

# INSTALLATION MANUAL

REF NO.	BT01020
DATE	Apr. 23, 2001

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**SUBJECT:** NEW ECSS KIT (ONE ACCUMULATOR TYPE)

**PURPOSE:** To introduce local installation kit of the new ECSS

**APPLICATION:** WA380-3 Wheel Loaders, Serial Nos. 50001 and up  
(General overseas spec.)  
WA380-AD-3 Wheel Loaders, Serial Nos. 50001 and up  
(Spec. locally manufactured by KA)

**FAILURE CODE:** 5A00Z9

**DESCRIPTION:**

1. Introduction

This Service News will introduce the new Electronic Controlled Suspension System (ECSS) (1 accumulator type) with further improved cargo spilling preventive function and enhanced riding comfort as compared with the current ECSS (2 accumulator type). Introduced here is the kit to install the new ECSS onto those machines that are not yet equipped with the ECSS or that already carry the current ECSS (2 accumulator type). When installing the new ECSS locally, follow the installation procedures outlined in this Service News.

## 2. Ordering the necessary parts

Part No.	Part Name	Q'ty	Remarks
1. Commonly necessary parts regardless of the current status of the machine			
421-S99-3100	Valve	1	
01435-01250	Bolt	2	
01435-01270	Bolt	1	
01580-11210	Nut	1	
418-54-13220	Washer	6	
418-54-13151	Cushion	6	
418-54-13161	Cushion	3	
428-64-15110	Collor	3	
421-S99-3180	Bracket	1	
01435-01225	Bolt	2	
01010-81230	Bolt	1	
01643-31232	Washer	1	
07236-10422	Elbow	1	
07002-12034	O-ring	1	
07230-20522	Union	1	
07002-12434	O-ring	1	
07235-10524	Elbow	1	
07002-12434	O-ring	1	
721-32-08031	Accumulator	1	
09659-A0573	Plate	1	
421-S99-3132	Clip	1	
01580-01008	Nut	2	
01435-01225	Bolt	2	
424-S99-2891	Bracket	1	
421-S99-3150	Bracket	1	
01435-01225	Bolt	6	
07235-10522	Elbow	1	
07002-12434	O-ring	1	
423-62-23770	Tube	1	

Part No.	Part Name	Q'ty	Remarks
07000-13035	O-ring	2	
423-62-23780	Tube	1	
07000-13032	O-ring	2	
424-62-23860	Tube	1	
07000-13035	O-ring	2	
423-62-23790	Tube	1	
07000-13032	O-ring	2	
423-62-23760	Tube	1	
07000-13032	O-ring	2	
07235-10422	Elbow	1	
07002-12034	O-ring	1	
07123-00407	Hose	1	
04434-52711	Clip	1	
07095-20420	Cushion	1	
01435-01016	Bolt	1	
42A-16-11210	Plate	1	
01435-01016	Bolt	1	
423-62-23550	Bracket	1	
07123-00509	Hose	1	
04434-53411	Clip	1	
07095-20625	Cushion	1	
01435-01020	Bolt	1	
423-62-23990	Bracket	1	
07283-32738	Clip	1	
01643-31032	Washer	2	
01597-01009	Nut	2	
07235-10522	Elbow	1	
07002-12434	O-ring	1	
423-S99-2251	Tee	1	
07000-13038	O-ring	2	
01252-41050	Bolt	4	

Part No.	Part Name	Q'ty	Remarks
07123-00509	Hose	1	
04434-53411	Clip	1	
07095-20627	Cushion	1	
01435-01016	Bolt	1	
07124-01007	Hose	1	
423-62-23610	Hose	1	
07000-13032	O-ring	4	
07371-31049	Flange	8	
07372-21035	Bolt	16	
01643-51032	Washer	16	
423-S99-2920	Wiring harness	1	Supplementary frame harness
08036-21414	Clip	6	
01435-01016	Bolt	1	
04434-51910	Clip	1	
08034-20536	Band	2	
195-54-23640	Seat	3	} For reworking of the front frame
286-35-11610	Seat	4	
419-46-12E30	Seat	1	
2. Parts necessary for machines that are not equipped with the ECSS only			
421-S99-3530	Wiring harness	1	Supplementary frame harness
08034-20519	Band	3	
7823-43-1001	Controller	1	Exclusive for the ECSS
01435-00816	Bolt	4	
421-S99-2160	Bracket	2	
01435-00816	Bolt	4	
423-S99-2340	Wiring harness	1	Model selection connector
08034-20519	Band	1	
08037-03614	Grommet	1	
569-06-61960	Relay	1	
287-06-16420	Clip	1	

Part No.	Part Name	Q'ty	Remarks
01435-00612	Bolt	1	
423-S99-2330	Bracket	1	
08053-01510	Clip	1	
7823-62-9012	Plate	1	Decal printed in Japanese
7823-62-9063	Plate	1	Decal printed in English
01571-01016	Seat	1	For reworking of the rear frame
3. Parts necessary for machines equipped with the exclusive controller for the ECSS only (machines carrying the controller underneath the operator's seat)			
421-S99-3530	Wiring harness	1	Supplementary frame harness
08034-20519	Band	3	
423-S99-2340	Wiring harness	1	Model selection connector
08034-20519	Band	1	
08037-03614	Grommet	1	
569-06-61960	Relay	1	
287-06-16420	Clip	1	
01435-00612	Bolt	1	
4. Parts necessary for machines equipped with the common controller for the transmission and for the ECSS only (machines carrying the transmission controller inside the RH console box)			
7823-14-1006	Controller	1	Transmission + ECSS controller
421-S99-3550	Wiring harness	1	Adaptor harness

Precautions before starting the modification work

If the subject machine is equipped with the ECSS possessing the accumulator charging function, it is necessary to release pressure from the circuit before disconnecting the piping connecting to and from the work equipment.

Therefore, check the machine and if you find that pressure releasing is necessary, be sure to release pressure from the circuit following the pressure releasing procedures described in the following Service News.

Service News No. BT97047 "Installation procedures for new ECSS kit"

Referring Section: Precautions when using the accumulator piping pressure releasing switch

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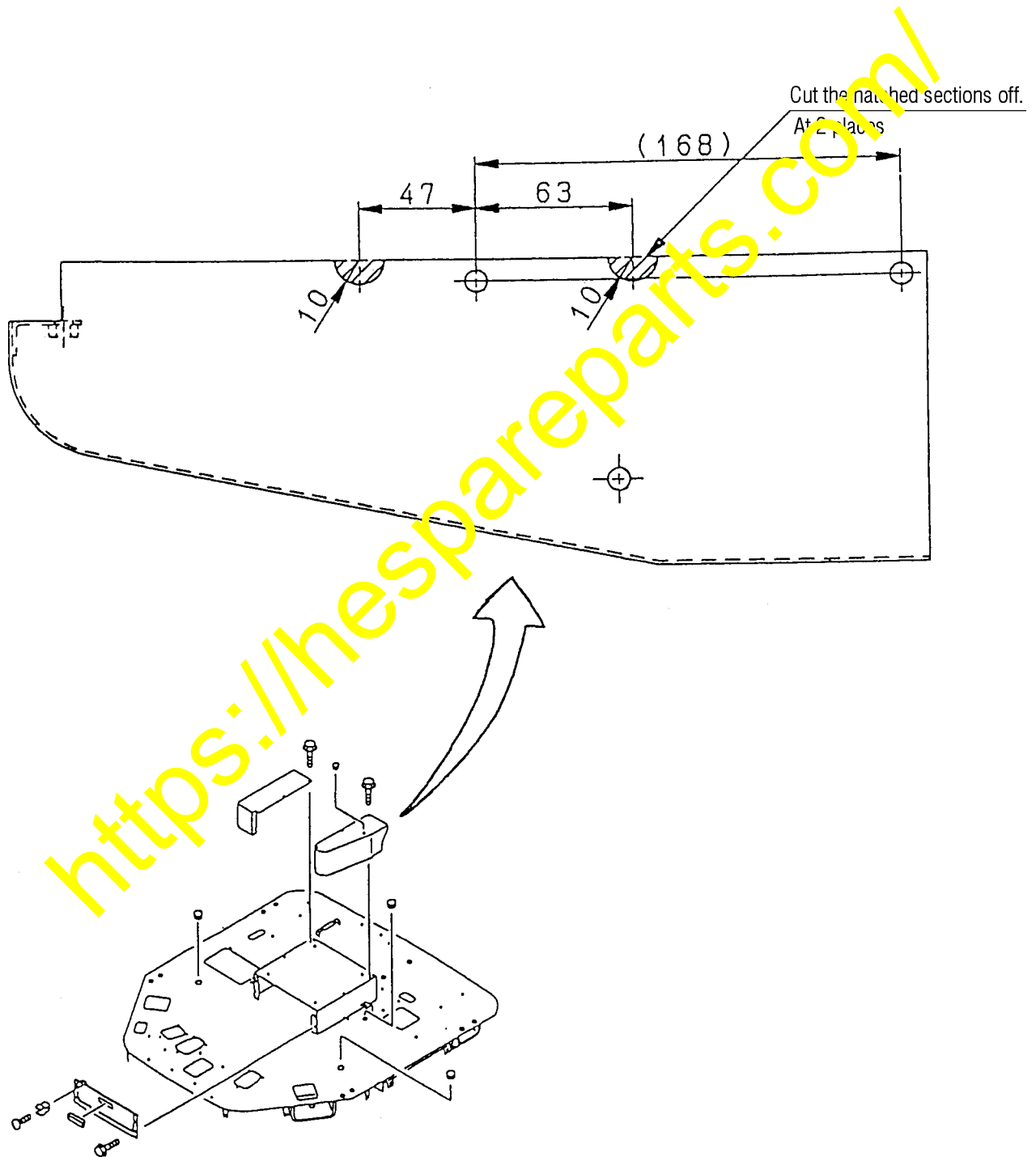
### 3. Reworking procedures

#### 1) Reworking with the cover

Cut the hatched sections off from the cover located on the LH side of the seat support on the floor.

<<Note>> Ordering the cover (421-S99-2610) can substitute making this reworking.

Note) This reworking is not necessary in cases where the subject machine is already equipped with the ECSS.

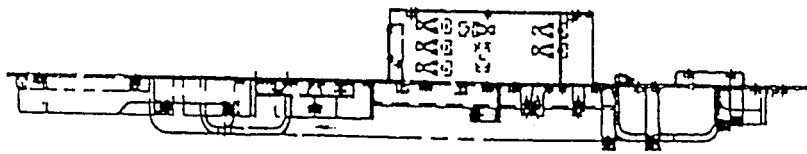
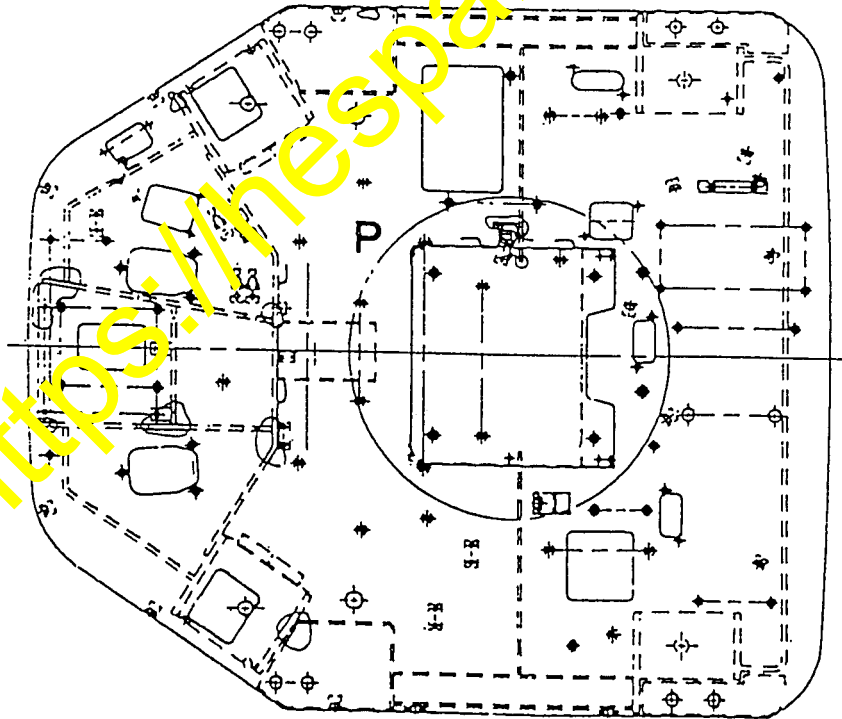
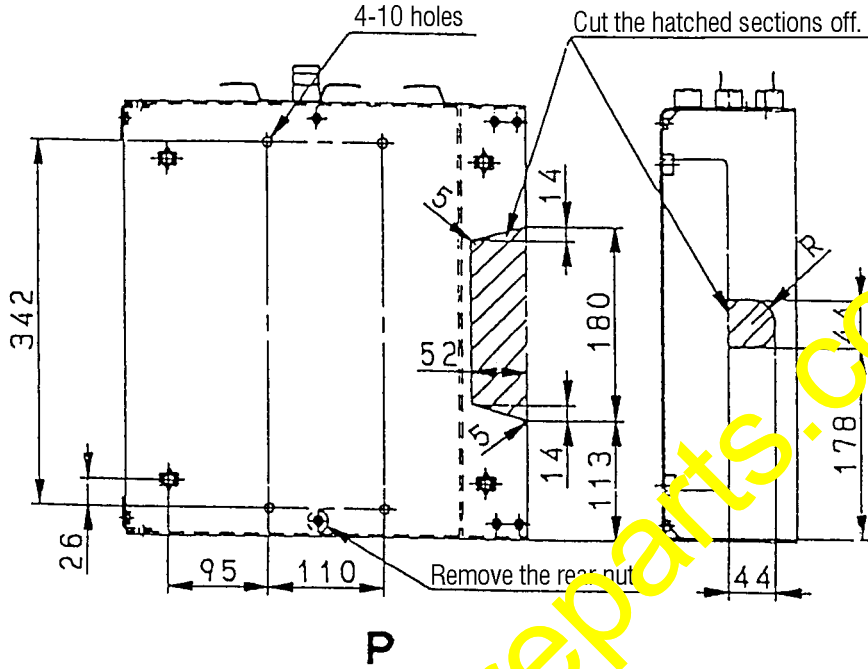


2) Reworking with the floor

- ① Cut the hatched sections off (at 2 places).
- ② Remove the rear nut (at 1 place).
- ③ Drill  $\phi 10$  holes (at 4 places).

Note)

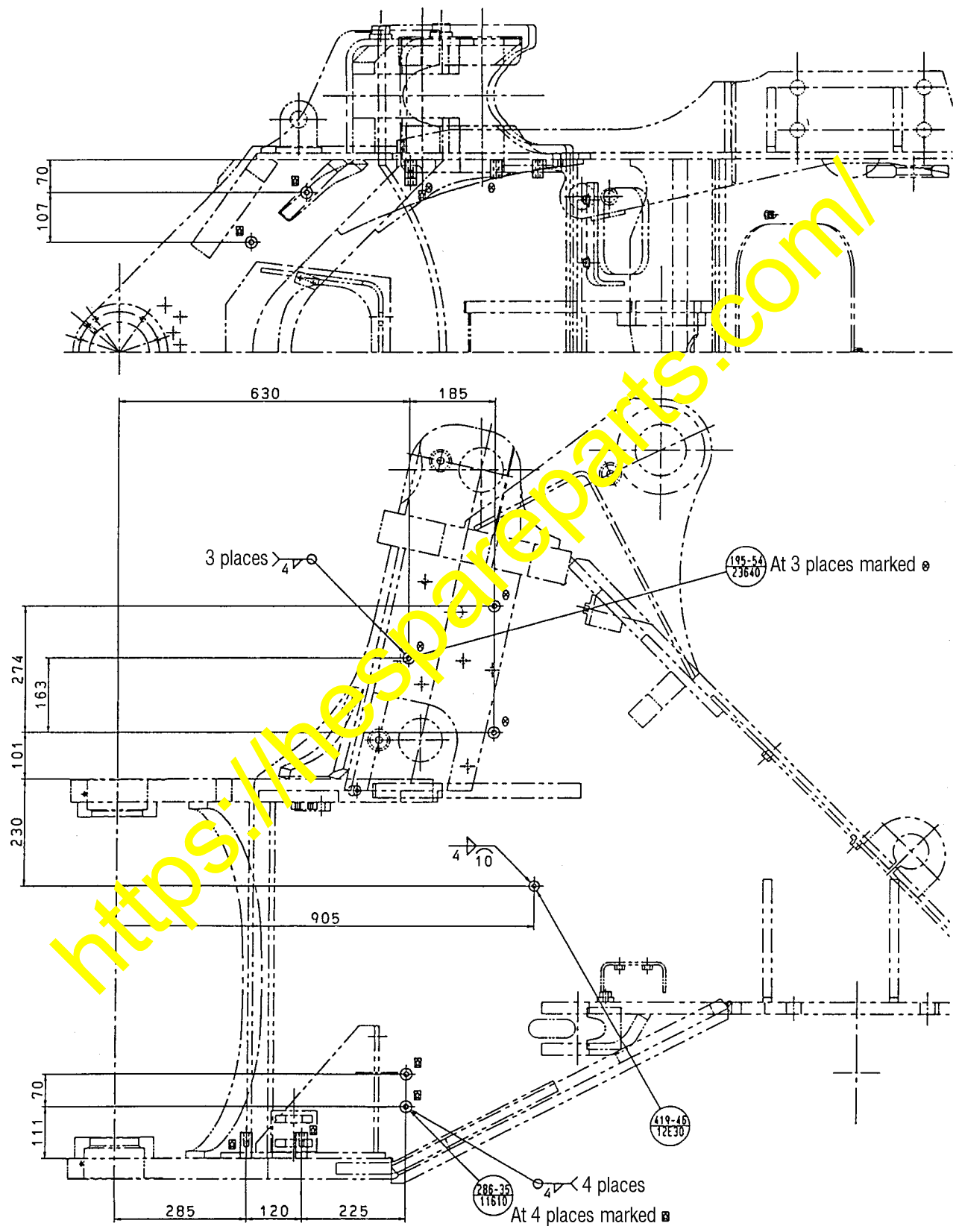
This reworking is not necessary in cases where the subject machine is already equipped with the ECSS.





3) Reworking with the front frame

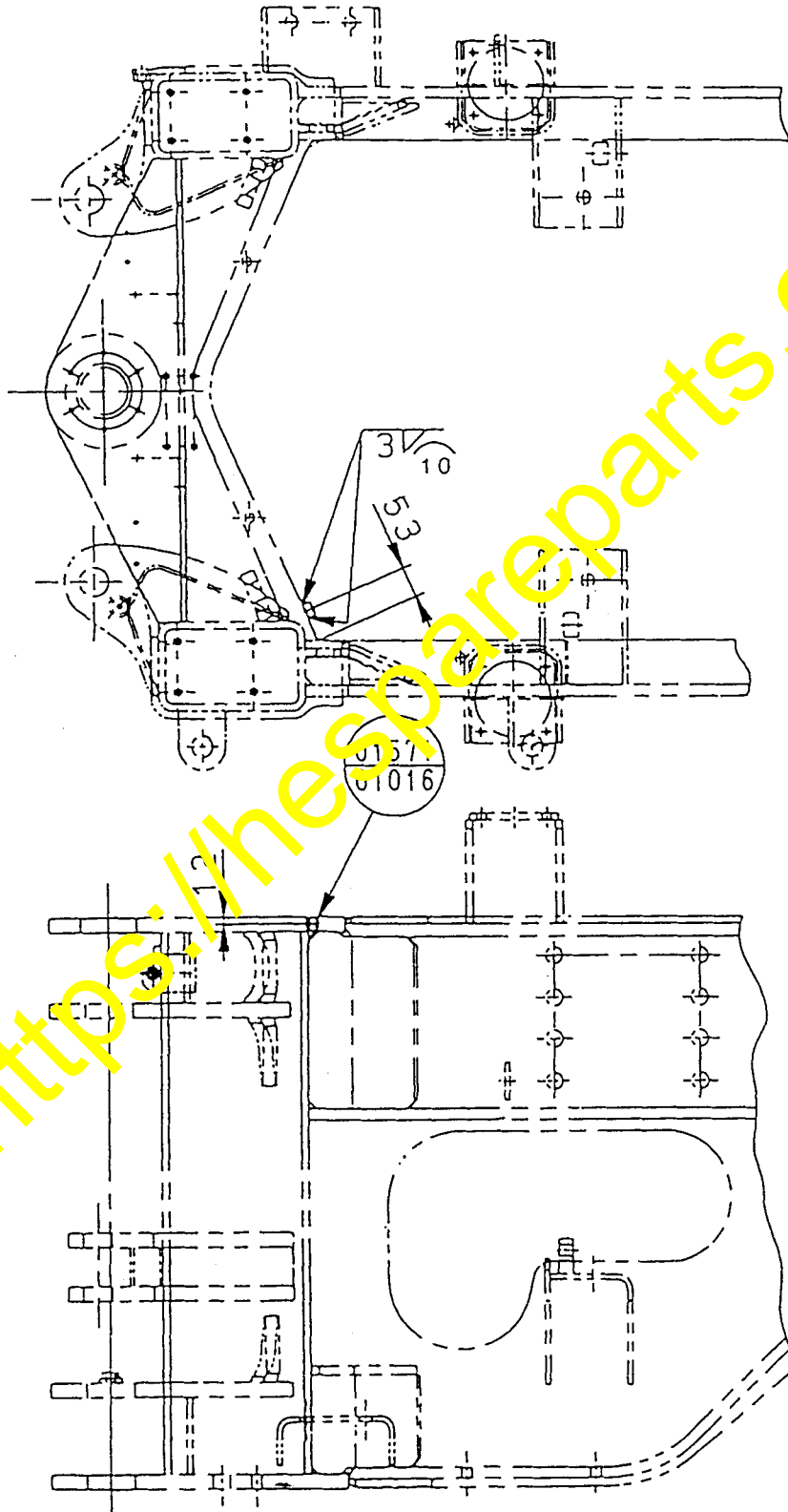
Weld the prepared parts according to the instructions given in the schematic diagram indicated below.



4) Reworking with the rear frame

Weld the prepared parts to the positions instructed in the schematic diagram indicated below.

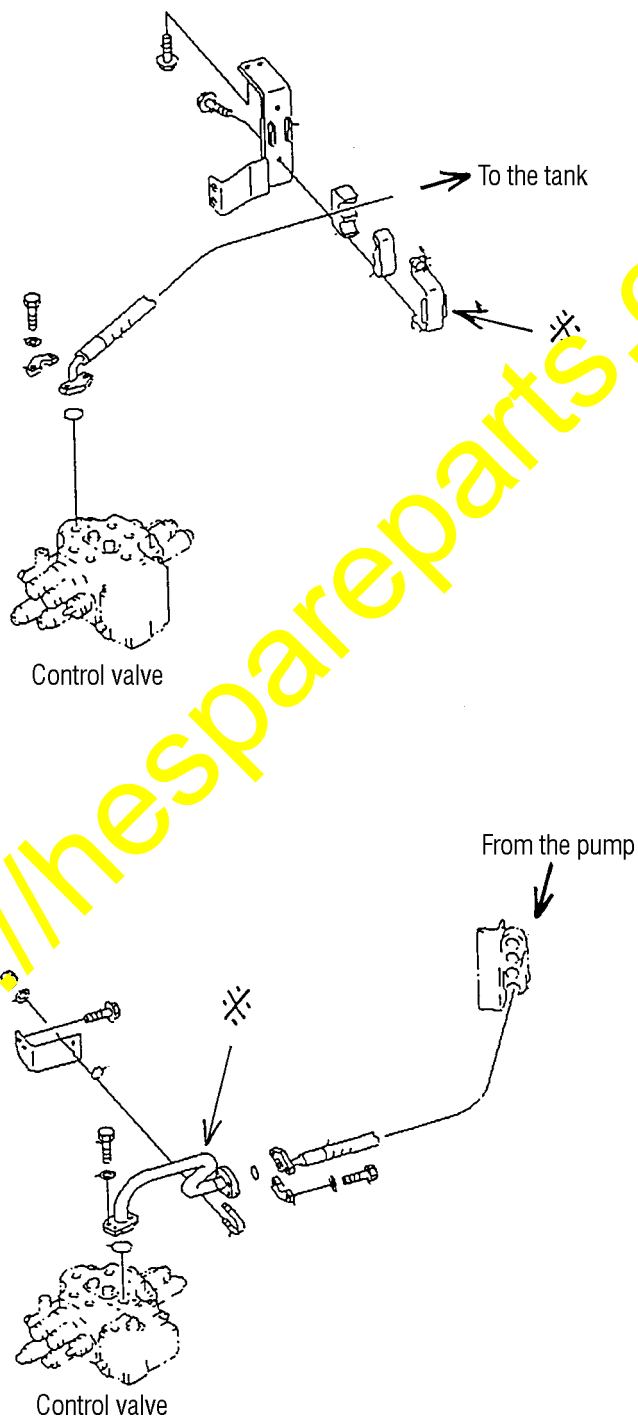
This reworking is not necessary in cases where the subject machine is already equipped with the ECSS.



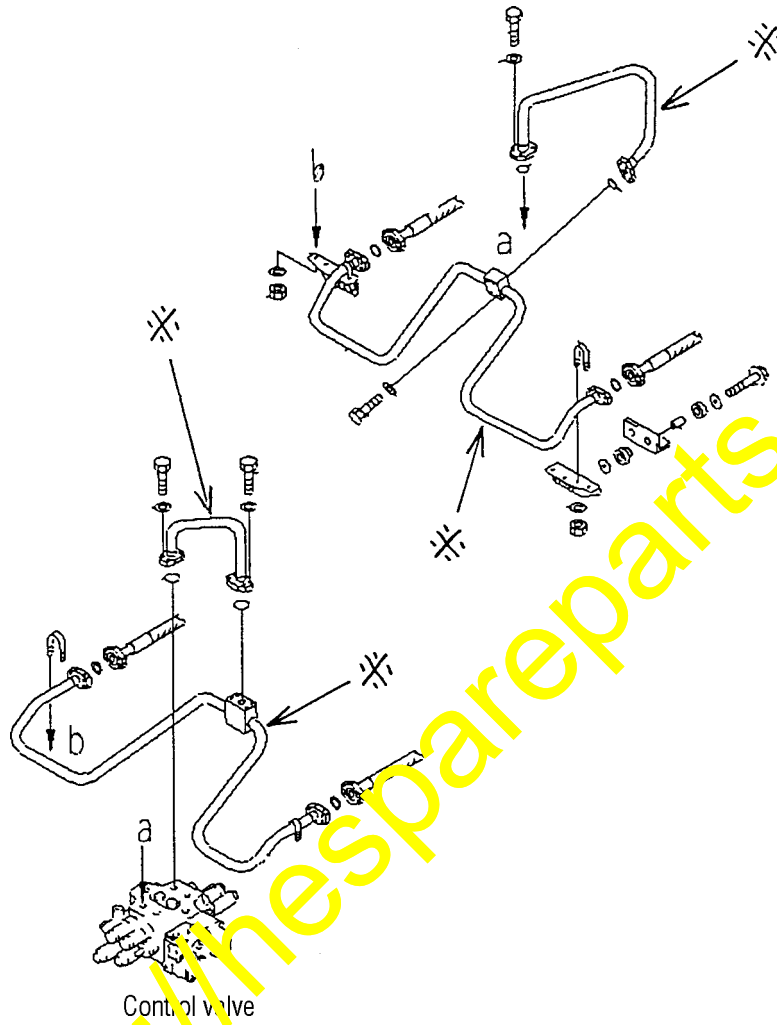
#### 4. Removing the parts, that need to be removed for this modification

Note) Since other parts than those removed will be re-used, store them carefully.

- 1) Removing the loader piping related parts.  
Remove the ※ marked parts.

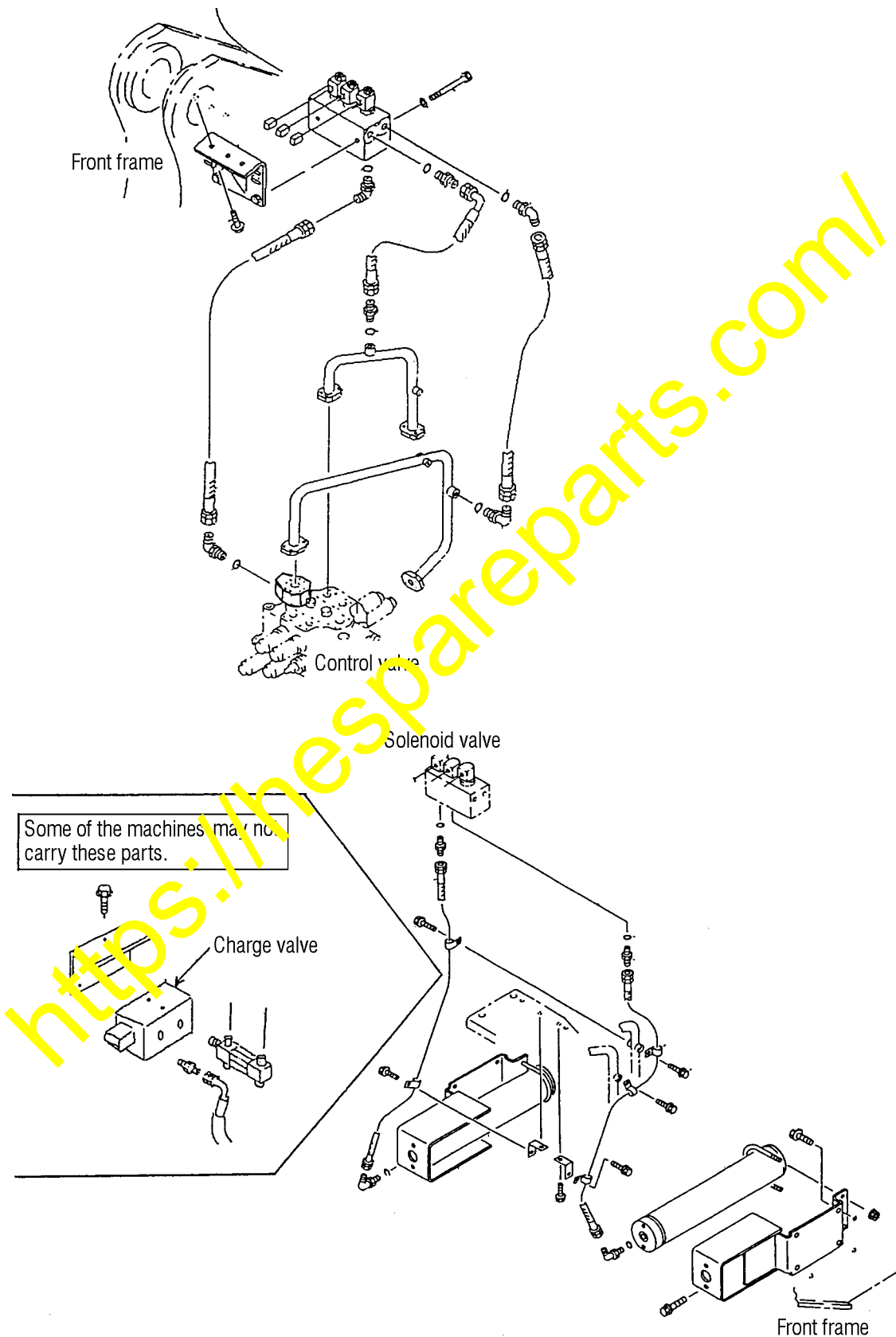


- 2) Removing the boom piping related parts.  
Remove the ※ marked parts.



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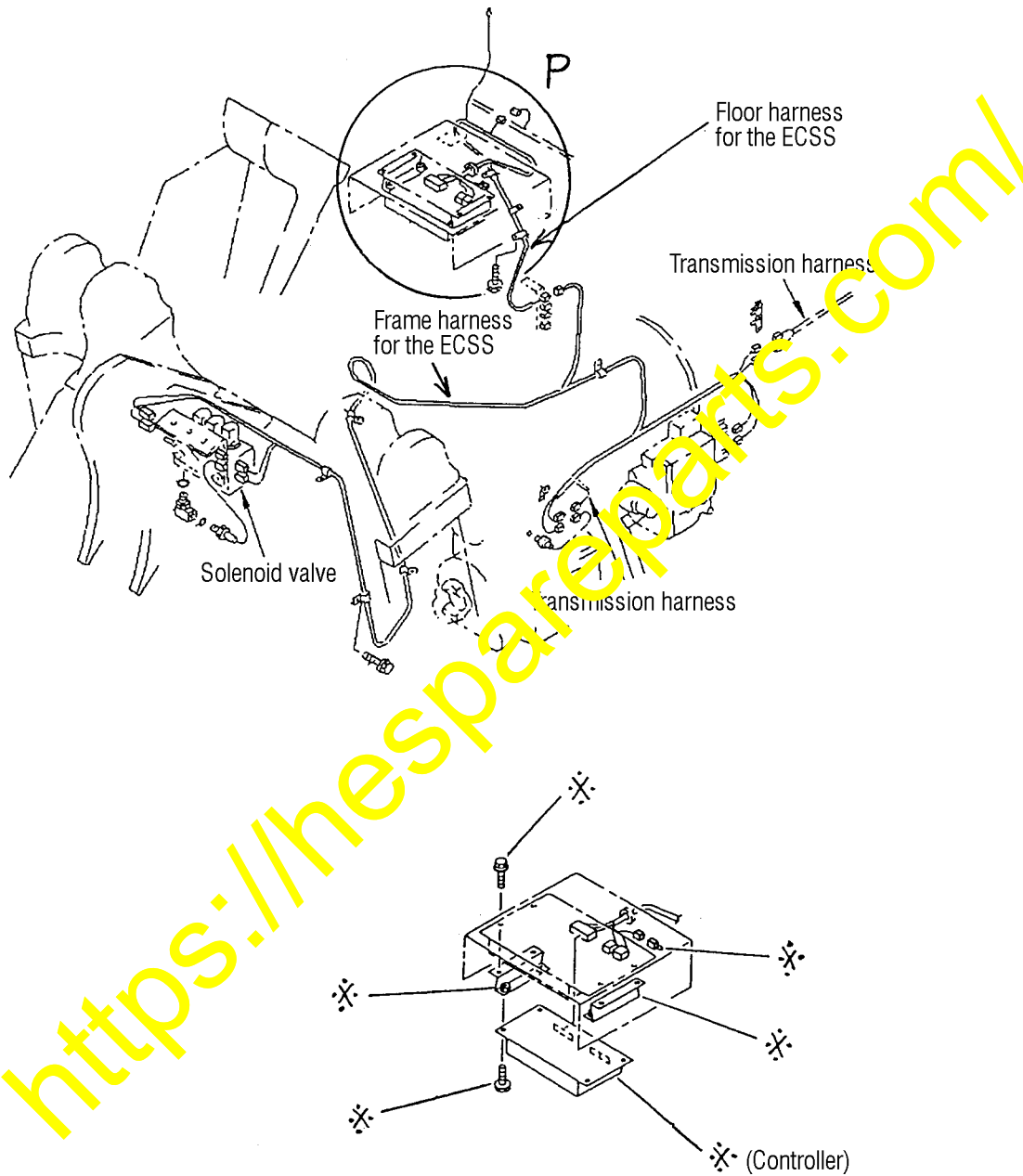
- 3) Removing the current ECSS related parts (hydraulic circuit related parts)  
In cases of machines equipped with the current ECSS, remove the parts shown in the schematic diagrams indicated below.



4) Removing the current ECSS related parts (electric equipment related parts)

① In cases of machines equipped with the exclusive controller for the ECSS

Remove the frame harness and the floor harness for the ECSS shown in the schematic diagrams indicated below.

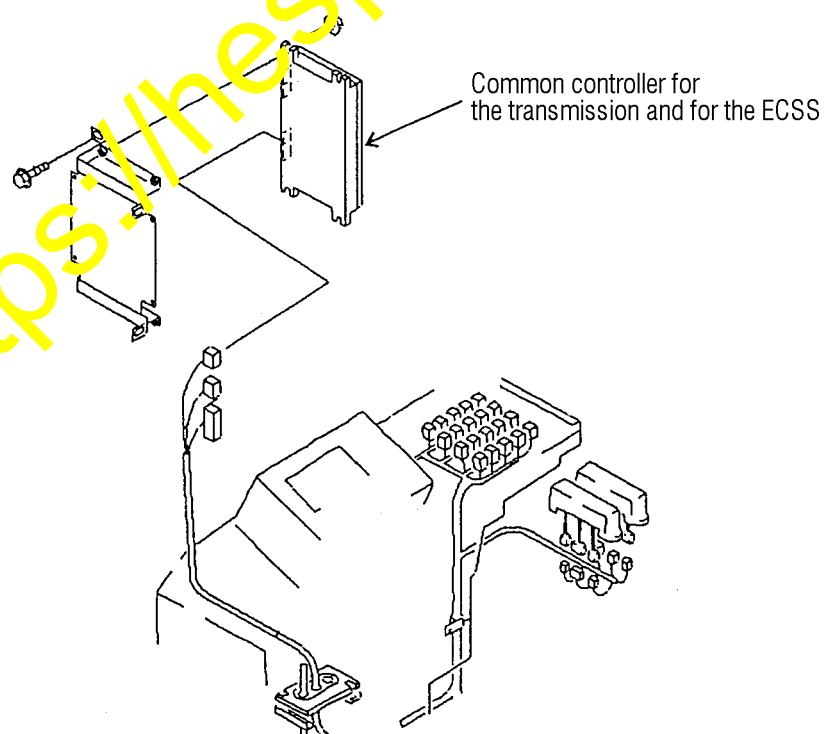
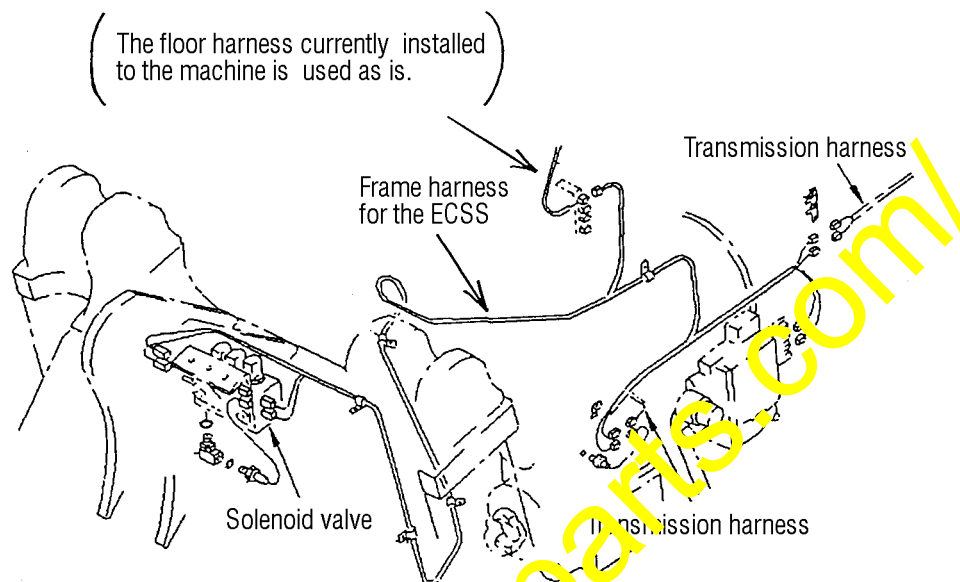


Since the ECSS controller and its neighboring parts marked \* are reused, do not remove them.

Detail "P"

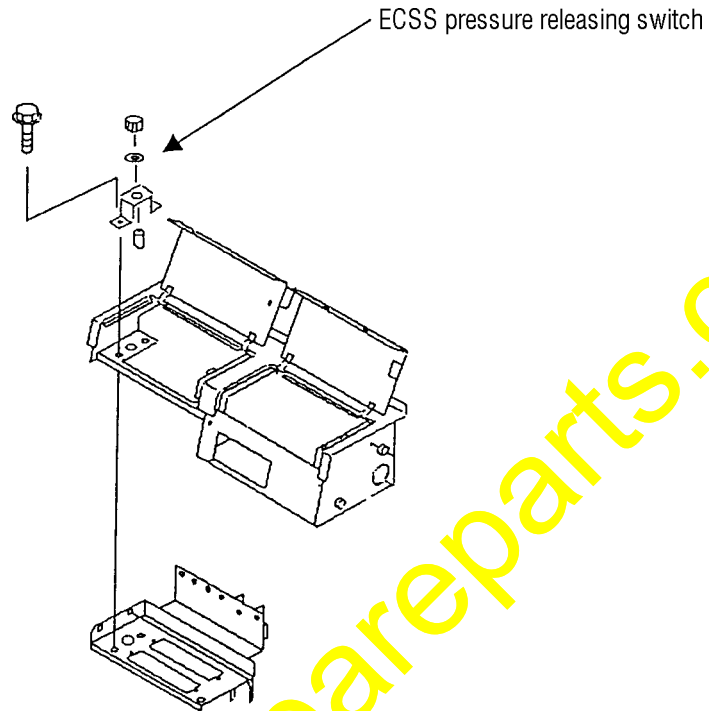
- ② In cases of machines equipped with the common controller for the transmission and for the ECSS

Remove the frame harness for the ECSS and the controller shown in the schematic diagrams indicated below.



- ③ Remove the ECSS pressure releasing switch located inside the fuse box.

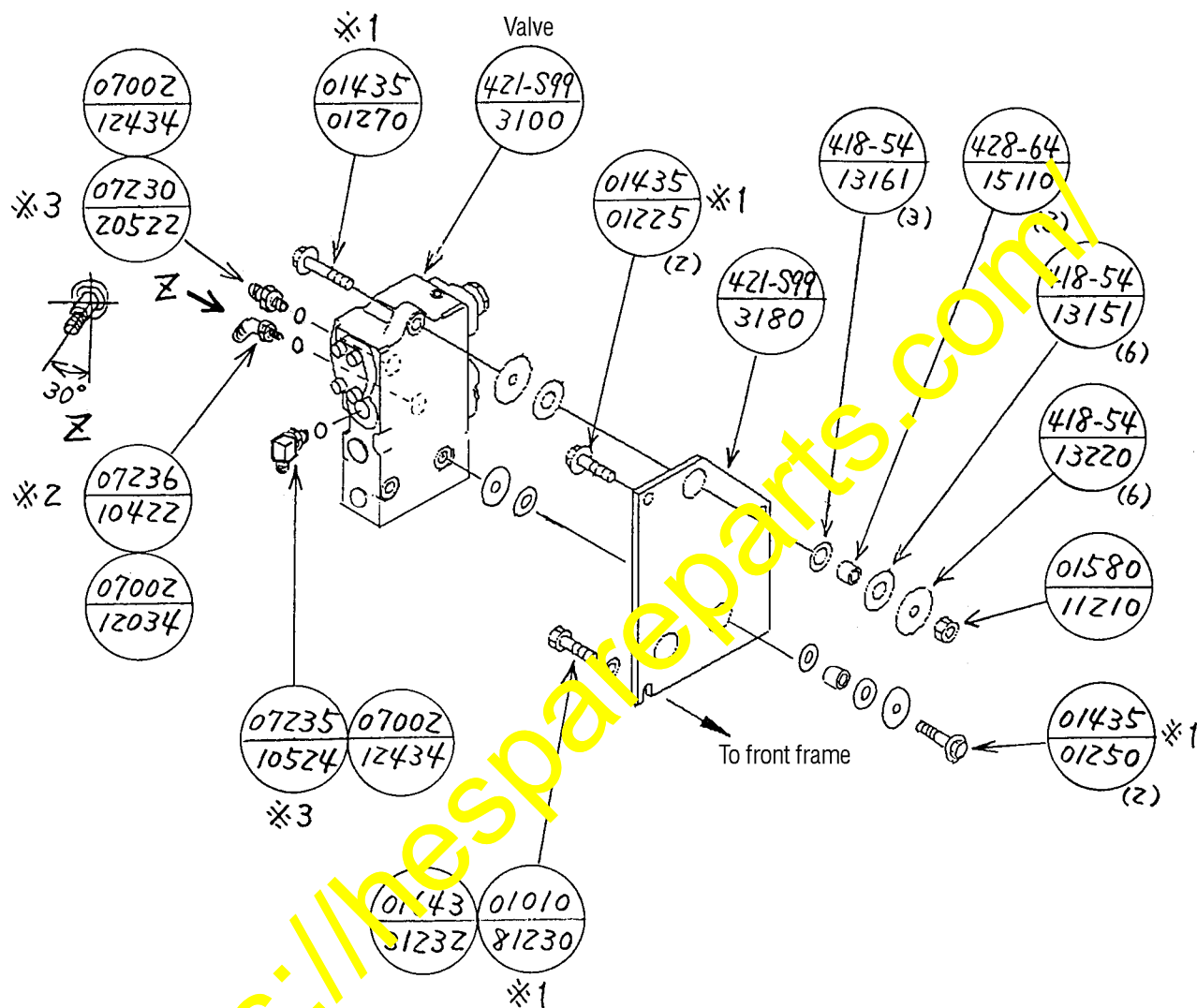
This procedure is not necessary when the machine is not equipped with the pressure releasing switch.





5. Installing the prepared parts

1) Installation of the parts related to the ECSS valve



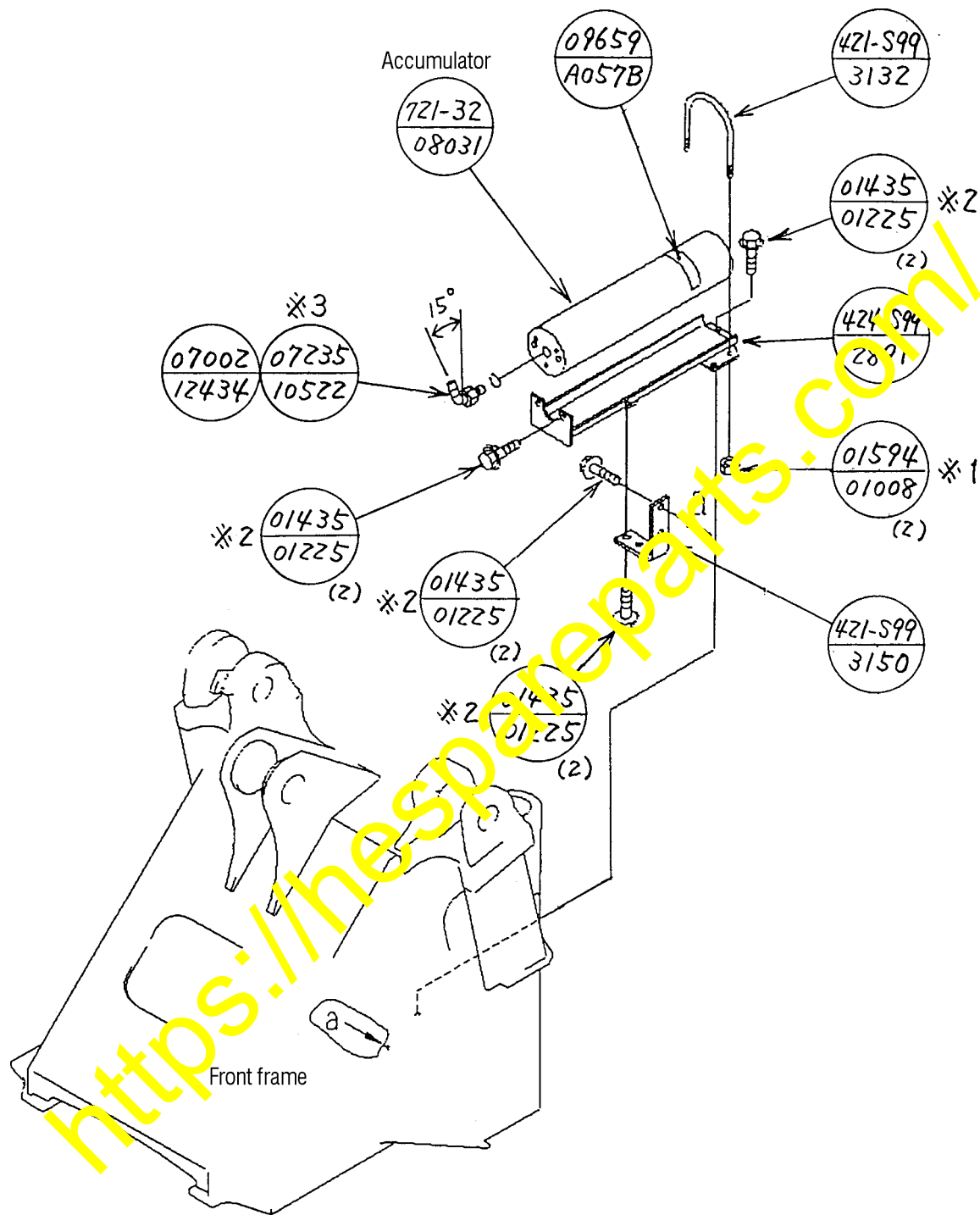
Note) Tightening torque

\*1: 54 – 123 Nm { 5.5 – 12.5 kgm }

\*2: 78 – 103 Nm { 8.0 – 10.5 kgm }

\*3: 118 – 162 Nm { 12.0 – 16.5 kgm }

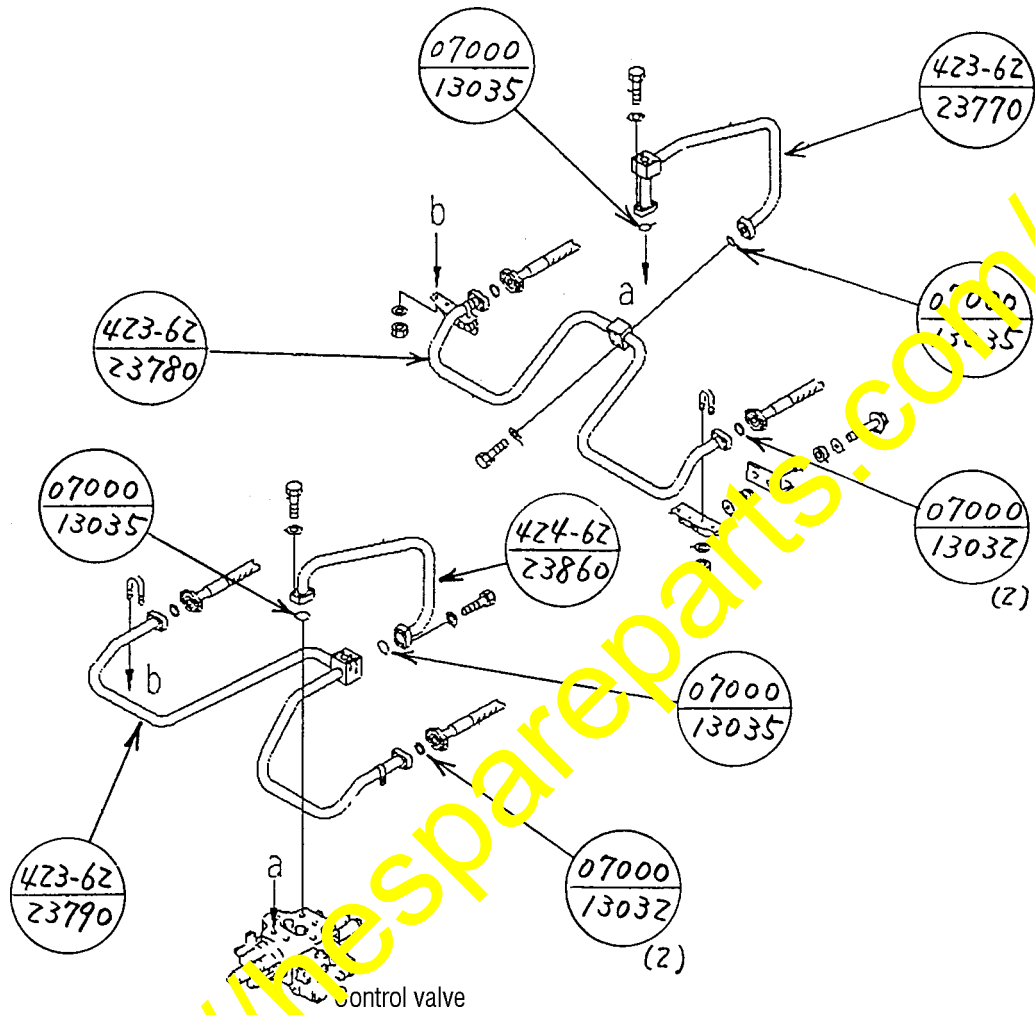
2) Installation of the parts related to the accumulator



Note) Tightening torque

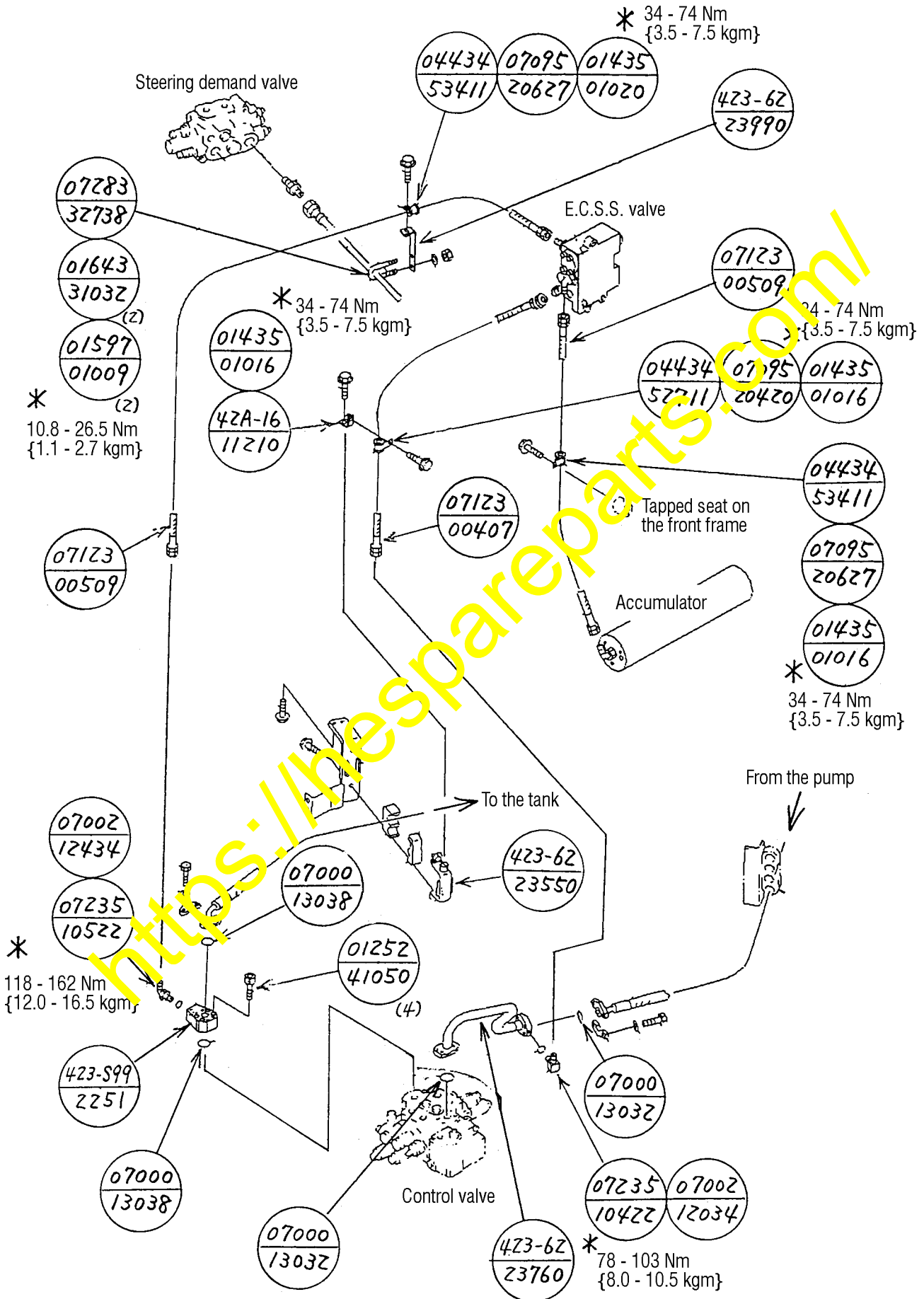
- ※1: 34 – 74 Nm { 3.5 – 7.5 kgm}
- ※2: 54 – 123 Nm { 5.5 – 12.5 kgm}
- ※3: 118 – 162 Nm { 12.0 – 16.5 kgm}

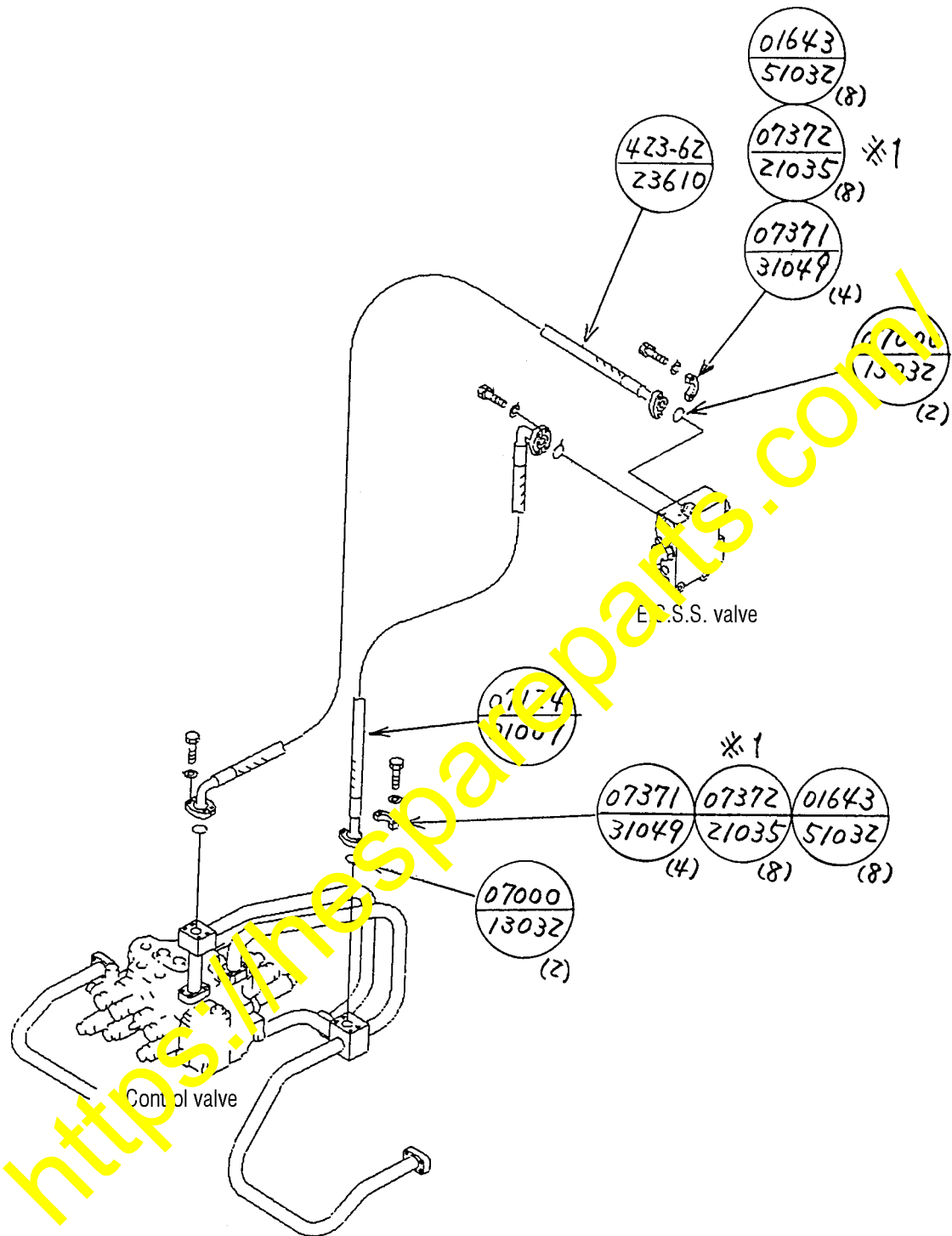
3) Installing the boom piping



4) Installing the piping related to the ECSS valve

Note) The mark \* stands for "Tightening torque".

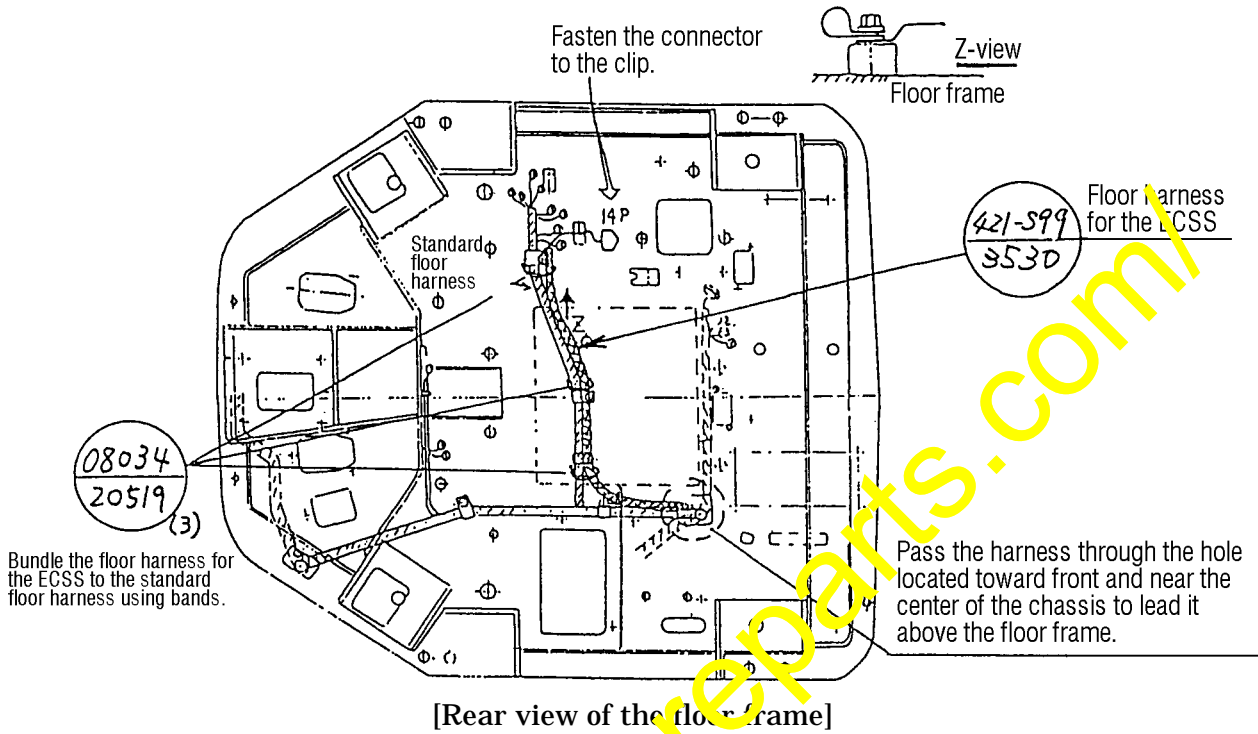




Note) Tightening torque  
 ※1: 34 - 74 Nm { 3.5 - 7.5 kgm }

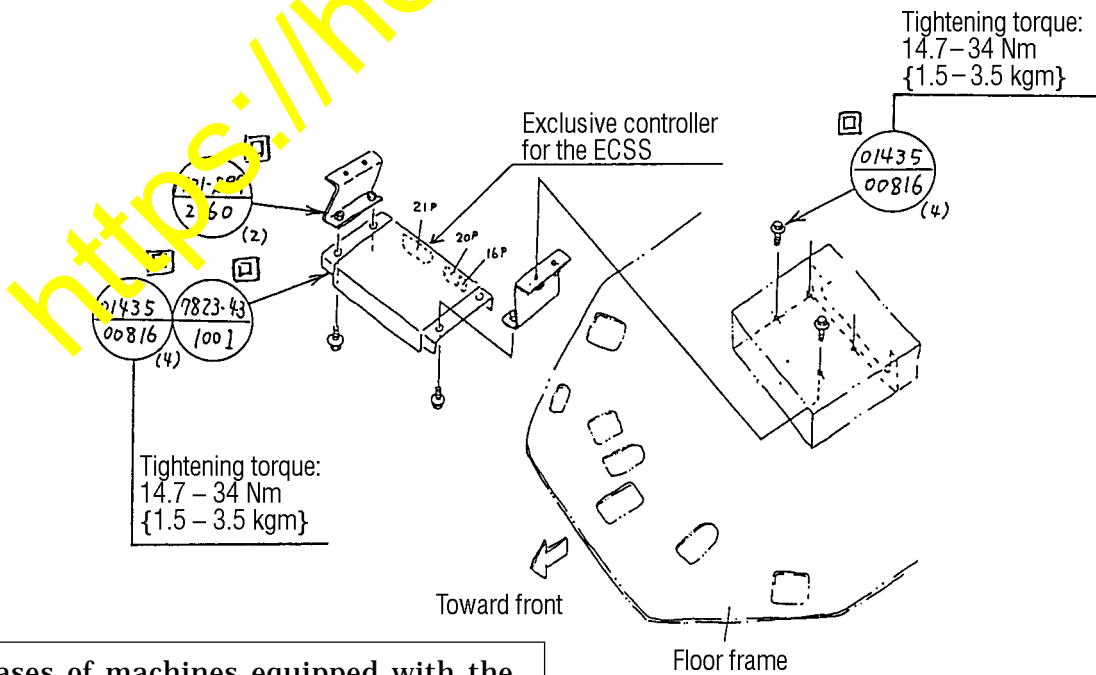
5) Arranging the floor harness for the ECSS (Underneath the floor frame)

This procedure is not necessary for machines equipped with the common controller for the transmission and for the ECSS (machines carrying the transmission controller inside the RH console box)



6) Installing the controller

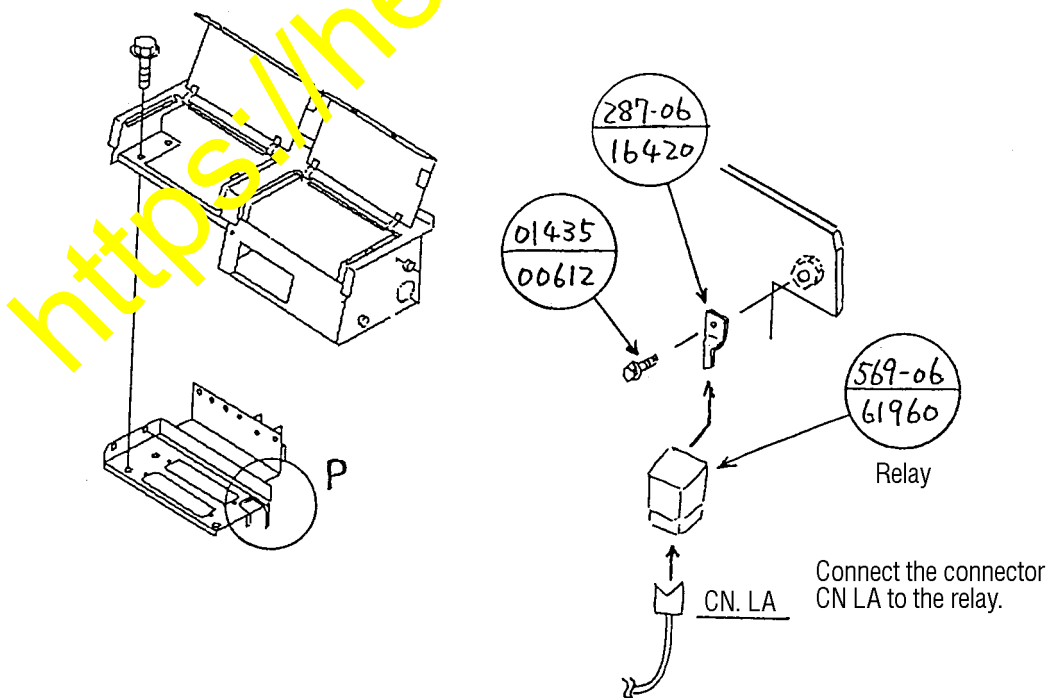
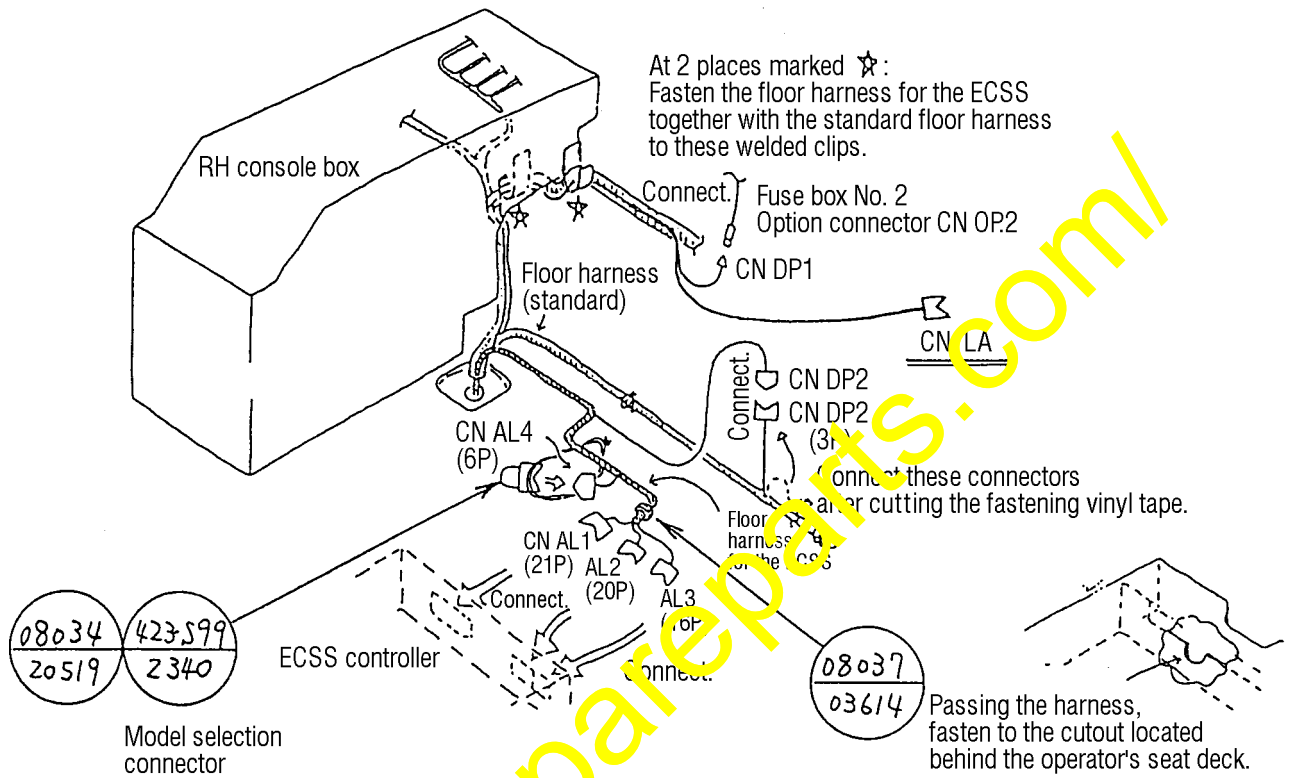
This procedure is not necessary for machines that are equipped with the common controller for the transmission and for the ECSS (machines carrying the transmission controller inside the RH console box)



In cases of machines equipped with the exclusive controller for the ECSS, reuse the parts marked .

7) Arranging the floor harness for the ECSS (Inside the RH console box)

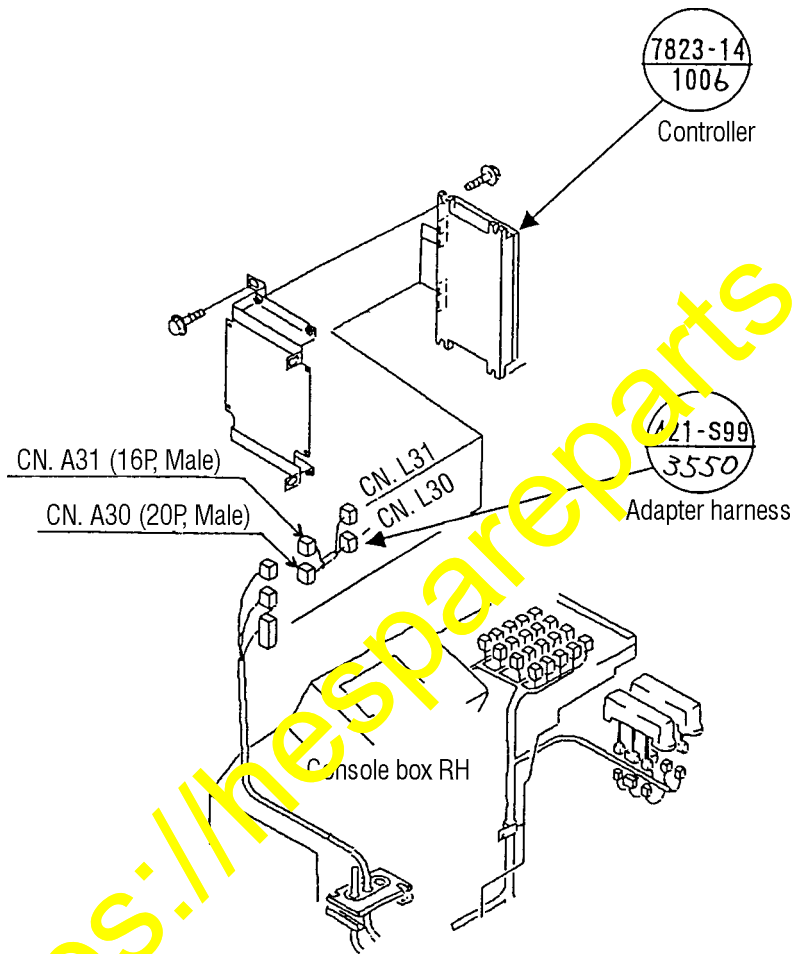
This procedure is not necessary for machines equipped with the common controller for the transmission and for the ECSS (machines carrying the transmission controller inside the RH console box)



Detail "P"

8) Installing the transmission controller (common controller for the ECSS) and arranging the adaptor harness

This procedure is necessary only for machines that are equipped with the common controller for the transmission and for the ECSS (machines carrying the transmission controller inside the RH console box)

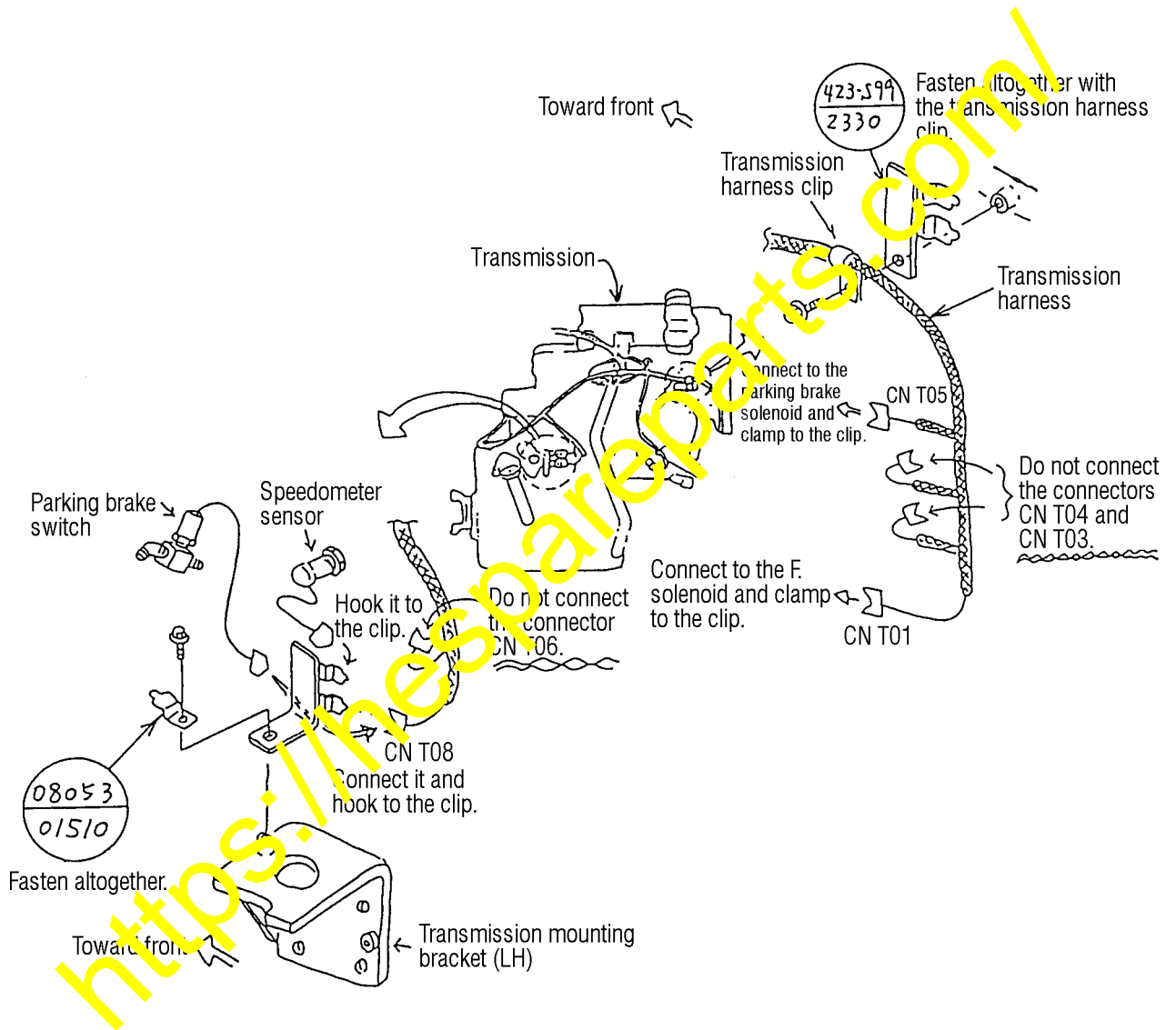




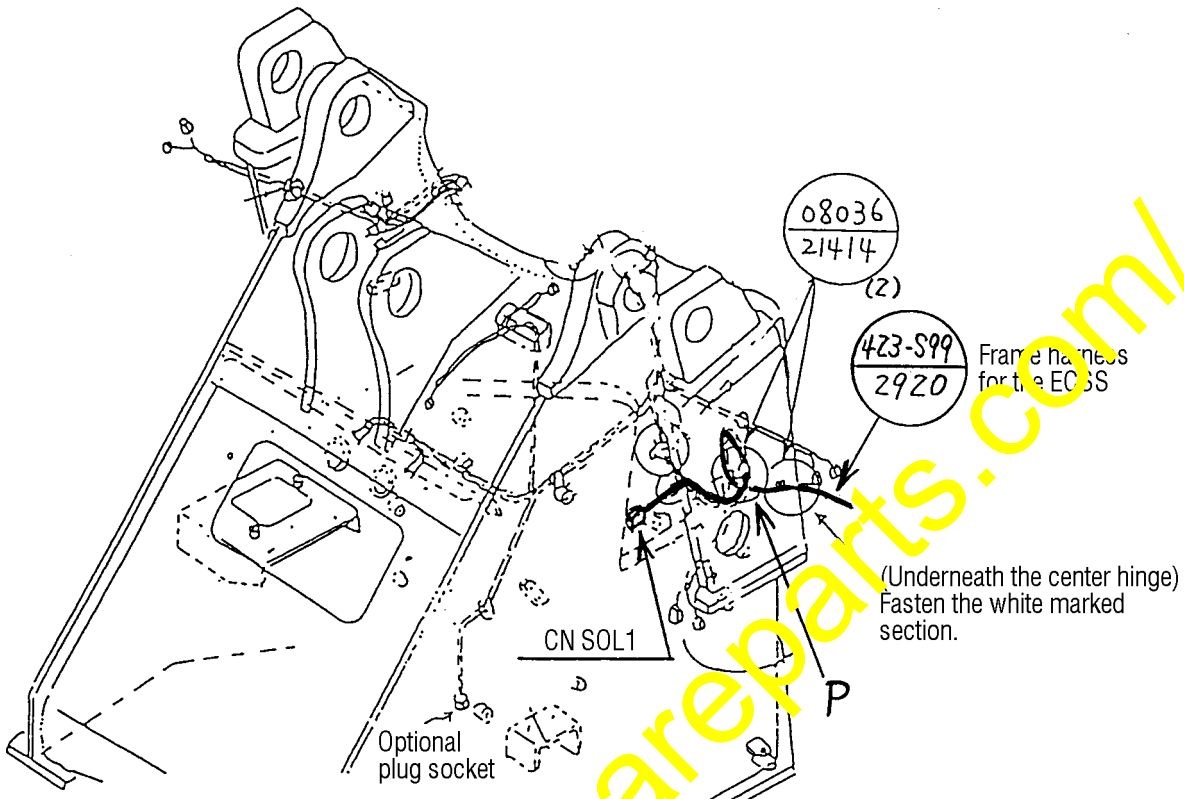
9) Installing the transmission harness clamps

This procedure is not necessary in cases where the subject machine is already equipped with the ECSS.

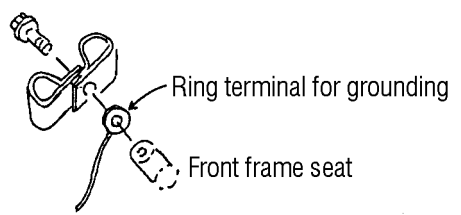
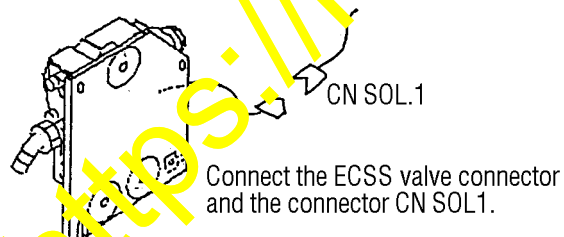
Install the transmission harness clamping brackets and clips and lead and clamp the transmission harness to make connections instructed in the schematic diagram indicated below.



- 10) Arranging the harness inside the front frame  
Lead the harness along the standard harness.



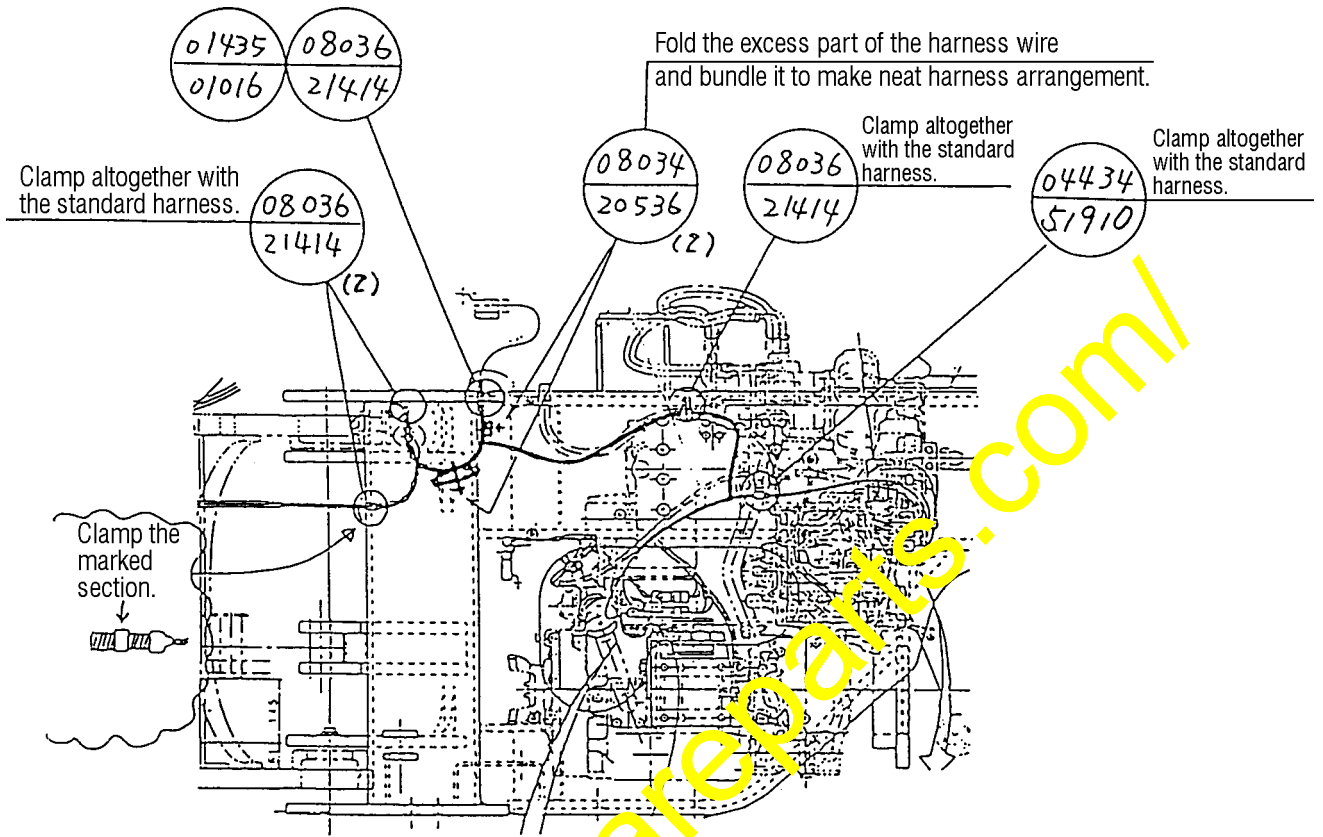
Note: Fasten the clip altogether with the clip for the standard harness.



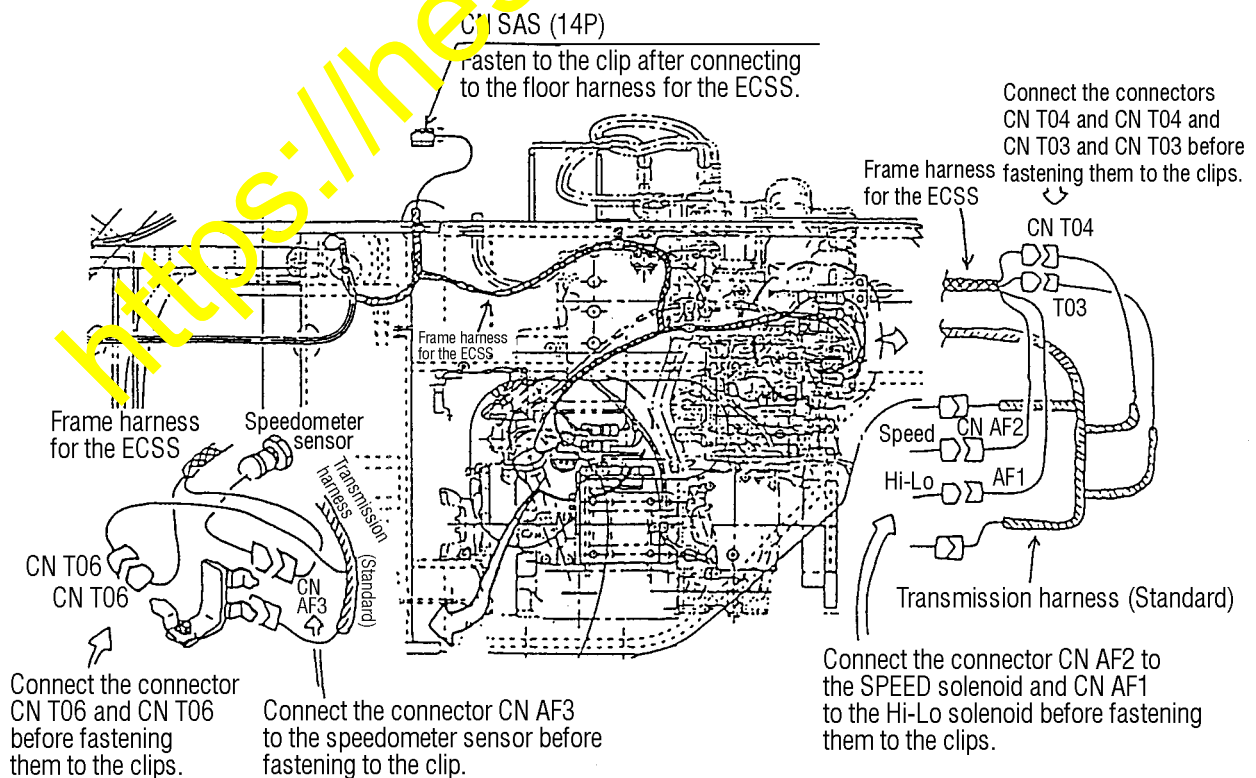
Note) Remove the paint from the surface of the seat so that the grounding ring terminal is connected.

Detail "P"

11) Arranging the harness inside the rear frame  
Lead the harness along the standard harness.

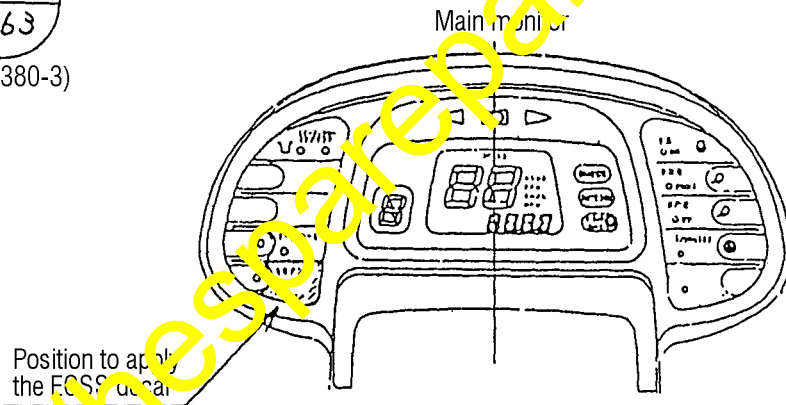
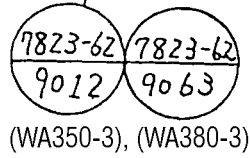
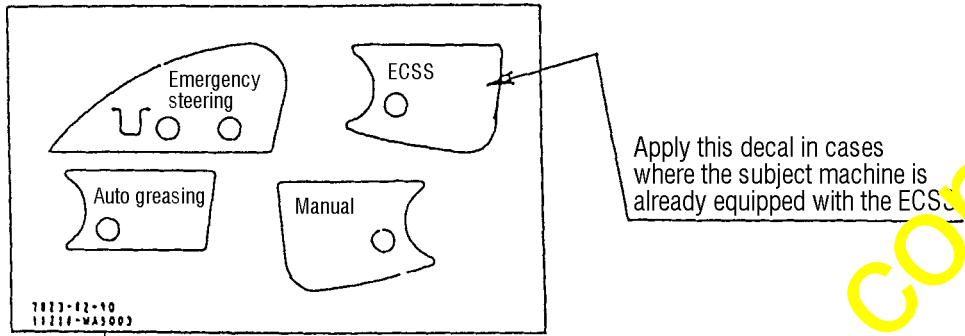


12) Arranging the harnesses around the transmission assembly



13) Applying the ECSS decal to the main monitor panel

Note) This procedure is not necessary in cases where the subject machine is already equipped with the ECSS.

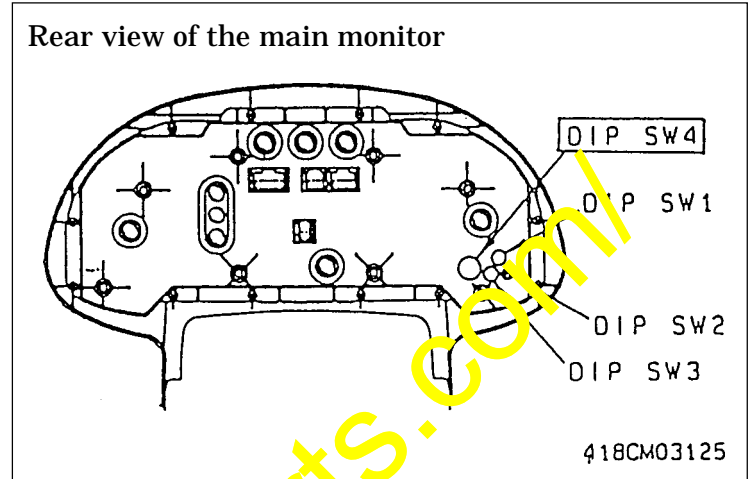


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## 6. Setting the DIP SW located inside the rear panel of the main monitor

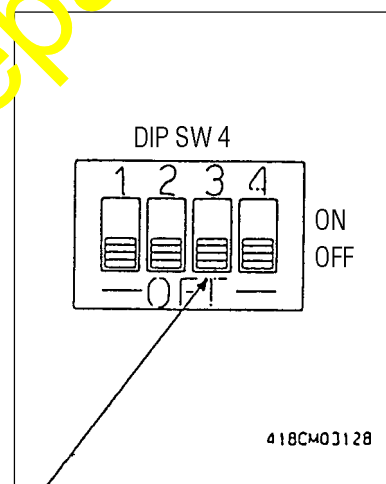
Note) This procedure is not necessary in cases where machine is already equipped with the ECSS.

- (1) When installing the ECSS, it is necessary to change the setting of the DIP SW located inside the rear panel of the main monitor.



- (2) Changing the DIP SW setting

Change the setting of the element switch No. 3 of the "DIP SW 4" from the "ON" position to the "OFF" position.

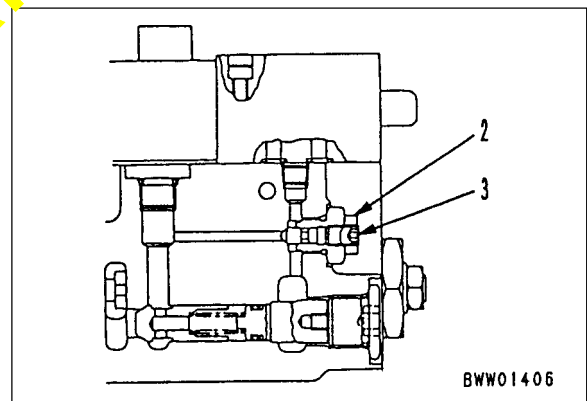
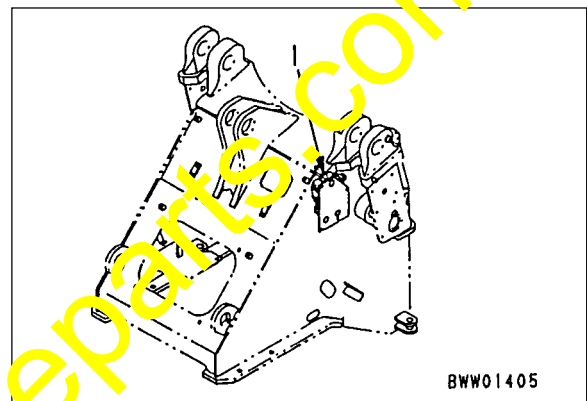



Caution

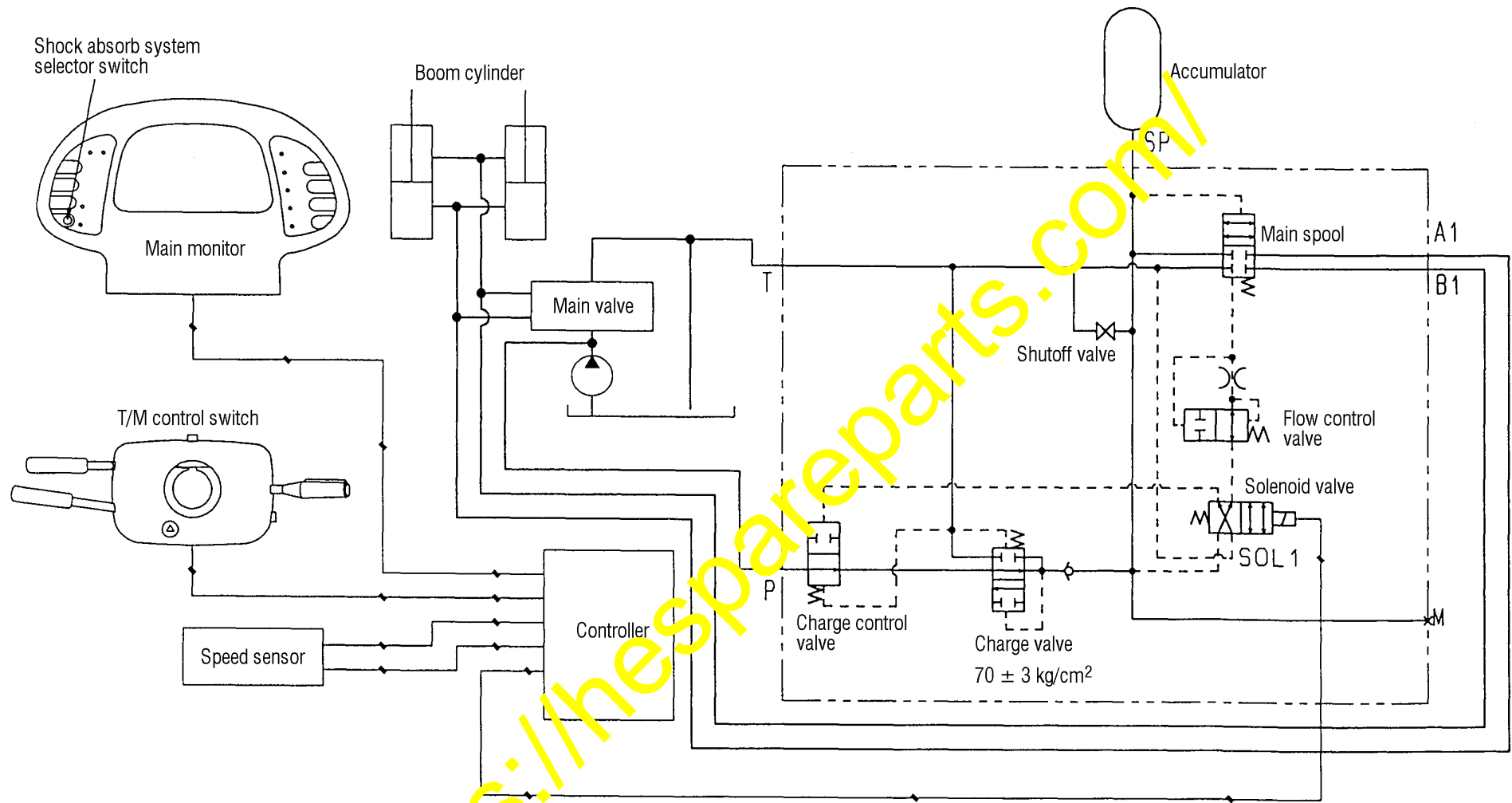
Releasing the residual pressure from the ECSS circuits

When disconnecting the ECSS circuit piping and when removing the ECSS valve, be sure to release residual pressure from the circuits in advance.

- 1) Park the machine and lower the bucket to touch the ground before inserting chocks behind each tire to prevent the machine from moving while releasing the residual pressure.
- 2) Always stop the engine when releasing the residual pressure from the ECSS circuits.
- 3) Loosen the locknut (2) of the ECSS valve (1).
- 4) Loosen the adjust screw (3) by 1/2 to 1 turn to release pressure from the accumulator.
  - The locknut (2) and the adjust screw (3) are painted red.
- 5) After releasing the residual pressure, turn back the adjust screw (3) to its original position and tighten the locknut (2) securely.

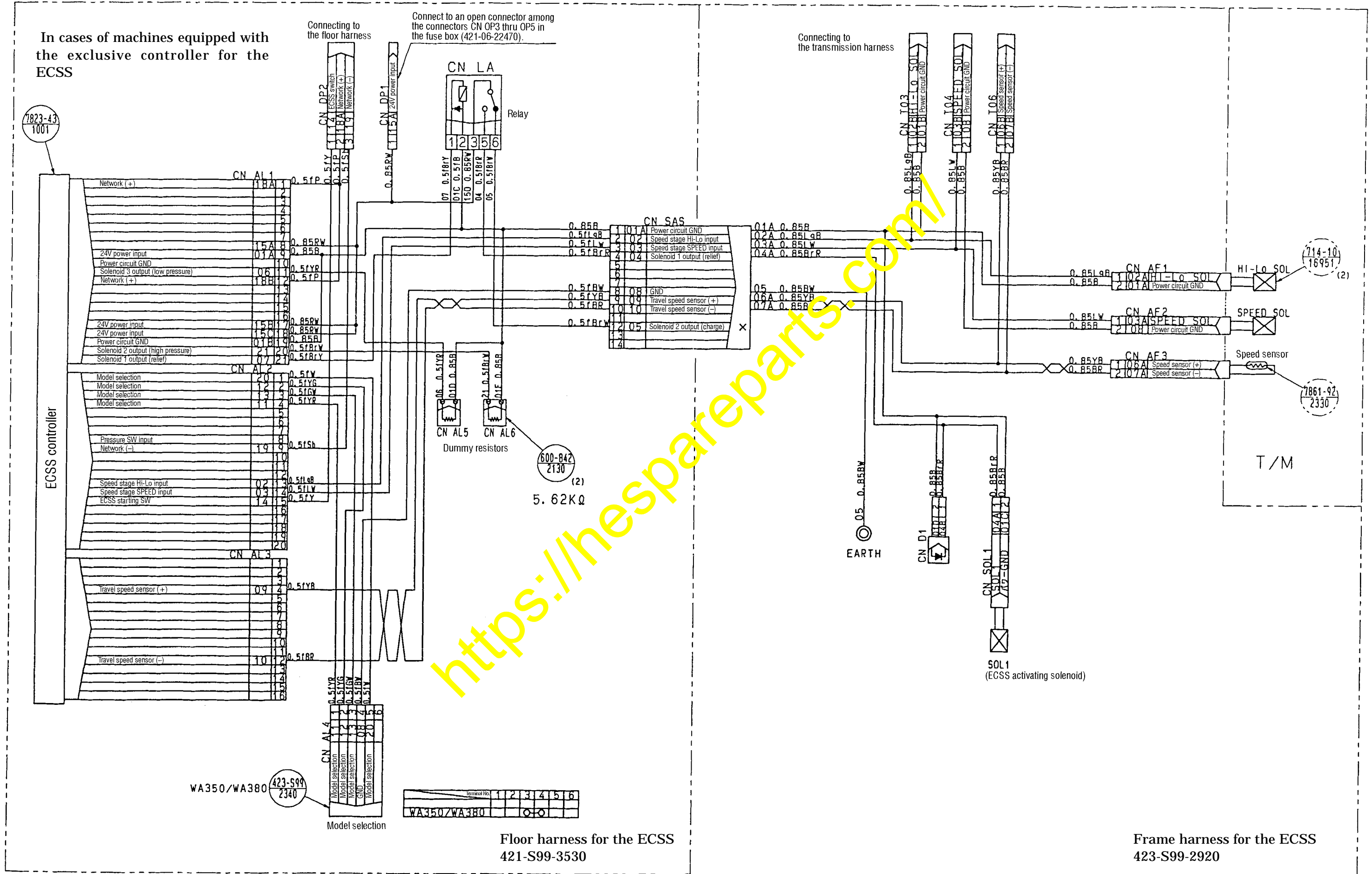


 Locknut:  $12.7 \pm 0.6 \text{ Nm}$   
{  $1.3 \pm 0.06 \text{ kgm}$  }



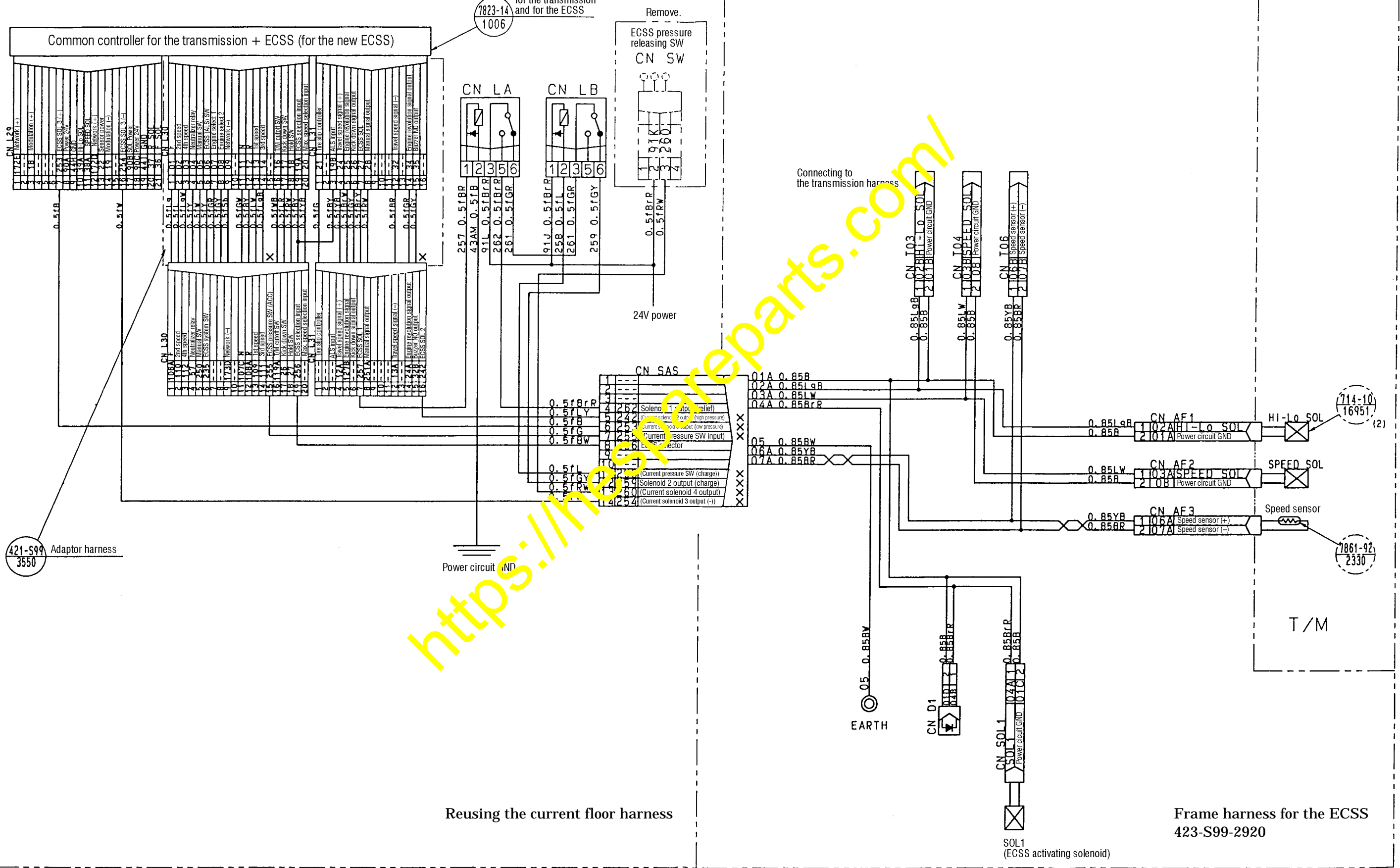
ECSS System Chart

Speed gear	Travel speed (km/h)	SOL1	Remarks
1	0 - max	OFF	Not function
2 - 4	0 - 5	OFF	Not function
	5 - max	ON	ACC function





In cases of machines equipped with the common controller for the transmission (automatic speed shift) and for the ECSS



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