UNITED TECHNOLOGIES CARRIER

SERVICE BULLETIN

Title: **19DK/DM BINDING VANE SHAFT**

Number: **C8714A**
Date: **12/9/87**
Supersedes: **NEW**
Date:

Models Affected: **19DK/DM/DR CHILLERS SHIPPED APRIL, 1987 AND LATER**

PURPOSE:

This bulletin provides information on a failure mode and a field fix of the new guide vane shaft seal assembly.

BACKGROUND:

Prior to April, 1987 the guide vane shaft seal assembly was completely flooded in oil fed from an oiler cup. The new design floods between the quad rings, but the nylon bushing has no lubrication and is exposed to atmosphere. The shaft has been plated to resist corrosion.

PROBLEM DEFINITION:

Field experience is showing that the new assembly is providing a good refrigerant seal, but several jobs have experienced corrosion in the nylon bushing area. It was suspected that moisture from factory leak testing or from condensation during operation was corroding the mild steel seal housing bore and binding the shaft but examination of returned shafts has shown that they had never been plated. The quantity of unplated shafts in the field is unknown but is not expected to be large.

CORRECTION:

TEMPORARY FACTORY FIX - In July the factory started packing the bushing area with grease and stopped submerging the seal for bubble leak testing on 19DM's.

FINAL FACTORY FIX - Starting with October production the seal housing as well as the shaft was nickel plated and an oil cap, CW51ZZ001, was added to the oil hole. To make the plating more obvious, the vendor will dip the nickel plated shaft and housing in a nickel-zinc solution which turns them a satin, slate black color.

FIELD FIX - If the shaft is corroded replace it and the housing with plated components (see below). Also add the CW51ZZ001 oil cap discussed above for better quad-ring lubrication. The cap can be added in the field by drilling out the oil hole to a 1/4" dia. 1/2" deep and pressing in the cap. Reassemble the seal with grease around the bushing.

Instruct the customer to oil the assembly quarterly.

FILE: COMPRESSOR-MOTOR ASSEMBLY

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E-5223

FIELD IDENTIFICATION OF NICKEL PLATE

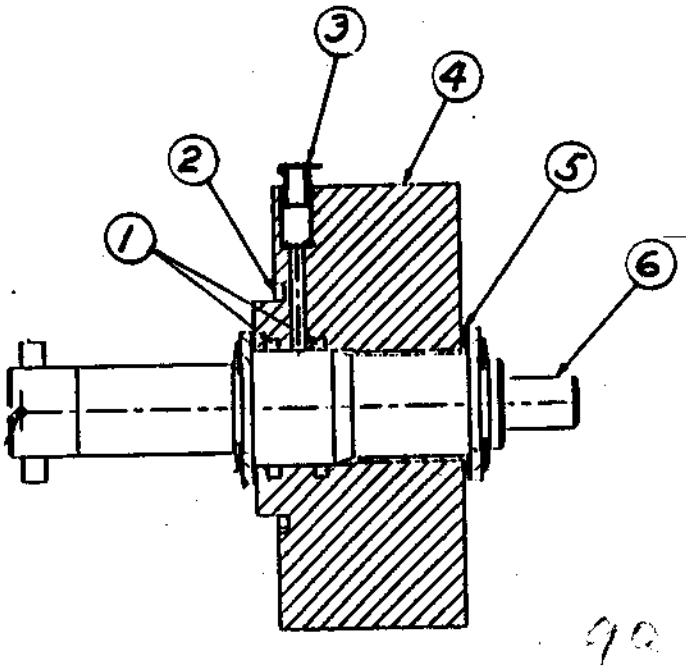
The following procedure can be used to determine if a vane shaft has been nickel plated or is just in its highly polished condition after machining.

1. Mix 2 oz. Copper Sulfate ($CuSO_4 \times 5H_2O$) crystals (from druggest) in one pint of water. Solution will be slightly darker than Windex window cleaner.
2. Clean end of guide vane shaft with R-11, Naptha, Lighter fluid, etc. and wipe dry. Do not file, sand or abrade surface to be tested.
3. Apply droplets of the copper sulfate solution or rub it on with a Q-tip.
4. Unplated steel will instantly copper plate to a pink copper color. Nickel plating will not change color.

NOTE: Copper sulfate solution is non-toxic but should be washed from hands and skin. As with handling any chemicals, eye protection is imperative.

PARTS LIST:

Shaft and seal assembly	19DM212-213	
Includes:		
1 - Shaft Quad Ring	KK742W112	2 Req.
2 - Housing O-Ring	KK71GZ024	
3 - Oil Cap (new)	CW51ZZ001	
4 - Bearing Housing	19DM212-1093	
5 - Flanged Nyliner	KT58BZ082	
6 - Shaft	19DM212-1103	



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