump		◇								
	Check function of accumulator									◇	
Grease	Check grease-up positions, grease		■								
	Greasing the swing gears and the swing bearings			■							

PREVIEW - YOUFIXTHIS.COM

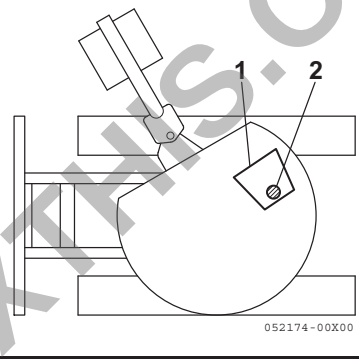
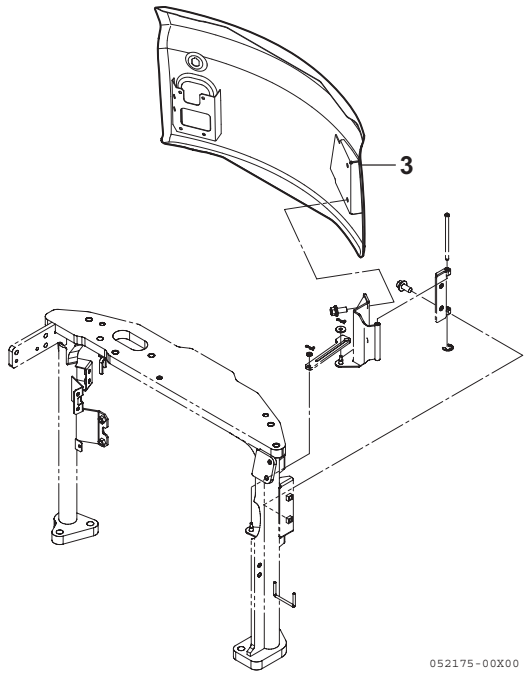
Download full manual at youfixthis.com

7. Adjustment and Repair

7-1 Engine and Electric Equipment

7-1-1 Removal and Reinstallation of Engine

1) Removal

Procedure	
(1) Swing the upperstructure so that drain plug **2** of hydraulic oil tank **1** is positioned halfway between the right and left crawlers. Then lower the bucket to the ground and stop the engine.	
(2) Remove engine hood rear cover **3**.	

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

INTRODUCTION

None of the components of the electronic control system can be individually repaired. When any component is faulty and needs repair, the entire assembly must be replaced.

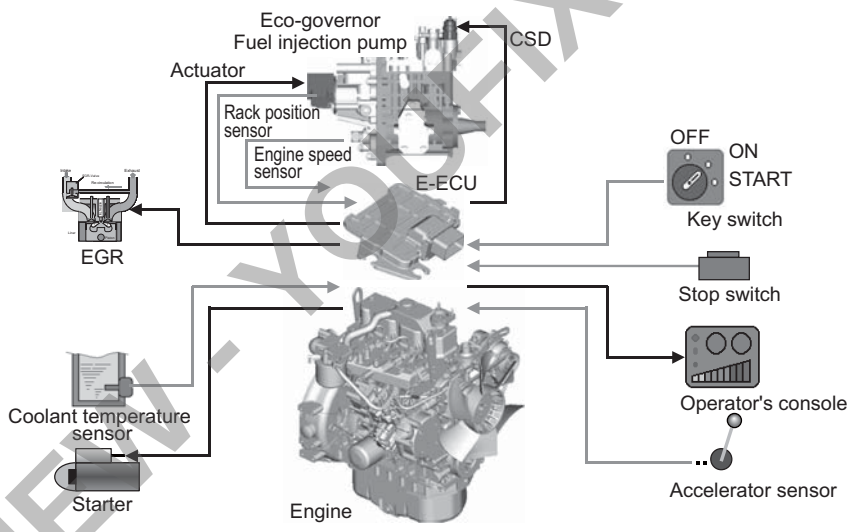
ELECTRONIC CONTROL SYSTEM

The electronic controlled engine come with the Exhaust Gas Recirculation (EGR) system to conform to the engine emission regulations (EPA 2008 rules). The EGR system and an electronic governor (Eco-governor) constitute an electronic engine control system.

The electronic engine control system regulates the exhaust gas recirculation flow rate and the fuel injection volume depending on the engine load and speed signals from the engine controller (E-ECU), so that the exhaust gas is kept clean according to the emission control regulations. **Figure 4-7-1** illustrates the electronic engine control system.

Features of the electronic engine control system include:

- Engine speed control schemes
  Droop control / Auto deceleration / Black smoke suppression
- Engine failure detection

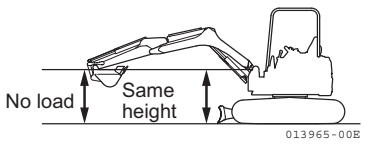
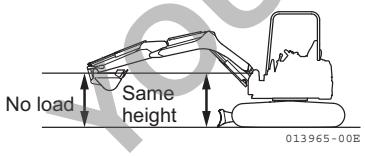
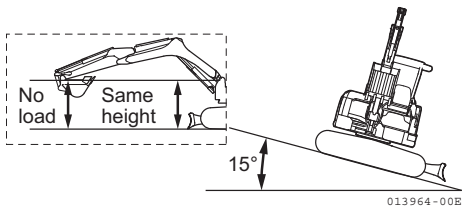


Note: Equipped devices vary depending on the model.

Figure 4-7-1

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Applicable model				
Item	Measuring condition	Unit	Standard	Allowance
Machine performance				
Swing drift at stopping	Machine position  • Engine : Rated speed • Hydraulic oil temp. : 122 to 140 °F (50 to 60 °C) • Site : Firm, flat ground • Make the boom and bucket pins the same height. • Make match marks on the outer race and the inner race of the swing bearing (or the track frame). • Measure shifted distance between both marks after making one turn with no load.	in. (mm)	6.65 (169) or less, 30 degrees or less	10.0 (254) or less, 45 degrees or less
Swing time	Machine position  • Engine : Rated speed • Hydraulic oil temp. : 122 to 140 °F (50 to 60 °C) • Site : Firm, flat ground • Make one idling turn with no load, then measure the time necessary to make 5 turns.	sec.	31	35
Swing drift	Machine position  • Engine : stopped • Hydraulic oil temp. : 122 to 140 °F (50 to 60 °C) • Make the boom and bucket pins the same height. • Park the machine on a slope with an inclination of 15 degrees and turn the upperstructure 90 degrees to the crawler. • Make match marks on the outer race and the inner race of the swing bearing (or the track frame). • Measure shifted distance or angle between both marks after 5 min.	in. (mm)	Engine stop: 0 (0) Engine running: 2.17 (55) or less, 10 degrees or less	-

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

4-2-2 Introduction

This section of the *Service Manual* describes the procedures necessary to remove, install, and time the MP fuel injection pump and its associated system components. This fuel injection pump is representative of the fuel injection pumps used on other TNV DI model engines. The descriptions given in this section basically apply also to fuel injection pumps used for electronically controlled engines unless otherwise described herein.

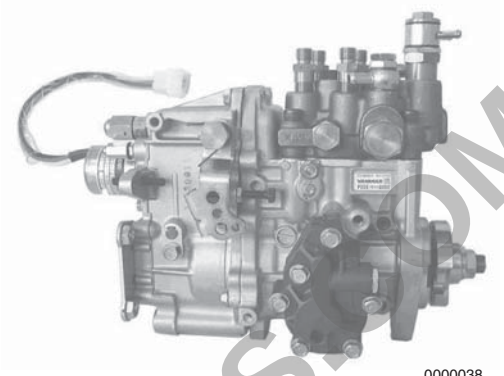
Fuel Injection Pump

Note: If the MP fuel injection pump itself requires servicing, it must be taken to an authorized FIE (Fuel Injection Equipment) repair facility.

CAUTION

- **NEVER remove or attempt to remove the tamper-proof devices from the full-load fuel adjusting screw or the high-speed throttle limit screw on the fuel injection pump and governor assembly. These adjustments have been made at the factory to meet all applicable emissions regulations and then sealed.**
- **NEVER attempt to make any adjustments to these sealed adjustment screws. If adjustments are required, they can be made only by a qualified fuel injection shop that will ensure the injection pump continues to meet all applicable emissions regulations and then replace the tamper-proof seals.**
- **Tampering with or removing these devices may void the Warranty.**

0000146en



0000038

Figure 4-2-1

The following describes the features of the MP fuel injection pump, manufactured by the manufacturer.

The fuel injection pump is a very important component of the engine. It is capable of making very precise fuel delivery adjustments according to the varied loads applied to the engine.

All of the fuel injection pump components are very precisely machined. It is extremely important to follow good service practices and maintain cleanliness when servicing the fuel injection pump.

The MP “Mono-Plunger” Fuel Injection Pump is a distributor type pump which consists of a single fuel supply plunger, a distributor shaft, a hydraulic head and a pump housing. The hydraulic head has a delivery valve for each cylinder. The fuel injection pump housing contains a governor and an internal camshaft.

The fuel is pressurized by the up and down motion of the camshaft-driven single plunger. It is then distributed to the proper fuel injector by the rotating distributor shaft.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Series Coil Continuity Test

Check for continuity between the “S” and “M” terminals using a multimeter **(Figure 4-5-22)**. The multimeter should indicate continuity.

If the multimeter does not indicate continuity, replace the magnetic switch.

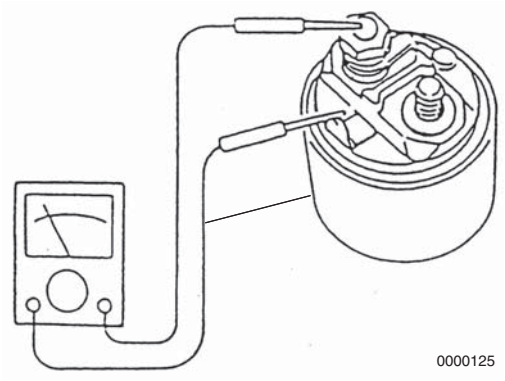


Figure 4-5-22

Coil Resistance Test

See Starter Motor Specifications for the service limit.

Contact Continuity Test

Depress the plunger at the bottom of the magnetic switch. Check for continuity between the “B” and “M” terminals using a multimeter **(Figure 4-5-23)**. The multimeter should indicate continuity.

If the multimeter does not indicate continuity, replace the magnetic switch.

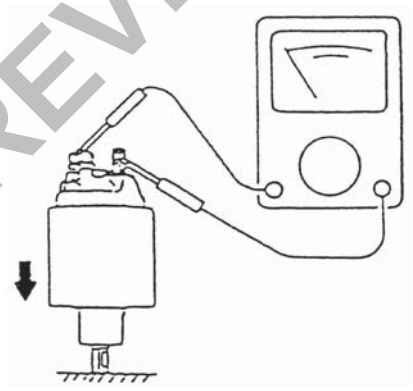


Figure 4-5-23

Pinion Clutch Assembly

Pinion Clutch Assembly Inspection

Manually rotate the pinion clutch assembly in the drive direction **(Figure 4-5-24)**. It should rotate freely in the drive direction and is locked by turning it in the opposite direction. Replace the pinion clutch assembly if the results are different.

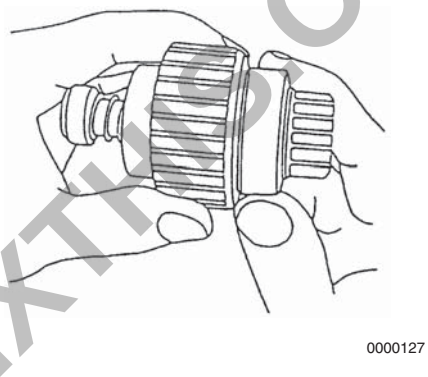


Figure 4-5-24

Slide the pinion clutch assembly on the shaft. It should slide smoothly on the shaft **(Figure 4-5-25)**. Rust, too much grease or damage could prevent the pinion clutch from sliding smoothly. If the pinion clutch assembly does not slide smoothly, clean the shaft and pinion clutch assembly or replace the damaged component.

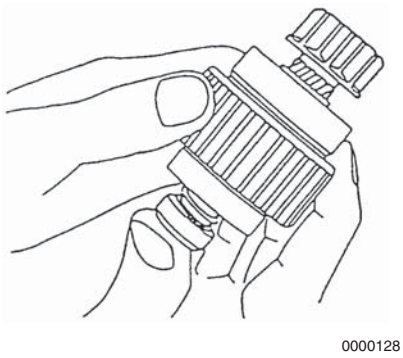
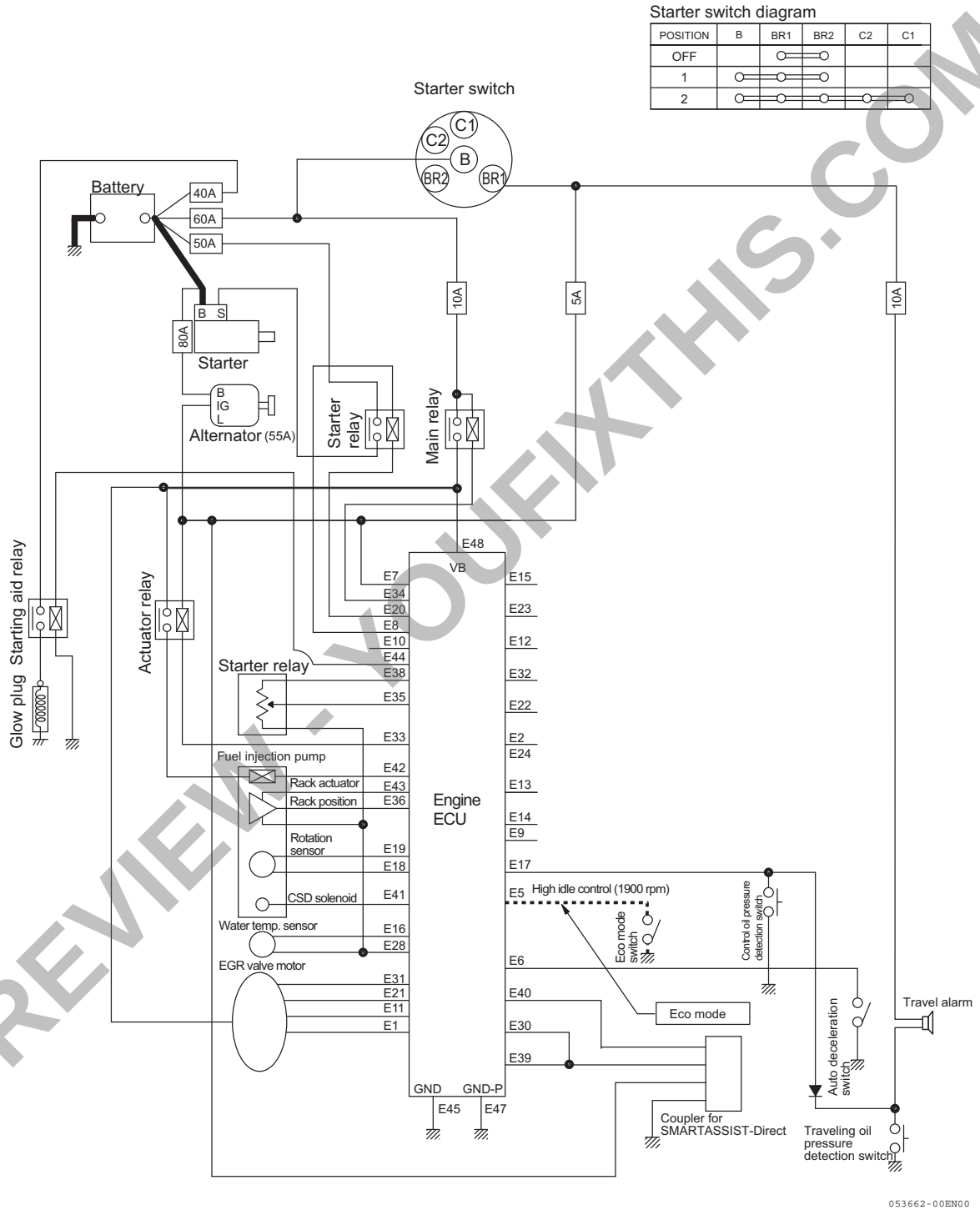


Figure 4-5-25

PREVIEW - YOUFIXTHIS.COM

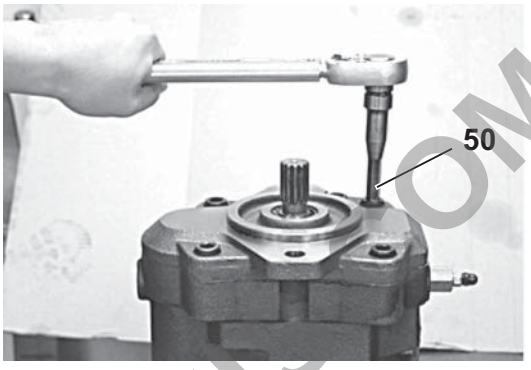
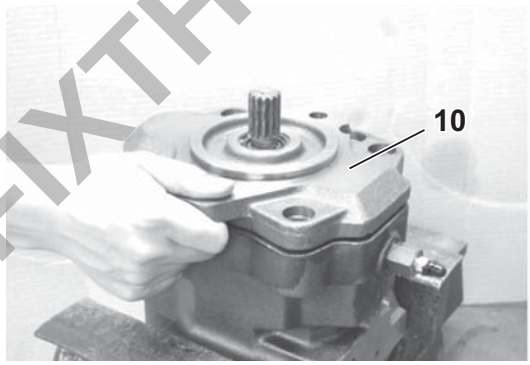
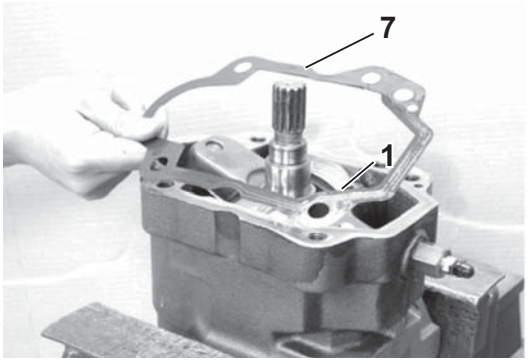
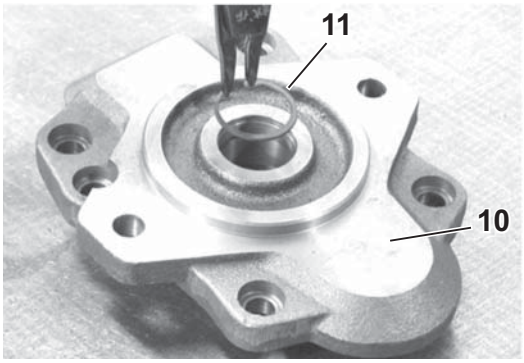
Download full manual at youfixthis.com

Circuit description of electronic control



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Procedure	
(9) Fix the pump with the input shaft up, and the remove socket head bolts **50**.	
(10)Remove the flange **10**.	
(11) Remove the gasket **7** and the pins **8** from the flange **10** or the housing **1**.	
(12) Remove the internal snap ring **11** from the flange **10**.	

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(3) Particular type 2 (for combined oil in bucket section)

[1] Remove the check valve retainer **4** with an open end wrench or socket wrench (14 mm).

[2] Remove the check valve spring **2** and the check valve **1** in the bore, which the check valve retainer has been removed from, with tweezers or a magnet.

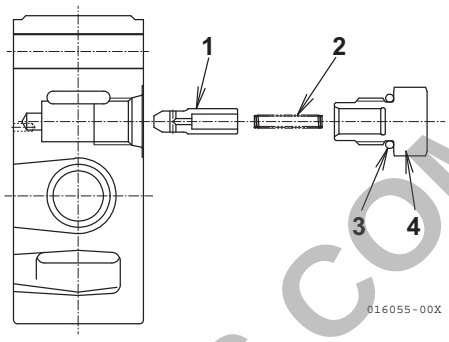


Fig. 5 Check valve section
(Bucket Section for Combined Oil)

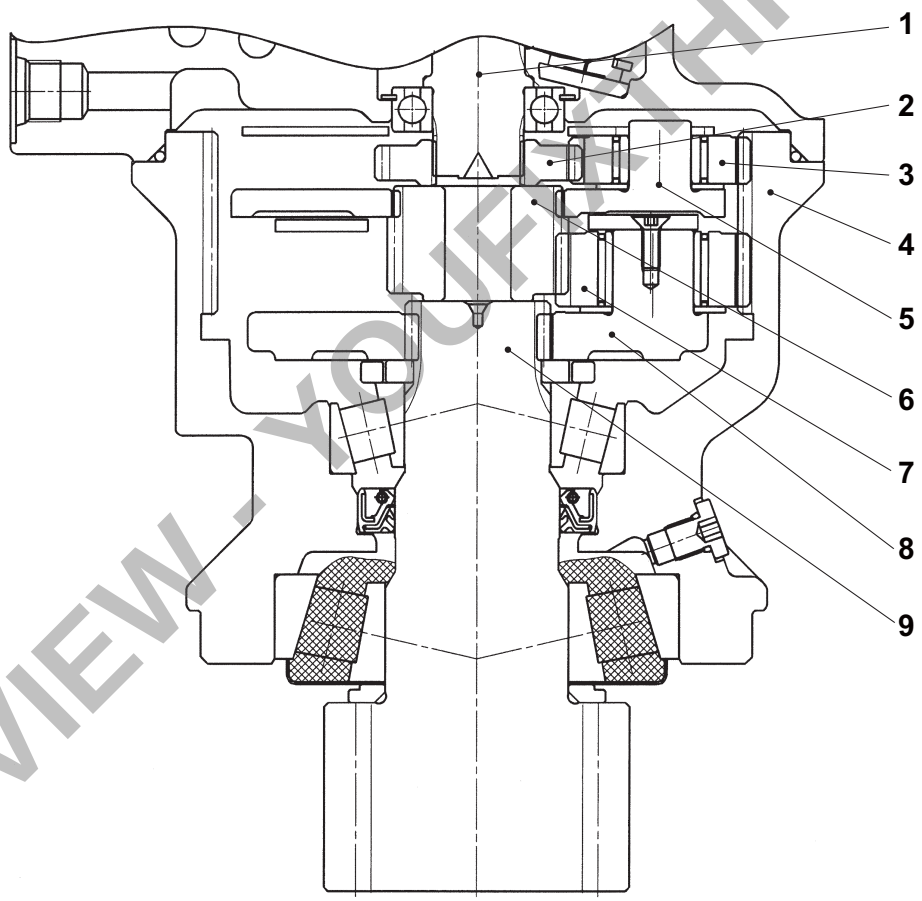
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

5) Reduction Gear

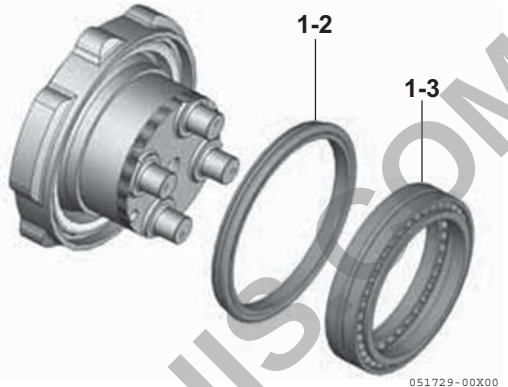
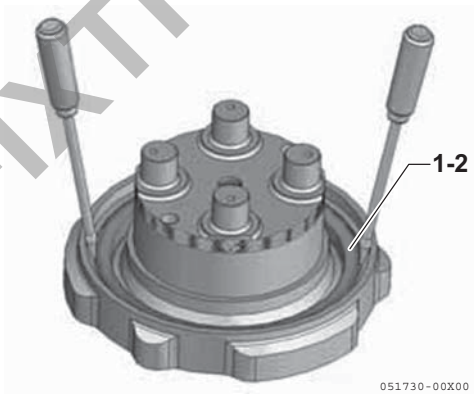
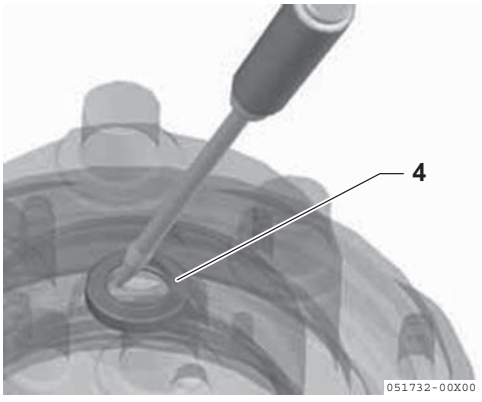
(1) Planetary double reduction gear

The motor shaft **1** is splined to the drive gear **2**. The driving force of the hydraulic motor is transmitted to the planetary gears **3** engaging with drive gear **2**. The planetary gears **3** are engaging with the ring gear of the reduction gear housing **4**. Therefore, the planetary gears **3** revolve along the ring gear, as they rotate on their own axis. The planetary gears **3** are held by the holder **5** through the bearing, and the holder **5** transmits the revolution movement of the planetary gears **3** to the sun gear **6** splined to the holder. The sun gear **6** engages with the planetary gears **7**and the rotation movement is transmitted to the planetary gears **3** as in the first gear. The planetary gears **7** engages with the ring gear of the reduction gear housing **4**, so that the planetary gears **7** revolve along the ring gear, as they rotate on their own axis. The planetary gears **7** are held by the holder **8** through the bearing. Therefore, the holder **8** transmits the revolution movement of the planetary gears **7** to the pinion shaft **9** splined to the holder **8**.



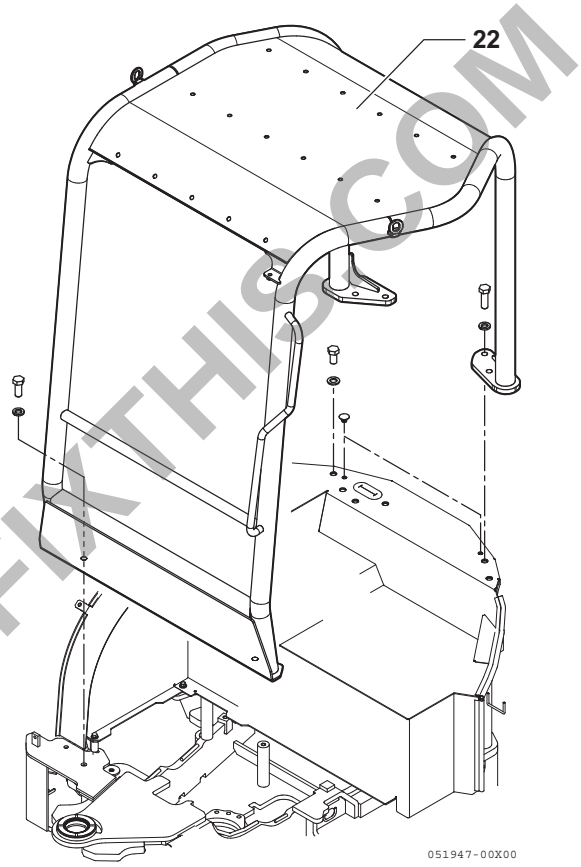
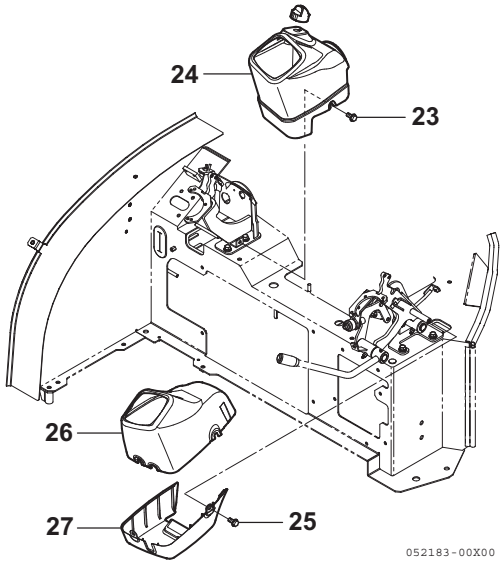
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Procedure	
(29) Remove floating seal **1-2** and angular bearing **1-3**.	
(30) Remove the other floating seal using two screwdrivers. **Tools:** • Screwdrivers 12 ***CAUTION*** *Be careful not to damage the sliding surface of floating seal **1-2** when removing it.*	
(31) Put one end of a round bar on shaft **2** through the hole for the drive gear spline in the flange holder and tap the other end of the round bar lightly with a hammer to remove the shaft. **Tools:** • Hammer 13 • Round bar S-7	
(32) Remove oil seal **4**. **Tools:** • Screwdriver 12 • Hammer 13 ***CAUTION*** *Do not reuse removed oil seal **4**.*	

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

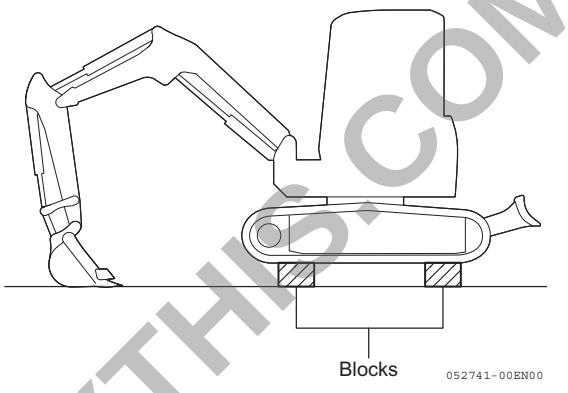
Procedure	
(14) Remove canopy **22**. (Refer to Section "7-7-1 Removal and Reinstallation of Cabin" for the removal procedure of the cabin.)	
(15) Remove two bolts **23** and lever R cover **24**. (16) Remove three bolts **25** and then, remove lever cover L UP **26** and lever cover L LOW **26**.	

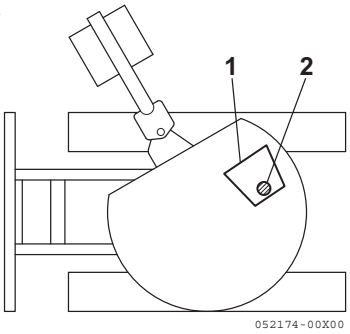
PREVIEW - YOUFIXTHIS.COM

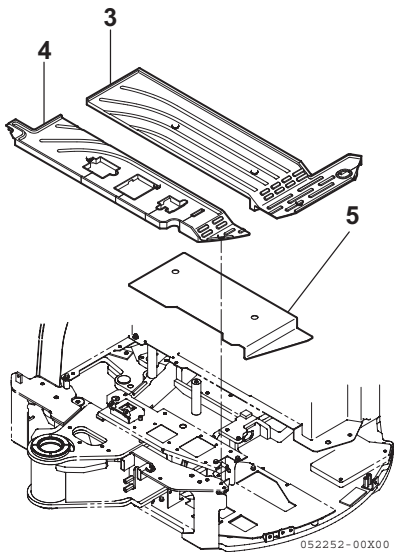
Download full manual at youfixthis.com

7-5-5 Removal and Reinstallation of Swivel Joint

1) Removal

Procedure	
(1) Raise the machine with the implement and blade by operating them. (2) After raising the machine, put wood blocks under the machine. ***Note:*** *To prevent the machine from dropping, be sure to put wood blocks.*	

(3) Swing the upperstructure so that drain plug **2** of hydraulic oil tank **1** is positioned halfway between the right and left crawlers. Then lower the bucket to the ground and stop the engine. (4) Drain the hydraulic oil from the hydraulic oil tank or evacuate the hydraulic oil tank using the compression vacuum. (For the procedure for draining the hydraulic oil, refer to Section "7-5-8 Removal and Reinstallation of Hydraulic Oil Tank".)	

(5) Remove floor mat A **3**, floor mat B **4** and step **5**.	

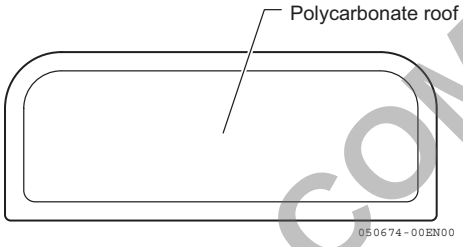
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2) Application of primer to sunroof

Key points for procedure

- Identify the surface where the primer is to be applied. (The surface where the primer is to be applied is opposite to the side on which the stamped characters can be read normally.)
- Clean the surface where the primer is to be applied using isopropyl alcohol to remove grease and foreign matter such as dust.
- Use SUNSTAR Glass Primer 435-41.
- Make sure that there are no places where the primer is not applied or it is applied too thinly or thickly in the entire application area and that the primer does not drip off.
- Be careful not to put too much primer on the brush to prevent the primer from flowing to the other side of the sunroof.
- Do not over-apply the primer to the same place excessively. Apply the primer to the entire application area in a continuous manner to avoid melting of the silk-screen print by the primer solvent.



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 23 of 730 pages

The full manual includes:

- All 730 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Manitou America Z35 GEN:2, 350Z NXT2 Service Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual