UNITED TECHNOLOGIES CARRIER

SERVICE BULLETIN

Title: **32MP/ESP START-UP & OPERATION REVISIONS**

Number: C9014
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Models Affected: 17/19 DK/DM/DR With Latest Software

PURPOSE: To advise on changes made to the start-up instruction and Display Codes on all 32 MP Controls with the latest version software.

EPROM PART NUMBERS

	SINGLE COMP. Ver. VIII ESP I	ESP II	DUAL COMP. Ver. III ESP II
EPROM Kit Includes:	32MP660014	32MP660012	32MP660013
Processor Board Eprom	HK98EZ100	HK98EZ100	HK98EZ130
MX Board "	HK98EZ016	HK98EZ110	HK98EZ140
ESP Board "	HK98EZ023	HK98EZ120	HK98EZ150

WELDED CONTACT TEST:

In all of the current Start-up, Operation, and Maintenance Instruction books there is a paragraph in the 'Check Safety Control Operation' section which deals with simulating a welded starter contact condition (Code 77). In updates being written for each of these manuals, this paragraph will be deleted. It no longer is necessary to simulate this condition on an initial start-up with this version software installed, nor is it possible to simulate Code 77 in the manner specified. See the troubleshooting hints section below for further information on Code 77.

DISPLAY CODE LABEL REVISIONS FOR LATEST VERSION SOFTWARE:

The Display Code sheets included with this bulletin include the following changes:

	Single Compressor Unit	Dual Compressor Unit
Deleted Codes:	64/9 89/1 89/2	64/8
Added Code:	87 Starter Run Contact Opened While Machine Running	

FILE INSTRUCTIONS: Installation, Start-Up, Operation

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PROCESSOR TEST POINTS:

There is a new style of processor board being manufactured now. Instead of three horizontal large blue capacitors, there are two vertical capacitors. It is impossible to use the bottom of the capacitor as the negative for the voltage test points. Instead, use test point 16 (TP16) as the connection for the negative lead. This point can be used as the negative on older style boards as well.

TROUBLESHOOTING HINTS:

CODE 67 - Temporary Loss of Line Voltage -
CODE 68 - Low Line Voltage - These alarm codes may appear when the control power dips, is turned off then back on, OR the P.O.R. (Power On Reset) button is pressed under the following conditions:

TABLE I

	FAILURE CODE IF POWER DIPS OR P.O.R	SET POINT & DISPLAY LOCAL/REMOTE SWITCH	ESP OPTIONS: REMOTE START OPTION	ESP OPTIONS: AUTO START AFTER POWER FAILURE	REMOTE START DEVICE
No ESP	67 or 68	Remote	N/A	N/A	Closed
With ESP	67 or 68	Remote	Enabled	Disabled	Closed
"	No Failure	Remote	Either	Enabled	Either

If the Auto Start After Power Failure option is enabled, codes 67 and 68 along with codes 48 and 69 are prevented from appearing. The machine will start a three minute count down if the machine was off, or go immediately into a code 26 if the machine was starting or running at the time of the interruption.

Code 77 - Starter Contacts Fail to Open - This code may show up in these instances:

A) If there is a reading greater than 10% of Rated Load Amps while the compressor is supposed to be off, the oil pump is started and Code 77 is displayed. If the compressor is not running, check for stray voltage on 23 and 24, and if voltage is present, eliminate it. If no voltage is present then re-adjust the zero pot on the processor board (see bulletin C8717 or C8815).

B) If both the Start and Run auxiliary contacts in the starter are in the run state (1CR aux contact open and run aux contact closed), but the compressor is supposed to be off, Code 77 will appear; but the oil pump will not energize. To simulate an energized starter: remove control power, move the wire from terminal 15 and place it on terminal 18, and re-energize the controller.

C) If the starter run contact fails to open at the shutdown command from the processor board, then the oil pump, the water pumps, and the tower fan remain energized with a code 77 in the display until the contact opens.

CODE 80 - Recycle with High Motor Current - There is an error with Version VIII software on single compressor units; however, the dual compressor software is correct. The alarm should be generated based on a corrected amperage reading of over 60% at recycle, but is now being alarmed based on actual percent amperage of over 60% at recycle.

CODE 87 - Starter Run Contact Opened While Machine Running - may appear if there is a momentary power loss to the 1CR Relay (such as a chattering oil pump interlock contact).

RETURN CHILL WATER CONTROL:

This option operates correctly on a single, stand-alone chiller and the dual compressor unit, but should not be used with the lead/lag option. A software error prevents the lag chiller from restarting properly once it cycles off on low load. Chill Water Reset Based on Cooler Temperature Difference can be programmed to provide constant return water temperature. For example, if design conditions are 55 F returning and 45 F leaving, reset variables of 0 F reset at 10 F temperature difference, and 8 F reset at 2 F temperature difference will result in 55 F return water as the chillers unload.

DISPLAY CODES

TYPE	CODE NO.	FUNCTION
?	1-15	TIME REMAINING UNTIL RESTART (DECREASES AT ONE MINUTE INTERVALS)
START STATUS	20	READY FOR START-UP, LOCAL
	21	READY FOR START-UP, REMOTE CONTACT
	22	READY FOR START-UP, ESP
	23	LAG COMPRESSOR READY FOR RESTART
	24	LAG COMPRESSOR MANUALLY DISABLED
	25	RECYCLE RESTART PENDING
	26	STARTUP IN PROGRESS
RUN STATUS	27	RESET OPTION ACTIVE
	28	NORMAL TEMPERATURE CONTROL
	29	RAMP LOADING CONTROL
	30	DEMAND LIMIT CONTROL
	35	MOTOR TEMPERATURE OVERRIDE
	36	REFRIGERANT TEMPERATURE OVERRIDE
	37	EXCESSIVE PURGING
	39	LEAD/LAG RESTORATION IN PROGRESS
PRESTART FAILURE STATUS	40	HIGH MOTOR TEMPERATURE
	41	STARTS LIMIT EXCEEDED
	42	CONDENSER WATER FLOW INADEQUATE
	43	EVAPORATOR WATER FLOW INADEQUATE
	44	DEFECTIVE OIL PRESSURE SWITCH
	46	FAILURE TO ESTABLISH OIL PRESSURE
	48	LOW/HIGH LINE VOLTAGE
	54	LEAD COMPRESSOR MALFUNCTION
	56	LAG COMPRESSOR MALFUNCTION
)OWN STATUS	60	HIGH DISCHARGE TEMPERATURE
	61	LOW REFRIGERANT TEMPERATURE
	62	HIGH MOTOR TEMPERATURE
	63	HIGH THRUST BEARING TEMPERATURE
	64/1	LEAVING CHILLER WATER SENSOR OUT OF RANGE
	64/2	EVAPORATOR REFRIGERANT SENSOR OUT OF RANGE
	64/3	CONDENSER REFRIGERANT SENSOR OUT OF RANGE
	64/4	THRUST BEARING SENSOR OUT OF RANGE COMPRESSOR A
	64/5	MOTOR WINDING SENSOR OUT OF RANGE COMPRESSOR A
	64/6	DISCHARGE TEMPERATURE SENSOR OUT OF RANGE COMPRESSOR A
	64/7	OPTIONAL TEMPERATURE #1 SENSOR OUT OF RANGE
	64/9	THRUST BEARING SENSOR OUT OF RANGE COMPRESSOR B
	64/10	MOTOR WINDING SENSOR OUT OF RANGE COMPRESSOR B
	64/11	DISCHARGE TEMPERATURE SENSOR OUT OF RANGE COMPRESSOR B
	65	LOW OIL PRESSURE
	66	MOTOR OVERLOAD TRIP
	67	TEMPORARY LOSS OF LINE VOLTAGE
	68	LOW LINE VOLTAGE
	69	HIGH LINE VOLTAGE
	70	LOSS OF CHILLED WATER FLOW
	71	LOSS OF CONDENSER WATER FLOW
	73	HIGH CONDENSER PRESSURE
	74	FAILURE OF STARTER TO COMPLETE TRANSITION
	75	EXCESSIVE MOTOR ACCELERATION TIME
	76	IMPROPER DIP SWITCH CONFIGURATION
	77	STARTER CONTACTS FAIL TO OPEN
	78	MANUAL OVERRIDE SHUTDOWN
	79	SPARE PROTECTIVE LIMIT TRIP
	80	RECYCLE WITH HIGH MOTOR CURRENT
	81	COMMUNICATIONS MALFUNCTION
	82	LOSS OF MOTOR CURRENT SIGNAL
	85	DIFFUSER WALL MALFUNCTION
	87	STARTER RUN CONTACT OPENED WHILE MACHINE RUNNING
	88	LAG COMPRESSOR SURGE PROTECTION SHUTDOWN
	89/4	COMPRESSOR A DIFFUSER FEEDBACK POTENTIOMETER OUT OF RANGE
	89/5	COMPRESSOR B DIFFUSER FEEDBACK POTENTIOMETER OUT OF RANGE

Dual Compressor

DISPLAY CODES

TYPE	CODE NO.	FUNCTION
TIMER	1-15	TIME REMAINING UNTIL RESTART (DECREASES AT ONE MINUTE INTERVALS)
START STATUS	20	READY FOR START-UP, LOCAL
	21	READY FOR START-UP, REMOTE CONTACT
	22	READY FOR START-UP, ESP
	23	LAG MACHINE READY FOR RESTART
	25	RECYCLE RESTART PENDING
	26	STARTUP IN PROGRESS
RUN STATUS	27	RESET OPTION ACTIVE
	28	NORMAL TEMPERATURE CONTROL
	29	RAMP LOADING CONTROL
	30	DEMAND LIMIT CONTROL
	31	LEAD / LAG MANUALLY DECOUPLED, LEAD IN LOCAL
	32	LEAD / LAG MANUALLY DECOUPLED, LAG IN LOCAL
	33	LEAD / LAG TEMPORARILY DECOUPLED, LEAD COMMUNICATION ERROR
	34	LEAD / LAG TEMPORARILY DECOUPLED, LAG COMMUNICATION ERROR
	35	MOTOR TEMPERATURE OVERRIDE
	36	REFRIGERANT TEMPERATURE OVERRIDE
	37	EXCESSIVE PURGING
	38	LEAD CHILLER REDESIGNATION IN PROCESS
	39	LEAD / LAG RESTORATION IN PROGRESS
PRESTART FAILURE STATUS	40	HIGH MOTOR TEMPERATURE
	41	STARTS LIMIT EXCEEDED
	42	CONDENSER WATER FLOW INADEQUATE
	43	EVAPORATOR WATER FLOW INADEQUATE
	44	DEFECTIVE OIL PRESSURE SWITCH
	46	FAILURE TO ESTABLISH OIL PRESSURE
	47	EXCESSIVE IMPELLER DISPLACEMENT
	48	LOW/HIGH LINE VOLTAGE
	54	LEAD CHILLER MALFUNCTION
	55	LAG CHILLER MALFUNCTION
SHUTDOWN STATUS	60	HIGH DISCHARGE TEMPERATURE
	61	LOW REFRIGERANT TEMPERATURE
	62	HIGH MOTOR TEMPERATURE
	63	HIGH THRUST BEARING TEMPERATURE
	64/1	LEAVING CHILLER WATER SENSOR OUT OF RANGE
	64/2	EVAPORATOR REFRIGERANT SENSOR OUT OF RANGE
	64/3	CONDENSER REFRIGERANT SENSOR OUT OF RANGE
	64/4	THRUST BEARING SENSOR OUT OF RANGE
	64/5	MOTOR WINDING SENSOR OUT OF RANGE
	64/6	DISCHARGE TEMPERATURE SENSOR OUT OF RANGE
	64/7	OPTIONAL TEMPERATURE #1 SENSOR OUT OF RANGE
	64/8	OPTIONAL TEMPERATURE #2 SENSOR OUT OF RANGE
	65	LOW OIL PRESSURE
	66	MOTOR OVERLOAD TRIP
	67	TEMPORARY LOSS OF LINE VOLTAGE
	68	LOW LINE VOLTAGE
	69	HIGH LINE VOLTAGE
	70	LOSS OF CHILLED WATER FLOW
	71	LOSS OF CONDENSER WATER FLOW
	72	EXCESSIVE IMPELLER DISPLACEMENT
	73	HIGH CONDENSER PRESSURE
	74	FAILURE OF STARTER TO COMPLETE TRANSITION
	75	EXCESSIVE MOTOR ACCELERATION TIME
	76	IMPROPER DIP SWITCH CONFIGURATION
	77	STARTER CONTACTS FAIL TO OPEN
	78	MANUAL OVERRIDE SHUTDOWN
	79	SPARE PROTECTIVE LIMIT TRIP
	80	RECYCLE WITH HIGH MOTOR CURRENT
	81	COMMUNICATIONS MALFUNCTION
	82	LOSS OF MOTOR CURRENT SIGNAL
	87	STARTER RUN CONTACT OPENED WHILE MACHINE RUNNING
	89/4	DIFFUSER FEEDBACK POTENTIOMETER OUT OF RANGE

Single Compressor