

# INSTALLATION MANUAL

REF NO.	B930003
DATE	Feb. 10, 1993

**SUBJECT:** INSTALLATION MANUAL OF 3-SPOOL VALVE AND PIPING

**PURPOSE:** To introduce how to install the 3-spool valve and piping

**APPLICATION:** WA320-1 Wheel Loaders, Serial Nos. 20001 and up  
WA320-1LC Wheel Loaders, Serial Nos. A25001 and up

**DESCRIPTION:**

1. Introduction

When installing 3-spool valve and piping proceed according to this **INSTALLATION MANUAL**.

2. Installation procedure

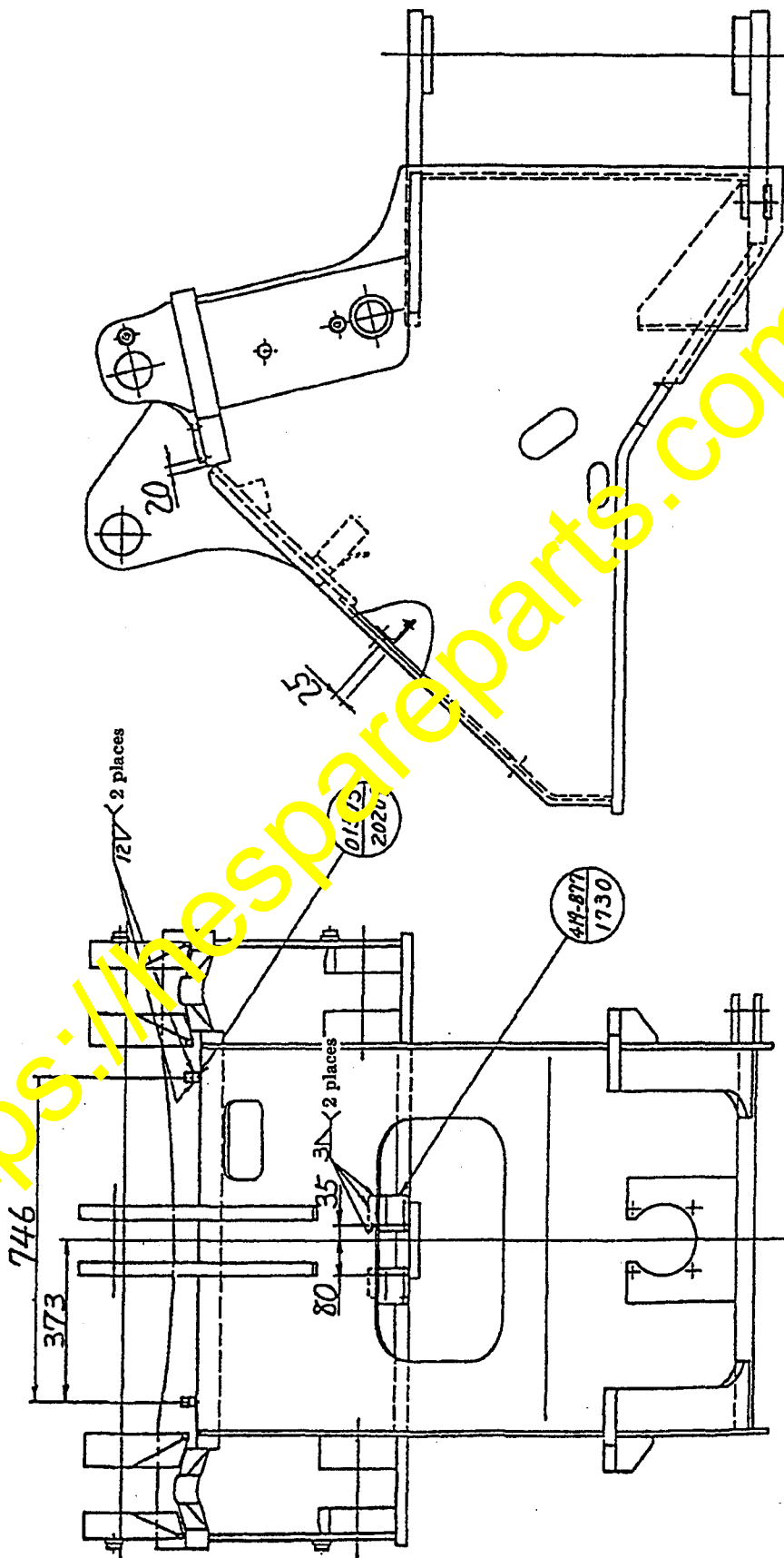
2.1 Parts to be obtained

No.	Part No.	Part Name	Qty	Remarks
1	700-93-39002	3-SPOOL VALVE	1	
2	419-877-1471	HOSE	1	
3	07000-13032	O-RING	8	
4	07371-31049	FLANGE	8	
5	419-877-1340	BOLT	8	
6	01643-51032	WASHER	24	
7	07000-13025	O-RING	10	
8	07371-30038	FLANGE	20	
9	01010-50130	BOLT	40	
10	01643-10823	WASHER	40	
11	419-877-1320	FLANGE	2	
12	419-877-1481	HOSE	1	
13	419-877-1412	TUBE	1	
14	419-877-1422	TUBE	1	
15	07283-22738	CLIP SEAT	2	
16	01599-01011	NUT	4	
17	01643-31032	WASHER	20	
18	01435-01030	BOLT	2	
19	419-877-1490	HOSE	1	
20	419-877-1510	HOSE	1	
21	07372-21035	BOLT	8	
22	419-877-1540	BLOCK	1	
23	419-877-1550	PLATE	2	
24	01011-51205	BOLT	2	
25	01643-31232	WASHER	2	
26	01584-01210	NUT	2	

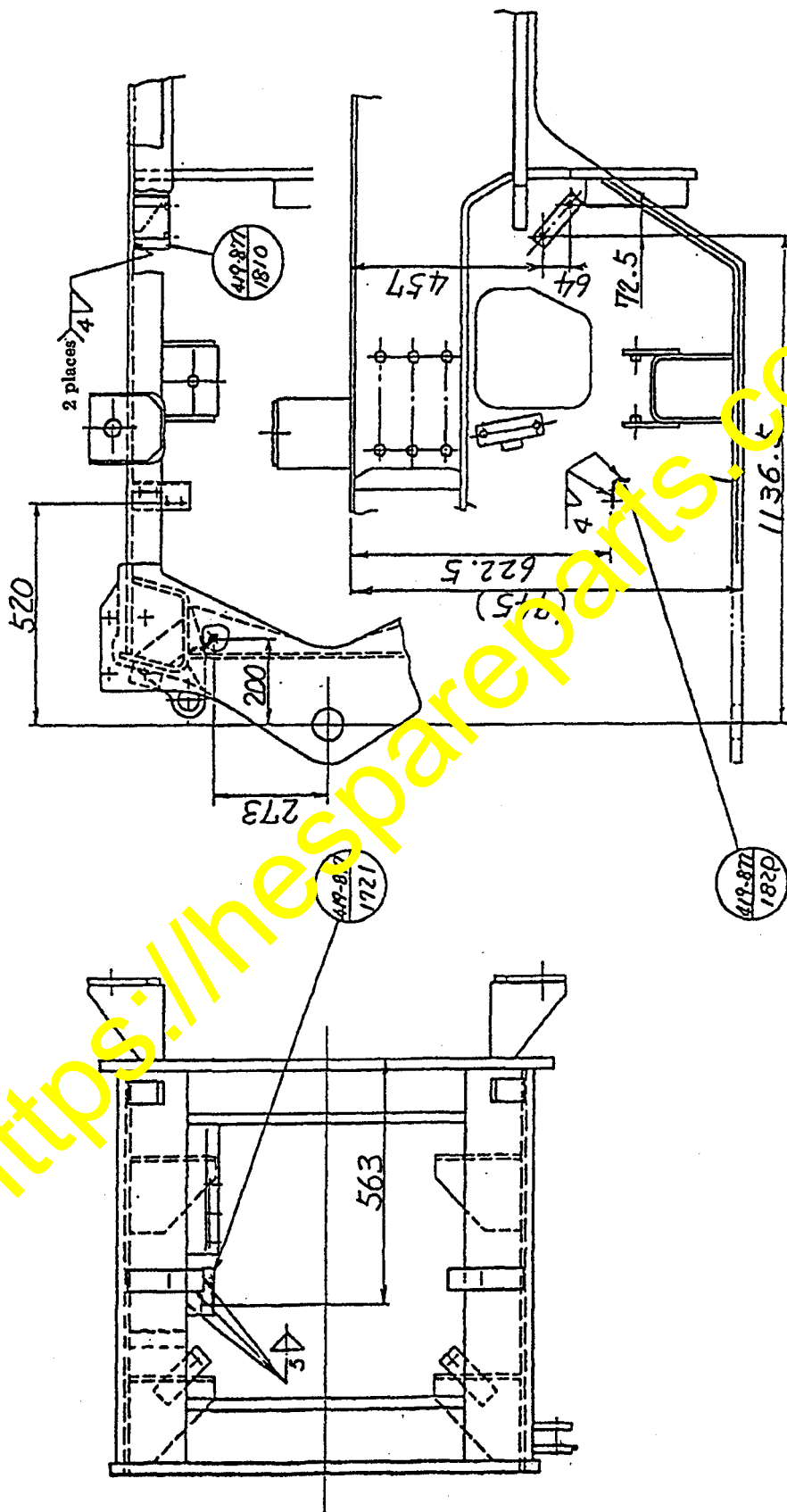
No.	Part No.	Part Name	Q'ty	Remarks
27	419-877-1433	TUBE	1	
28	419-877-1443	TUBE	1	
29	01010-51040	BOLT	8	
30	07125-00612	HOSE	2	
31	419-877-1522	TUBE (R.H)	1	
32	419-877-1532	TUBE (L.H)	1	
33	419-877-1460	COVER	1	Re-worked cover for standard type may be used.
34	01010-51075	BOLT	12	
35	418-878-1310	BRACKET	2	
36	01435-01020	BOLT	4	
37	419-877-1353	BRACKET	1	
38	419-877-1363	BRACKET	1	
39	01435-01020	BOLT	4	
40	419-877-1371	CLAMP	16	
41	419-877-1390	SPACER	16	
42	419-877-1380	PLATE	8	
43	01010-51070	BOLT	4	
44	07378-10600	HEAD	2	
45	113-43-23420	KNOB	2	
46	419-877-1120	LEVER, bucket	1	
47	419-877-1160	LEVER, boom	1	
48	421-06-15510	SWITCH	1	Boom lever ass'y (419-877-1150)
49	419-43-18380	GROMMET	1	
50	08027-11210	CONNECTOR	1	
51	419-877-1130	LEVER, att.	1	
52	06120-02016	BEARING	6	
53	06122-02004	SEAL	6	
54	07020-00900	FITTING	3	
55	419-43-18160	BOOT	2	
56	424-09-12440	JOINT, ball	2	
57	419-43-13170	ROD	1	
58	01482-1008	NUT	2	
59	426-07-11160	NUT, lock	2	
60	01643-31032	WASHER	2	
61	419-43-18330	PLATE	1	
62	01435-00616	BOLT	3	
63	419-877-1730	PLATE	2	For re-working front frame
64	01573-20209	SEAT	2	
65	419-877-1721	PLATE	1	
66	419-877-1810	BRACKET	1	For re-working rear frame
67	419-877-1820	PLATE	1	
68	419-877-1710	SEAT	4	For re-working boom
69	418-877-1140	CLAMP	2	
70	418-877-1130	SPACER	2	For rear hose clamping
71	01435-01090	BOLT	2	

2.2 Re-working procedure

2.2.1 Front frame

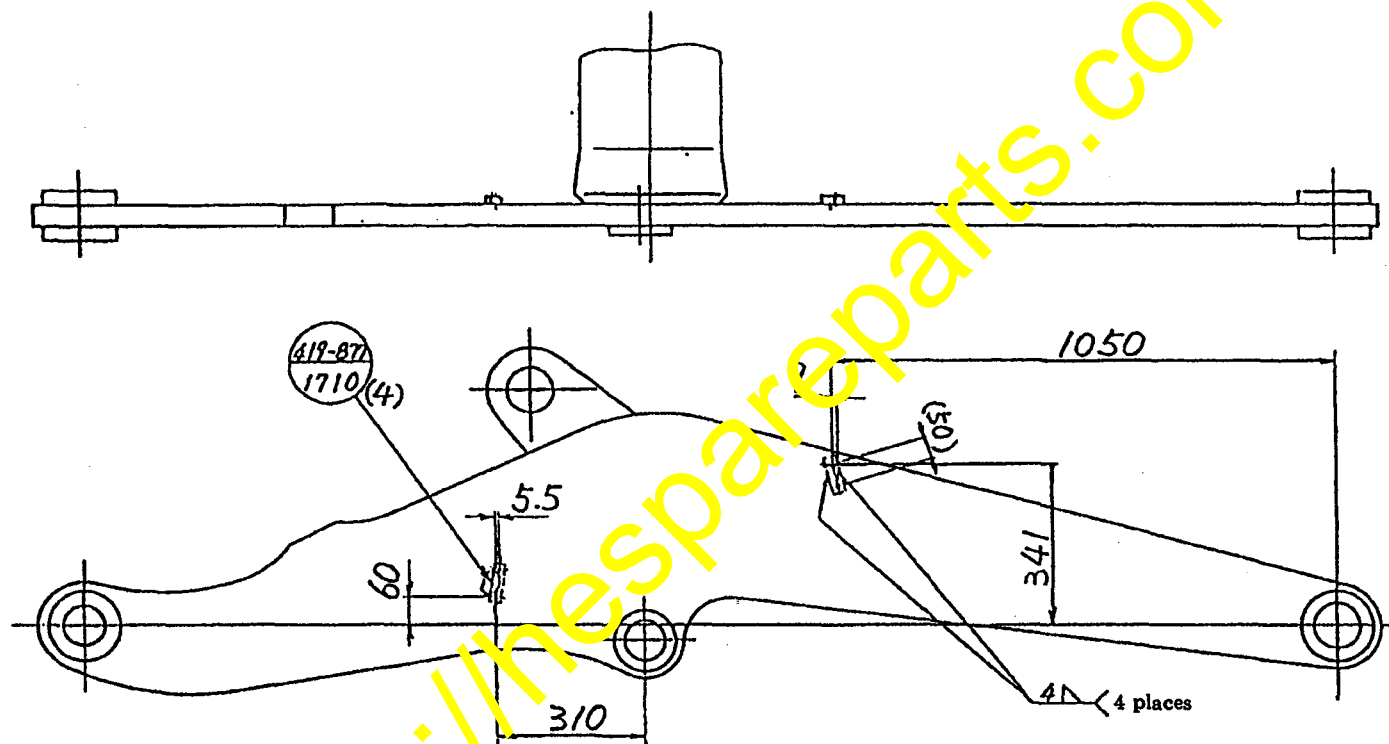


2.2.2 Rear frame

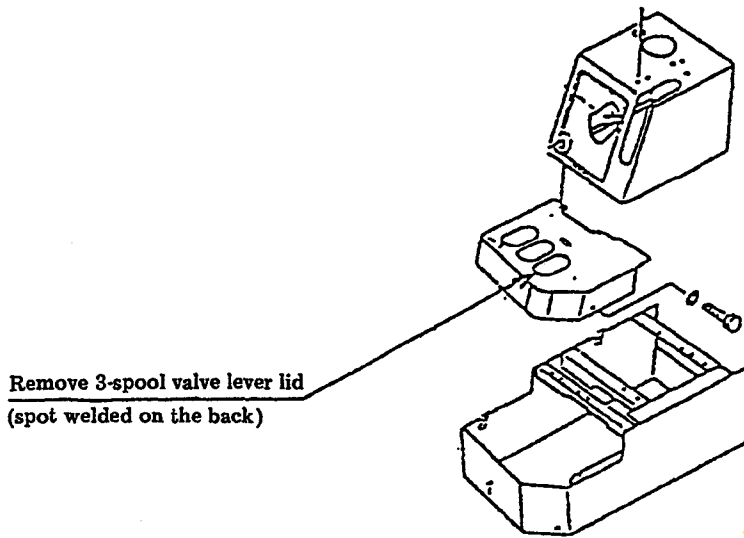


### 2.2.3 Boom

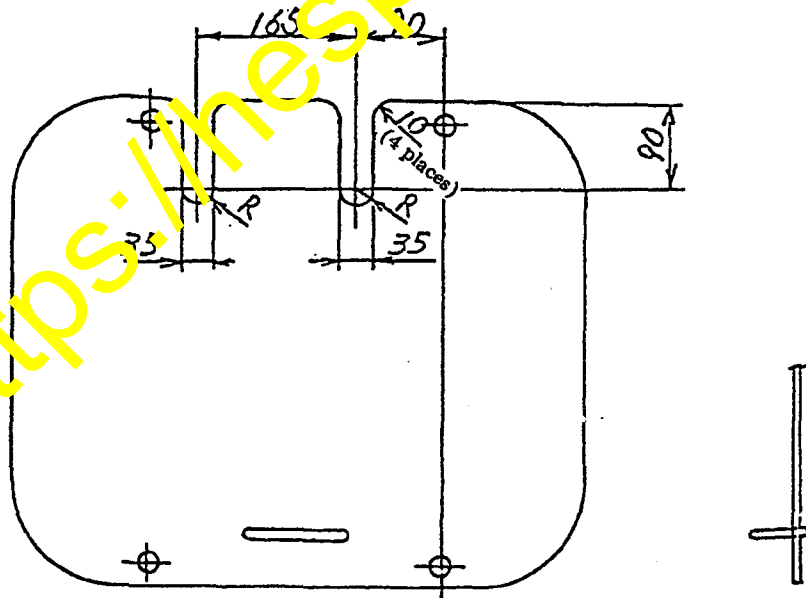
☆ Weld seat at the similar location on the inside of the right and left hand boom plates.



2.2.4 R.H console cover



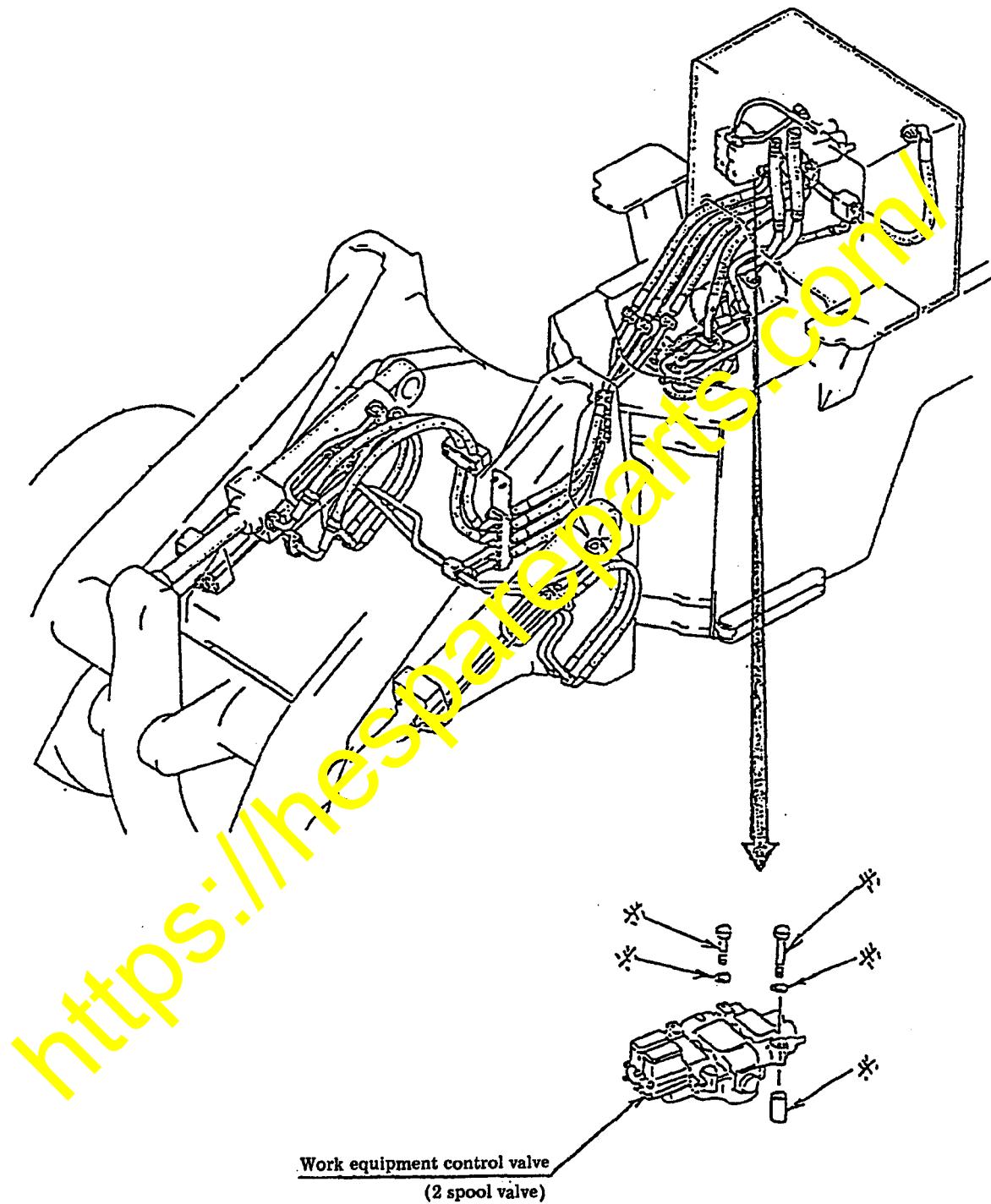
2.2.5 Front frame front plate cover (Re-work)



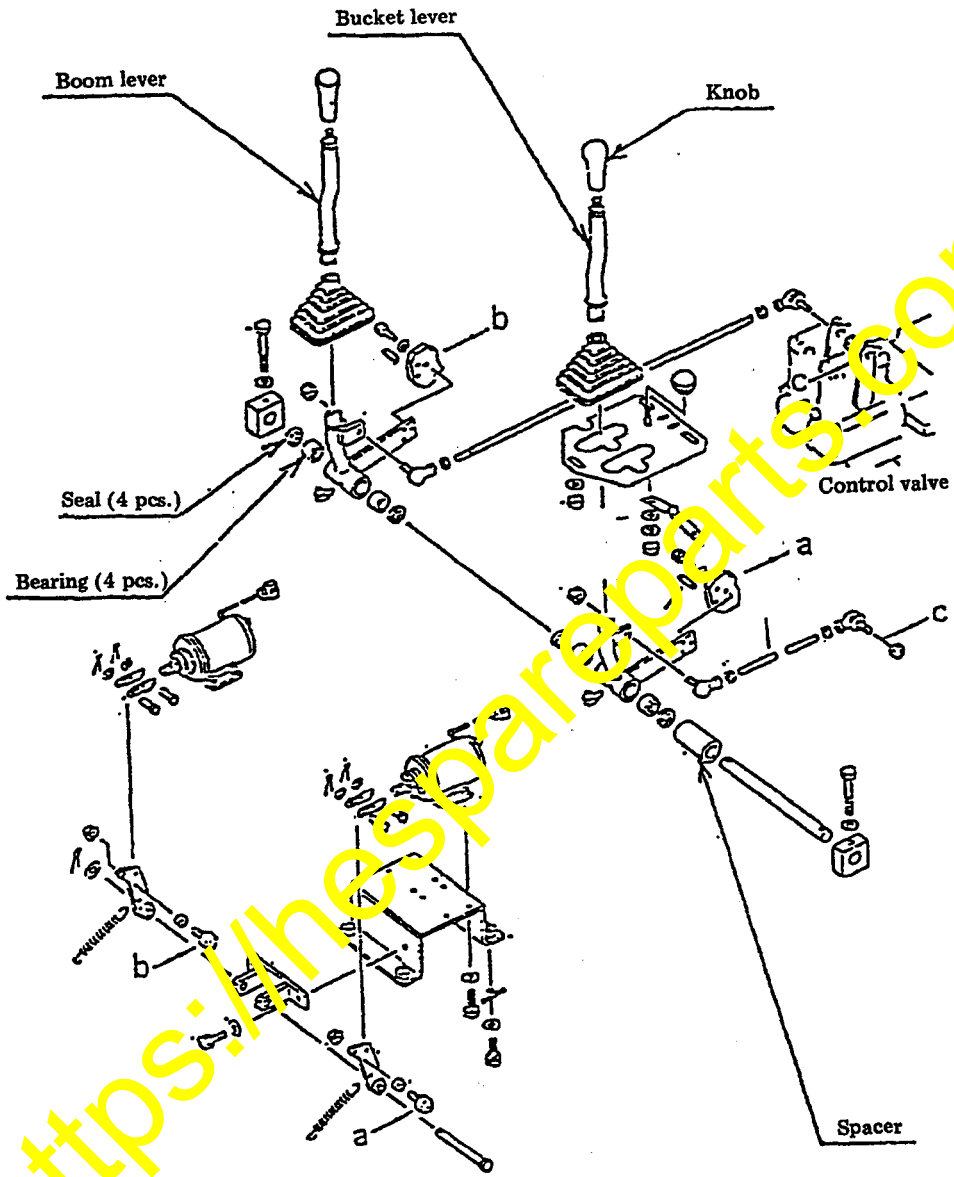
Note) When 419-877-1460 is supplied, the above re-work is not required.

2.3 Assembly procedure

2.3.1 Parts to be removed



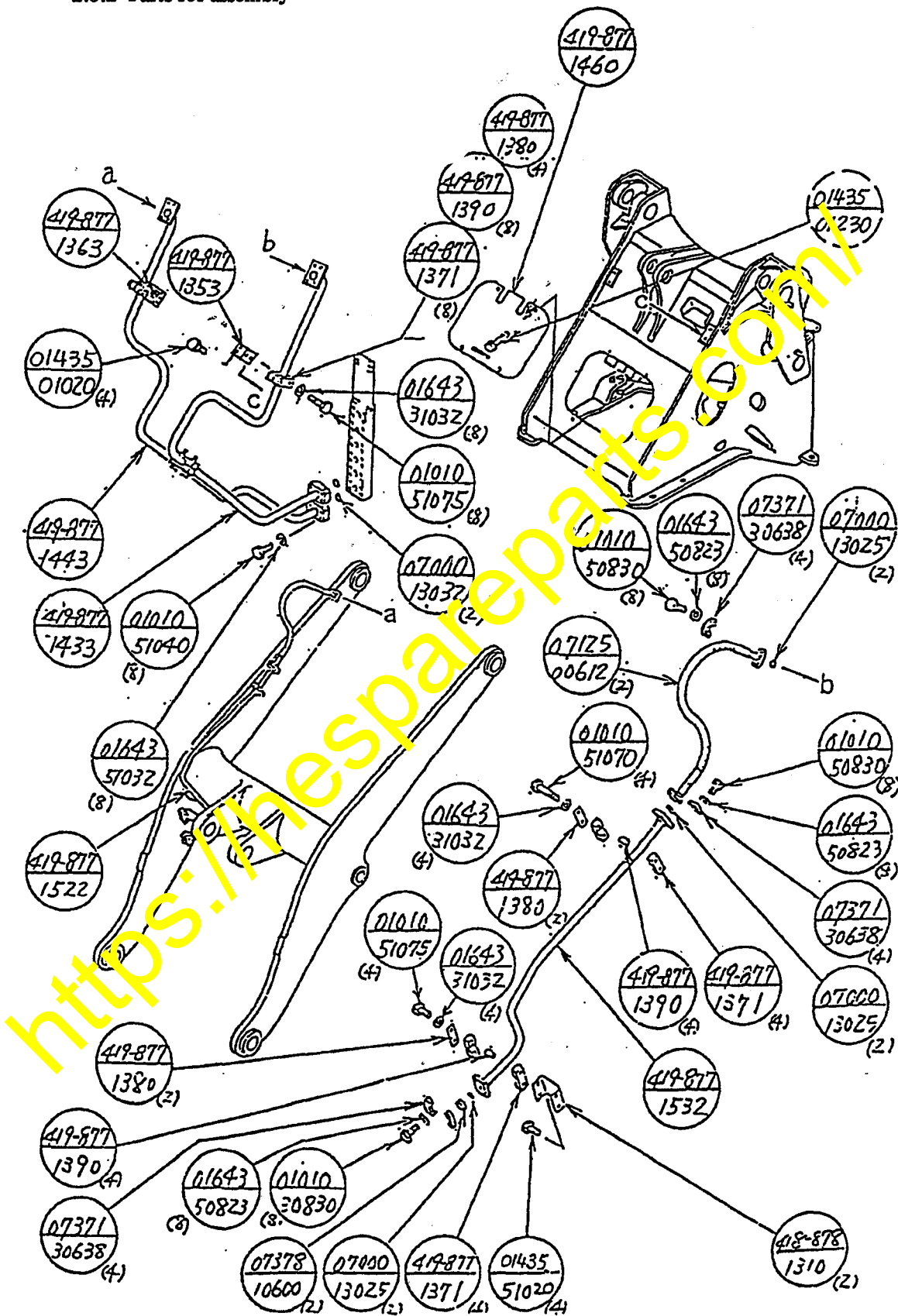
Re-use the parts marked \*.

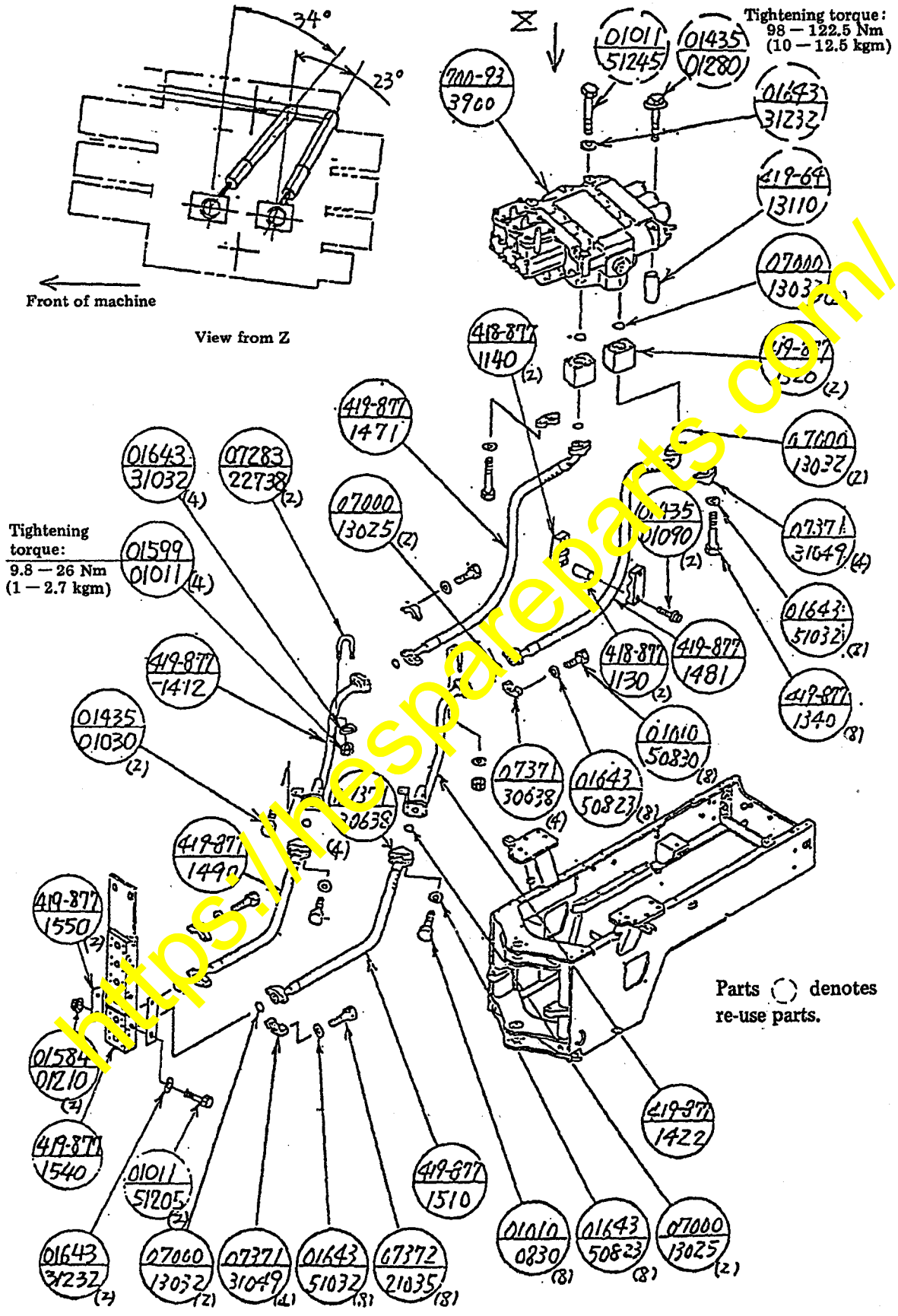


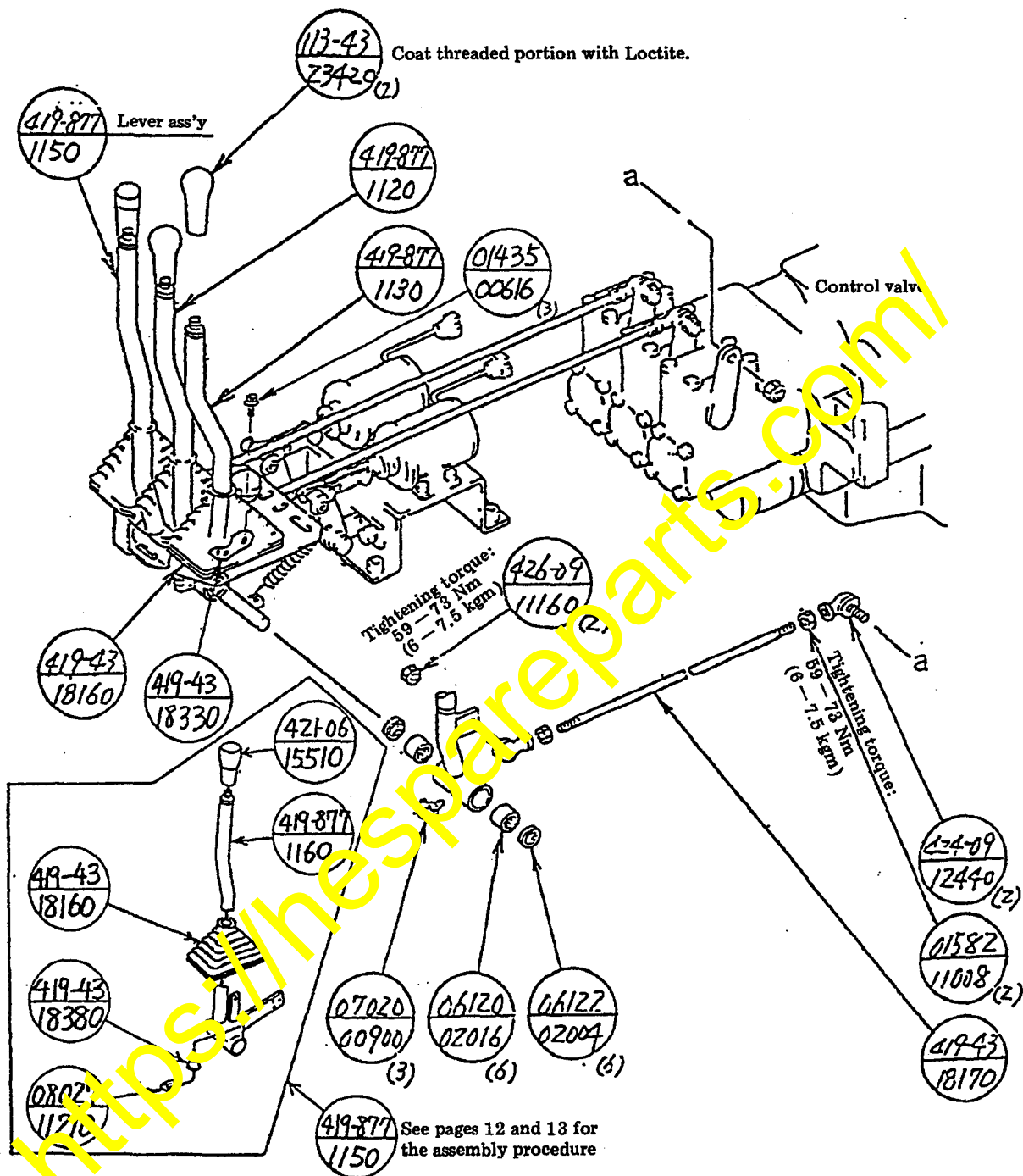
Re-use the parts other than boom and bucket lever, spacer, seal, bearing, and knob.



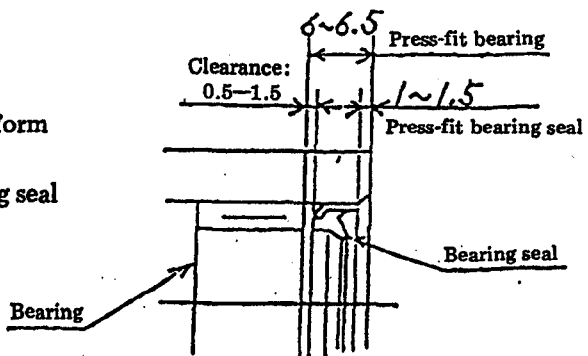
2.3.2 Parts for assembly



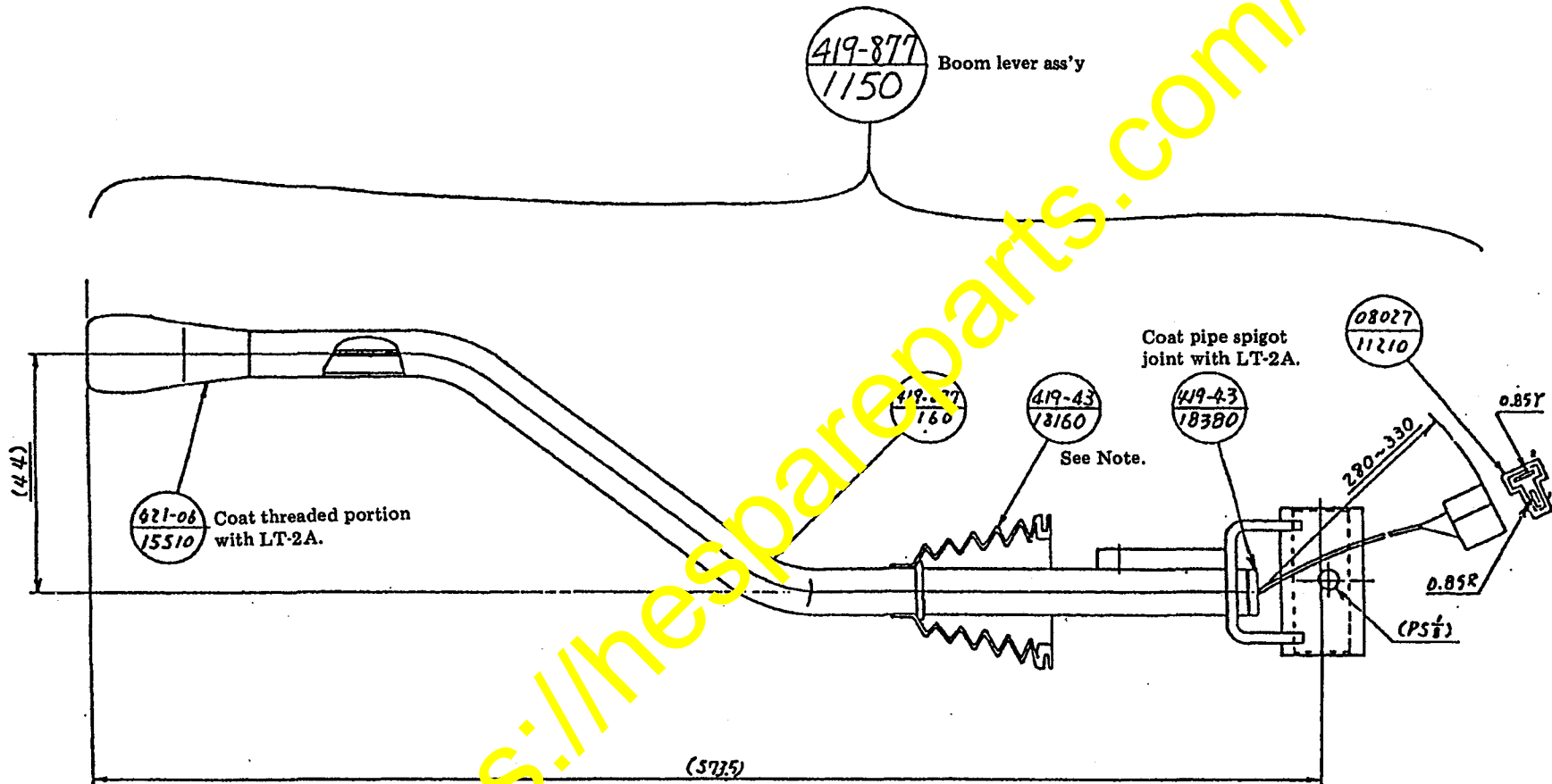




1. Installing bearing and bearing seal shall conform to the illustration on the right.
2. Apply grease (G2-LI) to bearing and bearing seal when installing.



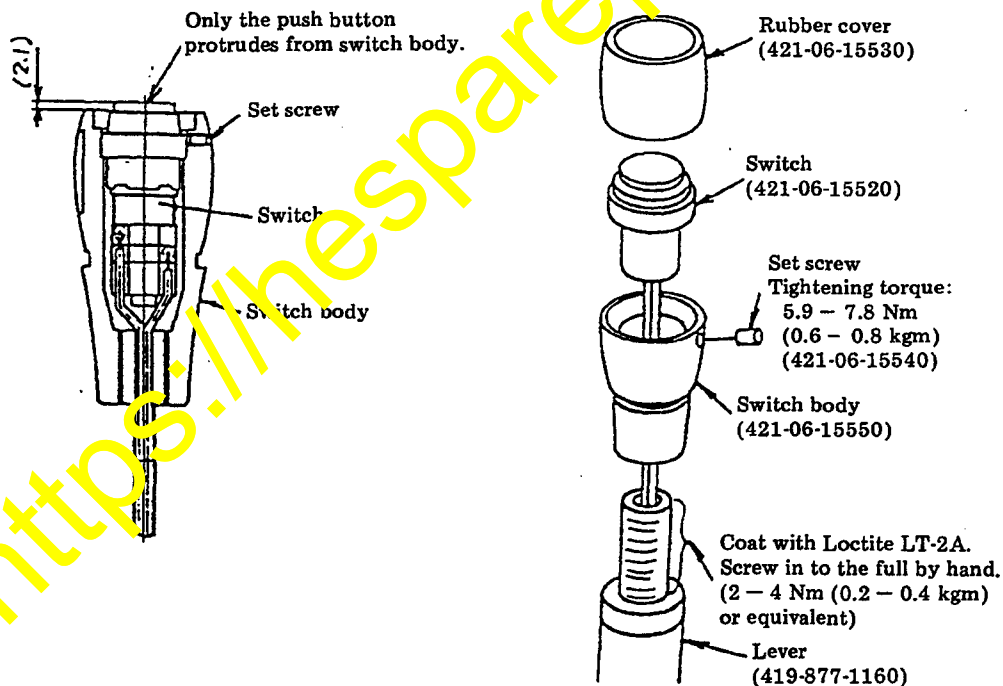
## [ Boom lever assembly procedure ]



1. Be careful lest harness should be disconnected due to twisted wire when installing the switch.
2. Install terminal and connector after screwing in a switch.
3. Crimping and assembling cables and terminals shall conform to W KES 83.511.6.
4. Push the switch after assembling to check for continuity. Be sure to use the special adopter (mating connector in which only the pins are inserted).  
The testing rod should not contact with the connector pin directly.
5. Install boot (419-43-18160) and then switch (421-06-15510).

Note) Install 421-06-15510 (SWITCH KDS) according to the following.

- 1) Knob should be installed in lever shaft in the following procedure.
- 2) When cleaning and painting, be careful not to use solvent which will have bad influence on rubber mold agents. (Do not use trichloroethylene, trichloroethane.)
- 3) Switch assembly procedure
  1. Screw in switch body (421-06-15550) to lever.  
Coat with LT-2A. Tightening torque 2 – 4 Nm (0.2 – 0.4 kgm) or equivalent.
  2. Pass knob switch (421-06-15520) harness through lever pipe.
  3. Pull out the harness from the bottom end of the lever pipe and store the switch in the switch body securely (dimensions for the push button shall be as illustrated below) and then secure with set screw (421-06-15540).
  4. Peel off the core wire, crimp terminals and insert into the connector housing so that the length of the harness from the notch at the root of the lever to the end of connector (08027-11210) should be as specified.
  5. Put rubber cover (421-06-15530) over the switch.
  6. After assembling, push down the switch to check for continuity.



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