PARTS & SERVICE NEWS

REF NO.	AT00156
DATE	Sep. 1, 2000

SUBJECT: REPAIR OF WORK EQUIPMENT LUBRICATED PIN OIL LEAKAGE ON WA1200-3

PURPOSE: To introduce modification procedures to prevent occurrence of oil leakage from the lubricated pins for the work equipment on WA1200-3 wheel loaders

APPLICATION: WA1200-3 Wheel Loaders, Serial Nos. 50001, (Tip end of the boom only)
50003,
50004

FAILURE CODE: 771N10

DESCRIPTION:

1. Introduction
   Oil leakage may occur from the lubricated pins which have been adopted for use on WA1200-3 wheel loaders for the following reasons. To prevent occurrence of such oil leakage, replace the relevant parts with the improved ones and change the installation method for the bushing.
   (1) Hitting by the flange section of the collar during disassembly or re-assembly, the seal mounting section can be damaged.
   (2) Since lubricant was used when press-fitting the bushing, the bushing can move out during operation to damage the flanged section of the collar.

   Note) Although the machine with the serial number of #50001 requires modification of the tip end section of the boom, if the bushing is foung not to have moved out when the bucket has been removed, replacement of the bushing by expansion fitting is not necessary and only the collar is to be replaced.
   (If a machine has been used for more than 2,000 hours and when the bushing has not moved out, there should be no fear of bushing's moving out of its position even in the future.)

2. List of parts

Part No.	Part Name	Purpose of part	Q'ty	Remarks
42C-70-11104 (42C-70-11103)	Boom A. (Boom A.)	Rework	1 (1)	Standard boom
42C-850-1012 (42C-850-1011)	Boom A. (Boom A.)	Rework	1 (1)	Hi-lift boom
42C-70-11333 (42C-70-11332)	Bush (Bush)		2 (2)	For the tip end of the boom (A) #50002 thru #50004
42C-70-11343 (42C-70-11342)	Bush (Bush)		2 (2)	For the shoulder of the boom (I) #50002 thru #50004
42C-70-11373 (42C-70-11372)	Collar (Collar)		4 (4)	For the tip end of the boom (A) #50001 thru #50004
42C-70-11393 (42C-70-11392)	Collar (Collar)		4 (4)	For the shoulder of the boom (I) #50002 thru #50004
42C-70-11334	Bush		2	For the tip end of the boom (A) Oversized bushing for #50001 and #50002
42C-70-11344	Bush		2	For the shoulder of the boom (I) Oversized bushing for #50001 and #50002
42C-70-11353 (42C-70-11352)	Collar (Collar)	Replacement	12 (12)	For the bucket link on the bucket side (B) For the bucket link on the bell crank side (C) For the bucket cylinder on the cylinder rod side (D) For the bucket cylinder on the cylinder bottom side (E) With #50003 and #50004
42C-70-11363 (42C-70-11362)	Collar (Collar)		4 (4)	For the bucket link on the bucket side (B) For the bucket cylinder on the cylinder bottom side (E) With #50003 and #50004
42C-70-11373 (42C-70-11372)	Collar (Collar)		6 (6)	For the bell crank center (F) For the boom cylinder on the cylinder bottom side (H) With #50003 and #50004
42C-70-11383 (42C-70-11382)	Collar (Collar)		2 (2)	For the boom cylinder on the cylinder bottom side (H) With #50003 and #50004
42C-70-11711 (42C-70-11710)	Collar (Collar)		4 (4)	For the boom cylinder on the cylinder rod side (G) With #50003 and #50004

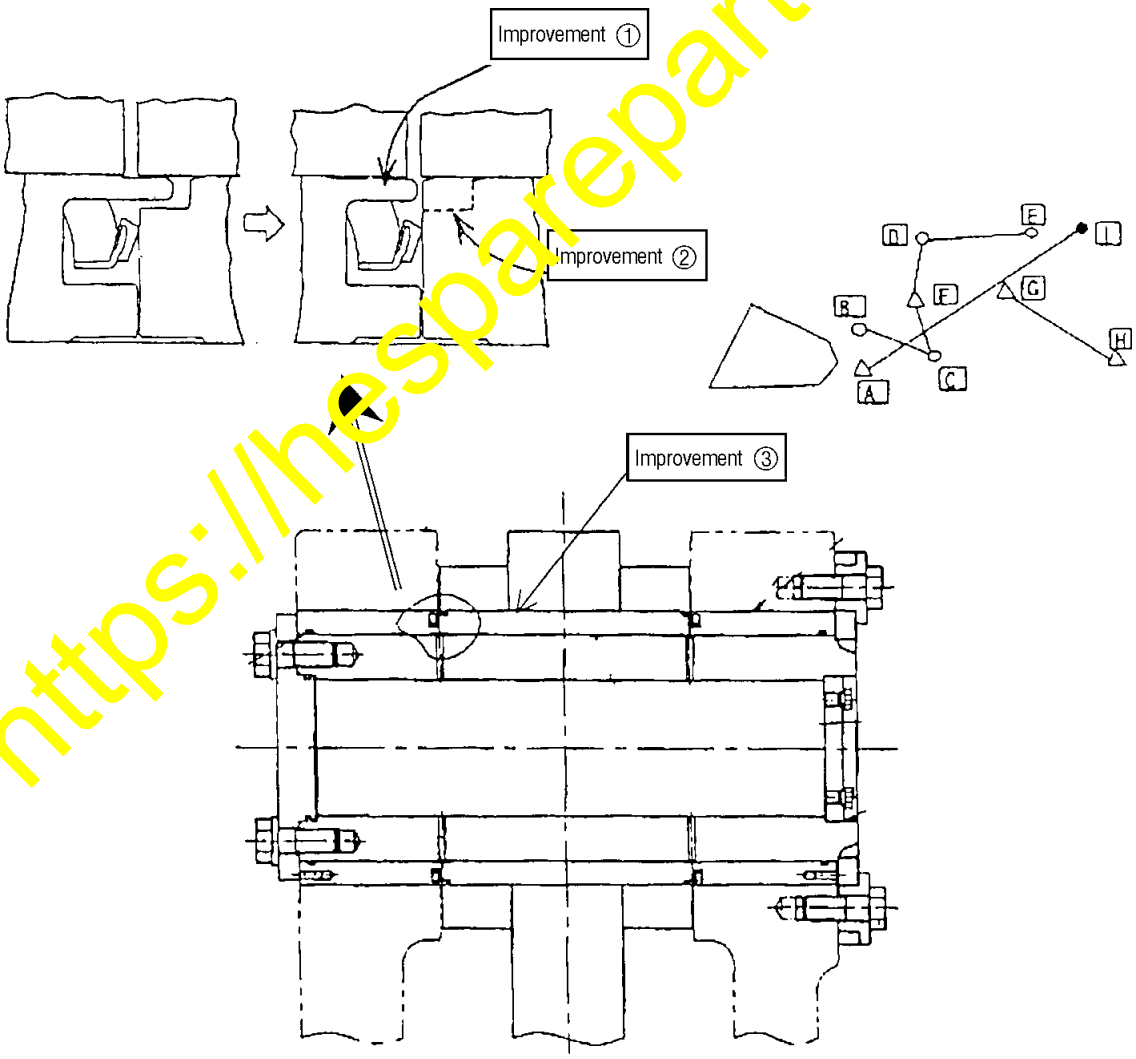
3. Contents of the modification

(1) The shape of the flange section of the collar and heat treatment method for the collar have been changed. (Improvement ①)
To prevent hitting by the flange of the collar --- The overhanging shape of the labyrinth section has been eliminated.
To prevent occurrence of cracking while making reassembly work --- Cementation treatment has been supplemented to the flange section.

(2) The shape of the busing has been changed --- The labyrinth section has been eliminated. (Improvement ②)

(3) The installation method for the bushing has been changed to the expansion fitting. (Improvement ③)

Both ends, sections "A" and "I", of the boom are to be modified.



4. Modification procedures
   a) Contents of the modification
      Remove the busing currently being press-fit to the boom, wash the outer periphery of the bushing and the bore surface of the hole to remove residue molybdenum disulfide based lubricant before press-fitting the bushing once again.
      As the new press-fitting method, employ "expansion fitting" to secure stable holding power.
      Reassembly should be made using new collars undergone the Improvement ① and Improvement ②.

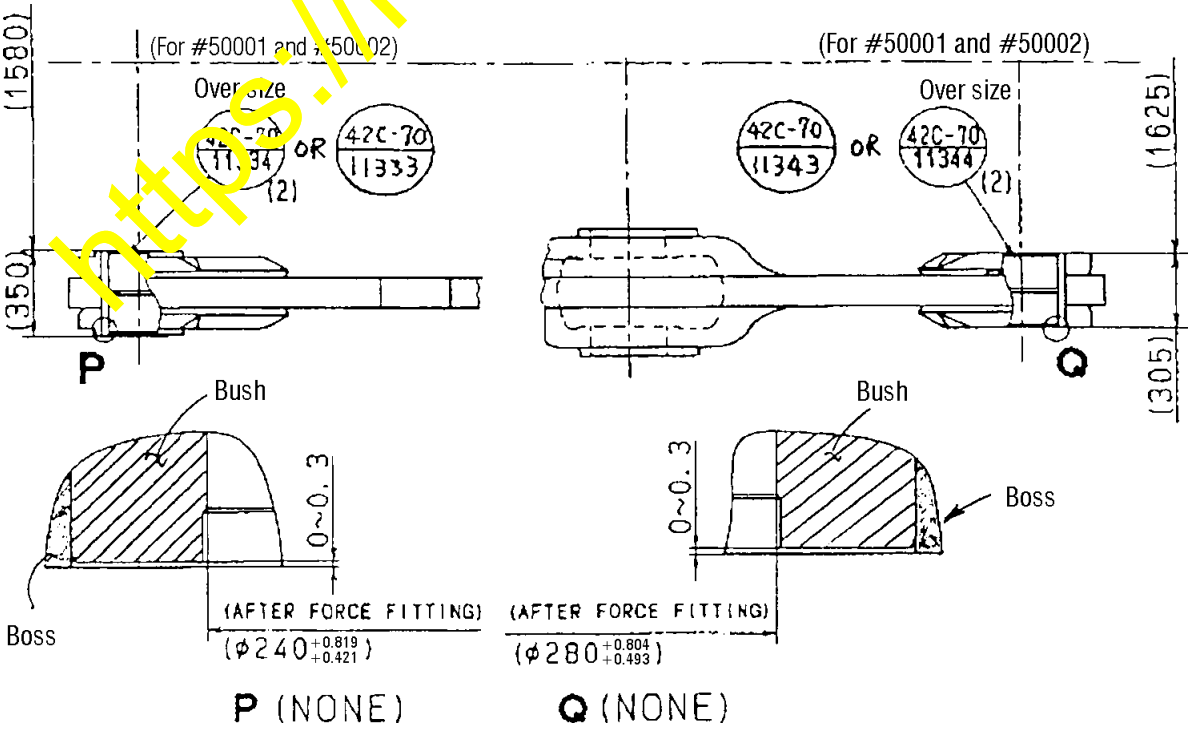
   b) Modification procedures
      (1) Pull out the bushing using a port power (a portable hydraulic press).
      If the capacity of the port power is insufficient to remove the busing, pad the bore of the bushing by buildup welding to have the busing contracted to facilitate removal of the bushing.

Note: (Do not gas cut the bushing since the mating hole in the boom will be damaged !!)

      (2) Wash the outer periphery of the bushing and the bore surface of the hole using a solvent. When deemed necessary, use emery paper.
      (3) Measure the bore diameter of the hole in the boom. This is to check if the bore diameter has not expanded excessively by wears. (When the bore diameter is found to be out of the specification, use the oversized outer diameter bushing. For the #50001 and #50002.)

      Enter the measurement results to the forthcoming measurement record chart to determine if the bore diameter suits the ordinary bushing or oversized bushing.

      (4) Press-fit the bushing using the expansion fitting method.
      Dipping the bushing in a liquid nitrogen bath, pick it up after it has been chilled sufficiently to measure the outer diameter. When the outer diameter is found to have contracted by 0.1 mm from the minimum measurement value of the bore diameter according to the preceding Paragraph (3), insert the bushing into the mating hole and hold it immovable until its outer diameter returns to the original dimensions.
      Refer to the schematic diagrams indicated below regarding the inserting positions.



Bore diameter measurement record chart

1. The shoulder section of the boom (Section "I")

Specification		
		+0.089
	ϕ340	0.000

L.H side

Positions	(mm) in axial direction	0 degree	+45 degrees	+90 degrees	–45 degrees	Average bore diameter
a	20					
b	80					
c	100					
d	150					
e	205					
f	225					
g	285					
				Total average bore diameter		

R.H side

Positions	(mm) in axial direction	0 degree	+45 degrees	+90 degrees	–45 degrees	Average bore diameter
a	20					
b	80					
c	100					
d	150					
e	205					
f	225					
g	285					
				Total average bore diameter		

2. The tip end section of the boom (Section "A")

Specification		
		+0.081
	ϕ300	0.000

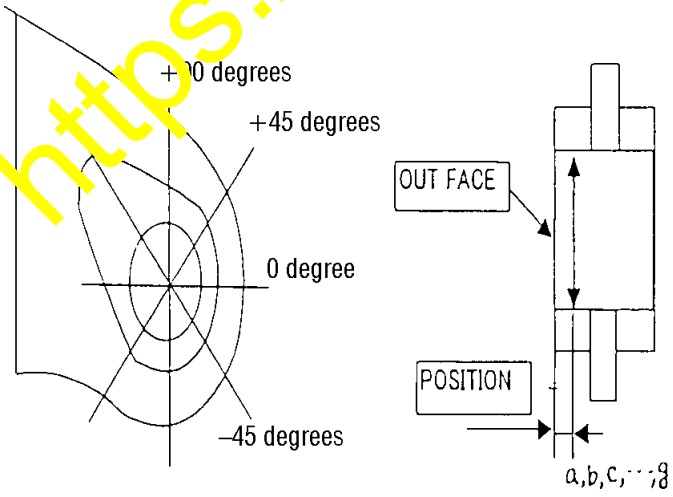
L.H side

Positions	(mm) in axial direction	0 degree	+45 degrees	+90 degrees	–45 degrees	Average bore diameter
a	20					
b	100					
c	130					
d	175					
e	220					
f	250					
g	330					
				Total average bore diameter		

R.H side

Positions	(mm) in axial direction	0 degree	+45 degrees	+90 degrees	–45 degrees	Average bore diameter
a	20					
b	100					
c	130					
d	175					
e	220					
f	250					
g	330					
				Total average bore diameter		

When the total average bore diameter exceeds the specification, use the oversized bushing. (In case of #50001 and #50002)



C) Installing the boom

Install the boom following the Local Assembly Procedures or the Sop Manual.
Part numbers of using parts are according to the Parts List or to the table below.

	① Pin	Q'ty	② Bush	Q'ty	③ Collar (out)	Q'ty	④ Collar (IN)	Q'ty
A	42C7011212	2	42C7011333	2	42C7011373	2	42C7011373	2
B	42C7011272	2	42C7011313	2	42C7011363	2	42C7011353	2
C	42C7011262	2	42C7011313	2	42C7011353	2	42C7011353	2
D	42C7011242	2	42C7011292	2	42C7011353	2	42C7011353	2
E	42C7011252	2	42C7011292	2	42C7011353	2	42C7011363	2
F	42C7011212	2	42C7011333	2	42C7011373	2	42C7011373	2
G	42C7011222	2	42C7011322	2	42C7011711	2	42C7011711	2
H	42C7011232	2	42C7011322	2	42C7011383	2	42C7011373	2
I	42C7011282	2	42C7011343	2	42C7011393	2	42C7011393	2

A Tip end of the boom, bucket hinge
B Bucket link on the bucket side
C Bucket link on the bell crank side
D Bucket cylinder on the cylinder rod side
E Bucket cylinder on the cylinder bottom side
F Bell crank center
G Boom cylinder on the cylinder rod side
H Boom cylinder on the cylinder bottom side
I Shoulder section of the boom

	⑤ Seal	Q'ty	⑥ O-ring	Q'ty	⑦ Cover	Q'ty	⑧ O-ring	Q'ty
A	42C7011421	4	0700015240	4	42C7011451	2	0700015130	2
B	42C7011411	4	0700015180	4	42C7011440	2	0700012100	2
C	42C7011411	4	0700015180	4	42C7011440	2	0700012100	2
D	42C7011411	4	0700015180	4	42C7011440	2	0700012100	2
E	42C7011411	4	0700015180	4	42C7011440	2	0700012100	2
F	42C7011421	4	0700015240	4	42C7011451	2	0700015130	2
G	42C7011421	4	0700015240	4	42C7011451	2	0700015130	2
H	42C7011421	4	0700015240	4	42C7011451	2	0700015130	2
I	42C7011431	4	0700015280	4	42C7011461	2	0700015[illegible]	2