

# INSTALLATION MANUAL

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(C)

**SUBJECT:** INSTALLATION PROCEDURE FOR 4 WAY MULTI CONTROL VALVE  
ON PC128US-2, PC138US-2 (m/c and after)

**PURPOSE:** To introduce local installation procedure for the 4-way multi control valve to the PC128US-2 and PC138US-2 hydraulic excavators after the minor change

**APPLICATION:** PC128US-2 Hydraulic Excavators, Serial Nos. 9501 and up  
PC138US-2 Hydraulic Excavators, Serial Nos. 4501 and up

**FAILURE CODE:** Q300Z9

**DESCRIPTION:**

1. Introduction

KOMATSU has developed the 4-way multi control valve which is applicable to respective operation patterns of the JIS pattern, (Previous) Komatsu pattern, (Previous) Mitsubishi pattern and (Previous) Kobe pattern for use on the PC128US-2 and PC138US-2 hydraulic excavators after the minor change and is introducing the 4-way multi control valve in this Installation Manual.

When locally installing the above 4-way multi control valve, follow the installation procedure described in this Installation Manual.

Sales Unit Code For machines being shipped with the valve installed: 6NN03-T  
For local installation: 6NN03-T (T)

After installing the 4-way multi control valve, remove the plate for the standard operation method and the operating sheet (JIS pattern).

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## 2. List of parts

No.	Part No.	Part Name	Q'ty	Remarks
1	22B-62-14900	Valve ass'y	1	With coupler
2	22B-62-13912	Bracket	1	
3	01010-81240	Bolt	2	
4	01643-31232	Washer	2	
5	01010-81025	Bolt	3	
6	01643-31032	Washer	3	
7	22B-06-13912	Harness	1	
8	22B-06-13920	Bracket	1	
9	01010-81020	Bolt	2	
10	01643-31032	Washer	2	
11	22B-06-13940	Bracket		
12	04434-51410	Clip	1	
13	04434-51010	Clip	3	
14	01010-81016	Bolt	3	
15	01010-81020	Bolt	2	
16	01643-31032	Washer	5	
17	08034-00310	Band	2	
18	08034-40521	Band	2	
19	22B-62-11320	Plate	1	Rubber sheet
20	08034-20536	Band	2	
21	22B-62-17420	Elbow	1	
22	22B-62-17430	Elbow	1	
23	22B-62-17450	Elbow	5	
24	22B-62-17440	Tee	1	
25	22B-62-17460	Elbow	2	} For the arm crane
26	22B-62-12490	Elbow	1	
27	02896-11008	O-ring	15	Spare: 6 pcs. for standard spec. machines and 7 pcs. for arm crane spec. machines
28	07002-11423	O-ring	13	Spare: 5 pcs.
29	09822-00010	Plate	1	

No.	Part No.	Part Name	Q'ty	Remarks
30	09822-A1110	Plate	1	
31	09822-A1120	Plate	1	
32	09822-00020	Case	1	
33	22B-00-11250	Plate	1	

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### 3. Installation procedures

#### 3.1 Preparations before starting the modification work

- 1) Lower the work equipment of the machine to touch the ground, set the machine to a stable position, remove the upper cover of the hydraulic tank to release the residue pressure from the tank.

#### 3.2 Modification

- 1) Temporarily remove the outer covers and deck guards, 5 units in total, as shown in Fig. 1.
- 2) Disconnect all the PPC hoses (coupler type) connected to the pressure switch located beside the main control valve shown in Fig. 2. (Refer to "Section 5.1" on page 17 regarding the procedures to disconnect them.) After that, remove the bolts "A" to separate the pressure switch block.

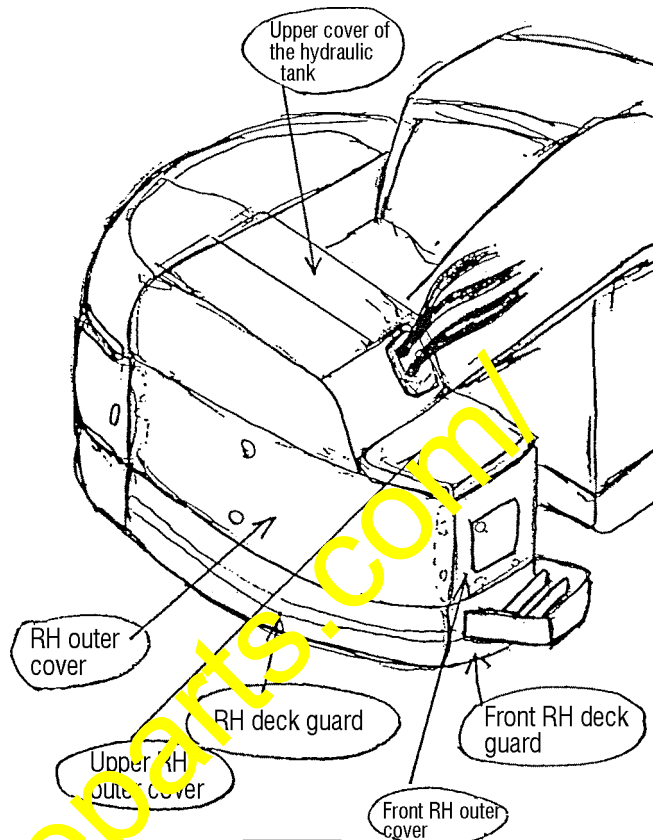


Fig. 1

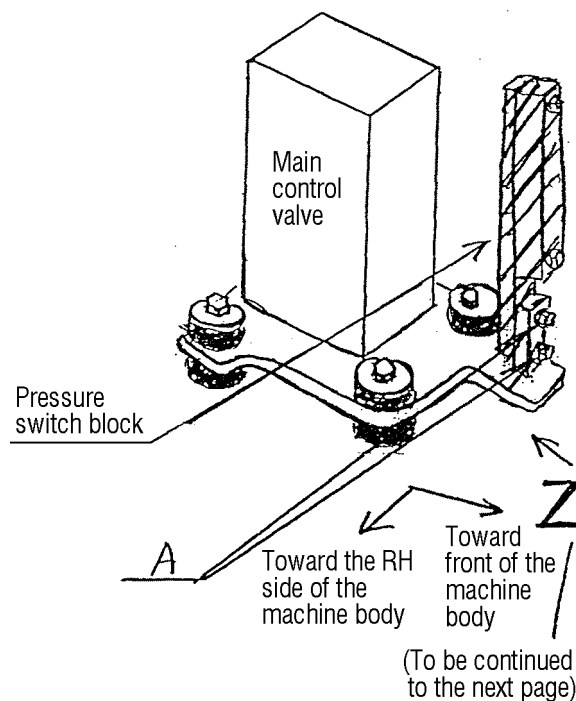


Fig. 2

- 3) Holding the pressure switch block with a vice, etc., remove the pressure switch for re-use. Wash and dry the pressure switch after removing it. Discard other removed parts than the above. (Refer to Fig. 3.)

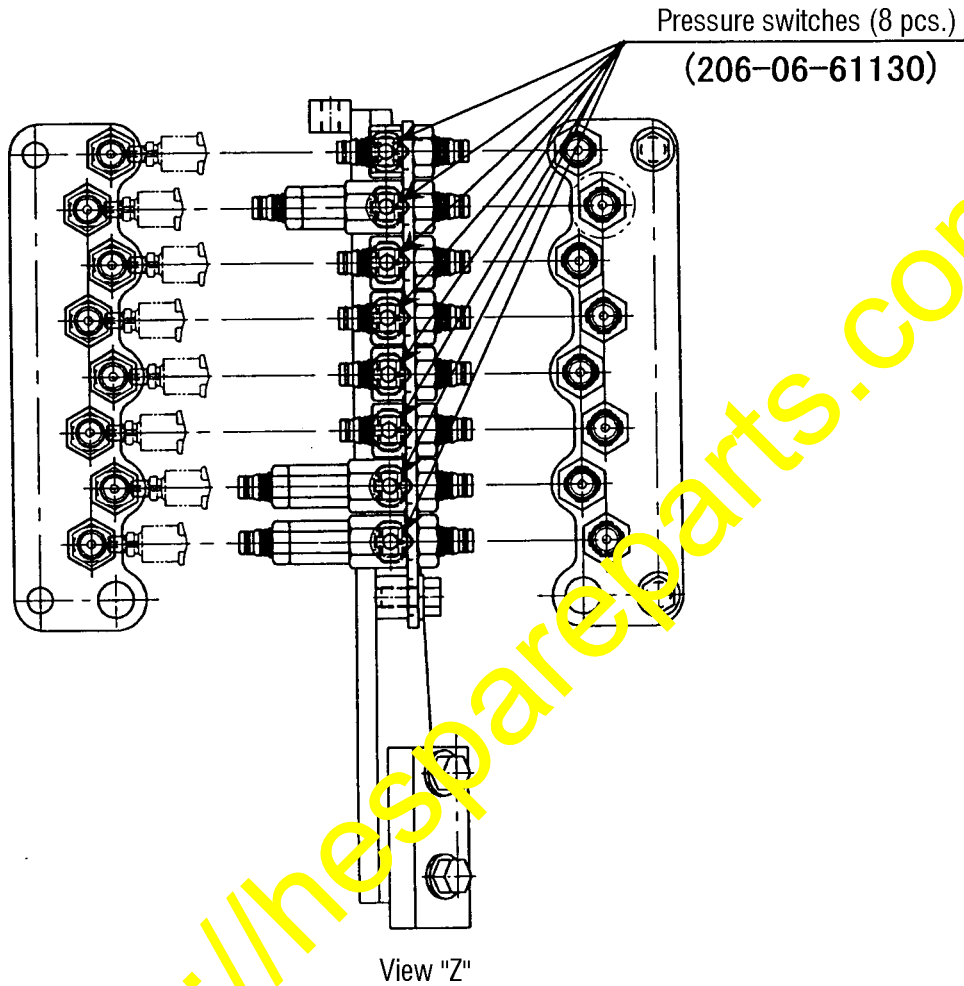


Fig. 3

- 4) Replace the couplings being connected to the main control valve.  
(Replace with the numbered parts in Fig. 7 (Assembly diagram) on page 9.)
  - 4-1) In case of the spec. without arm crane (STD spec.) machines, use the parts ⑳ thru ㉔ , ㉗ and ㉘.
  - 4-2) In case of the spec. with arm crane machines, use the parts according to the above section 4-1) except 2 pcs. of ㉚ which should be changed to ㉝.
  - 4-3) In case of the spec. with arm crane (equipped with the arm cylinder bottom fall preventing device) machines, use the parts according to the above section 4-1) except ㉚ which should be changed to ㉞.
  
- 5) Install the pressure switch which was removed according to Section 3).  
(Apply sealant LS-2 to the thread section.)  
(Refer to Fig. 7 (Assembly diagrams) on page 9.)
  
- 6) Install the parts ① thru ⑳.  
(Refer to Fig. 8 thru Fig. 10 (Assembly diagrams) on pages 10 thru 12.)
  - 6-1) Connect the hoses to the multi-operation pattern selector valve ass'y ①, referring to the "Hose connection table" (Table 1 on page 13) and "Detail drawing of the multi-control valve ass'y" (Fig. 11 on page 13).
  - 6-2) Refer to "Section 5-2" on page 18 regarding the connection method for the coupler hoses.
  
- 7) Reinstall the covers which were removed previously.
  
- 8) Stick the nameplates ㉙ thru ㉛.
  - 8-1) Sticking the nameplates to the inspection cover on the outer cover located on the front RH side

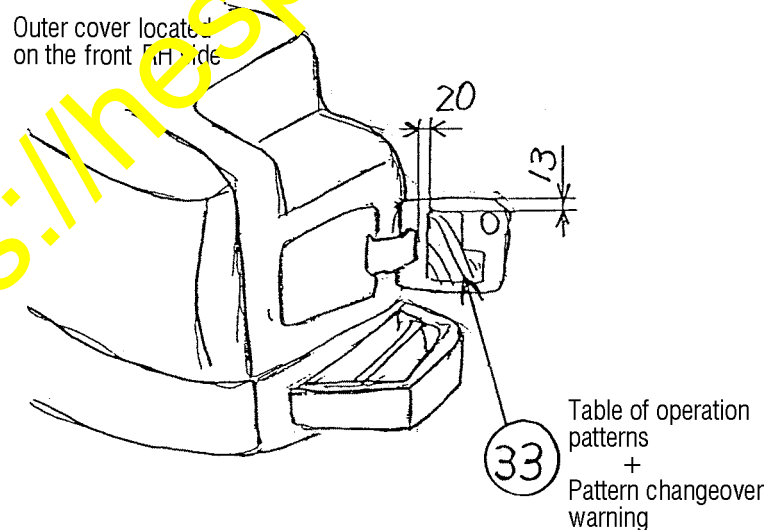
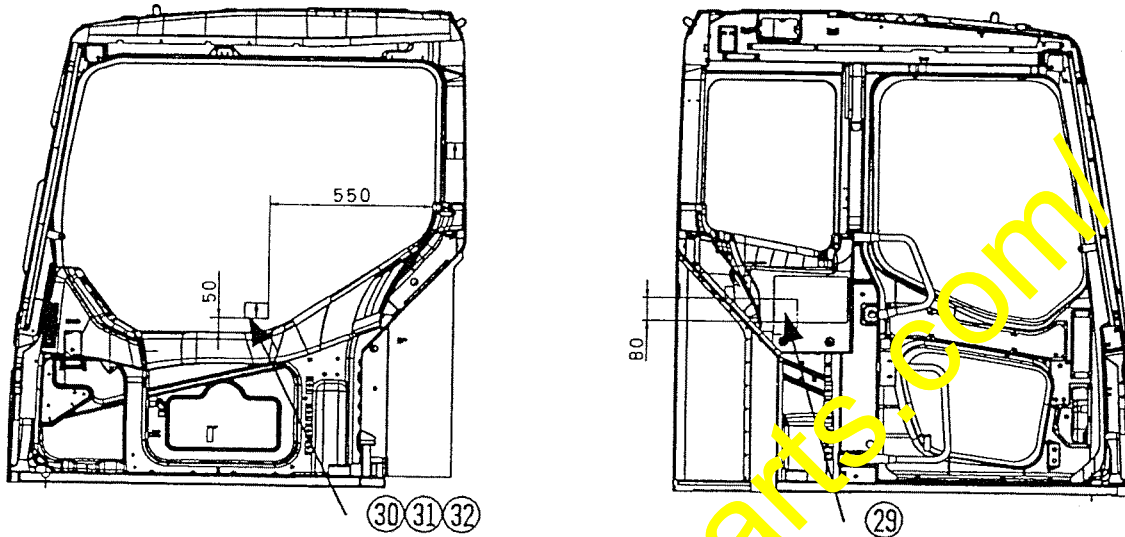


Fig. 4

8-2) Sticking of the plates inside the operator's cab

Referring to Fig. 5, after removing the JIS pattern plate (21W-98-41340), stick the "multi operation pattern plate case" (29) and the "warning plate" (29) to the position instructed in Fig. 5.

Insert the multi operation pattern cards (30 and 31) into the "multi operation pattern plate case" to store them. (Refer to Fig. 6.)



RH side surface, inside the operator's cab

Fig. 5

RH side surface, inside the operator's cab

Operation pattern (multi operation pattern) name plates (cards) for hydraulic excavators

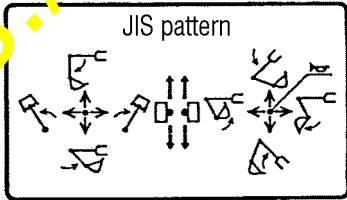
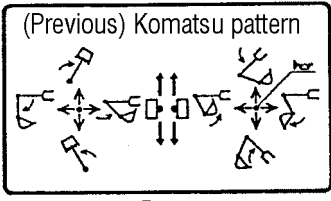
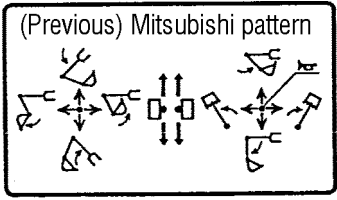
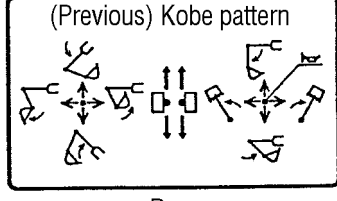
Part No. of the necessary parts	09822-A1120	09822-A1120
Part names	Plate, operating	
Operation Pattern	JIS pattern and (Previous) Komatsu pattern	(Previous) Mitsubishi pattern and (Previous) Kobe pattern
Indications (t 0.8)	<p>JIS pattern</p>  <p>Front</p> <p>(Previous) Komatsu pattern</p>  <p>Rear</p>	<p>(Previous) Mitsubishi pattern</p>  <p>Front</p> <p>(Previous) Kobe pattern</p>  <p>Rear</p>

Fig. 6



Assembly drawing

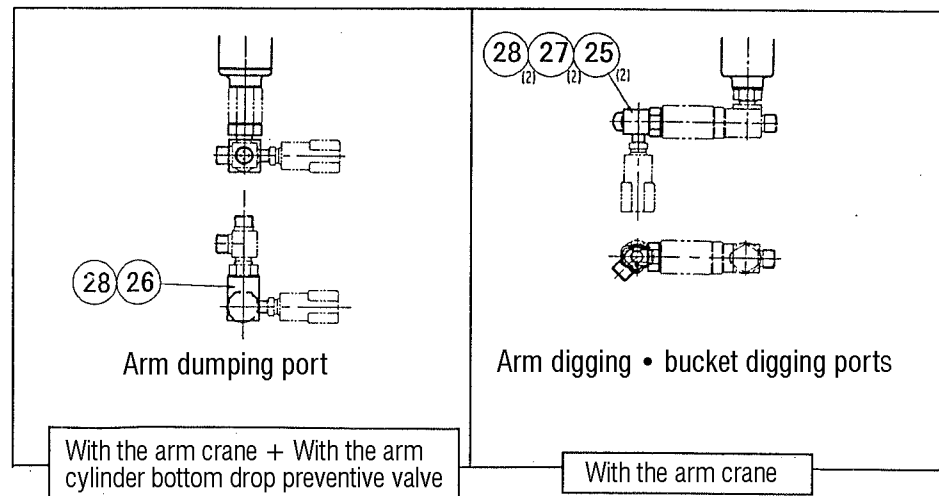
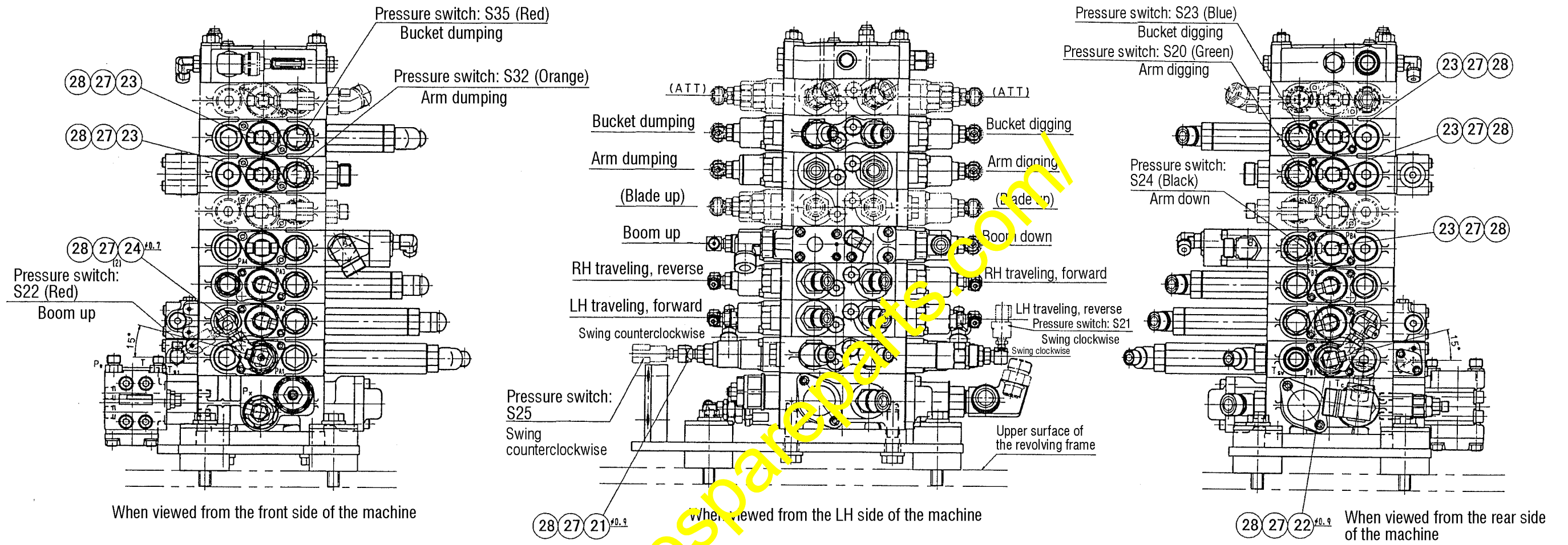
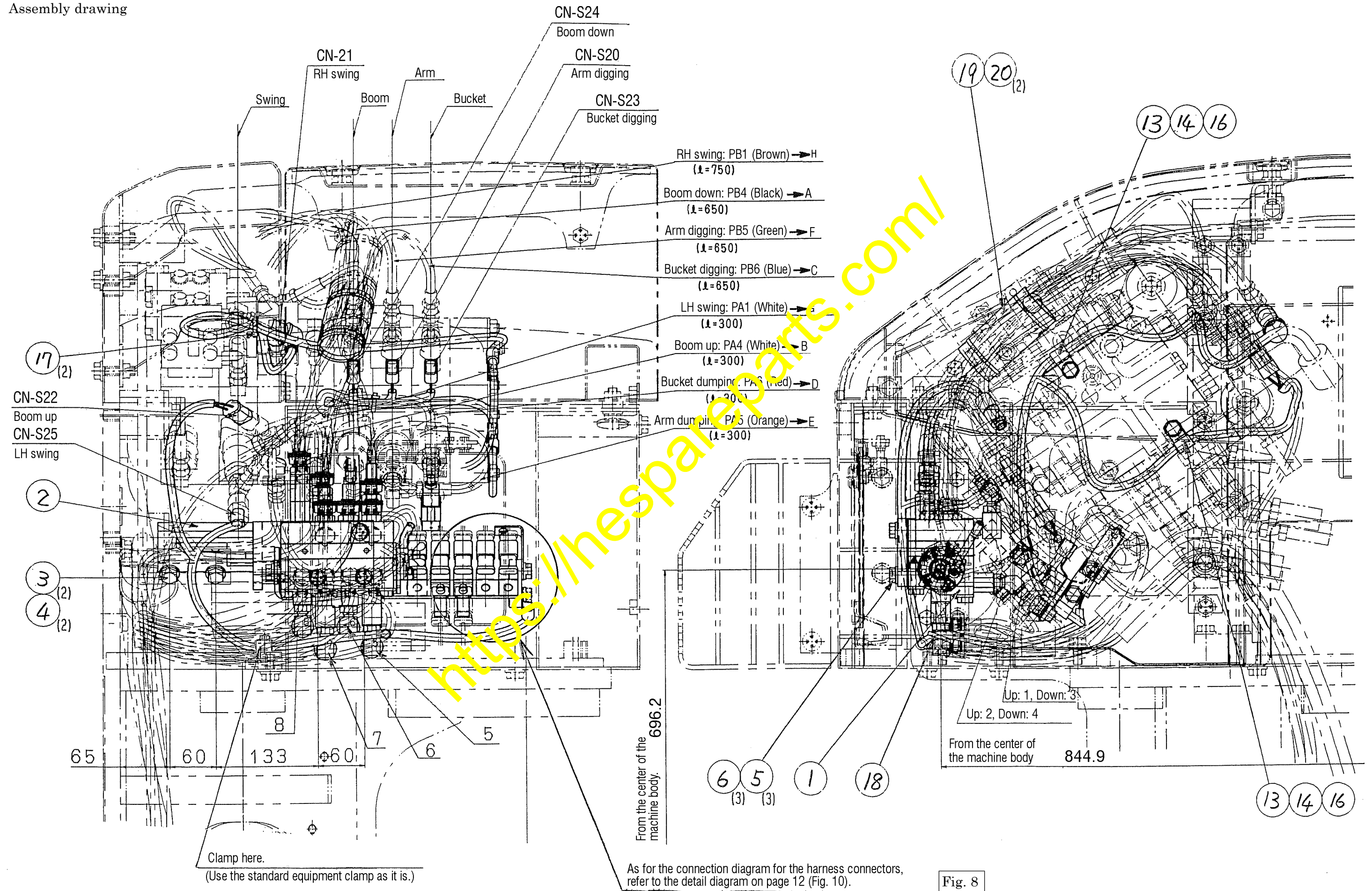


Fig. 7

Assembly drawing



Assembly drawing

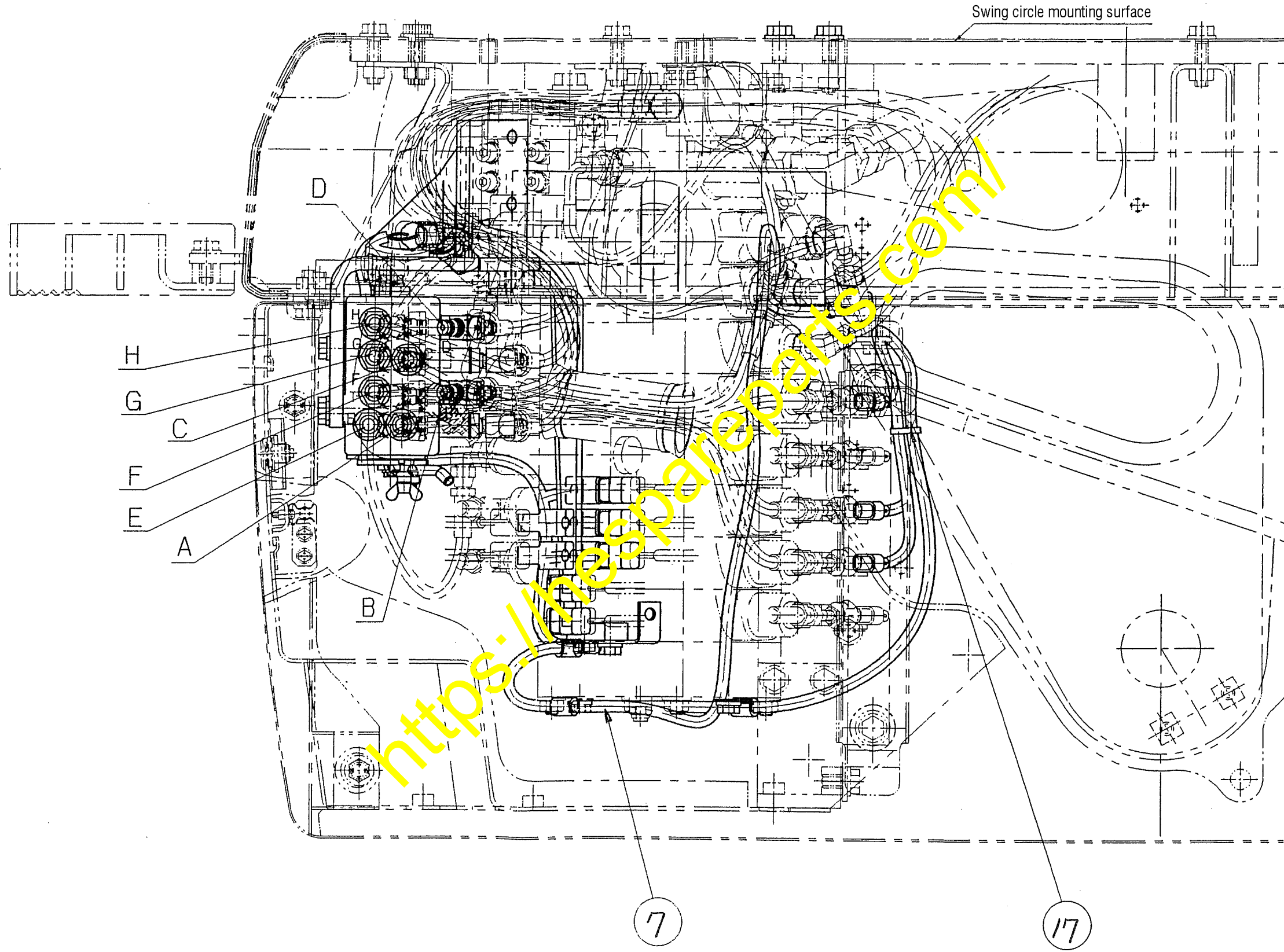


Fig. 9

Assembly drawing  
 (Detail drawing for the connection of the harness connectors)

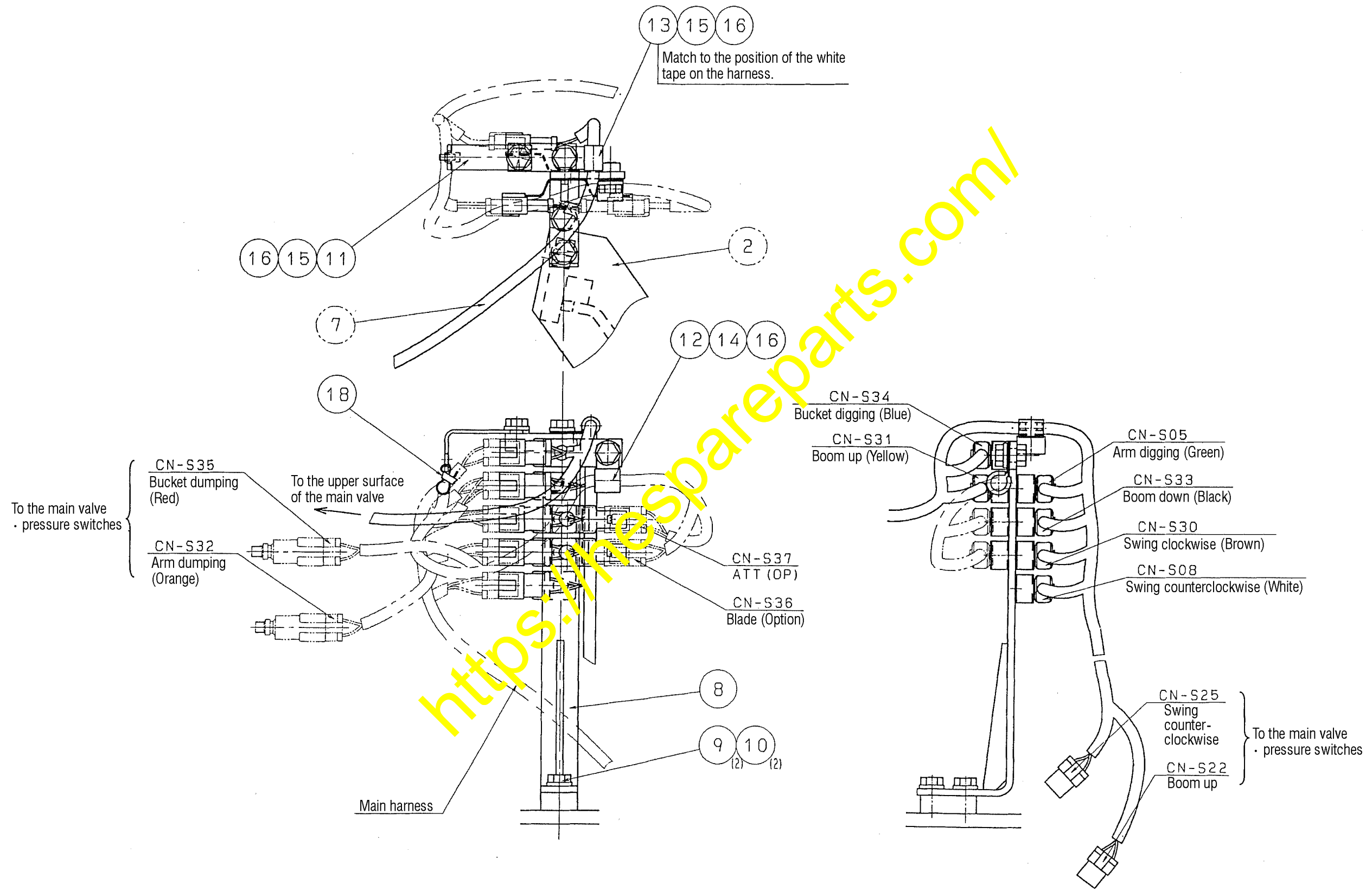


Fig. 10

Hose connection table and detail drawings of the multi-operation pattern selector valve ass'y

Table 1 Hose connection table

Machine body side hose			4 way valve		Floor side hose		
Main valve	Port	Hose color	Port No.	Hose color	PPC valve	Port	
RH swing	PB1	Brown	H 5	Brown	LH valve, Right	P4	
LH swing	PA1	White	G 7	White	LH valve, Left	P3	
Arm digging	PB5	Green	F 6	Green	LH valve, Rear	P2	
Arm dumping	PA5	Orange	E 8	Orange	LH valve, Front	P1	
Bucket dumping	PA6	Red	D 4	Red	RH valve, Right	P4	
Bucket digging	PB6	Blue	C 3	Blue	RH valve, Left	P3	
Boom up	PA4	Yellow	B 2	Yellow	RH valve, Rear	P2	
Boom down	PB4	Black	A 1	Black	RH valve, Front	P1	

Detail drawings of the multi-operation pattern selector valve ass'y

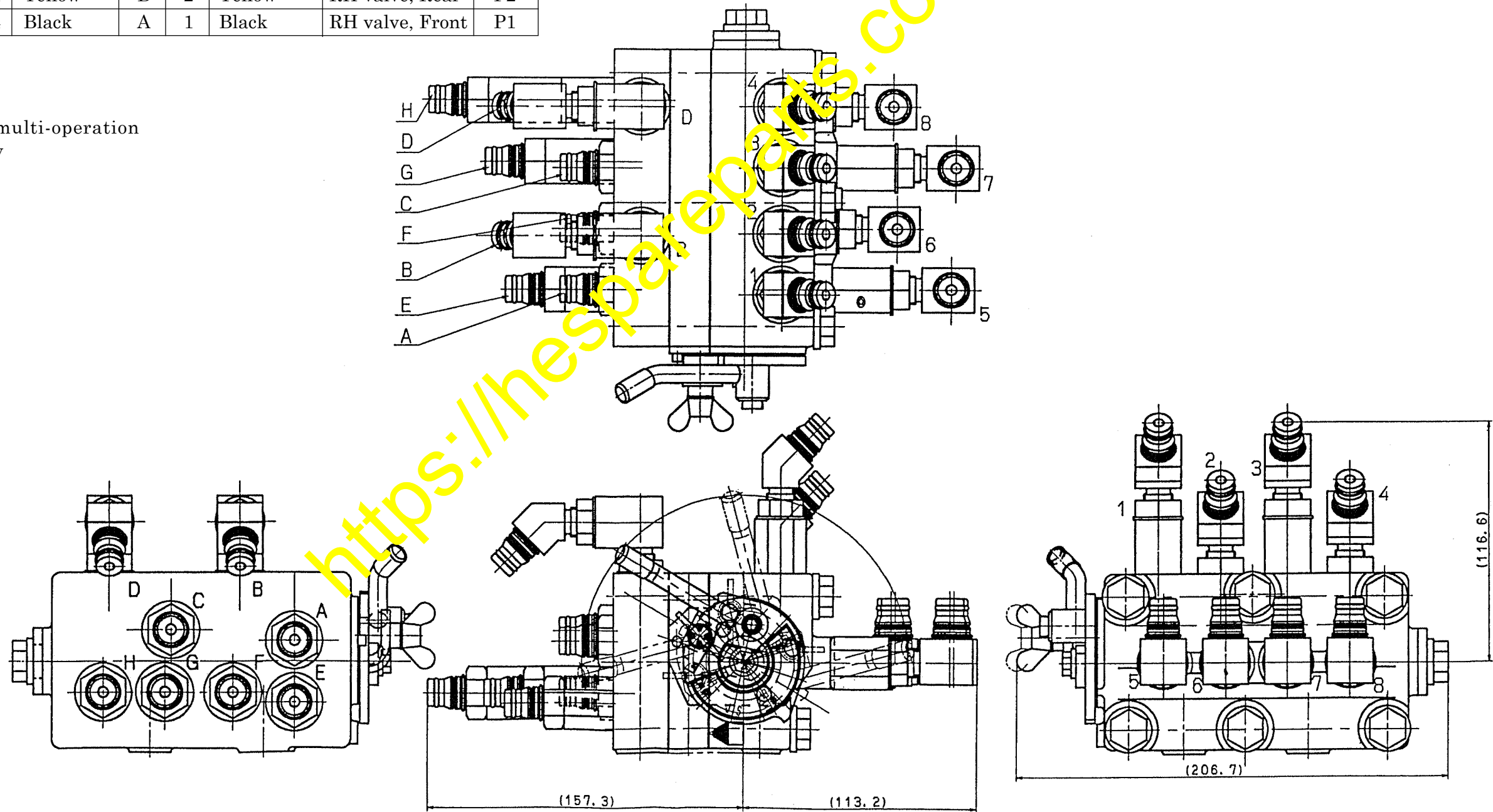


Fig. 11

#### 4. Multi operation pattern changing procedures and operation checks

##### 4-1) Changing procedures

##### 1) Replacing the multi operation pattern plate

To prevent accidents, be sure to replace the "multi operation pattern plate (card)" shown inside the operator's cab located at the front end with the "one" of the newly selected operation pattern.

##### 2) Changing over the 4 way valve

When this 4 way operation pattern selector valve is installed, the operation pattern for the LH and RH work equipment control levers can be changed over to the one the operator prefers.

#### ⚠ WARNING

- When changing the operation pattern of the machine, set the machine to the parking position, stop the engine and set the safety lock lever to the "LOCK" position. Then, after that, change the operation pattern.
- For prevention of human body injury accidents by improper operation, before starting operation of the machine, make sure that the indication of the "multi operation pattern plate (card)" coincides with the actual movements of the work equipment. If the actual movements of the work equipment differ from the indication of the "multi operation pattern plate (card)", change the "multi operation pattern plate (card)" to the correct one immediately.
- When checking the movements of the work equipment, pay sufficient attention to the surroundings and always operate the work equipment slowly.

#### IMPORTANT

On the authorized machines for the standard operation method, it is not allowed to change the operation pattern from the JIS pattern to other patterns. If the operation pattern is changed from the JIS pattern to other pattern, the authorization for the machine of the standard operation method will become invalid and be sure to remove the authorization label designated by the Ministry of Construction.

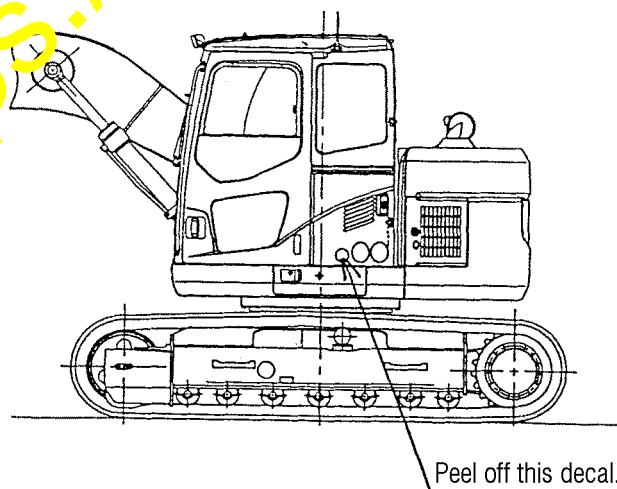


Fig. 12

- 2-1) When changing the operation pattern of the machine, stop the engine and set the safety lock lever to the "LOCK" position. Then, after that, change the operation pattern.
- 2-2) Open the inspection cover located on the front RH side of the machine body and there will be the plate indicating the operation patterns and the lever of the operation pattern selector valve.

2-3) When changing the operation pattern of the machine, take the following procedures.

- a) Loosen the wing bolt ①.
- b) Move the lever ② to align the mark ▲ on the valve body surface to the selected operation pattern name shown on the lever base.
- c) After finishing the above changeover work, tighten the wing bolt ①.

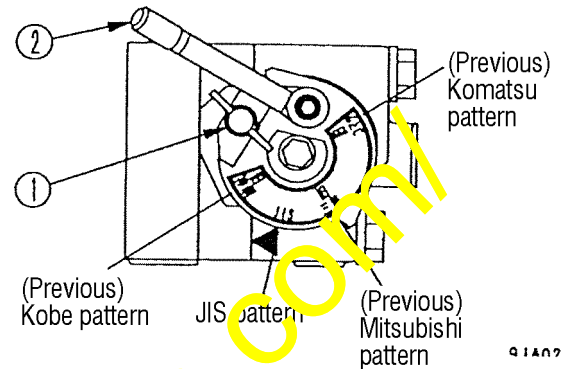


Fig. 13

2-4) Replace the "multi operation pattern plate (card)" (the card to insert into the card case) inside the card case with the one indicating the selected operation pattern.

#### 4-2) Operation checks

- 1) Operation checks of the multi-operation pattern  
Check that the operations can be made properly according to the selected operation pattern. (Refer to Table 2 on page 13.)
- 2) Operation checks of the auto decelerator  
Since the pressure switches have been replaced and the harnesses have been added by this modification, check that the auto decelerator can operate properly. (Refer to the Shop Manual for the explanations of the auto decelerator operations.)

4-3) Table of each operation pattern

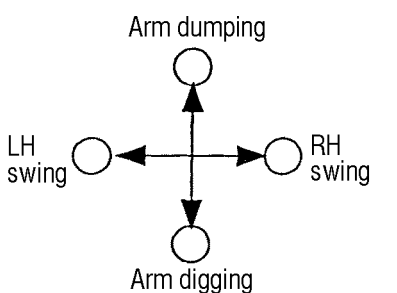
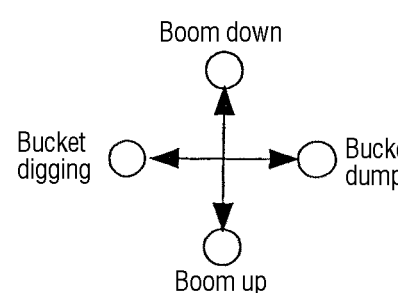
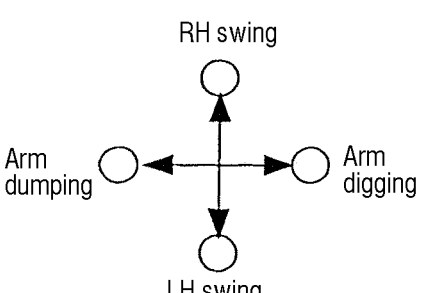
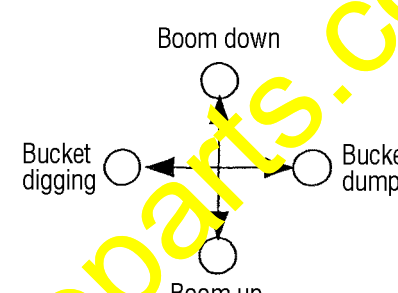
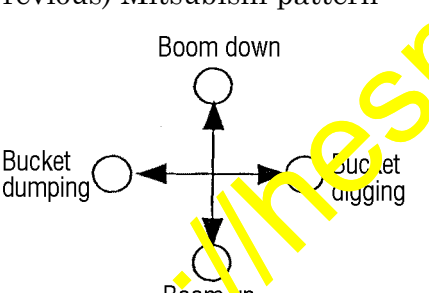
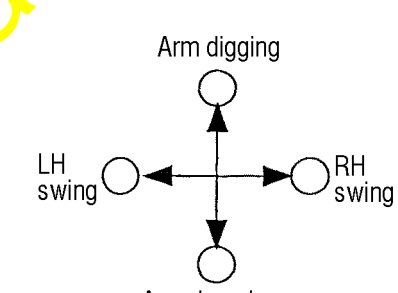
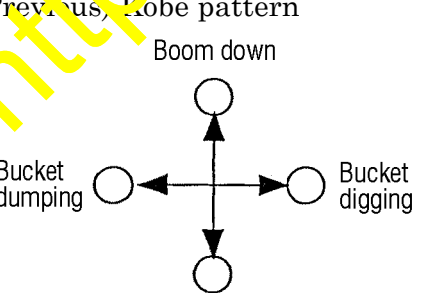
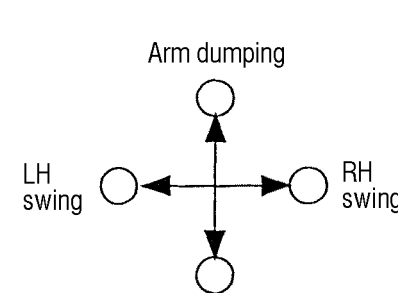
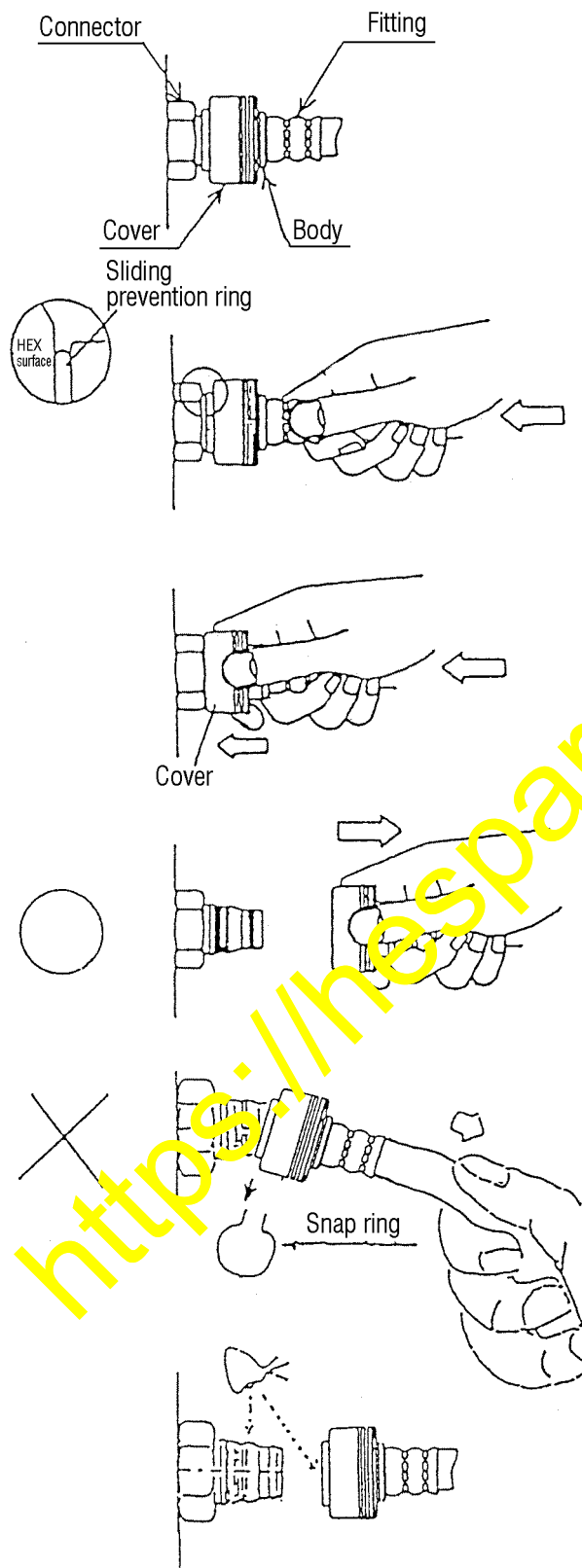
Operation patterns	
JIS pattern	
	
Work equipment control lever, LH	Work equipment control lever, RH
(Previous) Komatsu pattern	
	
Work equipment control lever, LH	Work equipment control lever, RH
(Previous) Mitsubishi pattern	
	
Work equipment control lever, LH	Work equipment control lever, RH
(Previous) Kobe pattern	
	
Work equipment control lever, LH	Work equipment control lever, RH

Table 2



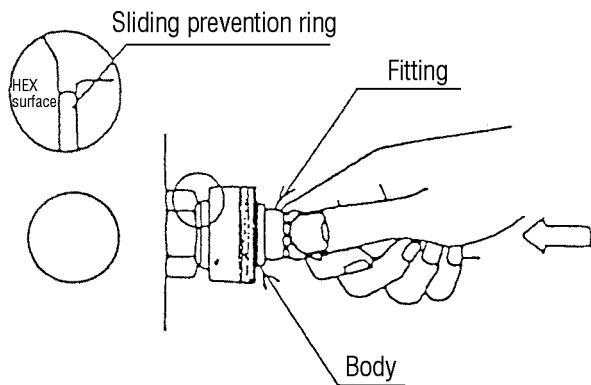
## 5. Connecting and disconnecting procedures for the push-pull type quick coupler

### 5.1 Disconnecting procedures and precautions



- (1) Connected state**  
Before starting disconnecting the push-pull type easy-touch coupler, remove mud, sand and oil adhering to the body and connector.
- (2) Starting to disconnect the coupler**  
Holding the fitting, push the body side straight until the sliding prevention ring strikes the HEX surface.
- (3) Keeping the state, push the cover until it strikes the HEX surface.**
- (4) Maintaining the statuses according to the above Sections (2) and (3), pull the whole body.**
- (5) Precaution when pulling the coupler**  
**Do not pull it aslant.**  
(If it is pulled aslant, the snap ring may drop off.)
- (6) Precaution after disconnecting the coupler**  
Thoroughly remove adhering mud, sand and oil from the coupling section. (If the coupler is reconnected with oil remaining on the surfaces, it may be erroneously regarded as an oil leakage.)

## 5.2 Connecting procedures and precautions



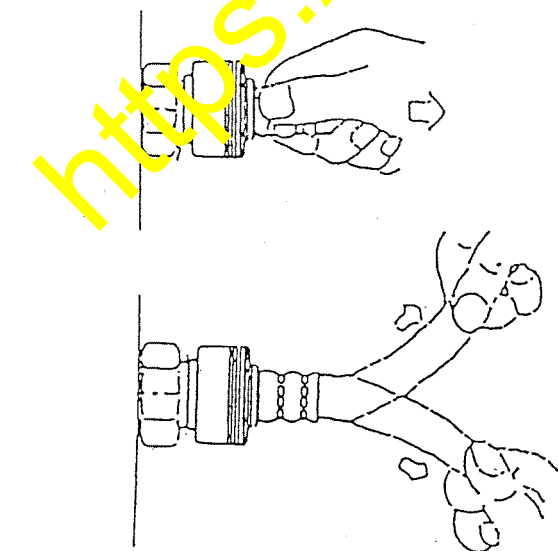
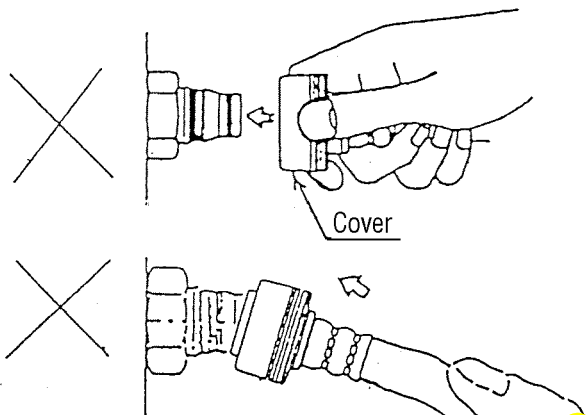
### (1) Insertion

Holding the fitting, push the body side straight until the sliding prevention ring strikes the HEX surface.

Note 1: If a small amount of oil is remaining on the coupling sections, connection can be made smoothly. However if oil amount is too much, it may be erroneously regarded as a oil leakage.

Note 2: Do not hold the cover to push in. (It may become a cause of imperfect connection.)

Note 3: Do not push the body aslant. (It may become a cause of imperfect connection.)



### (2) Check of the connection

Holding the fitting, pull the body straight to make sure the coupler cannot be pulled out.

Note 1: Do not pull the hose aslant when checking the connection.

Note 2: Do not strike the cover to a hard substance.