

Title: **DIFFUSER WALL POSITIONING FOR 19DM COMPRESSORS**

Number: C8810

Date: 6/6/88

Supersedes: new

Date:

Models Affected: **17/19DM AND 17/19DR WITH DM COMPRESSORS**

PURPOSE

Identify a possible problem with 19DM diffuser wall positioning and recommend alternate dip switch settings.

BACKGROUND

Service Bulletin C8716 provided new diffuser wall calibration voltages for control boards which had resistors R46 and R49 on the processor board and resistors R9 and R28 on the analog expansion board replaced with jumpers which look like resistors but have a single black color band. This change was effective for circuit boards produced by HTS beginning week 27 of 1987. The date code is the last four digits of the control board serial number, ie: NNNYYWW where YY = year and WW = week. The location of the serial numbers on the control boards is indicated on Figures 3 and 4.

Contrary to our original belief, this change also affects the diffuser wall position. The effect is zero at the fully closed wall position, at full open wall position, the wall only opens 88%. In some cases, this may result in reduced maximum capacity or reduced compressor efficiency.

FACTORY CORRECTION

This problem will be corrected in the near future in conjunction with the release of new software as follows:

CONTROL TYPE	PART NO.	DESCRIPTION
Single Compressor	HK98EZ100	Basic Prom (Compatible with ESP I & II)
	HK98EZ016	Memory Expansion Prom for ESP I
	HK98EZ110	Memory Expansion Prom for ESP II
Dual Compressor	HK98EZ130	Basic Prom (Compatible with ESP II)
	HK98EZ140	Memory Expansion Prom for ESP II

FILE KEY Controls - Wiring

MAIL KEYS 2.45, 2.40B, 2.53, 2.33B, 2.33D

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RECOMMENDATIONS

If corrective action is found to be necessary, the easiest solution is to change the dip switches for diffuser width. Dip switch settings as a function of diffuser width are tabulated in Service Bulletins C8708 for single compressor units and C8806 for dual compressor units.

New Control Boards - Old Software

To determine the proper setting, go into the table for the applicable compressor code and find the corresponding diffuser width. Multiply this width by 1.12. Find the new dip switch settings which correspond to the larger width. Remember that for a dual compressor, two sets of dip switches must be changed.

Example:

A single compressor unit has a processor board with serial number 3208812 and prom HK98EZ006 and compressor code 454. Compressor code 454 has a diffuser width of .93. The new width should be $1.12 \times .93 = 1.04$. Switches 2-5 and 2-6 are off and switches 2-7, 2-8, 4-1 and 4-2 are on.

Another solution is to change out the prom(s) once the new software is available.

Old Control Boards - New Software

Once the new software is available, RCD will no longer supply the old. If the new software is used with old control boards, the diffuser will open too far and may cause the compressor to surge.

In this situation, look up the diffuser width for the applicable compressor code as above and divide this width by 1.12. Find the new dip switch settings which correspond to the smaller width.

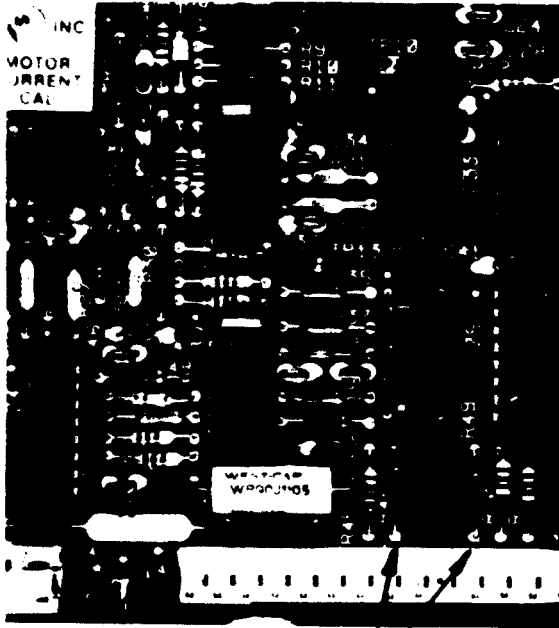
Example:

Compressor A of a dual compressor unit has a code of 455 and compressor B has a code of 285. The serial number of the processor board is 2348704 and the serial number of the analog expansion board is 1128645. A change in software is being made to upgrade to ESP II, prom number HK98EZ140. The standard diffuser width for a 455 compressor is .83. The new width is $.83 / 1.12 = .74$. Switches 2-6, 2-7, 2-8 and 4-1 are off and switches 2-5 and 4-2 are on. The standard diffuser width for a 285 compressor is .66. The new width is $.66 / 1.12 = .59$. Switches 5-4 and 6-7 are off and switches 5-1, 5-2, 5-3 and 6-6 are on.

One New Control Board with One Old Control Board

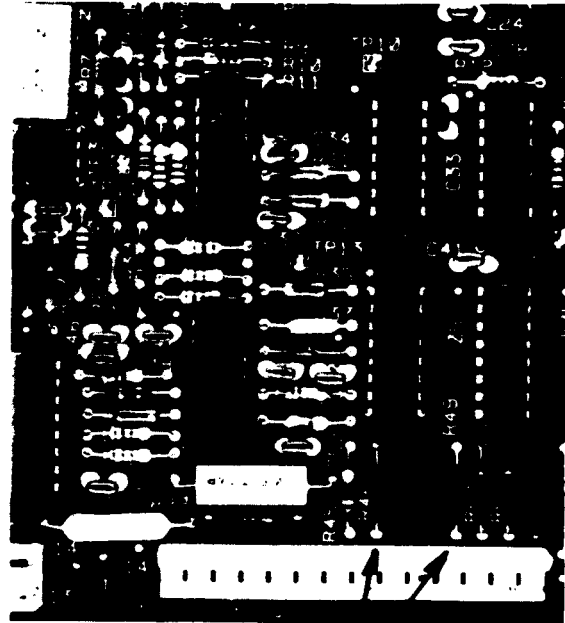
It is possible to use a new analog expansion board with an old processor board or vice versa. Just configure compressor A dip switch settings based on the version of the processor board and compressor B dip switch settings based on the version of the analog expansion board.

Figure 1
Old Design Processor Board



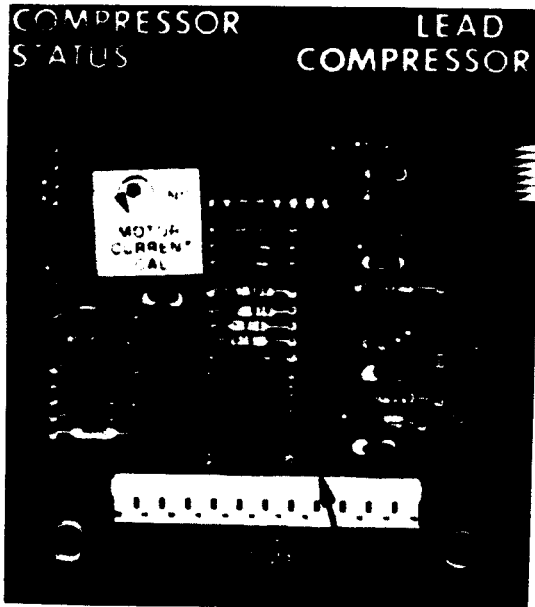
R46 and R49

Figure 2
New Design Processor Board



R46 and R49

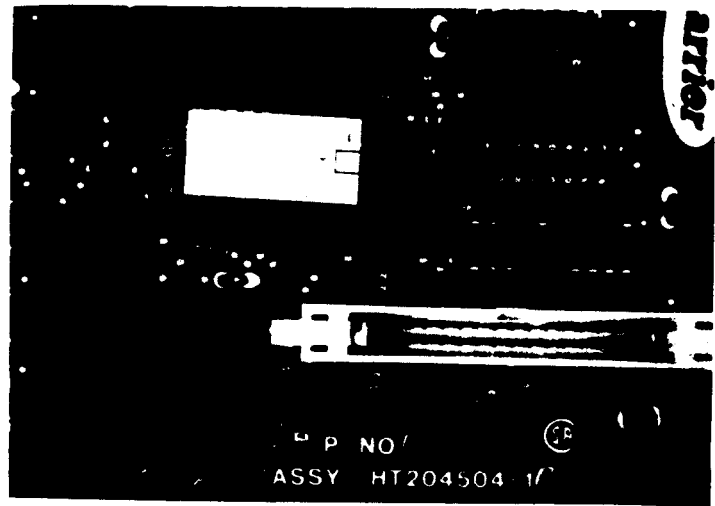
Figure 3
New Design Analog Expansion



Serial Number

R9 & R28

Figure 4
Processor Board Serial Number



Serial Number