

**PARTS & SERVICE
NEWS**

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SUBJECT: IMPROVED CAM BUSHING ON 140-ENGINE**PURPOSE:** To introduce improved cam bushings for the 140-type engines for easier installation

APPLICATION: S(D)(A)A12V140-1 Engines, Serial Nos. }
 S(A)6D140-1 Engines, Serial Nos. } Refer to page 5 thru 8.
 S(A)(A)6D140E-2 Engines, Serial Nos. }
 S(A)(A)6D140E-3 Engines, Serial Nos. }
 All Serial Nos. of machine models (Refer to page 5 thru 8)

FAILURE CODE: A402Z9**DESCRIPTION:**

1. Introduction

To prevent installation errors of the cam bushings being used for the 140-type engines, the shape of the oil holes has been changed into a slotted hole shape in the axial direction.

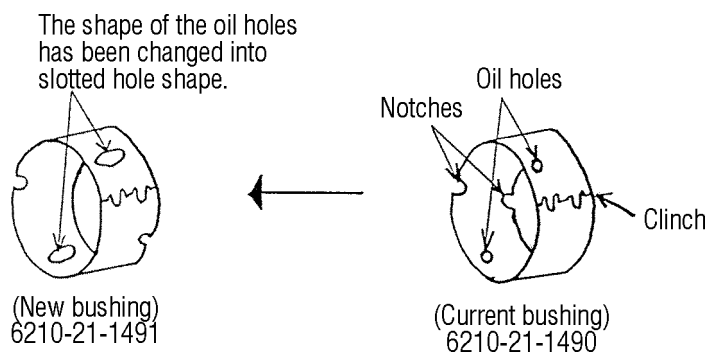
Since this modification cancels the directive character of the bushings in their press fitting direction, the possibility of installing the bushing in the reversed direction to cover the oil holes has been eliminated.

When replacing the cam bushings at time of overhauling of those engines, use those improved bushings following the installation procedures outlined in this Service News.

2. List of parts

Part No.	Part Name	Q'ty	Remarks
6210-21-1491 (6210-21-1490)	Bushing (Bushing)	14 (14)	For S(D)(A)A12V140
6210-21-1491 (6210-21-1490)	Bushing (Bushing)	7 (7)	For S(A)(A)6D140

3. Contents of the modification



The shape of the oil holes has been changed into slotted hole shape in the axial direction. Since the oil holes of the current bushings are located at closer position to the ends of the bushing, if the bushings are installed in reversed direction, the oil holes in the cylinder block and the oil holes of the bushing do not match.

By this modification to change the shape of the oil holes into slotted hole shape, the directive character of the bushings in their press fitting direction has been eliminated, thus the installation errors of the cam bushings can be prevented.

4. Replacement procedures for the cam bushings

Refer to the Section "Replacement of cam bushing" in the Shop Manual.

The replacement procedures and using special tools remain the same for those new bushings and the current bushings.

(Precautions)

Before press-fitting each bushing, check the positions of the oil holes of the bushing if the drilled holes in the cylinder block and the oil holes in the bushing are in alignment. Also, when installing the bushings, bring the clinch (joint) of the bushing to an upper position than the center line of the bushing.

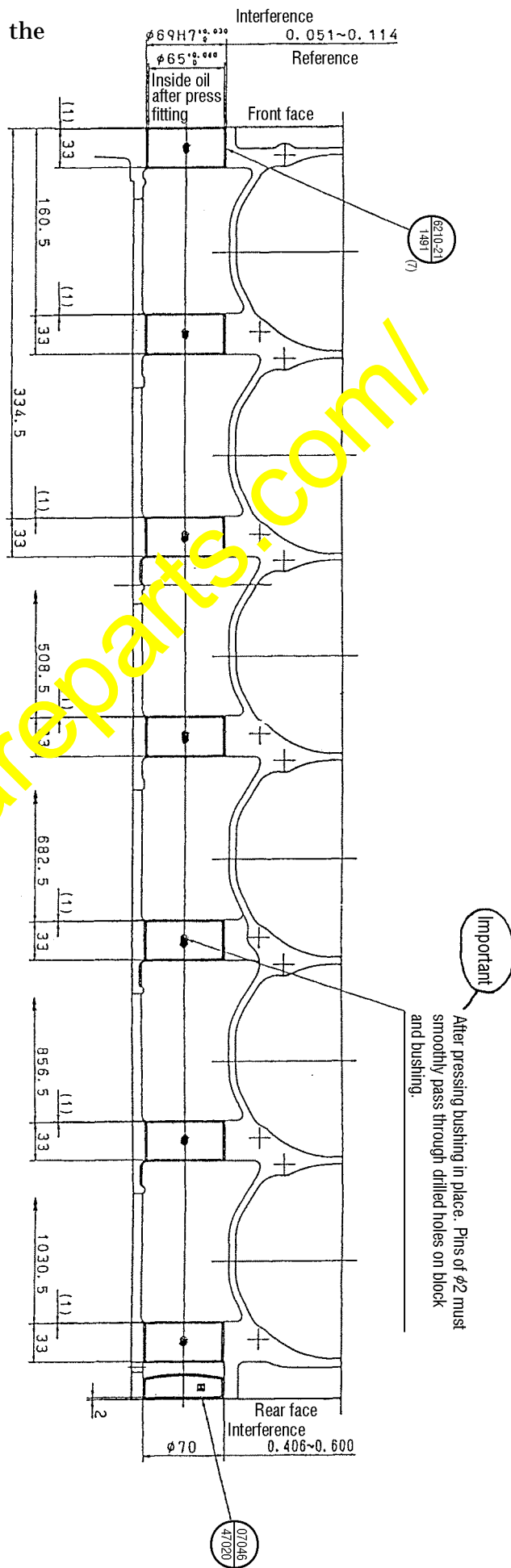
After finishing installation of the bushings, make sure that a $\phi 2$ mm diameter pin can pass through the upper and lower oil holes in the bushing and the mating drilled holes in the cylinder block smoothly.

As a reference, the press fitting position in the axial direction of the bushings is being shown hereafter. (Next page and after.)

(6D140 On page 3)
(12V140 On page 4)

Dimensions of the press fitting positions for the bushings in 6D140 engines

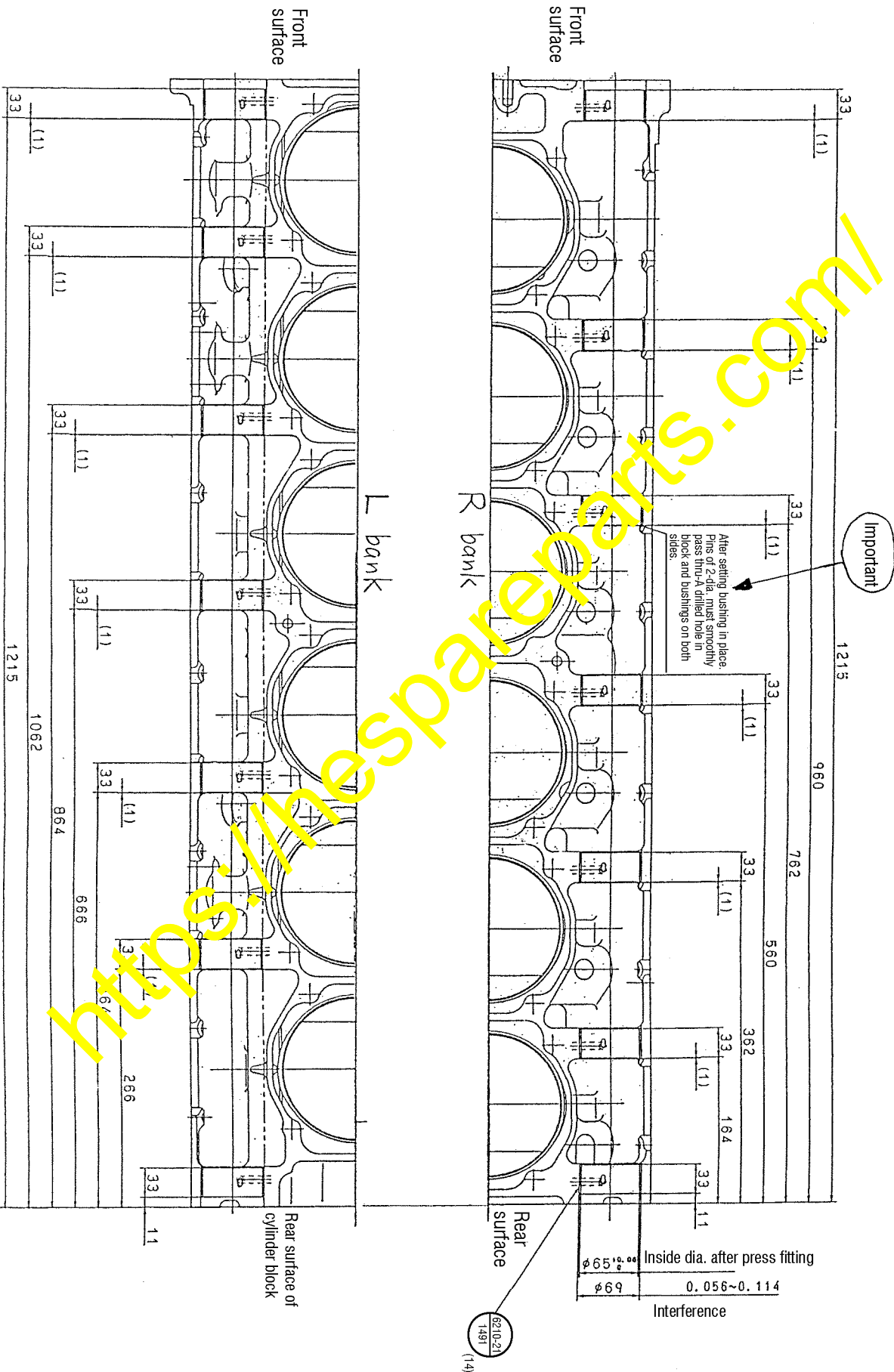
When installing the bushings, bring the clinch section of the bushing to an upper position than the center line of the bushing.



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Dimensions of the press fitting positions for the bushings in 12V140 engines

When installing the bushings, bring the clinch section of the bushing to an upper position from the center line of the bushing.



5. Table of the serial numbers of machines and engines this modification to apply.

1) 6D140 engines

No.	Applicable machine and engine models	Serial numbers of the applicable engines		Serial numbers of the applicable machines	
		Already shipped out of the factory	Modification already made at the factory	Already shipped out of the factory	Modification already made at the factory
1	HD325-6	- #28710	} From the next production	- #5960	} From the next production
2	HD405-6	- #28799		- #1186	
3	GS360-2	- #28934	#28966 -	- #12079	#12080 -
4	GC380F-2	- #28769	#29204 -	- #12061	#12062 -
5	GD825A-2	- #28721	#29069 -	- #12098	#12099 -
6	D155A-2A	- #28963	#28988 -	- #57064	#57065 -
7	D155AX-5	- #28914	#28953 -	- #70291	#70300 -
8	WA500-3	- #28939	#28967 -	- #50952	#50953 -
9	LW500-1	- #28722	#29010 -	- #10037	#10038 -
10	PC750(SE,LC)-6	- #28956	#28957 -	- #10345	#10346 -
11	PC750SE-6-KUK	- #28956	#28957 -	K30055~K30125	K30126 -
12	PC800(SE,LC)-6	- #28956	#28957 -	- #30251	#30252 -
13	PC1600(SP)-1	- #28727	#28994 -	- #10127	#10128 -
14	PC1800-6	- #28964	#29143 -	- #10010	#10011 -
15	EG300BS-5	- #77383	From the next production		
16	J6D140E-G1-2	- #70022	#70023 -		
17	J6D140E-GD-2	- #28870			
18	S6D140-G1-1	- #27230	} From the next production		
19	S6D140-G2-1	- #28394			
20	S6D140-G3-1	- #14383			
21	S6D140-GD-1	- #28216	#29189 -		
22	S6D140-GH-1	- #26744			
23	S6D140-GN-1	- #22496	} From the next production		
24	S6D140-F-1	- #22031			
25	S6D140-F-CA-1	- #27965			
26	SA6D140-A2-1	- #28926	#29173 -		
27	SA6D140A-G1-1	- #28112	#29236 -		
28	SA6D140A-G2-1	- #28927	#28996 -		
29	SA6D140A-G3-1	- #28685	#29207 -		
30	SA6D140A-GH-1	- #21611	From the next production		
31	SA6D140A-GN-1	- #27934	#29276 -		
32	SA6D140B-G1-1	- #28614	#29308 -		
33	SA6D140B-G2-1	- #28405	#29319 -		
34	SA6D140B-G3-1	- #22039	} From the next production		
35	SA6D140B-GN-1	- #26449			
36	SA6D140-C2-1	- #28929	#29004 -		

No.	Applicable machine and engine models	Serial numbers of the applicable engines		Serial numbers of the applicable machines	
		Already shipped out of the factory	Modification already made at the factory	Already shipped out of the factory	Modification already made at the factory
37	SA6D140H-GJ-1	- #27904	} From the next production		
38	SA6D140H-R-1	- #28816			
39	SA6D140-W1-1	- #25688			
40	SAA6D140-G1-1	- #28874	#29005 -		
41	SAA6D140-G3-1	- #28933	#29061 -		
42	T6D140E-W2-2	- #24724			
43	6M-132A-1	- #21659	} From the next production		
44	6M-132A-2	- #22250			
45	6M-132A-3	- #10063			
46	6M140A-1	- #23374			
47	6M140A-2	- #22281	#22282 -		
48	6M140A-3	- #10187			
49	6M140B-2	- #22276	} From the next production		
50	6M137A-1	- #10096			
51	6M137B-1	- #10019			
52	SA6D140A-M-1	- #28906	#29002 -		

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2) 12V140 engines

No.	Applicable machine and engine models	Serial numbers of the applicable engines		Serial numbers of the applicable machines	
		Already shipped out of the factory	Modification already made at the factory	Already shipped out of the factory	Modification already made at the factory
1	HD785-2	- #12773	From the next production	- #1942	#1943 -
2	HD785-3	- #12454	#12867 -	- #2574	#2575 -
3	HD785-5	- #12794	#12797 -	- #4194	#4195 -
4	HD985-3	- #12454	#12867 -	- #1020	#1021 -
5	HD985-5	- #12794	#12799 -	- #1053	#1054 -
6	HV700-2	- #10815	From the next production		
7	WA800-1	- #12732		- #10719	#10720 -
8	WA800-2	- #12732		- #10730	#10738 -
9	WA800-3	- #12760	#12890 -	- #50022	#50023 -
10	WA900-1	- #12721	From the next production	#10703	#10704 -
11	WA900-3	- #12795	#12924 -	#50017	#50018 -
12	WD900-3	- #12795	#12924 -	- #50005	#50006 -
13	D475A-2	- #12546	From the next production	- #10466	#10467 -
14	D475A-3	- #12746		- #10680	#10681 -
15	EG750A-L-1	- #11041			
16	EG750B-L-1	- #11041			
17	A12V140-G3-1	- #12823	#12884 -		
18	EPSA12V140-1	- #10594			
19	SA12V140-1	- #12546	From the next production		
20	SA12V140-A2-1	- #11132			
21	SA12V140-C2-1	- #11823			
22	SA12V140-G1-1	- #12790	#12855 -		
23	SA12V140-G2-1	- #12789	#12821 -		
24	SA12V140-G3-1	- #11256	From the next production		
25	SA12V140-GA-1	- #11041			
26	SA12V140-GD-1	- #12786	#12879 -		
27	SA12V140-GH-1	- #12789	#12821 -		
28	SA12V140-GT-1	- #12635	#12853 -		
29	SA12V140-P-1	- #12790	#12855 -		
30	SA12V140-W1-1	- #12773	From the next production		
31	J12V140E-G1-1	- #60015	#60016 -		
32	J12V140E-GD-1	- #12770	From the next production		
33	J12V140E-GE-1	-			
34	J12V140-WJK-1	- #12646			
35	SA12V140-M-1	- #10765			
36	12M140A-1	- #11070	#11071 -		

3) 6D140E-3

No.	Applicable machine and engine models	Serial numbers of the applicable engines		Serial numbers of the applicable machines	
		Already shipped out of the factory	Modification already made at the factory	Already shipped out of the factory	Modification already made at the factory
1	HD325-6-EE	- #110063	#110110 -	- #2007	#2008 -
2	HD405-6-EE	- #110071	#110089 -	- #6009	#6010 -
3	PC600-6	- #110073	#110082 -	- #11016	#11017 -
4	PC650-6	- #110072	#110076 -	- #31005	#31006 -
5	D155AX-5A	- #110069	#110085 -	- #75011	#75012 -
6	HM400	- #110029	#110238 -	- #1003	#1005 -

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