

Retrofit Requirements For Ringed Aluminum Pistons in K Compressors

Objective

Establish procedure and requirements for replacing cast iron, plug style pistons with aluminum ringed pistons in K model compressors.

Warning

This kit contains the new piston design, of aluminum material which may be used to replace the cast iron piston which is no longer available. Because of the weight differences, an out of balance condition with excessive compressor vibration will result if a compressor is reassembled with a mix of aluminum and cast iron pistons. For this reason, when cast iron pistons are replaced with these aluminum pistons, both assemblies must be changed. Aluminum pistons can be used with the old crankshaft.

Cylinder Bore Surface Preparation

All cylinder bores must be cross-hatched to provide oil retention and reduce oil pump-out when using ringed aluminum pistons. See Figure 1 below for view of cross-hatch.

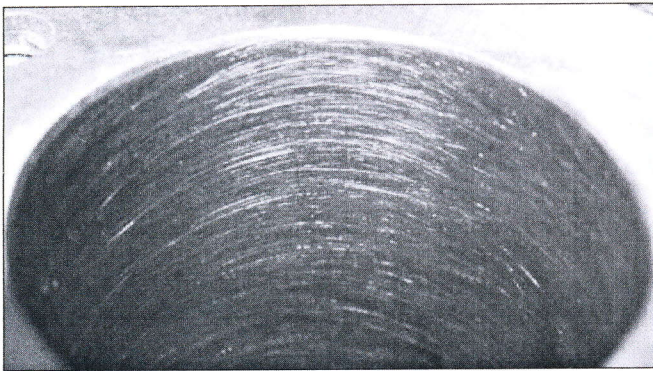


Figure 1

A flex hone can be used to produce the crosshatch but the requirements listed below in the 'Surface Requirements' section must be met. See Figure 2 for an example of a flex hone. Flex hones are available for purchase through various industrial supply catalogs and online sources.

Recommended flex hone grit is 180 and recommended sizes are listed below:

Model	Flex Hone Size
KAM/KAN	1 1/2"
KAD/KAG	1 1/2"
KAE/KAH	1 1/2"
KAJ	1 5/8"
KAR	1 5/8"
KAK/KAA	1 3/4"
KAL/KAT	2"

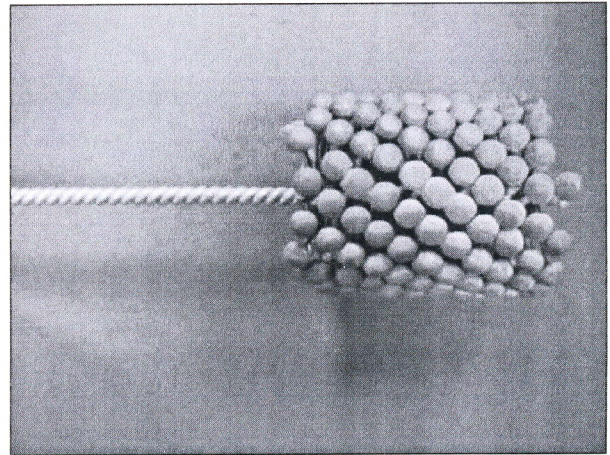


Figure 2

Surface Requirements

- Cylinders must have an average roughness of 15-35 micro inches.
- Grooves in cylinder should be at a 22°-32° angle to the cylinder deck surface.
- Surface to be clean cut, not sharp, free of vertical scores and free of torn and folded metal.
- A total of 0.0002 inch [0.00508 mm] TIR is allowed diametrically for taper and roundness.

Retrofit Requirements For Ringed Aluminum Pistons in K Compressors

Cleaning

After cylinder bore surface preparation, the body must be washed to remove any debris or metal shavings before assembly.

Piston and Ring Assembly

- Rings are assembled onto the piston above the deck surface as shown in Figure 3.
- Rings are compressed and pushed back into cylinder bore as shown in Figure 4.
- Figure 5 shows an example of a ring compression tool.

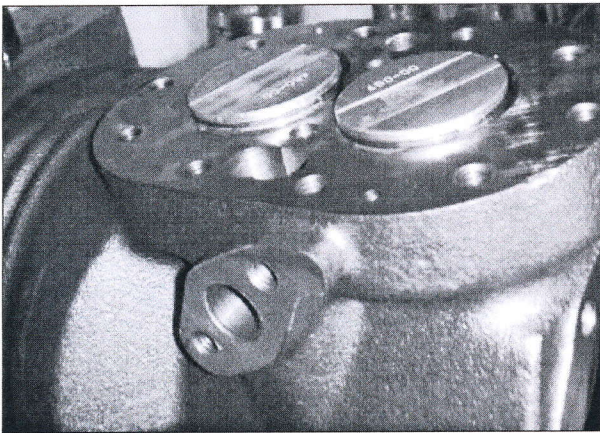


Figure 3

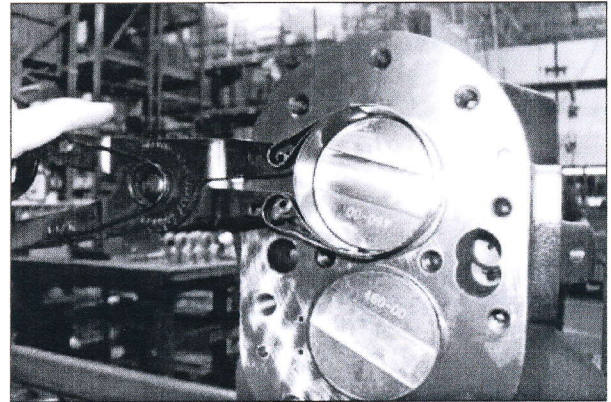


Figure 4

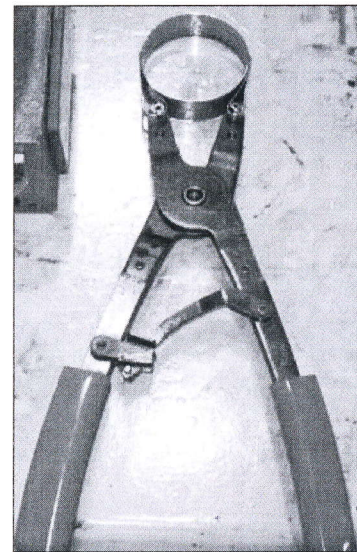


Figure 5

Note: While it is not recommended, it is allowable to replace ringed aluminum pistons with ringless cast iron pistons without altering the cylinder bores.

2009ECT-19_R1 (4/09) Emerson is a trademark of Emerson Electric Co. or one of its affiliated companies ©2009 Emerson Climate Technologies, Inc. All rights reserved. Printed in the USA.


EMERSON
Climate Technologies

EMERSON. CONSIDER IT SOLVED.™