HYDRAULIC COMPONENTS

HYDRAULIC PUMP

Item	Main pump	Gear pump for pilot
Pump	K3V112DTP1KMR-YTOK-HV	ZX10LPRZ7-07G
Type	Variable displacement plunger pump; regulator attached type	Fixed displacement type gear pump

PREVIEW - YOUFIXTHIS.COM

Blurred on purpose. The manual you buy has this page in full quality.

Download full manual at youfixthis.com

2 SUMMARY OF MECHATRO CONTROL SYSTEM

2.1 MECHATRO CONTROL SYSTEM IN GENERAL



Blurred on purpose. The manual you buy has this page in full quality.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2) Circuit diagram

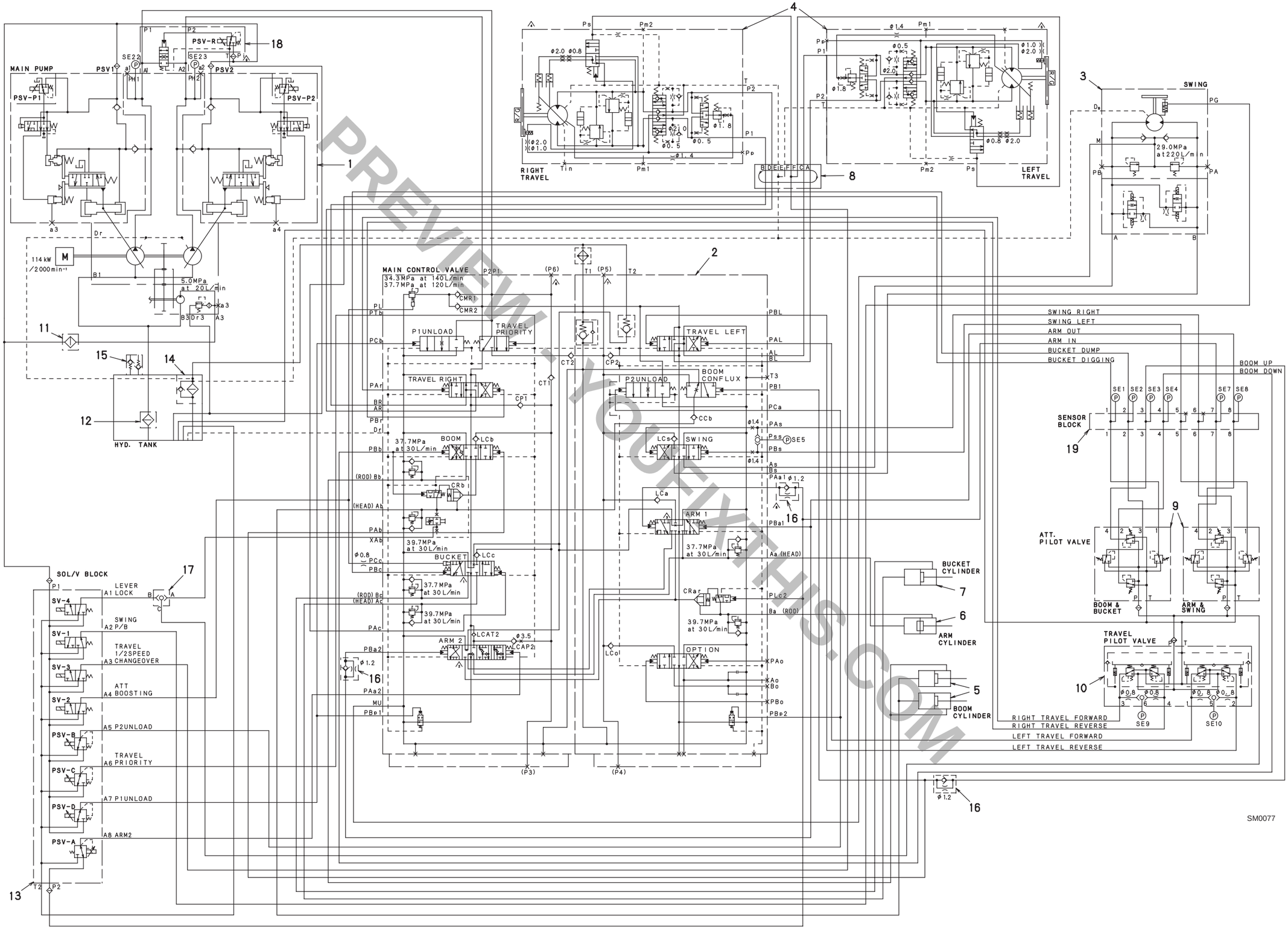


PREVIEW - YOUFIXTHIS.COM

Blurred on purpose. The manual you buy has this page in full quality.

Download full manual at youfixthis.com

HYDRAULIC CIRCUIT (MONOBLOCK VERSION)

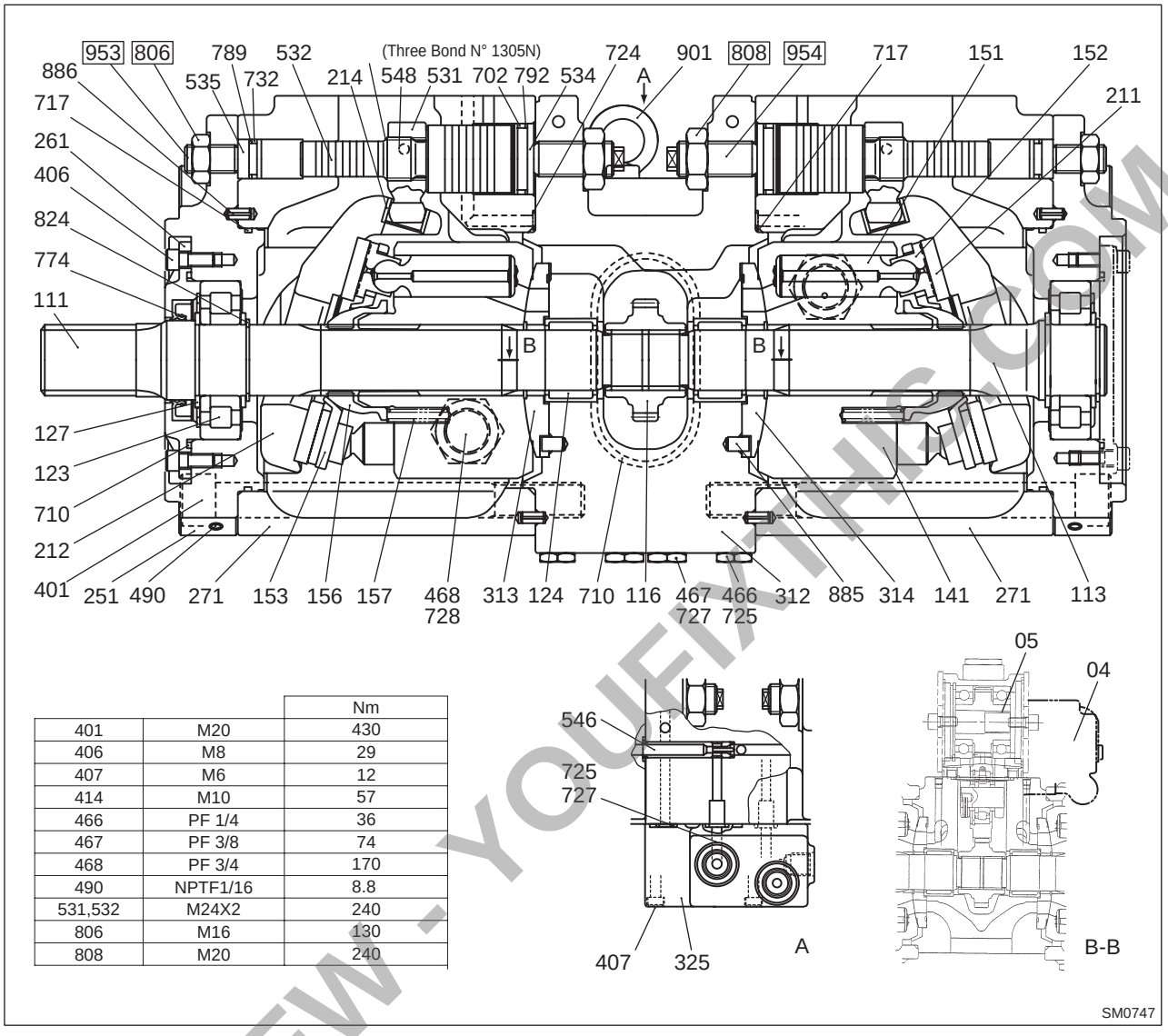


PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

HYDRAULIC PUMP

MAIN PUMP



		Nm
401	M20	430
406	M8	29
407	M6	12
414	M10	57
466	PF 1/4	36
467	PF 3/8	74
468	PF 3/4	170
490	NPTF1/16	8.8
531,532	M24X2	240
806	M16	130
808	M20	240

111 Drive shaft (F)
113 Drive shaft (G)
116 Gear #1
123 Roller bearing (Q.ty 2)
124 Needle bearing (Q.ty 2)
127 Bearing spacer (Q.ty 3)
141 Cylinder block (Q.ty 2)
151 Piston (Q.ty 18)
152 Shoe (Q.ty 18)
153 Retainer plate (Q.ty 2)
156 Spherical bushing (Q.ty 2)
157 Cylinder spring (Q.ty 18)
211 Shoe plate (Q.ty 2)
212 Swash plate (Q.ty 2)
214 Tilting bushing (Q.ty 2)
251 Swash plate support (Q.ty 2)
261 Seal cover (F)
271 Pump casing (Q.ty 2)
312 Valve block
313 Valve plate (R)
314 Valve plate (L)
325 Sensor block
326 Cover
401 Socket bolt; M20X210 (Q.ty 8)
406 Socket bolt; M8X20 (Q.ty 4)
407 Socket bolt; M6X55 (Q.ty 3)
466 VP plug; PF1/4 (Q.ty 2)
467 VP plug; PF3/8 (Q.ty 2)
468 VP plug; PF3/4 (Q.ty 4)
490 VP plug; NPTF1/16 (Q.ty 4)
531 Tilting pin; M24X2 (Q.ty 32)
532 Servo piston M24×2 (Q.ty 2)
534 Stopper (L) (Q.ty 2)
535 Stopper (S) (Q.ty 2)
546 Spacer (Q.ty 2)
548 Feed back pin (Q.ty 2)
702 O-ring; 1B G35 (Q.ty 2)
710 O-ring; 1B G95 (Q.ty 2)
717 O-ring; 1B G145 (Q.ty 4)
724 O-ring; 1B P8 (Q.ty 16)
725 O-ring; 1B P11 (Q.ty 9)
727 O-ring; 1B P14 (Q.ty 3)
728 O-ring; 1B P24 (Q.ty 4)
732 O-ring; 1B P18 (Q.ty 2)
774 Oil seal
789 Back up ring; P18 (Q.ty 2)
792 Back up ring; G35 (Q.ty 2)
806 Nut; M16 (Q.ty 2)
808 Nut; M20 (Q.ty 2)
824 Snap ring (Q.ty 2)
885 Valve plate pin (Q.ty 2)
886 Spring pin (Q.ty 4)
901 Eye bolt M10 (Q.ty 2)
953 Socket screw; M16X35 (Q.ty 2)
954 Set screw; M20 (Q.ty 2)
04 Gear pump
05 PTO unit

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

DISASSEMBLY AND ASSEMBLY

PRECAUTIONS TO BE EXERCISED IN OPERATION

1. Special Refrigerator Oil
   This air-conditioner uses special refrigerator oil SP20 for use with new refrigerant R134a. Oils other than SP20 may not be used. Since SP20 tends to absorb moisture and may corrode paint and resin, the following points must be noted:
   1) Do not keep open all pipe connections on a new compressor and the component parts of the installed refrigeration circuit
      (Remove valves and caps at the pipe openings of the compressor, just before connecting pipes. If you have removed a pipe joint for repair, put a cap to both ports immediately.)
   2) Use care so SP20 does not adhere to the painted surface and resin parts. In case SP20 has adhered to such surfaces, wipe it off immediately.
2. The receiver dryer is filled with desiccant to absorb moisture in the circuit. Therefore, remove the valve at the pipe port immediately before connecting pipes.
3. Tightening Torque
   1) Pipe Joints
      When connecting pipe joints, coat the O-ring with special oil (SP20) and fasten to the tightening torque indicated in the table, using a double spanner.
   2) Screws and Bolts
      Fasten to the tightening torque indicated in the table
4. Amount of Oil for Compressor
   The compressor SD7H (HD type) is filled with 135cc (8.2cu•in) of oil. If the oil volume is small, seizure at high revolution and shortening of service life will occur. If the oil volume is large, the cooling ability will be deteriorated.
   Once the air-conditioner is operated, part of the oil is dispersed in the refrigeration circuit. Therefore, when replacing the parts in right Table, adjust the oil level to that of table.
5. Before performing operation, stop the engine and turn off all power supplies to the equipment related to the air-conditioner.
6. After the operation is over, confirm that all faults have been repaired completely, by operating the air-conditioner.

Unit: N·m (lbf·ft)

PIPE FASTENING PART	TIGHTENING TORQUE
D hose and compressor (M8 bolt)	19.6~24.5 (14~18)
D hose and condenser	19.6~24.5 (14~18)
L hose and condenser	11.8~14.7 (8.7~11)
L hose and receiver dyer (M6 bolt)	7.8~11.8 (5.8~8.7)
L hose and air-conditioner unit	11.8~14.7 (8.7~11)
S hose and air-conditioner unit	29.4~34.3 (22~25)
Expansion valve	1.96~2.45 (1.4~1.8)

Unit: N·m (lbf·ft)

SCREW SIZE	TIGHTENING TORQUE
N4, T4 machine screw, M4	0.78~1.18 (0.58~0.87
N5, T5 machine screw, M5	1.96~2.45 (1.4~1.8)
M6 (mounting part of L hose joint)	7.85~11.8 (5.8~8.7)
M6 (except mounting part of L hose joint)	9.8~11.8 (7.2~8.7)
M8 (mounting part of S,D hose joints)	19.6~24.5 (14~18)
M8 (mounting part of A/C unit)	9.8~11.8 (7.2~8.7)
M8 (other than those mentioned above)	11.8~15.7 (8.7~12)
M10	39.2~53.9 (29~40)

REPLACED PARTS	AMOUNT TO BE FILLED IN
EVAPORATOR	40 cc (2.4cu·in)
CONDENSER	40 cc (2.4cu·in)
COMPRESSOR	Drain out the volume of oil left in the compressor to be replaced, from the new compressor.
RECEIVER DRYER	20 cc (1.2cu·in)
HOSES	20 cc (1.2cu·in)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PERFORMANCE INSPECTION STANDARD TABLE

NOTE: ***unless otherwise specified, measure it on "H" mode.***

Inspection Item					Measuring Position			Standard Value	Unit	Adjusting Point	Measuring Condition
					Position	Size	Port				
Std. Measuring condition	Cleanliness of hydraulic oil				Hydraulic oil in tank			NAS 9 or less	Class	-	Sampling
	Hydraulic oil temperature				Tank surface			50 ± 5	°C	-	Atmospheric temp 50 °C ~ -10 °C
	Water temperature				Radiator surface			75 ± 15		-	
	Engine speed	H mode Lo idle			Measure the engine speed at multi display on the gauge cluster, or measure with diesel speed meter			1000 ± 50	min^{-1}	Adjustment not required	Low throttle
		H mode Hi idle						2000 ± 50			Full throttle (Hi Idle)
		Auto-Idle						1050 ± 50			Perform all measurement with the air-conditioner “OFF”
		B mode Hi idle						2000 ± 50			
		A mode Hi idle						2000 ± 50			
		S mode Hi idle						1800 ± 50			
Pilot primary pressure circuit					G pump	Main pump	a5	$5.0^{+0,5}_{-0}$	MPa	PR1	HI idle
High pressure circuit	Main relief valve pressure	ATT Travel		P1		PF 1/4	a1	$34.3^{+0.7}_{-0,5}$		MR1	Boom up
				P2			a2				
		Power boost		P1			a1	$37.8^{+1.0}_{-0.5}$		MR1	
				P2			a2				
	Over load relief valve pressure	Boom		H			a1	$39.7^{+0}_{-5.9}$		OR3	Boom up
				R				$37.8^{+0}_{-4.0}$		OR4	Boom down
		Bucket		H			a1	$39.7^{+0}_{-5.9}$		OR1	Bucket digging
				R				$37.8^{+0}_{-4.0}$		OR2	Bucket dump
		Arm		H			a2	$37.8^{+0}_{-4.0}$		OR7	Arm in
				R				$39.8^{+0}_{-5.9}$		OR8	Arm out
		Swing		LH			a2	$29.0^{+6.0}_{+0}$		OR5	Swing LH
				RH						OR6	Swing RH
		Travel	RH	Forward			a1	$34.3^{+0,7}_{-0,5}$			Simultaneous Operation of travel RH and LH
				Reverse							
			LH	Forward			a2	$34.3^{+0,7}_{-0,5}$			
				Reverse							

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

OUTLINE

Troubleshooting provides process locating for the cause of trouble in the order that trouble occurred. This manual describes how to solve the specific phenomenon systematically as early as possible. For troubleshooting concerning the inside of equipment, refer to troubleshooting for each manual of equipment.

1. JUDGMENT OF ACTUAL THING AT SITE

GET TO THE SITE AS QUICKLY AS POSSIBLE

Verify model, serial number, situation of trouble and field, and notify person of arrival time.

VERIFY BACKGROUND
OF TROUBLE OCCURRED

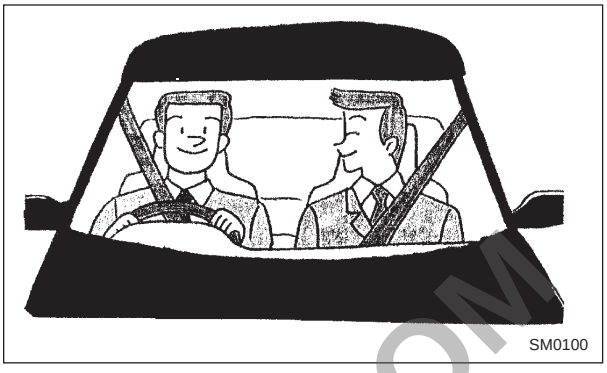
1. Model name and serial number
2. Kind of attachment
   Check that the combination of attachment is proper or that the operating method is not unreasonable.
3. Operating time by hour-meter
4. History of trouble occurred and additional works.
5. Recurrence of past trouble, or problems on the additional works.

HOW TO DIAGNOSE TROUBLE

1. Verify defective part
2. Make the condition of trouble again
3. Where defective parts can not be verified, surmise causes systematically.
4. Verify reasons for surmise
5. Report methods, procedure, and period for repairing to user.

EXPLANATION OF THE CAUSE OF TROUBLE

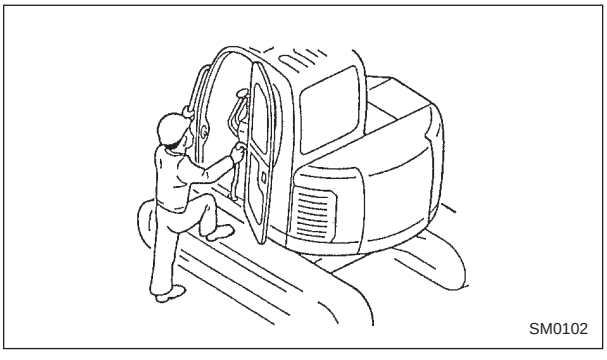
1. Explain the cause of trouble to clients. For example, oil leak through piston is caused by flaws on the piston rod. And the method of using the machines should be explained so that the same kind of trouble does not reoccur.
2. Treatment of damaged parts
   The damaged parts to be claimed and returned are evidence so they should be handled with care. Protect them from entry of water, soils, etc. into port of hydraulic unit, etc. and return them. And also use care not to flaw and damage those surfaces.



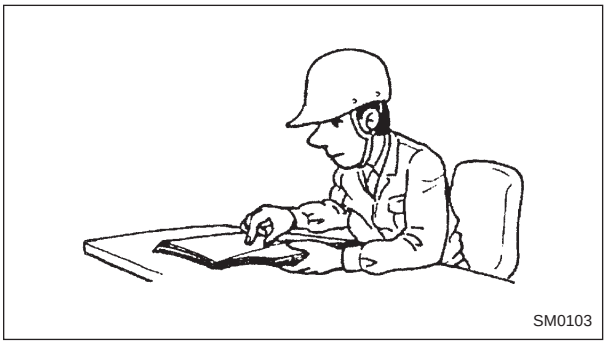
Attending the field to verify actual thing



Verifying background of trouble occurred



Confirm the symptoms of the trouble



Diagnosing fail by means troubleshooting

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2. CLASSIFICATION OF FAILURE AND TROUBLESHOOTING

Classify failures into the following 3 types and carry out the troubleshooting.

No.	Classes of failure	Troubleshooting
A	When error code after self-diagnosis is displayed on gauge cluster	Carry out troubleshooting according to the error code.
B	When no failure is detected currently but error code after self diagnosis is remained in trouble history	When it is hard to recreate the failure situation, cancel the data in the history and reproduce the failed situation or suppose the cause according to the troubleshooting by error code, and then repair it.
C	When error code after self diagnosis is not displayed or is not remained in the history	• Carry out troubleshooting according to instructions in Chapter T5-2 "TROUBLESHOOTING BY TROUBLE". • Carry out troubleshooting according to instructions in Chapter T5-3 "TROUBLE DIAGNOSIS MODE".

3. THE BLOWN FUSE OF MECHATRO CONTROLLER

If the fuse of mechatro controller has blown, the following display appears on the gauge cluster.

(1) The blown fuse of mechatro controller

a. Blown fuse 5A of mechatro controller :
"DATA COMMUNICATION ERROR" is displayed on the gauge cluster in the condition where the controller program is not executed.

b. Blown fuse 20A of mechatro controller
The controller functions normally but the power supply applied when the controller drives the solenoid, etc. stops.
Many error codes are displayed on the gauge cluster.
D013, D023, D033, D063,
E013, E023, F021

4. TROUBLESHOOTING BY ERROR CODE

When error code was displayed on the gauge cluster with the aid of self-diagnosis display function, carry out the troubleshooting referring to applicable page in the contents of error codes.

Error Code	Trouble	Described page
A015	Engine adjustment (A adjustment) is not adjusted yet or is failed.	T5-1-5
A025	Pump propo. valve adjustment (B adjustment) is not adjusted yet or is failed.	T5-1-5
A035	Unload valve adjustment (C adjustment) is not adjusted yet or is failed.	T5-1-6
A215	Written data of ROM adjustment data is incorrect.	T5-1-6
A225	Writing of ROM adjustment data is incorrect.	T5-1-7
A235	Written data of ROM hour meter data is incorrect.	T5-1-7
A245	Writing of ROM hour meter data is incorrect.	T5-1-8
A255	Writing of proportional valve adjustment data is incorrect.	T5-1-8
B012	Incorrect output of boom up pressure sensor	T5-1-9
B013	Disconnection of boom up pressure sensor	T5-1-9
B014	Short-circuit of boom up pressure sensor	T5-1-10
B022	Incorrect output of boom down pressure sensor	T5-1-10

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

PRECAUTIONS FOR DISASSEMBLY AND ASSEMBLY

PREPARATIONS FOR DISASSEMBLY

- Thoroughly wash the machine before bringing it into the shop. Bringing a dirty machine into the shop may cause machine components to be contaminated during disassembling/assembling, resulting in damage to machine components, as well as decreased efficiency in service work.
- Be sure to thoroughly understand all disassembling/assembling procedures beforehand, to help avoid incorrect disassembling of components as well as personal injury.
- Check and record the items listed below to prevent problems from occurring in the future.
    1. The machine model, machine serial number, and hour meter reading.
    2. Reason for disassembly (symptoms, failed parts, and causes).
    3. Clogging of filters and oil, water or air leaks, if any.
    4. Capacities and condition of lubricants.
    5. Loose or damaged parts.
- Prepare the necessary tools to be used and the area for disassembling work.
- Wear appropriate clothing, safety shoes, safety helmet, goggles, and clothes with long sleeves.
- Confirm the position of first-aid kit and fire extinguisher, and also where to make contact for emergency measure and ambulance to prepare for accidents and fire.
- Attach "Don’t operate" tag to control lever, and begin a meeting before starting the work.

DISASSEMBLING AND ASSEMBLING HYDRAULIC EQUIPMENT

- Before removing pipes, release the pressure of hydraulic oil tank, or open the cover on the return side to tank, and take out the filter.
- Drain the oil in the removed pipes into pan to prevent the oil from spilling on the ground.
- Pipes with plugs or caps to prevent oil leaking, entry of dust, etc.
- Clean the outside surface of equipment, etc. before disassembling, and drain hydraulic oil and gear oil before putting them on working.

DISASSEMBLING HYDRAULIC EQUIPMENT

- Since performance and function of hydraulic equipment after disassembly and assembly results in immunity from responsibility on the manufacture’s side, disassembly, assembly and modification without permission are strictly prohibited.
- If it is unavoidably necessary to disassemble and modify, it should be carried out by experts or personnel qualified through service training.
- Make match mark on parts for reassembling.
- Before disassembling, read Disassembling Instruction in advance, and determine if the disassembly and assembly are permitted or not.
- For parts which are required to use jig and tools, don’t fail to use the specified jig and tools.
- For parts which can not be removed in the specified procedure, never force removal. First check for the cause.
- Inspecting parts. Measure the wear of parts and clearance, and record the measured values.
- If an abnormality is detected, repair or replace the parts.
- The removed parts should be put in order and tagged so as to install on proper places without confusion.
- For common parts, pay attention to the quantity and places.

REASSEMBLING HYDRAULIC EQUIPMENT

- During the parts cleaning, ventilate the room.
- Remove adhering oil by compressed air, and apply hydraulic oil or gear oil, and then assemble them.
- Replace the removed O-ring, back-up rings and oil seal with new ones, and apply gear oil on them before assembling.
- Removes dirt and water on the surface on which liquid sealant are applied, decrease them, and apply liquid sealant on them.
- Before assembling, remove rust preventives on new parts.
- Use special tools to fit bearings, bushing and oil seal.
- Assemble parts matching to the marks.
- After completion, check that there is no omission of parts.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

TORQUE CHART

WARNING

Use tools appropriate for the work to be done. Makeshift tools and procedures can create safety hazards. For loosening and tightening nuts and bolts, use the correct tools. Avoid bodily injury



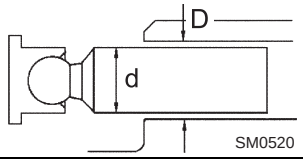
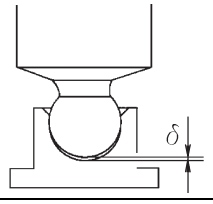
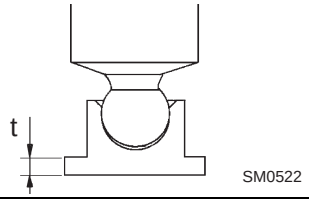
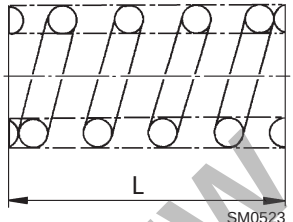
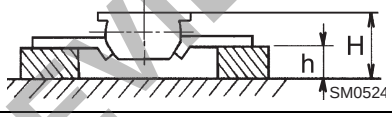
PREVIEW - YOUFIXTHIS.COM

Blurred on purpose. The manual you buy has this page in full quality.

Download full manual at youfixthis.com

MAINTENANCE STANDARD:

Unit: mm (poll.)

Part name and inspection item	Standard dimension (mm)	Recommended value for replacement (mm)	Remedy
Clearance between piston and cylinder bore (D-d) 	0.039	0.067	Replace piston or cylinder.
Gap between piston and caulked part of shoe (d) 	0 ~ 0.1	0.3	Replace piston shoe assy.
Thickness of shoe (t) 	4.9	4.7	Replace piston shoe assy.
Free height of cylinder spring (L) 	41.1	40.3	Replace cylinder spring.
Combined height of retainer plate and spherical bushing (H-h) 	23.0	22.0	Replace a set of spherical bushing or retainer plate.

Repair standards for cylinder, valve plate and swash plate (shoe plate face)

Valve plate (sliding section). Swash plate (shoe plate face). Cylinder (sliding section). Roughness of each surface.	Surface roughness requiring correction.	3-Z
	Standard surface roughness (correction value)	Less than 0.4 Z (lapping)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

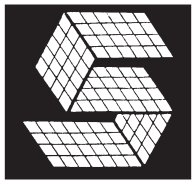
MANUAL INDEX



SAFETY PRECAUTIONS

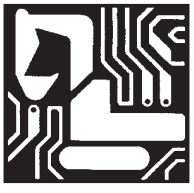
Page

Section 1 GENERALITIES S1
Section 2 SAFETY PRECAUTIONS S2
Section 3 SAFETY PLATES S3

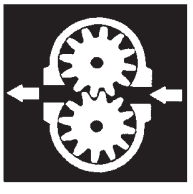


OPERATIONAL PRINCIPLE

Section 1 GENERAL
Group 1 Specifications T1-1
Group 2 Component Layout T1-2



Section 2 SYSTEM
Group 1 Mechatro control system T2-1
Group 2 Hydraulic System T2-2
Group 3 Electrical System T2-3



Section 3 COMPONENT OPERATION
Group 1 Hydraulic Pump Assy T3-1
Group 2 Pilot Valve T3-2
Group 3 Control Valve T3-3
Group 4 Swing Device T3-4
Group 5 Travel Device T3-5
Group 6 Swivel Joint T3-6
Group 7 Cylinders T3-7
Group 8 Air Conditioner system T3-8



OPERATIONAL PERFORMANCE TEST

Section 4 OPERATIONAL PERFORMANCE TEST
Group 1 Introduction T4-1
Group 2 Standard Performances T4-2
Group 3 Test Procedures T4-3
Group 4 Mechatro Controller T4-4



TROUBLESHOOTING

Section 5 TROUBLESHOOTING
Group 1 Troubleshooting (by error codes) T5-1
Group 2 Troubleshooting (by trouble) T5-2
Group 3 Troubleshooting (trouble diagnosis mode) T5-3

PREVIEW. YOUFIXTHIS.COM

Download full manual at youfixthis.com

SAFETY PRECAUTIONS

GENERALITIES

Read the Operation and Maintenance Instruction Manual carefully before starting, operating, maintaining, fuelling or servicing the machine.

Carefully read the explanation to each and all safety signs in the special section of this Manual before starting, operating, maintaining, fuelling or servicing the machine.

Machine-mounted safety plates are colour coded yellow with black borders when they refer to points where special **ATTENTION** must be paid and failure to observe them may cause a serious **DANGER** to the integrity of machine operators. They are white with red borders and black lettering when they refer to a **FORBIDDEN** practice.

It is fundamental that all machine operators know very well the meaning of each safety plate as this considerably decreases operating hazards and accidents.

Do not allow unauthorised personnel to operate or service this machine.

Do not wear rings, wrist watches, jewellery, loose or hanging garments, such as ties, torn clothing, scarves, unbuttoned or unzipped jackets that can get caught in moving parts. Wear certified safety clothes such as: hard hat, no-slip footwear, heavy gloves, ear protection, safety glasses, reflector vests, respirators every time the job requires it. Ask your employer about safety regulations in force and protective equipment.

Always keep the operator's compartment, step plates, grab-rails and handles clean and clear of foreign objects, oil, grease, mud or snow to minimise the danger of slipping or stumbling. Remove mud or grease from your shoes before operating the machine.

Do not jump on or off the machine. Always keep both hands and one foot, or both feet and one hand in contact with steps and/or grab rails.

Do not use controls or hoses as hand holds. Hoses and controls are movable parts and do not provide solid support. Besides, controls may be inadvertently moved and cause unexpected movement of the machine or its attachments.

Never operate the machine or its attachments from any position other than sitting in the driver's seat. Keep head, body, limbs, hands and feet inside the operator's compartment at all times to reduce exposure to external hazards.

Be careful of possible slippery conditions of the steps and hand rails as well as of the ground around the machine. Wear protective boots or shoes with the soles made of highly no-slip rubber

Do not leave the machine until it has come to a complete stop.

Always check height, width and weight limitations which may be encountered in the working site and ensure the machine does not exceed them.

Assess exact paths of gas ducts, water mains, telephone lines, sewers, overhead and underground electric lines and all other possible obstacles.

Such paths should be opportunely defined by competent Authorities. If necessary, require that the service is interrupted or said installations are moved prior to starting the work.

You must know the working capacity of the machine.

Define the rear upperstructure swing area and provide for opportune barriers to prevent access into it.

Never exceed machine lifting capacity.

Remain within the limits shown in the loading capacity chart which located on the machine.

STARTING

Never start or operate a failed machine. Walk all around the machine before mounting.

Before operating the machine, make sure that any possible dangerous condition has been properly removed. Before starting machine, check that steering and attachment controls are in the neutral position and the safety lever is in the LOCK position. Immediately report any malfunction of parts or systems to the maintenance managers for proper action.

Prior to starting the engine, check, adjust and lock the driver's seat for maximum riding comfort and control accessibility. Prior to operating the machine and/or its attachments, check that bystanders are outside the machine operating range. Sound the horn.

Obey all hand signals, safety indications and signs.

Due to the presence of flammable fluids, never check fuel level, refuel, charge the batteries in the presence of smoking materials, open flames or sparks.

Ensure that nobody is within the excavator operating area before starting the machine, swinging the upper structure or moving in any direction.

Adjust all rear-view mirrors for maximum visibility of the area behind the machine.

Ensure that engine speed is appropriate to the job to be carried out.

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

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 information concerning the service procedures.

  - If you have any questions or comments, or if you found any errors regarding the contents of this manual, please contact:

NEW HOLLAND KOBELCO
CONSTRUCTION MACHINERY S.p.A.
Strada Settimo, 323
San Mauro Torinese (TO)
10099 ITALIA
PRODUCT SUPPORT
Fax. ++39 011 0077357

ADDITIONAL REFERENCES

- Please refer to the materials listed below in addition to this service manual:

  - **Operation and Maintenance Instruction Manual**
  - **Parts Catalog**

WORKSHOP MANUAL COMPOSITION

- The Workshop Manual consists of five parts:
  - **“Safety Precautions”**
  - **“Operational Principle”**
  - **“Operational Performance Test”**
  - **“Troubleshouting”**
  - **“Repair Instructions”**

- The “Safety Precaution” part includes the recommended procedures that, if followed, can avoid the risk of accident for operator and for staff related to the work and maintenance machine operations.

- The “Operational Principle” part includes the technical information concerning the operation of main devices and systems.

- The “Operational Performance Test” part includes the information needed to carry out the machine operational performance test.

- The “Troubleshooting” part includes the technical information needed for troubleshooting and malfunction detection.

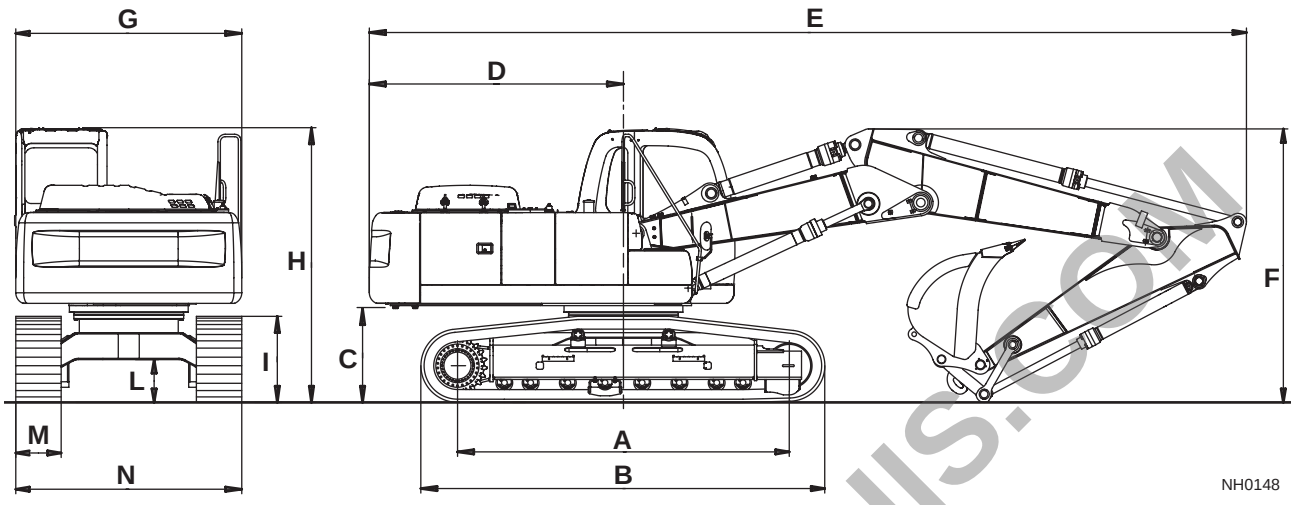
- The “Repair Instruction” part includes information needed for maintenance and repair of the machine, tools and devices needed for maintenance and repair, maintenance standards, removal/installation and assembly/disassembly procedures.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

TRANSPORTING DIMENSIONS E245B

(Triple Articulation Version)



VERSIONS	A	B	C	D	E	F	G	H	I	L
E245B	3840	4645	1053	2800	(1) 9684	(1) 3067	2503	3045	970	486
					(2) 9665	(2) 3014				
					(3) 9641	(3) 2957				
					(4) 9634	(4) 3235				

Arm: (dimensions in mm)

(1) 2080 mm

(2) 2400 mm

(3) 2940 mm

(4) 3500 mm

			E245B		
M	Track shoe width	(mm)	550(*)	700	800(*)
N	Gauge	(mm)	2490	2690	2890
(**)	Working weight	(kg)	22600	23100	23450
Spec. ground pres.		(bar)	0.53	0.42	0.38

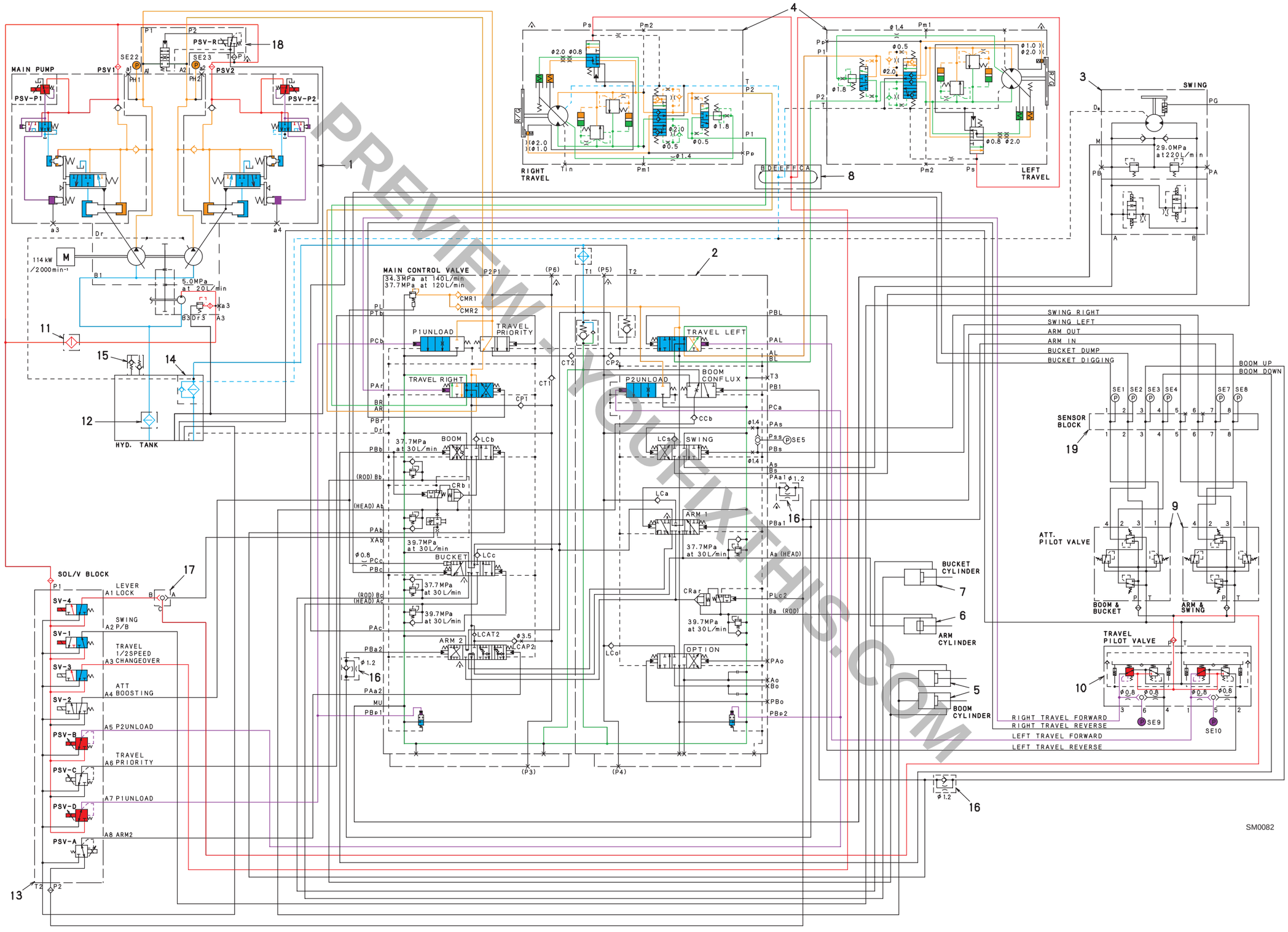
(**) With arm 2940 mm and bucket 1.3 m^3

(*) Asymmetric type shoes

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

TRAVEL CIRCUIT: Travel 2nd speed, RH & LH simultaneous operation.

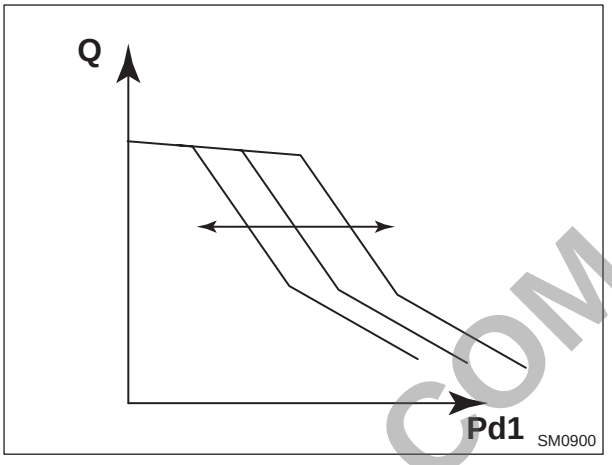


PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Power shift control

The pump set power is controlled according to the movement of control by power shift pressure Pf. As power pressure Pf rises, the compensating rod (**623**) moves rightward through pin (**898**) and compensating piston (**621**). Consequently like the overloading prevention operation of power control, the pump tilt angle becomes smaller and the power setting value is reduced. Conversely, if the power shift pressure Pf is reduced, the power set value is raised.
The power shift pressure Pf of this pump is ordinary set to 0 MPa, but in emergency mode, the power shift pressure Pf is raised to 4.9 MPa.



Adjusting the regulator

The regulator may be adjusted in terms of maximum flow, minimum flow, horsepower (at back-up control) control characteristics, flow control characteristics using the adjust screw.

ADJUSTING THE MAXIMUM FLOW
(See HYDRAULIC PUMP-construction)

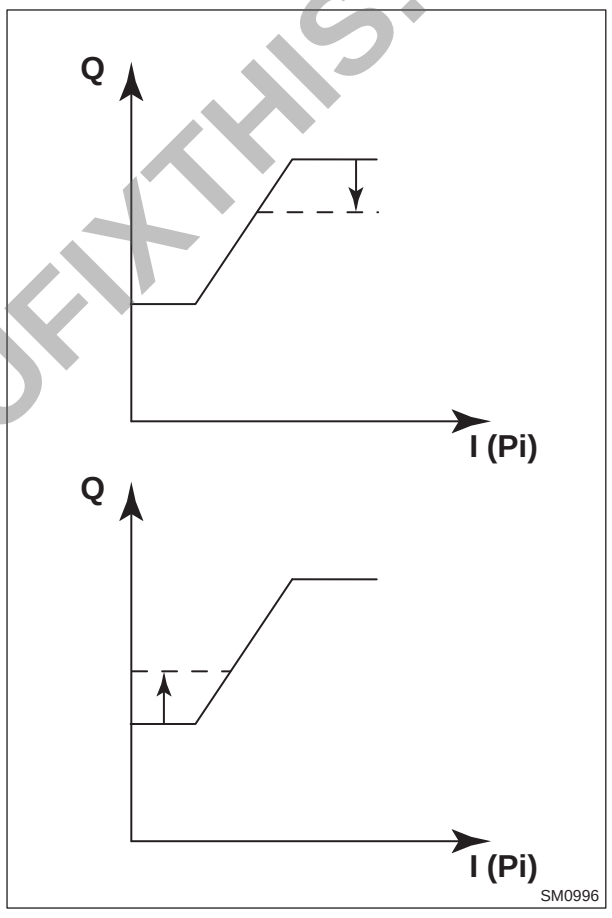
Adjust the maximum flow by loosening nut (**808**) and by tightening set screw (**954**) (or loosening it). Tightening set screw (**954**) decreases the delivery rate, as indicated.
Only the maximum flow varies, but other control characteristics remain unchanged.

Adjust screw No	954
No. of turns for tightening	1/4
Pilot pressure Pi (Input current I)	No change
Min. increase in delivery flow L/min	5.8

ADJUSTING THE MINIMUM FLOW
(See HYDRAULIC PUMP-construction)

Adjust the minimum flow by loosening nut (**806**) and by tightening socket screw (**953**) (or loosening it). Tightening socket screw increases the delivery rate, as indicated.
Other control characteristics remain unchanged in the same way as maximum flow adjustment, care should be used of the fact that overtightening may increase a required power at the maximum delivery pressure (at relieving action).

Adjust screw No	953
No. of turns for tightening	1/4
Pilot pressure Pi (Input current I)	No change
Min. increase in delivery flow L/min	4.6

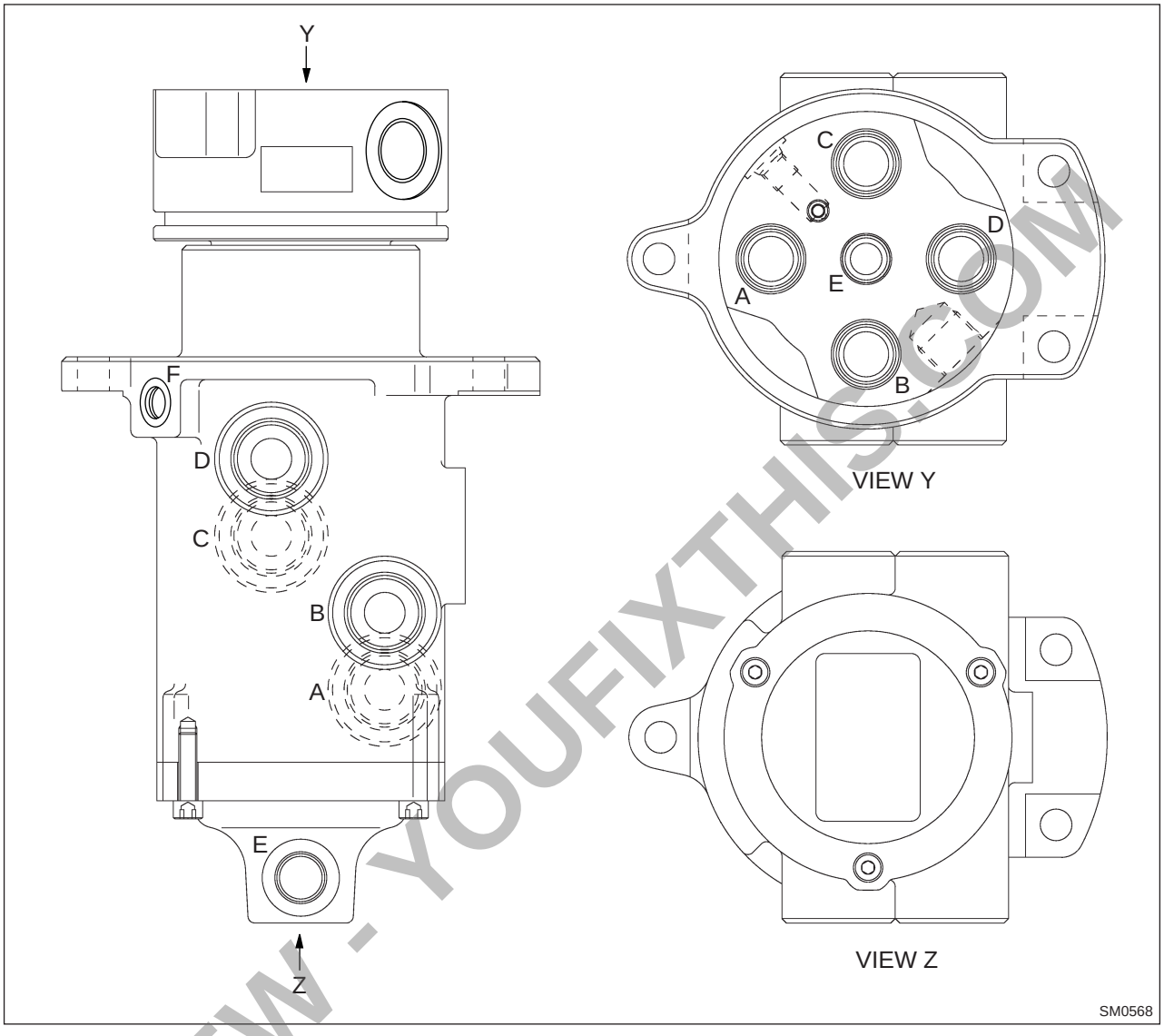


PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

OUTLINE

General view



Specifications

High pressure ports A,B,C,D	Working pressure	34.3 MPa
	Max. impact pressure	51.5 MPa
	Rated flow	255 L/min
Low pressure ports E	Working pressure	0.49 MPa
	Rated flow	50 L/min
Low pressure ports F	Working pressure	5 MPa
	Rated flow	30 L/min
Revolution		15 min^{-1}
Ports size	A,B,C,D (body)	PF 1
	A,B,C,D (stem)	PF 3/4
	E	PF 1/2
	F	PF 1/4
Length (height)		368 mm
Weight		24.5 kg

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

MEASURING ATTACHMENT OPERATING PERFORMANCES

Operating time of cylinders

PURPOSE

Measure the operating time of the boom, arm, positioning and bucket and confirm the performances between the hydraulic pump and the cylinder of the attachment drive system.

CONDITIONS

Hydraulic oil temperature: 45~55°C (113~131°F)
Engine revolution: Hi idle
Operating time excluding the cushion stroke.

PREPARATION

Firm level ground with the bucket empty.

MEASUREMENT

Measurement 1 ; Boom up and down

With the boom operating lever at full stroke, measure the required operating time of the bucket between the ground surface and its highest position.

WARNING

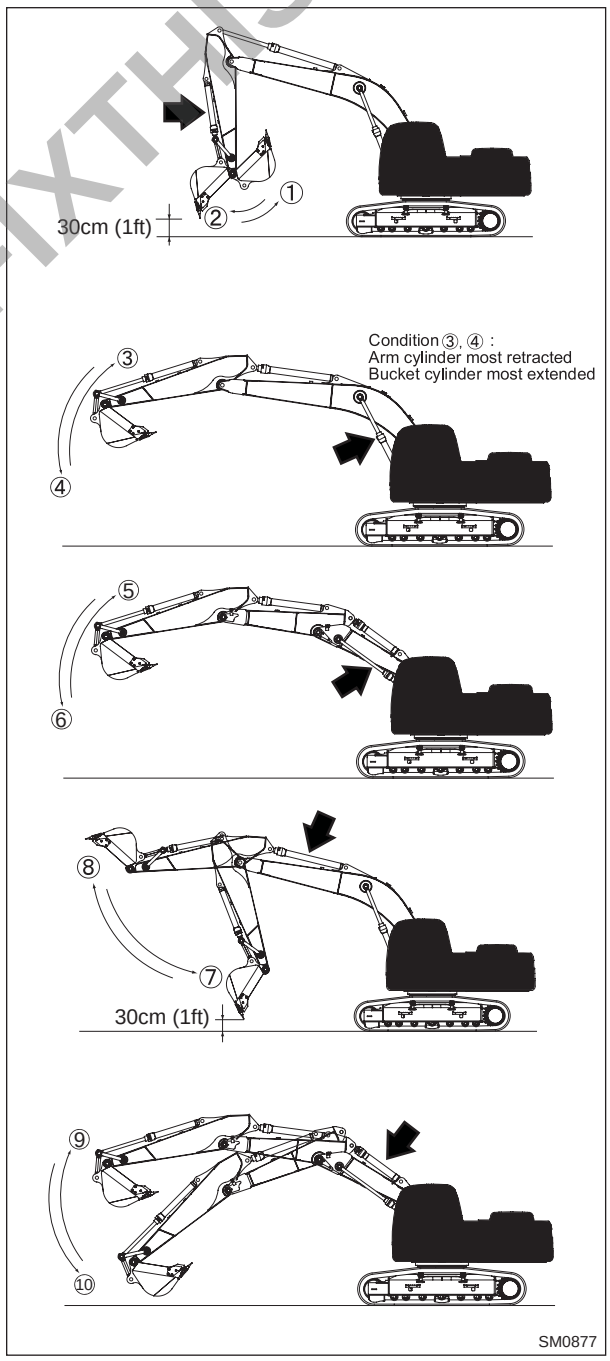
When lowering the boom, allow the bucket onto a soft ground or cushioning such as rubber tires ; never put the bucket against concrete or other solid material.

Measurement 2 ; Arm in and out, positioning, bucket digging and dump

In a position in which the tooth of the bucket rises to a level of about 30cm (1ft) above ground, measure the full stroke operating time required with the arm and bucket operating levers at full stroke.

Cylinder Operating time Unit : sec

Measuring position	Standard value	Reference value for remedy	Service limit
1	2.2~2.8	2.8~3.6	3.8~
2	1.7~2.3	2.2~2.9	3.0~
3	2.5~3.1	3.2~4.0	4.2~
4	2.2~2.8	2.8~3.6	3.8~
5	3.5~4.1	4.4~5.9	5.5~
6	2.6~3.2	3.3~4.1	4.3~
7	3.0~3.6	3.8~4.6	5.0~
8	2.3~2.9	2.9~3.7	3.9~
9	2.9~3.5	3.7~4.4	4.6~
10	4.1~4.7	5.2~6.0	6.3~



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

Table 83

Error code	**H033**		
Trouble	Arm angle potentiometer's wiring is disconnected.		
Judging condition	The input voltage from arm angle potentiometer is 0.1 V or less.		
Symptom	Indications of rating load and working radius of High-reach crane become abnormal.		
Control in the event of failure	Normal control.		
Returned in normal condition	It returns automatically in normal condition.		
Service diagnosis checking screen	Screen No.	12	H-3 ARM
	Screen No.		
	Screen No.		

Checking object		Checking contents and remedy
1	• Arm angle potentiometer SE-18	Measure the resistance between terminals of arm angle potentiometer. 4.0~6.0k Ω . Turn the potentiometer and measure resistance between signal and GND. Normal value: 0 to all resistance (4.0~6.0)k Ω
2	• Wiring between arm angle potentiometer and controller CN-703F CN-103F	Check wiring for possible failure according to the wiring checking procedure and repair it if necessary.
3	• Mechatro controller	Check that the error is corrected after replacement of controller.

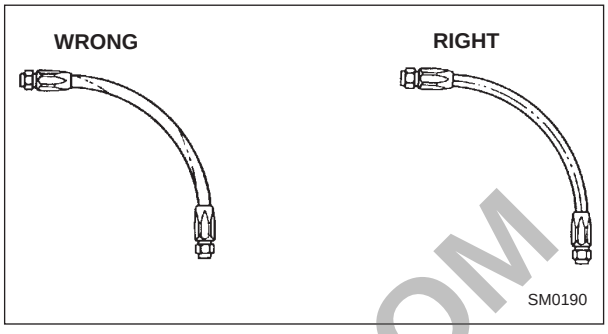
PREVIEW - YOUFIXTHIS.COM

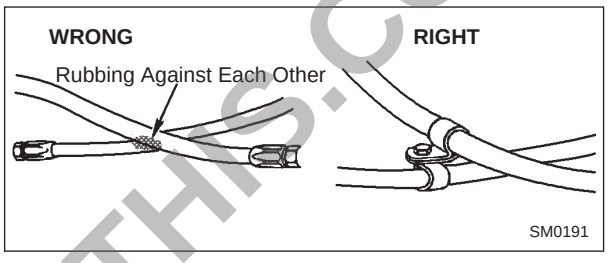
Download full manual at youfixthis.com

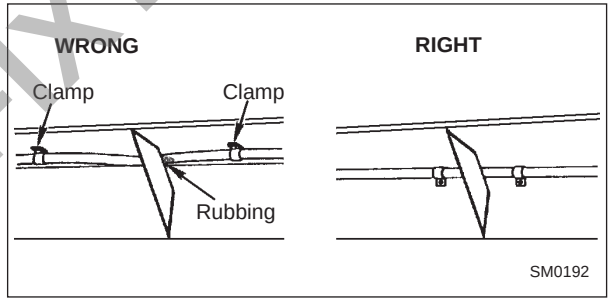
Connecting Hose

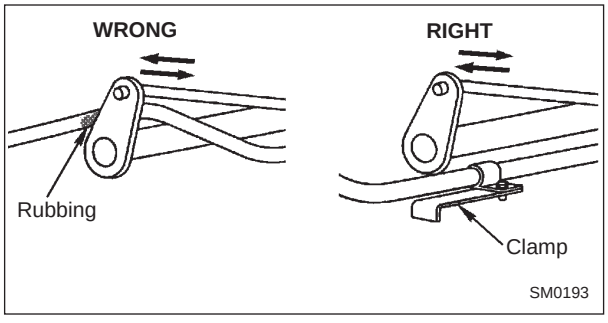
WARNING

1. *When replacing hoses, be sure to use only genuine parts. Using hoses other than genuine hoses may cause oil leakage, hose rupture or separation of fitting, possibly resulting in a fire on the machine.*
2. *Do not install hoses kinked. Application of high oil pressure, vibration, or an impact to a kinked hose may result in oil leakage, hose rupture or separation of fitting.*
   Utilize print marks on hoses when installing hoses to prevent hose from being installed kinked.
3. *If hoses rub against each other, wear to the hoses will result, leading to hose rupture. Take necessary measures to protect hoses from rubbing against each other.*
   Take care that hoses do not come into contact with moving parts or sharp objects.









PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Preliminary operations

1. Hydraulic components are precision products and have small clearance. Therefore, assemble and disassemble in a less dusty clean place. Use clean tools and cleaning oil and handle components with full care.
2. If a component is removed from the main body, clean the area around the ports thoroughly and plug them up so no dust and water do not enter. When fitting them back to the body, do not remove the plugs till piping is completed.
3. Study the structural drawing before the work begins and prepare necessary parts according to your purpose and the scope of work. Seals and O-Rings once removed can not be used again.
4. The piston and the cylinder block are shop fitted when new. If you intend to reuse them, put a matching mark on the piston and the cylinder block.

Disassembly

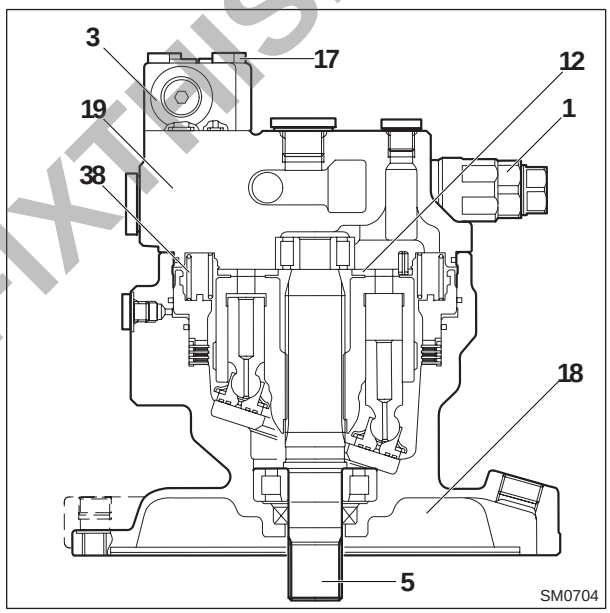
1. Remove the drain plug and drain hydraulic oil from casing (**18**).
2. Fix the motor on a work bench so the drive shaft (**5**) end comes down. On that occasion, put a matching mark on the mating parts of casing (**18**) and valve casing (**19**).

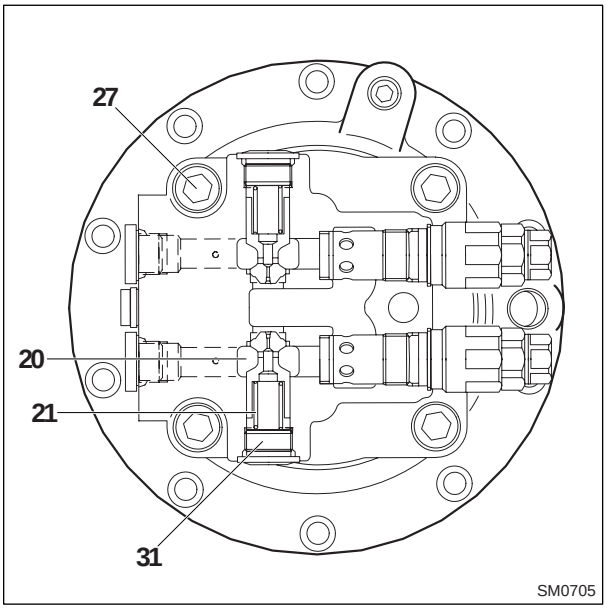
NOTE: *choose a clean place, and lay with a rubber sheet or a cloth on a work bench. Handle the valve casing with care so parts do not have dents.*

3. Loosen relief valve (**1**) and separate it from valve casing (**19**).
   : 41 mm
4. Loosen anti-reaction valve sub assy (**3**) and remove from valve casing (**17**).
   : 6 mm
5. Separate plugs (**31**) from valve casing (**19**) and draw out springs (**21**) and plungers (**20**).
   : 17 mm
6. Loosen socket bolts (**27**) and separate valve casing (**19**) from casing (**18**).

NOTE: *if the socket bolt (**27**) are loosened, the valve casing (**19**) floats off casing (**18**) by the force of brake springs (**38**).*

7. Separate valve plate (**12**) from valve casing (**19**).
   : 17 mm





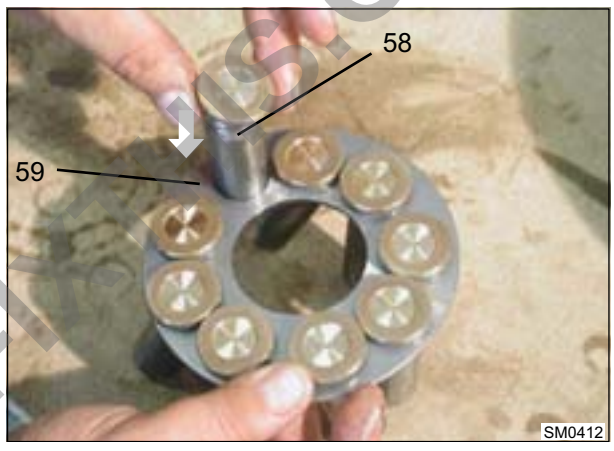
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

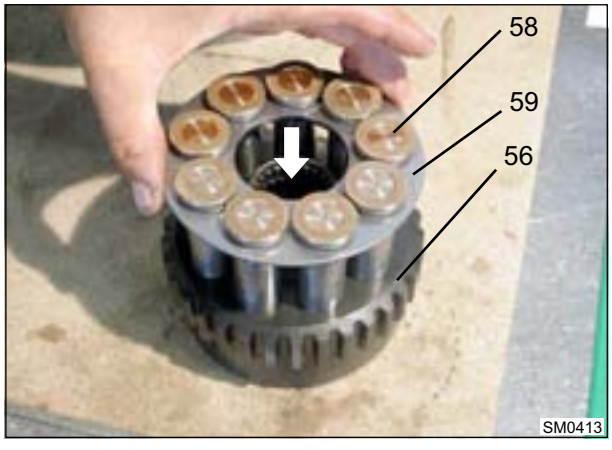
13. The orifice of the piston (**58**) must be open and free of dust or dirt.



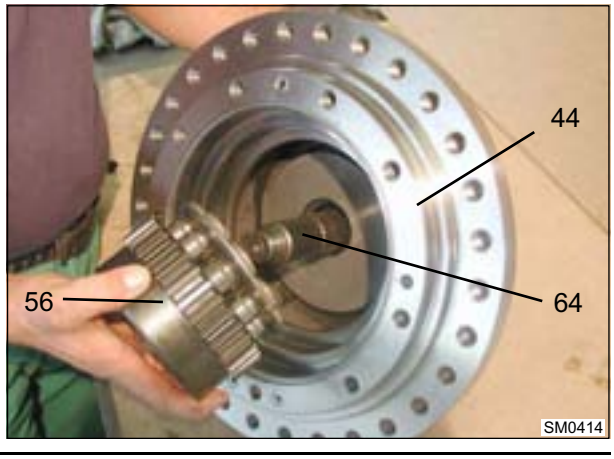
14. Assemble correctly the nos. 9 pistons (**58**) in the retainer plate (**59**).



15. Assemble the pistons-retainer plate sub assembly (**58-59**) in the cylinder block (**56**).



16. Assemble the cylinder block sub assembly (**56**) into the flanged hub (**44**) on the motor shaft spline (**64**).

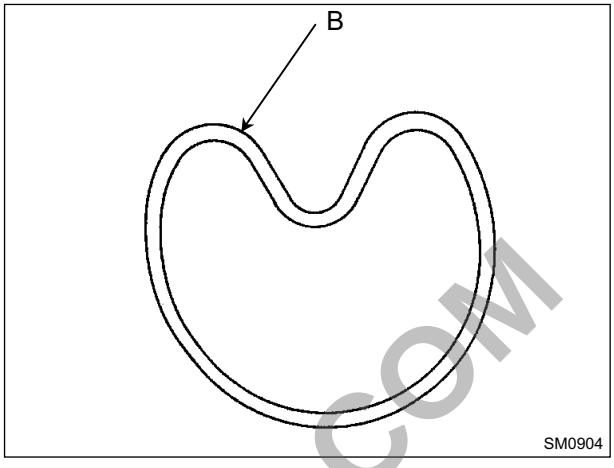


PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

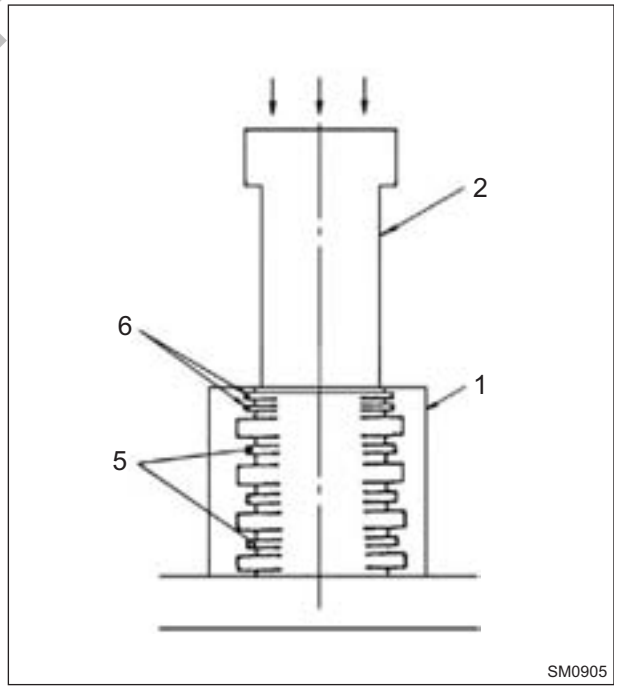
Assembly

Prior to assembly, clean each parts (excluding the O- Ring and slipper ring), and arrange in the sequence of assembly.

1. Make sure that oil and grease remains have been completely removed.
2. Apply grease on the groove where are seated the O- Ring (**6**).
3. Apply hydraulic oil to O-ring (**13**) thinly and insert it into O-ring groove. Check the twist of O-ring.
4. Slipper ring (**B**) is assembled, after first inserting the backup ring, by slightly-distorting the shape as shown in figure. Also after inserting all of the seals, be certain that these are installed in the seal groove by use of the spatula.
5. Assemble seal (**5**) by the same procedure above mentioned, after removing grease, hydraulic oil and vaseline from the groove of the seal. Seals (**5**) have no back-up ring.
6. Lightly coat the outer circumference of stem (**2**) and the inner surface of body (**1**) with grease or vaseline and slowly insert stem (**2**) into body (**1**).



NOTE: *If stem (**2**) is pressed in too fast, the seal may be damaged. Do it slowly. The clearance between body (**1**) and stem (**2**) is about 0.1 mm. Push stem straight along the shaft center.*



*A: Push with both hands

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 25 of 821 pages

The full manual includes:

- All 821 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

New Holland E215B, E245B Workshop Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual