

PARTS & SERVICE NEWS

REF NO.	AA03150
DATE	Oct. 30, 2003

(C)

SUBJECT: MODIFICATION OF STOP LAMP RELAY

PURPOSE: To introduce modification procedure to replace the relays for the stop lamp and to improve parts

APPLICATION: WA380-5 Wheel Loaders, S/N 60001 thru 60207
 WA380-5L Wheel Loaders, S/N A52001 thru A52159
 WA430-5 Wheel Loaders, S/N 60001 thru 60022
 WA400-5L Wheel Loaders, S/N A40001 thru A40028
 WA470-5 Wheel Loaders, S/N 70001 thru 70114
 WA450-5L Wheel Loaders, S/N A36001 thru A36167
 WA480-5 Wheel Loaders, S/N 80001 thru 80028
 WA480-5L Wheel Loaders, S/N A37001 thru A37040

FAILURE CODE: D160MA

DESCRIPTION:

1-1 Introduction: On the above wheel loaders, relays of these electric devices which are frequently turned on and off and which consume larger electric power like a stop lamp, back-up lamp, back lamp, etc. may cause relay contact fusion failure by their insufficient durability, and when the aforementioned relay contact fusion occurs, the relay contacts will remain in closed state thus making it impossible to turn off the electric current.



When the above contact fusion failure occurs or when preventing occurrence of the failure, make the modification being introduced in this PARTS & SERVICE NEWS to replace the relays with the improved parts with increased durability.

1-2 Revised Places:

5 Places	Line 13, 2002	The assembly component parts was added to the parts list, and review of a parts list was performed
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2. List of parts

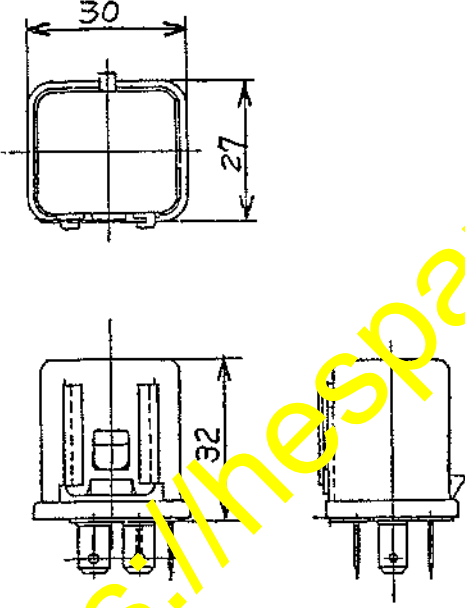
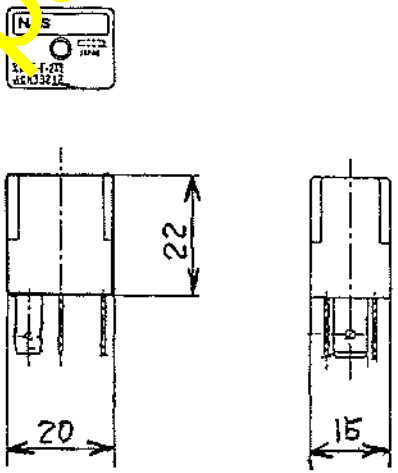
Part No.	Part Name	Q'ty	Purpose of part	Applicable model		Remarks
				WA380/400-5 WA470/480-5	WA430-5	
421-06-36280 (421-06-36102)	Harness (Relay box)	1 (1)	} Replacement	<input type="radio"/>	<input type="radio"/>	
421-06-36270 (423-06-36102)	Harness (Relay box)	1 (1)		<input type="radio"/>	—	
424-06-36120 (424-06-36100)	Harness (Relay box)	1 (1)		—	<input type="radio"/>	
569-06-61960	Relay	18	} Addition	<input type="radio"/>	—	
569-06-61960	Relay	19		—	<input type="radio"/>	
421-06-36260 (421-06-32121)	Bracket (Bracket)	5 (1)	} Replacement	<input type="radio"/>	<input type="radio"/>	
01010-80616 (01010-80612)	Bolt (Bolt)	6 (2)		<input type="radio"/>	<input type="radio"/>	
01643-30623 (01643-30623)	Washer (Washer)	6 (2)		<input type="radio"/>	<input type="radio"/>	
421-54-33540 (421-54-32653)	Bracket (Bracket)	1 (1)	} Replacement	<input type="radio"/>	<input type="radio"/>	
421-54-33540 (423-944-3310)	Bracket (Bracket)	1 (1)		<input type="radio"/>	<input type="radio"/>	
421-54-22520	Finisher	1	} Replacement	<input type="radio"/>	<input type="radio"/>	
421-54-22970	Protector	1		<input type="radio"/>	<input type="radio"/>	
421-93-23290	Plate Name	1	} Addition	<input type="radio"/>	—	} Nameplate in English
424-93-23290	Plate Name	1		—	<input type="radio"/>	
421-V02-3290	Plate Name	1	} Addition	<input type="radio"/>	—	} Nameplate in Indonesian
424-V02-3290	Plate Name	1		—	<input type="radio"/>	
421-933-3290	Plate Name	1	} Addition	<input type="radio"/>	—	} Nameplate in French
424-933-3290	Plate Name	1		—	<input type="radio"/>	
421-V06-3290	Plate Name	1	} Addition	<input type="radio"/>	—	Nameplate in Russian
424-V03-3290	Plate Name	1		—	<input type="radio"/>	
421-V00-3290	Plate Name	1	} Addition	<input type="radio"/>	—	} Nameplate in Portuguese
424-V00-3290	Plate Name	1		—	<input type="radio"/>	
421-V01-3290	Plate Name	1	} Addition	<input type="radio"/>	—	} Nameplate in Spanish
424-V01-3290	Plate Name	1		—	<input type="radio"/>	
421-V01-3290	Plate Name	1	} Addition	<input type="radio"/>	—	} Nameplate in Arabic
424-V01-3290	Plate Name	1		—	<input type="radio"/>	

Part No.	Part Name	Q'ty	Purpose of part	Applicable model		Remarks
				WA380/400-5 WA470/480-5	WA430-5	
23D-950-4450 (23D-950-4450)	Button (Button)	18 (18)	} Replace- ment	○	○	Consumable parts (Interior material mounting buttons to use in the opera- tor's cab) Consumable parts (Caps for the control lever stand)
421-09-31310 (421-09-31310)	Cap ass'y (Cap ass'y)	4 (4)				
 (421-06-36120)	(Relay)	(10)	} Not used			} The assembly component parts of relay box ass'y described below. 421-06-36102 423-06-36102 424-06-36100
 (421-06-36110)	(Relay)	(9)				

<https://hespareparts.com/>

3. Details of the modification

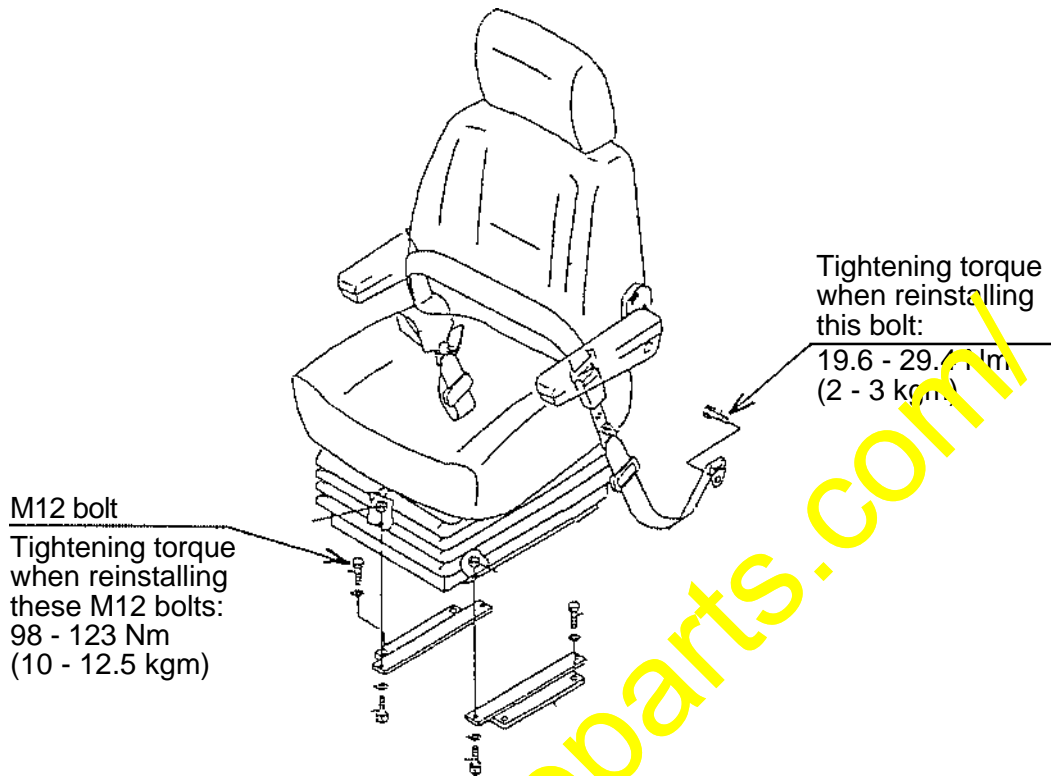
- The relays are to be changed to the ones of the following specifications which are actually and safely being used for the WA-3 Type wheel loaders, dump trucks, etc.

	New relay \triangle (569-06-61960)	Current relay \triangle [421-06-36110 421-06-36120]
1	Being actually used on: WA 80 ~ WA 900-3 HD 255 ~ HD 985-5 PC 100 ~ PC 1800-6	—————
2	Dimensions 	

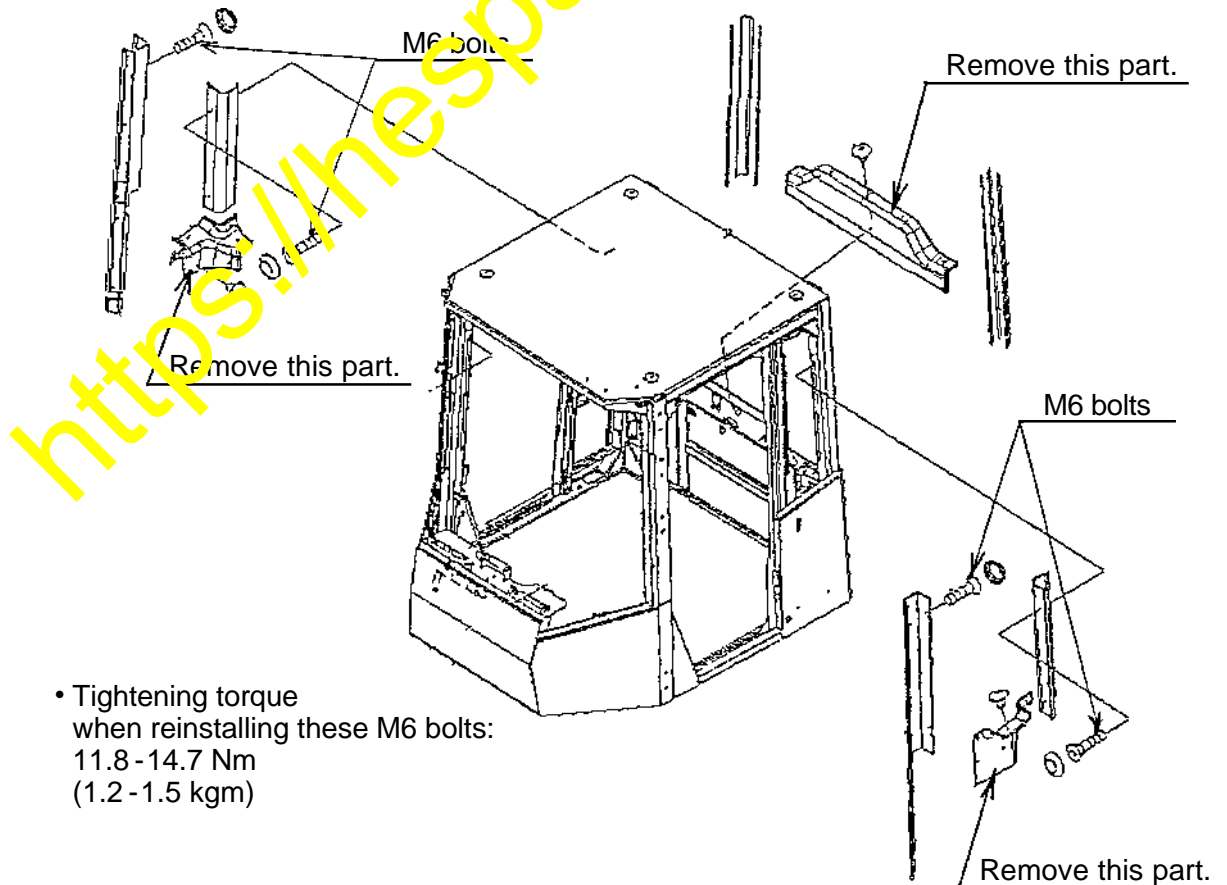
https://thespareparts.com/

4. Modification procedure

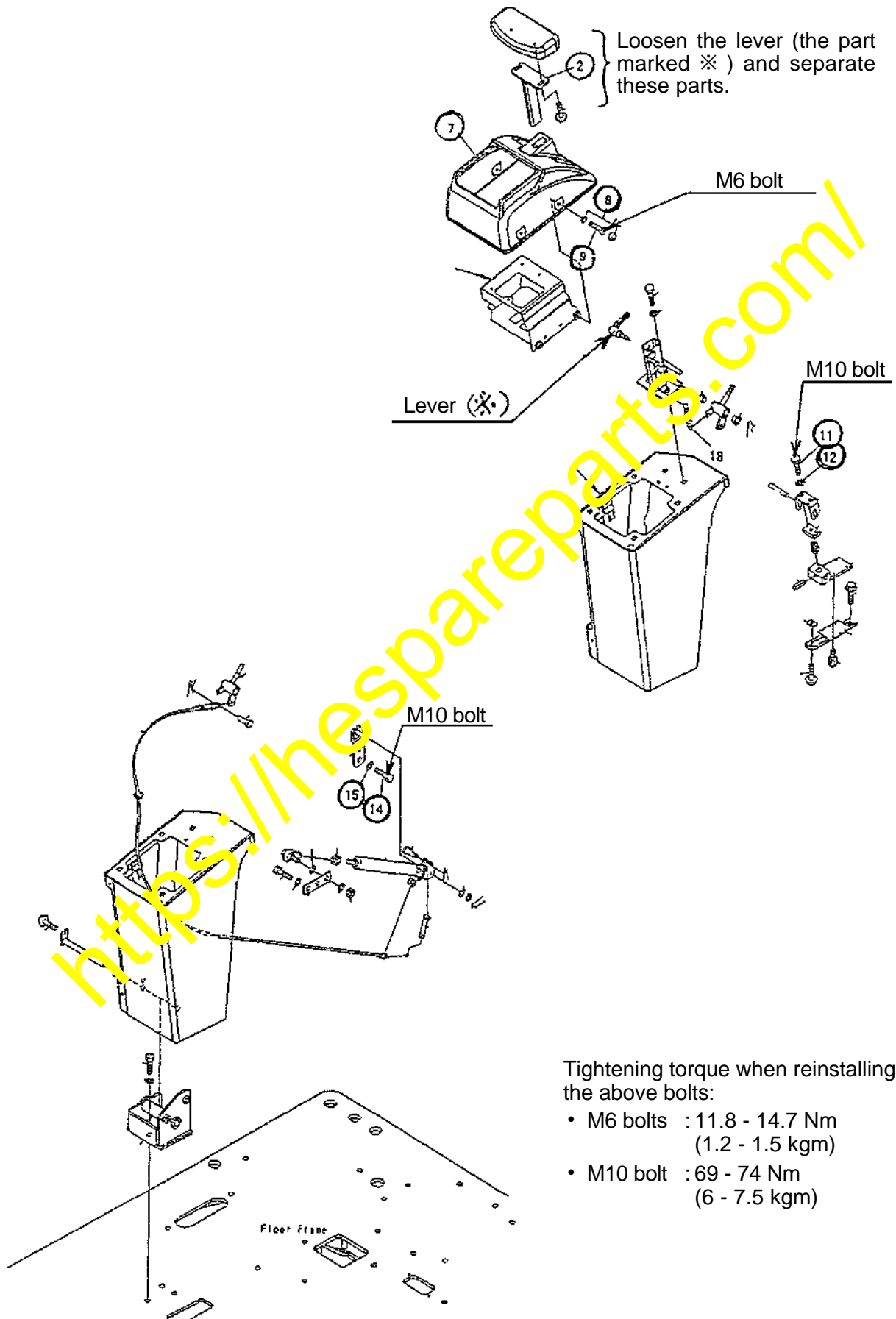
(1) Remove the operator's seat.



(2) Remove the interior materials being indicated in the drawing below from the operator's cab.



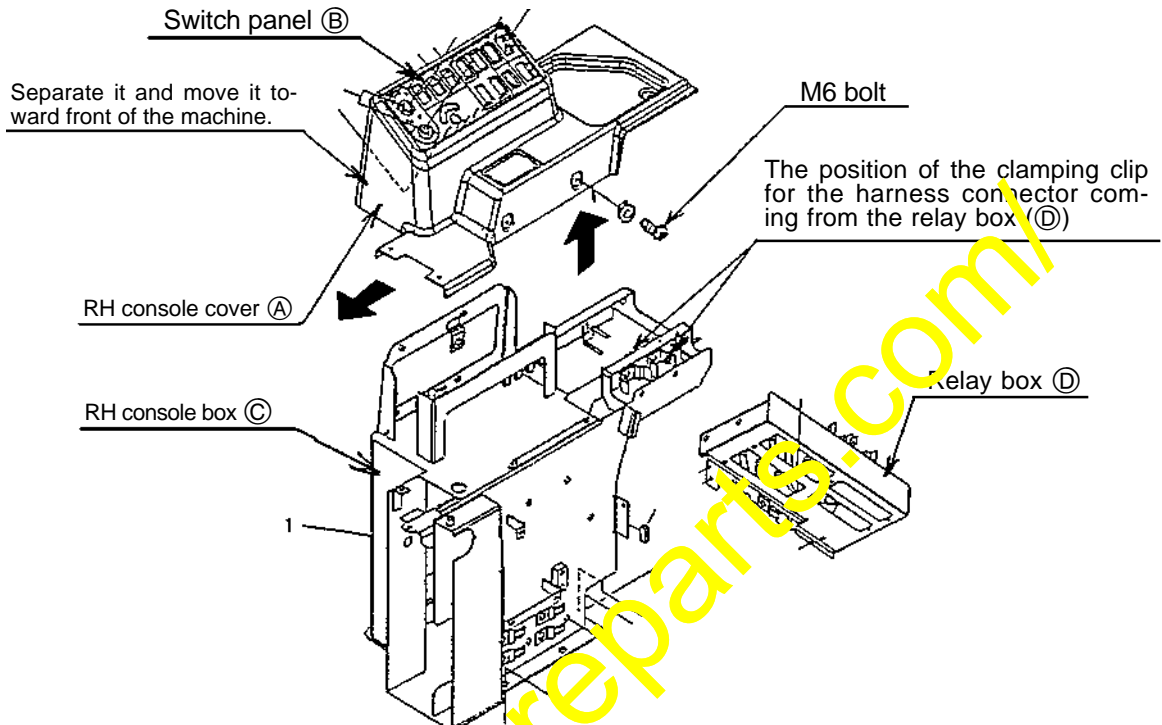
- (3) Remove the parts being marked ○ in the drawing below from the work equipment control lever stand on the RH side and push the work equipment control lever stand forward to bring it down forward.



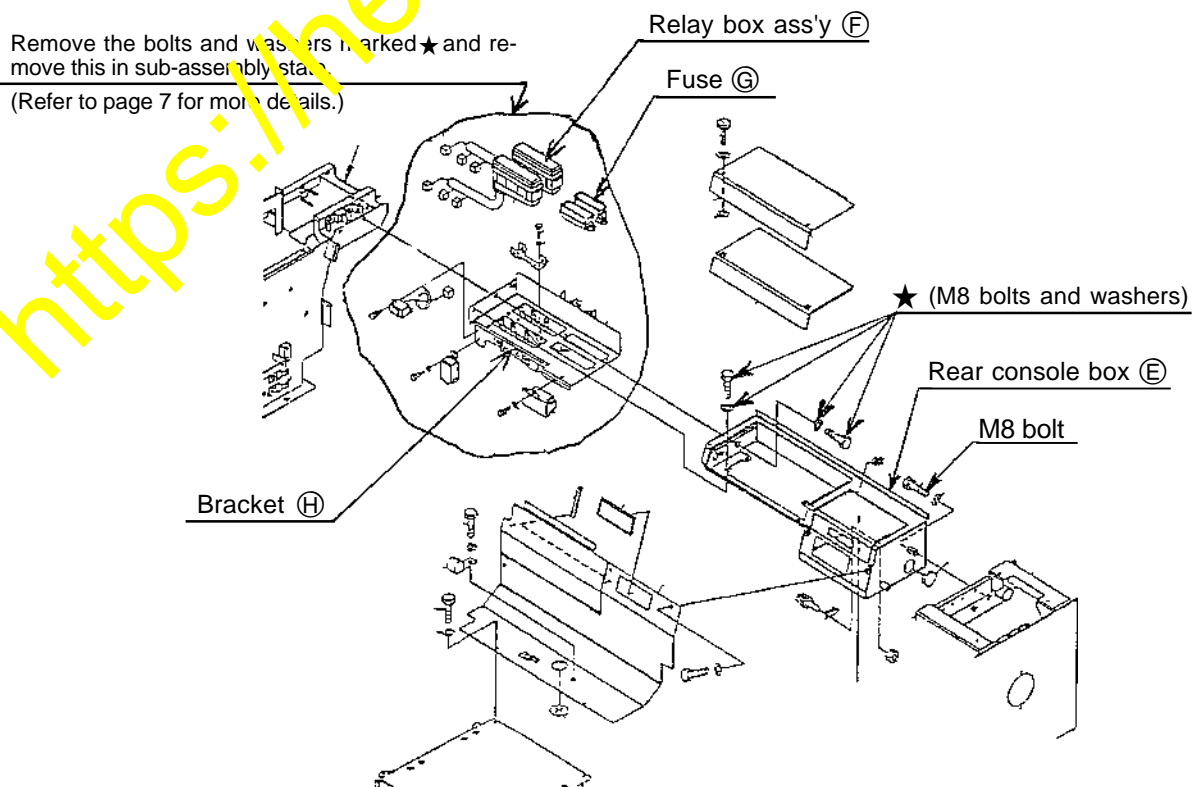
Tightening torque when reinstalling the above bolts:

- M6 bolts : 11.8 - 14.7 Nm
(1.2 - 1.5 kgm)
- M10 bolt : 69 - 74 Nm
(6 - 7.5 kgm)

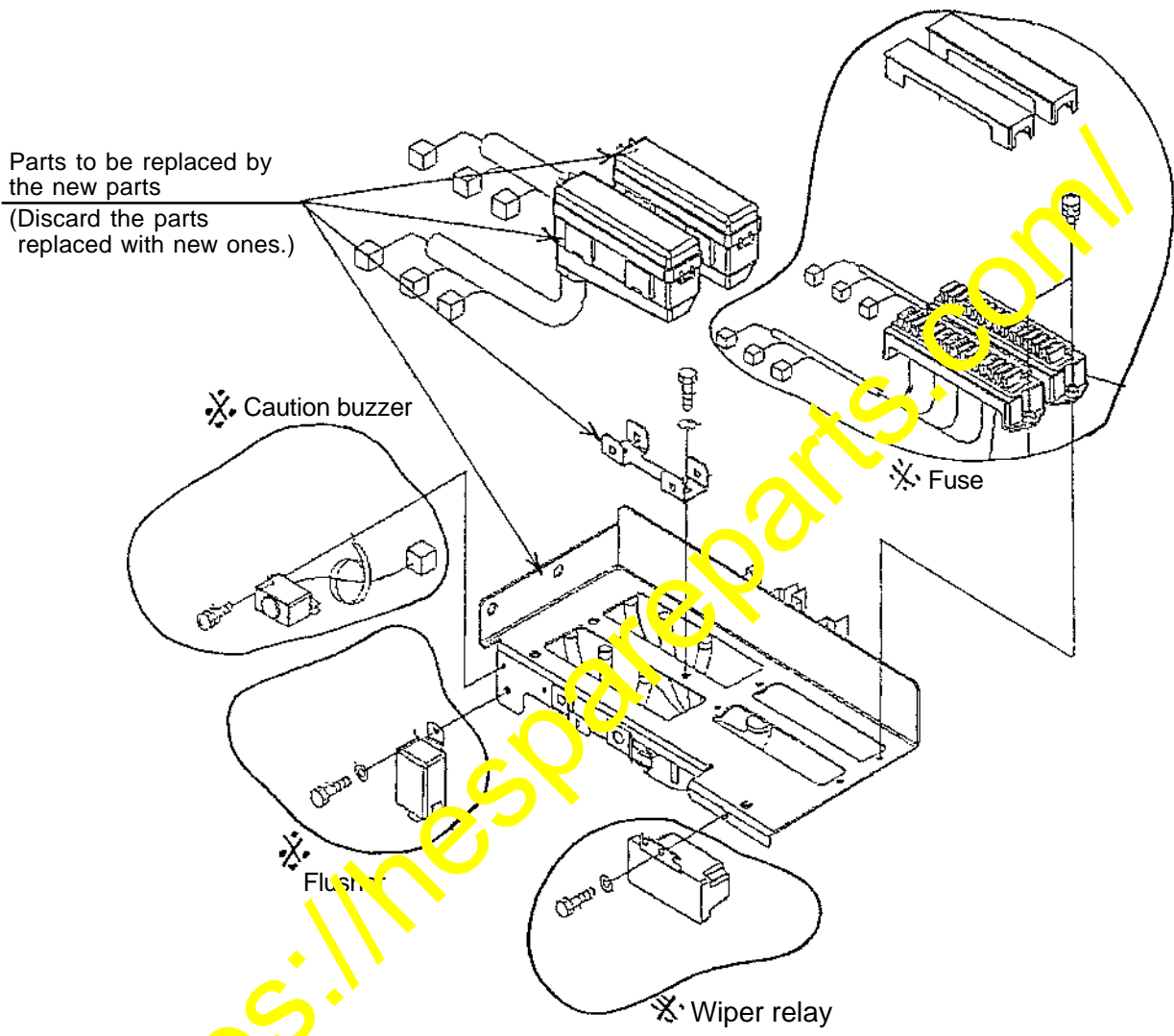
- (4) Separate the RH console cover (A), with the switch panel (B) being installed to it, upward (↑) from the RH console box (C), then, move it toward front of the machine (↙) so that it may become possible to disconnect the harness connectors from the relay box (D).



- (5) Separate the rear console box (E) and remove the bracket (H) with the relay box ass'y (F), fuse (G) etc. being installed to it.
(Disconnect each connector connecting to the operator's cab harness.)



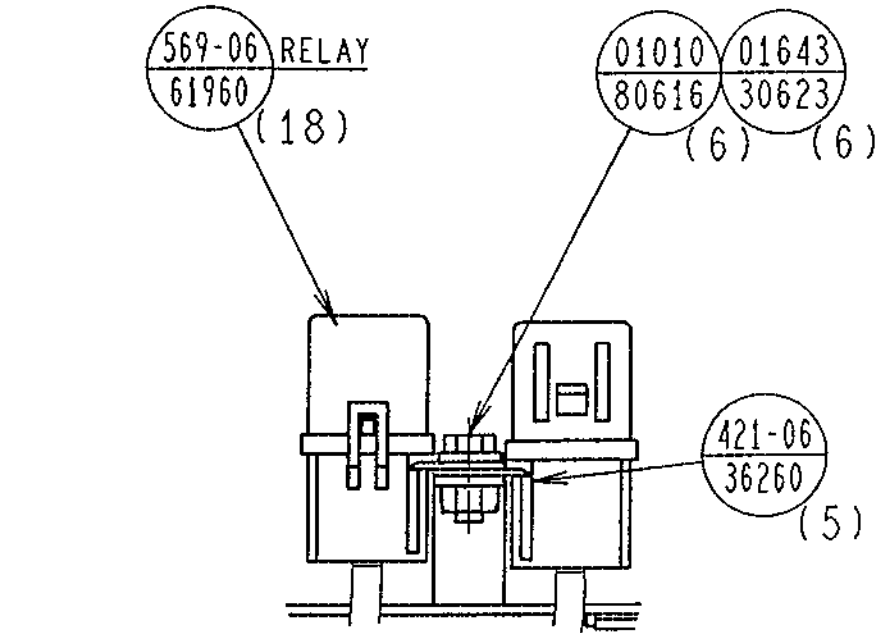
- (6) Remove the parts marked ※ indicated in the drawing below from the bracket sub-assembly which has been removed from the relay box ass'y as per Section (5) and reassemble them onto the same positions of the new bracket.
(Re-assembling parts: Fuse box 2 pcs., flusher, wiper relay and caution buzzer)



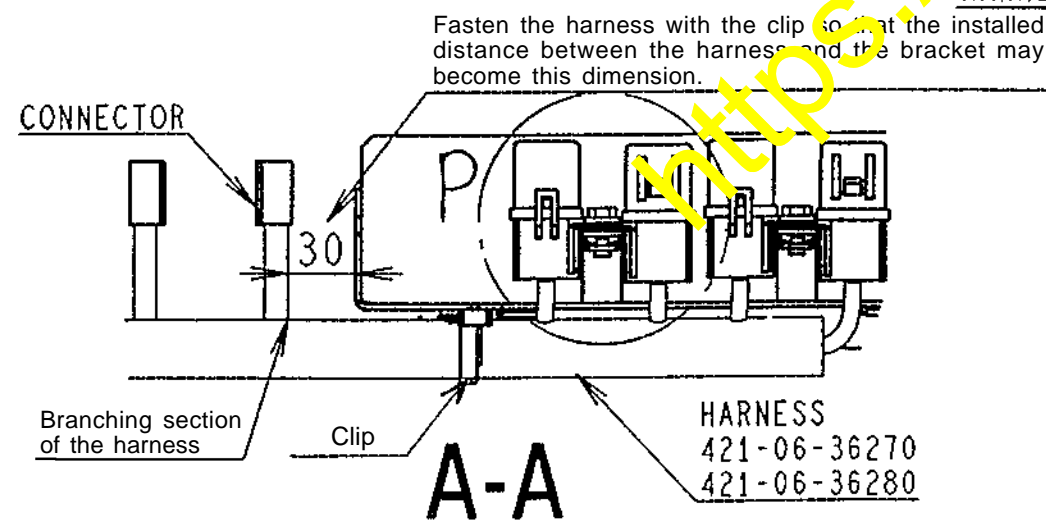
Parts marked ※ : Reusing parts

- (7) Install the improved relays and harnesses to the new bracket as per the instructions given in the drawings below.
 (These drawings are applicable to the WA380-5, WA400-5, WA470-5 and WA480-5.)

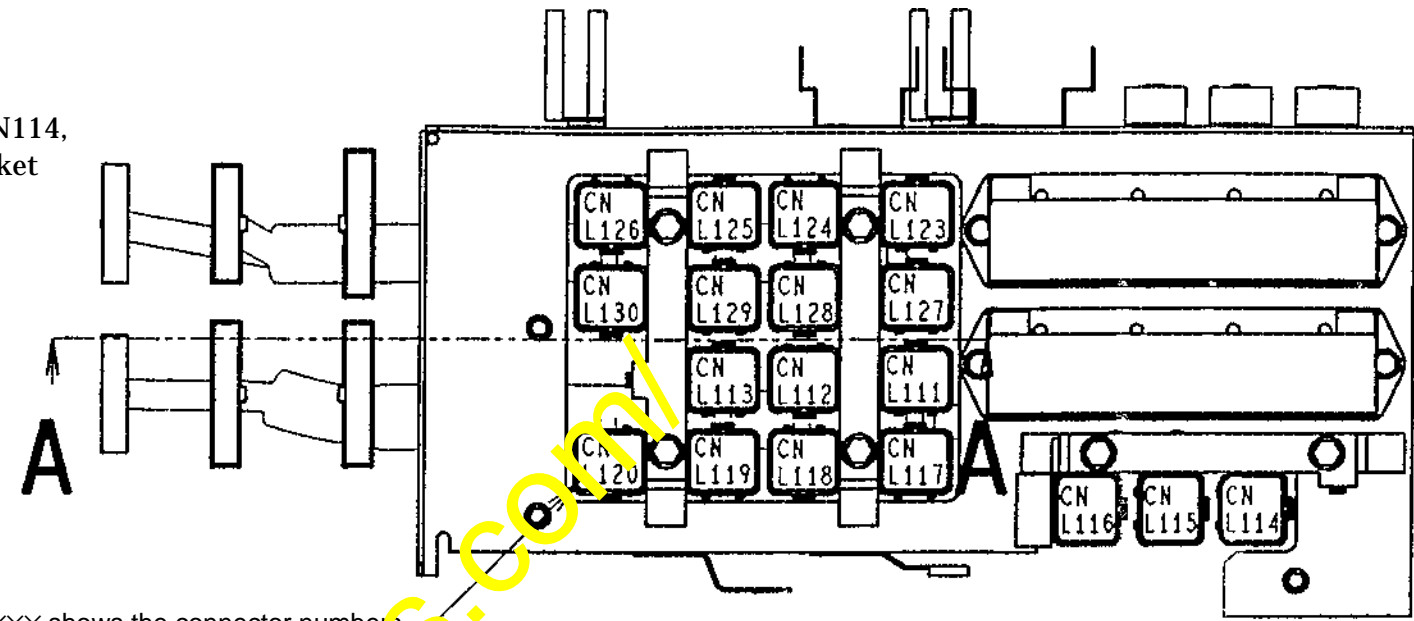
Note) For prevention of interference of the harness and bracket with the relays (CN114, CN115 and CN116), install the finisher (the two parts marked *) to the bracket in advance.



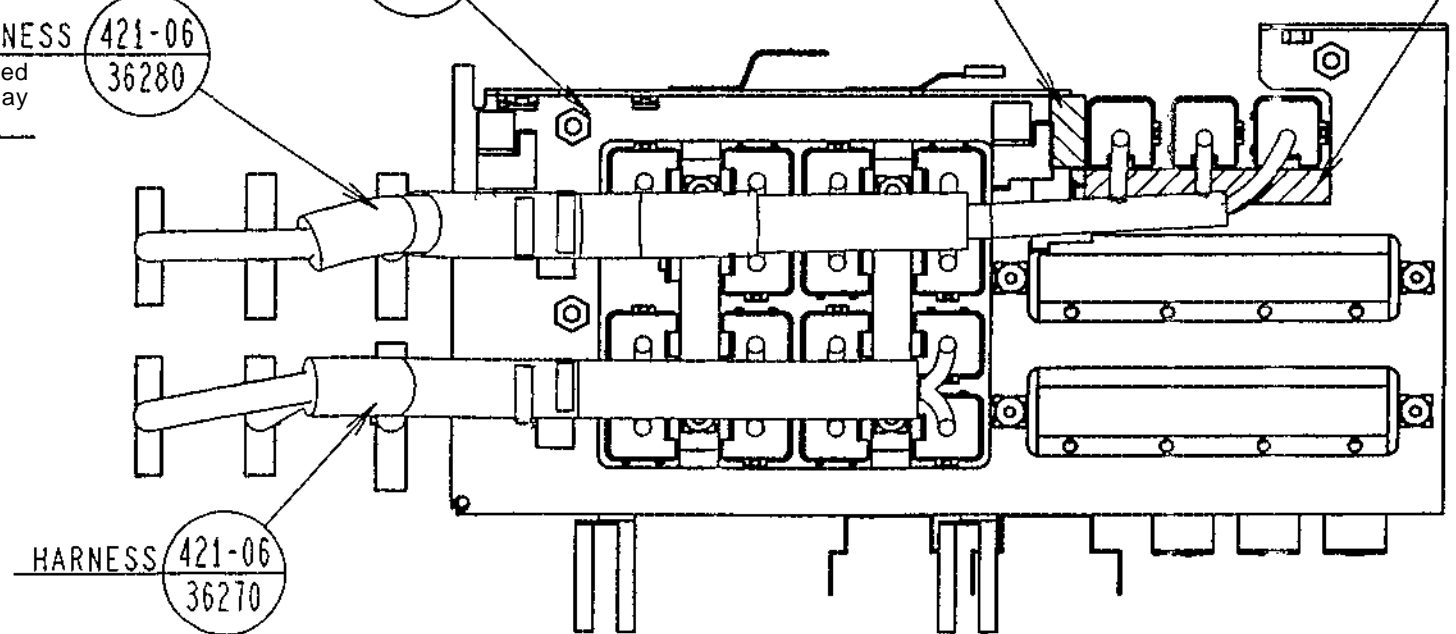
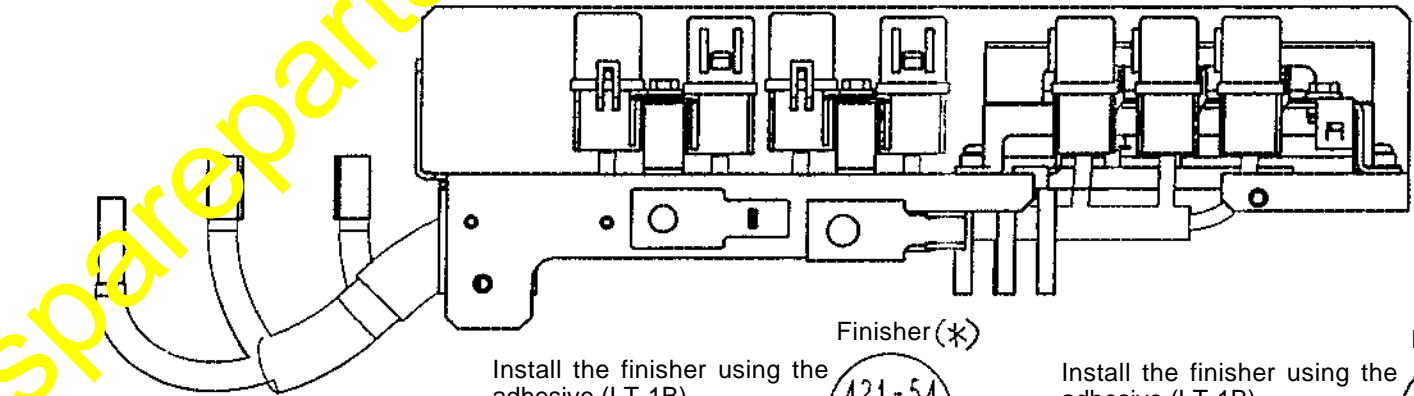
P
Detail drawing for the relay mounting section



Drawing showing the relation of positions of the harness and the bracket

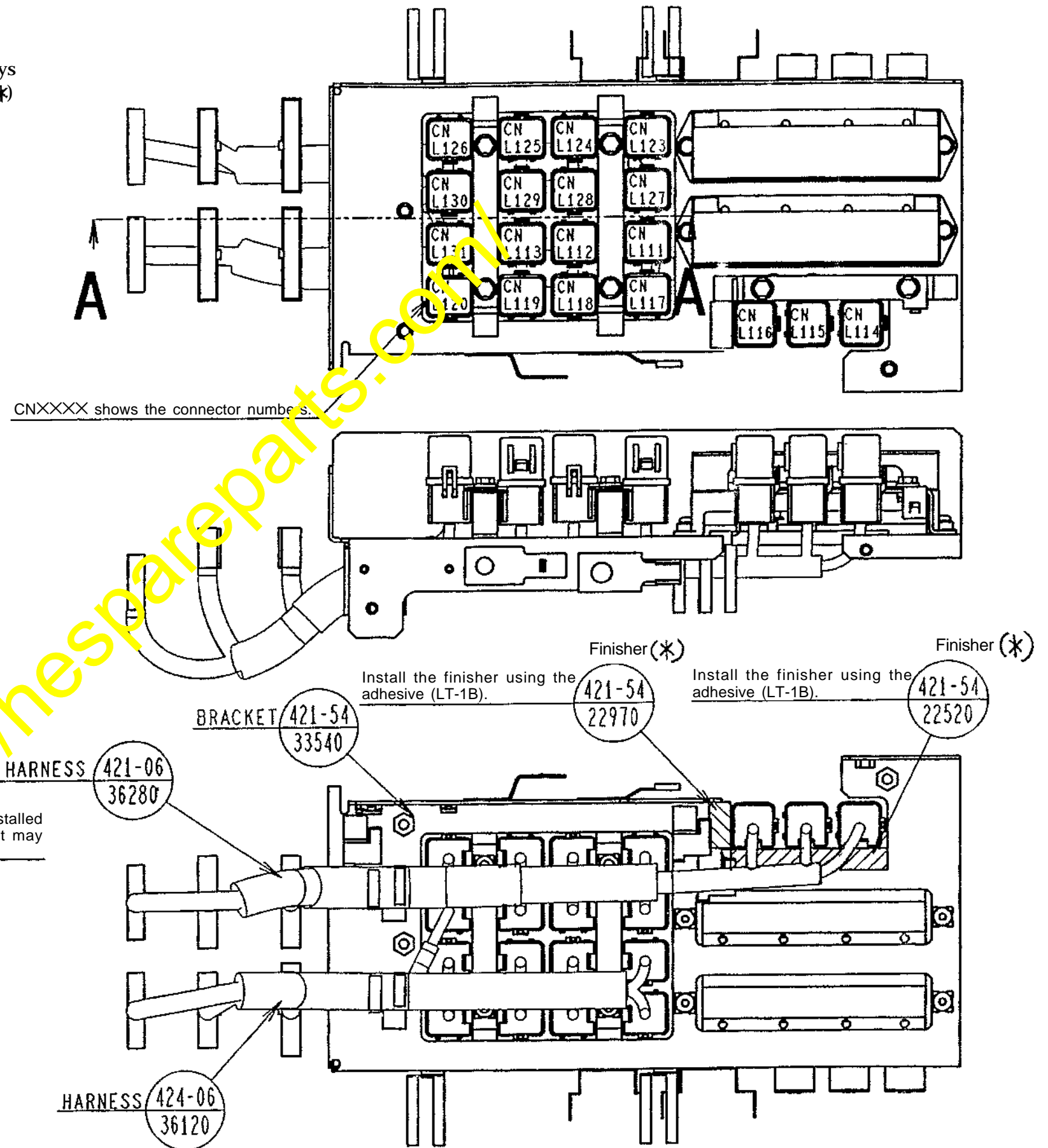
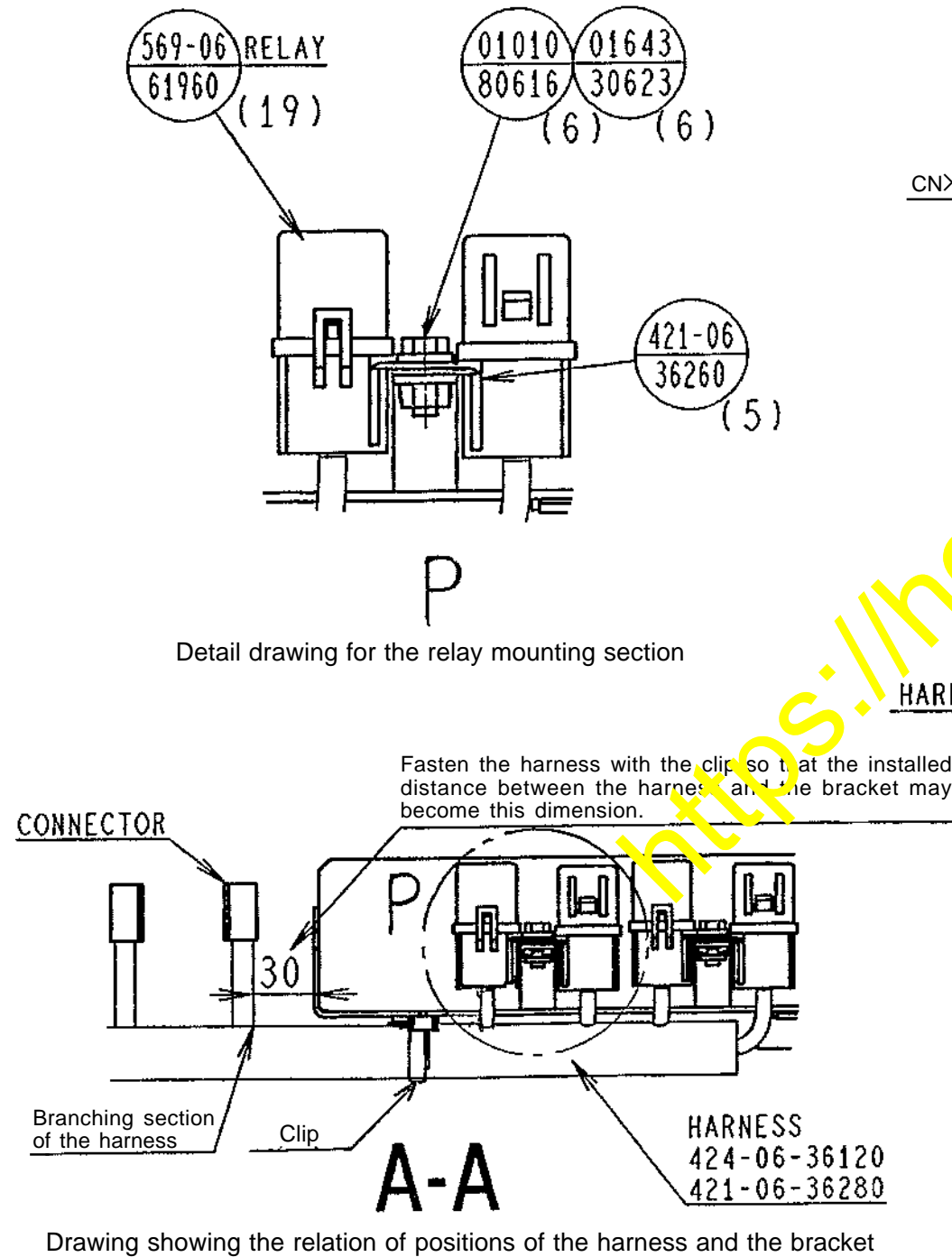


CNXXXX shows the connector numbers.

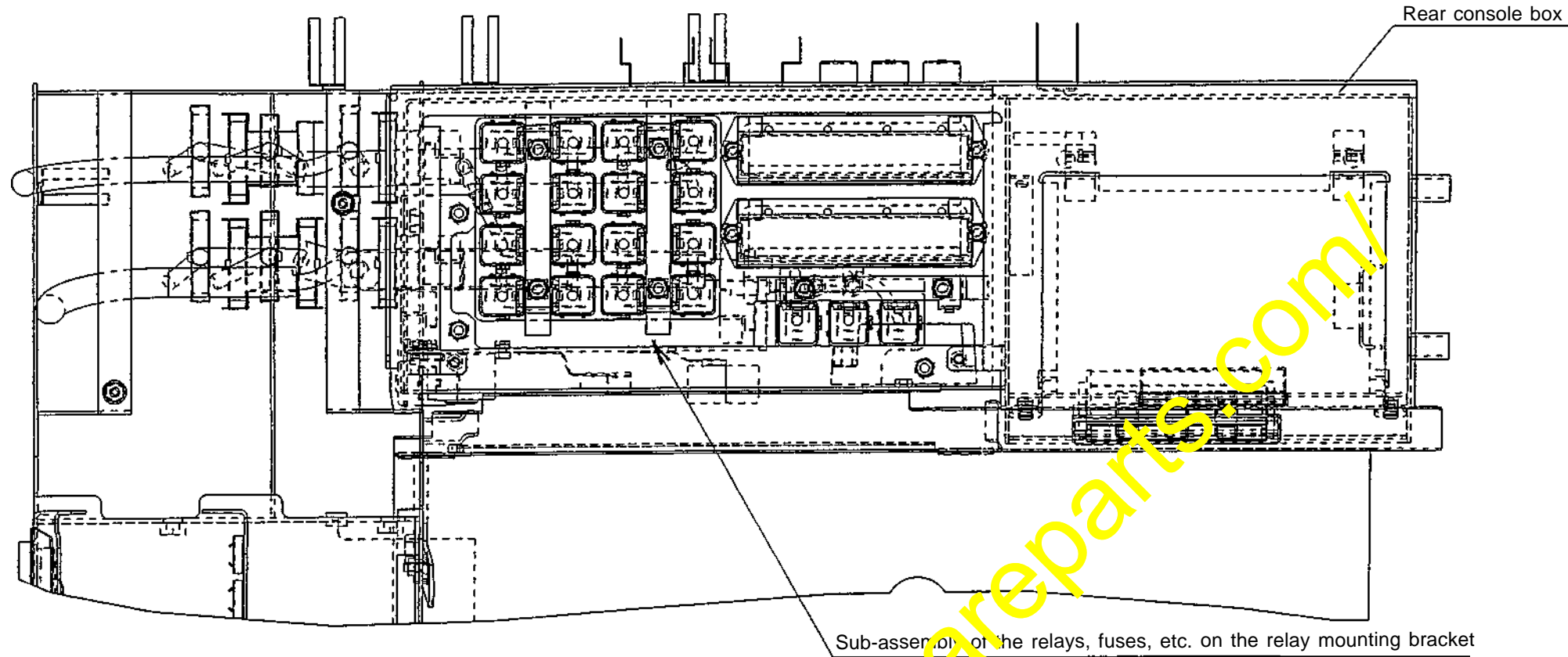


- (8) Install the improved relays and harnesses to the new bracket as per the instructions given in the drawings below.
 (These drawings are applicable to the WA430-5.)

Note) For prevention of interference of the harness and bracket with the relays (CN114, CN115 and CN116), install the finisher (the two parts marked *) to the bracket in advance.

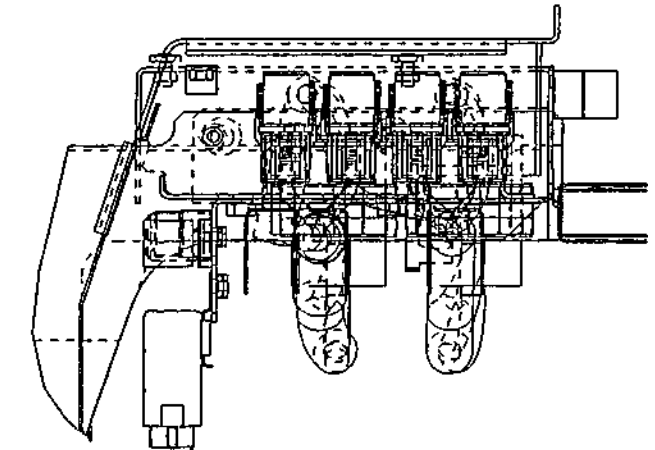
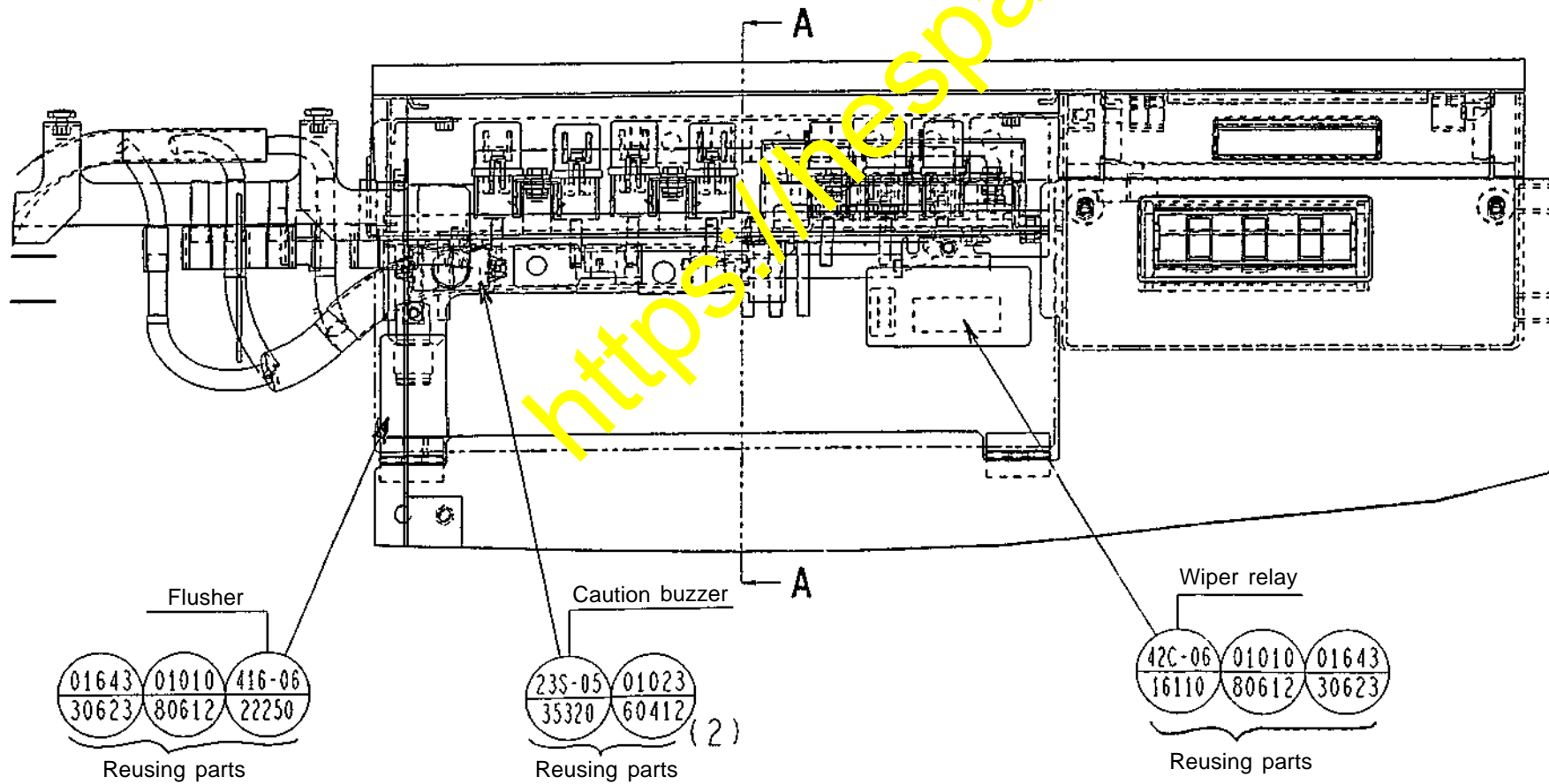


(9) Install the relay mounting bracket which has been sub-assembled per Section (8) onto the machine body for restoration.
 (This drawing is for installation on the WA430-5.)



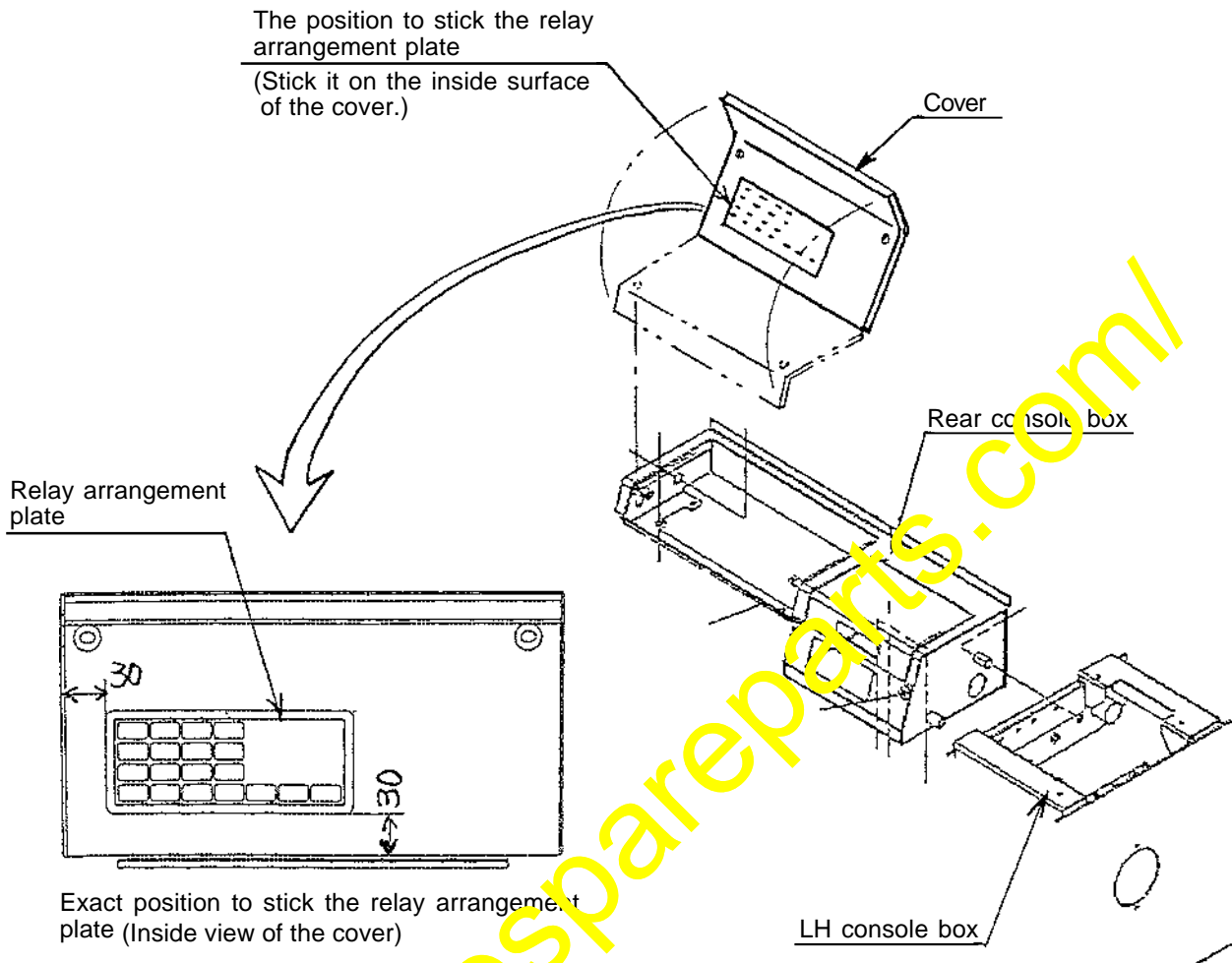
Tightening torque when reinstalling the above bolts:

- M6 bolt : 11.8 - 14.7 Nm
(1.2 - 1.5 kgm)
- M8 bolt : 27 - 34 Nm
(2.8 - 3.5 kgm)
- M10 bolt : 69 - 74 Nm
(6 - 7.5 kgm)
- M12 bolt : 98 - 123 Nm
(10 - 12.5 kgm)



A-A

- (10) Stick the relay arrangement plate to the inside surface of the cover for the relay and fuse section in the rear console box.



Part numbers of the nameplates of respective languages applicable to each machine model are shown on the table below.

	ENGLISH	ARABIC	INDONESIAN	FRENCH	RUSSIAN	PORTUGUESE	SPANISH
WA380-5	Part Nos. 421-93-23290	421-V01-3290	421-V02-3290	421-933-3290	421-V06-3290	---	421-V00-3290
WA400-5							
WA480-5							
WA430-5	Part Nos. 424-93-23290	424-V01-3290	424-V02-3290	424-933-3290	---	424-V03-3290	424-V00-3290

- (11) Restoration of the machine

Reinstall the parts which have been removed as per Section (1) thru Section (4) onto the machine body for restoration.

When carrying out the restoration work, if the buttons (23B-950-4450) to install the interior material in the cab and the caps (421-09-31310) for the upper cover of the work equipment lever box are being damaged or broken, replace them with new parts.

5. Purposes of respective relays and their operating conditions

Referring to the table shown below, check that respective relays are functioning properly.

No.	Relay name	Operating condition
1	Emergency flash light	When the hazard switch is turned on
2	Dust indicator	When the dust indicator is being clogged
3	Neutral B	When the "F-N-R" switch activating switch is turned on (Option)
4	Pre-heating heater	When the pre-heating circuit is turned on (It is possible to check this relay by disconnecting the connector "E09".)
5	Engine controller	WA380/430-5: When the engine mode selector switch is operated (P → N → P mode)
		WA470/480-5: Operates when the starting switch is turned on.
6	Neutral A	When the transmission F-N-R lever is set to the "N" position
7	Back lamp	When the transmission F-N-R lever is set to the reverse position
8	Brake lamp	When the brake pedal is depressed
9	Horn	When the horn switch is turned on
10	Parking brake safety	When the parking switch is turned on
11	Boom kick out	When the boom kick out switch is turned on (Proximity switch operates)
12	Bucket positioner	When the bucket positioner switch is turned on (Proximity switch operates)
13	ECSS	When the ECSS switch is turned on and while the machine is traveling at a speed of 5 km/h or faster.
14	Emergency steering	When the manual emergency steering switch is turned on
15	Front working lamp	When the front working lamp switch is turned on
16	Rear working lamp	When the rear working lamp switch is turned on
17	Heated rear glass	When the heated rear glass switch is turned on
18	Switch pump cutoff	When the kick down switch is turned on
19	Engine stop motor	When the engine is stopped by turning off the starting motor switch after once started the engine