UNITED TECHNOLOGIES CARRIER

SERVICE BULLETIN

Title: 17/19DM COMPRESSOR PISTON QUAD-BON SEAL RINGS

Number: C8704
Date: MARCH 18, 1987
Supersedes: NEW
Date:

Models Affected: 17/19DM AND 17/19DR

MACHINES AFFECTED: All 17/19DM compressors built prior to January 1987 with compressor component serial numbers lower than 42200 or compressors mounted on 17/19DM or 17/19DR machines with serial numbers lower than 39320.

PURPOSE: This bulletin is provided to advise the field of a product improvement.

To improve oil sealing and long term reliability, the three dynamic piston O-rings are being superseded by Quad-Bon seals. The Quad-Bon is a patented shape of rectangular cross section with protruding lobes at the four corners similar to a Quad-Ring. Quad-Bons are factory installed in all 17/19DM diffuser wall piston assemblies as of January 1987 production.

BACKGROUND: The 17/19DM Movable Diffuser wall is hydraulically operated by a piston utilizing oil from the compressor lube oil pump. The piston is sealed by three dynamic and two static O-rings. The dynamic rings consist of one to seal the piston O.D. to the volute and two to seal the piston I.D. to shroud. The two static rings seal the oil feed hole and the shroud to the volute.

The large diameter piston O-rings lack torsional stiffness and can roll in the groove as the piston slowly moves across them. In some cases roll up progresses, twisting the O-ring until "spiral fracture" occurs. The fractured O-ring allows oil to pass across the piston into the discharge area. Resulting in oil loss and difficulties with wall movement and control. If these symptoms are noticed, O-ring failure can be confirmed as follows.

(CONTINUED)

Prepared By: J. FRED BACHMANN

Approved By: JAMES CONY

TEST PROCEDURE: With the chiller shut down, manually operate the oil pump and cycle the wall all the way open while observing the oil level in the compressor sightglass. The oil level will drop out of the sightglass in five minutes or less if an O-ring has failed. If the oil level does not drop, cycle the wall closed and continue to observe the oil level. If oil loss is seen at only one piston position, it's possible that the O-rings are O.K. but the teflon piston coating is worn or damaged in one area. Small scratches in the teflon surface of the piston are normal. However, severe scoring may require teflon recoating or piston replacement.

NOTE:

(The procedures for manually cycling the diffuser wall can be found in the 19DM start-up, operation and maintenance instructions. For 32SM control machines, see 19DM-1SSM under "Check Calibration of Diffuser Feedback Potentiometer." For 32MP machines, see 17DM-1SSM or 19DM-2SSM under "Controls Tests.")

Service Parts (R.C.D.) replacement, piston O-ring kits P/N 19DM660-001 for 21 size and 19DM660-002 for 31 size compressors will now contain the three quad-bon seals along with the two static O-rings. A copy of the instruction sheet contained in each kit is attached.

INSTRUCTIONS

REPLACEMENT COMPONENT DIVISION

For Use With: 19DM COMPRESSOR PISTON
Part Description

19DM660-001
19DM660-002
Part Number

Date: 1/27/87

Prepared By: F. BACHMANN

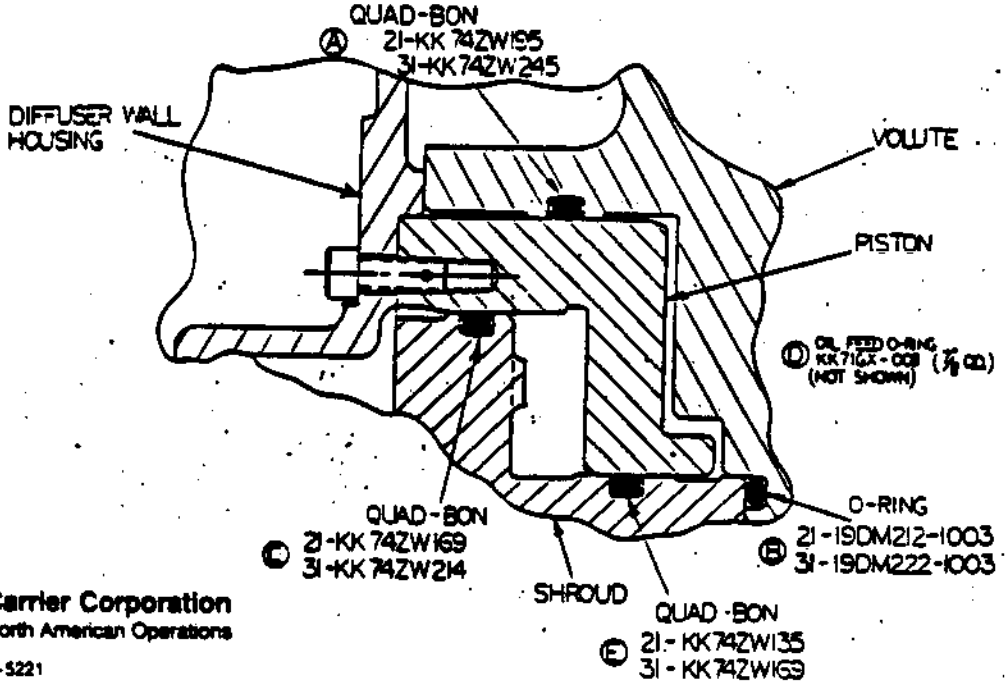
Instruction Sheet Number

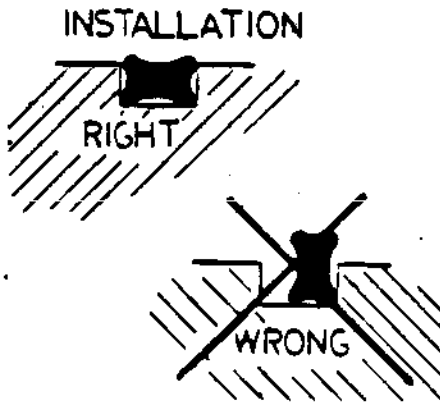
For improved oil sealing and long term reliability three 19DM dynamic piston O-rings are being superseded by the quad-bons in this pkg. The static O-ring that seals the shroud to volute Item (B) and the supply O-ring Item (D) has not been changed.

19DM660-001 Kit Contents (21 Compressors)			19DM660-002 Kit Contents (31 Compressors)		
Item	Part No.	Description	Item	Part No.	Description
A	KK74ZW195	Quad-Bon	A	KK74ZW245	Quad-Bon
B	19DM212-1003	O-Ring	B	19DM 222-1003	O-Ring
C	KK74ZW169	Quad-Bon	C	KK74ZW214	Quad-Bon
D	KK71GX-008	O-Ring	D	KK71GX-008	O-Ring
E	KK74ZW135	Quad-Bon	E	KK74ZW169	Quad-Bon

The following hints will minimize installation problems during assembly.

1. Be sure all parts are wiped clean and ring grooves are free of burrs. Small scratches in the teflon surface of the piston are normal. Severe scoring may require teflon recoating.
2. Apply light coating of grease to O.D. of piston surface and to Quad-Bon before inserting in groove.
3. Be sure volute Quad-Bon Item (A) is well back in groove with no looseness or lobes protruding from groove. If any of the ring hangs out of the groove, the piston will shear it on entry and oil leakage will result.
4. When installing Quad-Bon Items (C) and (E) on shroud, do not overstretch or cut lobes on sharp edges.
5. Be sure Quad-Bons lay flat in grooves all the way around. Lobes have a tendency to catch the edge of the O-ring groove and flip a quarter turn.





Carrier Corporation
North American Operations

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