

PARTS & SERVICE NEWS

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(C)

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SUBJECT: REPAIR OF CRACKS IN WELD JOINING BLOCK TO BUCKET CYLINDER

PURPOSE: To introduce modification procedures to repair and to prevent occurrence of cracks in the welded section joining the block to the bucket (dump) cylinder

APPLICATION: WA500-3 Wheel Loaders, S/N 50001 thru 50919
WA500-3L Wheel Loaders, S/N A70001 and up
WA500-3LK Wheel Loaders, S/N A71001 thru A71105

FAILURE CODE: H1Z137

DESCRIPTION:

Cracks may occur in the welded section joining the block to the dump cylinder tube when bucket is shaken or given the flapping motions frequently.

When cracks are found, replace the pipings and relevant parts referring to Pages 6 thru 24 of this **PARTS & SERVICE NEWS**.

In machines where cracking has not yet occurred, rework the cylinders and replace the pipings and relevant parts referring to Pages 25 thru 44 of this **PARTS & SERVICE NEWS** to prevent cracking.

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2. List of parts

① When replacing the cylinder assemblies (1/2)

Part No.	Part Name	Q'ty	Remarks
707-01-08752 (707-01-08751)	CYL. A. (CYL. A.)	2 (2)	Lift cylinder (standard) *
707-01-03243 (707-01-03242)	CYL. A. (CYL. A.)	1 (1)	Dump cylinder (standard) ☆
707-01-02591 (707-01-02590)	CYL. A. (CYL. A.)	1 (1)	High-lift dump cylinder ◎
707-01-02731 (707-01-02730)	CYL. A. (CYL. A.)	1 (1)	High-lift dump cylinder (Stone crushing spec.) ☒
707-01-02602 (707-01-02600)	CYL. A. (CYL. A.)	1 (1)	Large dump cylinder ▲
425-62-23650 (425-62-23561)	Tube (Tube)	1 (1)	For boom cylinder
425-62-23660 (425-62-23551)	Tube (Tube)	1 (1)	For boom cylinder
07000-13038	O-ring	4	Consumable part
07000-13035	O-ring	2	Consumable part
01010-81230 (01435-01225)	Bolt (Bolt)	4 (4)	For the cylinder tube
01643-31232	Washer	4	For the cylinder tube
425-43-29120 (425-43-29110)	Plate (Plate)	1 (1)	For the bucket positioner
01010-81235 (01435-01235)	Bolt (Bolt)	2 (2)	For the plate
01643-31232	Washer	2	For the plate
425-43-29130 (423-43-19150)	Plate (Plate)	1 (1)	For the bucket positioner sensor
01596-01211	Nut	2	For the sensor mounting plate
425-62-23680 (425-62-13171)	Plate (Plate)	1 (1)	For the standard and high-lift dump cylinders ⊗
425-870-2110 (425-62-13171)	Plate (Plate)	1 (1)	For large dump cylinder ■
07283-54353	Seat	1	To clamp the tube

(1) The cylinder assembly marked * is common for all the specs.

(2) As for the four types of dump cylinder assemblies marked ☆, ◎, ☒ and ▲, select one type only fitting to the following specifications.

☆ ... Standard dump cylinder

◎..... High-lift dump cylinder

☒ ... High-lift dump cylinder (Stone crushing spec.) ▲ ... Large dump cylinder

(3) As for the two types of piping clamping plates marked ⊗ and ■ for the dump cylinder assemblies, select one type only fitting to the following specifications.

⊗ ... For the standard and high-lift dump cylinders

■ ... For large dump cylinder

1 When replacing the cylinder assemblies (2/2)

Part No.	Part Name	Q'ty	Remarks
01010-81230 (01435-01225)	Bolt (Bolt)	2 (2)	} For the dump cylinder plate
01643-31232	Washer	2	
07000-13045	O-ring	1	} Consumable part
07000-13048	O-ring	2	
421-09-11350	Seal dust	8	

2 When reworking the cylinder assemblies (1/2)

Part No.	Part Name	Q'ty	Remarks
425-62-23650 (425-62-23561)	Tube (Tube)	1 (1)	} For the boom cylinder
425-62-23660 (425-62-23551)	Tube (Tube)	1 (1)	
07000-13038	O-ring	1	} Consumable part
07000-13035	O-ring	2	
01010-81230 (01435-01225)	Bolt (Bolt)	4 (4)	} For the cylinder tube
01643-31232	Washer	4	
425-43-29120 (425-43-29110)	Plate (Plate)	1 (1)	For the bucket positioner
01010-81235 (01435-01225)	Bolt (Bolt)	2 (2)	} For the plate
01643-31222	Washer	2	
425-43-29130 (425-43-19150)	Plate (Plate)	1 (1)	For the bucket positioner sensor
01596-01211	Nut	2	For the sensor mounting plate
425-62-23680 (425-62-13171)	Plate (Plate)	1 (1)	For the standard and high-lift ⊗ dump cylinders
425-870-2110 (425-62-13171)	Plate (Plate)	1 (1)	For large dump cylinder ▣
07283-54353	Seat	1	To clamp the tube

(1) As for the two types of piping clamping plates marked ⊗ and ▣ for the dump cylinder assemblies, select one type only fitting to the following specifications.

⊗ ... For the standard and high-lift dump cylinders

▣ ... For large dump cylinder

2 When reworking the cylinder assemblies (2/2)

Part No.	Part Name	Q'ty	Remarks
01010-81230 (01435-01225)	Bolt (Bolt)	2 (2)	} For the dump cylinder plate
01643-31232	Washer	2	
07000-13045	O-ring	1	} Consumable part
07000-13048	O-ring	2	
421-09-11350	Seal dust	8	
425-43-29140	Plate	1	For the dump cylinder plate (standard and high-lift) ●
425-43-29150	Plate	1	For the dump cylinder plate (large dump cylinder) ▽
01573-22307	Seat	1	For the dump cylinder plate
21T-72-11930	Seat	1	For the lift cylinder plate

(1) As for the two types of plates marked ● and ▽ for reworking of the dump cylinder assemblies, select one type only fitting to the following specifications.

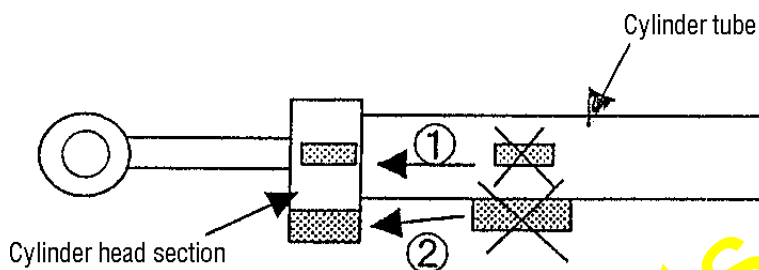
● ... For reworking of the standard and high-lift dump cylinders

▽ ... For reworking of the large dump cylinder

3. Contents of the modification

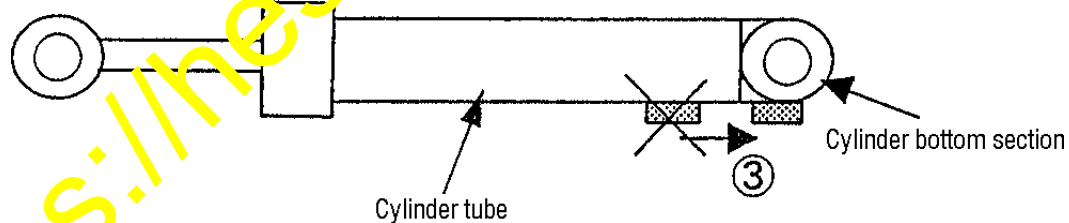
The positions to weld the seat and plate to the dump cylinder assembly and to the lift cylinder assembly are to be changed from the cylinder tube section to cylinder head section or to the cylinder bottom section to avoid occurrence of stress concentration to the welded sections, thus preventing occurrences of cracks.

The positions of the piping clamping seat ① and the bucket positioner fastening plate ② are to be shifted to the cylinder head section.



Dump cylinder

The position of the lift cylinder piping clamping seat ③ also is to be shifted to the cylinder bottom section to avoid occurrence of stress concentration.



Lift cylinder

4. Modification procedures: When replacing the cylinder assemblies

(Precautions)

Carry out this modification work referring to pages 30-4 and 30-5 "Precautions when carrying out operation" in the Shop Manual. (Refer to pages 7 and 8.)

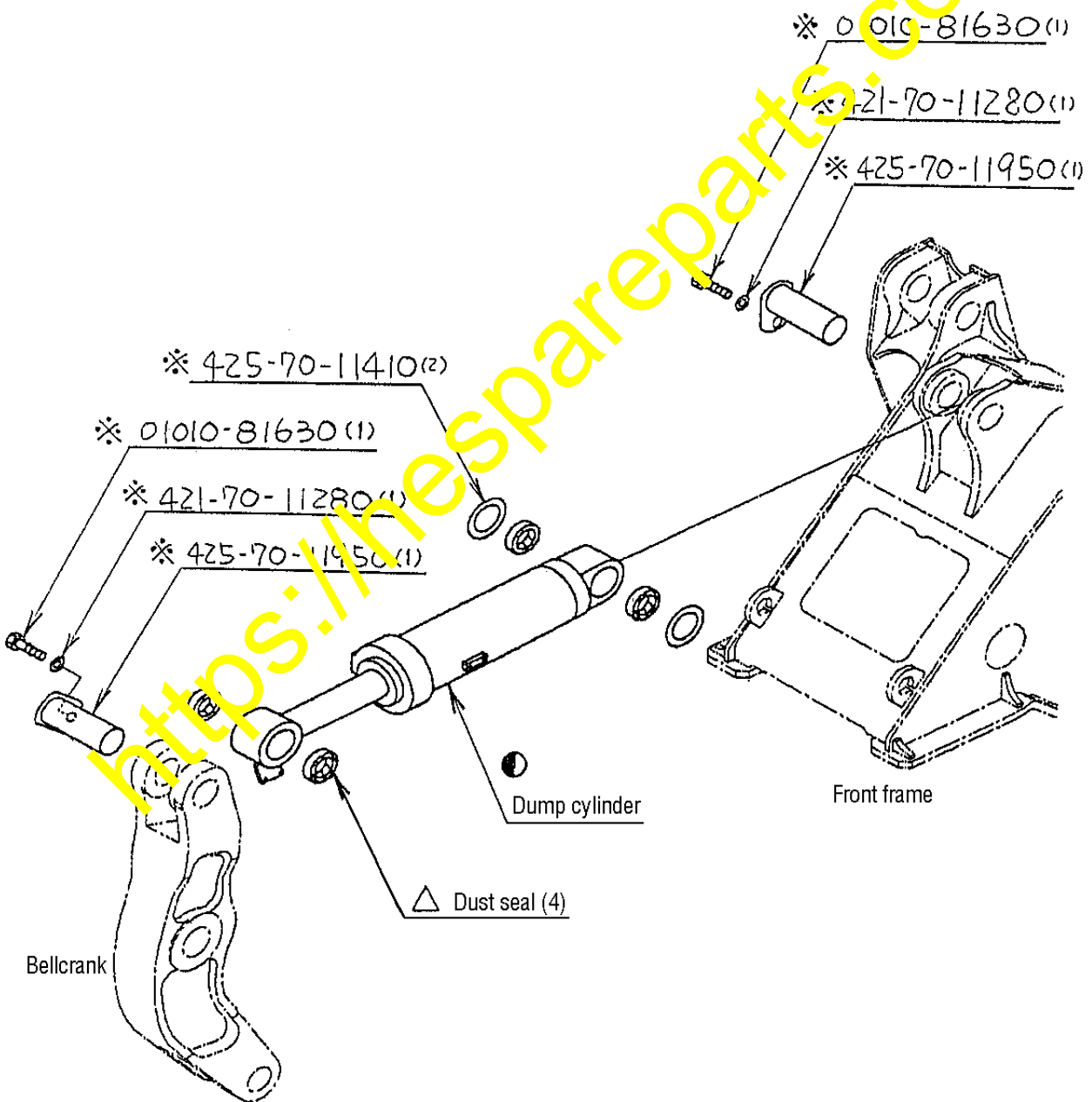
(1) Removing the dump cylinder assembly

- ① Remove the dump cylinder assembly.
(Refer to page 9.)

(Notes) ※ : Parts to be reused

● : Parts to be replaced

△ : Consumable parts (To be discarded after removal.)



PRECAUTIONS WHEN CARRYING OUT OPERATION

[When carrying out removal or installation (disassembly or assembly) of units, be sure to follow the general precautions given below when carrying out the operation.]

1. Precautions when carrying out removal work

- If the coolant contains antifreeze, dispose of it correctly.
- After disconnecting hoses or tubes, cover them or fit blind plugs to prevent dirt or dust from entering.
- When draining oil, prepare a container of adequate size to catch the oil.
- Confirm the match marks showing the installation position, and make match marks in the necessary places before removal to prevent any mistake when assembling.
- To prevent any excessive force from being applied to the wiring, always hold the connectors when disconnecting the connectors. Do not pull the wires.
- Fit wires and hoses with tags to show their installation position to prevent any mistake when installing.
- Check the number and thickness of the shims, and keep in a safe place.
- When raising components, be sure to use lifting equipment of ample strength.
- When using forcing screws to remove any components, tighten the forcing screws uniformly in turn.
- Before removing any unit, clean the surrounding area and fit a cover to prevent any dust or dirt from entering after removal.

★ Precautions when handling piping during disassembly

Fit the following blind plugs into the piping after disconnecting it during disassembly operations.

1) Hoses and tubes using sleeve nuts

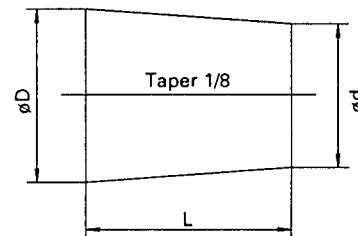
Nominal number	Plug (nut end)	Sleeve nut (elbow end)	Use the two items below as a set
02	07376-50210	07221-20210 (Nut), 07222-00210 (Plug)	
03	07376-50315	07221-20315 (Nut), 07222-00312 (Plug)	
04	07376-50422	07221-20422 (Nut), 07222-00414 (Plug)	
05	07376-50522	07221-20522 (Nut), 07222-00515 (Plug)	
06	07376-50628	07221-20628 (Nut), 07222-00616 (Plug)	
10	07376-51034	07221-21034 (Nut), 07222-01018 (Plug)	
12	07376-51234	07221-21234 (Nut), 07222-01219 (Plug)	

2) Split flange type hoses and tubes

Nominal number	Flange (hose end)	Sleeve head (tube end)	Split flange
04	07379-00400	07378-10400	07371-30400
05	07379-00500	07378-10500	07371-30500

3) If the part is not under hydraulic pressure, the following corks can be used.

Nominal number	Part Number	Dimensions		
		D	d	L
06	07049-00608	6	5	8
08	07049-00811	8	6.5	11
10	07049-01012	10	8.5	12
12	07049-01215	12	10	15
14	07049-01418	14	11.5	18
16	07049-01620	16	13.5	20
18	07049-01822	18	15	22
20	07049-02025	20	17	25
22	07049-02228	22	18.5	28
24	07049-02430	24	20	30
27	07049-02734	27	22.5	34

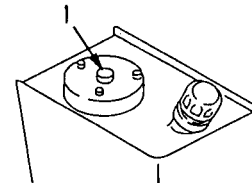


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2. Precautions when carrying out installation work

- Tighten all bolts and nuts (sleeve nuts) to the specified (KES) torque.
 - Install the hoses without twisting or interference.
 - Replace all gaskets, O-rings, cotter pins, and lock plates with new parts.
 - Bend the cotter pins and lock plates securely.
 - When coating with adhesive, clean the part and remove all oil and grease, then coat the threaded portion with 2 – 3 drops of adhesive.
 - When coating with gasket sealant, clean the surface and remove all oil and grease, check that there is no dirt or damage, then coat uniformly with gasket sealant.
 - Clean all parts, and correct any damage, dents, burrs, or rust.
 - Coat rotating parts and sliding parts with engine oil.
 - When press fitting parts, coat the surface with anti-friction compound (LM-P).
 - After fitting snap rings, check that the snap ring is fitted securely in the ring groove.
 - When connecting wiring connectors, clean the connector to remove all oil, dirt, or water, then connect securely.
 - When using eyebolts, check that there is no deformation or deterioration, screw them in fully, and align the direction of the hook.
 - When tightening split flanges, tighten uniformly in turn to prevent excessive tightening on one side.
- ★ When operating the hydraulic cylinders for the first time after reassembling cylinders, pumps and other hydraulic equipment removed for repair, always bleed the air as follows:
1. Start the engine and run at low idling.
 2. Operate the work equipment control lever to operate the hydraulic cylinder 4 – 5 times, stopping the cylinder 100 mm from the end of its stroke.
 3. Next, operate the steering, bucket, and boom cylinders to the end of their stroke 3 - 4 times, stop the engine, loosen air bleed plug (1), bleed the air from the hydraulic tank, then tighten plug (1) again.
 4. Raise the engine speed, repeat Step 3 to bleed the air, and repeat this operation until no more air comes out from the plug.
 5. After doing this, run the engine at normal speed.
- ★ When using the machine for the first time after repair or long storage, follow the same procedure.



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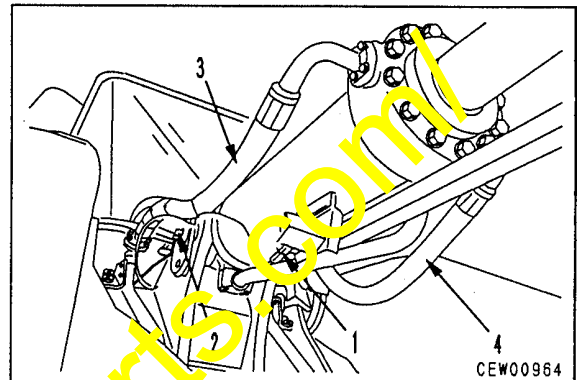
3. Precautions when completing the operation

- If the coolant has been drained, tighten the drain valve, and add water to the specified level. Run the engine to circulate the water through the system. Then check the water level again.
- If the hydraulic equipment has been removed and installed again, add engine oil to the specified level. Run the engine to circulate the oil through the system. Then check the oil level again.
- If the piping or hydraulic equipment have been removed, always bleed the air from the system after reassembling the parts.
 - ★ For details, see TESTING AND ADJUSTING, Bleeding air.
- Add the specified amount of grease (molybdenum disulphide grease) to the work equipment parts.

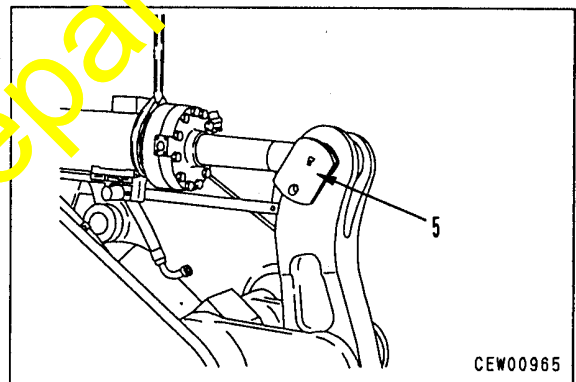
Dump cylinder assembly removal procedures (an extract from the Shop Manual)

- ⚠ Stop the machine on level ground, install the safety bar on the frame, and put blocks under the wheels to prevent the machine from moving.
- ⚠ Loosen the oil filler cap slowly to release the pressure inside the hydraulic tank. Then operate the steering wheel and control levers several times to release the remaining pressure in the hydraulic piping.

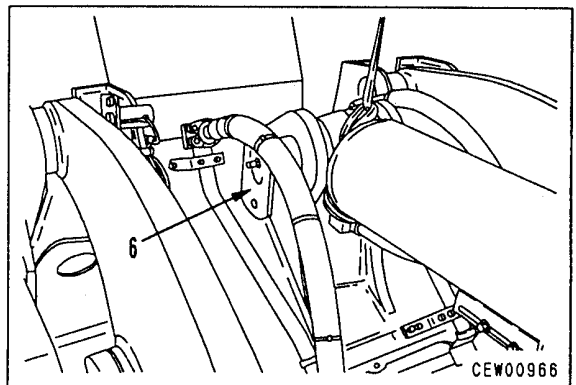
1. Disconnect connector (1) for bucket positioner.
2. Disconnect grease tube (2) from bottom pin.
3. Disconnect head hose (3).
4. Disconnect bottom hose (4).



5. Sling cylinder, then remove lock bolt, and remove head pin (5).
 - ★ Sling from two points and be careful of the center of gravity.

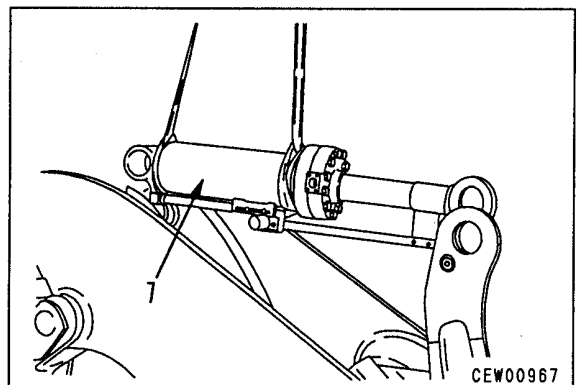


6. Remove lock bolt, then remove bottom pin (6).
 - ※ 1
 - ★ If there are shims, check the number and thickness of the shim.



7. Remove bucket cylinder assembly (7).
 - ★ Be careful not to damage the cylinder rod.

 Bucket cylinder assembly : 286 kg



When replacing the cylinder assemblies

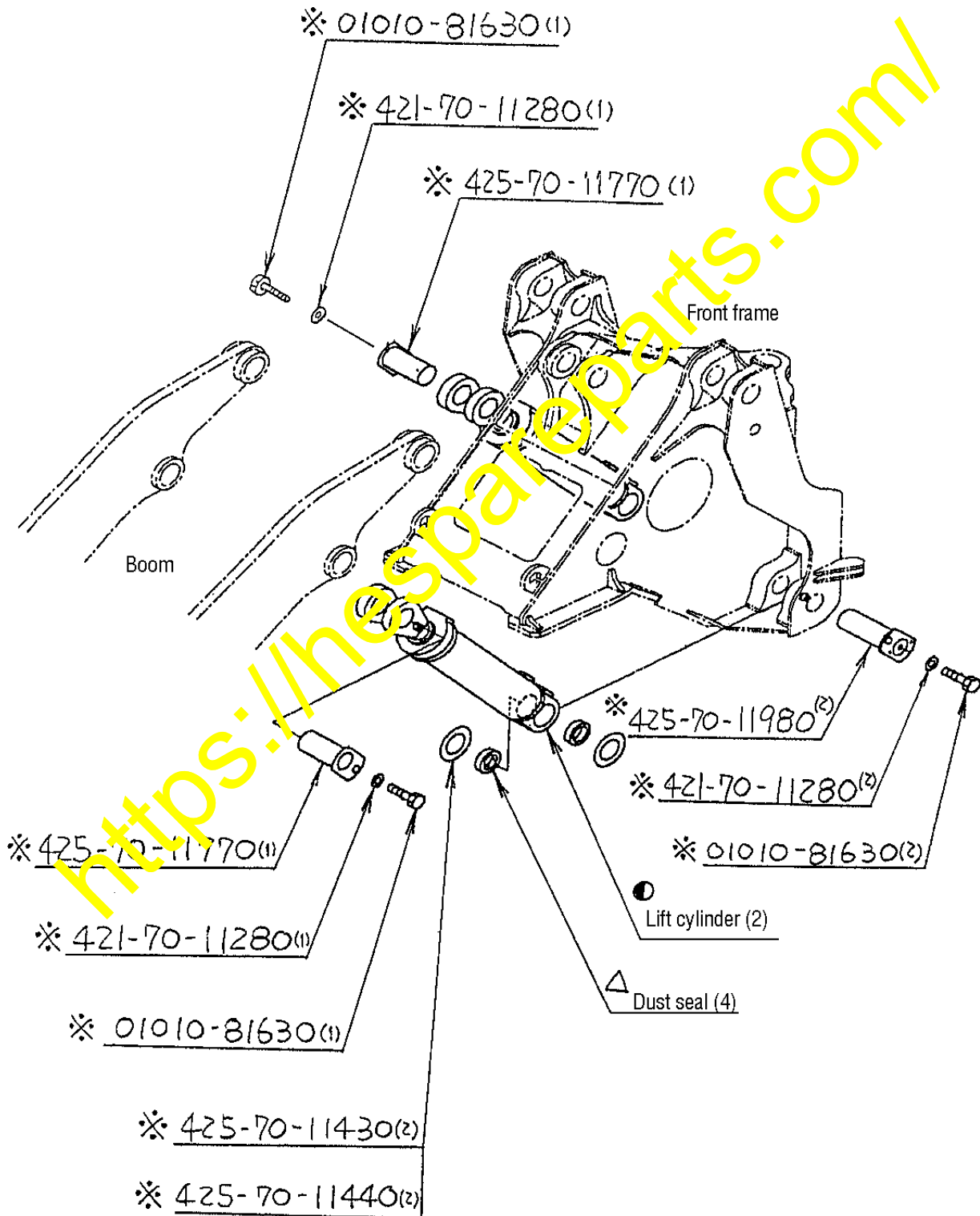
(2) Removing the lift cylinder assembly

- ① Remove the lift cylinder assembly.
(Refer to page 11.)

(Notes) ※ : Parts to be reused

● : Parts to be replaced

△ : Consumable parts (To be discarded after removal.)



Lift cylinder assembly removal procedures (an extract from the Shop Manual)

- ⚠ Stop the machine on level ground, install the safety bar on the frame, and put blocks under the wheels to prevent the machine from moving.
- ⚠ Loosen the oil filler cap slowly to release the pressure inside the hydraulic tank. Then operate the steering wheel and control levers several times to release the remaining pressure in the hydraulic piping.


1. Lift off fender (1).

 Fender : 25 kg


2. Sling boom cylinder, then remove lock bolt, and remove pin (3).
 - ★ Start the engine and operate the control lever to retract the cylinder rod of the cylinder where the pin has been removed.
 - ★ After stopping the engine, release the remaining pressure from the hydraulic piping.

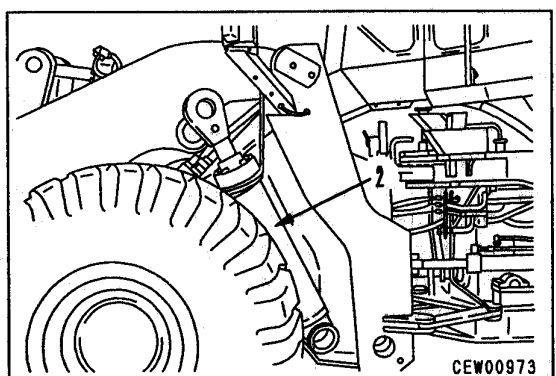
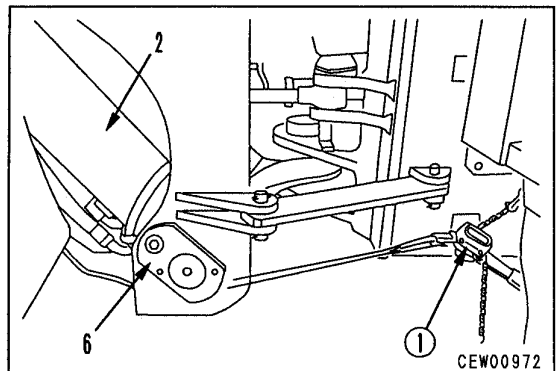
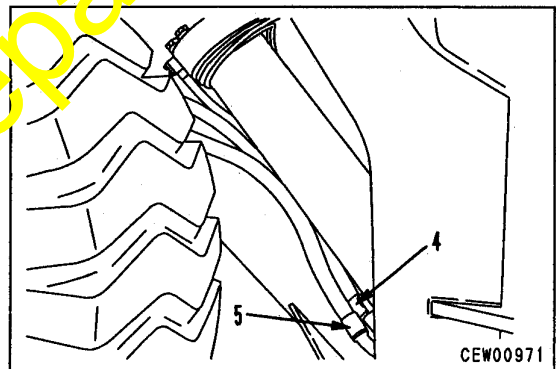
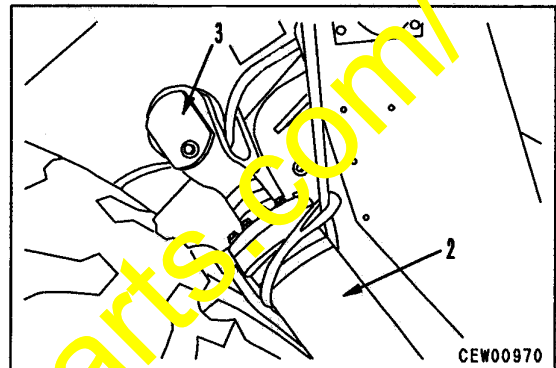
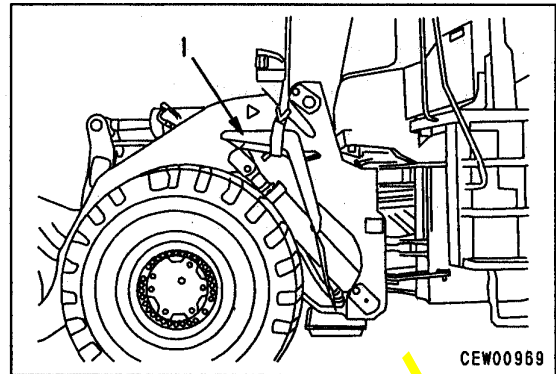
3. Disconnect head hose (4) and bottom hose (5).

4. Fit lifting tool to bottom of boom cylinder (2), then use lever block ① to pull out to rear of machine.

5. Using forcing screws, remove bottom pin (6). 
 - ★ If there are shims, check the number and thickness of the shim.

6. Lift off boom cylinder assembly (2).

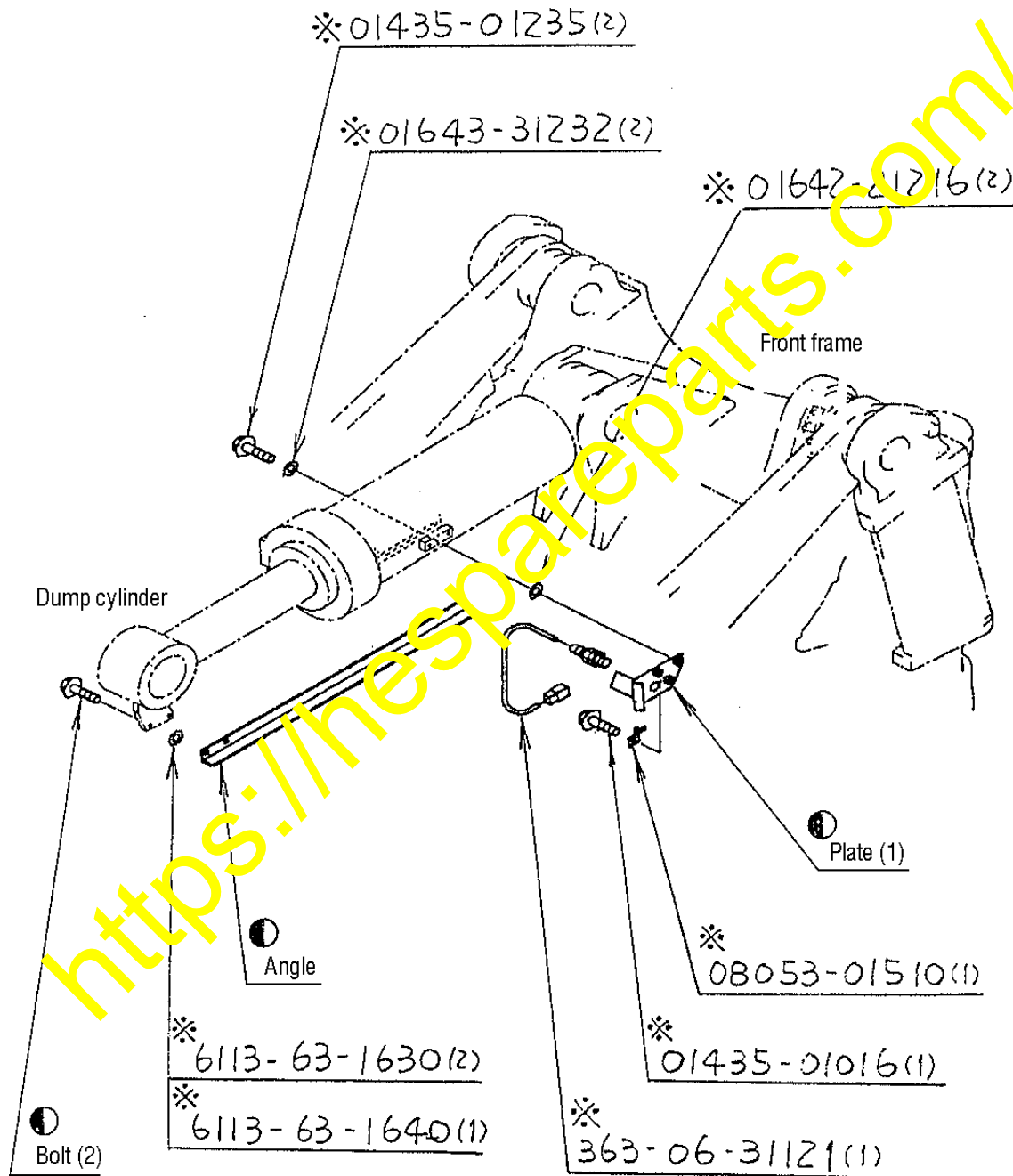
★ Be careful not to damage the cylinder rod.
 Boom cylinder assembly : 272 kg



When replacing the cylinder assemblies

(3) Removing the bucket positioner section

- (Notes) ※ : Parts to be reused
● : Parts to be replaced



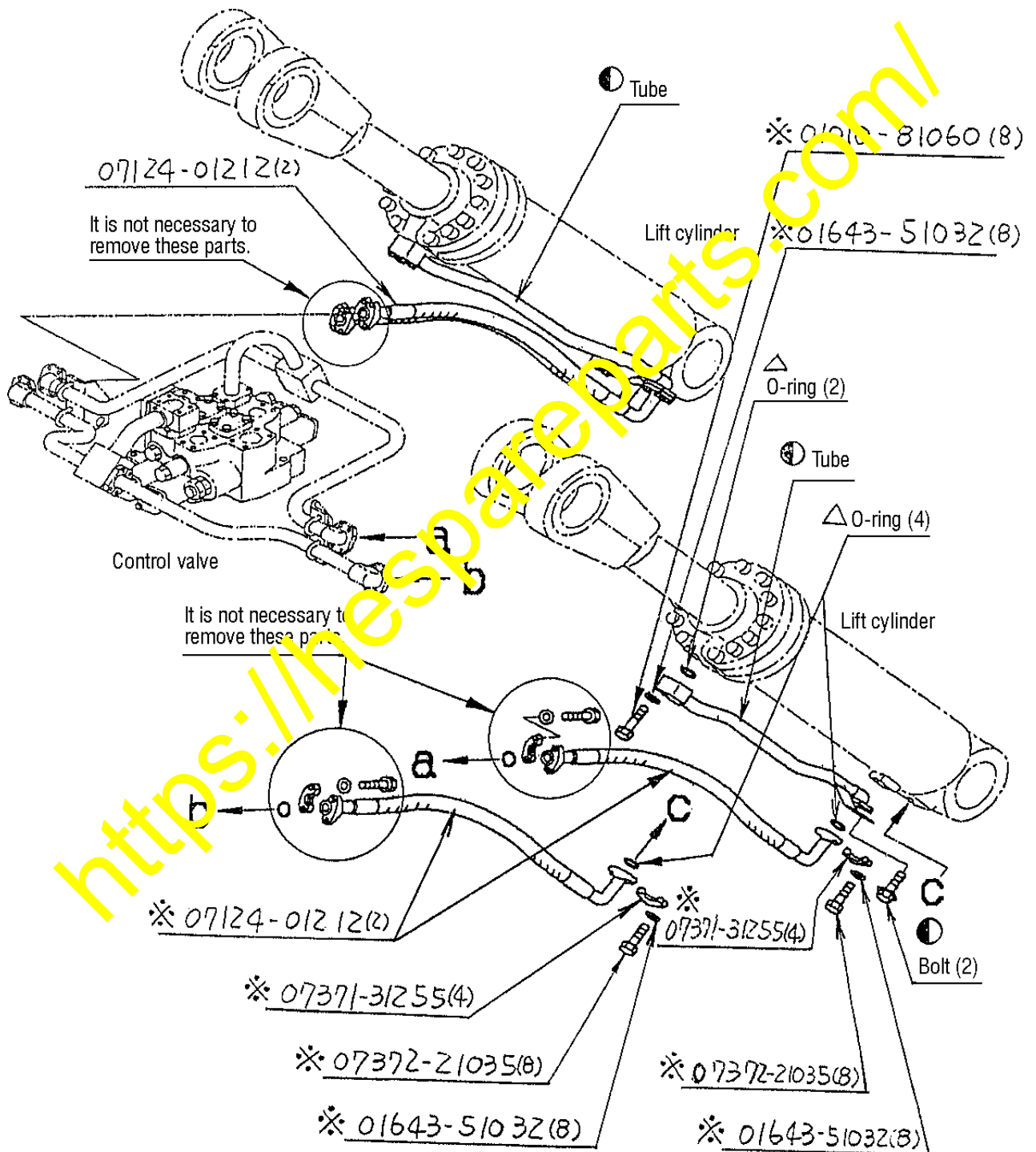
When replacing the cylinder assemblies

(4) Removing the cylinder pipings connecting to the lift cylinder

(Notes) ※ : Parts to be reused

● : Parts to be replaced

△ : Consumable parts (To be discarded after removal.)



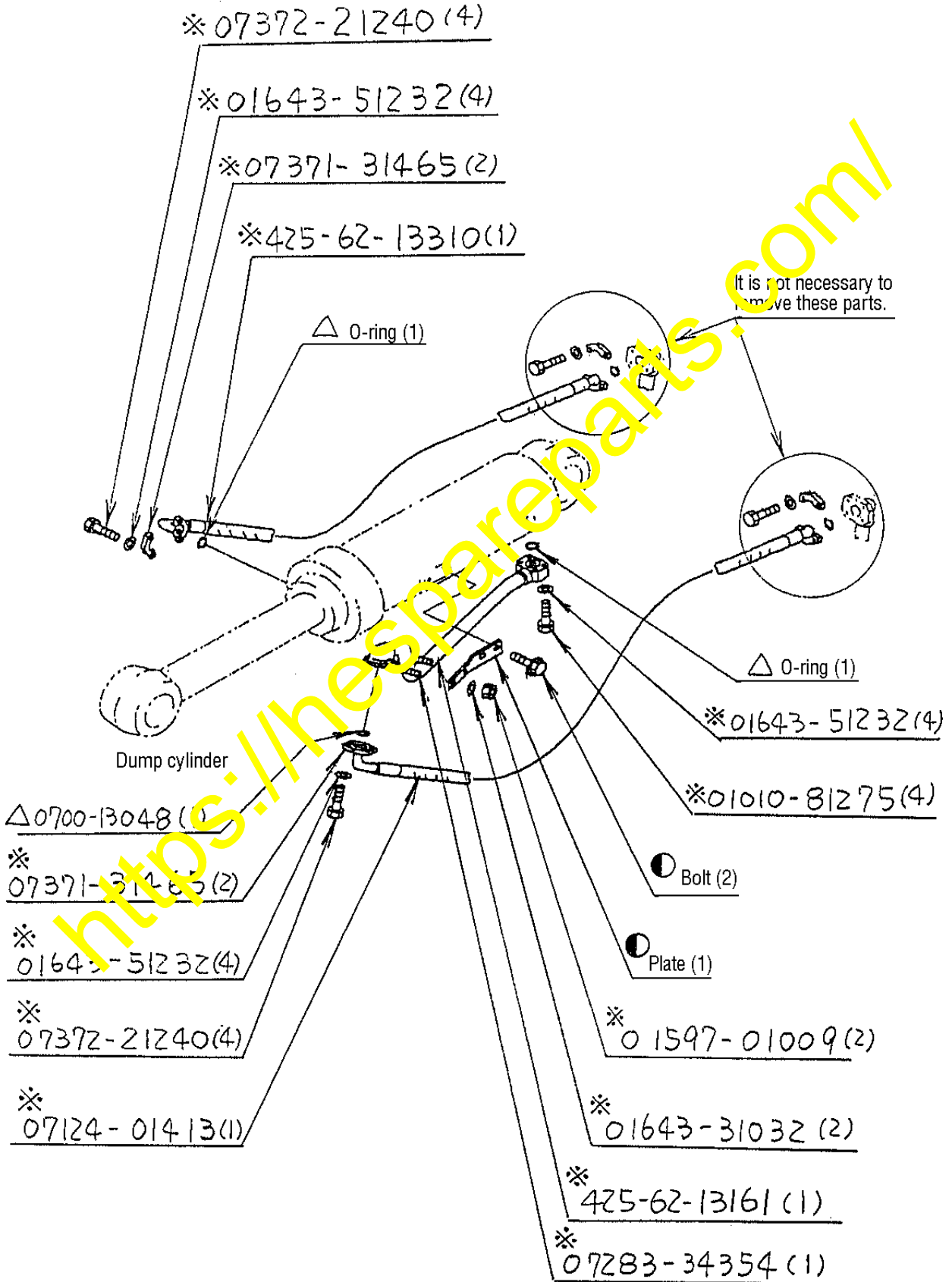
When replacing the cylinder assemblies

(5) Removing the pipings connecting to the dump cylinder

(Notes) ※ : Parts to be reused

● : Parts to be replaced

△ : Consumable parts (To be discarded after removal.)



When replacing the cylinder assemblies

(6) Installing the new dump cylinder assembly

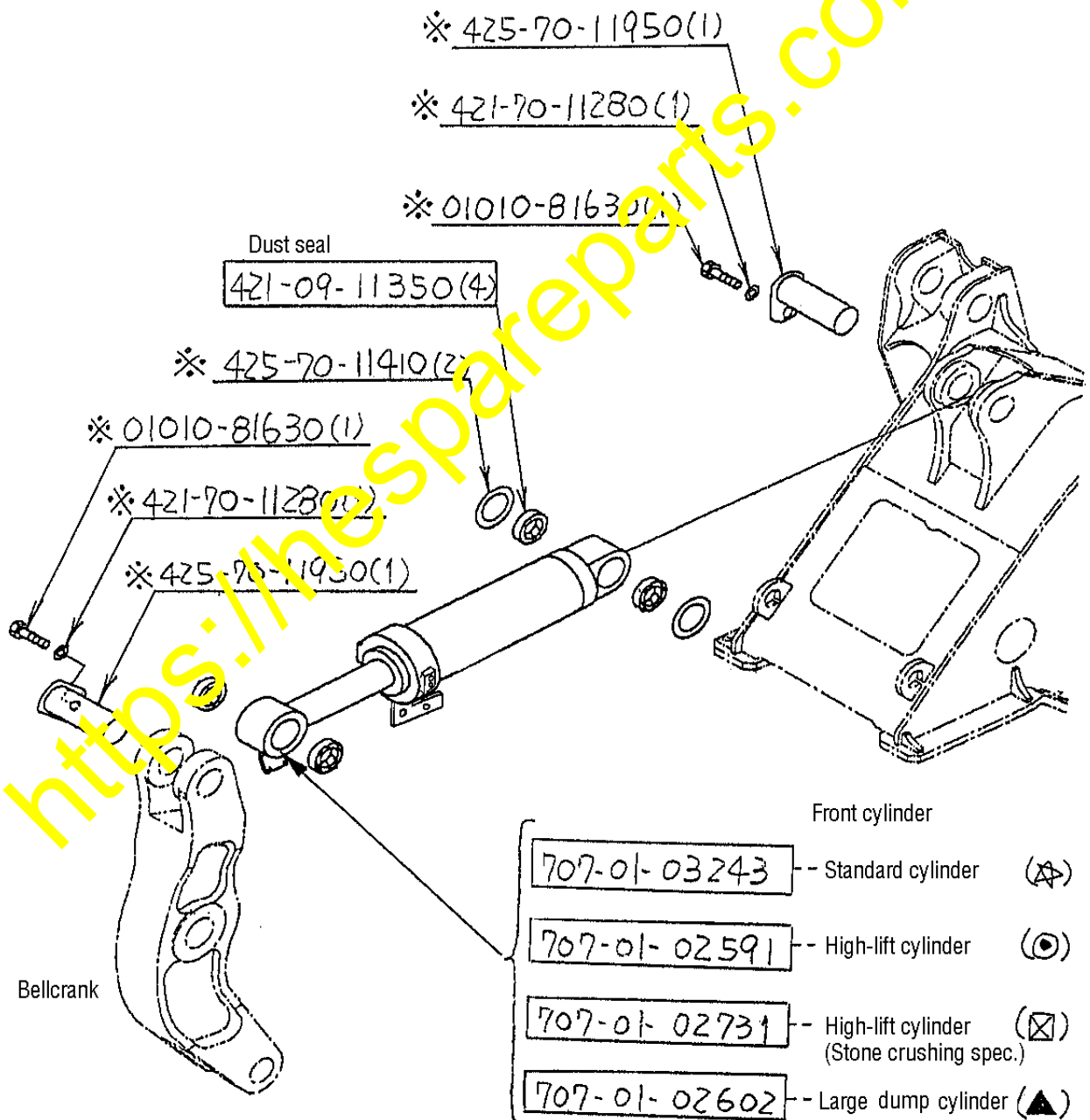
① Install the new dump cylinder assembly. (Refer to page 16.)

(Note) Replace the current dump cylinder assembly and dust seal with the new parts which have been prepared according to the lists of necessary parts indicated on pages 2 and 3.

(Parts with their part numbers bordered in are the newly prepared parts.)

Tightening torque	
Bolt (M16)	28.5 – 31.5 kgm (249 – 309 Nm)

※ : Parts to be reused



Dump cylinder assembly installation procedures (an extract from the Shop Manual)

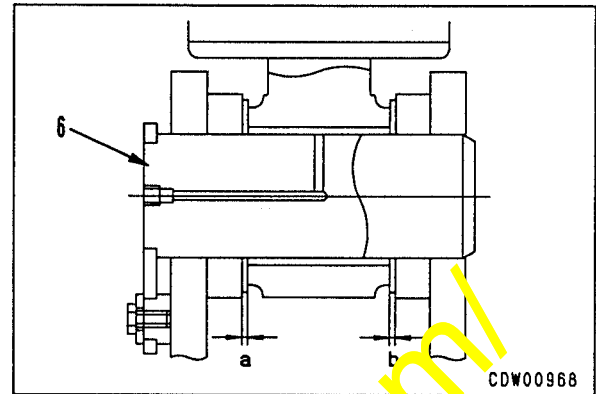
- Carry out installation in the reverse order to removal.

※ 1

- ★ When aligning the pin hole at the bottom end, assemble shims so that the total clearance between the cylinder and frame is within the specified value, then assemble pin (6) and lock with the bolt.

Clearance $a + b =$ Less than 1.0 mm

- ⚠ When aligning the position of the pin hole, use a bar. Never insert your fingers in the pin hole.



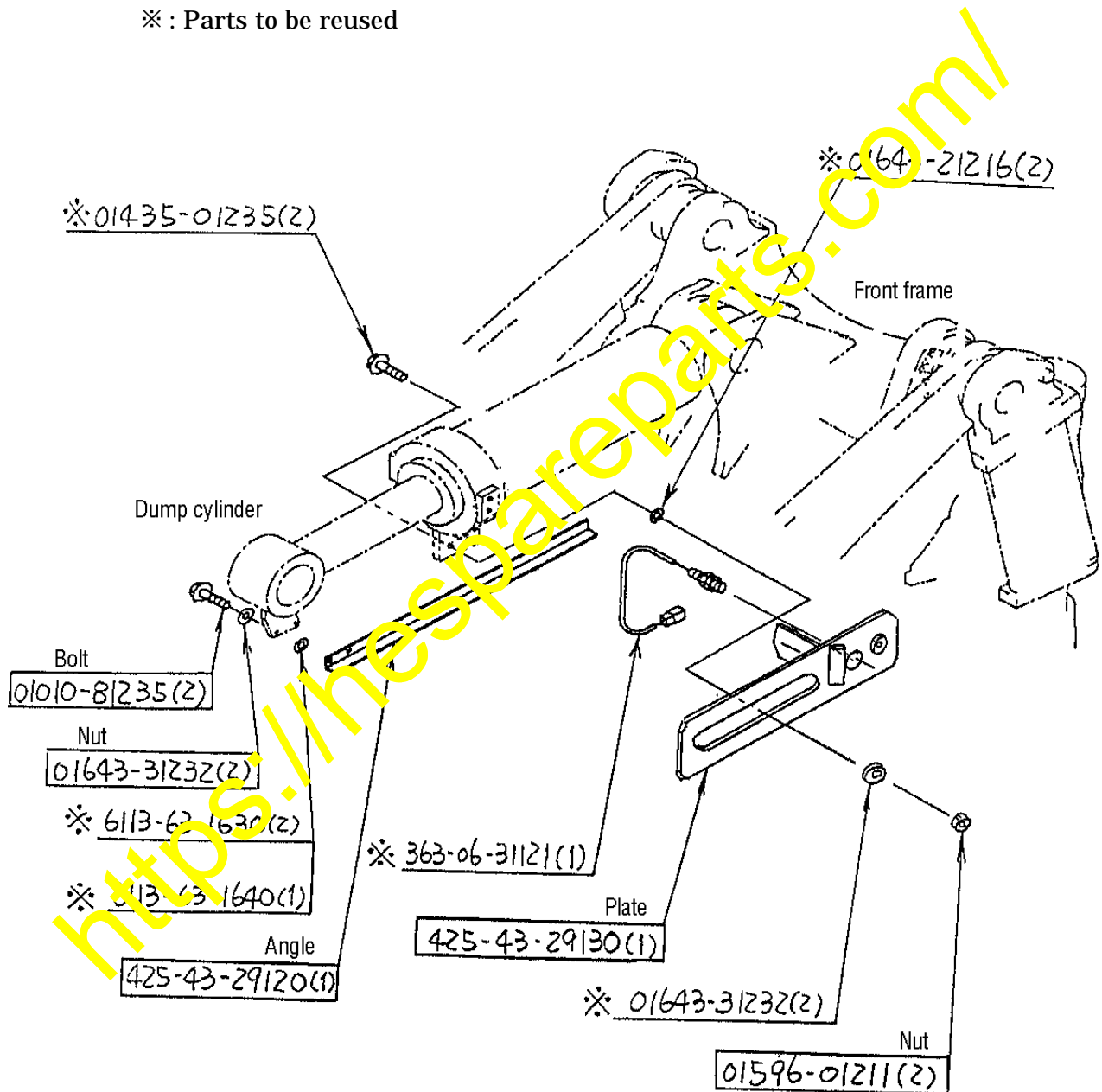
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- ② Install the bucket positioner sensor and the positioner bar to the dump cylinder assembly.

(Note) Replace the current positioner sensor mounting plate, positioner bar, bolts and washers with the new parts which have been prepared according to the lists of necessary parts indicated on pages 2 and 3. (Parts with their part numbers bordered in are the newly prepared parts.)

Tightening torque	
Bolt (M12)	10.0 – 12.5 kgm (98 – 123 Nm)

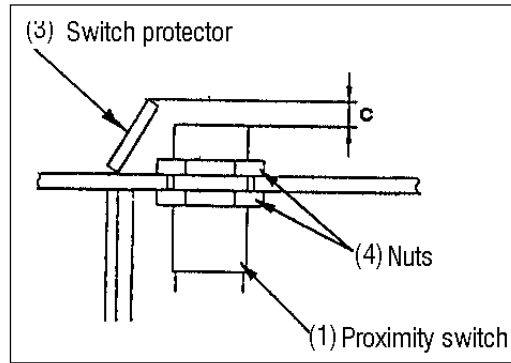
※ : Parts to be reused



Proximity switch installation procedures

Adjust the mounting nuts (4) so that the clearance "C" between the tip end of the switch protector (3) and the induction surface of the proximity switch (1) may become 0.5 to 1.0 mm.

Tightening torque	
Mounting nut	1.5 – 2.0 kgm (14.7 – 19.6 Nm)



When adjusting the shims, refer to the "Shim Adjustment Procedures" given on page 24.

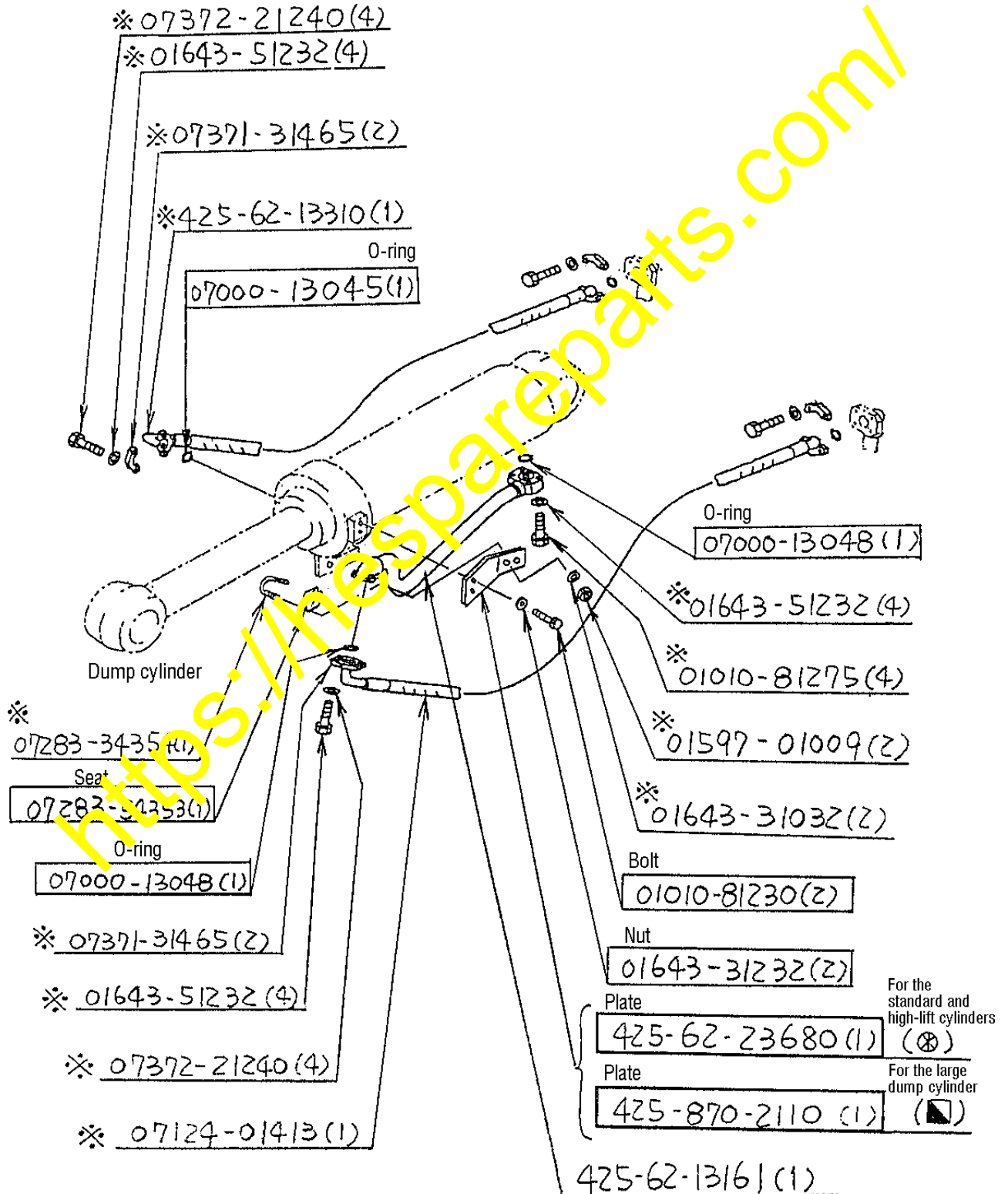
<https://hespareparts.com/>

- ③ Install the pipings connecting to the dump cylinder and the piping clamping plate.
 (Note) Replace the current piping clamping plate and seat with the new parts which have been prepared according to the lists of necessary parts indicated on pages 2 and 3.

(Parts with their part numbers bordered in are the newly prepared parts.)

Tightening torque	
Bolt (M10)	6.0 – 7.4 kgm (59 – 73 Nm)
Bolt (M12)	10.0 – 12.5 kgm (98 – 123 Nm)

※ : Parts to be reused



When replacing the cylinder assemblies

(7) Installing the new lift cylinder assembly

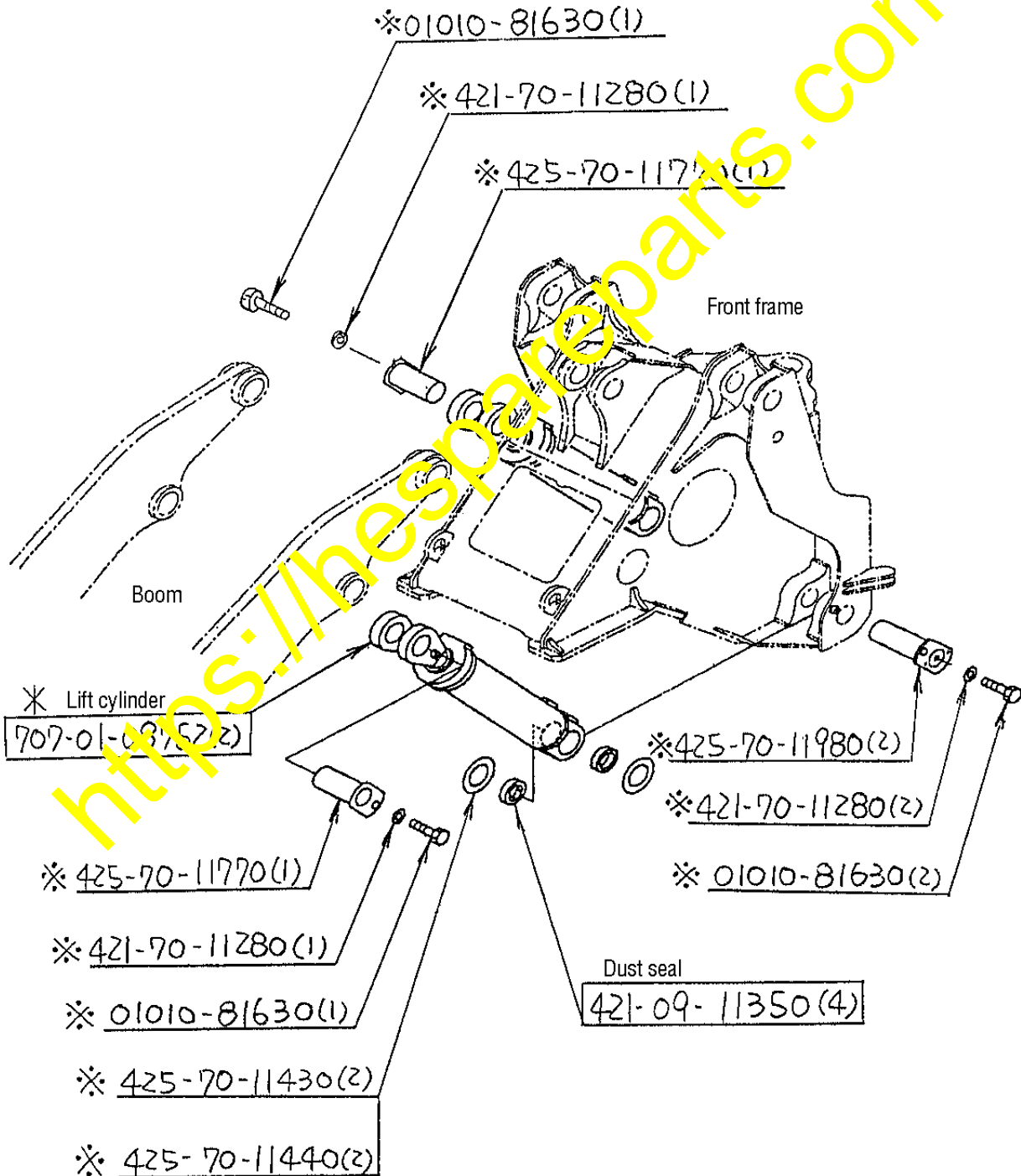
① Install the new lift cylinder assembly. (Refer to page 21.)

(Note) Replace the current lift cylinder assembly and dust seal with the new parts which have been prepared according to the lists of necessary parts indicated on pages 2 and 3.

Tightening torque	
Bolt (M16)	28.5 – 31.5 kgm (249 – 309 Nm)

※ : Parts to be reused

(Parts with their part numbers bordered in are the newly prepared parts.)



Lift cylinder assembly installation procedures (an extract from the Shop Manual)

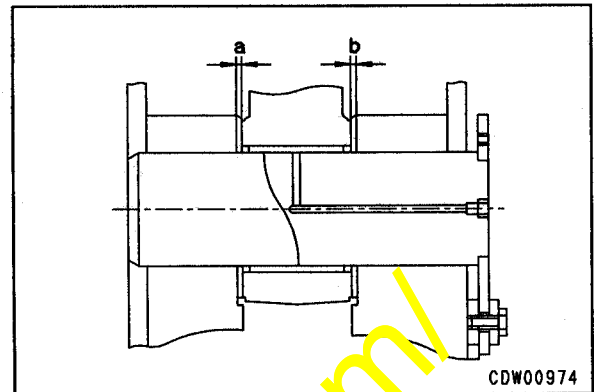
- Carry out installation in the reverse order to removal.

※ 1

- ★ When aligning the pin hole at the bottom end, assemble shims so that the total clearance between the cylinder and frame is within the specified value, then assemble pin (6) and lock with the bolt.

Clearance $a + b =$ Less than 1.0 mm

- ⚠ When aligning the position of the pin hole, use a bar. Never insert your fingers in the pin hole.



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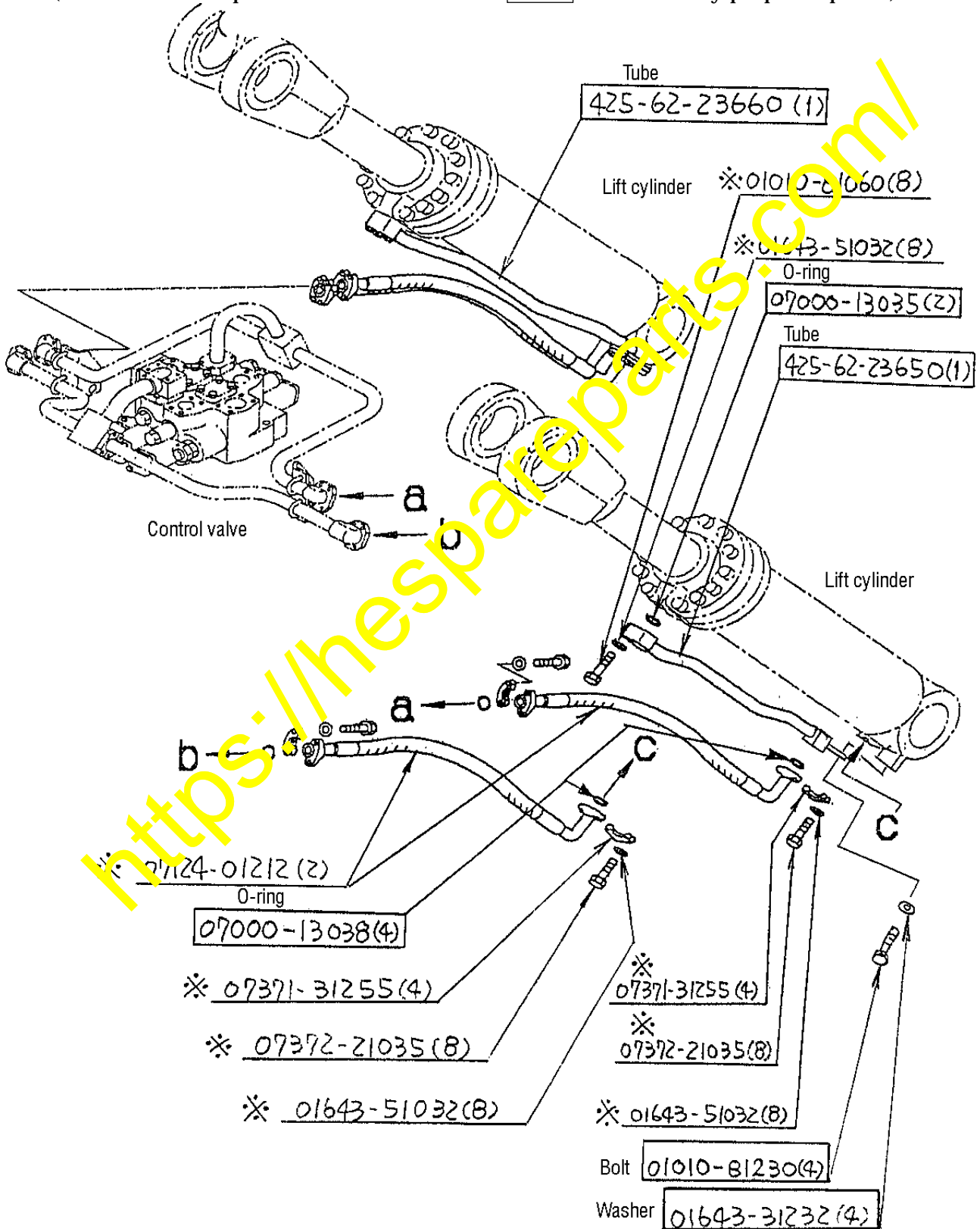
② Install the pipings connecting to the lift cylinder assembly.

(Note) Replace the tubes, O-rings, etc. with the new parts which have been prepared according to the lists of necessary parts indicated on pages 2 and 3.

Tightening torque	
Bolt (M10)	6.0 – 7.4 kgm (59 – 73 Nm)
Bolt (M12)	10.0 – 12.5 kgm (98 – 123 Nm)

※ : Parts to be reused

(Parts with their part numbers bordered in are the newly prepared parts.)



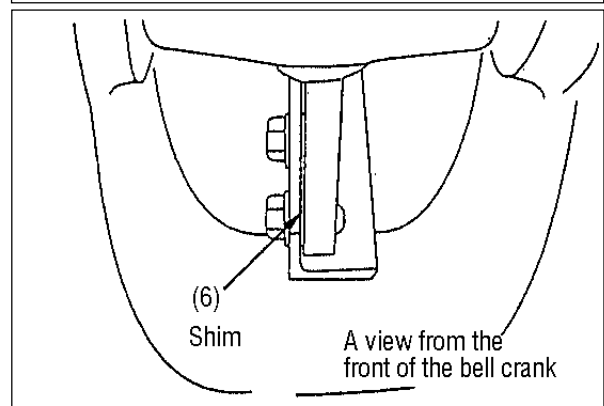
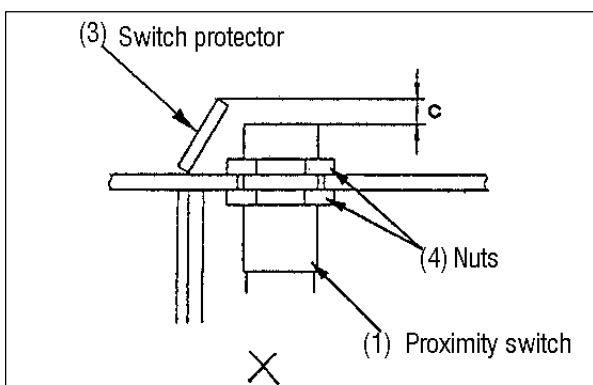
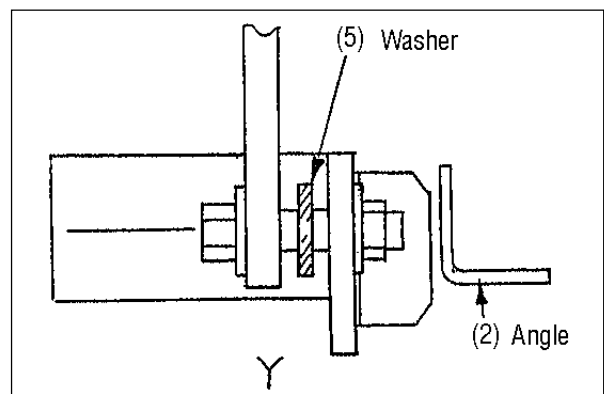
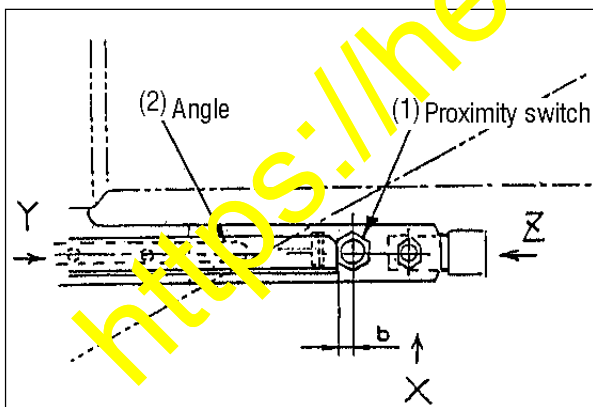
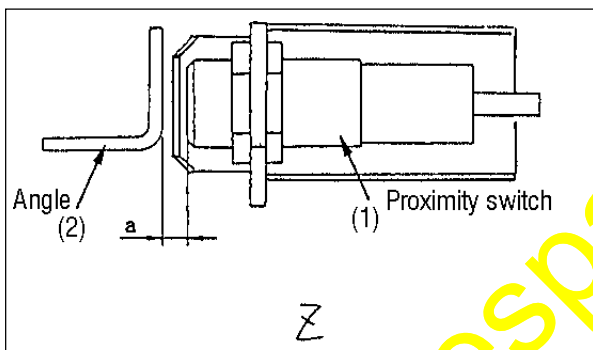
- (8) Apply specified amount of grease to the pins of the dump cylinder assembly and the lift cylinder assembly.
- (9) Refilling the hydraulic oil (Specified amount of the hydraulic oil: 284 ℓ)
- ① Refill the hydraulic oil upto the specified level and start the engine to let the hydraulic oil circulate through the pipings before refilling to the specified level once again.
 - ② Perform air bleeding from respective sections.

(Precautions) Carry out the procedures according to the above Paragraphs (8) and (9) referring to pages 30-4 and 30-5 "Precautions when carrying out operation" in the Shop Manual. (Refer to pages 7 and 8.)

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(10) Adjusting the bucket positioner

- ① Lower the bucket to touch the ground and keep it in the horizontal position. (The ground is to have flat surface.)
- ② Adjust the mounting nuts (4) so that the clearance "c" between the tip end of the switch protector (3) and the induction surface of the proximity switch (1) may become the following reference value.
★ Reference value of the clearance "c": 0.5 to 1.0 mm
- ③ Adjust the clearance "a" between the induction surface of the proximity switch (1) and the angle (2) to the following reference value using the washer (5) and shims (6).
★ Reference value of the clearance "a": 3 to 5 mm
- ④ Adjust the proximity switch mounting bracket (7) so that the clearance "b" between the center of the proximity switch (1) and the tip end of the angle may become the following reference value.
★ Reference value of the clearance "b": 15 mm
- ⑤ Running the engine at an intermediate speed (1,500 rpm) and turning on the proximity switch, lower the bucket to touch the ground and check if the bucket angle becomes 0 to 1° inclined downward. (Make this test for 3 times.)
When the bucket angle does not become as specified above, make the aforementioned adjustments once again modifying the above clearance value "b".



5. Modification procedures: When reworking the cylinder assemblies

(Precautions) Carry out this modification work referring to pages 30-4 and 30-5 "Precautions when carrying out operation" in the Shop Manual.

(Refer to pages 7 and 8.)

(1) Removing the dump cylinder assembly

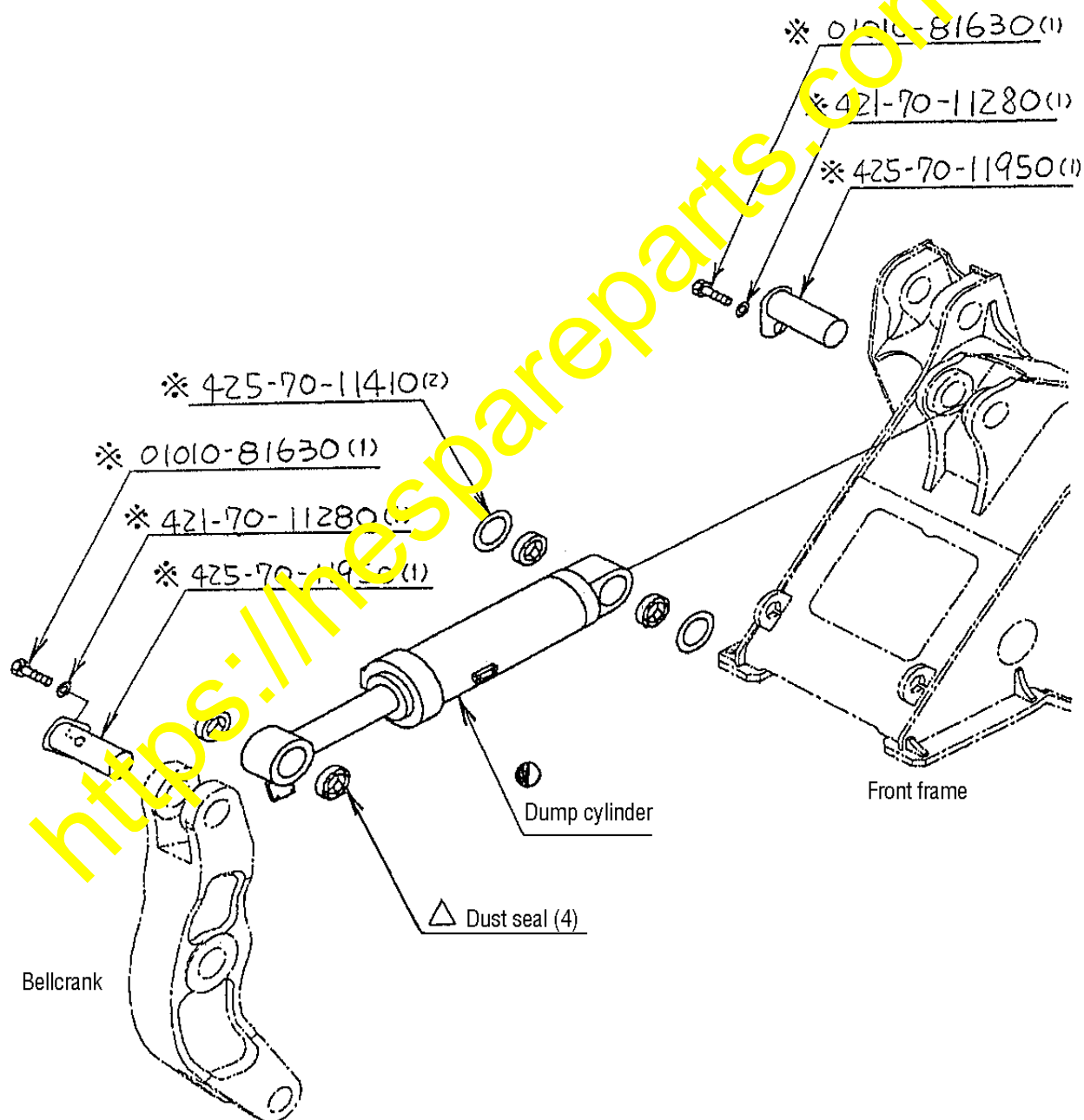
- ① Remove the dump cylinder assembly.

(Refer to page 9.)

(Notes) ※ : Parts to be reused

● : Parts to be replaced

△ : Consumable parts (To be discarded after removal.)



When reworking the cylinder assemblies

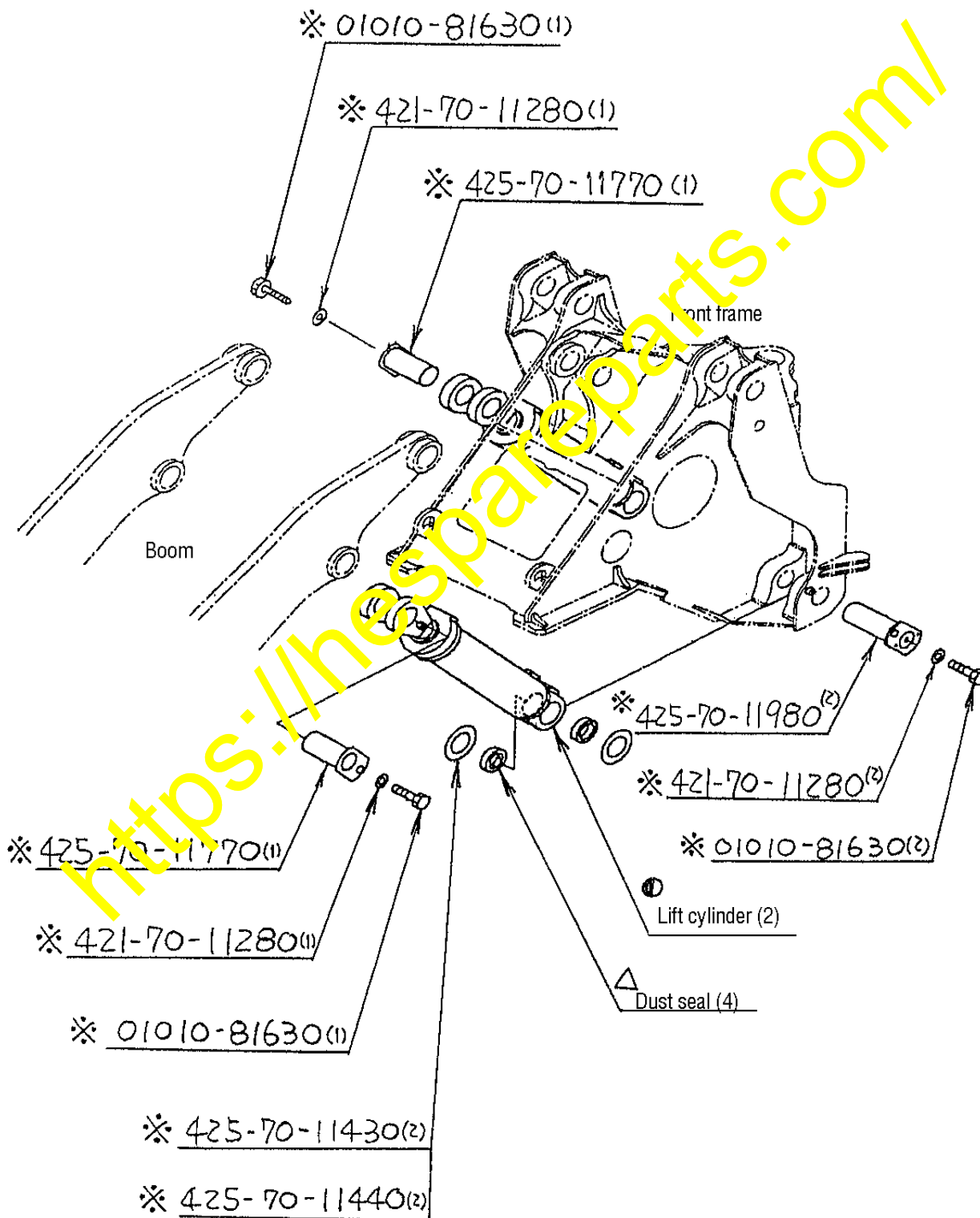
(2) Removing the lift cylinder assembly

- ① Remove the lift cylinder assembly.
(Refer to page 11.)

(Notes) ※ : Parts to be reused

● : Parts to be replaced

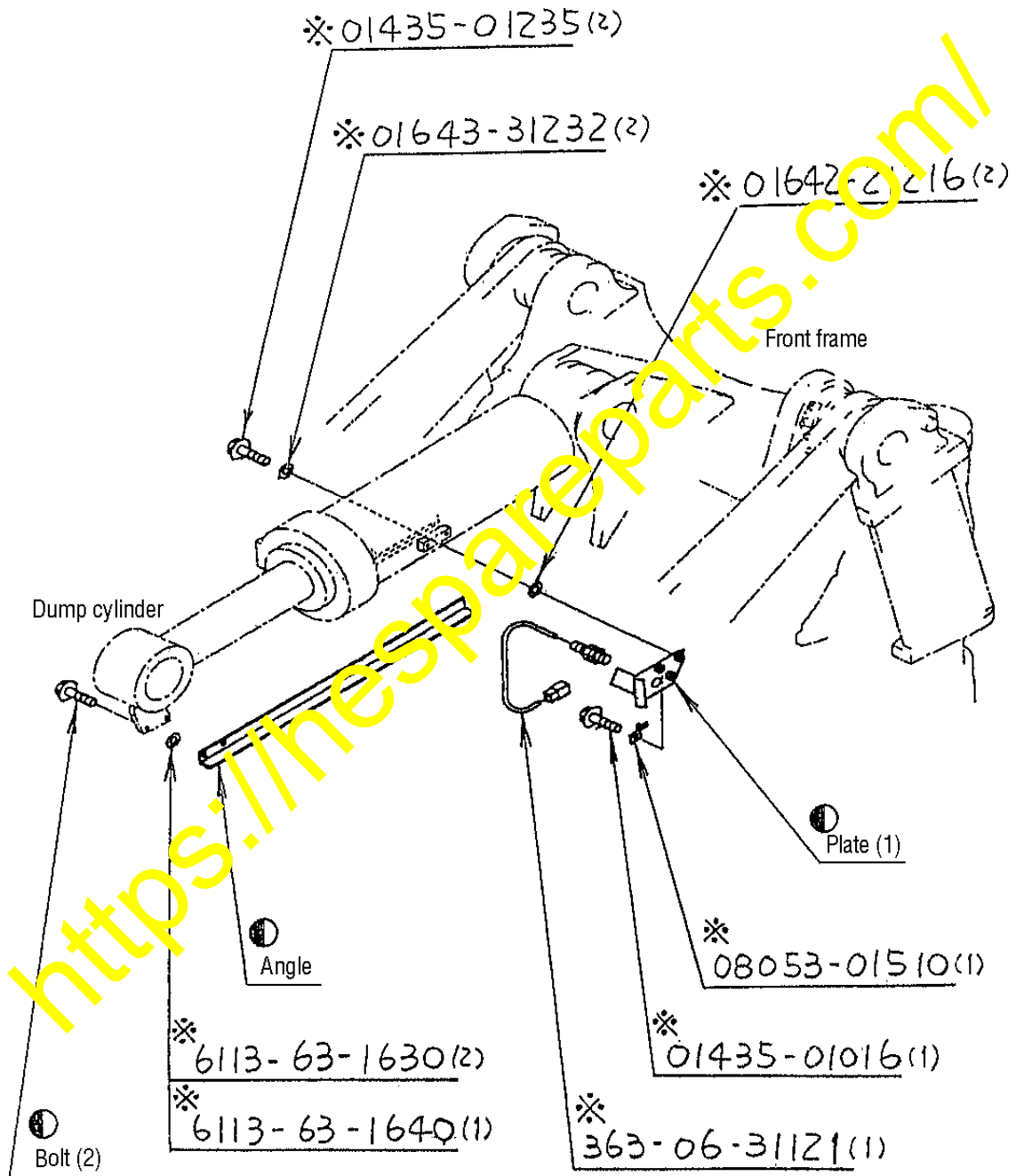
△ : Consumable parts (To be discarded after removal.)



When reworking the cylinder assemblies

(3) Removing the bucket positioner section

- (Notes) ※ : Parts to be reused
 ● : Parts to be replaced



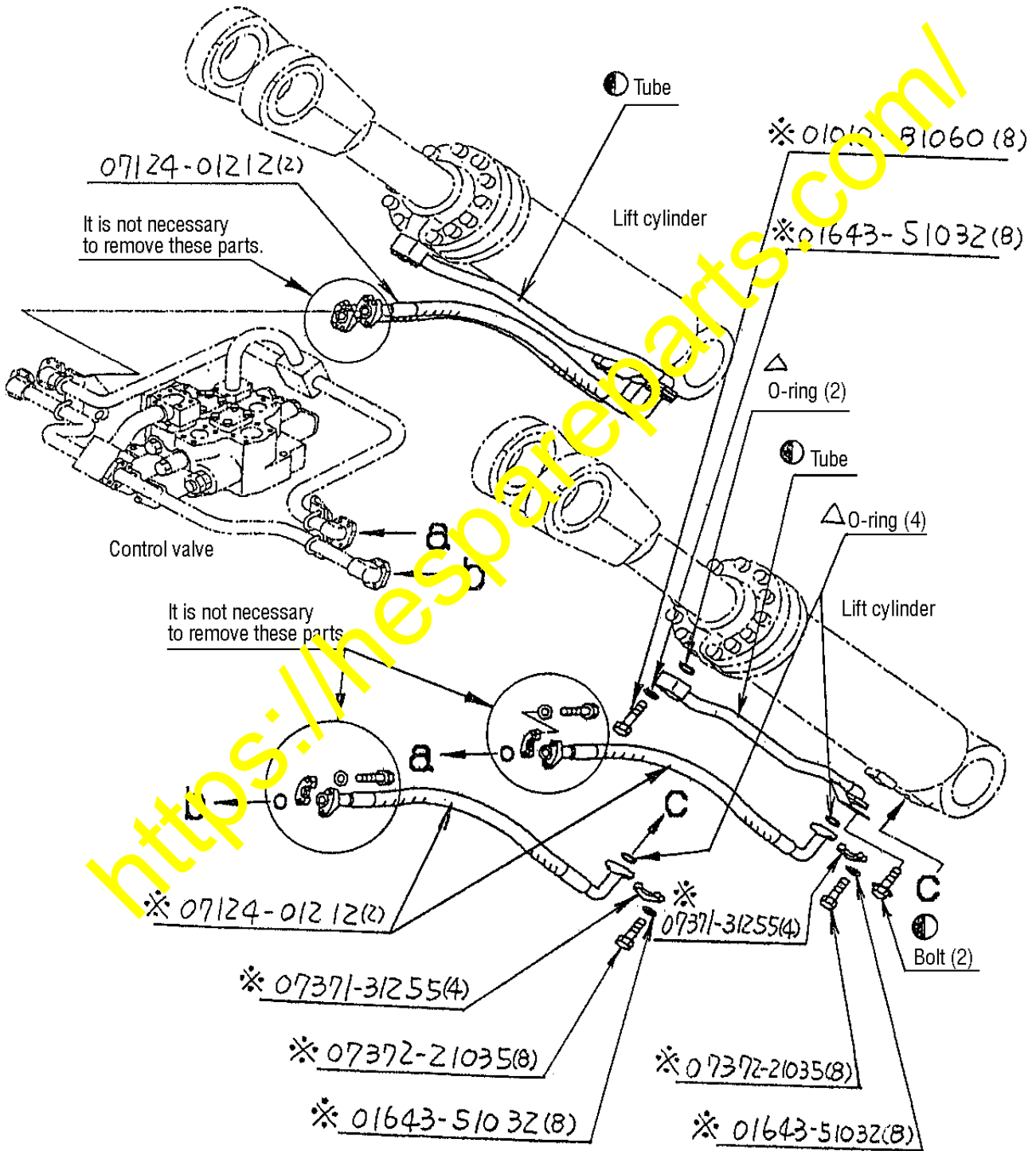
When reworking the cylinder assemblies

(4) Removing the cylinder pipings connecting to the lift cylinder

(Notes) ※ : Parts to be reused

● : Parts to be replaced

△ : Consumable parts (To be discarded after removal.)



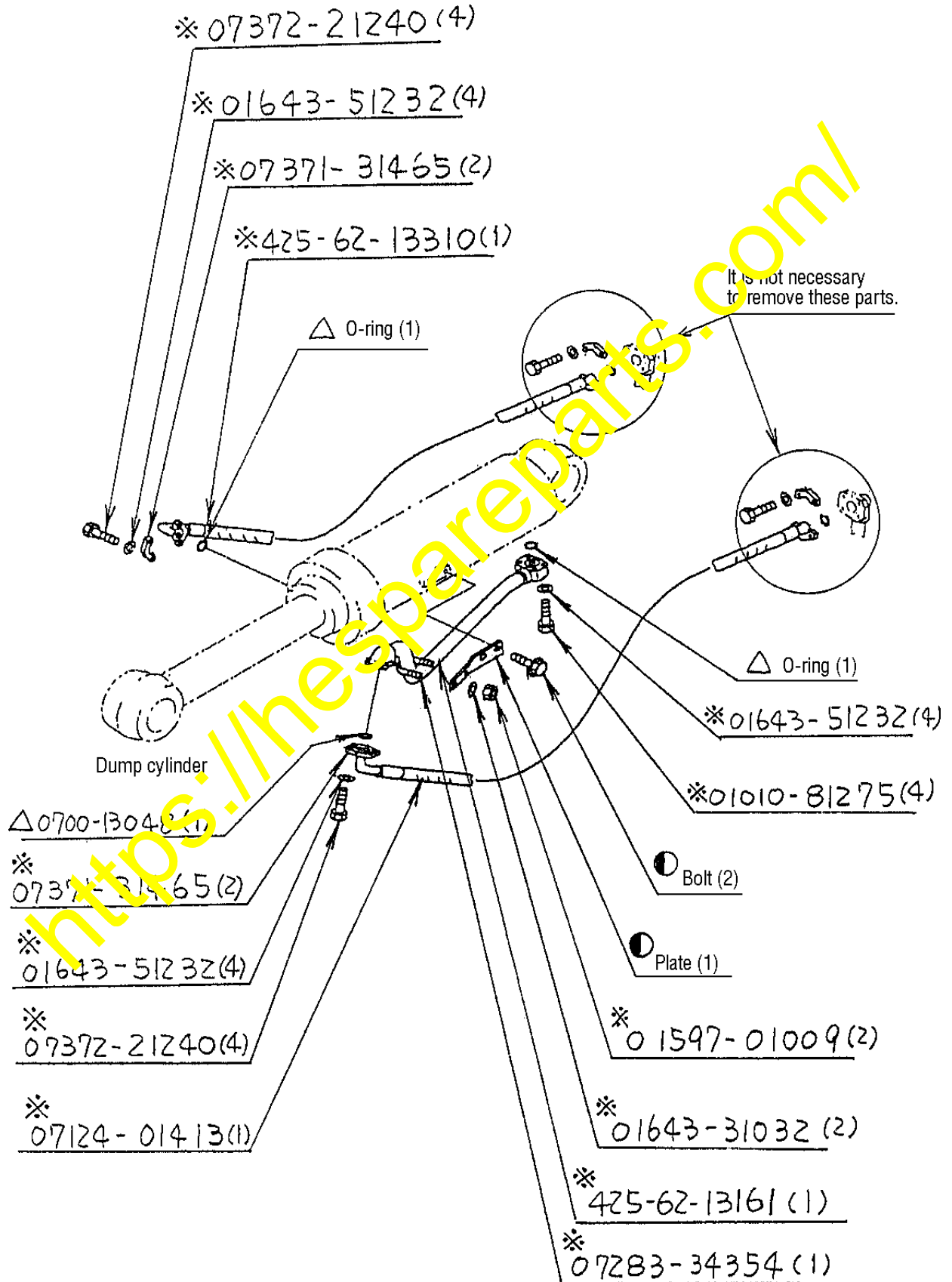
When reworking the cylinder assemblies

(5) Removing the pipings connecting to the dump cylinder

(Notes) ※ : Parts to be reused

● : Parts to be replaced

△ : Consumable parts (To be discarded after removal.)



When reworking the cylinder assemblies

(6) Fabricating the angle fastening plate locally

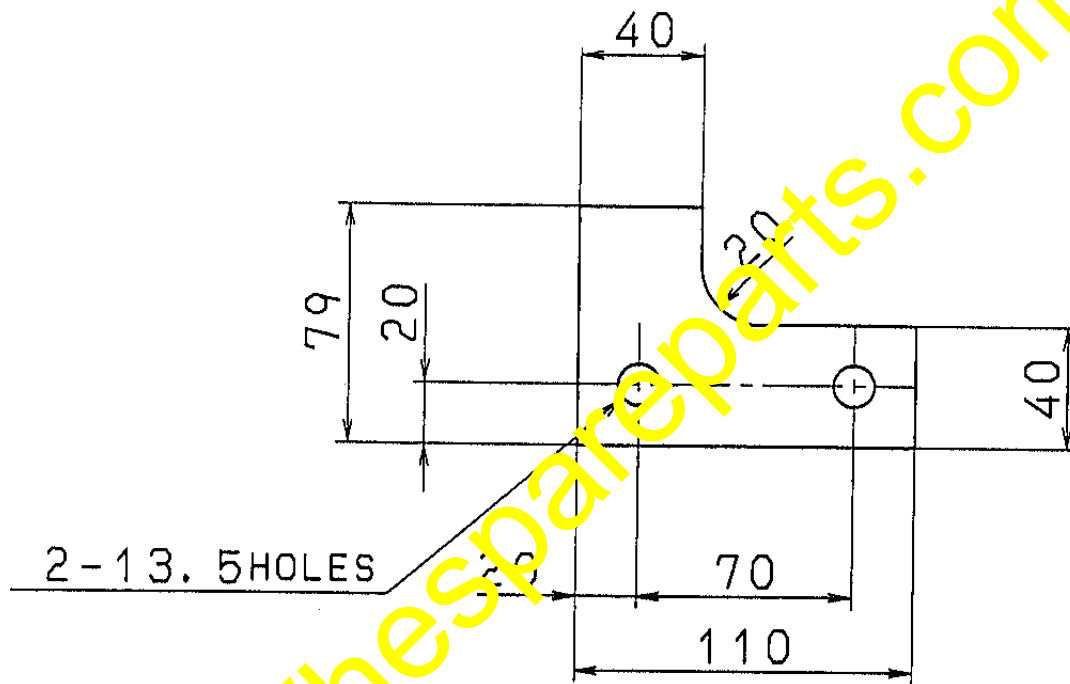
When locally fabricating the angle fastening plate, refer to the drawing indicated below.

- ① For the standard dump cylinder, high-lift dump cylinder and high-lift dump cylinder (stone crushing spec.)

Part No. 425-43-29140

This plate is also available through the spare parts supply channel.

(Refer to pages 3 and 4 when ordering for this plate.)

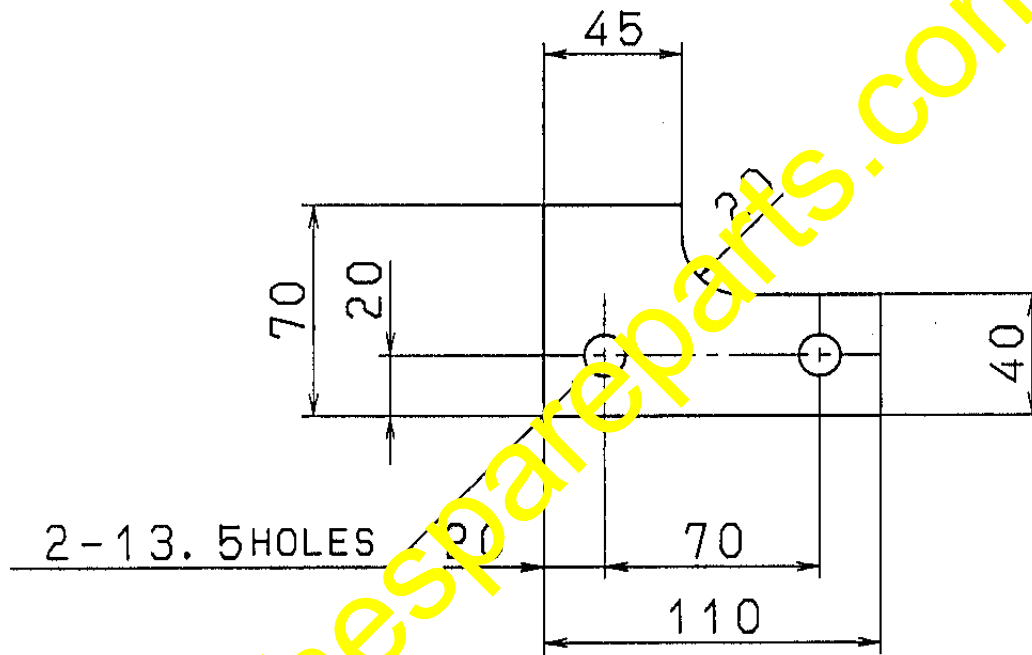


Material: SS40 IP

t 12

② For the large dump cylinder
Part No. 425-43-29150

This plate is also available through the spare parts supply channel.
(Refer to pages 3 and 4 when ordering for this plate.)



Material: SS400P

t 12

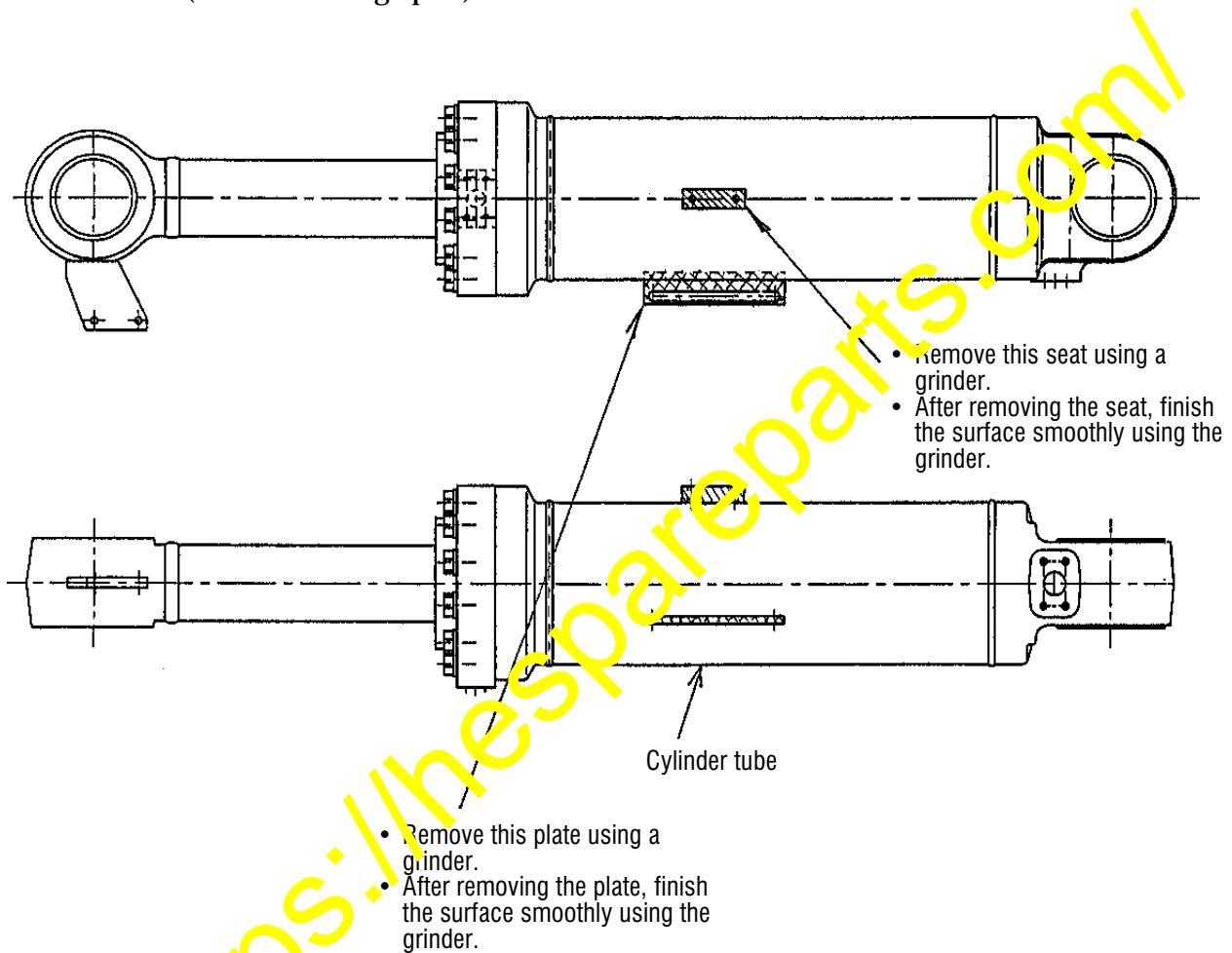
When reworking the cylinder assemblies

(7) Reworking procedures for the dump cylinder assembly

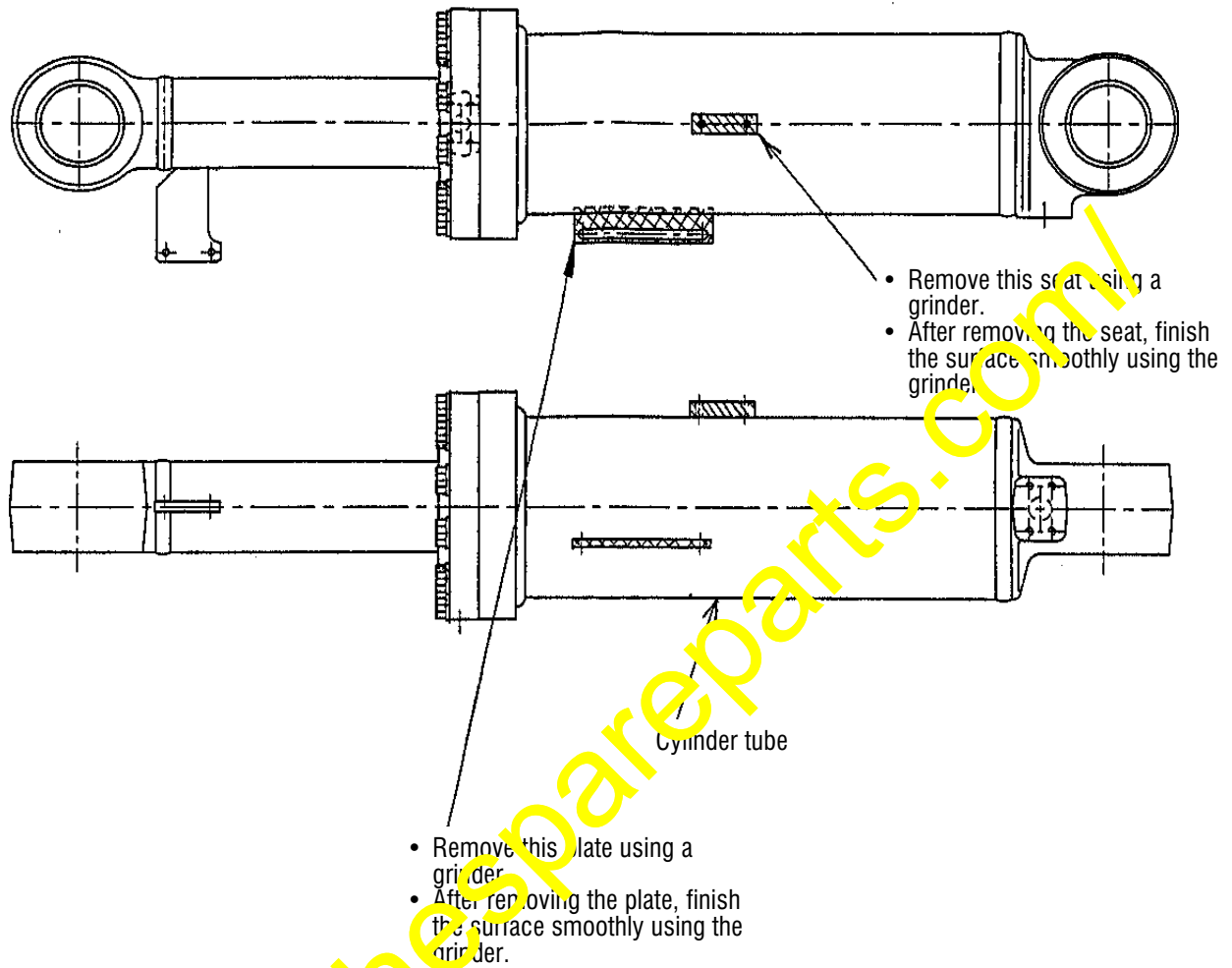
- ① Remove the seat and plate from the cylinder tube surface of the dump cylinder assembly using a grinder.

(Precaution) When carrying out this rework, cover the port of the cylinder to prevent entry of dust and any other foreign substance into the port.

- (1) For the standard dump cylinder, high-lift dump cylinder and high-lift dump cylinder (stone crushing spec.)



(2) For the large dump cylinder (stone crushing spec.)



- ② Supplement the seat and plate to the cylinder head section of the dump cylinder assembly.

(Precautions)

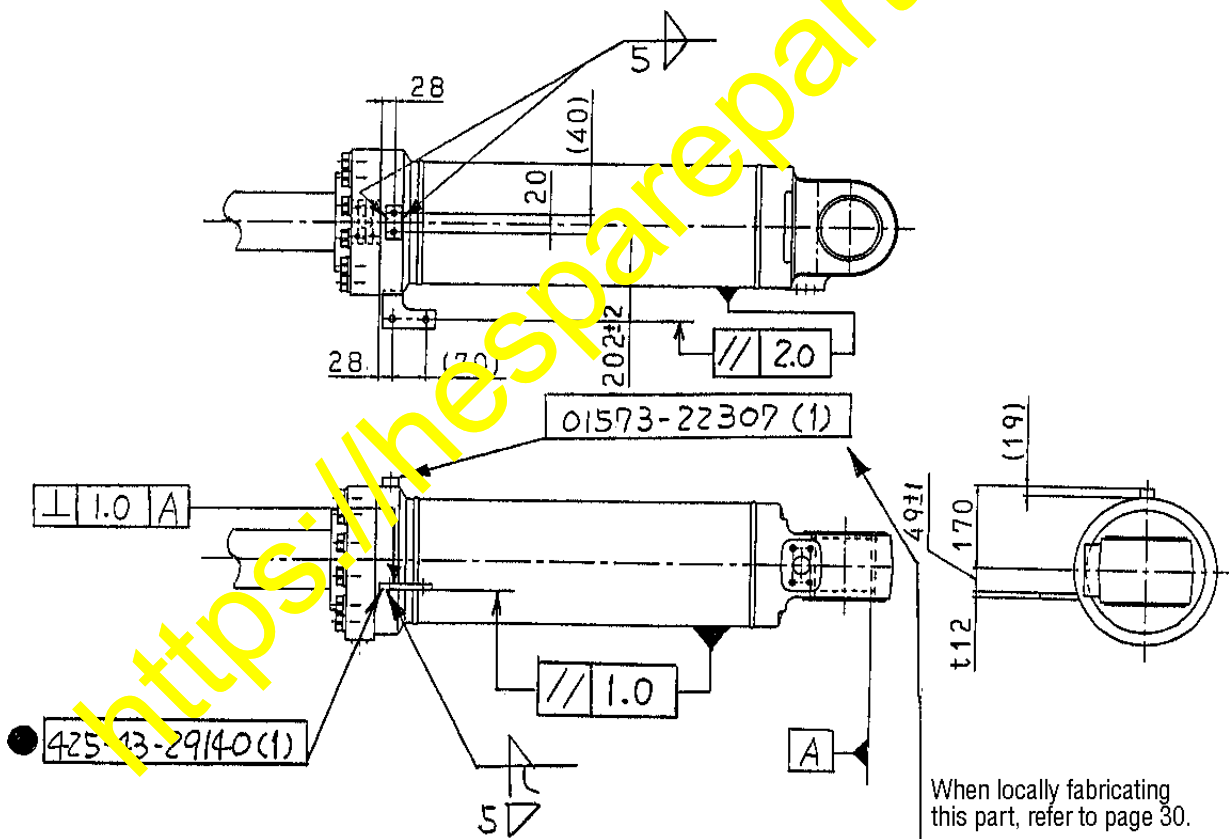
- When carrying out this rework, cover the port of the cylinder to prevent entry of spatters and any other foreign substance into the port.
- When carrying out this rework, cover the cylinder rod surface to prevent adhesion of spatters.
- After finishing reworking, apply correction painting.

(Paint color: Natural Yellow)

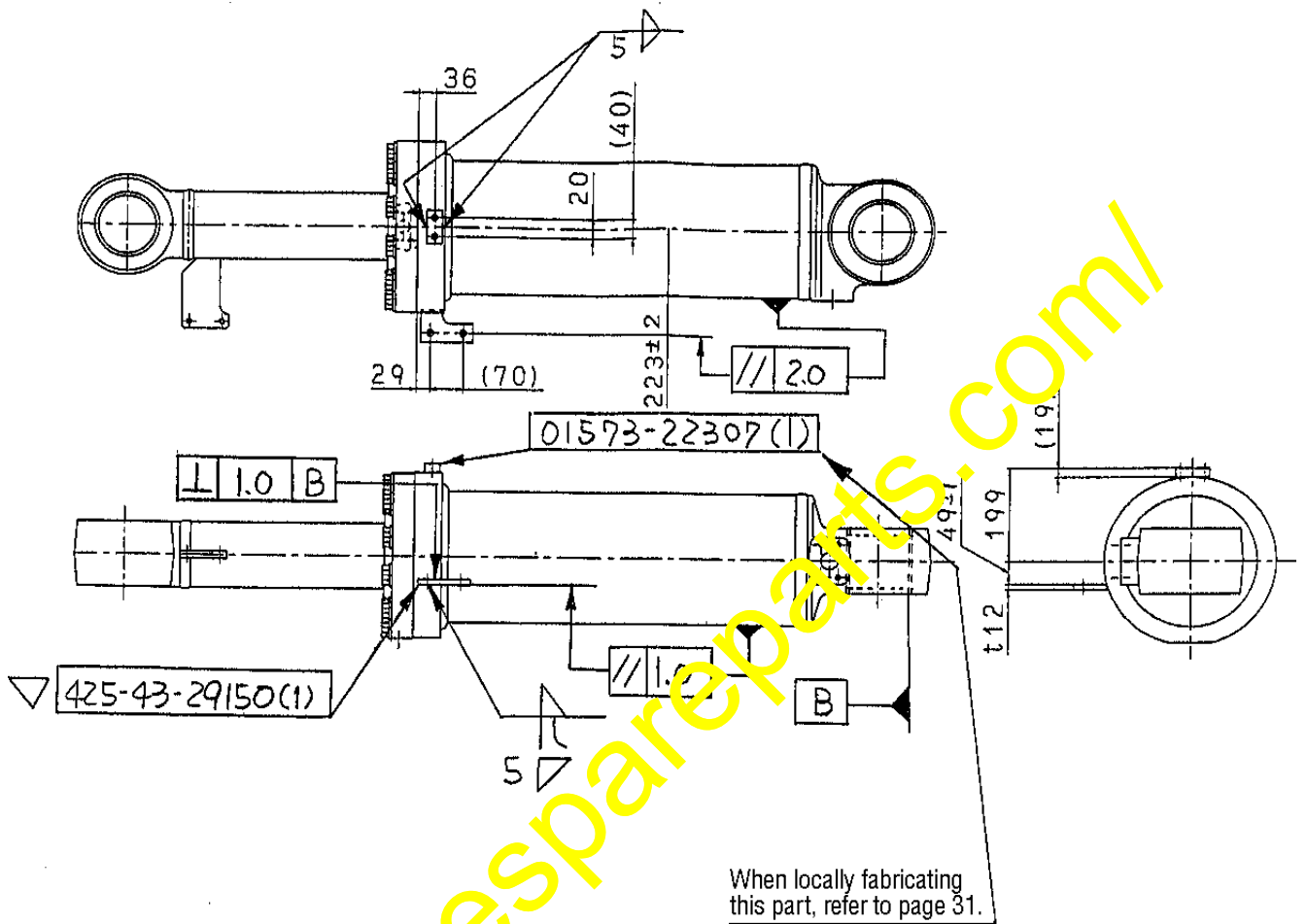
- Use the seat and plate prepared according to pages 3 and 4 when carrying out this rework.

(Parts with their part numbers bordered in are the newly prepared parts.)

- (1) For the standard dump cylinder, high-lift dump cylinder and high-lift dump cylinder (stone crushing spec.)



(2) For the large dump cylinder

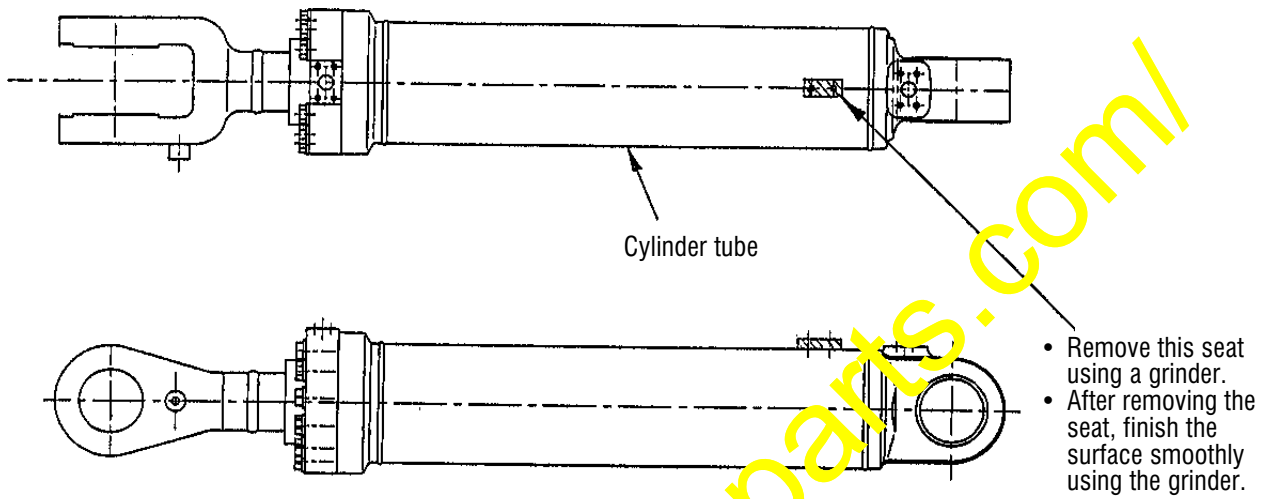


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- ③ Remove the seat from the cylinder tube surface of the lift cylinder assembly using a grinder.

(Precaution)

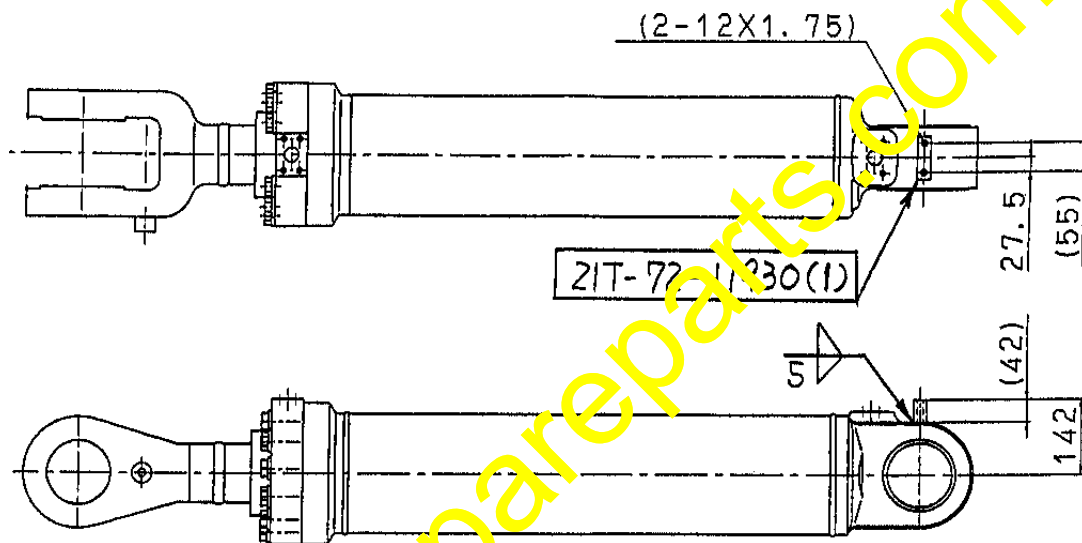
When carrying out this rework, cover the port of the cylinder to prevent entry of dust and any other foreign substance into the port.



- ④ Supplement the seat to the cylinder bottom section of the lift cylinder assembly.

(Precautions)

- When carrying out this rework, cover the port of the cylinder to prevent entry of spatters and any other foreign substance into the port.
- When carrying out this rework, cover the cylinder rod surface to prevent adhesion of spatters.
- Use the seat prepared according to pages 3 and 4 when carrying out this rework.
(Parts with their part numbers bordered in are the newly prepared parts.)
- After finishing reworking, apply correction painting.
(Paint color: Natural Yellow)



When reworking the cylinder assemblies

(8) Installing the dump cylinder assembly

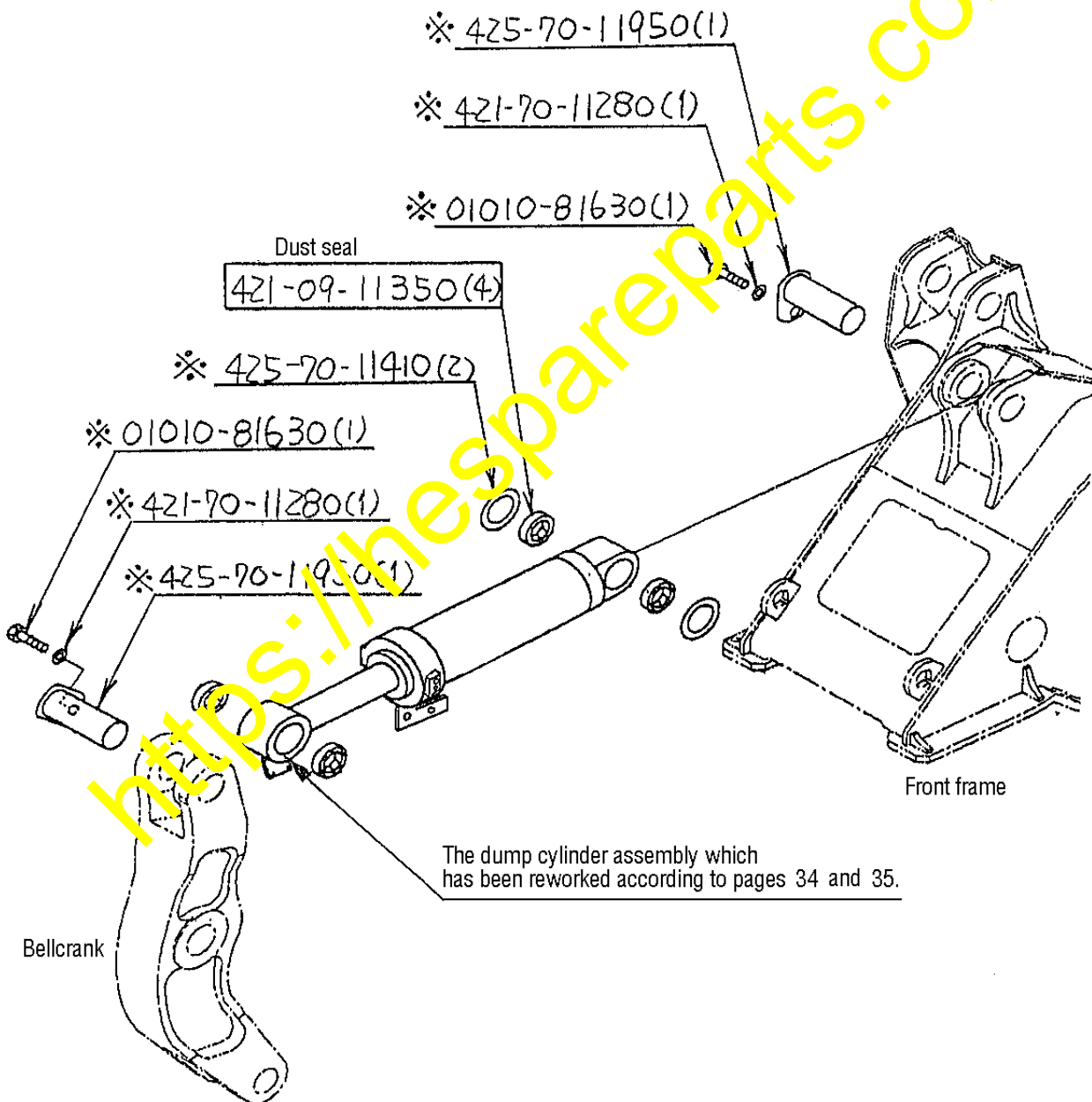
① Install the dump cylinder assembly. (Refer to page 16.)

(Note) Replace the current dump cylinder assembly and dust seal with the new parts which have been prepared according to pages 3 and 4.

(Parts with their part numbers bordered in are the newly prepared parts.)

Tightening torque	
Bolt (M16)	25.8 – 31.5 kgm (249 – 309 Nm)

※ : Parts to be reused



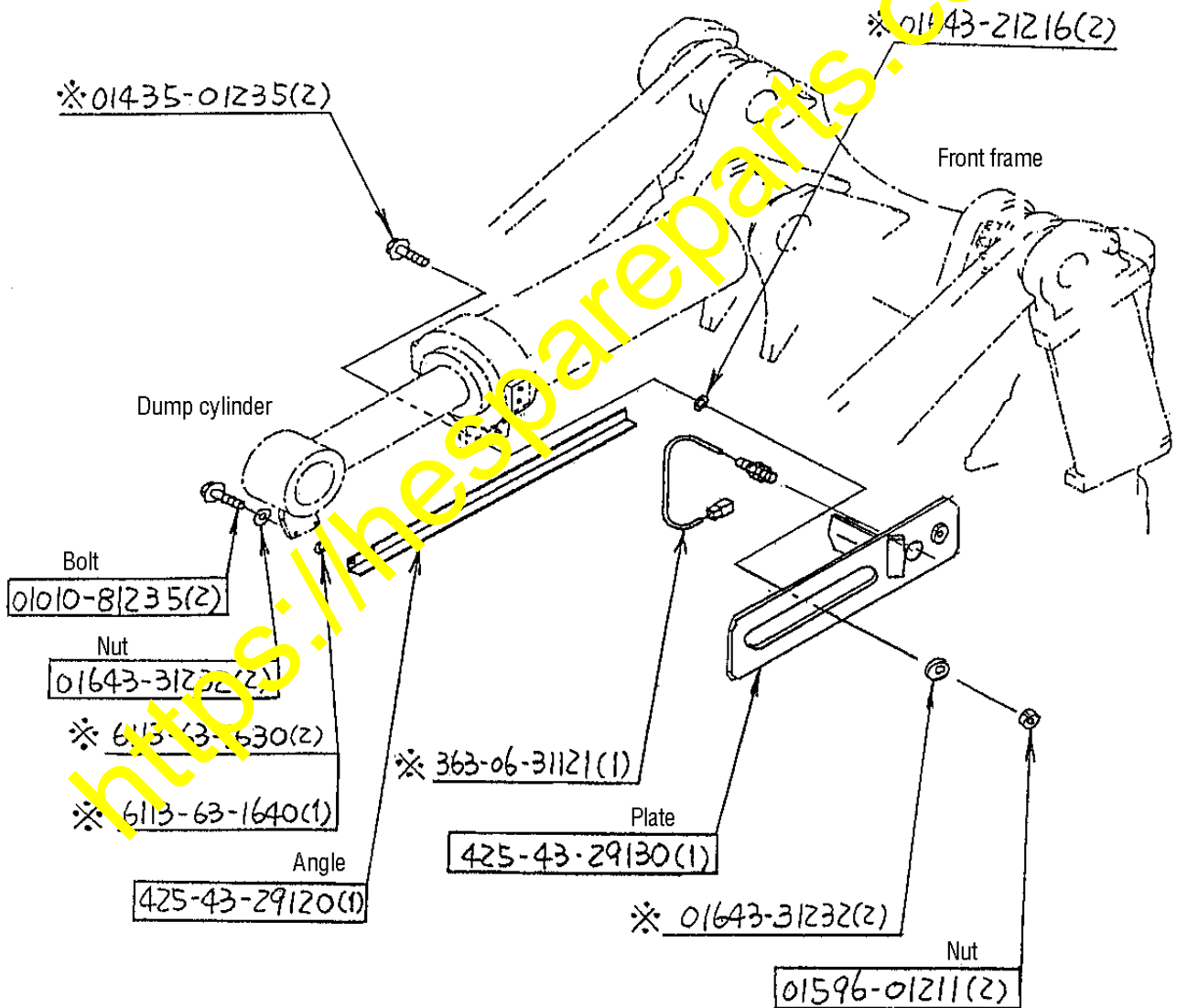
② Install the bucket positioner sensor and the positioner bar to the dump cylinder assembly.

(Note) Replace the current positioner sensor mounting plate, positioner bar, bolts and washers with the new parts which have been prepared according to pages 3 and 4.

(Parts with their part numbers bordered in are the newly prepared parts.)

Tightening torque	
Bolt (M12)	10.0 – 12.5 kgm (98 – 123 Nm)

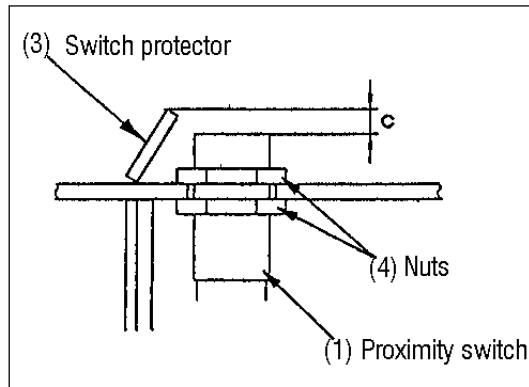
※ : Parts to be reused



Proximity switch installation procedures

Adjust the mounting nuts (4) so that the clearance "C" between the tip end of the switch protector (3) and the induction surface of the proximity switch (1) may become 0.5 to 1.0 mm.

Tightening torque	
Mounting nut	1.5 – 2.0 kgm (14.7 – 19.6 Nm)

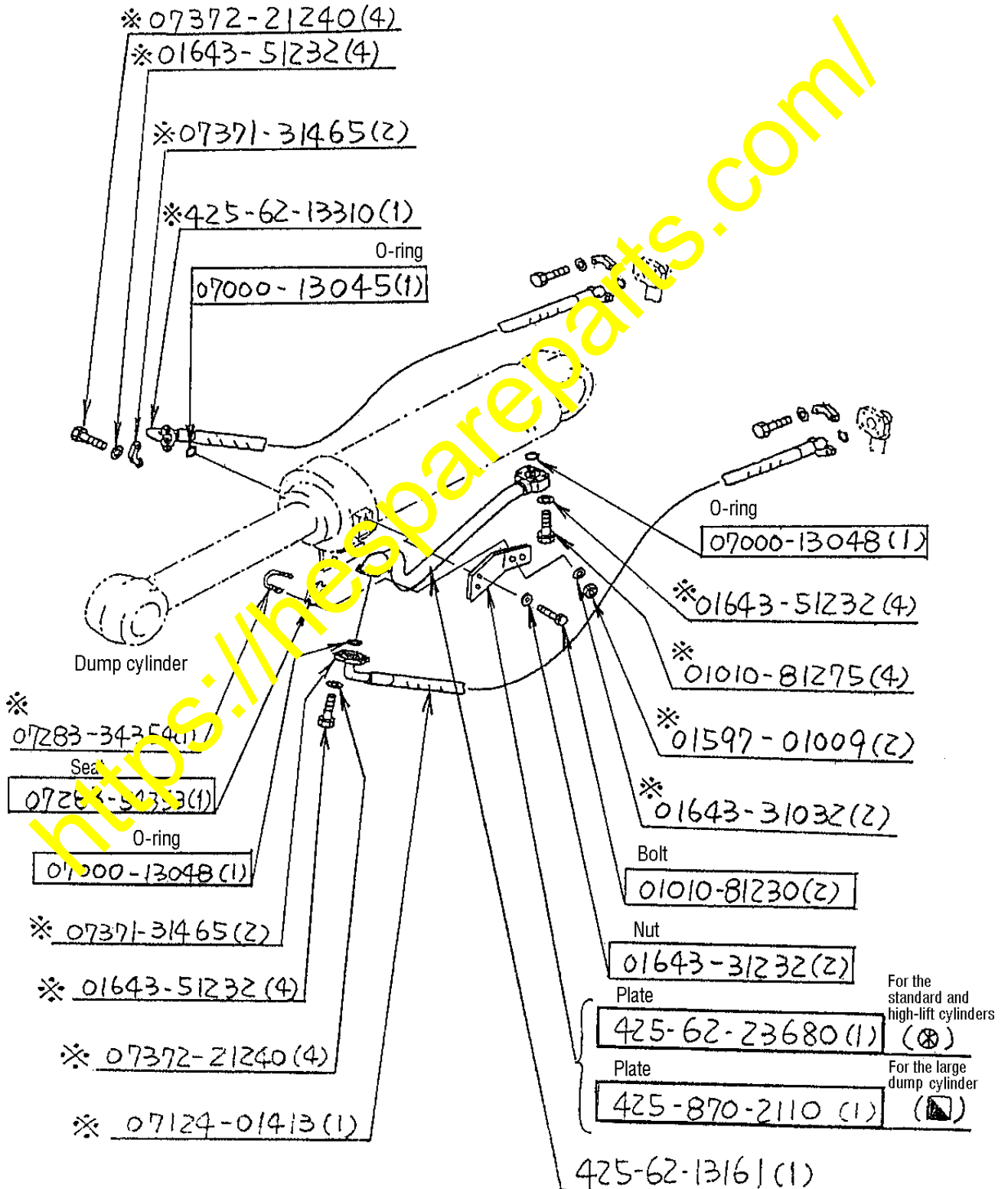


When adjusting the shims, refer to the "Shim Adjustment Procedures" given on page 24.

- ③ Install the pipings connecting to the dump cylinder and the piping clamping plate
 (Note) Replace the current piping clamping plate and seat with the new parts which have been prepared according to pages 3 and 4.
 (Parts with their part numbers bordered in are the newly prepared parts.)

Tightening torque	
Bolt (M10)	6.0 – 7.4 kgm (59 – 73 Nm)
Bolt (M12)	10.0 – 12.5 kgm (98 – 123 Nm)

※ : Parts to be reused



When reworking the cylinder assemblies

(9) Installing the lift cylinder assembly

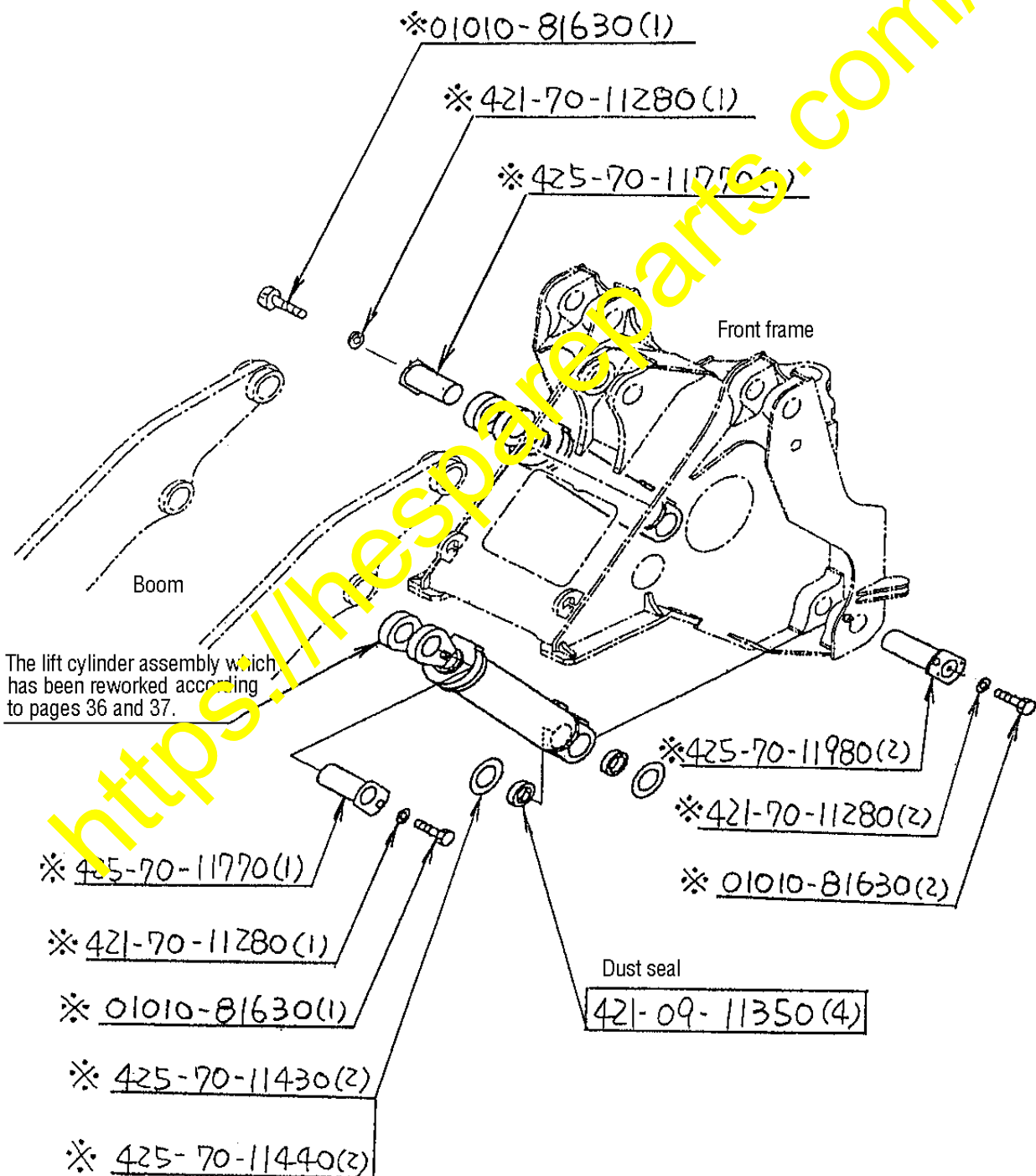
① Install the lift cylinder assembly. (Refer to page 21.)

(Note) Replace the current lift cylinder assembly and dust seal with the new parts which have been prepared according to pages 3 and 4.

Tightening torque	
Bolt (M16)	28.5 – 31.5 kgm (249 – 309 Nm)

※ : Parts to be reused

(Parts with their part numbers bordered in are the newly prepared parts.)

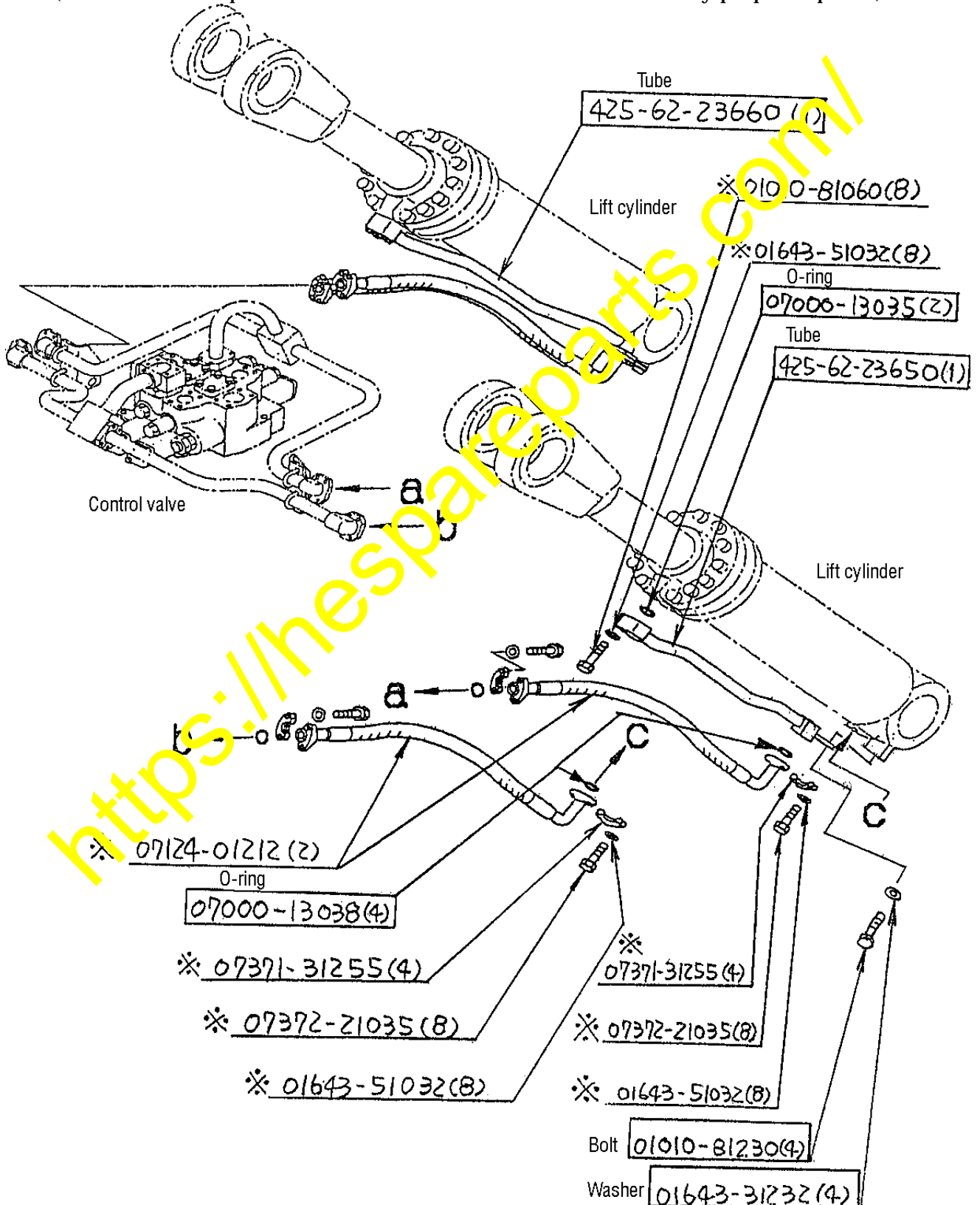


- ② Install the pipings connecting to the lift cylinder assembly.
 (Note) Replace the tubes, O-rings, etc. with the new parts which have been prepared according to pages 3 and 4.

Tightening torque	
Bolt (M10)	6.0 – 7.4 kgm (59 – 73 Nm)
Bolt (M12)	10.0 – 12.5 kgm (98 – 123 Nm)

※ : Parts to be reused

(Parts with their part numbers bordered in are the newly prepared parts.)



(10) Apply specified amount of grease to the pins of the dump cylinder assembly and the lift cylinder assembly.

(11) Refilling the hydraulic oil (Specified amount of the hydraulic oil: 284 ℓ)

- ① Refill the hydraulic oil upto the specified level and start the engine to let the hydraulic oil circulate through the pipings before refilling to the specified level once again.
- ② Perform air bleeding from respective sections.

(Precautions) Carry out the procedures according to the above Paragraphs (10) and (11) referring to pages 30-4 and 30-5 "Precautions when carrying out operation" in the Shop Manual. (Refer to pages 7 and 8.)

(12) Adjusting the bucket positioner (Refer to page 24.)

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