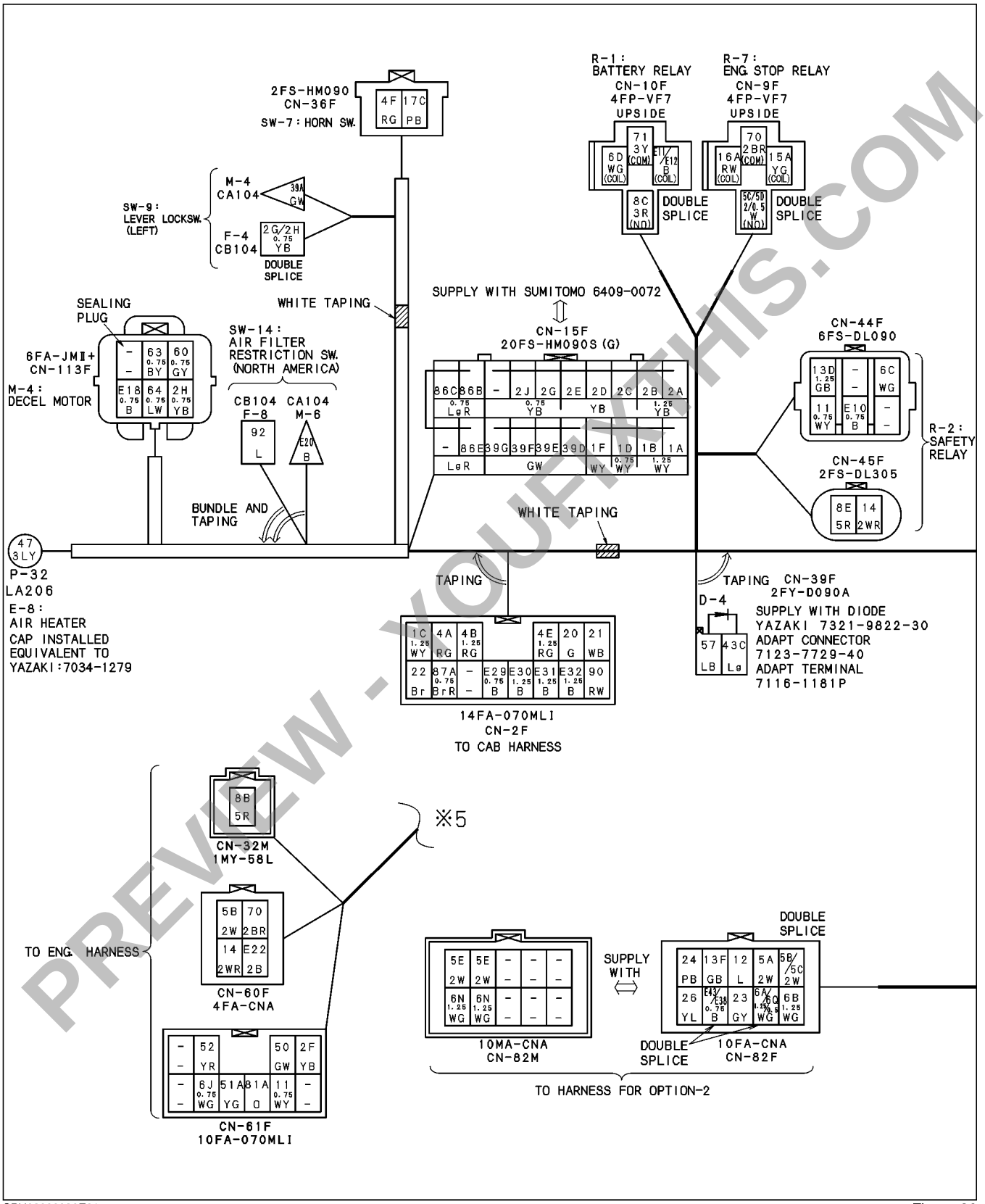
23.2.4 DETAIL OF HARNESS & CABLE

23.2.4.1 INST • MAIN HARNESS (NO. H-1)



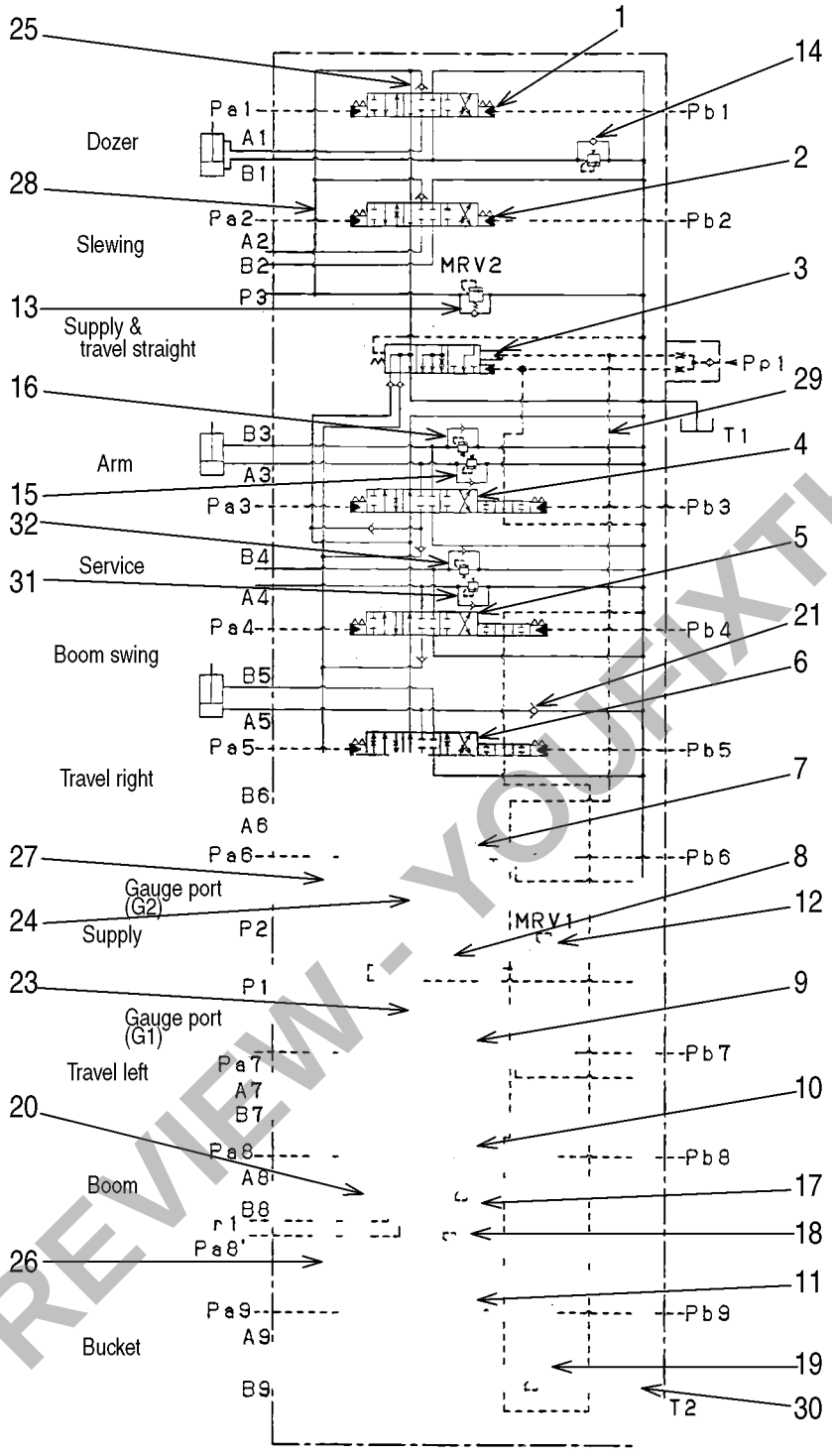
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Figure 26

FIG. 23-18 INST • MAIN HARNESS (NO. H-1) — (1/8)

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24.1.4.1.10 HYDRAULIC CIRCUIT



No.	NAME
1	Dozer spool
2	Slewing spool
3	Travel straight & Arm conflux spool
4	Arm spool
5	Service spool
6	Boom swing spool
7	Travel right spool
8	Supply spool
9	Travel left spool
10	Boom spool
11	Bucket spool
12	P1 (Rv1) Relief valve
13	P3 (Rv3) Relief valve
14	B1 Over load relief valve
15	A3 Over load relief valve
16	B3 Over load relief valve
17	A8 Over load relief valve
18	B8 Over load relief valve
19	B9 Over load relief valve
20	Boom lock valve
21	Anti cavitation valve
22	
23	P1 by-pass passage
24	P2 by-pass passage
25	P3 by-pass passage
26	P1 parallel passage
27	P2 parallel passage
28	P3 parallel passage
29	PP1 Pilot passage
30	Tank passage
31	A4 over load relief valve
32	B4 over load relief valve

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Figure 32

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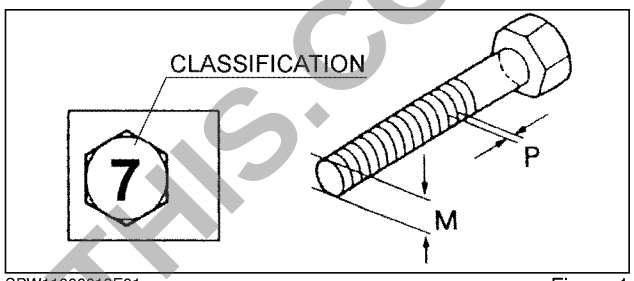
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11.1 TORQUE SPECIFICATIONS FOR CAPSCREWS AND NUTS

The following Torque Specifications are provided for use when actual torque value of a fastener is not known. Check the capscrews and nuts for their tightness and the loss of before starting work and at periodic maintenance. Retighten and replace as needed. For a new machine, check and retorque after the first 50 hours operation. Replace with genuine parts.

Refer to the table below for the tightening and retightening of capscrews.

1. The table below is not applicable for the capscrews that secure plastic covers. For the tightening torque for such capscrews, contact your dealer. Over-tightening may cause damage to the plastic parts.
2. In case that the tightening torque is specified in the manual, use those torque values regardless to the table below.
3. Numerical indication on the capscrew head shows the classification for strength (e.g., 7=7 T). No indication is provided for smaller size of capscrews, M5 or less.



SPW11000018E01 Figure 1

11.1.1 METRIC COARSE THREAD STANDARD TIGHTENING TORQUE VALUES

Make sure to tighten all Capscrews and Nuts to proper torque values.

METRIC COARSE THREAD STANDARD TIGHTENING TORQUE VALUES							
Classification		4.8T		7T		10.9T	
Nominal size		No lubrication	Oil lubrication	No lubrication	Oil lubrication	No lubrication	Oil lubrication
M6	P=1	4.4±0.5 (3.2±0.4)	3.7±0.4 (2.7±0.3)	9.6±1.0 (7.1±0.7)	8.1±0.8 (6.0±0.6)	17.4±1.8 (12.8±1.3)	14.7±1.5 (10.8±1.1)
M8	P=1.25	10.7±1.1 (7.9±0.8)	9.0±0.9 (6.6±0.7)	23.5±2.0 (17.3±1.5)	19.6±2.0 (14.5±1.5)	42.2±3.9 (31.1±2.9)	35.3±3.9 (26.0±2.9)
M10	P=1.5	21.6±2.0 (15.9±1.4)	17.9±1.8 (13.2±1.3)	46.1±4.9 (34.0±3.6)	39.2±3.9 (28.9±2.9)	83.4±8.8 (61.5±6.5)	70.6±6.9 (52.1±5.1)
M12	P=1.75	36.3±3.9 (26.8±2.9)	31.4±2.9 (23.2±2.1)	79.4±7.8 (58.6±5.8)	66.7±6.9 (49.2±5.1)	143±15 (105±11)	121±12 (89.2±8.9)
M14	P=2	57.9±5.9 (42.7±4.4)	49.0±4.9 (36.1±3.6)	126±13 (92.9±9.6)	106±10 (78.2±7.4)	226±20 (167±15)	191±19 (141±14)
M16	P=2	88.3±8.8 (65.1±6.5)	74.5±6.9 (55.0±5.1)	191±20 (141±15)	161±16 (119±12)	343±39 (253±29)	284±29 (209±21)
M18	P=2.5	122±12 (90.0±8.9)	103±10 (75.8±7.2)	265±29 (195±21)	226±20 (167±15)	481±49 (355±36)	402±39 (297±29)
M20	P=2.5	172±17 (127±13)	144±14 (106±10)	373±39 (275±29)	314±29 (232±21)	667±69 (492±51)	559±59 (412±44)
M22	P=2.5	226±20 (167±15)	192±20 (142±15)	500±49 (369±36)	422±39 (311±29)	902±88 (665±65)	755±78 (557±58)
M24	P=3	294±29 (217±21)	235±29 (173±21)	637±69 (470±51)	520±49 (383±36)	1160±118 (856±87)	941±98 (694±72)
M27	P=3	431±39 (318±29)	353±39 (260±29)	941±98 (694±72)	765±78 (564±58)	1700±167 (1250±123)	1370±137 (1010±101)
M30	P=3.5	588±59 (434±44)	490±49 (361±36)	1285±127 (948±94)	1079±108 (796±80)	2300±235 (1700±173)	1940±196 (1430±145)
M33	P=3.5	794±78 (586±58)	667±69 (492±51)	1726±177 (1270±131)	1451±147 (1070±108)	3110±314 (2290±232)	2610±265 (1930±195)
M36	P=4	1030±98 (760±72)	863±88 (637±65)	2226±226 (1640±167)	1863±186 (1370±137)	4010±402 (2960±297)	3360±333 (2480±246)

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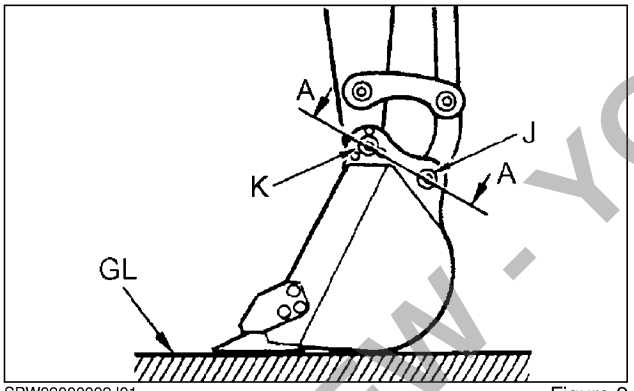
32.1.2 BUCKET

32.1.2.1 REMOVAL OF BUCKET

1. Place the bucket on the ground so that the bucket and arm connecting pins do not have pressure on them.
2. Move the O-rings (3) toward the bucket bosses.
3. In order to remove pin (K) which links the arm and bucket, remove the ring (2) and the pin (1) with a punch and drive out pin (K).
   - If the pin does not come off easily, the pin has pressure on it.
   - Do not damage the dust seal between the arm and the bucket bosses.
4. Adjust the bucket so that pin (J) between the bucket link and the bucket does not have pressure on it.
5. Remove the ring (2) and pin (1) then drive out pin (J).
6. Remove bucket assembly

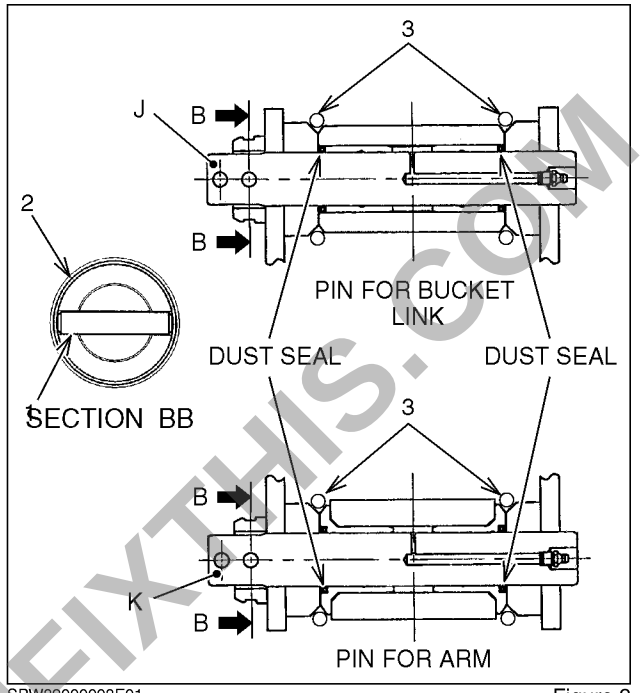
   Weight:

   112 kg (247 lbs)



SPW32000002J01 Figure 2

FIG. 32-2 TO PLACE BUCKET ON GROUND



SPW32000003E01 Figure 3

FIG. 32-3 ASSEMBLY OF PIN (SECTION A-A)

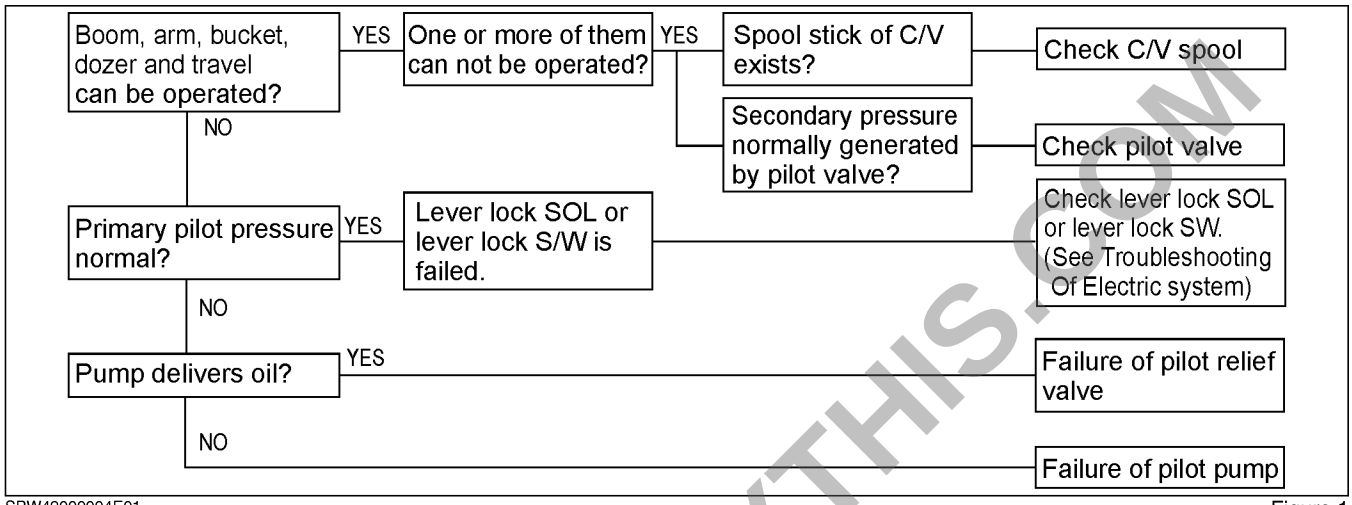
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42.3 TROUBLESHOOTING

42.3.1 ATTACHMENT

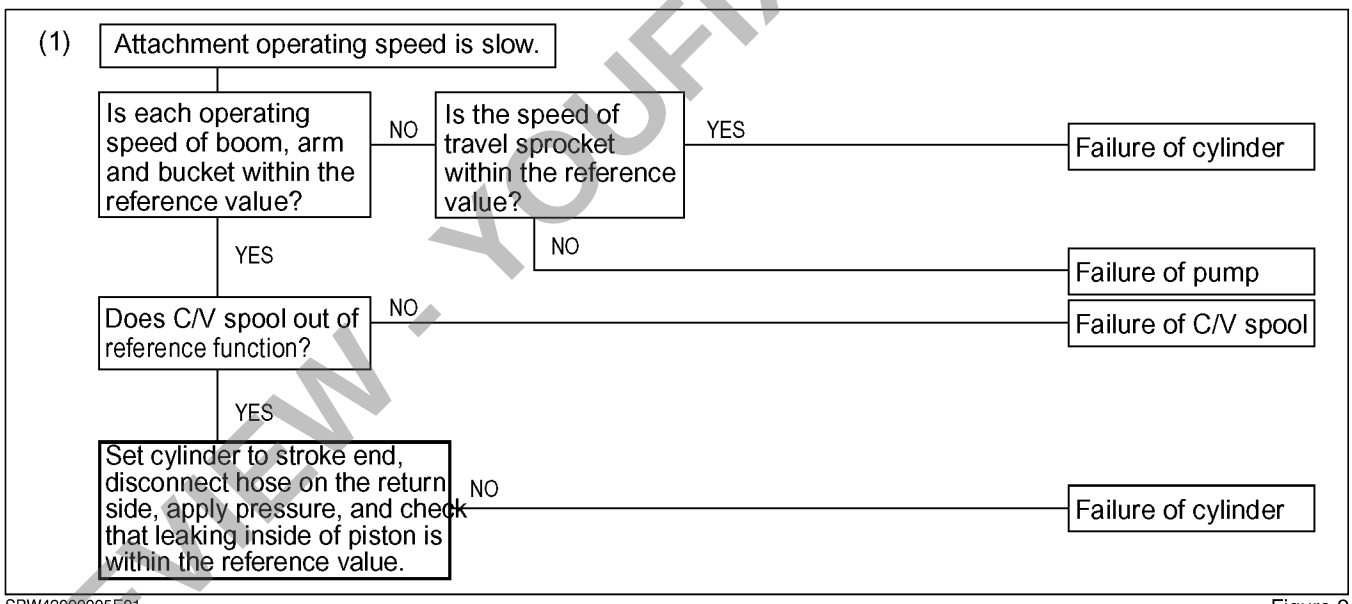
42.3.1.1 ATTACHMENT OPERATIONAL FAILURE (EXCLUDING SWING OPERATIONS)



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Figure 1

42.3.1.2 ATTACHMENT SPEED IS SLOW



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Figure 2

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12.1 WORKING STANDARDS FOR TIME TABLES

12.1.1 WORKING CONDITIONS

1. Technicians:
   One or more technicians who are qualified by Manufacturer are needed. The technicians need five years or more experience, they have to complete the training in the operation of this machine.
2. Facilities:
   General jigs, tools, apparatus, testers to be provided. The maintenance workshop should be equipped with a crane and inspection instruments necessary for specific self inspection activities.
3. Place:
   The workshop should be located on a flat land with a service truck and a crane are available.

12.1.2 APPLICABLE RANGE OF STANDARD MAINTENANCE TIME

1. Standard maintenance time:
   Direct maintenance time plus spare time.
2. Direct maintenance time:
   Net time actually spent for maintenance.
3. Additional time:
   Time for transportation of the machine for maintenance, preparation for a safe work site.

12.1.3 EXCLUDED TIME

NOTE: *Not included in standard maintenance time.*

1. Repairing time:
   Time for machining, sheet metal processing, welding, gas cutting, removing broken screw, taking care of parts and painting.
2. Items excluded from maintenance time because of uncertainty in time:
   Receiving the vehicle into shop, transportation, delivery, final inspection and investigation of causes for trouble, diagnosis and inspection.
3. Indirect time:
   Time for field work, preparation of required parts, etc., before starting work, going to and from the site, waiting due to user's convenience at the site and paper work for reports, bills, etc.
4. Over time:
   Over time should be calculated separately.
5. Separate calculation:
   The cost for service cars, trucks with crane and truck cranes should be calculated separately.

12.1.4 APPLICABLE MACHINE FOR ESTIMATION OF STANDARD MAINTENANCE TIME

1. Standard machine.
2. A well maintained machine combined with standard attachments which has operated in a normal circumstances.

12.1.5 STANDARD MAINTENANCE TIME TABLE

1. Units of working time:
   6 minutes = 0.1 hour
2. Calculating method of standard maintenance time:
   Maintenance time = Working time × Number of workers
   Working time = Maintenance time / Number of workers)
3. When more than one job is done,
   A. Add each standard maintenance time
   B. A time is given except for covers that are easily removed by hand.
   C. Assembly (Assy) works include the following works marked with black dot •
4. O / H:
   The removing and installing time are not included.
5. Abbreviations used in the Standard Working Time Table.

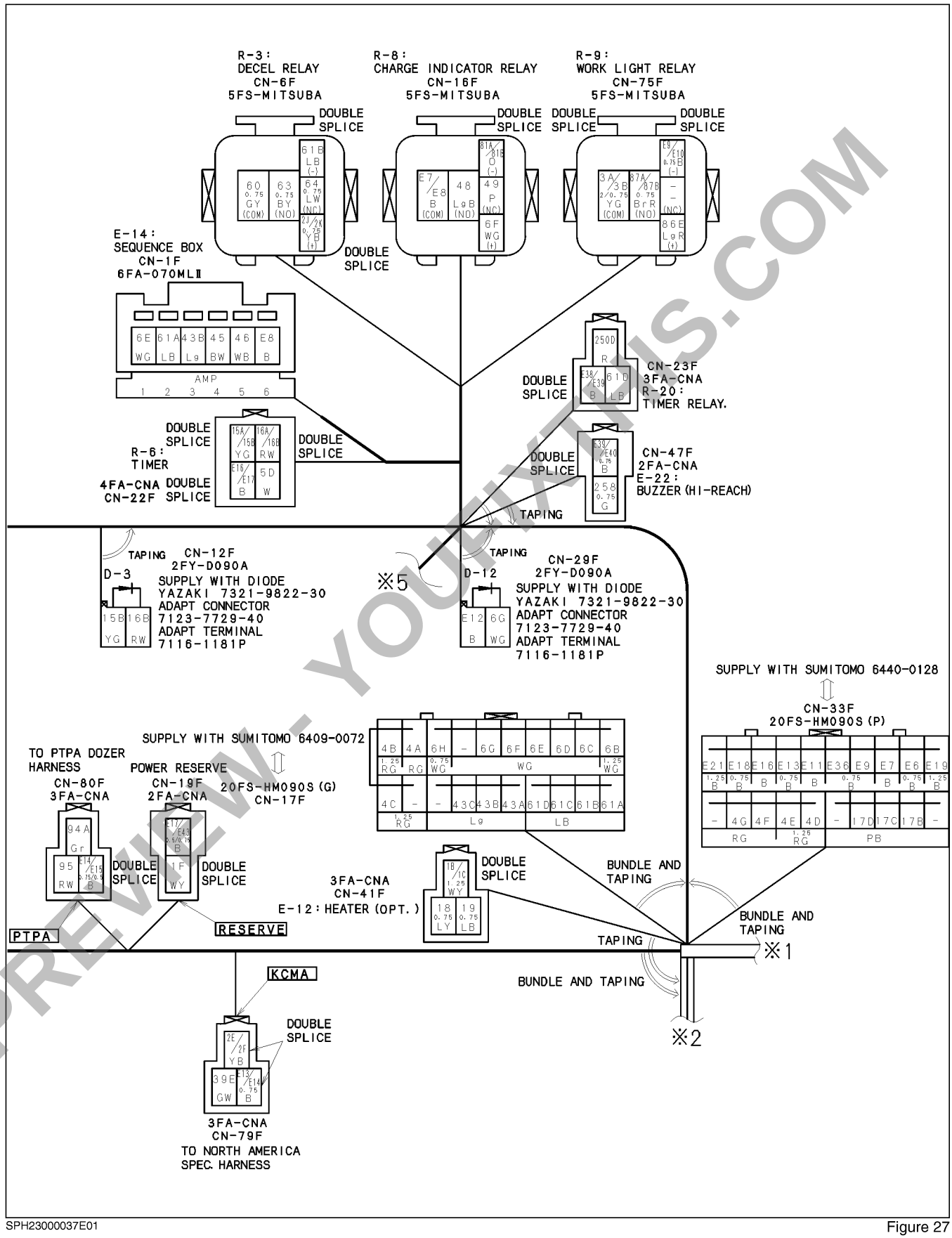
Abbreviations					
Assembly	ASSY	Engine	E/G	Solenoid	SOL
Attachment	ATT	Flexible hose	F hose	Switch	SW
Bearing	BRG	Installation	Inst.	Valve	V
Control valve	C/V	Overhaul	O/H		
Cylinder	Cyl	Removal	Rem.		

12.1.6 CLASSIFICATION OF WORK CODE

GROUP		REMARKS
No.	Description	
01	Attachment	To indicate removing, installing, replacement and overhaul.
02	Canopy and Guard	
03	Upper Structure	
04	Under carriage	

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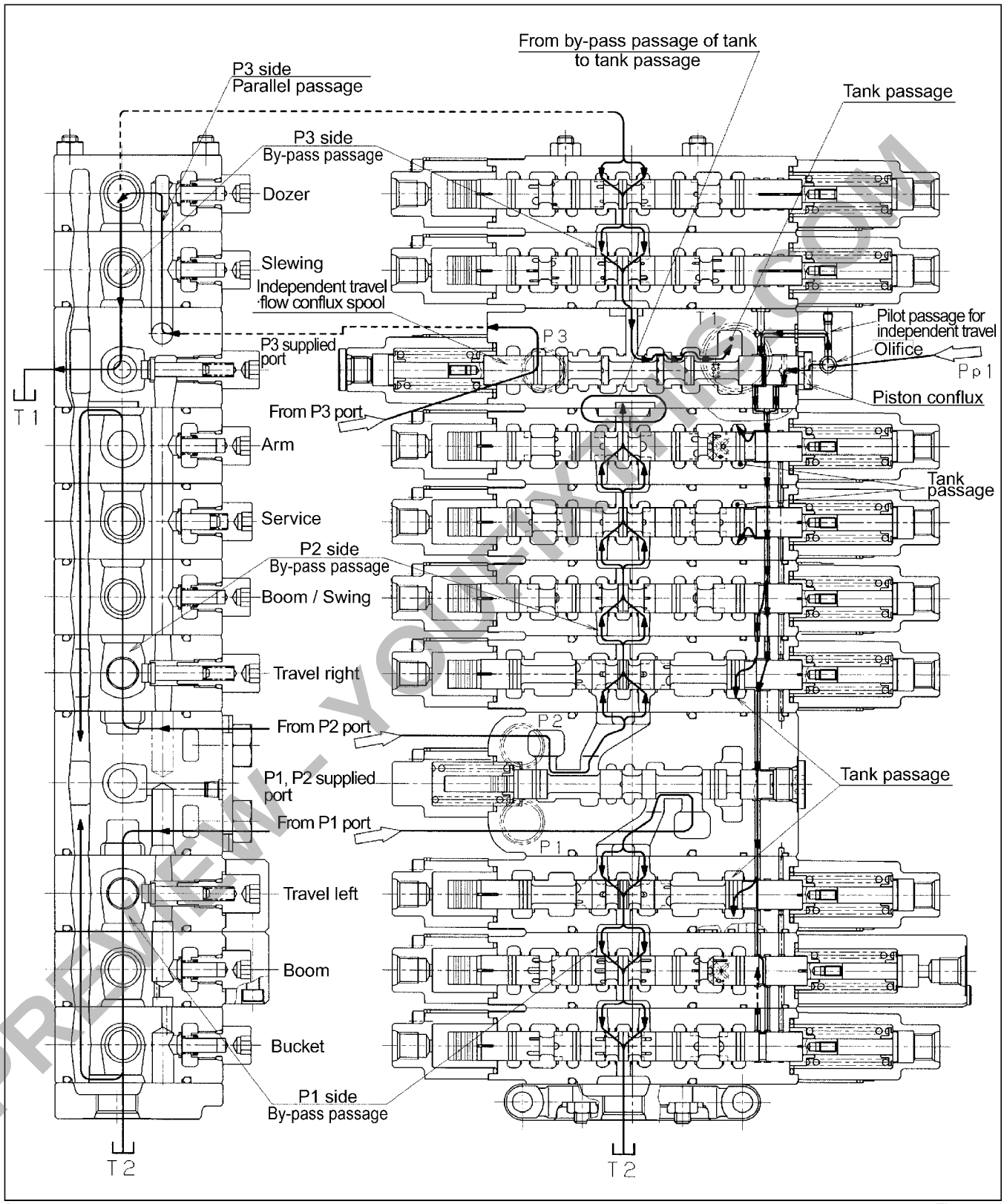


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Figure 27

FIG. 23-19 INST • MAIN HARNESS (NO. H-1) — (2/8)

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Figure 33

FIG. 24-12 OPERATION AT NEUTRAL POSITION

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Torque value Unit: N•m (lb•ft)

11.1.2 METRIC FINE THREAD STANDARD TIGHTENING TORQUE VALUES

Make sure to tighten all Capscrews and Nuts to proper torque values.

METRIC FINE THREAD STANDARD TIGHTENING TORQUE VALUES							
Classification		4.8T		7T		10.9T	
Nominal size		No lubrication	Oil lubrication	No lubrication	Oil lubrication	No lubrication	Oil lubrication
M8	P=1.0	11.3±1.1 (8.3±0.8)	9.5±1.0 (7.0±0.7)	24.5±2.0 (18.1±1.5)	20.6±2.0 (15.2±1.5)	44.1±3.9 (32.5±2.9)	37.3±3.9 (27.5±2.9)
M10	P=1.25	22.6±2.0 (16.7±1.5)	18.7±1.9 (13.8±1.4)	48.1±4.9 (35.5±3.6)	41.2±3.9 (30.3±2.9)	87.3±8.8 (64.4±6.5)	73.5±6.9 (54.2±5.1)
M12	P=1.25	39.2±3.9 (28.9±2.9)	33.3±2.9 (24.6±2.1)	85.3±8.8 (62.9±6.5)	71.6±6.9 (52.8±5.1)	154±16 (114±12)	129±13 (95.2±9.6)
M16	P=1.5	92.2±8.8 (68.0±6.5)	77.5±7.8 (57.2±5.8)	196±20 (145±15)	169±17 (125±13)	363±39 (268±29)	304±29 (224±21)
M20	P=1.5	186±19 (137±14)	155±16 (114±12)	402±39 (297±29)	333±29 (246±21)	726±69 (535±51)	608±59 (448±44)
M24	P=2	314±29 (232±21)	265±29 (195±21)	686±69 (506±51)	569±59 (420±44)	1240±118 (915±87)	1030±98 (760±72)
M30	P=2	637±59 (470±44)	530±49 (391±36)	1390±137 (1030±101)	1157±118 (853±87)	2500±255 (1840±188)	2080±206 (1530±152)
M33	P=2	853±88 (629±65)	706±70 (521±52)	1860±186 (1370±137)	1550±155 (1140±114)	3350±334 (2470±246)	2790±275 (2060±203)
M36	P=3	1070±108 (789±80)	892±88 (658±65)	2330±226 (1720±167)	1940±196 (1430±145)	4200±422 (3100±311)	3500±353 (2580±260)
Torque value Unit: N•m (lb•ft)							

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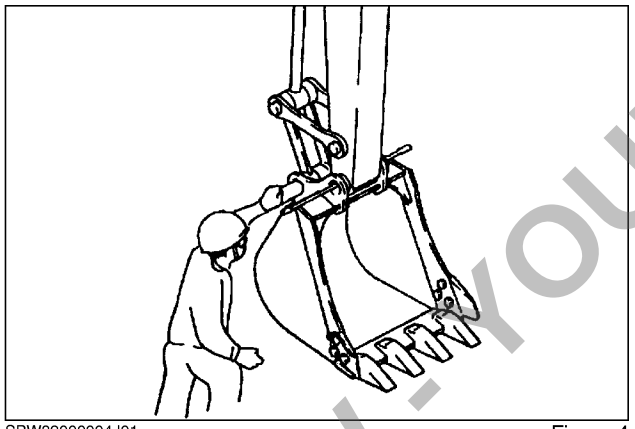
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32.1.2.2 INSTALLATION OF BUCKET

Installation is performed in the reverse order of removal, including the following:

> **CAUTION:** *When aligning the pin position, do not put your finger in the pin holes in any circumstances, align them visually.*

1. Clean the welded part of the structures and check that there is no cracks on the parts.
2. Check that the dust seal is not damaged, replace as needed.
3. Inspect pins and bushings according to the Section “ATTACHMENT DIMENSIONS” and “SPECIFICATIONS”.
4. When inserting the pin, coat the shaft with grease.
   - The bucket can be mounted easily if the bucket link is installed in the first.



SPW32000004J01 Figure 4

FIG. 32-4 INSTALLATION OF BUCKET

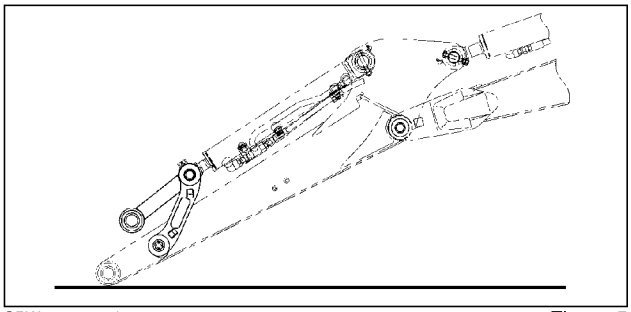
32.1.3 ARM

32.1.3.1 REMOVAL OF ARM

1. Retract the bucket and arm cylinders, lower the boom to the ground.
2. Shut off the engine and operate the control levers several times to release the pressure in circuits.
3. Then put the safety lock lever in the “Locked” position, depress the air breather on the hydraulic oil tank to release the pressure in the tank.
4. Disconnect the hoses connected to the bucket cylinder. Then plug to the openings.

   : 27mm
5. Lift up the arm cylinder with a sling in order to release any load to the pin (E).
6. Remove the capscrew and nuts securing pin (E). Remove the pin (E) and shims.

   : 19mm
7. Placing a wooden block under the arm cylinder, let the cylinder down.
8. Install the pin (E) and capscrew and nuts that secure pin (E). Attach lifting equipment to pin (E) and the arm tip, slightly lift up in order to relieve any load to the pin (F).

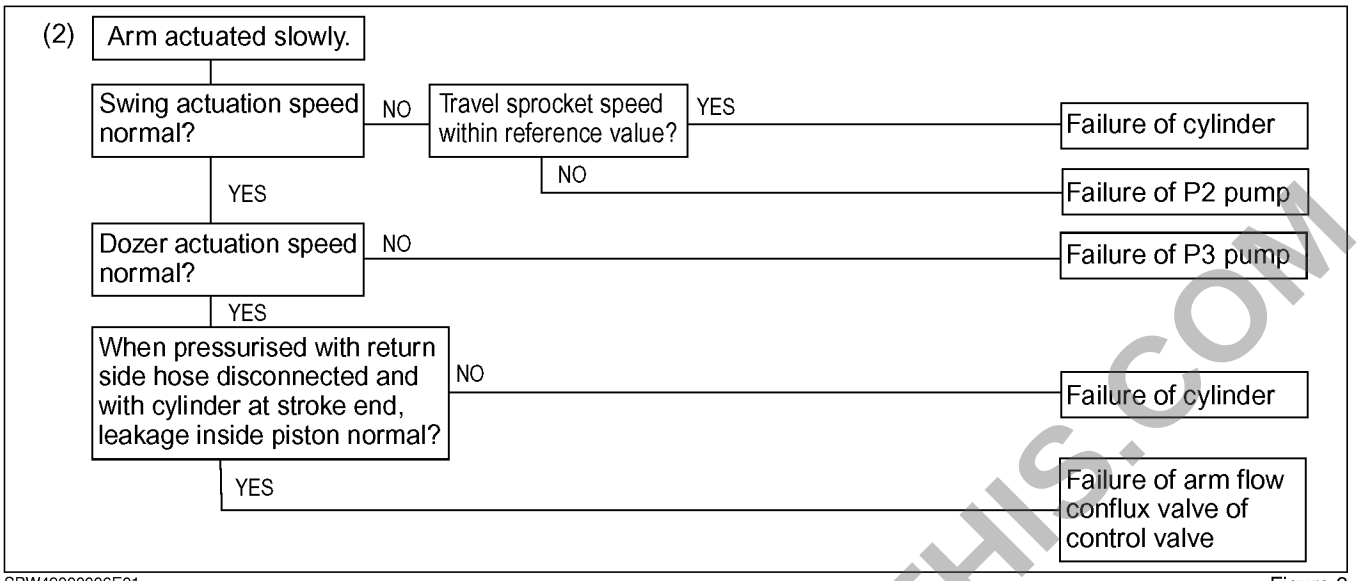


SPW32000005J01 Figure 5

FIG. 32-5 ARM REMOVING POSTURE

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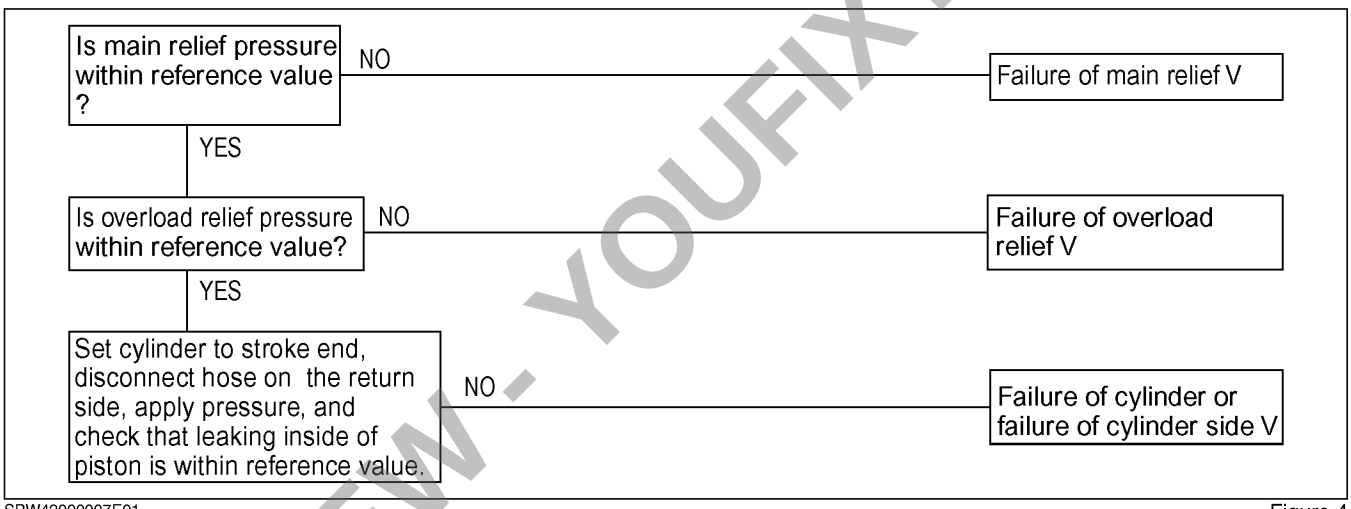
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Figure 3

42.3.1.3 ATTACHMENT OPERATING POWER IS LOW



SPW42000007E01

Figure 4

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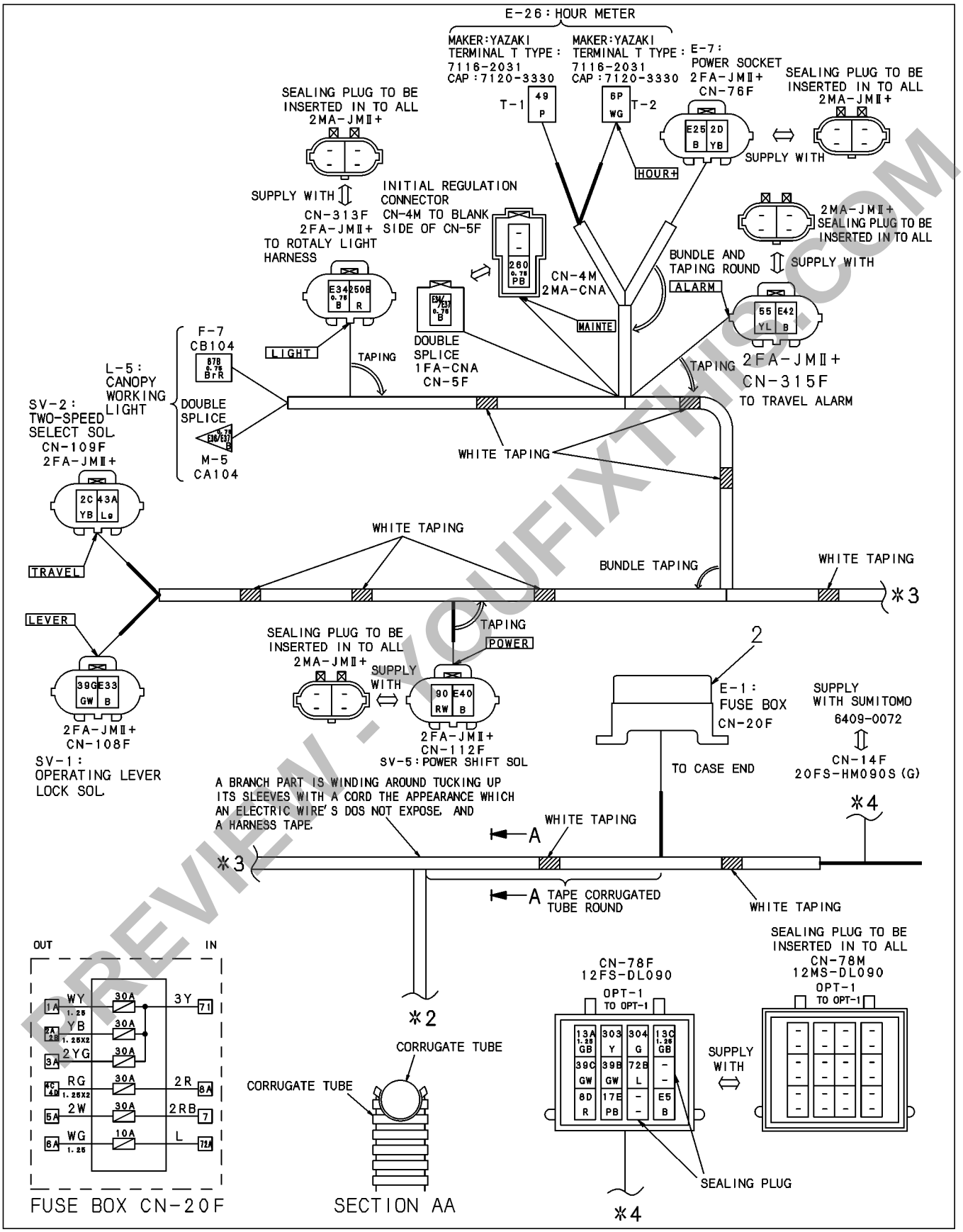
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12.2 TIME TABLES

12.2.1 ATTACHMENT - GROUP 01

Group 01 - Attachment					
GROUP No.	EQUIPMENT PORTION	WORK TO BE DONE	UNIT	REMARKS	UNIT: HOUR
00	**Bucket portion**			Refer to 32.1.2	
01	Bucket ASSY	Rem.l/Inst.	1 pc.	Include adjustment	0.4
02	• Bucket removing / installing position	Preparation	1 pc.		0.1
03	• Bucket installing pin	Rem./Inst.	1 pc.	Include stopper pin.	0.1
04	• Bucket drive pin	- ditto -	1 pc.		0.1
05	• Bucket sling and transfer	Preparation	1 pc.		0.1
06	Bucket (Single)	O/H	1 pc.	Not include removal / inst.	0.6
07	• Bushing	Replace	1 pc.		0.5
10	**Arm portion**			Refer to 32.1.3	
11	Arm ASSY	Rem./Inst.	1 pc.		0.8
12	• Bucket cylinder removing / installing position and piping	Preparation	1 pc.		0.2
13	• Bucket cylinder rod pin	Rem./Inst.	1 pc.	Include stopper pin.	0.1
14	• Bucket cylinder head pin	- ditto -	1 pc.	Include stopper pin.	0.1
15	• Bucket cylinder assy	- ditto -	1 pc.		0.1
16	• Arm cylinder rod pin	- ditto -	1 pc.	Include stopper pin.	0.1
17	• Boom top pin	- ditto -	1 pc.		0.1
18	• Arm sling and transfer	- ditto -	1 pc.		0.1
20	**Boom portion**			Refer to 32.1.4	
21	Boom ASSY	Rem./Inst.	1 pc.		1.0
22	• Boom removing / installing position	Preparation	1 pc.		0.1
23	• Boom cylinder temporary slinging	- ditto -	1 pc.		0.1
24	• Boom cylinder rod pin	Rem./Inst.	1 pc.	Include stopper pin.	0.1
25	• Boom cylinder piping	- ditto -	1 pc.		0.1
26	• Arm & Bucket piping	- ditto -	1 pc.		0.2
27	• Boom assy temporary slinging	Rem. / Inst.	1 pc.		0.1
28	• Boom foot pin	- ditto -	1 pc.	Include stopper pin.	0.1
29	• Boom assy slinging	- ditto -	1 pc.		0.1
30	Arm cylinder removing / installing	- ditto -	1 pc.		0.3
31	• Arm cylinder piping	- ditto -	1 pc.		0.1
32	• Arm cylinder head pin	- ditto -	1 pc.	Include stopper pin.	0.1
33	• Arm cylinder slinging	- ditto -	1 pc.		0.1
40	Boom cylinder removing / installing	- ditto -	1 pc.		0.3
41	• Boom cylinder piping	- ditto -	1 pc.		0.1
42	• Boom cylinder head pin	- ditto -	1 pc.		0.1
43	• Boom cylinder slinging	- ditto -	1 pc.		0.1
50	Bucket cylinder	O / H	1 pc.		2.5
51	• Pin bushing	Replace	1 set	Include seal.	1.0
60	Arm cylinder	O / H	1 pc.		2.5
61	• Pin bushing	Replace	1 set	Include seal.	1.0
70	Boom cylinder	O / H	1 pc.		2.5
71	• Pin bushing	Replace	1 set	Include seal.	1.0
80	**Swing portion**			Refer to 32.1.5	
81	Swing bracket assy	Rem. / Inst.	1 pc.	After removing boom.	0.4

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Figure 28

FIG. 23-20 INST • MAIN HARNESS (NO. H-1) — (3/8)

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2. Pilot operating section

1. Operating boom raise

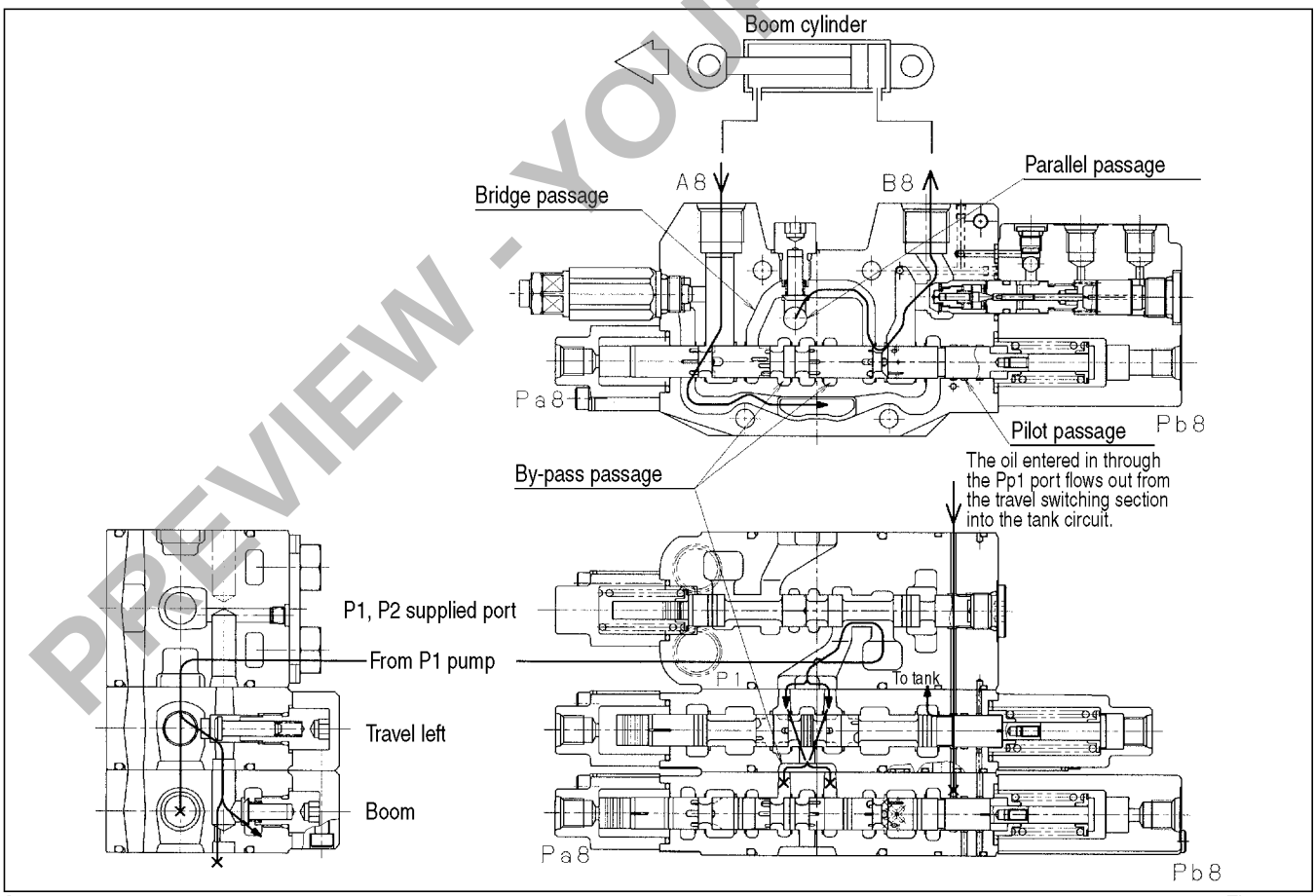
In the boom raise operation, the pilot secondary pressure enters into the Pa8 port, and moves the spool for the boom operation. And with the movement of the spool, as the by-pass circuit is cut at the boom switching section, the oil received through the P1 port flows from the parallel circuit through the check valve installed on the upper part of the spool by-pass circuit for the travel operation into the parallel circuit on the boom switching section.

With the movement of the spool, as the circuit from the passage leading to the boom lock section to the bridge passage is opened, the oil entered in the parallel circuit passes through the load check valve on the boom switching section and flows into the boom lock section through the bridge passage. The oil entering the boom section opens the lock valve and is fed into the boom cylinder head side.

The return oil from the boom cylinder rod side flows into the A8 port, and with the movement of the spool the oil flows out into the tank circuit that is connected by the notch in the spool. Consequently, the boom cylinder extends and raises the boom.

The oil from the Pp1 port passes through the orifice on the P3 supply section and flows into the pilot circuit.

The oil in the pilot circuit flows from the travel switching section to the tank circuit, and the pilot circuit pressure becomes equal to the tank pressure, consequently the independent travel spool is not switched.

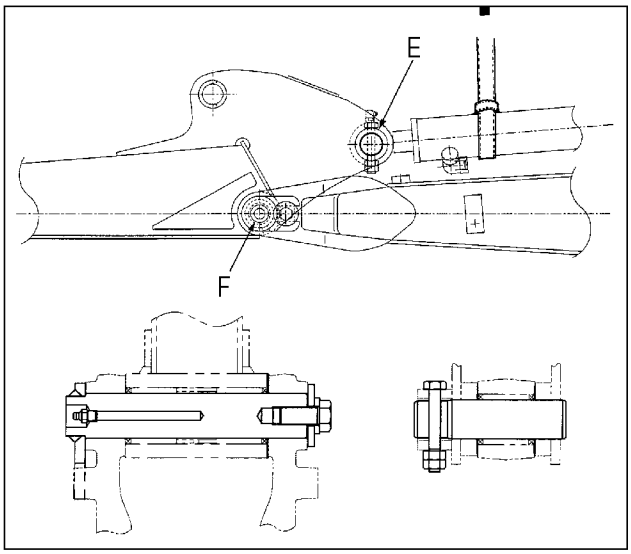


SPH24000029E01

Figure 34

FIG. 24-13 OPERATION AT BOOM RAISING

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SPH32000019E01 Figure 6

FIG. 32-6 SECTIONAL VIEW OF INSTALLING PIN

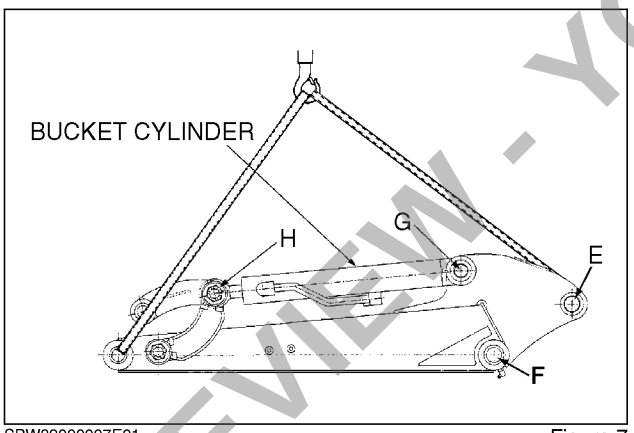
9. Remove the capscrew from pin (F), remove pin (F).

: 36mm

10. Remove the arm assembly.

    Weight of arm assembly: approx.

    180kg (397 lbs)



SPW32000007E01 Figure 7

FIG. 32-7 REMOVAL OF ARM ASSEMBLY

11. Removal of Bucket Cylinder

    1. Remove the capscrew from pin (H), remove pin (H).

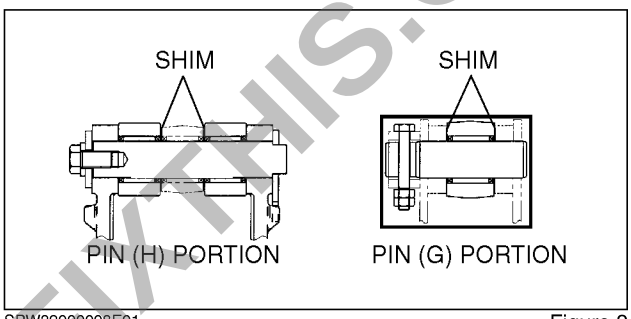
    : 24mm

    2. Remove the capscrew and nuts from pin (G), remove pin (G).

    : 17mm

    3. Attach suitable lifting equipment to the bucket cylinder, and remove the cylinder.

       Weight; approx. 27kg (60 lbs)



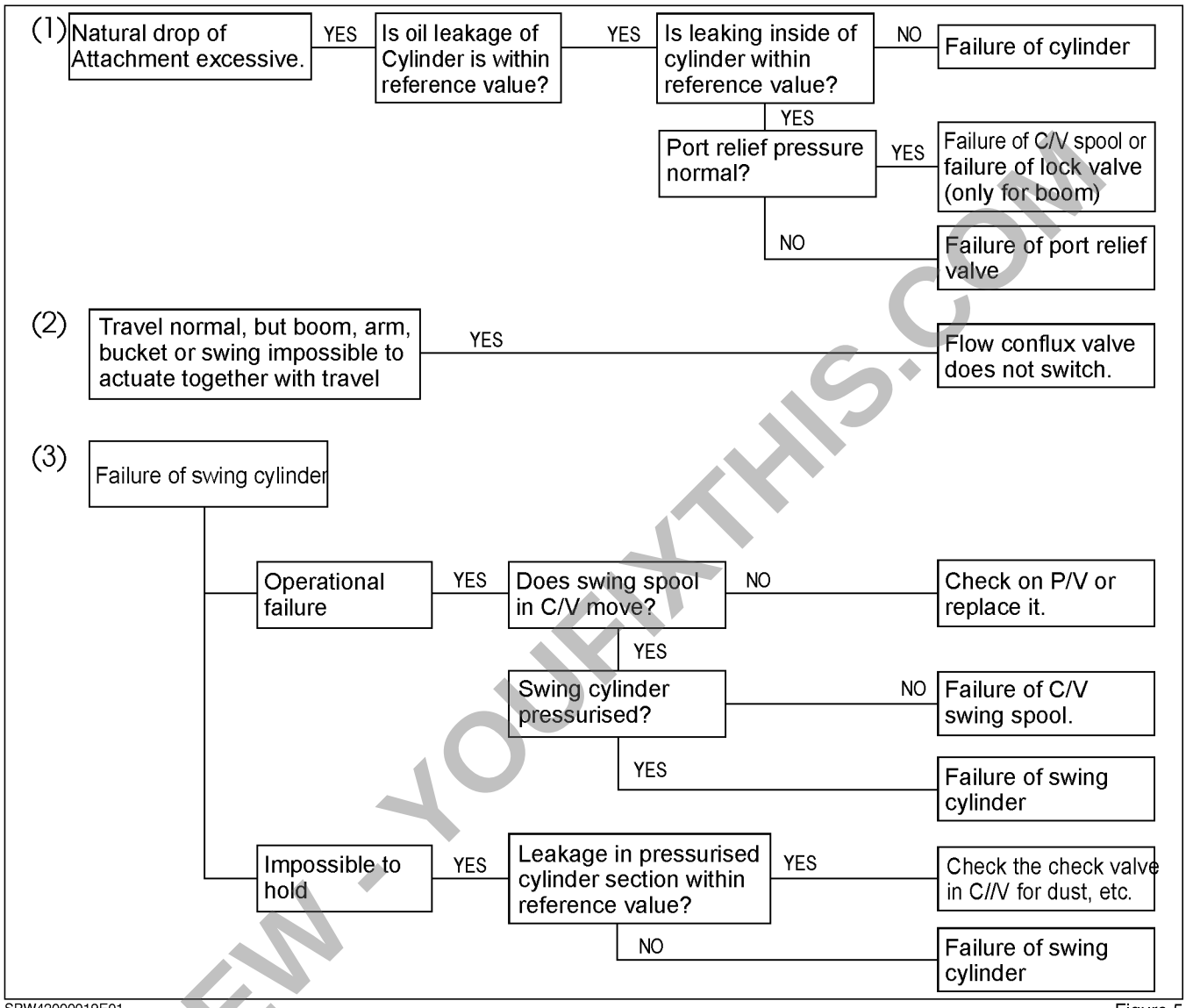
SPW32000008E01 Figure 8

FIG. 32-8 SECTIONAL VIEW OF INSTALLING PIN

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42.3.1.4 MALFUNCTION OF ATTACHMENT



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Figure 5

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Group 01 - Attachment					
GROUP No.	EQUIPMENT PORTION	WORK TO BE DONE	UNIT	REMARKS	UNIT: HOUR
82	• Swing cylinder rod pin	- ditto -	1 pc.		0.1
83	• Swing bracket slinging	- ditto -	1 pc.		0.1
84	• Swing center pin	- ditto -	1 pc.		0.1
85	Swing cylinder removing / installing	- ditto -	1 pc.	After removing swing bracket.	0.3
86	• Swing cylinder hose	Rem. / Inst.	2 pcs.		0.2
87	• Swing cylinder head pin	- ditto -	1 pc.		0.1
88	Swing cylinder	O / H	1 pc.		2.5
89	• Pin bushing	Replace	1 pc.	Include seal.	1.0
	Other necessary works	Rem. / Inst.	1 set	Panel assy (3)	0.1
90	**Dozer portion**			Refer to 32.1.6	
91	Dozer ASSY	Rem. / Inst.	1 pc.		0.6
92	• Dozer cylinder hose	- ditto -	2 pcs.		0.2
93	• Dozer cylinder rod pin	- ditto -	1 pc.		0.1
94	• Dozer installing pin	- ditto -	2 pcs.		0.2
95	Dozer cylinder	O / H	1 pc.		2.5
96	• Pin bushing	Replace	1 set	Include seal.	1.0

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CX50B
HYDRAULIC EXCAVATORS

STANDARD SPECIFICATIONS AND MAINTENANCE

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22.2 HYDRAULIC CIRCUITS AND COMPONENT MODELS

22.2.1 STANDARD SPECIFICATIONS

For the Hydraulic circuit diagram, refer to Fold Out Schematics.

STANDARD SPECIFICATION			PH01Z00018P1	
No.	NAME		PART No.	
1	Pump Assy		PH10V00010F2	AP2D25LV1RS7
2	Control Valve		PY30V00035F1	BCV65-AR11
3	Slewing Motor		PY15V00012F1	PLC-120-18B-1FS2-8284A
4	Travel Motor		PH15V00012F1	GM06VA
5	Boom	Canopy	PY01V00037F1	ø100-ø55-699
	Cylinder	Cab	PY01V00038F1	ø100-ø55-666
6	Arm Cylinder		PY01V00042F1	ø90-ø50-716
7	Bucket Cylinder		PH01V00034F1	ø75-ø45-546
8	Swing Cylinder		PH01V00031F1	ø90-ø50-567
9	Dozer Cylinder		PY01V00040F1	ø95-ø55-200
10	Swivel Joint		24100J12703F1	
11	Pilot Valve (Att)		PX30V00043F1	PV48M2042
12	Pilot Valve (Travel)		PM30V00019F1	PVD6P4001
13	Solenoid Valve		PX35V00003F1	2KWE5G-30/G12WS-249A
14	Pilot Valve (Dozer)		PB30V00002F1	PV6P
15	Shuttle Valve		PH26V00001F1	
16	Multi Control Valve		PX30V00060F1	
17	Return Filter (Element)		YR52V01001F2	
18	Suction Strainer		PW50V00011F1	
19	Inline Filter		PY50V00001F1	Y-426800
20	Check Valve		2436R1062D62	S15AO-K2
23	Stop Valve		PF25V00001F1	
24	Selector Valve		PA30V00005F1	
25	Oil Cooler		PH53V00008P1	
26	Hydraulic Oil Tank		PH33H00018P1	
27	Solenoid Valve		PE35V00001F2	16351-00000
28	Solenoid Valve		PY35V00005F2	16363-00000
29	Elbow		PV64H01042P1	
NOTE: *This is for reference only, because the model number might be changed due to improvement.*				

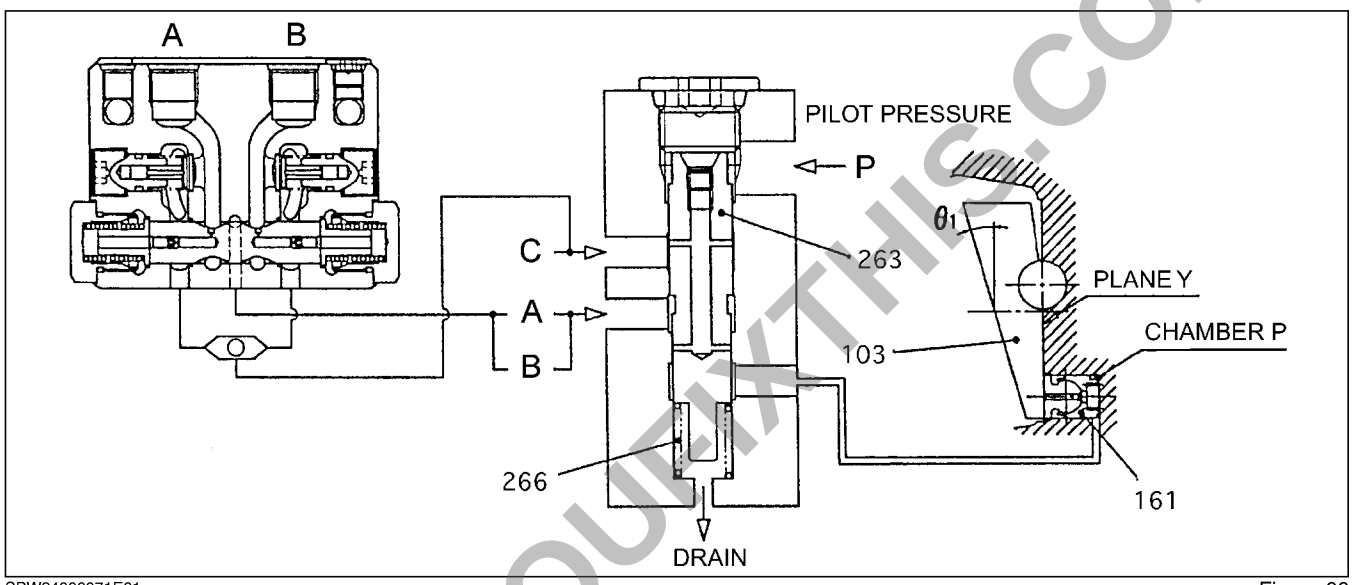
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C. Automatic shifting to low speed during high speed operation

If the load is increased while high speed operation, the oil pressure at the port (A) or (B) is also increased. When the oil pressure reaches to 18.5MPa (2680 psi), it exceeds the pilot pressure of 3.5MPa(507 psi), and the valve (263) is pushed up to upper position.

Oil in the chamber (P) is released into the drain (motor case) through the valve (263). Then the tilt angle of swash plate becomes the maximum θ1 and is maintained at its position resulting low speed rotation.



SPW24000071E01

Figure 66

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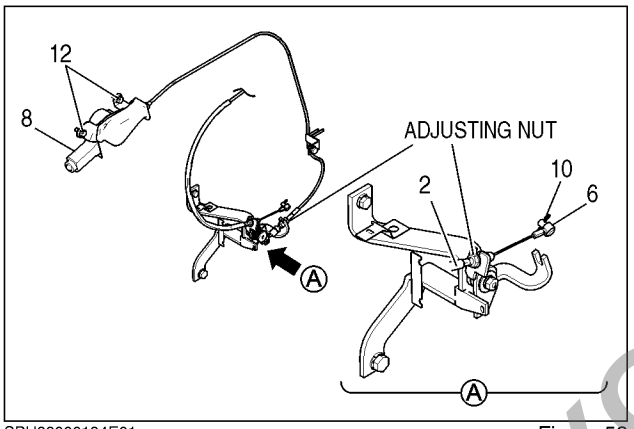
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33.1.15 CONTROL STAND

33.1.15.1 REMOVAL PREPARATION

1. Remove the canopy and the handrail (See 33.1.1 (page 33-5)).
2. Remove the floor covers (2 and 4), and the plates (3) (See 33.1.3.1 (page 33-10)).
3. Remove the covers (1), (2), (4), (5), (6) and (9) for the guards, and the hood (2) (See 33.1.2 (page 33-8)).
4. Remove the counterweight (See 33.1.5 (page 33-13)).
5. Disconnect the ground cable from the battery.

33.1.15.2 REMOVAL

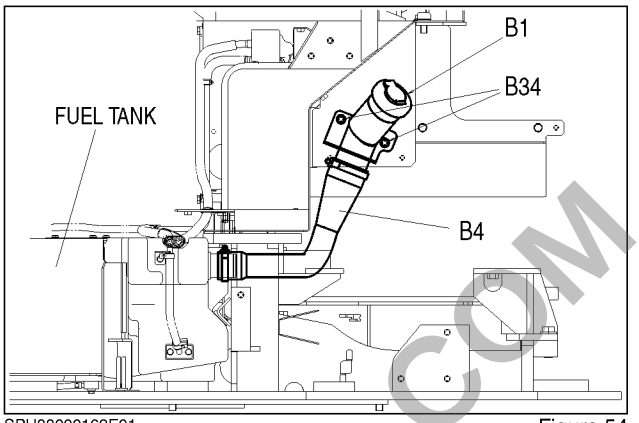


SPH33000184E01 Figure 53

FIG. 33-42 CONTROL CABLE REMOVAL

1. Remove the air cleaner (See 33.1.12 (page 33-25)).
2. Removing throttle cable (15)
   1. Pull out the pin (10) and remove the pin (6).
   2. Loosen the adjusting nut (M8) to remove the cable.
3. Removing deceleration motor (option)
   1. Disconnect the connector.
   2. Loosen the adjusting nut (M8) to remove the cable.
   3. Loosen three M8×20 sems-bolts (12) to remove the deceleration motor (8).

: 13 mm

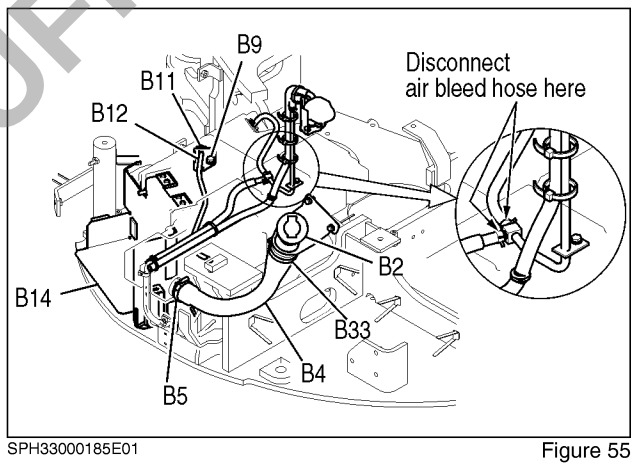


SPH33000162E01 Figure 54

FIG. 33-43 FILLER NECK REMOVAL

4. Removing filler neck (fuel supply port)
   1. Pull out the hose (B4) connected to the fuel tank.
   2. Loosen two M8×20 capscrews (B34) to remove the filler neck (B1).

: 13 mm



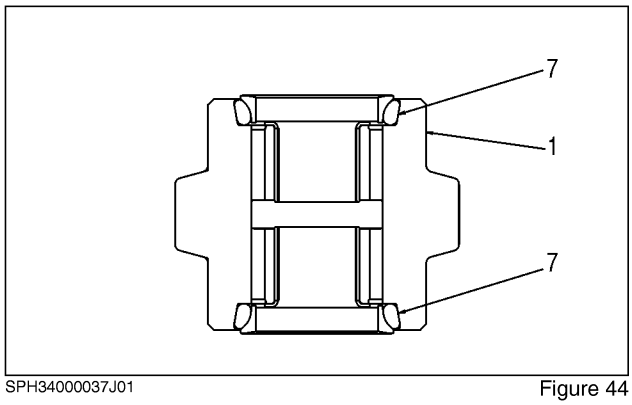
SPH33000185E01 Figure 55

FIG. 33-44 AIR BLEED HOSE DISCONNECTION

5. Disconnect the air bleed hose for the fuel tank.

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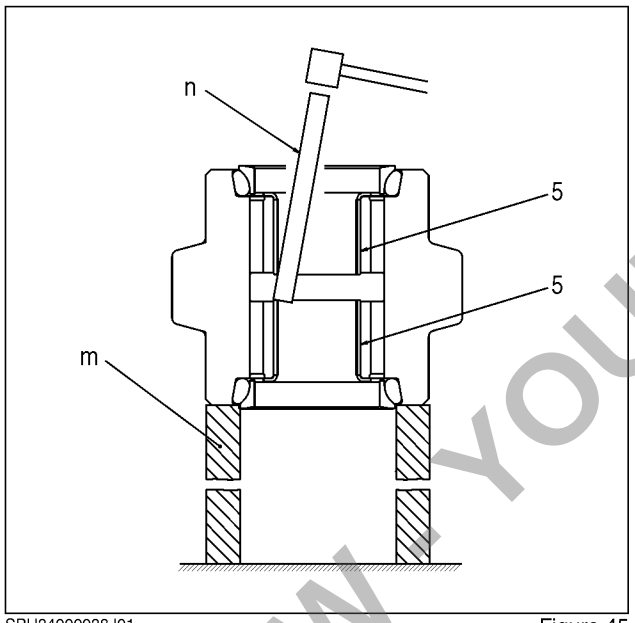
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SPH34000037J01 Figure 44

FIG. 34-42 REMOVING THE SEAL (7)

7. Take out seal (7) from roller (1).



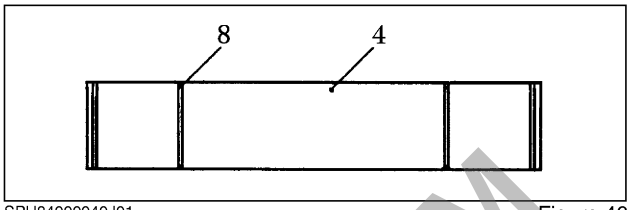
SPH34000038J01 Figure 45

FIG. 34-43 REMOVING BUSH (5)

8. A bushing (5) that is worn very thin cut it out with a lathe. Place the roller (1) on the jig (M) and drive the bushing (5) out.

NOTE: *In order to avoid damage to the bore of the roller (1), drive the bushing (5) out slowly and change the driver position often.*

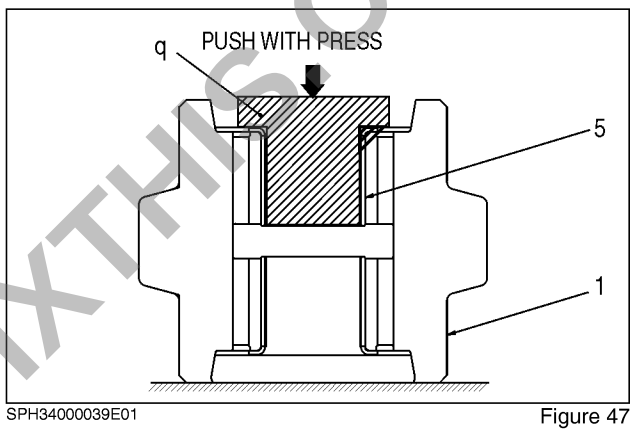
34.1.6.3.2 ASSEMBLY



SPH34000040J01 Figure 46

FIG. 34-44 INSTALLING O-RING (8) TO ONE SIDE

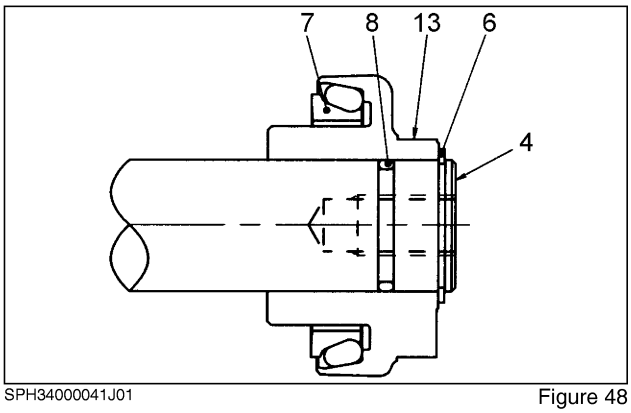
1. Install O-ring (8) to shaft groove.
   - Grease O-ring



SPH34000039E01 Figure 47

FIG. 34-45 PRESS FITTING BUSHING (5)

2. Align the center of the bushing (5) with the bore of the roller (1). With the bushing jig (Q) press bushing (5) in. Do the same procedure for the opposite side.
   - Apply grease to the bushing, press the bushing at room temperature.



SPH34000041J01 Figure 48

FIG. 34-46 PRESS FITTING COLLAR (13)

3. Install floating seal (7). Install O-ring on one side of shaft (4) mating pin hole of collar (3).
   - Care should be taken not to damage O-ring (8) while press-fitting collar (13) to shaft (4)
4. Installing snap ring (6).
5. Install floating seal (7) to inner holes on both ends of roller (1).

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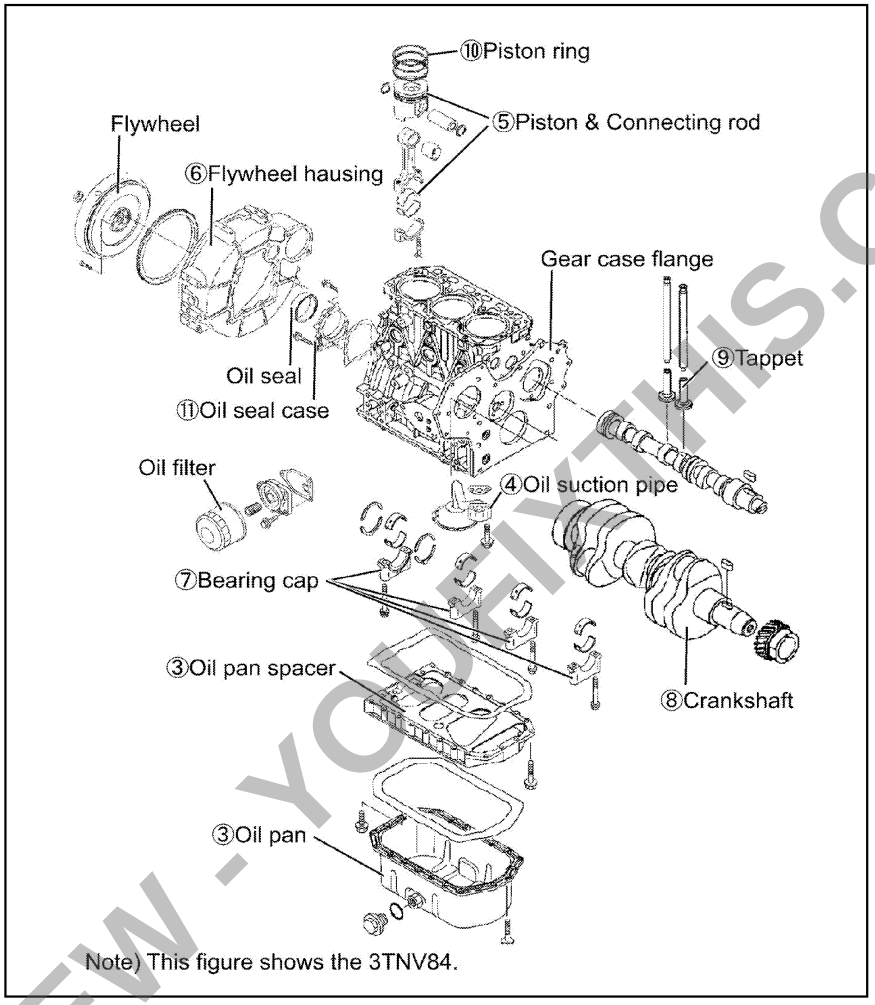
Revision History				
Issue	Issue Date	Applicable Machines	Remarks	
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First Editiion	August, 2004	CX31B: PW11–30001~ CX36B: PX12–11001~	S5PW0106E01 (CNH North America)	KE
First Editiion	August, 2004	CX50B: PJ04–03001~	S5PW0106E01 (CNH North America)	KE

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4.4 Cylinder Block

4.4.1 Components



Note) This figure shows the 3TNV84.

4.4.2 Disassembly procedure:

Disassemble in the order of the numbers in the illustration.

1) Perform steps 1) to 12) in the cylinder head disassembly procedure.
2) Perform steps 1) to 12) in the gear train disassembly procedure.
3) Remove the oil pan. (See **Point 1** of 4.4.4)
4) Remove the lubricating oil suction pipe.
5) Remove the piston w/rod. (See **Point 2** of 4.4.4)
6) Remove the mounting flange. (See **Point 3** of 4.4.4)
7) Remove the bearing metal caps. (See **Point 4** of 4.4.4)
8) Remove the crankshaft. (See **Point 5** of 4.4.4)
9) Remove the tappets.
10) Remove the pistons and rings. (See **Point 6** of 4.4.4)
11) Remove the oil seal from the mounting flange. (See **4.4.8** of 4.4.4)

4.4.3 Reassembly procedure:

Reverse of the disassembly procedure.

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