SERVICE BULLETIN

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SUBJECT: 32MP/ESP START-UP AND OPERATION REVISIONS

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PURPOSE

To advise on changes made to the start-up instructions and Display Codes on all 32MP controls with the latest version software.

MACHINES AFFECTED

All 17/19DK, DM and DR series machines with the latest software.

	SINGLE COMP. Ver. VIII		DUAL COMP. Ver. III
EPROM PART NUMBERS:	ESP I	ESP II	ESP II
Processor Board	HK98EZ100	HK98EZ100	HK98EZ130
MX Board	HK98EZ016	HK98EZ110	HK98EZ140
ESP Board	HK98EZ023	HK98EZ120	HK98EZ150
EPROM Kit	32MP660-014	32MP660-012	32MP660-013

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 attached, part numbers 19EB516-1153 and 19DR516-1083, include the following changes:

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

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PROCESSOR TEST POINTS

A new style processor board is being manufactured. 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 1

	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
With ESP	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 readjust the zero pot on the processor board.

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), 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 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).

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

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 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
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 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

WARNING

OVERCURRENT SHUTDOWN (CODE66) OF THE COMPRESSOR MAY INDICATE A SERIOUS PROBLEM. REFER TO THE CARRIER OPERATION AND MAINTENANCE MANUAL BEFORE RESTARTING.