SECTION 3
COMPONENTS
Section Table of Contents I
Book/Form Number: 5-1960 NA

CHAPTER 32
ATTACHMENTS
Table of Contents 32-1
Book/Form Number: 5-1980 NA

CHAPTER 33
UPPER SLEWING BODY
Table of Contents 33-1
Book/Form Number: 5-1990 NA

CHAPTER 34
TRAVEL SYSTEM
Table of Contents 34-1
Book/Form Number: 5-2000 NA

SECTION 4
SYSTEM TROUBLESHOOTING
Section Table of Contents I
Book/Form Number: 5-2010 NA

CHAPTER 41
TROUBLESHOOTING (MECHATRO CONTROL)
Table of Contents 41-1
Book/Form Number: 5-2020 NA

CHAPTER 42
TROUBLESHOOTING (HYDRAULIC SYSTEM)
Table of Contents 42-1
Book/Form Number: 5-2030 NA

CHAPTER 43
TROUBLESHOOTING (ELECTRIC)
Table of Contents 43-1
Book/Form Number: 5-2040 NA

CHAPTER 44
TROUBLESHOOTING (ENGINE)
Table of Contents 44-1
Book/Form Number: 5-2050 NA

SECTION 5
ENGINE
Section Table of Contents I
Book/Form Number: 5-2060 NA

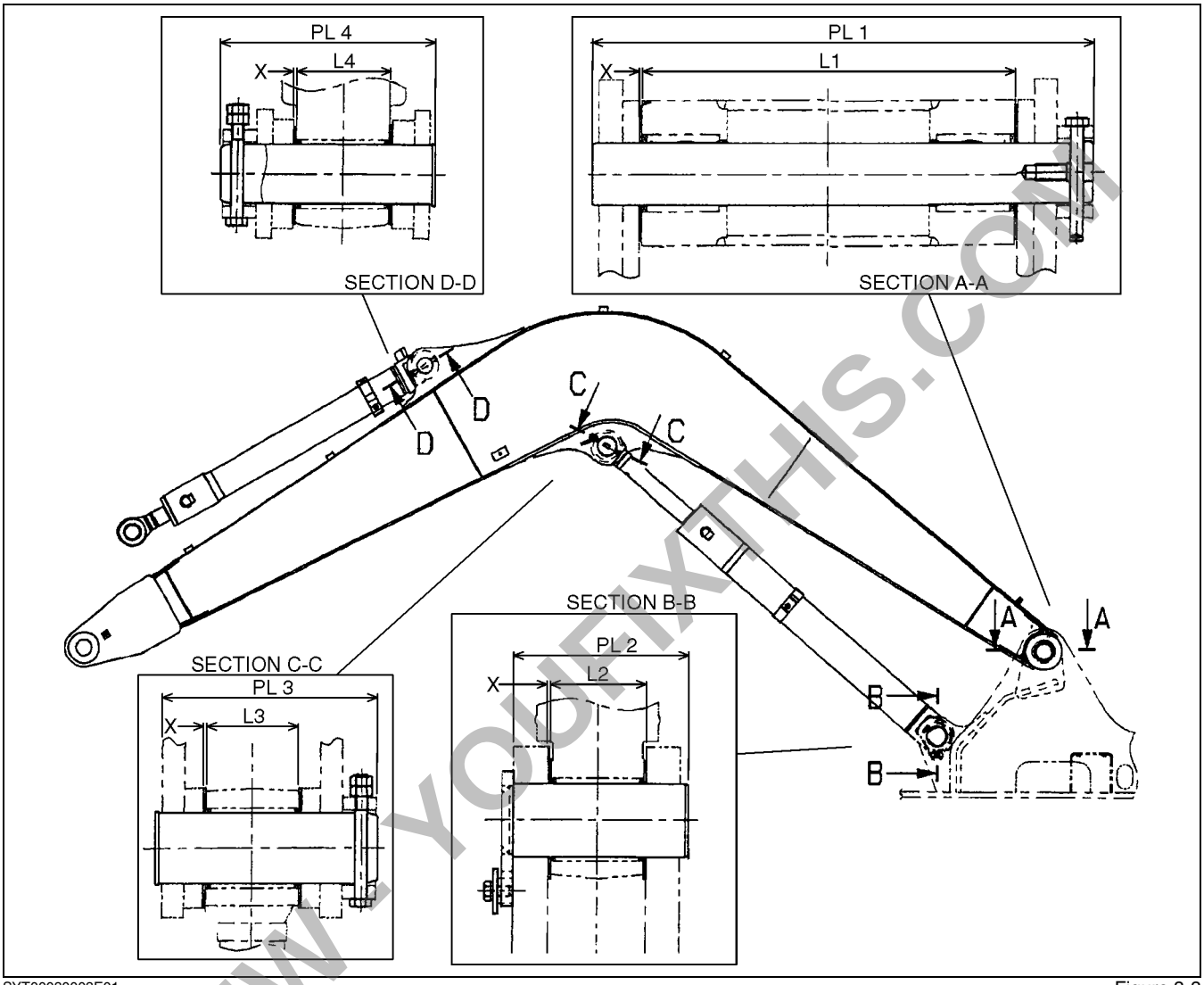
CHAPTER 51
ISUZU MODEL A-4JG1 DIESEL ENGINE
Table of Contents 51-1
Book/Form Number: 5-2070 NA

SECTION 6
OPTIONAL EQUIPMENT
Section Table of Contents I
Book/Form Number: 5-2080 NA

CHAPTER 63
MOUNTING THE BREAKER AND NIBBLER & BREAKER
Table of Contents 63-1
Book/Form Number: 5-2090 NA

PREVIEW - YOUFIXTHIS.COM

3.1.2.2 CLEARANCE IN THRUST DIRECTION ON THE BOOM AND CYLINDER INSTALLATION SECTION



SYT00030003E01

Figure 3-3

FIG. 3-3 CLEARANCE IN THRUST DIRECTION ON BOOM CYLINDER INSTALLATION SECTION

CLEARANCE IN THRUST DIRECTION FOR THE BOOM CYLINDER INSTALLATION SECTION									
Item		Boom foot		Boom cylinder (Head side)		Boom cylinder (Rod side)		Arm cylinder (Head side)	
		Boom	Upper Frame	Head Side	Upper Frame	Boom Cylinder	Boom	Arm Cylinder	Boom
Section		A-A		B-B		C-C		D-D	
Basic Size	Reference	L1		L2		L3		L4	
	Size	360 mm (14.2 in)	365 mm (14.4 in)	95 mm (3.74 in)	100 mm (3.94 in)	95 mm (3.74 in)	100 mm (3.94 in)	95 mm (3.74 in)	100 mm (3.94 in)
Values Clearance (X) adjusted by shim (total of both sides)	Standard	0.6 mm (0.02 in) or less		0.6-1.0 mm (0.02-0.04 in)		0.6-2.0 mm (0.02-0.08 in)		0.6-1.0 mm (0.02-0.04 in)	
	Repair Reference	1.0 mm (0.04 in)		2.0 mm (0.08 in)		3.0 mm (0.12 in)		2.0 mm (0.08 in)	
	Service Limit	1.5 mm (0.06 in)		2.5 mm (0.10 in)		4.0 mm (0.16 in)		2.5 mm (0.10 in)	
Pin Length (Under Neck)	Illustration Reference	PL 1		PL 2		PL 3		PL 4	
	Dimensions	481 mm (18.9 in) Full length - No under neck		180 mm (7.09 in)		221 mm (8.70 in)		215 mm (8.46 in)	
Remedy		Adjusted by shim							

PREVIEW - YOUFIXTHIS.COM

Group No.		Location	Work to be Done	Unit	Remark	Unit: Hour
01 Attachment	00	Bucket relation			Reference for 2. Bucket	
	01	Bucket ASSY	Detach/attach	1 pc.	Include adjustment	0.5
	02	• Bucket attaching and detaching position	Preparation	1 pc.		0.1
	03	• Bucket attaching pin	Detach/attach	1	Include omission of pin.	0.1
	04	• Bucket drive pin	Detach/attach	1		0.1
	05	• Bucket sling and movement	Preparation	1 pc.		0.1
	06	Bucket (Single)	O/H	1 pc.	Not include attaching and detaching.	2.0
	07	• Tooth	Replace	1 pc.		0.5
	08	• Side cutter	Replace	1 pc.		1.0
	09	• Bushing	Replace	1 pc.		0.5
	10	Arm relation			Reference for 3. Arm	
	11	Arm ASSY	Detach/attach	1 pc.		1.0
	12	• Bucket cylinder attaching and detaching position and piping	Preparation	1 pc.		0.3
	13	• Bucket cylinder rod pin	Detach/attach	1 pc.	Include omission of pin.	0.1
	14	• Bucket cylinder head pin	Detach/attach	1 pc.	Include omission of pin.	0.1
	15	• Bucket cylinder assy	Detach/attach	1 pc.		0.1
	16	• Arm cylinder rod pin	Detach/attach	1 pc.	Include omission of pin.	0.1
	17	• Boom top pin	Detach/attach	1 pc.		0.1
	18	• Arm sling and movement	Detach/attach	1 pc.		0.1
	30	Boom relation			Reference for 4. Boom	
	31	• Boom ASSY	Detach/attach	1 pc.		1.0
	32	• Boom attaching and detaching position	Preparation	1 pc.		0.1
	33	• Boom cylinder temporary slinging	Preparation	1 pc.		0.1
	34	• Boom cylinder rod pin	Detach/attach	1	Include omission of pin.	0.1
	35	• Boom cylinder piping	Detach/attach	1 pc.		0.1
	36	• Arm & bucket piping	Detach/attach	1 pc.		0.2
	37	• Boom assy temporary slinging	Detach/attach	1 pc.		0.1
	38	• Boom foot pin	Detach/attach	1	Include omission of pin	0.2
	39	• Boom assy slinging	Detach/attach	1 pc.		0.1
	40	• Arm cylinder attaching and detaching	Detach/attach	1 pc.		0.3
	41	• Arm cylinder piping	Detach/attach	1 pc.		0.1
	42	• Arm cylinder head pin	Detach/attach	1	Include omission of pin	0.1
	43	• Arm cylinder slinging	Detach/attach	1 pc.		0.1
	50	Boom cylinder attaching and detaching	Detach/attach	1 pc.		0.3
	51	• Boom cylinder piping	Detach/attach	1		0.1
	52	• Boom cylinder head pin	Detach/attach	1 pc.		0.1
	53	• Boom cylinder slinging	Detach/attach	1		0.1
	60	Bucket cylinder	O/H	1		3.0
	61	• Pin bushing	Preparation	1	Include seal	1.0
	70	Arm cylinder	O/H	1		3.0
	71	• Pin bushing	Preparation	1 set	Include seal	1.0
	75	Boom cylinder	O/H	1		3.0
	76	• Pin bushing	Preparation	1	Include seal	1.0

PREVIEW - YOUFIXTHIS.COM

SECTION 2
SYSTEMS

SECTION TABLE OF CONTENTS

CHAPTER 21
MECHATRO CONTROL SYSTEM
TABLE OF CONTENTS 21-1
21.1 Preface 21-3
21.2 MECHATRO Control System 21-4
21.3 Boom Raise Conflux MECHATRO Control System 21-7
21.4 Swing Cut Valve Control MECHATRO Control System 21-8
21.5 Arm In / Out Conflux MECHATRO Control System 21-9
21.6 Travel Straight MECHATRO Control System 21-10
21.7 MECHATRO Control 21-12

CHAPTER 22
HYDRAULIC SYSTEM
TABLE OF CONTENTS 22-1
22.1 Summary 22-3
22.2 Hydraulic Circuits and Component Models 22-4
22.3 Hydraulic Circuit Operation 22-10
23.1 How to Read Circuit Diagram and Harness Connections 23-III
23.2 Connection and Connector Tables 23-IV
23.3 Boom Work Light 23-IX
23.4 Key Switch Harness 23-X
23.5 Battery and Ground Cables 23-XI

CHAPTER 23
ELECTRICAL SYSTEM
TABLE OF CONTENTS 23-1
23.1 Electrical Circuit Diagram and Equipment List 23-3
23.2 Harness 23-11

CHAPTER 24
COMPONENTS SYSTEM
TABLE OF CONTENTS 24-1
24.1 Hydraulic Components 24-3
24.2 Electric Equipment 24-82

CHAPTER 25
AIR-CONDITIONING SYSTEM
TABLE OF CONTENTS 25-1
25.1 Construction and Piping 25-3
25.2 Construction of Main Components 25-6
25.3 Function 25-9
25.4 Disassembly and Assembly 25-16
25.5 Charging Refrigerant 25-21
25.6 Electric Circuit 25-27
25.7 Troubleshooting 25-31

PREVIEW - YOUFIXTHIS.COM

SECTION 2 - SYSTEMS
CHAPTER 22 - HYDRAULIC SYSTEM

This section describes the boom lower operation.

22.3.5.3 BOOM LOWER PILOT CIRCUIT

1. Operation

A. Start boom lower operation, and the pilot proportional secondary pressure is output through port (4) of pilot valve, and acts on low pressure sensor (SE4), at the same time branches into two circuits, then acts on C/V (2) Pb2 and Pb2' port.

B. The voltage output by low pressure sensor (SE4) is input into mechatro controller.

C. Then, the proportional secondary pressure fed into C/V (2) Pb2 port switches boom spool. And the proportional secondary pressure flown into C/V (2) Pb2' port releases boom lock valve.

22.3.5.4 BOOM LOWER MAIN CIRCUIT

1. Operation

A. The oil delivered through A1 port of P1 pump passes through C/V (2) P1 port and flows into travel straight section, and branches into by-pass circuit and parallel circuit. However since the boom spool is moved and by-pass circuit is closed, the oil opens load check valve through parallel circuit and flows into boom spool.

B. The oil passes through outside of boom spool, and flows into boom cylinder R side through C/V (2) B2 port.

C. On the other hand, the return oil boom cylinder H side flows into C/V (2) A2 port, but since the boom lock valve is open, it flows into boom spool.

D. Then the oil passes through orifices on boom spool and returns into tank while restricting.

22.3.5.5 NATURAL DROP PROTECTION WITH BOOM LOCK VALVE

1. Operation

[When boom lower secondary pressure is actuated]

A. The control secondary pressure flown into relief port Pb2' of boom lock valve pushes needle valve on the rear side of the lock valve seat, and the back pressure of lock valve flows into tank circuit through port DR5 making the opening of valve easier.

B. The return oil from boom cylinder R side opens lock valve, and flows into boom spool.

[When boom lower operation pressure is not actuated]

A. Where the pilot pressure in boom lock valve relief port Pb2' is not actuated, the above needle valve is pushed back by the force of spring, and the back pressure of lock valve becomes equal to the return pressure.

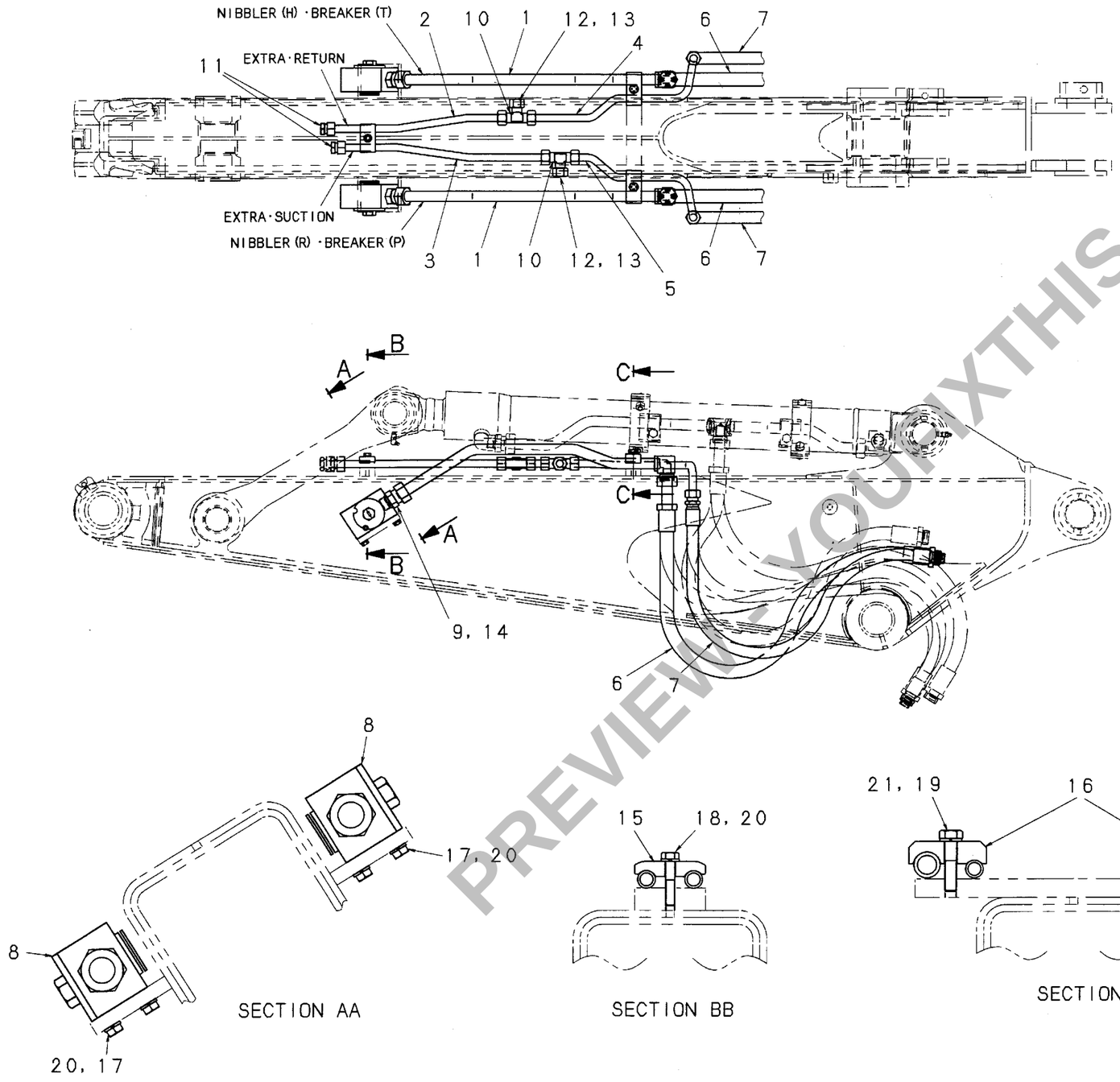
B. The area on back pressure side of lock valve is larger, the lock valve is completely seated, and the oil in boom cylinder H side is stopped from returning, protecting the boom from natural drop.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SECTION 2 - SYSTEMS
CHAPTER 22 - HYDRAULIC SYSTEM

G. Arm Hydraulic Lines: YT43H00051F1



NOTES

1. APPLY LOCTITE #242 AT THE SETTING BOLTS OF CLAMP.
2. TIGHTENING TORQUES FOR M-THREADS

THREADS SIZE	TIGHTENING TORQUES
M 8	33.3N·m{24.6 lbf·ft}
M10	65.7N·m{48.5 lbf·ft}

3. TIGHTENING TORQUES FOR PF, PT-THREADS

THREADS SIZE	TIGHTENING TORQUES
3/4	162N·m{119 lbf·ft}

4. TIGHTENING TORQUES FOR NUTS AND SLEEVES

TUBE SIZE	TIGHTENING TORQUES
ø22×3.0	216N·m{159 lbf·ft}
ø15×2.0	118N·m{87.0 lbf·ft}

PREVIEW YOUFIXTHIS.COM

S5YT2203E016001

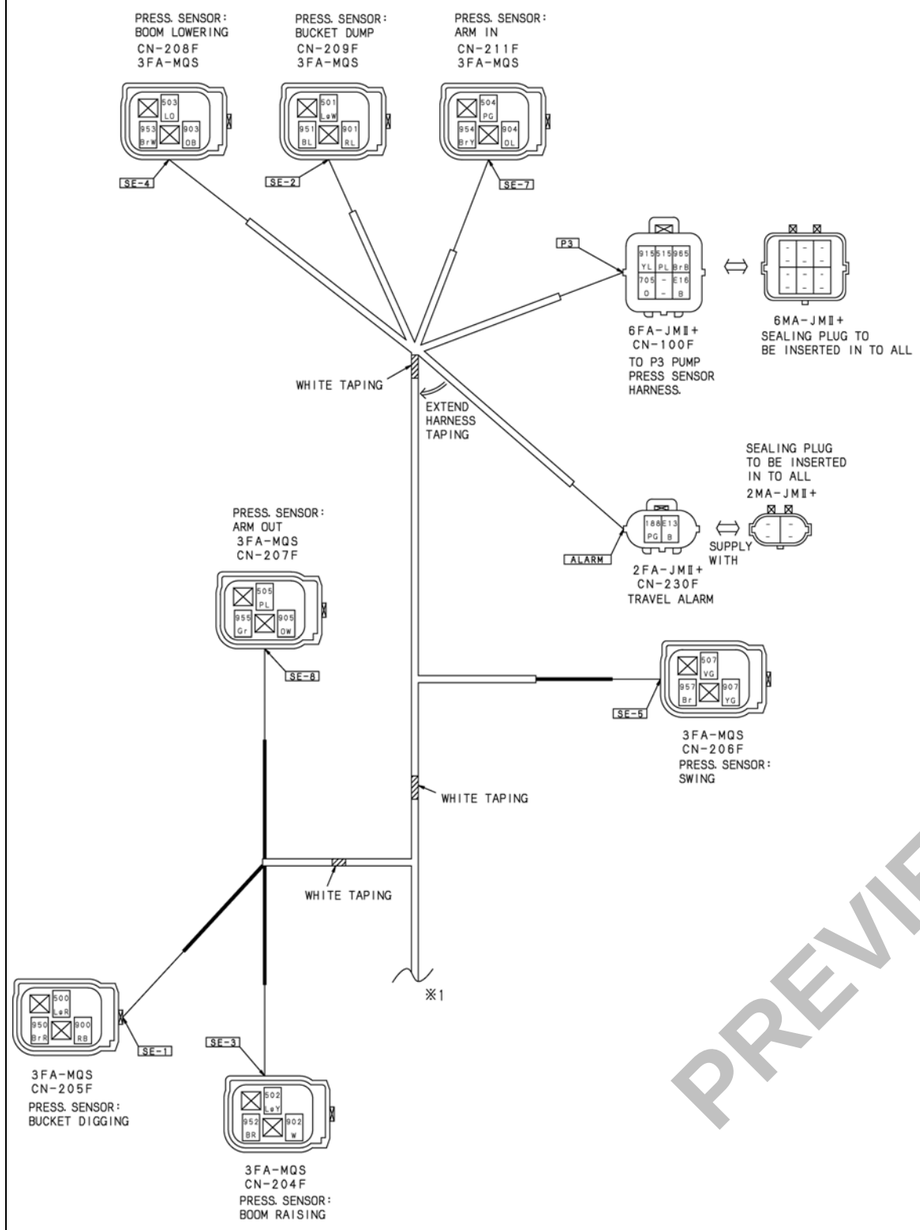
Figure 22-44

Issued 01-2006 Bur 5-1920 NA

Download full manual at youfixthis.com

SECTION 2 - SYSTEMS
CHAPTER 23 - ELECTRICAL SYSTEM

23.2.6B-6 MAIN HARNESS: YT13E01106P1 KCMA, KCME (2/2)



WIRE NO	WIRE COLOR	WIRE SIZE	FROM	CONNECTION	TO
8	WV	AVSS1.25sq	F-4		CN-10M
9	YB	AVSS0.75sq	CN-231F		CN-10M
51	W	MVVS1.25sq	P-3		CN-10M
E	B	2 CORES SHIELD	P-1	DOUBLE SPLICE	CN-10M
SH3	Gr		P-1		CN-10M
52	R	AVS5sq	CN-152M		CN-11F
53A	Y	AVS5sq	CN-152M		
53B	Y	AVS5sq		SPLICE	CN-154F
53C	Y	AVS5sq			CN-11F
62A	GrB	AVSS0.75sq	CN-166F	DOUBLE SPLICE	CN-10M
62B	GrB	AVSS0.75sq	CN-166F		CN-155F
63	WY	AVSSX0.75fsq	CN-363F		CN-10M
64	GW	AVSSX0.75fsq	CN-363F		CN-10M
70	G	AVSS0.75sq	CN-150F		CN-10M
66	W	AVX5sq	CN-153F		CN-351F
82	GO	AVSS0.75sq	CN-159F		CN-10M
83	WL	AVSS0.75sq	CN-10M		CN-170F
85A	WB	AVSS1.25sq	CN-157F	DOUBLE SPLICE	CN-10M
85B	WB	AVSS1.25sq	CN-157F		CN-156F
92	BP	AVSS0.75sq	CN-10M		CN-160F
93	LW	AVX0.85sq	CN-363F		CN-160F
188	PG	AVSS0.75sq	CN-230F		CN-10M
500	LgR	AVSS0.75sq	CN-205F		CN-10M
501	LgW	AVSS0.75sq	CN-209F		CN-10M
502	LgY	AVSS0.75sq	CN-204F		CN-10M
503	LO	AVSS0.75sq	CN-208F		CN-10M
504	PG	AVSS0.75sq	CN-211F		CN-10M
505	PL	AVSS0.75sq	CN-207F		CN-10M
507	VG	AVSS0.75sq	CN-206F		CN-10M
515	PL	AVSS0.75sq	CN-100F		CN-10M
531	Lg	AVSS0.75sq	CN-101F		CN-10M
534	B	PEXBS 0.5fsq 2 CORES SHIELD		CN-352M	CN-10M
535	W			CN-352M	CN-10M
SH2	Gr			CN-352M OPEN	CN-10M
536	BrR	AVSS0.75sq	CN-203F		CN-10M
537	YR	AVSSX0.75fsq	CN-363F		CN-10M
550	O	AVSSX0.75fsq	CN-363F		CN-10M
551	BrL	AVSS0.75sq	F-1		CN-10M
552	GB	AVSSX0.75fsq	CN-363F		CN-10M
553	BrB	AVSS0.75sq	CN-203F		CN-10M
560	V	AVSSX0.75fsq	CN-352M		CN-10M
651	WR	AVSSX0.75fsq	CN-363F		CN-10M
705	O	AVSS0.75sq	CN-100F		CN-10M
851	G	PEXBS 0.5fsq 4 CORES SHIELD		CN-352M	CN-10M
852	B			CN-352M	CN-10M
853	R			CN-352M	CN-10M
854	W			CN-352M	CN-10M
SH1	Gr			M-2	CN-10M
857	WG	AVSS0.75sq	CN-150F		CN-10M
900	RB	AVSS0.75sq	CN-205F		CN-10M
901	RL	AVSS0.75sq	CN-209F		CN-10M
902	W	AVSS0.75sq	CN-204F		CN-10M
903	OB	AVSS0.75sq	CN-208F		CN-10M
904	OL	AVSS0.75sq	CN-211F		CN-10M
905	OW	AVSS0.75sq	CN-207F		CN-10M
907	YG	AVSS0.75sq	CN-206F		CN-10M
915	YL	AVSS0.75sq	CN-100F		CN-10M
931	RY	AVSS0.75sq	CN-101F		CN-10M
950	BrR	AVSS0.75sq	CN-205F		CN-10M

WIRE NO	WIRE COLOR	WIRE SIZE	FROM	CONNECTION	TO
951	BL	AVSS0.75sq	CN-209F		CN-10M
952	BR	AVSS0.75sq	CN-204F		CN-10M
953	BrW	AVSS0.75sq	CN-208F		CN-10M
954	BrY	AVSS0.75sq	CN-211F		CN-10M
955	Gr	AVSS0.75sq	CN-207F		CN-10M
957	Br	AVSS0.75sq	CN-206F		CN-10M
965	BrB	AVSS0.75sq	CN-100F		CN-10M
971	BY	AVSS0.75sq	CN-101F		CN-10M
E1	B	AVS5sq	P-2		CN-11F
E2	B	AVSS0.75sq	CN-150F		CN-158F
E3	B	AVSS1.25sq	CN-156F		CN-158F
E4	B	AVSS0.75sq	CN-155F		CN-158F
E5	B	AVSS0.75sq	CN-203F		CN-158F
E6	B	AVSS0.75sq	CN-159F		CN-158F
E7	B	AVSS0.75sq	M-1		CN-158F
E8	B	AVSS0.75sq	CN-171F		CN-158F
E9	B	AVSS0.75sq	CN-231F		CN-158F
E10	B	AVSS0.75sq	CN-166F		CN-158F
E11	B	AVX0.85sq	CN-352M	DOUBLE SPLICE	P-4
E12	B	AVSS0.75sq	CN-10M		P-4
E13	B	AVSS0.75sq	CN-230F		CN-158F
E14	B	AVSS1.25sq	M-4	DOUBLE SPLICE	CN-158F
E16	B	AVSS0.75sq	M-4		CN-100F

CONNECTORS SELECTION TABLE

CONNECTOR NAME (PIN NUM.)	MANUFUC	PART. NUMBER	
		HOUSING	TERMINAL
100MA-SAI	AMP YAZAKI	179220-6	917067-5 175273-1 7114-2871
3FA-D5	AMP	1-179958-3	179956-2
11FY-090 II	YAZAKI	7283-1110 7322-7616	7116-4021
2FA-JM II +	AMP	174352-2	171662-1
3FA-JM II +	AMP	174357-2	171662-1
6FA-JM II +	AMP	174262-2	171662-1
8FA-JM II +	AMP	174982-2	171662-1
2MA-JM II +	AMP	174354-2	
3MA-JM II +	AMP	174359-2	
6MA-JM II +	AMP	174264-2	
8MA-JM II +	AMP	174984-2	171661-1 171661-2 (040 GOLD PLATING)
2FS-090 DIRECT CONNECTOR	SUMITOMO	6189-0094	1500-0110
1FY-305	YAZAKI	7123-3010	7116-3060
2MY-58Y	YAZAKI	7222-4220-30	7114-3250
1FY-58Y	YAZAKI	7123-4210-40	7116-3250
2FA-CNA	AMP	172130-1	170032-2
1FA-CNA	AMP	1721287-1	170258-1
CA104	AMP	170002-5	170887-1
CB104	AMP	170003-5	170233-1
1FA-HSG	AMP	1-480816-0	170046-2
3FA-MQS	AMP	2-967642-1	965906-5

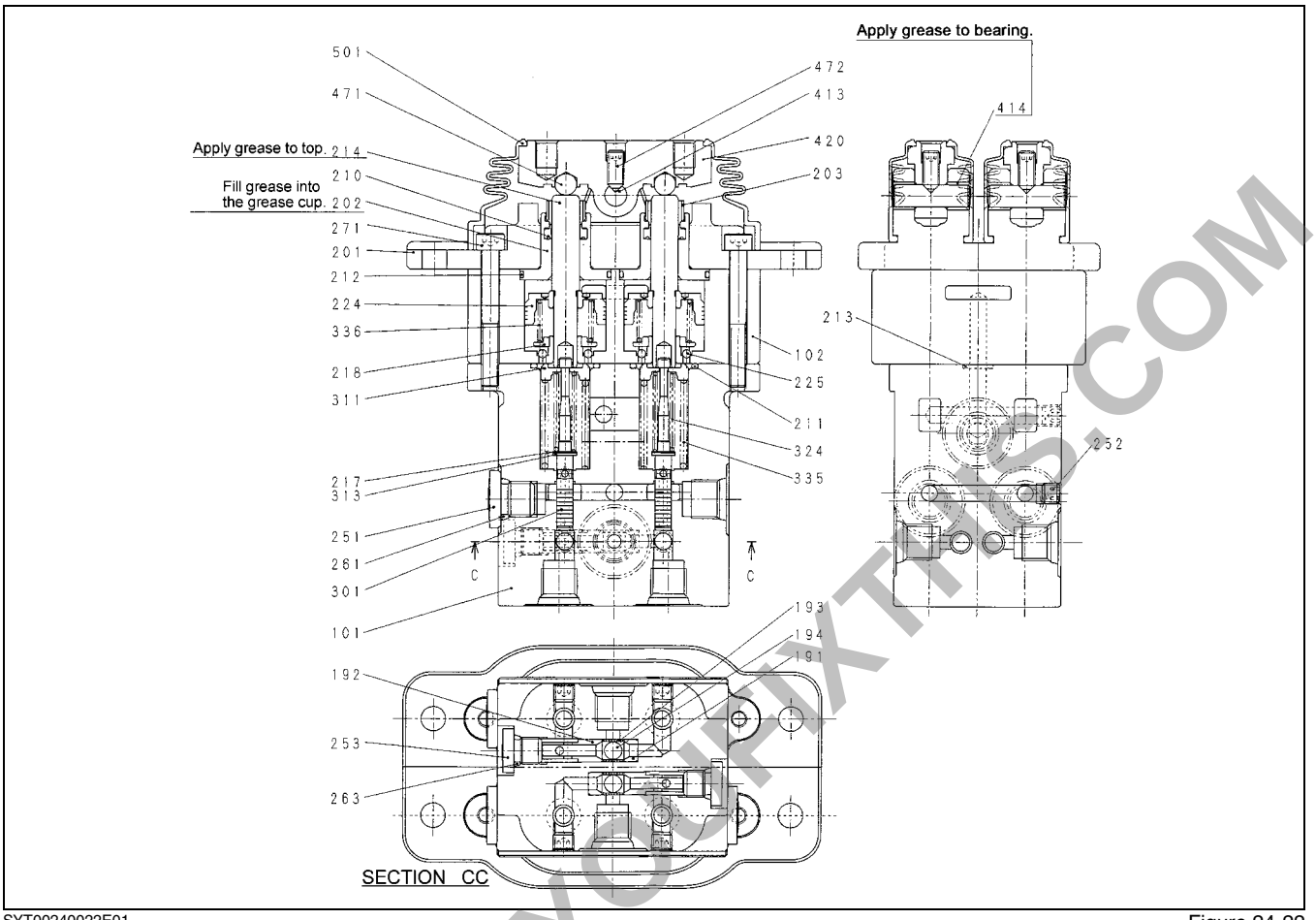
PREVIEW ONLY

S5YT2303E014001

Figure 23-35

Issued 01-2006 Bur 5-1930 NA

Download full manual at youfixthis.com



SYT00240022E01

Figure 24-22

ASSEMBLY VIEW OF PILOT VALVE (TRAVEL)

Tightening torque Nm (lb ft)	No.	Parts	Q'ty
	101	CASING	1
	102	CASING (Damper)	1
	191	SEAT 1	2
	192	SEAT 2	2
	193	BUSHING 2	2
	194	BALL	2
	201	COVER	2
	202	PLUG	4
	203	GREASE CUP	4
	210	SEAL	4
	211	O-RING	4
	212	O-RING	4
	213	O-RING	2
	214	PUSH ROD	4
	217	SHIM	4
	218	SPRING SEAT	4
	224	PISTON	4
	225	BALL	12
29.4 (21.7)	251	RO PLUG	3

Tightening torque Nm (lb ft)	No.	Parts	Q'ty
6.9 (5.1)	252	PLUG	6
11.8 (8.7)	253	RO PLUG	2
	261	O-RING	3
	263	O-RING	2
8.8 (6.5)	271	CAPSCREW	4
	301	SPOOL	4
	311	SPRING SEAT	4
	313	WASHER	4
	324	SPRING	4
	335	SPRING	4
	336	SPRING	4
	413	CAM SHAFT	2
	414	BUSHING	4
	420	CAM	2
	471	BALL	4
6.9 (5.1)	472	LOCK NUT	2
	501	BOOTS	2

PREVIEW - YOUFIXTHIS.COM

3. Relief valve

A. Starting

With operation of the lever, the oil fed to port A at first escapes and is discharged to port B without obtaining regular revolution because the force of inertia of the upper structure is larger. The hydraulic oil from port A to passage (i) of relief valve, opens poppet (83), and is discharged to port B.

B. Braking (Cushion)

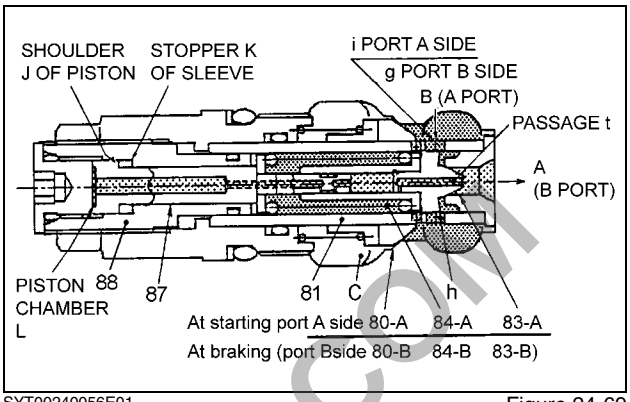
By returning the lever to neutral position, the return circuit of motor discharge oil close, and immediately after this operation, the motor is rotated by the force of inertia resulting in pumping function, and the oil is sucked from port A and discharged to port B side. Then, since the return circuit of the control valve is closed, the pressure of port B is raised.

The raised pressure of port B opposes the spring (84-B) force and opens poppet (83-B), and check valve (80-B) through passage (g) (h), and flows into passage (c). The movement stops while absorbing the force of inertia in this process.

In the above-mentioned process of pressure increase, the oil at port B enters the piston (L) chamber past the small orifice of poppet (83-A), and causes the piston (87) to move till it hits the cap (90). In this period, the poppet (83-A) is already open, so that the cushion relief action operates first at a little lower pressure.

C. 2-step relief at braking
(shockless relief action)

The increased pressure at port B enters the piston chamber (L) past the path (t) of the poppet (83-B). The poppet begins to move to the right slowly by the throttling effect of the inlet path and stops when it hits the shoulder J of piston (87) and the stopper K of sleeve (88). It pushes the spring (84-B), acting as 2-step relief that rises to a specified pressure. This absorbs impacts at starts and stops.



SYT00240056E01 Figure 24-69

DETAIL OF RELIEF VALVE (70)

4. Make-up valve

A. Operation in half lever position
(When cushion relief valve does not function.)

After accelerating slewing of the upper structure, when the speed is being reduced by half-lever with the function of control valve, the supply flow rate from pump to port A is lowered. But if the upper structure is slewed at a comparatively high speed, the pressure in the (C) section is lowered to negative pressure making lubrication necessary. However, when the pressure of port B is equal to or lower than the working pressure of cushion relief valve the all oil of (C) section led through port B is discharged to the control valve.

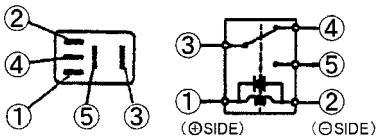
As a result, the flow rate from the control valve (Since the valve is in the half-lever position, the flow rate from pump is limited.) does not satisfy the specified oil quantity. To prevent this, the make-up check valve is installed to supply necessary oil into the (C) section.

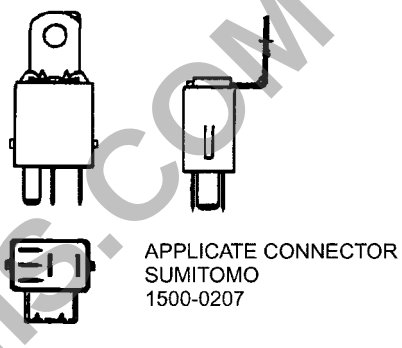
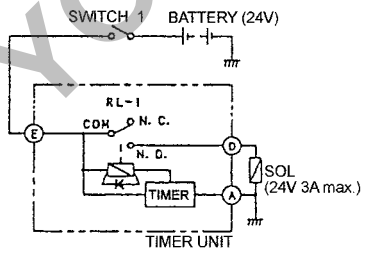
B. Braking
(When cushion relief valve is functioned)

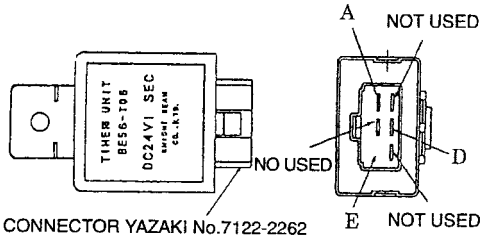
When the lever is moved to neutral position rapidly as described in item A, the pump does not supply oil to port A, but the upper structure is slewed by the force of inertia. In this case, the cushion relief valve on port B side functions, and the oil from relief valve goes through the passage (g) (h) and opens make-up check (80) valve on the port A side to flow into passage (b) (c). But the oil quantity is insufficient due to the leakage.

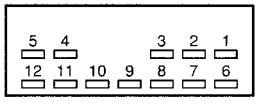
Therefore oil opens make-up check valve (80) through the make-up port, and flows into passage (b) (c) to prevent cavitation.

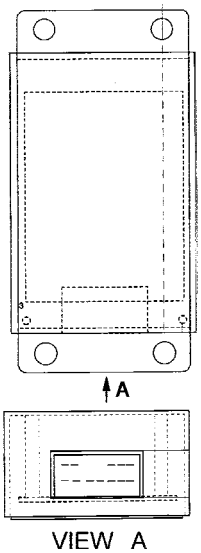
PREVIEW - YOUFIXTHIS.COM

<table>
<tr><th>Code No.
Parts Name
Parts No.
Use
Applicable Machine</th><th>Specifications</th><th>Description</th></tr>
<tr><td>R-5, 6, 7, 8, 10, 11, 13
21, 22, 23, 24, 25, 28, 31
Relay
EN24S00008P1
Wiper motor, Washer motor, Horn relay, Work light relay, Cab work light relay (OPT), Travel arm relay (OPT) Breaker relay (OPT) Hand control rotating relay (OPT) Crusher open / close relay (OPT)
YT02-04001~
YT03-05432~
YT04-07001~</td><td>
<table>
<tr><td>Rated voltage</td><td>DC 24 V</td></tr>
<tr><td>Coil resistance</td><td>360Ω ± 10%</td></tr>
<tr><td>Insulation resistance</td><td>1 MΩ (500 V megger)</td></tr>
</table>


CONNECTION DIAGRAM
</td><td>

APPLICATE CONNECTOR
SUMITOMO
1500-0207
</td></tr>
<tr><td>R-20 KCME
Relay
YN25S00001P1
Timer
LQ08-04501~,
LL08-03001~
LC06-05501~,
YC06-02501~
YT02-04001~
YT03-05432~
YT04-07001~</td><td>
<table>
<tr><td>Rated voltage</td><td>DC 24 V</td></tr>
<tr><td>Consumption current</td><td>0.1 A max.</td></tr>
</table>


CIRCUIT DIAGRAM
</td><td>


CONNECTOR YAZAKI No.7122-2262
EQUIVALENT
</td></tr>
<tr><td>R-30 KCME, ASIA
Timer unit
YT25S00001P1
Auto idle stop
YT03-05432~
YT04-07001~</td><td>
<table>
<tr><td>Source voltage</td><td>DC 24 V</td></tr>
<tr><td>Power regulation range</td><td>18 ~ 32 V</td></tr>
<tr><td>Timer time</td><td>Out put 1.25 ± 2 sec
Out put 2.5 ± 1 sec</td></tr>
</table>
CONNECTOR PIN ARRANGMENT (FACE SIDE) AND INPUT OUTPUT


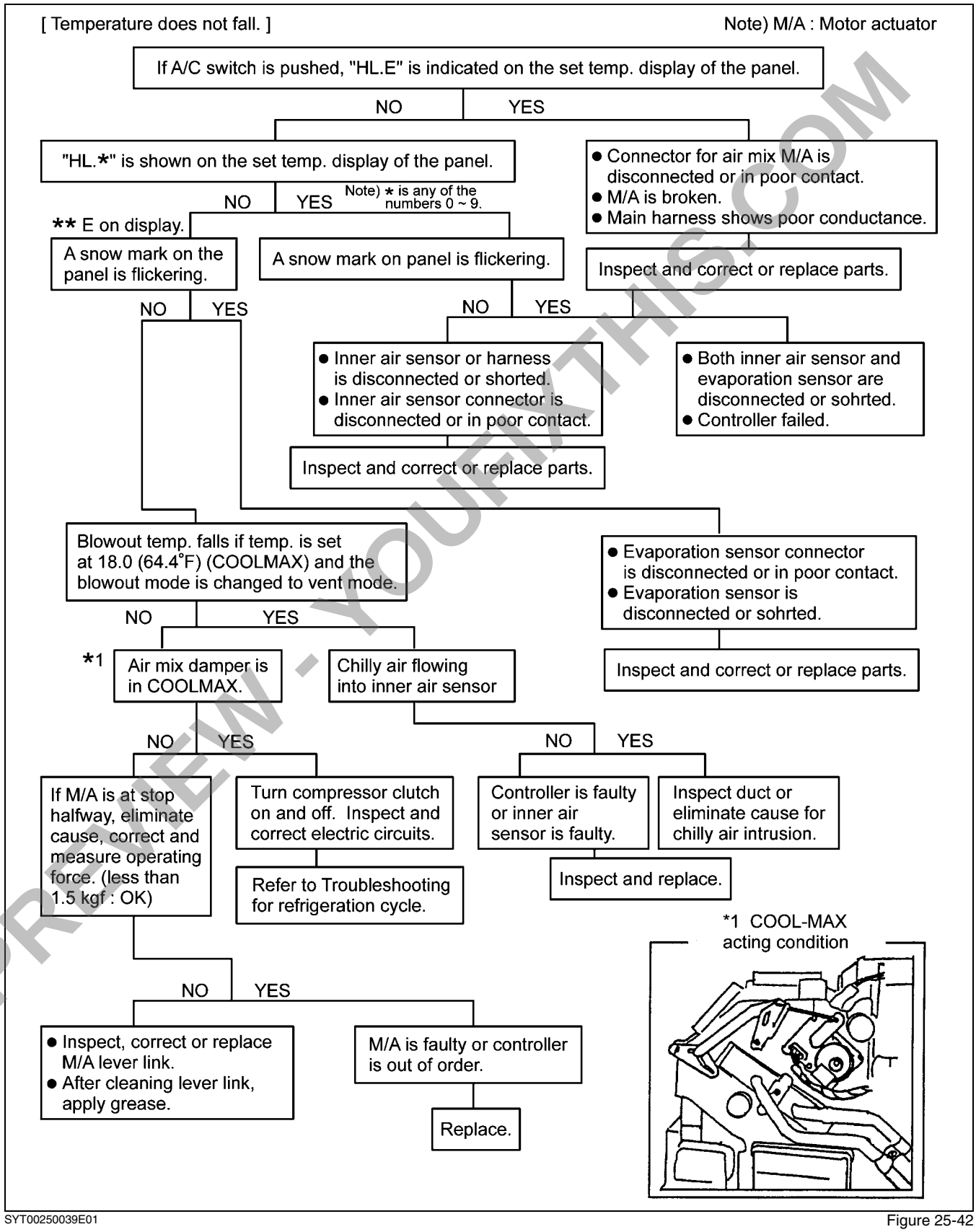
1 INPUT A (SOURCE VOLTAGE/OPEN)
2 INPUT B (SOURCE VOLTAGE/OPEN)
3 CONTACT OUTPUT 2 (2)
4 BLANK
5 SOURCE VOLTAGE (24Vor12V)
6 INPUT C (OPEN/EARTH)
7 INPUT D (SOURCE VOLTAGE/OPEN/mV)
8 CONTACT OUTPUT 2 (3)
9 CONTACT OUTPUT 2 (1)
10 OPTPUT 1
11 BLANK
12 EARTH
</td><td>


VIEW A
</td></tr>
</table>

PREVIEW - YOUFIXTHIS.COM

25.7 TROUBLESHOOTING

25.7.1 TROUBLESHOOTING CHART



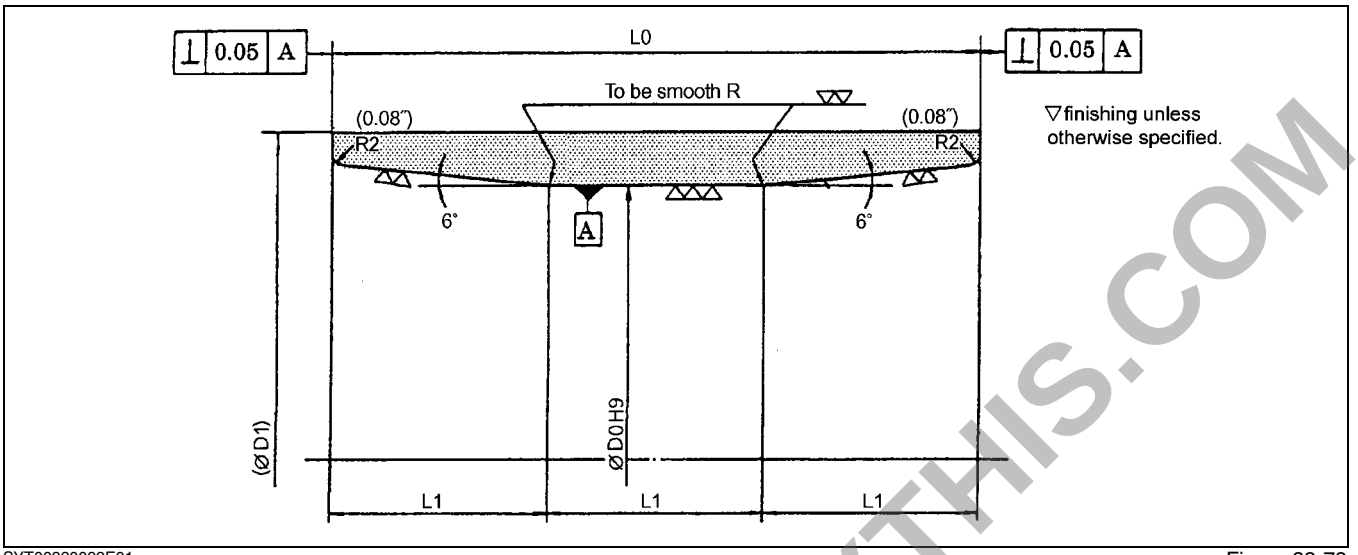
SYT00250039E01

Figure 25-42

PREVIEW - YOUFIXTHIS.COM

5. Seal ring straightening jig

Material: Mild steel



SYT00320092E01

Figure 32-78

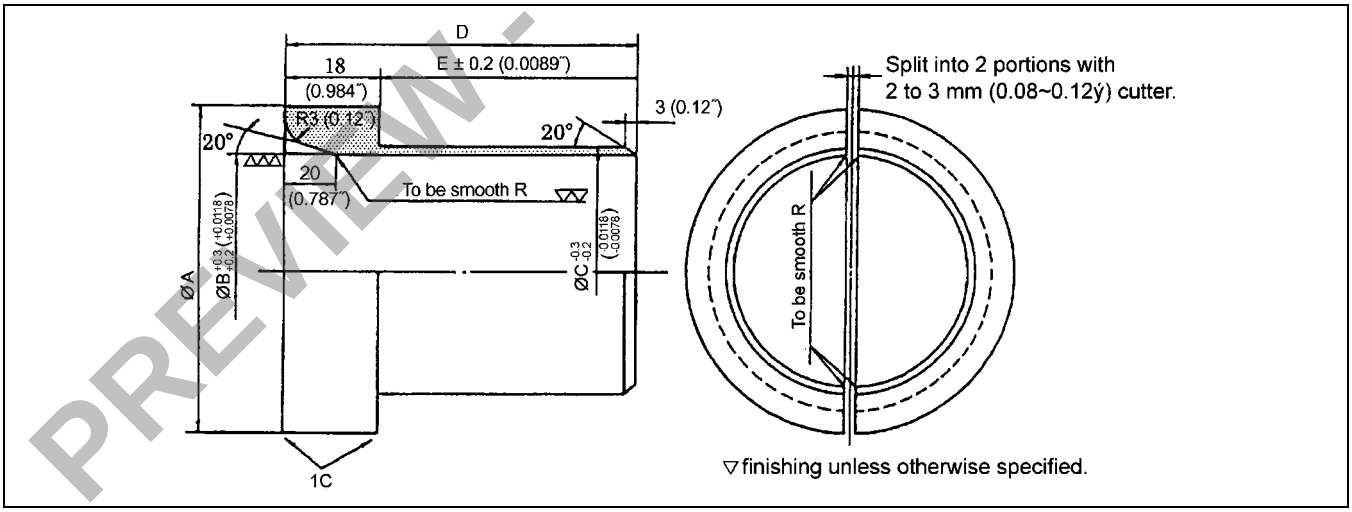
Unit: mm (in)

Applicable cylinder	D0	(D1)	L0	(L1)
Boom	110 (4.3307)	130 (5.12)	120 (4.72)	40 (1.57)
Arm	95 (3.7401)	115 (4.53)	120 (4.72)	40 (1.57)
Bucket	80 (3.1496)	100 (3.94)	120 (4.72)	40 (1.57)
Dozer	120 (4.72)	140 (5.51)	120 (4.72)	40 (1.57)

TABLE 32-9

6. Piston insert jig

Material: Mild steel



SYT00320093E01

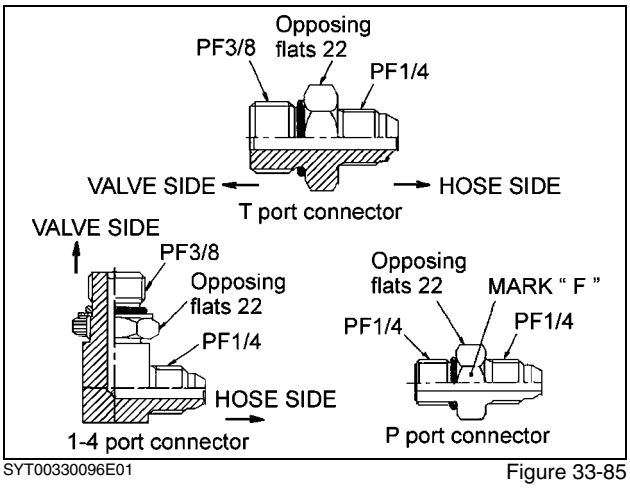
Figure 32-79

Unit: mm (in)

Applicable cylinder	ØA	ØB	ØC	D	E
Boom	122 (4.80)	110 (4.3307)	113 (4.4488)	67 (2.64)	42 (1.65)
Arm	107 (4.21)	95 (3.7401)	98 (3.8583)	67 (2.64)	42 (1.65)
Bucket	92 (3.62)	80 (3.1496)	83 (3.2677)	62 (2.44)	37 (1.46)
Dozer	132 (5.20)	120 (4.7244)	123 (4.8425)	62 (2.44)	37 (1.46)

TABLE 32-10

PREVIEW - YOUFIXTHIS.COM



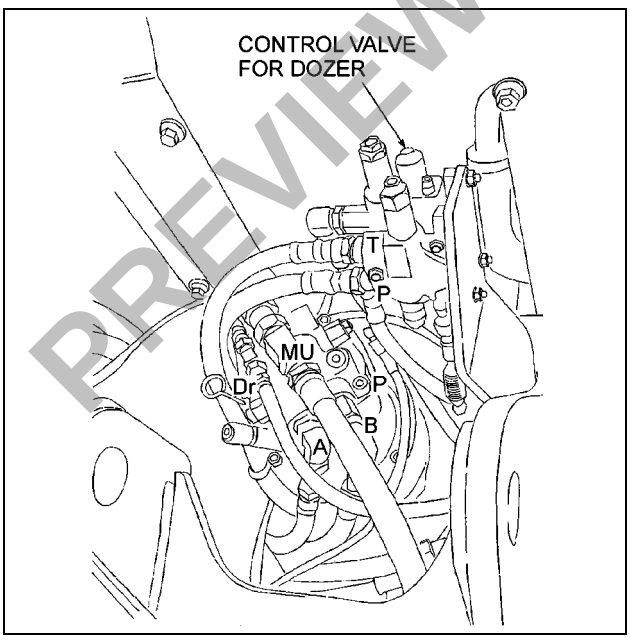
SYT00330096E01 Figure 33-85

INSTALLING AND REMOVING PILOT V

33.2.19 SWING UNIT

33.2.19.1 PREPARATION FOR REMOVING

1. Park machine on flat and solid ground and put attachment and dozer on ground.
2. Stop engine and release pressure in circuit operating dozer lever.
3. Release internal pressure through bleeder of hydraulic oil tank.
4. Remove boom as necessary to make work easier. (Refer to chapter of Attachment.)
5. Remove cab if necessary to make work easier. (Refer to Chapter of Upper structure.)
6. Remove cover under engine.
7. Attach tag to hose.



SYT00330099E01 Figure 33-86

SWING UNIT PIPING

33.2.19.2 REMOVAL

1. Remove hose.
   A. Two hoses from connectors of T, P ports on control valve for dozer

      27 mm

      Tightening torque: 78 Nm (58 lb ft)

   B. One hose from tee of MU port.

      36 mm

      Tightening torque: 118 Nm (87 lb ft)

   C. One hose from tee of Dr port.

      22 mm

      Tightening torque: 49 Nm (36 lb ft)

   D. One hose from elbow of P port (for swing parking brake).

      19 mm

      Tightening torque: 29 Nm (22 lb ft)

   E. One hose from tee of A, B ports.

      32 mm

      (* Special service tool No. 6-3)

      Tightening torque: 147 Nm (110 lb ft)

   F. Install PF1/2 plug

      Plug No.4-2-1

2. Loosen one nut (B9) M10 from under side of upper frame and remove drain hose clip for reduction unit.

   17 mm T= 71 Nm (52 lb ft)

3. Remove eight the swing unit mounting socket bolt (B1) M16

   Allen key socket wrench: 14 mm

   Tightening torque: 279 Nm (210 lb ft)

   Loctite #262 (Three Bond #1350)

4. Remove Tee of swing motor MU port and plug up holes with plug used as eye bolt.

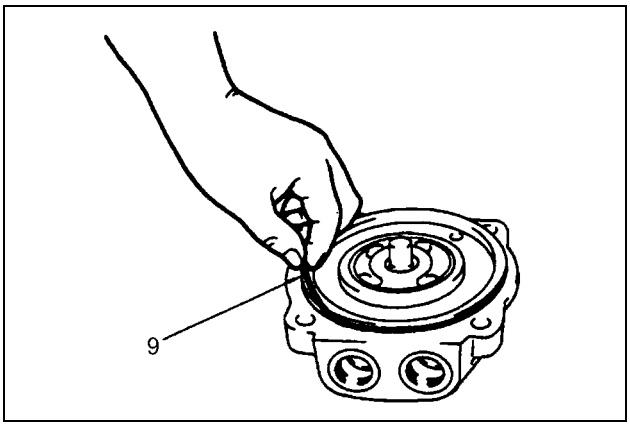
   36 mm

   Tightening torque: 162 Nm (120 lb ft)

   Plug No. 6-4, Eye bolt No. 6-5

5. Hook sling to eye bolts attached on MU port. Weight of swing unit: Approx. 70 kg (150 lbs)

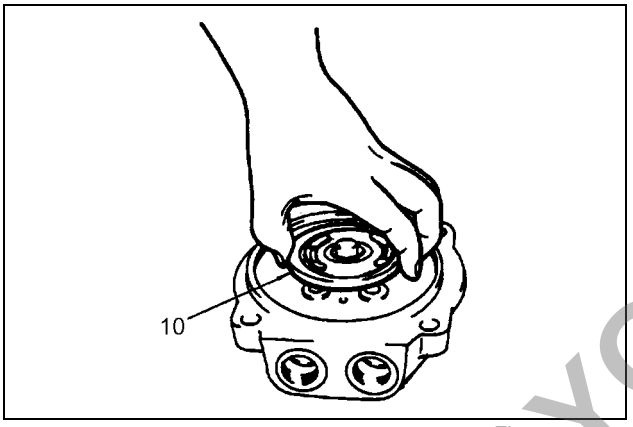
PREVIEW - YOUFIXTHIS.COM



SYT00330178E01 Figure 33-184

REMOVING O-RING (9)

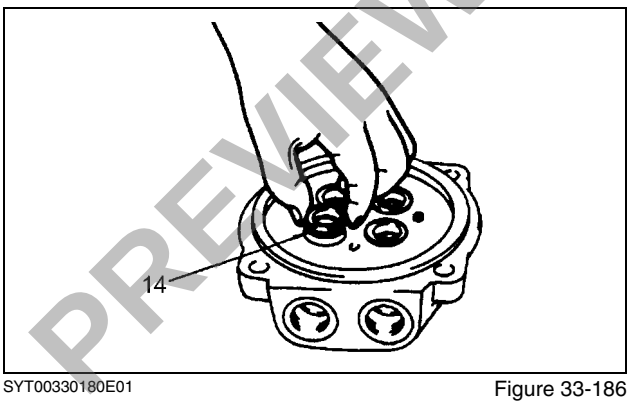
I. Remove the balance plate (10).



SYT00330179E01 Figure 33-185

REMOVING BALANCE PLATE

J. Remove the bushing (14) with a teflon ring (16) on it, and the scroll wave (15).

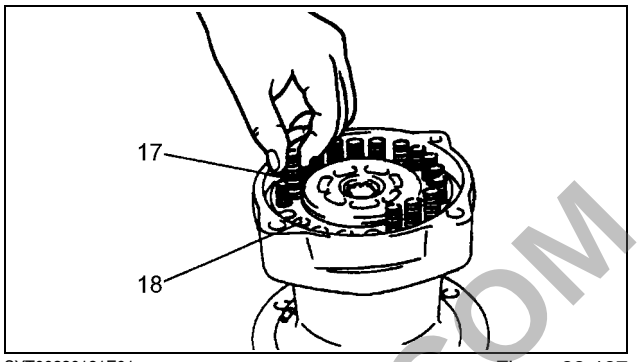


SYT00330180E01 Figure 33-186

REMOVING BUSHING (14) AND SCROLLWAVE (15)

K. Remove spring (17) from brake piston (18).

NOTE: *Fit spring in the original position.*

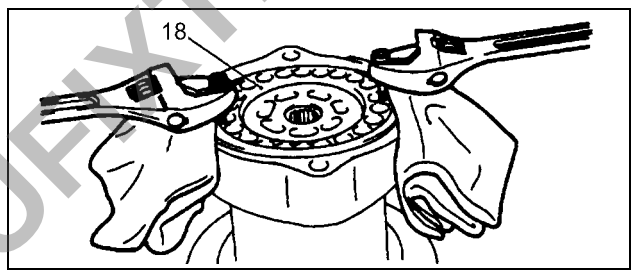


SYT00330181E01 Figure 33-187

REMOVING SPRING (17)

L. Remove brake piston (18).

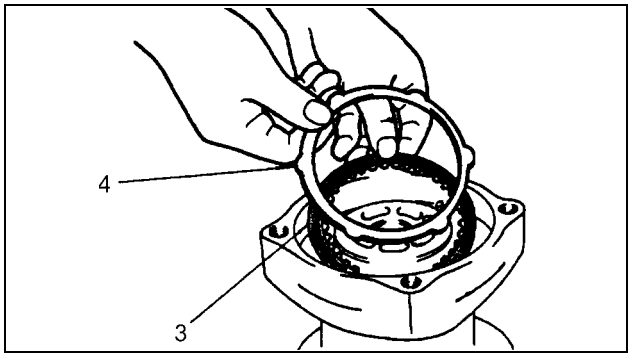
NOTE: *The O-ring (7) (8) make it difficult to slide the piston (18) easily from the housing (26). For this reason, use tapped hole (M6) provided in the piston (18) to remove it, as shown in the Fig. 33-172.*



SYT00330182E01 Figure 33-188

REMOVING BRAKE PISTON (18)

M. Remove the separator plate (4) and friction plate (3).



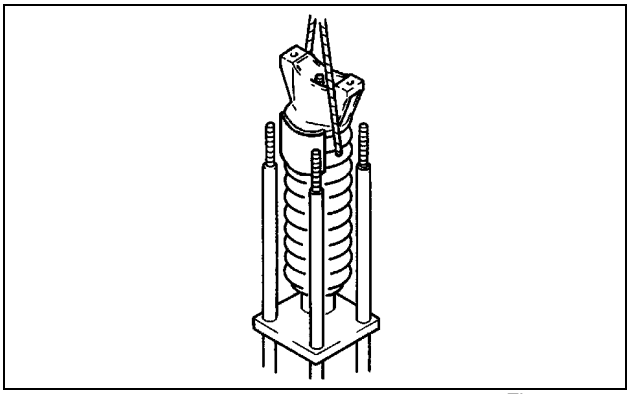
SYT00330183E01 Figure 33-189

REMOVING SEPARATOR PLATE (4) AND FRICTION PLATE (3)

PREVIEW - YOUFIXTHIS.COM

E. Removing idler adjuster assy

Remove idler adjuster assembly from jig.



SYT00340082E01 Figure 34-67

REMOVING IDLER ADJUSTER ASSY

F. Installing oil seal (8), O-ring (7)

Fit oil seal (8) and O-ring (7) to grease cylinder (1).

- Apply grease to oil seal (8) and O-ring (7).

G. Filling grease cylinder (1) with grease.

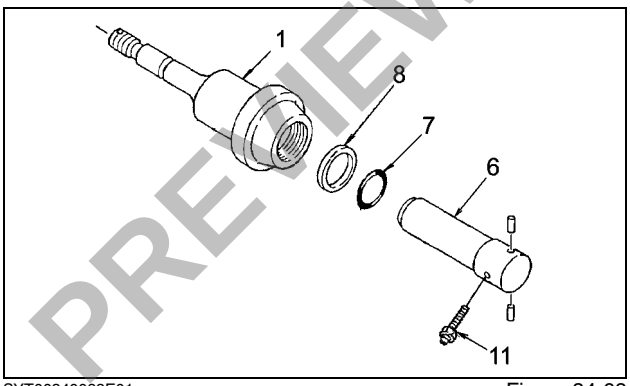
Fill grease cylinder (1) with grease, remove grease nipple from piston (6), and press piston by hand to discharge air through grease nipple hole.

- Direct grease nipple hole downward to make air discharge easier.

H. Installing grease nipple (11)

Tighten grease nipple (11) to piston (6).

19 mm Tightening torque: 58.8 Nm (43 lb ft)

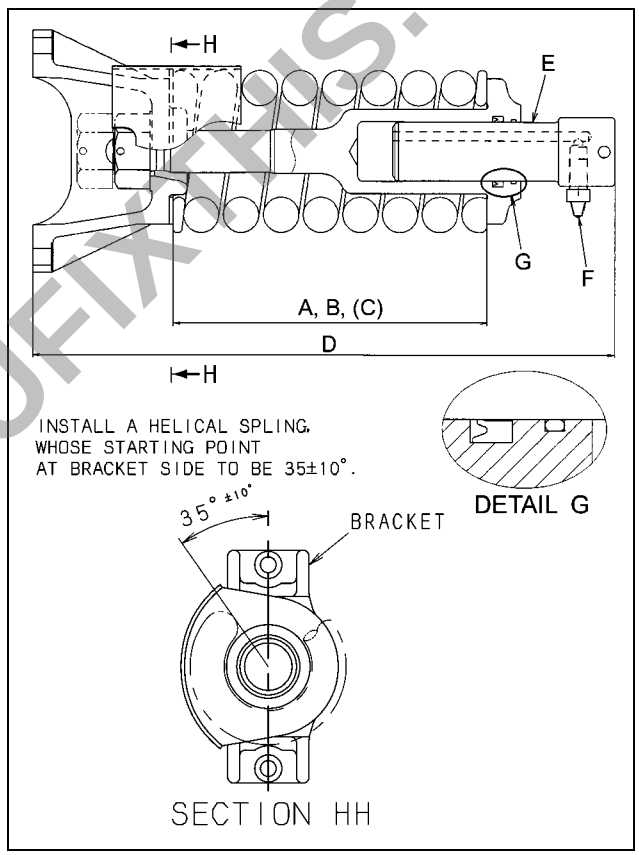


SYT00340083E01 Figure 34-68

GREASE CYLINDER (1)

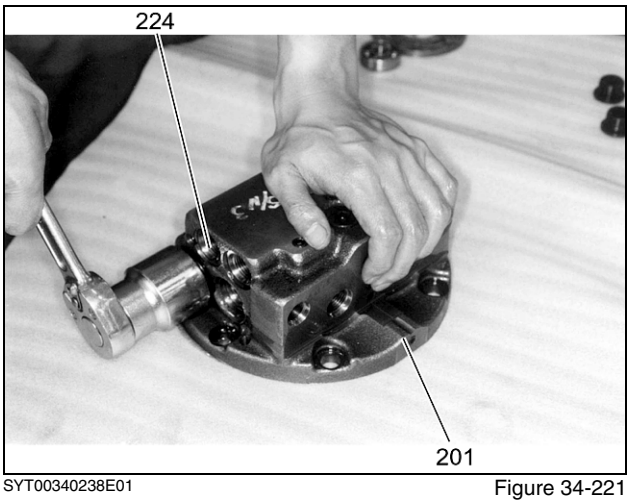
34.2.5.4.3 MAINTENANCE STANDARD

No	ITEM		STANDARD VALUE
A	Installed length of spring	mm	270 (10.63 in)
B	Free length of spring	mm	About 320 (12.6 in)
C	Stroke	mm	31.8 (1.25 in)
D	Set length	mm	495 (19.49 in)
E	Outer circumference of piston		No scoring and rusting
F	Tightening torque of grease nipple		58.8 Nm (43lbt ft)
Close contact length of spring			235 (9.25 in)



SYT34000002E01 Figure 34-69

PREVIEW - YOUFIXTHIS.COM

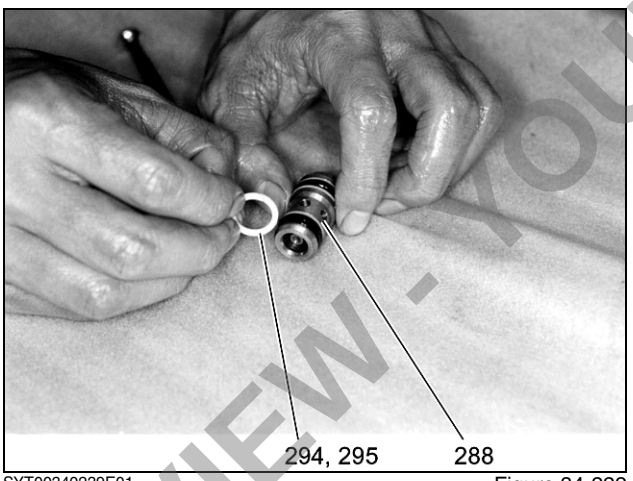


SYT00340238E01 Figure 34-221

N. Into rear flange assembling shockless relief valve (SRV).

1. Fit O-ring (291), O-ring (292) and backup ring (294),(295) to sleeve (288).
2. Fit O-rings (238) to plug (289).

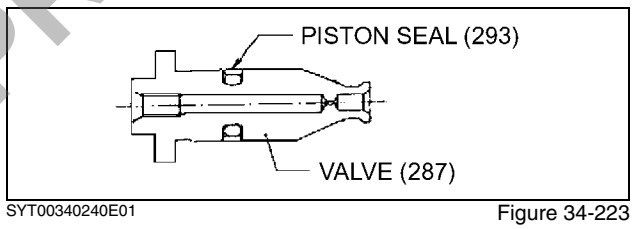
NOTE: *Coat O-ring (291),(292),(238) with grease.*



SYT00340239E01 Figure 34-222

3. Install piston seal (293) to valve (287).

NOTE: *Piston seal (293) is made up of O-ring and teflon ring, and apply grease on both rings and fit O-ring first, then teflon ring.*

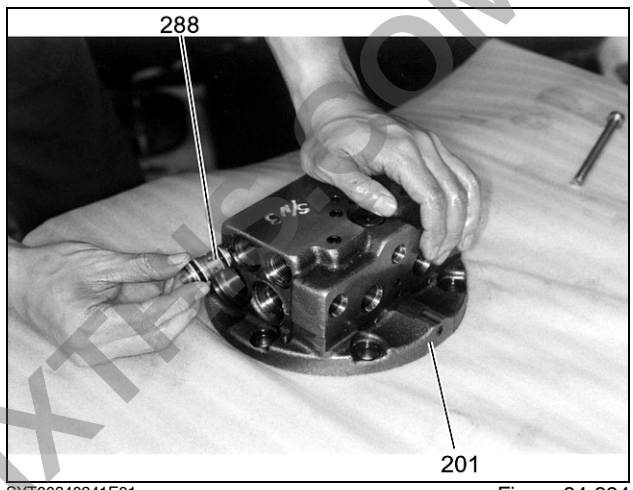


SYT00340240E01 Figure 34-223

4. Insert sleeve (288), valve (287) and spring (290) to rear flange (201).

NOTE: *Apply hydraulic oil on valve (287) and insert it in sleeve (288).*

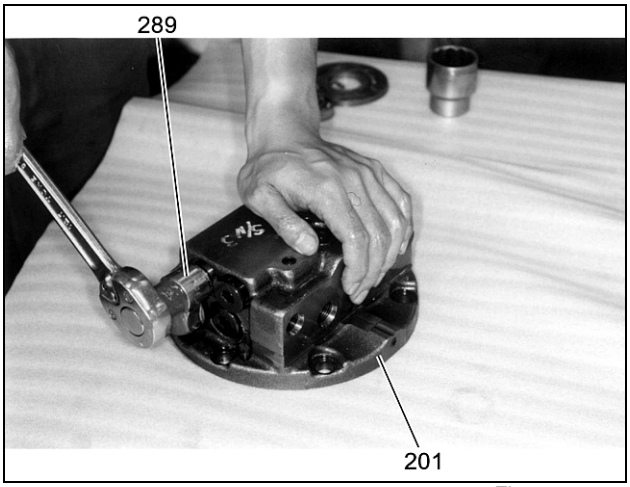
NOTE: *Parts inside of sleeve are fitted in the factory as a sleeve kit, so take care not to make a wrong combination.*



SYT00340241E01 Figure 34-224

5. Temporarily tighten two plugs (289) to rear flange (201) by means of a spanner.

NOTE: *When tighten the plugs into the rear flange, use care so as not to deform the spring.*



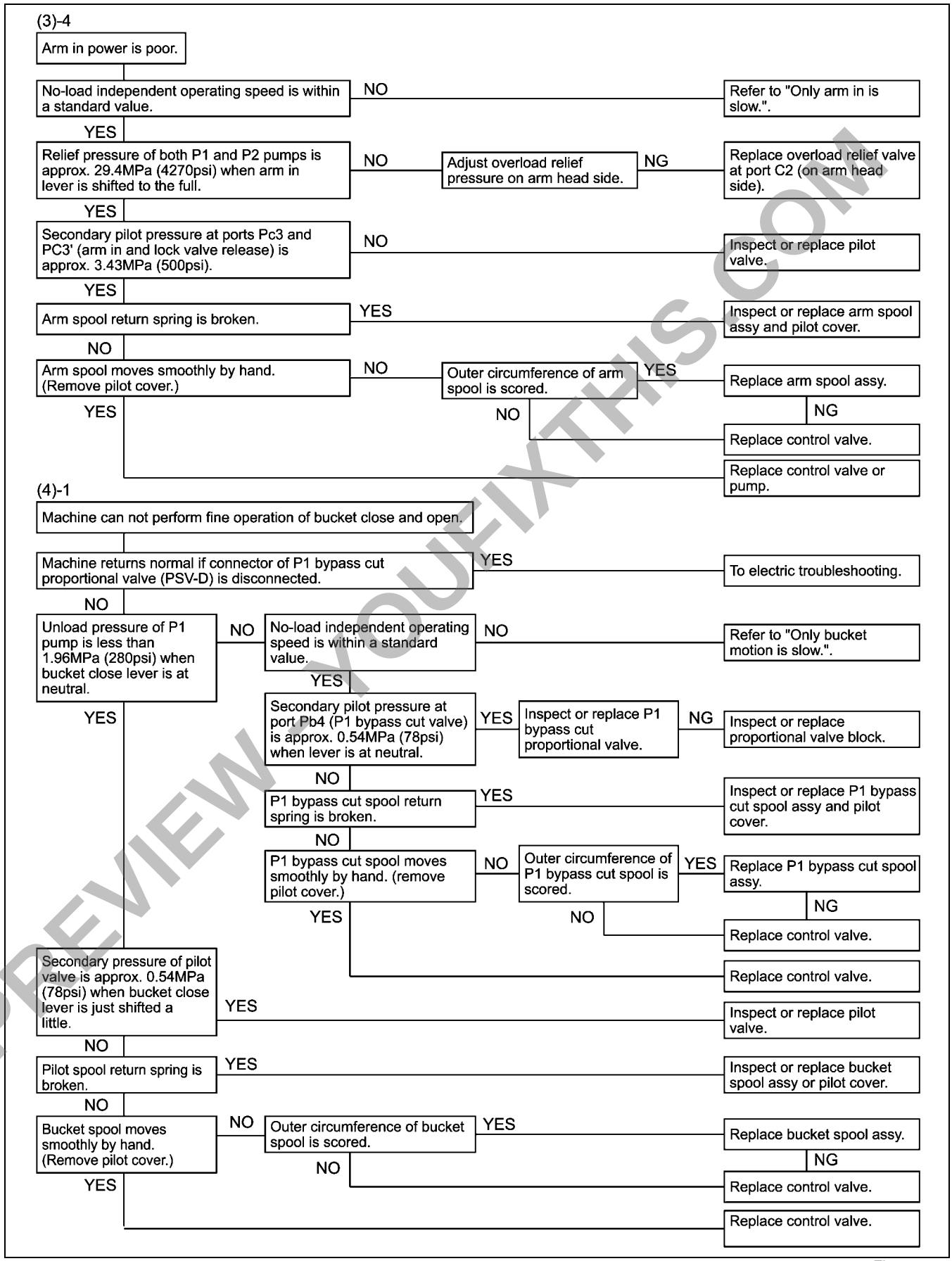
SYT00340242E01 Figure 34-225

6. Fit O-ring (238) to plug (282).

NOTE: *Coat O-ring (238) with grease.*

7. Insert piston (286) to rear flange (201).

PREVIEW - YOUFIXTHIS.COM



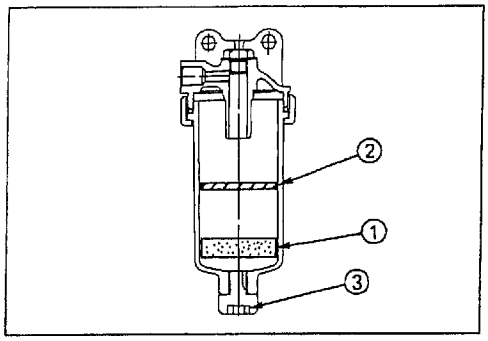
PREVIEW YOUFIXTHIS.COM

SYT42000007E01

Figure 42-7

System		Group No.	Trouble	Engine dealer components																			
				Suction/ exhaust system			Lubrication system				Cooing		Main structure										
				Valve clearance.	Valve spring is fatigued.	Air cleaner & muffler.	Check if engine oil goes into combustion chamber through piston or through valve guide.	Check relief valve.	Oil strainer clogged.	Fuel is mixed.	Check thermostat.	Oil cooler element damaged.	Compression pressure low.	Control rack movement unsmooth.	Governor spring fatigued.	Crank shaft oil seal no good.	Piston liner worn.	Piston ring worn.	Valve spring fatigued.	Internal parts stuck.	Check fuel feed.	Head gasket faulty.	Flywheel gear damaged.
Engine	Starting trouble	1	Starter does not run.																				
		2	Starter runs but does not start.	○	○						○		○				○	○	○		○	○	○
	Rotation trouble	3	Idling unsmooth.	○							○		○	○	○			○	○		○	○	
			Medium speed hunting.																				
			High speed unsmooth.											○	○								
			Does not reach max revolution.												○								
			Max. revolution too high.											○	○								
		4	Revolution does not change if work modes are changed.																				
		5	Accel potentiometer does not work properly.																				
	Drop in output	6	E/G deficiency in output.	○	○	○					○		○	○				○					
			Overheat.					○		○	○	○										○	
		7	Knocking occurs after warming-up E/G.				○						○										
	Other trouble	8	Exhaust gas is black.	○							○							○	○	○		○	
			Exhaust gas is white. (In cold state, white smoke does not disappear after idling.)				○						○										
		9	Excessive oil consumption.				○									○	○	○					
		10	Excessive fuel consumption.								○												
		11	Engine does not stop when key is turned off.																				
		12	Power is off the moment the key is turned off, but the engine does not stop.																				

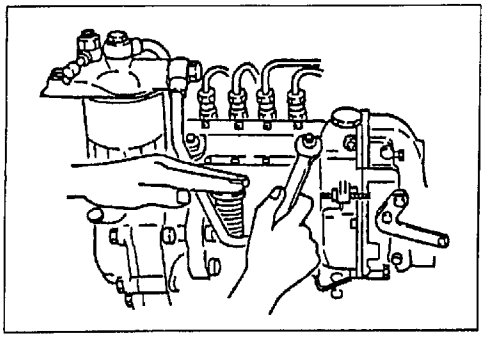
PREVIEW - YOUFIXTHIS.COM



Water Separator (Water Sedimentor) (Optional Equipment)

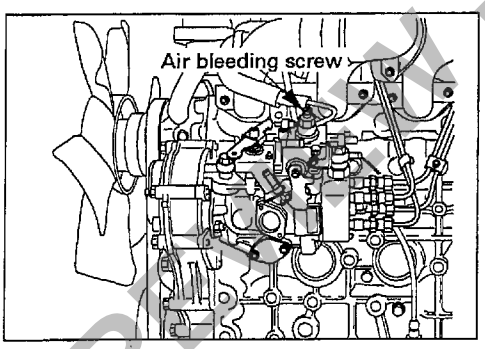
Check the water separator float ① level.
If the float ① has reached level ② , loosen the drain plug ③ (at the bottom side of the water separator) to drain the water.

Drain Plug Torque	N·m (kgf·m/lb.ft)
	9 – 15 (0.9 – 1.5/7 – 11)

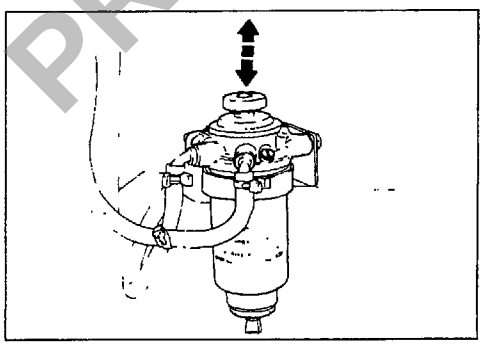


Air Bleeding

1. For the engine equipped with in-line type injection pump
   1) Loosen the priming pump cap ① on the injection pump.
   2) Loosen the fuel return eye bolt ② on the fuel filter.
   3) Operate the priming pump until there are no more bubbles visible in the fuel being discharged from the fuel return eye bolt on the fuel filter.
   4) Retighten the fuel return eye bolt on the fuel filter.
   5) Loosen the bleeder bolt ③ while operating the injection pump priming pump to check that the air has been bled completely.
   6) Operate the priming pump several times to check for fuel leakage around the injection pump and the fuel filter.

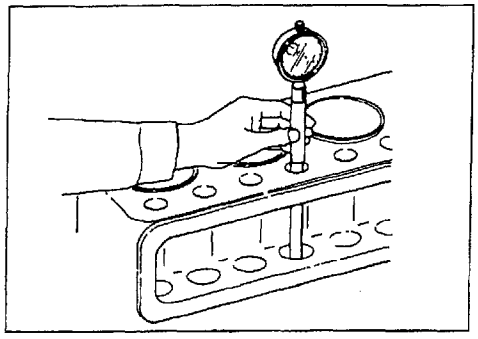


2. For the engine equipped with distributor type injection pump
   1) Loosen the bleeder screw on the injection pump overflow valve.
   2) Operate the priming pump until fuel mixed with foam flows from the bleeder screw.
   3) Tighten the bleeder screw.
   4) Operate the priming pump several times and check for fuel leakage.



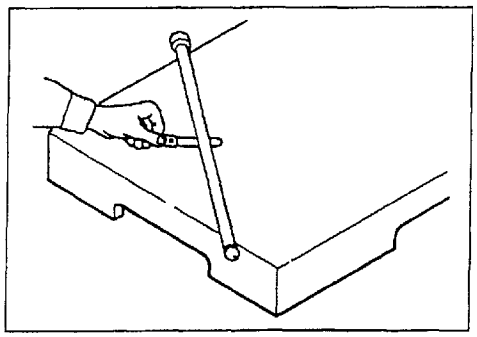
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



Tappet and Cylinder Body Clearance mm(in)

Standard	Limit
0.03 (0.0012)	0.1 (0.0039)



Push Rod Curvature

1. Lay the push rod on a surface plate.
2. Roll the push rod along the surface plate and measure the push rod curvature with a thickness gauge.

   If the measured value exceeds the specified limit, the push rod must be replaced.

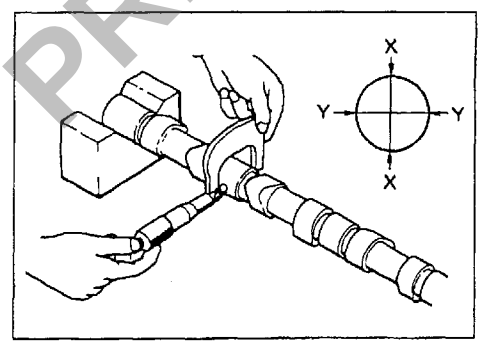
Push Rod Curvature mm(in)

Limit
0.3 (0.012)

3. Visually inspect both ends of the push rod for excessive wear and damage. The push rod must be replaced if these conditions are discovered during inspection.

CAMSHAFT

Visually inspect the journals, the cams, the oil pump drive gear, and the camshaft bearings for excessive wear and damage. The camshaft and the camshaft bearings must be replaced if these conditions are discovered during inspection.



Camshaft Journal Diameter

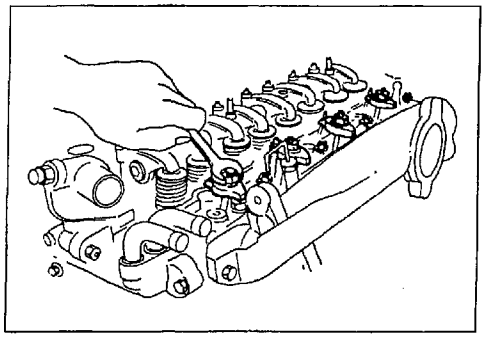
Use a micrometer to measure each camshaft journal diameter in two directions ((X – X) and (Y – Y)). If the measured value is less than the specified limit, the camshaft must be replaced.

Camshaft Journal Diameter mm(in)

Standard	Limit
49.945 – 49.975 (1.9663 – 1.9675)	49.60 (1.953)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

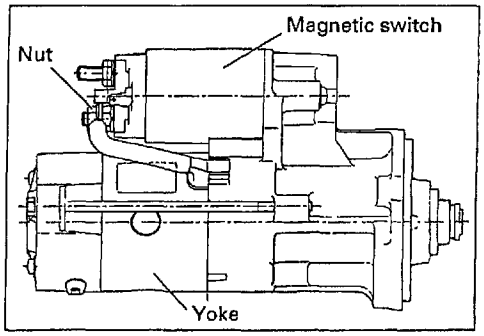


PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

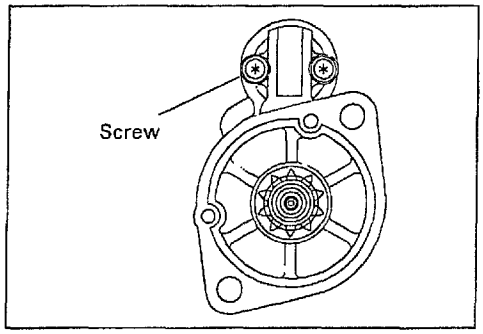
Disassembly

When disassembling the starter motor, to make reassembling easier, mark to match the magnet switch and the yoke.



1. **Nut (M terminal)**

   Remove the nut of the magnet switch "M" terminal and then the cable.



2. **Screw**

   Remove the screw.

3. **Magnet Switch**

   Remove the magnet switch and the plunger.

4. **Pinion**

   Removing the pinion requires simple tools. A set consists of 3 parts (1 bolt, 1 nut and 1 small tin plate).

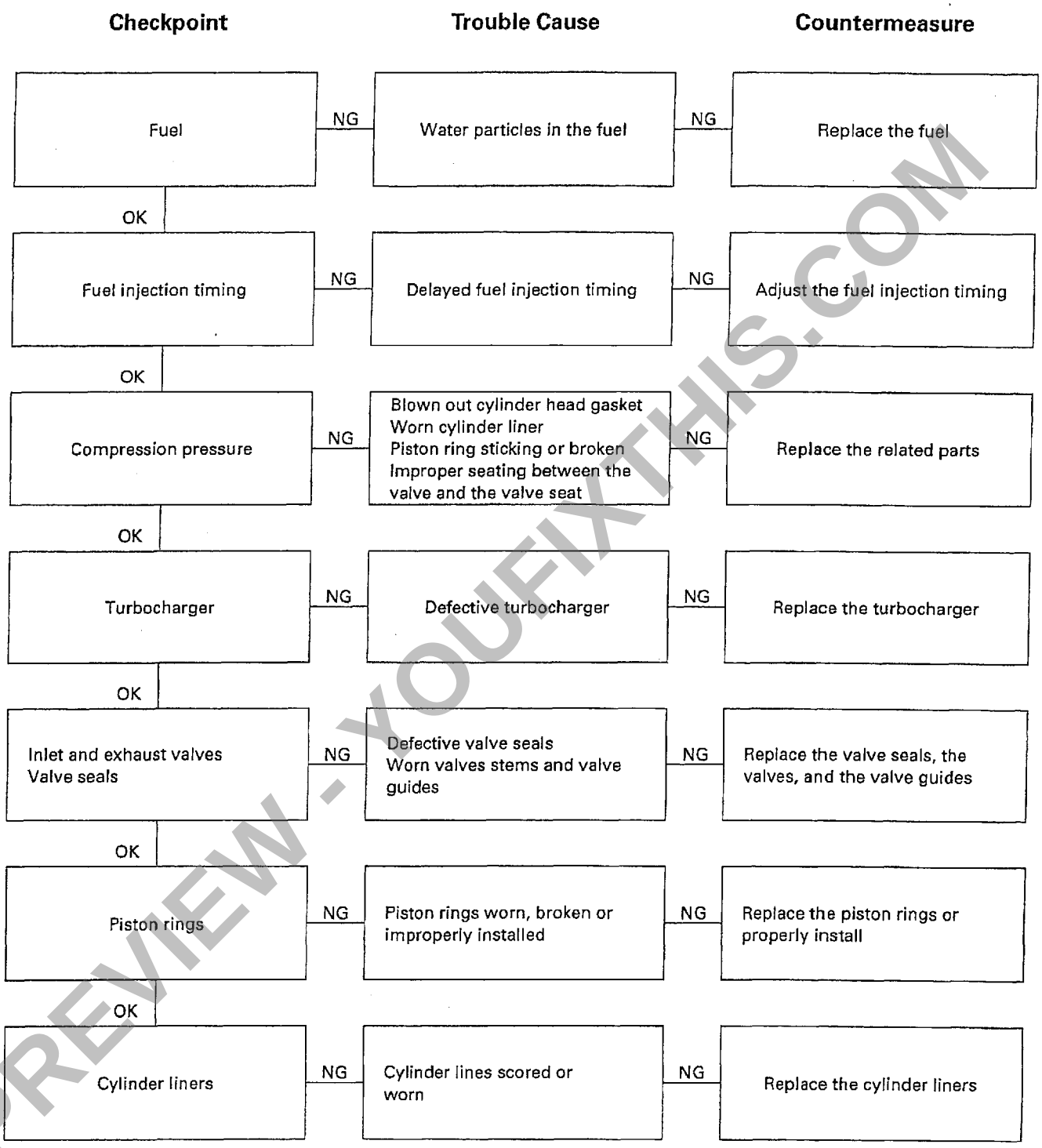
   These tools are not used during assembly. The pinion is assembled using the puller.

   - Pull the lever with the bolt instead of the plunger and push out to where the pinion can be moved forward. In order to fix the lever and the pinion, fix the bolt to the small plate.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

7. WHITE EXHAUST SMOKE



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

63.1 LIST OF ADDITIONAL PARTS

63.1.1 PREFACE

This manual deals with items necessary for changing standard specification machine to one with a breaker specification or a nibbler & breaker specification. Follow the procedure given here in when changing the machine specification in the field (service shop).

How to utilize the list of additional parts

This manual is compiled to change the standard machine to this specification on the basis of "Parts Manual" for the standard machine. This list consists of additional parts and disused parts.

The manual consists roughly of two sections: Breaker and Nibbler & Breaker. Each of the section is divided into four parts, 1. Upper structure, 2. Boom, 3. Standard arm, and 4. Long arm, each being assigned a kit number. The cab guard should be ordered optionally. In the case of the arm, select a connector suited for the attachment (Nibbler, Breaker) for ordering.

63.1.2 ADDITIONAL PARTS FOR THE MODIFICATION OF THE BREAKER

63.1.2.1 CAB GUARD [SAME AS BREAKER, NIBBLER & BREAKER]

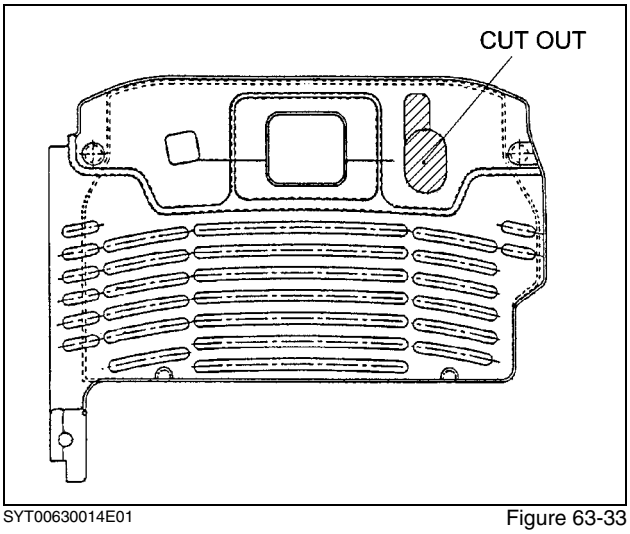
No.	Part No.	Parts name	Q'ty	Remarks	Applicable Machines
	—	Since the cab guard is an option, it is not assigned a kit number.			
	YT01C00004F1	1 GUARD ASSY		*1	
43	YT02C00023P1	● CAB ASSY	(1)	*1	
43-1	YT02C01175P1	•• PLATE ASSY	2	*1	
43-2	YT02C01375P1	•• PLATE ASSY	1	*1	
43-3	YT02C01452P1	•• PLATE ASSY	1	*1	
1	YT02C01372P1	• GUARD	1	*1	
39	ZM32C12025	• SEMS BOLT	4	*1	
	YT01C00004F2	2 GUARD ASSY		*1	
44	YT02C00024P1	● CAB ASSY	(1)	*1	
44-1	YT02C01175P1	•• PLATE ASSY	3	*1	
44-2	YT02C01375P1	•• PLATE ASSY	1	*1	
44-3	YT02C01452P1	•• PLATE ASSY	2	*1	
1	YT02C01372P1	• GUARD	1	*1	
2	YT02C01371P1	• GUARD	1	*1	
6	YT02C01457P3	•• PLATE ASSY	1	*1	
7	YT02C01456P2	•• PLATE ASSY	1	*1	
36	ZS18C10030	•• CAPSCREW	4	*1	
37	ZW26X10000	•• LOCK WASHER	4	*1	
38	ZW16H10000	•• WASHER	4	*1	
39	ZM32C12025	•• SEMS BOLT	8	*1	

NOTE: *At your site select the parts, which were marked *1. And order those parts depending on your needs.*

PREVIEW - YOUFIXTHIS.COM

63.10.2 FLOOR MAT

Make slits (notch) to face the standard floor mat according to Figure 63-33 and cut out the hatching.
Floor mat for Nibbler & breaker: YT26M00023P1



SYT00630014E01 Figure 63-33

MODIFICATION OF FLOOR MAT

63.10.3 CONTROL PIPING [NIBBLER & BREAKER]

63.10.3.1 MAIN CONTROL PIPING

1. Modification procedure

   Install the additional parts listed in Table 63-18 to the main control piping of the standard machine, as shown in Figure 63-34, Figure 63-35.

NOTE:

- *Before starting the modification work, check parts according to the Additional Parts List.*
- *When disconnecting and reconnecting pipes, take care, so as not to allow dirt and foreign matter to enter.*

MAIN CONTROL PIPING		YT06H00016F7		
No.	**Part No.**	**Name**	**Q'ty**	**Remarks**
1	ZH32X04000	ELBOW	2	PF1/4
3	ZH22X04000	CONNECTOR	2	PF1/4
22	2444R1120D045	HOSE	1	PF1/4, L=450
38	2444Z2461	TEE	1	PF1/4

TABLE 63-16

Tightening torque for installing parts on the control valve side

—		O-ring type coupling	Hydraulic hose
Thread size (PF)	**Spanner (mm)**	**Tightening torque Nm (lb ft)**	**Tightening torque Nm (lb ft)**
1 / 4	19	29.4 (22)	29.4 (22)
3 / 8	22	49.0 (36)	—

PREVIEW - YOUFIXTHIS.COM

PREVIEW ONLY

You're viewing 25 of 1050 pages

The full manual includes:

- All 1050 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

New Holland E70 Repair Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual