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SECTION III

EPOCH I HAND HELD TERMINAL AND TROUBLESHOOTING

3.1 INDEX OF HAND HELD TERMINAL ITEMS

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3.2 TROUBLESHOOTING EPOCH I

The first step in troubleshooting the EPOCH I system is to look at the REX panels located on the B6 and B7 panels. These panels will sometimes provide information about the problem. The REX panel has 16 LED indicators in a row grouped by fours. These are shown in figures 3-1 and 3-2. The LED indicators are labeled for their normal operation.

Located on the right-hand side of the LED indicators is a two-digit display. On the B7 panel, this display shows the total number of hall calls in the system. On the B6 panel, this display shows the scan slot location of the car.

The normal function of each of the LED indicators are shown below each LED. The LED's provide information about the system (B7) or car (B6) operation. Some of the uses of the LED's are:

<u>DISCRETE LED'S</u>	<u>PANEL</u>	<u>MEANING</u>
PWBL (Blinking)	B6	Program running OK (Level 83)
TSD (Blinking)	MPM	ETS Stop Occurred
72T (Blinking)	B6	Car Lost - AVP Invalid
AST (Blinking)	B6	CPR Relay Dropped Twice
CAR# (Blinking)	B7	Car in Multicar IR Service

The next step is to check the inputs and outputs. A list by signal name and also a chart by board is provided in this section to be used as a guide in checking the inputs and outputs. A missing input will stop the normal information flow and interrupt the normal operation of the elevator. Therefore, when a misoperation occurs, the I/O's should be checked to find what is missing.

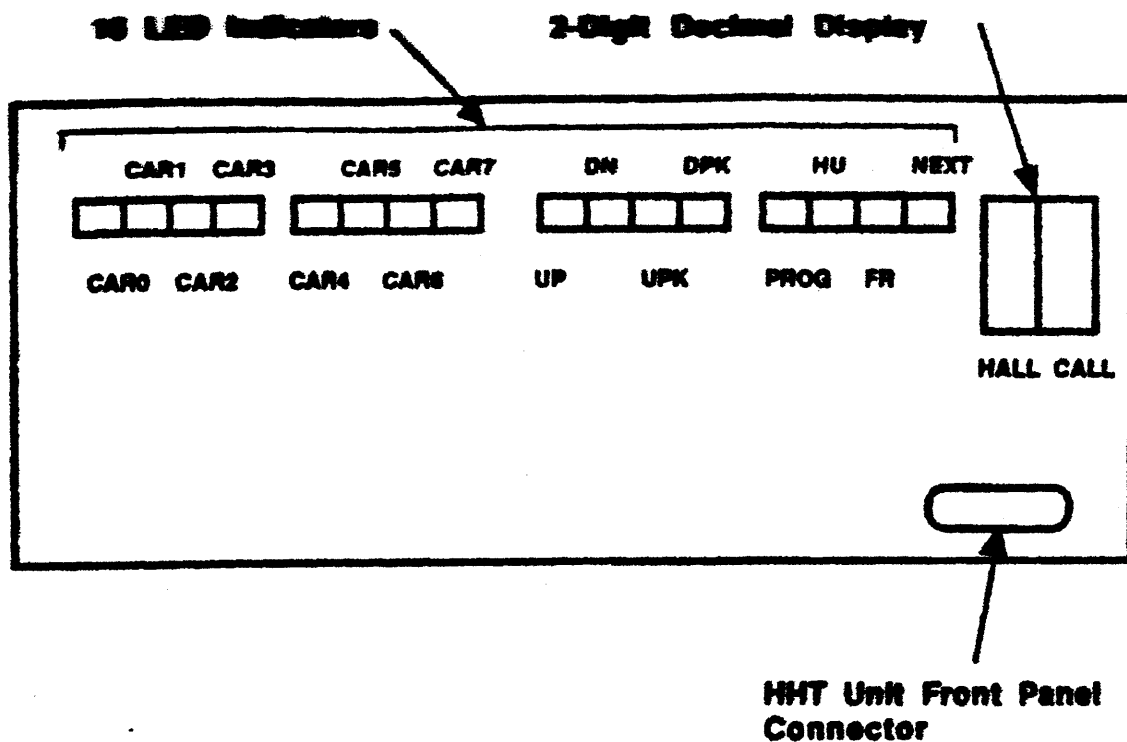


Figure 3-1. B7 Panel - Dispatcher Card Cage REX Panel

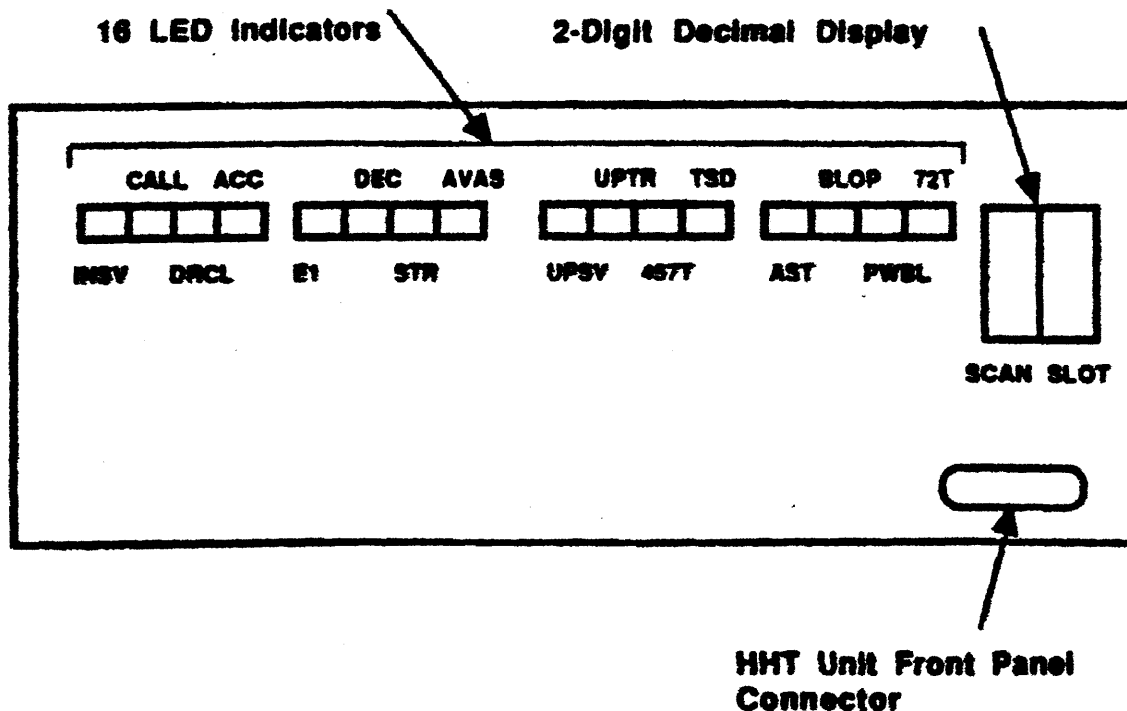


Figure 3-2. B6 Panel - Car Controller Card Cage REX Panel

When a problem occurs, these panels can change from the normal function into a trouble indication panel. The two-digit display can show an error code to provide information about the problem. The error codes and the reason for the code are:

<u>CODE</u>	<u>PANEL</u>	<u>REASON OR DEFAULT</u>
AVP	B6	Default
98	Any	RAM check memory failure. (NOTE: If this stays on, the problem could exist with the RAM expansion module.)
99	Any	Port (I/O Board) initialization failure. (Board missing or programmed incorrectly) the eight LED's to the left of the code give the hexadecimal address of the board (see card cage board address chart on page 3-4).
97	B7	Stuck corridor button. Every 30 seconds the display flashes the code, the direction, and the binary count for the scan slot location of the button.
96	B6	Binary count of lost car runs (8 LH LED's) binary count of 29 drops (8 RH LED's).
95	Any	SBX 351 (Serial Communication Module) initialization failure.
94	B6	SBC 88/25 (8259A or 8253 chips) initialization failure.
93	B6	EPG deadman strobe failure (NOTE: Normally flashes during power up.)
92	B6	Pattern clamp tripped (MPM85).
88	B7	Communications SBC board failure.
CF	B6	Spectrum communications failure.

CARD CAGE BOARD ADDRESS CHART (CONFIGURATION PORT ADDRESS)

B6				B7			
HEX DISPLAY	I/O SLOT	CORRECT ADDRESS		HEX DISPLAY	I/O SLOT	CORRECT ADDRESS	
2B	B	P1-1	P2-2	67	A	P1-3	P2-1
27	C	P1-1	P2-1	63	B	P1-3	P2-0
23	D	P1-1	P2-0	5F	C	P1-2	P2-7
1F	E	P1-0	P2-7	5B	D	P1-2	P2-6
13	H	P1-0	P2-4	57	E	P1-2	P2-5
0F	J	P1-0	P2-3	47	F	P1-2	P2-1
0B	K	P1-0	P2-2	43	H	P1-2	P2-0
07	L	P1-0	P2-1	3F	J	P1-1	P2-7
F3	N	P1-7	P2-4	7B	P	P1-3	P2-6
EF	P	P1-7	P2-3	3B	K	P1-1	P2-6
EB	R	P1-7	P2-2	37	L	P1-1	P2-5
E7	S	P1-7	P2-1	F7	M	P1-7	P2-5
E3	T	P1-7	P2-0	F3	N	P1-7	P2-4

SIGNAL LIST FOR THE B7 DISPATCH PANEL

<u>SIGNAL NAME</u>	<u>SIGNAL DEFINITION</u>	<u>SLOT</u>	<u>PORT NO.</u>	<u>BIT</u>	<u>PIN</u>	<u>FUNCTION</u>
0BU	UP CORR CALL AT - 0	L	B	0	1	INPUT
0BUR	REAR UP CORR CALL AT - 0	E	B	0	1	INPUT
1BD	DN CORR CALL AT - 1	L	B	7	10	INPUT
1BDR	REAR DN CORR CALL AT - 1	E	B	7	10	INPUT
1BU	UP CORR CALL AT - 1	L	B	1	2	INPUT
1BUR	REAR UP CORR CALL AT - 1	E	B	1	2	INPUT
2BD	DN CORR CALL AT - 2	L	C	4	7	INPUT
2BDR	REAR DN CORR CALL AT - 2	E	C	4	7	INPUT
2BU	UP CORR CALL AT - 2	L	B	2	5	INPUT
2BUR	REAR UP CORR CALL AT - 2	E	B	2	5	INPUT
3BD	DN CORR CALL AT - 3	L	C	5	8	INPUT
3BDR	REAR DN CORR CALL AT - 3	E	C	5	8	INPUT
3BU	UP CORR CALL AT - 3	L	B	3	6	INPUT
3BUR	REAR UP CORR CALL AT - 3	E	B	3	6	INPUT

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SIGNAL LIST FOR THE B7 DISPATCH PANEL (CONT)

<u>SIGNAL NAME</u>	<u>SIGNAL DEFINITION</u>	<u>SLOT</u>	<u>PORT NO.</u>	<u>BIT</u>	<u>PIN</u>	<u>FUNCTION</u>
4BD	DN CORR CALL AT - 4	L	C	6	9	INPUT
4BDR	REAR DN CORR CALL AT - 4	E	C	6	9	INPUT
4BU	UP CORR CALL AT - 4	L	B	4	7	INPUT
4BUR	REAR UP CORR CALL AT - 4	E	B	4	7	INPUT
5BD	DN CORR CALL AT - 5	L	C	7	10	INPUT
5BDR	REAR DN CORR CALL AT - 5	E	C	7	10	INPUT
5BU	UP CORR CALL AT - 5	L	B	5	8	INPUT
5BUR	REAR UP CORR CALL AT - 5	E	B	5	8	INPUT
C00	CUTOUT - 0	P	B	0	1	INPUT
C01	CUTOUT - 1	P	B	1	2	INPUT
C02	CUTOUT - 2	P	B	2	5	INPUT
C03	CUTOUT - 3	P	B	3	6	INPUT
C04	CUTOUT - 4	P	B	4	7	INPUT
C05	CUTOUT - 5	P	B	5	8	INPUT
C06	CUTOUT - 6	P	B	6	9	INPUT
C07	CUTOUT - 7	P	B	7	10	INPUT
C08	CUTOUT - 8	P	C	0	1	OUTPUT
C09	CUTOUT - 9	P	C	1	2	OUTPUT
C10	CUTOUT - 10	P	C	2	5	OUTPUT
C11	CUTOUT - 11	P	C	3	6	OUTPUT
C12	CUTOUT - 12	P	C	4	7	INPUT
C13	CUTOUT - 13	P	C	5	8	INPUT
C14	CUTOUT - 14	P	C	6	9	INPUT
C15	CUTOUT - 15	P	C	7	10	INPUT
DPOV1	ENABLE EMER PWR MANUAL OVERRIDE FEEDER 1	M	A	0	1	OUTPUT
DPOV2	ENABLE EMER PWR MANUAL OVERRIDE FEEDER 2	M	A	1	2	OUTPUT
KATSUM	BANK ATT SERVICE INPUT	M	B	0	1	INPUT
KBT1	BANK TRANSFER INPUT FROM OTHER BANK FEEDER 1	M	C	6	9	INPUT
KBT2	BANK TRANSFER INPUT FROM OTHER BANK FEEDER 2	M	C	7	10	INPUT
KCA00	CARDIAC ARREST FLOOR - 0	N	B	0	1	INPUT
KCA01	CARDIAC ARREST FLOOR - 1	N	B	1	2	INPUT
KCA02	CARDIAC ARREST FLOOR - 2	N	B	2	5	INPUT
KCA03	CARDIAC ARREST FLOOR - 3	N	B	3	6	INPUT
KCA04	CARDIAC ARREST FLOOR - 4	N	B	4	7	INPUT
KCA05	CARDIAC ARREST FLOOR - 5	N	B	5	8	INPUT

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SIGNAL LIST FOR THE B7 DISPATCH PANEL (CONT)

<u>SIGNAL NAME</u>	<u>SIGNAL DEFINITION</u>	<u>SLOT</u>	<u>PORT NO.</u>	<u>BIT</u>	<u>PIN</u>	<u>FUNCTION</u>
KCA06	CARDIAC ARREST FLOOR - 6	N	B	6	9	INPUT
KCA07	CARDIAC ARREST FLOOR - 7	N	B	7	10	INPUT
KLOB1	SHIFTING/DUAL LOBBY INPUT FLOOR 1	M	B	6	9	INPUT
KLOB2	SHIFTING/DUAL LOBBY INPUT FLOOR 2	M	B	7	10	INPUT
KPOV1	EMP PWR MANUAL OVERRIDE SW FEEDER 1	M	C	4	7	INPUT
KPOV2	EMP PWR MANUAL OVERRIDE SW FEEDER 2	M	C	5	8	INPUT
KPRD	HIGH PRIORITY FLR/MP FLOOR INPUT	M	B	1	2	INPUT
KPWR1	PREWARNING EMP PWR TRANSFER FEEDER 1	M	C	2	5	INPUT
KPWR2	PREWARNING EMP PWR TRANSFER FEEDER 2	M	C	3	6	INPUT
KRST	RESTAURANT FEATURE SW	N	C	5	8	OUTPUT
L0BU	UP CRL LATCH AT - 0	L	A	0	1	OUTPUT
L0BUR	REAR UP CRL LATCH AT - 0	E	A	0	1	OUTPUT
L1BD	DN CRL LATCH AT - 1	L	A	7	10	OUTPUT
L1BDR	REAR DN CALL LATCH AT - 1	E	A	7	10	OUTPUT
L1BU	UP CRL LATCH AT - 1	L	A	1	2	OUTPUT
L1BUR	REAR UP CRL LATCH AT - 1	E	A	1	2	OUTPUT
L2BD	DN CRL LATCH AT - 2	L	C	0	1	OUTPUT
L2BDR	REAR DN CRL LATCH AT - 2	E	C	0	1	OUTPUT
L2BU	UP CRL LATCH AT - 2	L	A	2	3	OUTPUT
L2BUR	REAR UP CRL LATCH AT - 2	E	A	2	3	OUTPUT
L3BD	DN CRL LATCH AT - 3	L	C	1	2	OUTPUT
L3BDR	REAR DN CRL LATCH AT - 3	E	C	1	2	OUTPUT
L3BU	UP CRL LATCH AT - 3	L	A	3	4	OUTPUT
L3BUR	REAR UP CRL LATCH AT - 3	E	A	3	4	OUTPUT
L4BD	DN CRL LATCH AT - 4	L	C	2	3	OUTPUT
L4BDR	REAR DN CRL LATCH AT - 4	E	C	2	3	OUTPUT
L4BU	UP CRL LATCH AT - 4	L	A	4	5	OUTPUT
L4BUR	REAR UP CRL LATCH AT - 4	E	A	4	5	OUTPUT
L5BD	DN CRL LATCH AT - 5	L	C	3	4	OUTPUT
L5BDR	REAR DN CRL LATCH AT - 5	E	C	3	4	OUTPUT
L5BU	UP CRL LATCH AT - 5	L	A	5	6	OUTPUT
L5BUR	REAR UP CRL LATCH AT - 5	E	A	5	6	OUTPUT
MBT1	EMER PWR BANK TRNSFR OTPT TO OTHER BANK FDR 1	M	A	2	3	OUTPUT
MBT2	EMER PWR BANK TRNSFR OTPT TO OTHER BANK FDR 2	M	A	3	4	OUTPUT
MEMF	MID FLR EXTENSION SW AT MAIN FLOOR	M	B	4	7	INPUT

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SIGNAL LIST FOR THE B7 DISPATCH PANEL (CONT)

<u>SIGNAL NAME</u>	<u>SIGNAL DEFINITION</u>	<u>SLOT</u>	<u>PORT NO.</u>	<u>BIT</u>	<u>PIN</u>	<u>FUNCTION</u>
MRST	RESTAURANT/MAIN FLOOR BUTTON	N	C	7	10	OUTPUT
PBC	PUSHBUTTON COM FEED/TELL CPU CORR FEED IS ON	L	B	6	9	INPUT
RRST	RESTAURANT FLOOR BUTTON	N	C	6	9	OUTPUT
SBMF	SUBBASEMENT SW AT MAIN FLOOR	M	B	5	8	INPUT
TEMF	TOP FLR EXTENSION SW AT MAIN FLOOR	M	B	3	6	INPUT
UTEMF	UPPER TOP FLR EXTENSION SW AT MAIN FLOOR	M	B	2	5	INPUT

SIGNAL LIST FOR THE B6 CAR CONTROLLER

ö = Low True Signal
 @ = 1C2BC Controller Only

<u>SIGNAL NAME</u>	<u>SIGNAL DEFINITION</u>	<u>SLOT</u>	<u>PORT NO.</u>	<u>BIT</u>	<u>PIN</u>	<u>FUNCTION</u>
0B	FRONT CAR CALL AT - 0	L	B	0	1	INPUT
0BR	REAR CAR CALL AT - 0	E	B	0	1	INPUT
1B	FRONT CAR CALL AT - 1	L	B	1	2	INPUT
1BR	REAR CAR CALL AT - 1	E	B	1	2	INPUT
2B	FRONT CAR CALL AT - 2	L	B	2	5	INPUT
2BR	REAR CAR CALL AT - 2	E	B	2	5	INPUT
3B	FRONT CAR CALL AT - 3	L	B	3	6	INPUT
3BR	REAR CAR CALL AT - 3	E	B	3	6	INPUT
4B	FRONT CAR CALL AT - 4	L	B	4	7	INPUT
4BR	REAR CAR CALL AT - 4	E	B	4	7	INPUT
5B	FRONT CAR CALL AT - 5	L	B	5	8	INPUT
5BR	REAR CAR CALL AT - 5	E	B	5	8	INPUT
6B	FRONT CAR CALL AT - 6	L	B	6	9	INPUT
6BR	REAR CAR CALL AT - 6	E	B	6	9	INPUT
7B	FRONT CAR CALL AT - 7	L	B	7	10	INPUT
7BR	REAR CAR CALL AT - 7	E	B	7	10	INPUT
AVP0	ADVANCED CAR POSITION IN BINARY BIT 0	T	A	0	1	OUTPUT
AVP1	ADVANCED CAR POSITION IN BINARY BIT 1	T	A	1	2	OUTPUT
AVP2	ADVANCED CAR POSITION IN BINARY BIT 2	T	A	2	3	OUTPUT
AVP3	ADVANCED CAR POSITION IN BINARY BIT 3	T	A	3	4	OUTPUT
AVP4	ADVANCED CAR POSITION IN BINARY BIT 4	T	A	4	5	OUTPUT
AVP5	ADVANCED CAR POSITION IN BINARY BIT 5	T	A	5	6	OUTPUT

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SIGNAL LIST FOR THE B6 CAR CONTROLLER (CONT)

<u>SIGNAL NAME</u>	<u>SIGNAL DEFINITION</u>	<u>SLOT</u>	<u>PORT NO.</u>	<u>BIT</u>	<u>PIN</u>	<u>FUNCTION</u>
RDOD	REAR DOOR OPEN BUTTON CUTOUT	N	A	6	9	OUTPUT
CLD	CAB LANTERN DOWN	P	A	4	5	OUTPUT
CLU	CAB LANTERN UP	P	A	3	4	OUTPUT
D44	DOOR MASTER 0=OPEN 1=CLOSE (44 RELAY)	S	A	5	6	OUTPUT
D44R	REAR DOOR MASTER 0=OPEN 1=CLOSE (44R RELAY)	P	A	5	6	OUTPUT
DADA ₅	DOWN DIRECTION ARROW	T	A	7	10	OUTPUT
DATGO	A.S. DEMAND GONG	R	A	6	9	OUTPUT
DAUA ₅	UP DIRECTION ARROW	T	A	6	9	OUTPUT
DAVAS	AVAILABLE LIGHT	N	A	3	4	OUTPUT
DBELL	HANDYCAP BELL (PASSING TONE)	R	A	0	1	OUTPUT
DBUZ	FIRE & NUDGING BUZZER	R	A	4	5	OUTPUT
DBYPS	BYPASS LIGHT	N	A	2	3	OUTPUT
DCLK	PROVIDE CLOCK PULSE ON DDD BOARD	T	C	0	1	OUTPUT
DD	A.S. DOWN DEMAND, ACTIVATES LIGHT ON DN BUTTON	R	A	2	3	OUTPUT
DEMP	SELECTED CAR TO RUN ON EMERGENCY POWER	S	A	6	9	OUTPUT
DFEMC	ENERGIZES FEMC RELAY (FIRE SERVICE)	S	A	4	5	OUTPUT
DFR1	ENERGIZES FR1 RELAY (FULL FIELD STRENGTH)	S	A	0	1	OUTPUT
DFRL	FIRE SERVICE LIGHT	R	A	3	4	OUTPUT
DGD	ESTABLISH DOWN DIRECTION	S	A	3	4	OUTPUT
DGU	ESTABLISH UP DIRECTION	S	A	2	3	OUTPUT
DHD	HEAVY DOOR FLOOR DRIVER	P	A	6	9	OUTPUT
DINSV	INSERVICE LIGHT	N	A	4	5	OUTPUT
DL2	ESTABLISH RUN CONDITIONS (L2)	S	A	1	2	OUTPUT
DLG	TURNS ON CAB FAN & LIGHTS	R	A	5	6	OUTPUT
DMD	SELECT PARALLEL/SERIAL DATA	T	C	2	3	OUTPUT
DMGS	STARTS MG SET	R	A	7	10	OUTPUT
DNUDG	FRONT DOOR ON NUDGING	S	A	7	10	OUTPUT
DNUDGR	REAR DOOR ON NUDGING	P	A	7	10	OUTPUT
DPOU@	ENABLES MANUAL OVERRIDE (EMERG. POWER)	N	A	0	1	OUTPUT
DSP	CONTROL LOADING PARALLEL/SERIAL DATA	T	C	1	2	OUTPUT
DU	A.S. UP DEMAND, ACTIVATES LIGHT ON UP BUTTON	R	A	1	2	OUTPUT
EMS	EARTHQUAKE EXPRESS ZONE STOP	N	A	7	10	OUTPUT
FDOD	DOOR OPEN BUTTON CUTOUT	N	A	5	6	OUTPUT
K1	UP DIRECTION HAS BEEN ESTABLISHED	T	B	1	2	INPUT
K2	DOWN DIRECTION HAS BEEN ESTABLISHED	T	B	2	5	INPUT

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SIGNAL LIST FOR THE B6 CAR CONTROLLER (CONT)

<u>SIGNAL NAME</u>	<u>SIGNAL DEFINITION</u>	<u>SLOT</u>	<u>PORT NO.</u>	<u>BIT</u>	<u>PIN</u>	<u>FUNCTION</u>
K9	RELAY 9 IS ENERGIZED (MG IS ON)	R	C	4	7	INPUT
K29	SAFETY CIRCUIT COMPLETED	S	B	5	8	INPUT
K32L	CAR IS RUNNING (RESETS 457T TIMER IN SOFTWARE)	S	B	4	7	INPUT
K40	FRONT CAR GATE CONTACT	R	B	4	7	INPUT
K40R	REAR CAR GATE CONTACT	P	B	4	7	INPUT
K41	FRONT HATCH DOOR LOCKS	R	B	5	8	INPUT
K41R	REAR HATCH DOOR LOCKS	P	B	5	8	INPUT
K43	FRONT DOOR IS CLOSING	R	B	6	9	INPUT
K43R	REAR DOOR IS CLOSING	P	B	6	9	INPUT
K44	FRONT DOOR IS OPENING	R	B	7	10	INPUT
K44R	REAR DOOR IS OPENING	P	B	7	10	INPUT
K50s	50% LOAD WEIGHTING SW (0 \geq 50% LOAD 1<50% LOAD)	S	C	0	1	INPUT
K55	GOV. OVERSPEED OR LOSS OF PHAZE (PDS)	R	C	5	8	INPUT
K5K	EMERGENCY POWER IS AVAILABLE	S	B	6	9	INPUT
K60	CAR ON AUTOMATIC OPERATION	T	B	0	1	INPUT
K75s	75% LOAD WEIGHTING SW (0 \geq 75% LOAD 1<75% LOAD)	S	C	1	2	INPUT
K980M	TDS & CONTROL INSERVICE SWITCHES ARE ON	S	C	3	6	INPUT
KA	BRAKE IS SET	S	B	1	2	INPUT
KATSV	ACTIVATES A.S. OPERATION	N	C	0	1	INPUT
KBATT	MONITOR BATTERY CONDITION	T	C	7	10	INPUT
KBEAM	FRONT TRAFFIC SENTINEL BEAM IS ESTABLISHED	R	C	1	2	INPUT
KBEAMR	REAR TRAFFIC SENTINEL BEAM IS ESTABLISHED	P	C	1	2	INPUT
KBOTs	SELECTOR RESET 12' FROM BOTTON TERMINAL FLOOR	S	C	7	10	INPUT
KBT@	BANK TRANSFER INPUT FROM OTHER BANK	N	B	1	2	INPUT
KCLS	EARTHQUAKE OPERATION - COLLISION SW	N	C	7	10	INPUT
KCPR	CONTROL PROTECTION RELAY	R	C	3	6	INPUT
KCTR	SERIAL DATA INPUT	T	C	5	8	INPUT
KD	A.S. DN BTN INPUT (CLOSES DOOR OUT OF SERVICE)	S	C	5	8	INPUT
KDIR	DIRECTION INPUT FROM DDD UP=1 DN=0	T	C	4	7	INPUT
KDPO	FRONT DOOR POWER ON	R	B	2	5	INPUT
KDPOR	REAR DOOR POWER ON	P	B	2	5	INPUT
KECD	EARTHQUAKE OPERATION - CWT DERAILMENT SW	N	C	6	9	INPUT
KEMP	CAR IS SELECTED TO RUN ON EMERGENCY POWER	S	B	7	10	INPUT
KESD	EARTHQUAKE OPERATION - SEISMIC SW ACTIVATED	N	C	2	5	INPUT
KEZL	EARTHQUAKE OPERATION - LOWER ZONE SW	N	C	3	6	INPUT

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SIGNAL LIST FOR THE B6 CAR CONTROLLER (CONT)

<u>SIGNAL NAME</u>	<u>SIGNAL DEFINITION</u>	<u>SLOT</u>	<u>PORT NO.</u>	<u>BIT</u>	<u>PIN</u>	<u>FUNCTION</u>
KEZM	EARTHQUAKE OPERATION - MID SONE SW	N	C	5	8	INPUT
KEZU	EARTHQUAKE OPERATION - UPPER ZONE SW	N	C	4	7	INPUT
KFCR	FIREMANS CAR CALL CANCEL BUTTON	P	C	7	10	INPUT
KFDC	FIREMANS FRONT DOOR CLOSE BUTTON	P	C	6	9	INPUT
KFDCR	FIREMANS REAR DOOR CLOSE BUTTON	P	C	2	5	INPUT
KFEM	FIREMANS SERVICE PHASE 1	S	B	0	1	INPUT
KFEMCM	FIREMANS SERVICE PHASE 2	S	B	2	5	INPUT
KHCS	HANDYCAP ONE TRIP OPERATION BUTTON	R	C	7	10	INPUT
KHEM	HOSPITAL EMERGENCY OPERATION	S	C	2	5	INPUT
KHOLD	FIREMANS DOOR HOLD PHASE 2	S	B	3	6	INPUT
KINT	PULSE TO INDICATE EVERY 1/4" OF CAR MOVEMENT	T	C	6	9	INPUT
KIR880	ACTIVATES I.R. OPERATION	N	C	1	2	INPUT
KL2	SAFE TO RUN FULL SPEED	T	B	5	8	INPUT
KLD	LEVEL DOWN	T	B	6	9	INPUT
KLDO	FIRE SERVICE LOBBY DOOR OPEN BUTTON	P	B	0	1	INPUT
KLU	LEVEL UP	T	B	4	7	INPUT
KPARK®	ACTIVATES PARKING FEATURE	P	C	5	8	INPUT
KPASS	ATTENDANT BYPASS BUTTON	P	C	4	7	INPUT
KPOU®	EMER PWR MANUAL OVERRIDE SW ACTIVATED	N	B	2	3	INPUT
KPWR®	WARNING SIGNAL PRIOR TO EM PWR TRANSFER	N	B	0	1	INPUT
KSDL	SMOKE DETECTOR AT LOBBY (ALT FLOOR SIGNAL)	R	B	0	1	INPUT
KSDM	SAVED DATA	R	C	2	5	INPUT
KSTE	FRONT DOOR OPEN BUTTON/SAF-T-EDGE	R	B	3	6	INPUT
KSTER®	REAR DOOR OPEN BUTTON/SAF-T-EDGE	P	B	3	6	INPUT
KTOP®	SELECTOR RESET 12" FROM TOP TERMINAL FLOOR	S	C	6	9	INPUT
KTS	FRONT TRAFFIC SENTINEL POWER IS ON	R	C	0	1	INPUT
KTSD1	TERMINAL SLOWDOWN - HIGH SPEED PT (always used)	T	B	3	6	INPUT
KTSD2	TERMINAL SLOWDOWN - LOW SPEED PT (on 2 pt only)	T	B	7	10	INPUT
KTSLDP		R	B	1	2	INPUT
KTSLT	FRONT DOOR TSLT SW (LAST 2" OF FULL OPEN = 1)	R	C	6	9	INPUT
KTSLTR®	REAR DOOR TSLT SWITCH (LAST 2" OF FULL OPEN = 1)	P	C	3	6	INPUT
KTSR	REAR TRAFFIC SENTINEL POWER IS ON	P	C	0	1	INPUT
KU	A.S. UP BTN INPUT (CLOSES DOOR OUT OF SERVICE)	S	C	4	7	INPUT
LOB	FRONT CAR CALL LATCH AT - 0	L	C	0	1	OUTPUT
LOBR	REAR CAR CALL LATCH AT - 0	E	C	0	1	OUTPUT

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SIGNAL LIST FOR THE B6 CAR CONTROLLER (CONT)

<u>SIGNAL NAME</u>	<u>SIGNAL DEFINITION</u>	<u>SLOT</u>	<u>PORT NO.</u>	<u>BIT</u>	<u>PIN</u>	<u>FUNCTION</u>
L1B	FRONT CAR CALL LATCH AT - 1	L	C	1	2	OUTPUT
L1BR	REAR CAR CALL LATCH AT - 1	E	C	1	2	OUTPUT
L2B	FRONT CAR CALL LATCH AT - 2	L	C	2	3	OUTPUT
L2BR	REAR CAR CALL LATCH AT - 2	E	C	2	3	OUTPUT
L3B	FRONT CAR CALL LATCH AT - 3	L	C	3	4	OUTPUT
L3BR	REAR CAR CALL LATCH AT - 3	E	C	3	4	OUTPUT
L4B	FRONT CAR CALL LATCH AT - 4	L	C	4	5	OUTPUT
L4BR	REAR CAR CALL LATCH AT - 4	E	C	4	5	OUTPUT
L5B	FRONT CAR CALL LATCH AT - 5	L	C	5	6	OUTPUT
L5BR	REAR CAR CALL LATCH AT - 5	E	C	5	6	OUTPUT
L6B	FRONT CAR CALL LATCH AT - 6	L	C	6	9	OUTPUT
L6BR	REAR CAR CALL LATCH AT - 6	E	C	6	9	OUTPUT
L7B	FRONT CAR CALL LATCH AT - 7	L	C	7	10	OUTPUT
L7BR	REAR CAR CALL LATCH AT - 7	E	C	7	10	OUTPUT
LD03	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	L	A	1	2	OUTPUT
LD03R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	E	A	1	2	OUTPUT
LD07	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	L	A	3	4	OUTPUT
LD07R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	E	A	3	4	OUTPUT
LU03	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	L	A	0	1	OUTPUT
LU03R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	E	A	0	1	OUTPUT
LU07	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	L	A	2	3	OUTPUT
LU07R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	E	A	2	3	OUTPUT
MBTe	TRANSFER EMER POWER OPER. TO ANOTHER BANK	N	A	1	2	OUTPUT
PH00	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	L	A	4	5	OUTPUT
PH00R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	E	A	4	5	OUTPUT
PH01	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	L	A	5	6	OUTPUT
PH01R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	E	A	5	6	OUTPUT
PH02	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	L	A	6	9	OUTPUT
PH02R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	E	A	6	9	OUTPUT
PH03	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	L	A	7	10	OUTPUT
PH03R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS	E	A	7	10	OUTPUT
SYA	SYNCRO DIAL DRIVER LINE A	P	A	0	1	OUTPUT
SYB	SYNCRO DIAL DRIVER LINE B	P	A	1	2	OUTPUT
SYC	SYNCRO DIAL DRIVER LINE C	P	A	2	3	OUTPUT

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LOGON MODE

DISPLAY WHEN HHT IS SEATED
INTO REX PANEL

TIME TO LOCK OUT
5 MONTHS
30 DAYS

PRESS THE ORANGE LOGON KEY

DISPLAY SHOWS
ENTER THE GO #

LOGON
COPYRIGHT 1983
WESTINGHOUSE ALL
RIGHTS RESERVED

PRESS THE ORANGE ENTER KEY

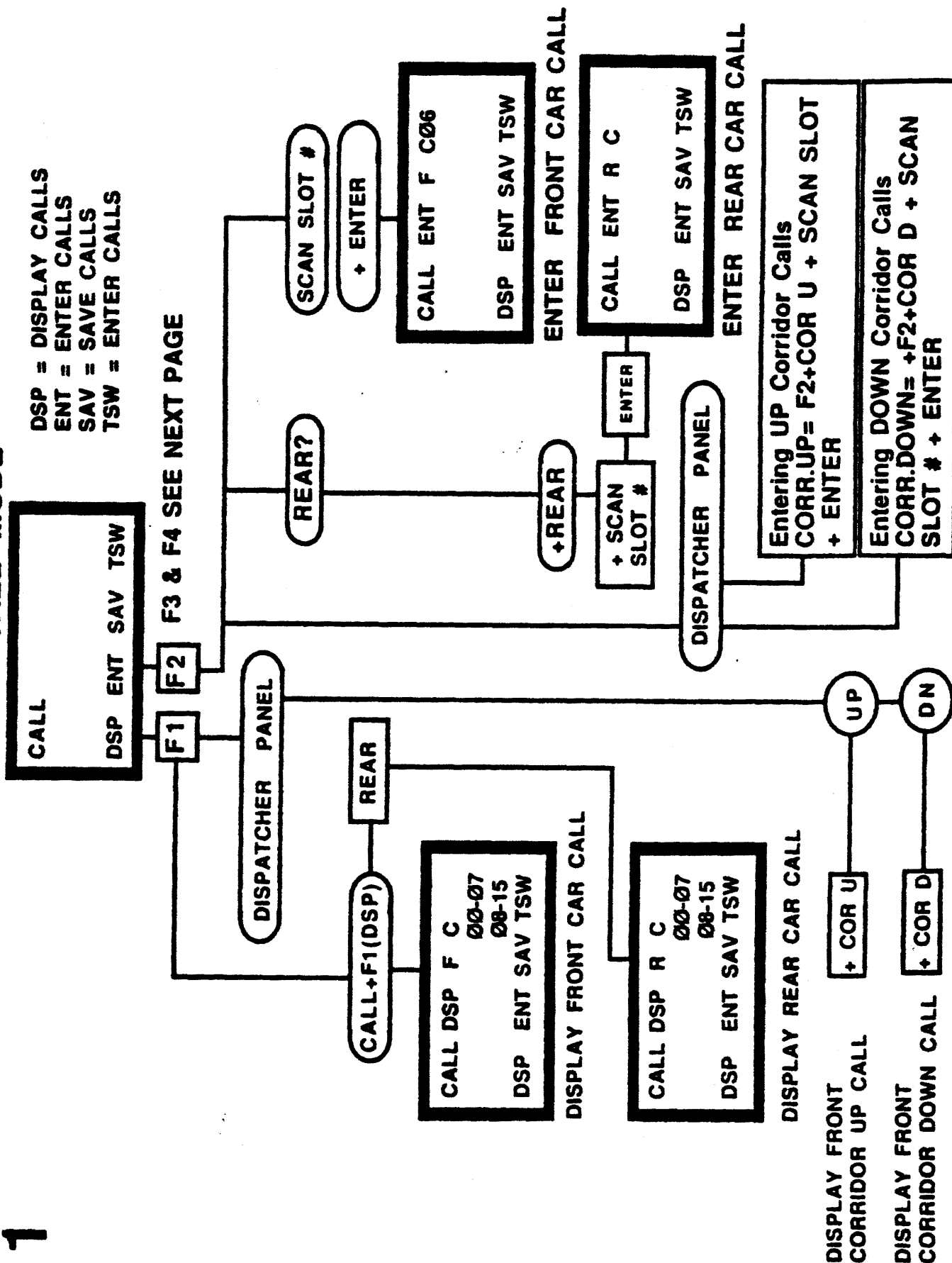
DISPLAY SHOWS

HHT CONNECTED
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EPOCH 1 - CALL MODE



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EPOCH 1 - CALL MODE

CALL
DSP ENT SAV TSW

DSP = DISPLAY CALLS
 ENT = ENTER CALLS
 SAV = SAVE CALLS
 TSW = ENTER CALLS

F1 & F2 SEE PREVIOUS PAGE

F3

F4

NOTE: These two functions work together.

CALL SAV F C TSW TBLS CLEARED DSP ENT SAV TSW

CALL TSW CALLS ENTERED DSP ENT SAV TSW
--

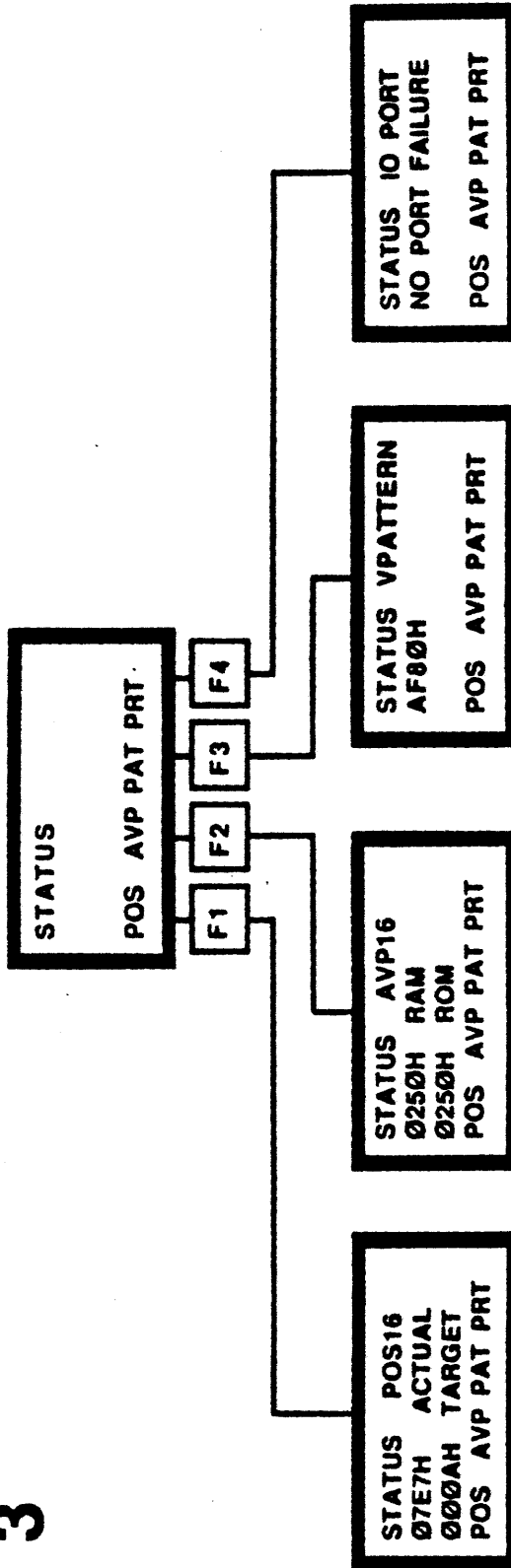
Function F3 allows a user to save a pattern of calls in the call table but not have them activated until desired. The calls will remain in the table as long as the user does not change modes or depress the F3 key again. The default mode is front car calls. To select rear car calls, depress the rear key.

To SAV a pattern of calls, depress the F3 key. Line one will contain the message CALL SAV F C. This indicates that the user is in the call save function of the call mode and will be entering front calls. When each call selection is made, the C will be replaced by the call after the ENTER key is depressed. The second line will contain the words TSW TABLES CLEARED. This indicates that any previous call pattern has been erased. F4 enters the calls.

To download into the system the calls saved in the table under F3, press key F4 underneath the letters TSW. When this is done, the car will immediately respond to the calls.

EPOCH I - STATUS MODE

3



Actual car position count in hexadecimal from the governor wheel. Line 3 gives the target the car is running toward.

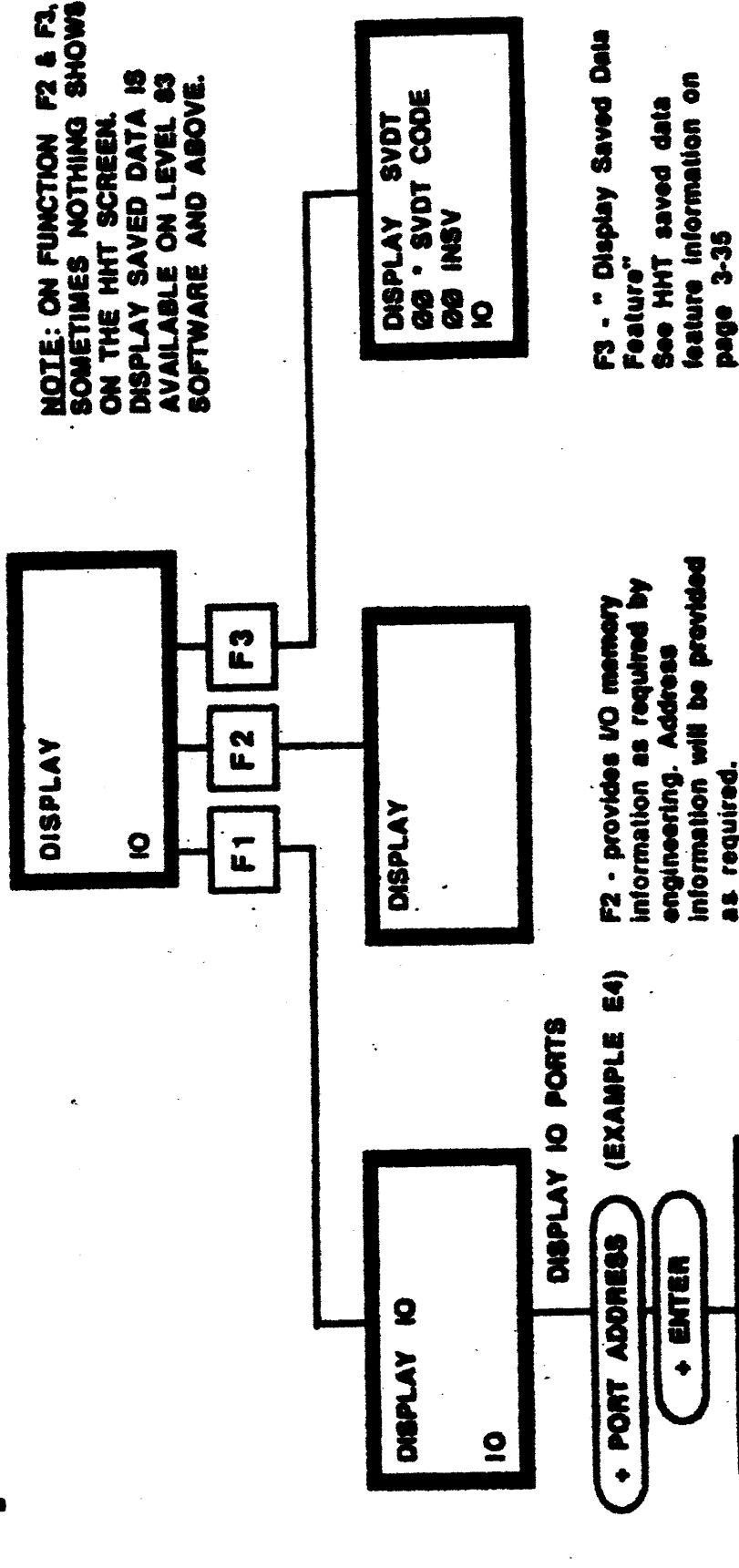
RAM - Random Access Memory. This is the value of the floor heights stored as a result of a floor height update. (Note: If logic is turned off, this reverts to ROM.)

ROM - Read Only Memory. This is the floor heights stored in the COE PROM. New PROMS should be burned if difference is greater than 5 or 6 counts.

This is the input to the digital to analog converter on the MGI board and can be used to monitor the hexadecimal value of the pattern at any given moment. This value can be converted to the expected FPM by taking the MSB and multiplying it by 16, then taking the next most significant bit, multiplying it by 1, adding the two numbers then multiplying them by 2. For example, the pattern reads AF80. A or 10 times 16 equals 160. F or 15 times 16 equals 240. 160 plus 240 equals 400. AF80 is the pattern for 350 FPM.

This screen gives the address of the last port failure, if there has been one. To check on the port, use Display Mode + F1 + port address. List of port addresses & pin assignments are included. See pages 3-5 to 3-12 and 3-19 to 3-34.

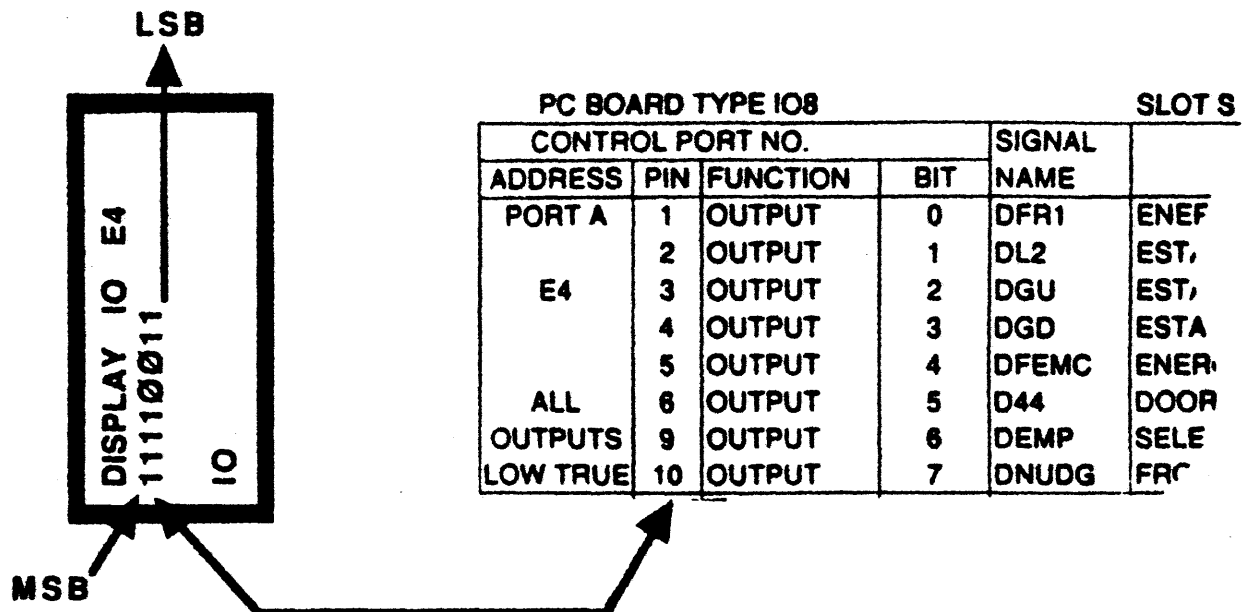
EPOCH I - DISPLAY MODE



Displays 8 bits of each port. Input ports are high true signals. Output ports are low true signals. Port listing included in this section. See pages 3-5 to 3-12 and 3-19 to 3-34.

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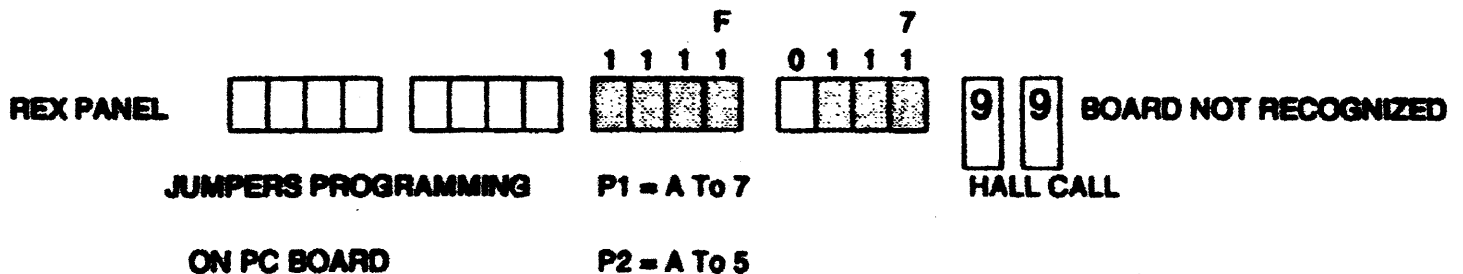
HAND HELD TERMINALI/O SIGNAL CHART

To use the I/O signal, turn the display at a right angle to the chart and read direct as shown. On the chart, the MSB is bit 7 and the LSB is bit 0. On the HHT display, the MSB is on the left and the LSB is on the right.

**I/O SIGNAL DEFINITION EPOCH I
AS ASSIGNED TO MPG 87
GROUP PROCESSOR**

PC BOARD TYPE IO8				SLOT M	
CONTROL PORT NO.				SIGNAL	SIGNAL DEFINITION
ADDRESS	PIN	FUNCTION	BIT	NAME	
PORT A F4 ALL OUTPUTS LOW TRUE	1	OUTPUT	0	DP0V1	ENABLE EMER PWR MANUAL OVERRIDE FEEDER 1
	2	OUTPUT	1	DP0V2	ENABLE EMER PWR MANUAL OVERRIDE FEEDER 2
	3	OUTPUT	2	MBT1	EMER PWR BANK TRANSFR TO OTHER BANK FDR 1
	4	OUTPUT	3	MBT2	EMER PWR BANK TRANSFR TO OTHER BANK FDR 2
	5		4		
	6		5		
	9		6		
	10		7		
PORT B F5	1	INPUT	0	KATSUM	BANK ATT SERVICE INPUT
	2	INPUT	1	KPRD	HIGH PRIORITY FLR/VIP FLOOR INPUT
	5	INPUT	2	UTEMF	UPPER TOP FLR EXTENSION SW AT MAIN FLOOR
	6	INPUT	3	TEMF	TOP FLR EXTENSION SW AT MAIN FLOOR
	7	INPUT	4	MEMF	MID FLR EXTENSION SW AT MAIN FLOOR
	8	INPUT	5	SBMF	SUBBASEMENT SW AT MAIN FLOOR
	9	INPUT	6	KLOB1	SHIFTING/DUAL LOBBY INPUT FLOOR 1
	10	INPUT	7	KLOB2	SHIFTING/DUAL LOBBY INPUT FLOOR 2
PORT C F6	1		0		
	2		1		
	5	INPUT	2	KPWR1	PREWARNING EMP PWR TRANSFER FEEDER 1
	6	INPUT	3	KPWR2	PREWARNING EMP PWR TRANSFER FEEDER 2
	7	INPUT	4	KPOV1	EMP PWR MANUAL OVERRIDE SW FEEDER 1
	8	INPUT	5	KPOV2	EMP PWR MANUAL OVERRIDE SW FEEDER 2
	9	INPUT	6	KBT1	BANK TRANSFER INPUT FROM OTHER BANK FEEDER 1
	10	INPUT	7	KBT2	BANK TRANSFER INPUT FROM OTHER BANK FEEDER 2

CONFIGURATION PORT ADDRESS = F7



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**I/O SIGNAL DEFINITION
AS ASSIGNED TO ATM (B7) GROUP PROCESSOR
CONTROL PORT NUMBER**

PC BOARD TYPE 102

CONTROL PORT NO.			CONFIGURATION PORT**			FUNCTION
A	B	C	ADDRESS	P1	P2	
34	35	36	37	1	5	FRONT UP/DN CAR CALL 0 TO 5
38	39	3A	3B	1	6	FRONT UP/DN CAR CALL 6 TO 11
3C	3D	3E	3F	1	7	FRONT UP/DN CAR CALL 12 TO 17
40	41	42	43	2	0	FRONT UP/DN CAR CALL 18 TO 23
44	45	46	47	2	1	FRONT UP/DN CAR CALL 24 TO 29
48	49	4A	4B	2	2	FRONT UP/DN CAR CALL 30 TO 35
4C	4D	4E	4F	2	3	FRONT UP/DN CAR CALL 36 TO 41
50	51	52	53	2	4	FRONT UP/DN CAR CALL 42 TO 47
04	05	06	07	0	1	FRONT UP/DN CAR CALL 48 TO 53
08	09	0A	0B	0	2	FRONT UP/DN CAR CALL 54 TO 59
0C	0D	0E	0F	0	3	FRONT UP/DN CAR CALL 60 TO 65

* REFER TO DETAIL I/O SIGNAL DEFINITION FOR FLOORS 0 TO 5

** ADDRESS = CONFIGURATION PORT ADDRESS

P1 = JUMPER PROGRAMMING ON PC BOARD

P2 = JUMPER PROGRAMMING ON PC BOARD

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**I/O SIGNAL DEFINITION EPOCH I
AS ASSIGNED TO MPG B7
GROUP PROCESSOR**

PC BOARD TYPE IO2				SLOT E	
CONTROL PORT NO.				SIGNAL	SIGNAL DEFINITION
ADDRESS	PIN	FUNCTION	BIT	NAME	
PORT A 54 ALL OUTPUTS LOW TRUE	1	OUTPUT	0	L0BUR	REAR UP CRL LATCH AT - 0
	2	OUTPUT	1	L1BUR	REAR UP CRL LATCH AT - 1
	3	OUTPUT	2	L2BUR	REAR UP CRL LATCH AT - 2
	4	OUTPUT	3	L3BUR	REAR UP CRL LATCH AT - 3
	5	OUTPUT	4	L4BUR	REAR UP CRL LATCH AT - 4
	6	OUTPUT	5	L5BUR	REAR UP CRL LATCH AT - 5
	9		6		
	10	OUTPUT	7	L1BDR	REAR DN CALL LATCH AT - 1
PORT B 55	1	INPUT	0	0BUR	REAR UP CORR CALL AT - 0
	2	INPUT	1	1BUR	REAR UP CORR CALL AT - 1
	5	INPUT	2	2BUR	REAR UP CORR CALL AT - 2
	6	INPUT	3	3BUR	REAR UP CORR CALL AT - 3
	7	INPUT	4	4BUR	REAR UP CORR CALL AT - 4
	8	INPUT	5	5BUR	REAR UP CORR CALL AT - 5
	9		6		
	10	INPUT	7	1BDR	REAR DN CORR CALL AT - 1
PORT C 56	1	OUTPUT	0	L2BDR	REAR DN CRL LATCH AT - 2
	2	OUTPUT	1	L3BDR	REAR DN CRL LATCH AT - 3
	3	OUTPUT	2	L4BDR	REAR DN CRL LATCH AT - 4
	4	OUTPUT	3	L5BDR	REAR DN CRL LATCH AT - 5
	7	INPUT	4	2BDR	REAR DN CORR CALL AT - 2
	8	INPUT	5	3BDR	REAR DN CORR CALL AT - 3
	9	INPUT	6	4BDR	REAR DN CORR CALL AT - 4
	10	INPUT	7	5BDR	REAR DN CORR CALL AT - 5

CONFIGURATION PORT ADDRESS = 57

5 7

0 1 0 1 0 1 1 1

REX PANEL ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ BOARD NOT RECOGNIZED

JUMPERS PROGRAMMING P1 = A To 2 HALL CALL

ON PC BOARD P2 = A To 5

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**I/O SIGNAL DEFINITION
AS ASSIGNED TO ATM (B7) GROUP PROCESSOR
CONTROL PORT NUMBER**

PC BOARD TYPE 102

CONTROL PORT NO.			CONFIGURATION PORT**			FUNCTION
A	B	C	ADDRESS	P1	P2	
54	55	56	57	2	5	REAR UP/DN CORR CALL 0 TO 5
58	59	5A	5B	2	6	REAR UP/DN CORR CALL 6 TO 11
5C	5D	5E	5F	2	7	REAR UP/DN CORR CALL 12 TO 17
60	61	62	63	3	0	REAR UP/DN CORR CALL 18 TO 23
64	65	66	67	3	1	REAR UP/DN CORR CALL 24 TO 29
68	69	6A	6B	3	2	REAR UP/DN CORR CALL 30 TO 35
6C	6D	6E	6F	3	3	REAR UP/DN CORR CALL 36 TO 41
70	71	72	73	3	4	REAR UP/DN CORR CALL 42 TO 47
1C	1D	1E	1F	0	7	REAR UP/DN CORR CALL 48 TO 53
20	21	22	23	1	0	REAR UP/DN CORR CALL 54 TO 59
24	25	26	27	1	1	REAR UP/DN CORR CALL 60 TO 65

* REFER TO DETAIL I/O SIGNAL DEFINITION FOR FLOORS 0 TO 5

** ADDRESS = CONFIGURATION PORT ADDRESS

P1 = JUMPER PROGRAMMING ON PC BOARD

P2 = JUMPER PROGRAMMING ON PC BOARD

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**I/O SIGNAL DEFINITION EPOCH I
AS ASSIGNED TO MPG B7
GROUP PROCESSOR**

PC BOARD TYPE IO8				SLOT N	
CONTROL PORT NO.				SIGNAL NAME	SIGNAL DEFINITION
ADDRESS	PIN	FUNCTION	BIT		
PORT A F0 ALL OUTPUTS LOW TRUE	1		0		
	2		1		
	3		2		
	4		3		
	5		4		
	6		5		
	9		6		
	10		7		
PORT B F1	1	INPUT	0	KCA00	CARDIAC ARREST FLOOR - 0
	2	INPUT	1	KCA01	CARDIAC ARREST FLOOR - 1
	5	INPUT	2	KCA02	CARDIAC ARREST FLOOR - 2
	6	INPUT	3	KCA03	CARDIAC ARREST FLOOR - 3
	7	INPUT	4	KCA04	CARDIAC ARREST FLOOR - 4
	8	INPUT	5	KCA05	CARDIAC ARREST FLOOR - 5
	9	INPUT	6	KCA06	CARDIAC ARREST FLOOR - 6
	10	INPUT	7	KCA07	CARDIAC ARREST FLOOR - 7
PORT C F2	1		0		
	2		1		
	5		2		
	6		3		
	7		4		
	8	INPUT	5	KRST	RESTAURANT FEATURE SW
	9	INPUT	6	RRST	RESTAURANT FLOOR BUTTON
	10	INPUT	7	MRST	RESTAURANT/MAIN FLOOR BUTTON

CONFIGURATION PORT ADDRESS = F3

F 3

1 1 1 1 0 0 1 1

REX PANEL

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9	9
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BOARD NOT RECOGNIZED

JUMPERS PROGRAMMING

P1 = A To 7

HALL CALL

ON PC BOARD

P2 = A To 4

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**NO SIGNAL DEFINITION EPOCH 1
AS ASSIGNED TO MPG B7
GROUP PROCESSOR**

PC BOARD TYPE 106

SLOT P

CONTROL PORT NO.				SIGNAL	SIGNAL DEFINITION
ADDRESS	PIN	FUNCTION	BIT	NAME	
PORT A 78 ALL OUTPUTS LOW TRUE	1		0		
	2		1		
	3		2		
	4		3		
	5		4		
	6		5		
	9		6		
	10		7		
PORT B 79	1	INPUT	0	C00	CUTOUT - 0
	2	INPUT	1	C01	CUTOUT - 1
	5	INPUT	2	C02	CUTOUT - 2
	6	INPUT	3	C03	CUTOUT - 3
	7	INPUT	4	C04	CUTOUT - 4
	8	INPUT	5	C05	CUTOUT - 5
	9	INPUT	6	C06	CUTOUT - 6
	10	INPUT	7	C07	CUTOUT - 7
PORT C 7A	1	INPUT	0	C08	CUTOUT - 8
	2	INPUT	1	C09	CUTOUT - 9
	5	INPUT	2	C10	CUTOUT - 10
	6	INPUT	3	C11	CUTOUT - 11
	7	INPUT	4	C12	CUTOUT - 12
	8	INPUT	5	C13	CUTOUT - 13
	9	INPUT	6	C14	CUTOUT - 14
	10	INPUT	7	C15	CUTOUT - 15

CONFIGURATION PORT ADDRESS = 78

REX PANEL

JUMPERS PROGRAMMING

ON PC BOARD

7

0 1 1 1

8

1 0 1 1

9 9

HALL CALL

BOARD NOT RECOGNIZED

P1 = A To 3

P2 = A To 6

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I/O SIGNAL DEFINITION EPOCH I AS ASSIGNED TO MPG B6 CAR

PC BOARD TYPE IO6

SLOT E

CONTROL PORT NO.				SIGNAL NAME	SIGNAL DEFINITION
ADDRESS	PIN	FUNCTION	BIT		
PORT A	1	OUTPUT	0	LU03R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
	2	OUTPUT	1	LD03R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
1C	3	OUTPUT	2	LU07R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
	4	OUTPUT	3	LD07R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
ALL	5	OUTPUT	4	PH00R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
	6	OUTPUT	5	PH01R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
OUTPUTS	9	OUTPUT	6	PH02R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
	10	OUTPUT	7	PH03R	REAR H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
PORT B	1	INPUT	0	0BR	REAR CAR CALL AT - 0
	2	INPUT	1	1BR	REAR CAR CALL AT - 1
1D	5	INPUT	2	2BR	REAR CAR CALL AT - 2
	6	INPUT	3	3BR	REAR CAR CALL AT - 3
	7	INPUT	4	4BR	REAR CAR CALL AT - 4
	8	INPUT	5	5BR	REAR CAR CALL AT - 5
	9	INPUT	6	6BR	REAR CAR CALL AT - 6
	10	INPUT	7	7BR	REAR CAR CALL AT - 7
PORT C	1	OUTPUT	0	L0BR	REAR CAR CALL LATCH AT - 0
	2	OUTPUT	1	L1BR	REAR CAR CALL LATCH AT - 1
1E	3	OUTPUT	2	L2BR	REAR CAR CALL LATCH AT - 2
	4	OUTPUT	3	L3BR	REAR CAR CALL LATCH AT - 3
	5	OUTPUT	4	L4BR	REAR CAR CALL LATCH AT - 4
	6	OUTPUT	5	L5BR	REAR CAR CALL LATCH AT - 5
	9	OUTPUT	6	L6BR	REAR CAR CALL LATCH AT - 6
	10	OUTPUT	7	L7BR	REAR CAR CALL LATCH AT - 7

CONFIGURATION PORT ADDRESS = 1F

1

F

0 0 0 1

1 1 1 1

REX PANEL

☐ ☐ ☐ ☐
☐ ☐ ☐ ☐
☐ ☐ ☐ ☐
☐ ☐ ☐ ☐
☐ 9 ☐ 9

BOARD NOT RECOGNIZED

JUMPERS PROGRAMMING

P1 = A To 0

SCAN SLOT

ON PC BOARD

P2 = A To 7

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**I/O SIGNAL DEFINITION
AS ASSIGNED TO MPG CAR PROCESSOR
CONTROL PORT NUMBER**

PC BOARD TYPE 106

CONTROL PORT NO.			CONFIGURATION PORT**			FUNCTION
A	B	C	ADDRESS	P1	P2	
1C	1D	1E	1F	0	7	REAR HL/CAR CALLS 0 TO 7
20	21	22	23	1	0	REAR HL/CAR CALLS 8 TO 15
24	25	26	27	1	1	REAR HL/CAR CALLS 16 TO 23
28	29	2A	2B	1	2	REAR HL/CAR CALLS 24 TO 31
2C	2D	2E	2F	1	3	REAR HL/CAR CALLS 32 TO 39
30	31	32	33	1	4	REAR HL/CAR CALLS 40 TO 47
54	55	56	57	2	5	REAR HL/CAR CALLS 48 TO 55
58	59	5A	5B	2	6	REAR HL/CAR CALLS 56 TO 63

* REFER TO DETAIL I/O SIGNAL DEFINITION FOR FLOORS 0 TO 7

** ADDRESS = CONFIGURATION PORT ADDRESS

P1 = JUMPER PROGRAMMING ON PC BOARD

P2 = JUMPER PROGRAMMING ON PC BOARD

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I/O SIGNAL DEFINITION EPOCH I AS ASSIGNED TO MPG B6 CAR

PC BOARD TYPE IO6

SLOT L

CONTROL PORT NO.				SIGNAL NAME	SIGNAL DEFINITION
ADDRESS	PIN	FUNCTION	BIT		
PORT A 04 ALL OUTPUTS LOW TRUE	1	OUTPUT	0	LU03	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
	2	OUTPUT	1	LD03	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
	3	OUTPUT	2	LU07	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
	4	OUTPUT	3	LD07	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
	5	OUTPUT	4	PH00	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
	6	OUTPUT	5	PH01	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
	9	OUTPUT	6	PH02	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
	10	OUTPUT	7	PH03	H.L. MATRIX OUTPUTS - 0 TO 7 FLOORS
PORT B 05	1	INPUT	0	0B	FRONT CAR CALL AT - 0
	2	INPUT	1	1B	FRONT CAR CALL AT - 1
	5	INPUT	2	2B	FRONT CAR CALL AT - 2
	6	INPUT	3	3B	FRONT CAR CALL AT - 3
	7	INPUT	4	4B	FRONT CAR CALL AT - 4
	8	INPUT	5	5B	FRONT CAR CALL AT - 5
	9	INPUT	6	6B	FRONT CAR CALL AT - 6
	10	INPUT	7	7B	FRONT CAR CALL AT - 7
PORT C 06	1	OUTPUT	0	L0B	FRONT CAR CALL LATCH AT - 0
	2	OUTPUT	1	L1B	FRONT CAR CALL LATCH AT - 1
	3	OUTPUT	2	L2B	FRONT CAR CALL LATCH AT - 2
	4	OUTPUT	3	L3B	FRONT CAR CALL LATCH AT - 3
	5	OUTPUT	4	L4B	FRONT CAR CALL LATCH AT - 4
	6	OUTPUT	5	L5B	FRONT CAR CALL LATCH AT - 5
	9	OUTPUT	6	L6B	FRONT CAR CALL LATCH AT - 6
	10	OUTPUT	7	L7B	FRONT CAR CALL LATCH AT - 7

CONFIGURATION PORT ADDRESS = 07

0 7

0 0 0 0 0 1 1 1

REX PANEL

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☐ ☐ ☐ ☐
☐ ☐ ☐ ☐
☐ 9 ☐ 9

BOARD NOT RECOGNIZED

JUMPERS PROGRAMMING

P1 = A To 0

SCAN SLOT

ON PC BOARD

P2 = A To 1

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**IVO SIGNAL DEFINITION EPOCH I
AS ASSIGNED TO MPG B6 CAR**

PC BOARD TYPE I08				SLOT N	
CONTROL PORT NO.				SIGNAL NAME	SIGNAL DEFINITION
ADDRESS	PIN	FUNCTION	BIT		
PORT A	1	OUTPUT	0	DPOU@	ENABLES MANUAL OVERRIDE (EMERG. POWER)
F0	2	OUTPUT	1	MBT@	TRANSFER EMER POWER OPER. TO ANOTHER BANK
	3	OUTPUT	2	DBYPS	BYPASS LIGHT
	4	OUTPUT	3	DAVAS	AVAILABLE LIGHT
	5	OUTPUT	4	DINSV	INSERVICE LIGHT
ALL	6	OUTPUT	5	FDOD	DOOR OPEN BUTTON CUTOUT
OUTPUTS	9	OUTPUT	6	RDOD	REAR DOOR OPEN BUTTON CUTOUT
LOW TRUE	10	OUTPUT	7	EMS	EARTHQUAKE EXPRESS ZONE STOP
PORT B	1	INPUT	0	KPWR@	WARNING SIGNAL PRIOR TO EM PWR TRANSFER
F1	2	INPUT	1	KBT@	BANK TRANSFER INPUT FROM OTHER BANK
	5	INPUT	2	KPOU@	EMER PWR MANUAL OVERRIDE SW ACTIVATED
	6		3		
	7		4		
	8		5		
	9		6		
			7		
PORT C	1	INPUT	0	KATSV	ACTIVATES A.S. OPERATION
F2	2	INPUT	1	KIR980	ACTIVATES I.R. OPERATION
	5	INPUT	2	KESD	EARTHQUAKE OPERATION - SEISMIC SW ACTIVATED
	6	INPUT	3	KEZL	EARTHQUAKE OPERATION - LOWER ZONE SW
	7	INPUT	4	KEZU	EARTHQUAKE OPERATION - UPPER ZONE SW
	8	INPUT	5	KEZM	EARTHQUAKE OPERATION - MID ZONE SW
	9	INPUT	6	KECD	EARTHQUAKE OPERATION - CWT DERAILMENT SW
	10	INPUT	7	KCLS	EARTHQUAKE OPERATION - COLLISION SW

Ⓢ = 1C2BC Controller Only

CONFIGURATION PORT ADDRESS = F3

- F 3

1 1 1 1 0 0 1 1

REX PANEL

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9 9

BOARD NOT RECOGNIZED

JUMPERS PROGRAMMING

P1 = A To 7

SCAN SLOT

ON PC BOARD

P2 = A To 4

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I/O SIGNAL DEFINITION EPOCH I AS ASSIGNED TO MPG B6 CAR

PC BOARD TYPE IO8

SLOT P

CONTROL PORT NO.				SIGNAL	SIGNAL DEFINITION
ADDRESS	PIN	FUNCTION	BIT	NAME	
PORT A EC ALL OUTPUTS LOW TRUE	1	OUTPUT	0	SYA	SYNCRO DIAL DRIVER LINE A
	2	OUTPUT	1	SYB	SYNCRO DIAL DRIVER LINE B
	3	OUTPUT	2	SYC	SYNCRO DIAL DRIVER LINE C
	4	OUTPUT	3	CLU	CAB LANTERN UP
	5	OUTPUT	4	CLD	CAB LANTERN DOWN
	6	OUTPUT	5	D44R	REAR DOOR MASTER 0 = OPEN 1 = CLOSE (44R RELAY)
	9	OUTPUT	6	DHD	HEAVY DOOR FLOOR DRIVER
	10	OUTPUT	7	DNUDGR	REAR DOOR ON NUDGING
	1	INPUT	0	KLDO	FIRE SERVICE LOBBY DOOR OPEN BUTTON
	2	INPUT	1		
PORT B ED	5	INPUT	2	KDPOR	REAR DOOR POWER ON
	6	INPUT	3	KSTERδ	REAR DOOR OPEN BUTTON/SAF-T-EDGE
	7	INPUT	4	K40R	REAR CAR GATE CONTACT
	8	INPUT	5	K41R	REAR HATCH DOOR LOCKS
	9	INPUT	6	K43R	REAR DOOR IS CLOSING
	10	INPUT	7	K44R	REAR DOOR IS OPENING
PORT C EE	1	INPUT	0	KTSR	REAR TRAFFIC SENTINEL POWER IS ON
	2	INPUT	1	KBEAMR	REAR TRAFFIC SENTINEL BEAM IS ESTABLISHED
	5	INPUT	2	KFDCR	FIREMANS REAR DOOR CLOSE BUTTON
	6	INPUT	3	KTSLTRδ	REAR DOOR TSLT SWITCH (LAST 2" OF FULL OPEN = 1)
	7	INPUT	4	KPASS	ATTENDANT BYPASS BUTTON
	8	INPUT	5	KPARK@	ACTIVATES PARKING FEATURE
	9	INPUT	6	KFDC	FIREMANS FRONT DOOR CLOSE BUTTON
	10	INPUT	7	KFCR	FIREMANS CAR CALL CANCEL BUTTON

δ = Low True Signal

@ = 1C2BC Controller Only

CONFIGURATION PORT ADDRESS = EF

E

F

1 1 1 0

1 1 1 1

REX PANEL

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9	9
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BOARD NOT RECOGNIZED

JUMPERS PROGRAMMING

J1 = A To 7

SCAN SLOT

ON PC BOARD

J2 = A To 3

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I/O SIGNAL DEFINITION EPOCH I AS ASSIGNED TO MPG B6 CAR

PC BOARD TYPE IO8				SLOT R	
CONTROL PORT NO.				SIGNAL	SIGNAL DEFINITION
ADDRESS	PIN	FUNCTION	BIT	NAME	
PORT A E8 ALL OUTPUTS LOW TRUE	1	OUTPUT	0	DBELL	HANDYCAP BELL (PASSING TONE)
	2	OUTPUT	1	DU	A.S. UP DEMAND, ACTIVATES LIGHT ON UP BUTTON
	3	OUTPUT	2	DD	A.S. DOWN DEMAND, ACTIVATES LIGHT ON DN BUTTON
	4	OUTPUT	3	DFRL	FIRE SERVICE LIGHT
	5	OUTPUT	4	DBUZ	FIRE & NUDGING BUZZER
	6	OUTPUT	5	DLG	TURNS ON CAB FAN & LIGHTS
	9	OUTPUT	6	DATGO	A.S. DEMAND GONG
	10	OUTPUT	7	DMGS	STARTS MG SET
	1	INPUT	0	KSDL	SMOKE DETECTOR AT LOBBY (ALT FLOOR SIGNAL)
	2	INPUT	1	KTSLDP	
PORT B E9	5	INPUT	2	KDPO	FRONT DOOR POWER ON
	6	INPUT	3	KSTE	FRONT DOOR OPEN BUTTON/SAF-T-EDGE
	7	INPUT	4	K40	FRONT CAR GATE CONTACT
	8	INPUT	5	K41	FRONT HATCH DOOR LOCKS
	9	INPUT	6	K43	FRONT DOOR IS CLOSING
	10	INPUT	7	K44	FRONT DOOR IS OPENING
PORT C EA	1	INPUT	0	KTS	FRONT TRAFFIC SENTINEL POWER IS ON
	2	INPUT	1	KBEAM	FRONT TRAFFIC SENTINEL BEAM IS ESTABLISHED
	5	INPUT	2	KSDM	SAVED DATA
	6	INPUT	3	KCPR	CONTROL PROTECTION RELAY
	7	INPUT	4	K9	RELAY 9 IS ENERGIZED (MG IS ON)
	8	INPUT	5	K55	GOV. OVERSPEED OR LOSS OF PHAZE (PDS)
	9	INPUT	6	KTSLT	FRONT DOOR TSLT SW (LAST 2" OF FULL OPEN =1)
	10	INPUT	7	KHCS	HANDYCAP ONE TRIP OPERATION BUTTON

CONFIGURATION PORT ADDRESS = EB

E B

1 1 1 0 1 0 1 1

REX PANEL



BOARD NOT RECOGNIZED

JUMPERS PROGRAMMING

J1 = A To 7

SCAN SLOT

ON PC BOARD

J2 = A To 2

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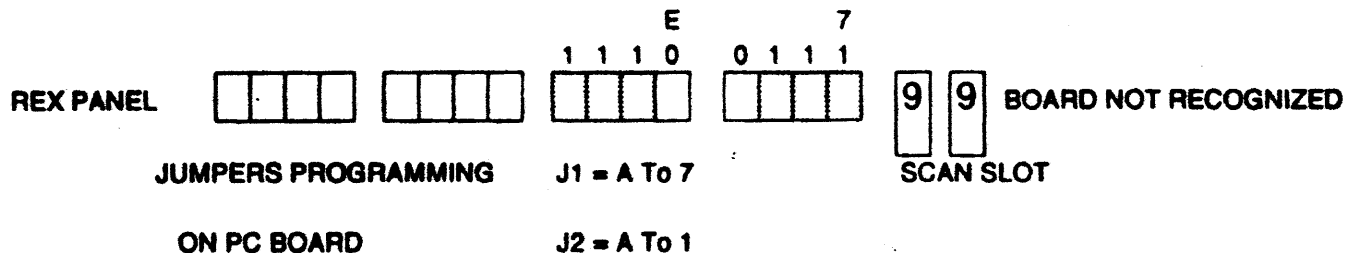
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I/O SIGNAL DEFINITION EPOCH I AS ASSIGNED TO MPG B6 CAR

PC BOARD TYPE IO8				SLOT S	
CONTROL PORT NO.				SIGNAL	SIGNAL DEFINITION
ADDRESS	PIN	FUNCTION	BIT	NAME	
PORT A E4 ALL OUTPUTS LOW TRUE	1	OUTPUT	0	DFR1	ENERGIZES FR1 RELAY (FULL FIELD STRENGTH)
	2	OUTPUT	1	DL2	ESTABLISH RUN CONDITIONS (L2)
	3	OUTPUT	2	DGU	ESTABLISH UP DIRECTION
	4	OUTPUT	3	DGD	ESTABLISH DOWN DIRECTION
	5	OUTPUT	4	DFEMC	ENERGIZES FEMC RELAY (FIRE SERVICE)
	6	OUTPUT	5	D44	DOOR MASTER 0 = OPEN 1 = CLOSE (44 RELAY)
	9	OUTPUT	6	DEMP	SELECTED CAR TO RUN ON EMERGENCY POWER
	10	OUTPUT	7	DNUDG	FRONT DOOR ON NUDGING
PORT B E5	1	INPUT	0	KFEM	FIREMANS SERVICE PHASE 1
	2	INPUT	1	KA	BRAKE IS SET
	5	INPUT	2	KFEMCM	FIREMANS SERVICE PHASE 2
	6	INPUT	3	KHOLD	FIREMANS DOOR HOLD PHASE 2
	7	INPUT	4	K32L	CAR IS RUNNING (RESETS 457T TIMER IN SOFTWARE)
	8	INPUT	5	K29	SAFETY CIRCUIT COMPLETED
	9	INPUT	6	K5K	EMERGENCY POWER IS AVAILABLE
	10	INPUT	7	KEMP	CAR IS SELECTED TO RUN ON EMERGENCY POWER
PORT C E6	1	INPUT	0	K50 δ	50% LOAD WEIGHTING SW (0 ≥ 50% LOAD 1 < 50% LOAD)
	2	INPUT	1	K75 δ	75% LOAD WEIGHTING SW (0 ≥ 75% LOAD 1 < 75% LOAD)
	5	INPUT	2	KHEM	HOSPITAL EMERGENCY OPERATION
	6	INPUT	3	K980M	TDS & CONTROL INSERVICE SWITCHES ARE ON
	7	INPUT	4	KU	A.S.UP BUTTON INPUT(CLOSES DOOR OUT OF SERVICE)
	8	INPUT	5	KD	A.S.DN BUTTON INPUT(CLOSES DOOR OUT OF SERVICE)
	9	INPUT	6	KTOP δ	SELECTOR RESET 12" FROM TOP TERMINAL FLOOR
	10	INPUT	7	KBOT δ	SELECTOR RESET 12" FROM BOTTOM TERMINAL FLOOR

δ = Low True Signal

CONFIGURATION PORT ADDRESS = E7



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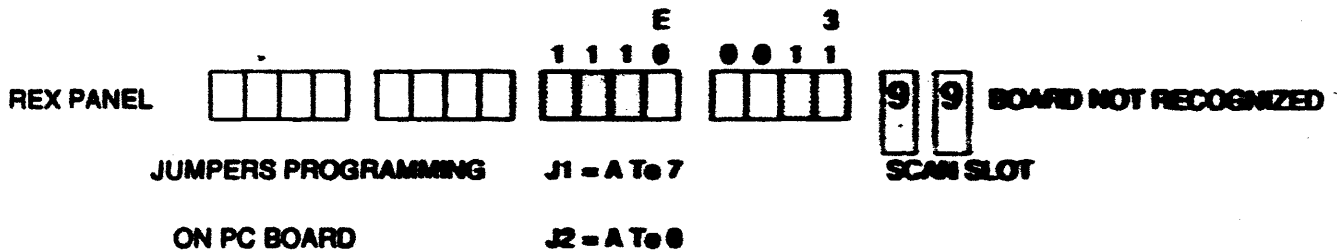
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**I/O SIGNAL DEFINITION EP0000
AS ASSIGNED TO MPG BS CAR**

PC BOARD TYPE IOT				SLOT T	
CONTROL PORT NO.				SIGNAL NAME	SIGNAL DEFINITION
ADDRESS	PIN	FUNCTION	BIT		
PORT A E0	1	OUTPUT	0	AVP0	ADVANCED CAR POSITION IN BINARY BIT 0
	2	OUTPUT	1	AVP1	ADVANCED CAR POSITION IN BINARY BIT 1
	3	OUTPUT	2	AVP2	ADVANCED CAR POSITION IN BINARY BIT 2
	4	OUTPUT	3	AVP3	ADVANCED CAR POSITION IN BINARY BIT 3
	5	OUTPUT	4	AVP4	ADVANCED CAR POSITION IN BINARY BIT 4
	6	OUTPUT	5	AVP5	ADVANCED CAR POSITION IN BINARY BIT 5
	9	OUTPUT	6	DAUA 0	UP DIRECTION ARROW
	10	OUTPUT	7	DADA 0	DOWN DIRECTION ARROW
PORT B E1	1	INPUT	0	K60	CAR ON AUTOMATIC OPERATION
	2	INPUT	1	K1	UP DIRECTION HAS BEEN ESTABLISHED
	5	INPUT	2	K2	DOWN DIRECTION HAS BEEN ESTABLISHED
	6	INPUT	3	KTS01	TERMINAL SLOWDOWN - HIGH SPEED PT (always used)
	7	INPUT	4	KLU	LEVEL UP
	8	INPUT	5	KL2	SAFE TO RUN FULL SPEED
	9	INPUT	6	KLD	LEVEL DOWN
	10	INPUT	7	KTS02	TERMINAL SLOWDOWN - LOW SPEED PT (on 2 pt only)
PORT C E2	1	OUTPUT	0	DCLK	PROVIDE CLOCK PULSE ON DDD BOARD
	2	OUTPUT	1	DSP	CONTROL LOADING PARALLEL/SERIAL DATA
	3	OUTPUT	2	DMD	SELECT PARALLEL/SERIAL DATA
	4	NOT USED	3		
	7	INPUT	4	KDIR	DIRECTION INPUT FROM DDD UP = 1 DN = 0
	8	INPUT	5	KCTR	SERIAL DATA INPUT
	9	INPUT	6	KINT	PULSE TO INDICATE EVERY 1/4" OF CAR MOVEMENT
	10	INPUT	7	KBATT	MONITOR BATTERY CONDITION

0 = Low True Signal

CONFIGURATION PORT ADDRESS = E3



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**I/O SIGNAL DEFINITION
AS ASSIGNED TO MPG CAR PROCESSOR
CONTROL PORT NUMBER**

PC BOARD TYPE 106

CONTROL PORT NO.			CONFIGURATION PORT**			FUNCTION
A	B	C	ADDRESS	P1	P2	
04	05	06	07	0	1	HL/CAR CALLS 0 TO 7
08	09	0A	0B	0	2	HL/CAR CALLS 8 TO 15
0C	0D	0E	0F	0	3	HL/CAR CALLS 16 TO 23
10	11	12	13	0	4	HL/CAR CALLS 24 TO 31
14	15	16	17	0	5	HL/CAR CALLS 32 TO 39
18	19	1A	1B	0	6	HL/CAR CALLS 40 TO 47
24	25	26	27	1	5	HL/CAR CALLS 48 TO 55
38	39	3A	3B	1	6	HL/CAR CALLS 56 TO 63

* REFER TO DETAIL I/O SIGNAL DEFINITION FOR FLOORS 0 TO 7

** ADDRESS = CONFIGURATION PORT ADDRESS

P1 = JUMPER PROGRAMMING ON PC BOARD

P2 = JUMPER PROGRAMMING ON PC BOARD

3.4 HHT "DISPLAY SAVED DATA" FEATURE (GEARED OR GEARLESS)

3.4.1 Description. The Display Saved Data feature is available in level 83 software and above. This feature lets you see what the status was of many of the key signals just before the elevator was shut down by the microprocessor. The conditions that cause the "snapshot" of the status to be made are:

- a. AST
- b. 457T
- c. Terminal Slowdown
- d. 29 Stop
- e. When input terminal CB05 goes from 0 to 125 Vdc (pulled high). You can connect this to any signal to help in trouble-shooting an intermittent problem.

The information is saved until you turn off the power, or until another event occurs that will overwrite it. An exception is that a 29 stop will NOT overwrite the data saved for a 457T or AST.

NOTE

This mode is NOT continually updated; the value **WILL NOT CHANGE** as the elevator operators unless a failure happens to occur **WHILE YOU ARE USING THIS MODE**.

3.4.2 Format. The signals are displayed in pairs on the HHT. The status is given by two, four, or eight digits in front of the name. The meaning of the digits is explained below.

Any signal that has an asterisk (*) in front of it is information intended for engineering use, primarily in debugging the software.

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- a. For two-digit status. The byte may mean the signal is true (01) or false (00); it may mean the status of an elevator feature, on (01) or off (00); or it may be a real value with a numeric meaning. The meaning is given below in the Explanation section.
- b. For four- and eight-digit status. The numbers are real HEX values (NOT true/false type signals).

3.4.3 Access. Use the following process to look at the saved data:

Press the DISP key. Then press the F3 key.

Use the NEXT key to move down the list.

Use the PREV key to move up the list.

3.4.4 Explanation. Unless otherwise described, 01 means the condition shown was true, and 00 means it was not true.

- * **SVDT CODE** - tells why the "snapshot" was taken:

	<u>MPG (Grd or GrIs)</u>	<u>MPM</u>
Ready (no trigger)	00	00
CB05 went true	00†	00†
457T	2D	2F
Terminal slowdown	3A	3D
Emergency stop	46	49
AST	48	4B

† Engineering will put a new code in level 86 software for this. For the present, you must check the KSP1 signal (see page 3-39).

INSV

- car is in service

AST

- AST fired. (Occurs if K1 or K2 is true for 80 sec.)

* **AST STATUS**

- (internal software state)

457T

- call in system, did not get K32L within 40 sec.

* **457T STAT**

- (internal software state)

EMSTOP

- emergency stop was made

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TSD	- terminal slowdown was performed
OKST/NMST (MPM only)	- type of run, based on relay pick sequence: 00 = ready (reset by start of DEC) 01 = quick start - wait for doors to get C4N (running for car call) 02 = normal start - wait for doors to be closed (running for corridor call)
✓ MOVED AWAY	- DEC light is on and car moved at least 10 counts
PORT FAIL	- ADDRESS of failed IO board port (refer to manual for description)
BRAKE SET	- condition of the brake, according to KA input: 00 = brake picked 01 = brake set
KLU	- landing zone - input (MPM - car 10 inches below floor to 1/4 inch above; MPG - 3 inches)
KLD	- landing zone - input (MPM - car 10 inches above floor to 1/4 inch below; MPG - 3 inches)
Z03 (MPM only)	- landing zone - input (car 3 inches below floor to 3 inches above) MPM only
AVP	- advanced position (in HEX)
TARGET AVAS	- advanced position of target floor (in HEX) - car is available to the "selector"
CALL AHEAD CC IN SYS	- car has chosen a target to run to - car call is entered
B7 ASSIGNMENT	- car has received an assignment from the dispatcher (see B7 ASSN AVP)
B7 ASSN AVP	- target floor assigned by the dispatcher (in HEX)
DIRECTION	- direction of the car when run was begun: 00 = down 01 = up
POS 16	- position of the car in 1/4 inch counts (in HEX)
DFR1 DL2	- full field output - command - running relay output - command
DGU DGD	- up direction relay output - command - down direction relay output - command
K1	- up direction relay picked - input

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K2	- down direction relay picked - input
KL2	- running relay picked - input
K32L	- secondary running relay picked - input
PATT ON LEVEL	- pattern generator is turned on - level speed - command (stretch-of-cable leveling)
FASTLEVEL	- fast level speed - command (looking for floor - not a normal run)
RUN	- normal velocity pattern - command
ACCEL VPATT	- car in acceleration portion of run - speed pattern value (in HEX)
MIDRUN FULL SPEED	- car in middle portion of run - full speed has been reached
DECEL DEC	- car in deceleration portion of run - DEC panel light is on
LAND TROUBLELAND	- car landing has begun - car had trouble landing (took too much time)
* ENBL PREOPN F R TARGET	- pre-opening is enabled - door to be opened at target floor: 00 = none 01 = front 02 = rear 03 = both
* FD STATUS	- status of front door operation, if car is INSV: 00 = initial opening 01 = doors fully open, set noninterference timers 02 = initial closing 03 = monitor DOB and STE, doors closed 04 = NEXT car door operation
* RD STATUS	- status of rear door operation (same as *FD STATUS)
DOB OVRD KDPO	- DFDOD output - command (door open button override) - front door power is on - input
D44 DRCL	- front door open relay - output - all doors are closed [= K40 and K41 and not (KTSLT) and K40R and K41R and not (KTSLTR)]
K40 K41	- front car door interlock made - input - front hoistway door interlocks made - input

K43	- front doors are closing - input
K44	- front doors are opening - input
KTSLT	- front doors 2 inches or less from fully open limit cam - input
DR FULL OPN	- front doors fully open
F STALL OPN	- front doors stalled opening
KSTE	- front safety edge is clear - input
DNUDG	- front nudging - output
B7 CANCEL	- front call cancel signal received from the dispatcher
NEXT CAR	- car is NEXT up at lobby
AVAD	- car is available to the dispatcher
OUTSV STATUS	- status of the Out-of-Service feature: 00 = normal 01 = ready for return to lobby 02 = start return 03 = return in progress 04 = OOS feature on 05 = deactivating OOS
K55	- 55 (GVAS signal) <u>not</u> activated
MGOF	- MG set is off - input
DMGS	- MG set turn on command - output
K29	- 29 relay picked - input (safety circuit is OK)
K60	- 60 relay picked - input (car is on AUTO)
KCPR	- CPR relay picked - input (CPR circuit is OK)
CPR DROPPED	- indicates CPR relay dropped at least once in the last minute
KTOP	- top terminal (T69) - input (car is <u>not</u> at top terminal)
KBOT	- bottom terminal (B69) - input (car is <u>not</u> at bottom terminal)
LVLZN + BRAKE	- car was in the level zone for 90 sec without the brake set
KSP1	- CB05 input (established by mechanic)
* FLOOR CALL	- (internal software state)
* PREBID	- (internal software state)
* RNABID	- (internal software state)
* RNBBID	- (internal software state)
* DORBID	- (internal software state)
* NXTBID	- (internal software state)

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457T TMR	- Timer used to take the car out of service if it doesn't move in response to a call within a reasonable period (40 seconds).
AST TIMER	- Antistall Timer used to monitor the length of time the car is running (i.e., "loop" circuit energized). If any trip exceeds 80 seconds, something is wrong and the car is shut down.
MG TMR	- MG set timer (counts down from 6 minutes in 6 steps)
NXT TMR	- Next car timer (counts down from 6 minutes in 6 steps)
FIRE PHASE	- Internal software flag indicating state of Fire Service 0 = not on fire service, 1 = phase 1 recall, 2 = phase 2
KFEM	- Input from the lobby Fire Emergency recall switch and the building smoke detectors.
KFEMCM	- Input from the Phase 2 fire switch in the cab.
KSDL	- Input from the Smoke Detector in the Lobby
DBELL	- Output from the processor that rings the car BELL.
DFRL	- Output from the processor that turns on the Fire sign in the cab.
HEM	- Internal software flag indicating car is on Hospital Emergency.
WARN SIG ON	- Internal software flag indicating that we have received a pre-transfer warning signal from the emergency power transfer switch.
K5K	- Input from the power transfer switch indicating that the car is on emergency power.
KEMP	- Input to the processor that this car is selected to run on Emergency Power.
KPWR	- Emergency Power perwarning transfer input.
KBT	- Bank Transfer input used to coordinate emergency power between a single car and other banks.
DEMP	- Output from the processor which allows the car to run on Emergency Power with automatic car selection.
K980M	- Input from the "IN SERVICE" switches.
ADES	- Internal speed pattern generator variable. Indicates the Desired Acceleration rate.
ACC	- Internal speed pattern generator variable. Indicates that the car is being told to Accelerate.
MOVING	- Internal software flag indicating that a trip is in progress.
MOVING UP	- Internal flag used to level the car in the top or bottom terminal on system power up.
MOVING DN	- Internal flag used to level the car in the top or bottom terminal on system power up.
LEVEL COUNT	- Internal flag used to insure the car is at the floor it is supposed to be.

LOST COUNT	- Internal flag used to count bad landings. If the car makes 2 bad landings in a row, the car will do a lost car run.
CAR FLG	- Internal flag indicating that a "best call" has been selected.
CORT F	- Internal flag indicating if the call currently being answered is a corridor call.
CAR CLN	- Internal software flag indicating the number of car calls entered.
OVERSPEED	- Internal software flag indicating that the K55 input went on.
KTSD1	- Input from the high speed Terminal Slowdown switch in the hoistway.
K 50	- Load weighing microswitch under the car indicates above 50% load. Low true signal.
K 75	- Load weighing microswitch under the car indicates above 75% load. Low true signal.
K HEM	- Input that tells the car to go on Hospital Emergency service - from a switch in the car station.
KATSV	- Input from the Attendant Service switch in the cab.

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Logon with HHT, press DISP, press F3
Use NXT and PRV to scroll through

EPOCH MPM - HHT Saved Data Record

Building: _____

Car: _____

Mechanic: _____

Date: _____

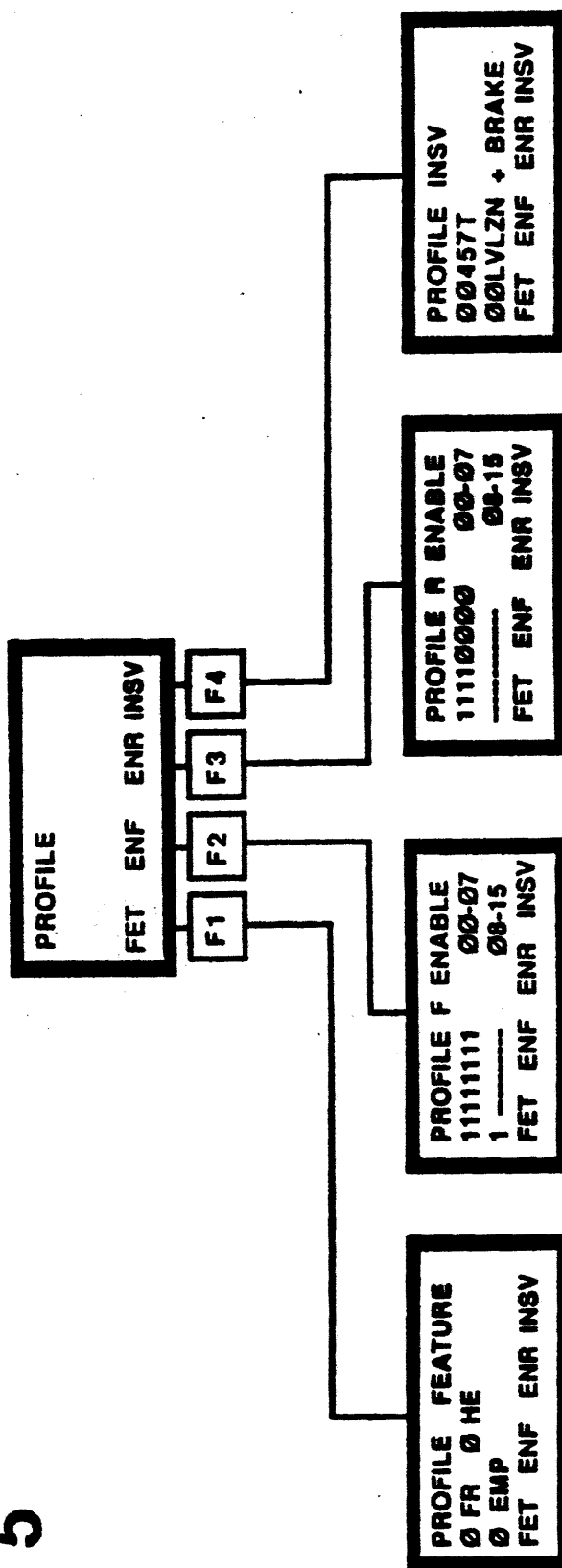
RECORD ALL NON-ZERO VALUES

Time: _____

SVDT CODE _____	KL2 _____	DNUDG _____	DFEMC _____
INSV _____	K32L _____	B7 CANCEL _____	DBELL _____
AST _____	PATT ON _____	NEXT CAR _____	DFRL _____
AST STATUS _____	LEVEL _____	AVAD _____	HEM _____
457T _____	FASTLEVEL _____	OUTSV STATUS _____	WARN SIG ON _____
457T STAT _____	RUN _____	K55 _____	K5K _____
EMSTOP _____	ACCEL _____	MGOF _____	KEMP _____
TSD _____	VPATT _____	DMGS _____	KPWR _____
QKST/NMST _____	MIDRUN _____	K29 _____	KBT _____
MOVED AWAY _____	FULL SPEED _____	K60 _____	DEMP _____
PORT FAIL _____	DECEL _____	KCPR _____	K980M _____
BRAKE SET _____	DEC _____	CPR DROPPED _____	ADES _____
KLU _____	LAND _____	KTOP _____	ACC _____
KLD _____	TROUBLELAND _____	KBOT _____	MOVING _____
Z03 _____	ENBL PREOPN _____	LVLZN+BRAKE _____	MOVING UP _____
AVP _____	FR TARGET _____	KSP1 _____	MOVING DN _____
TARGET _____	FD STATUS _____	FLOOR CALL _____	LEVEL COUNT _____
AVAS _____	RD STATUS _____	PREBID _____	LOST COUNT _____
CALL AHEAD _____	DOB OVRD _____	RNABID _____	CAR FLG _____
CC IN SYS _____	KDPO _____	RNBID _____	CORTF _____
B7 ASSIGNMENT _____	D44 _____	DORBID _____	CARCLN _____
B7 ASSN AVP _____	DRCL _____	NXTBID _____	OVSPD FLAG _____
DIRECTION _____	K40 _____	457T TMR _____	KTSD1 _____
POS16 _____	K41 _____	AST TIMER _____	K50 _____
DFR1 _____	K43 _____	MGTMR _____	K75 _____
DL2 _____	K44 _____	NXTTMR _____	KHEM _____
DGU _____	KTSLT _____	FRSTS _____	KATSV _____
DGD _____	DR FULL OPN _____	KFEM _____	DBUZ _____
K1 _____	F STALL OPN _____	KFEMCM _____	
K2 _____	KSTE _____	KSDL _____	

EPOCH I - PROFILE MODE

5



Shows the COE
Features and if they
are active or not.

1 = ACTIVE
0 = INACTIVE

Use NXT & PREV to
view all items.

Displays the front floor
enables, use NXT to
view floors above 15

Displays the rear floor
enables.

Profile Inservice .
See write up attached.

Note: Nothing shows
on screen over F4 on
software below 83
level.

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3.5 HHT PROFILE INSERVICE

3.5.1 Description. This feature displays all of the possible reasons for the elevator not to be INSV, shown when the REX panel light is off.

3.5.2 To View. Press the PROF key. Then press the F4 key. Use the NEXT key to move down the list. Use the PREV key to move up the list.

3.5.3 Format. A byte is shown in front of each heading. For most headings:

00 means the condition is false.

01 means the condition is true.

For EMP STATUS, FIRE PHASE, OUTSV STATUS, ATSV STATUS, and IR STATUS, the byte shows what part of the software feature is now operating.

You may watch the byte values change as the elevator operates.

3.5.4 Explanation. Input signals are given throughout the explanations.

457T	Car or corridor call has been entered for 40 seconds and K32L is still false. (Elevator has not responded.) This is also shown on the REX panel.
LVLZN+BRAKE	Car has been in the levelzone for 90 sec and KA shows the brake is still picked.
AST	K1 has been true or K2 has been true for 80 sec. This is also shown on the REX panel.
LOST CAR	Selector is out of step or two consecutive bad landings have been made.
KDPO	This is the door power input; note that the elevator is not INSV when this is 00.
OVRSPD-GVAS	55 stop or GVAS signal has gone low; check KZ1 in the MOTRL.

K5K Emergency power is now available (K5K input). 290

EMP STATUS Current status of the emergency power feature:

- 00 = normal
- 01 = recall phase
- 02 = at return floor
- 03 = selected-to-run mode

EMP XFER Emergency power pre-transfer signal has been received over the datalink.

HEM Hospital Emergency feature on.
KHEM/265.

CARDIAC ON Cardiac Arrest feature has been activated over the datalink.

HAND Elevator is on HAND control.
K60.

EMSTOP Emergency Stop.
K29.

FIRE PHASE Firemans Return operation on:
KFEM, KFEMCM.

- 00 = normal
- 01 = Phase I recall
- 02 = Phase II operation

EQ FLAG Earthquake feature on.
KESD, KECD, DEZU, DEZM, DEZL.

OUTSV STATUS Out-of-Service feature on.
K980.

- 00 = normal
- 01 = ready for return to lobby
- 02 = start return
- 03 = return in progress
- 04 = OOS feature on
- 05 = deactivating OOS

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ATSV STATUS Attendant service feature on:
KATSV

00 = normal
01 = ready for return to lobby
02 = start return
03 = return in progress
04 = OOS feature on
05 = deactivating OOS

IR STATUS Inconspicuous Riser feature on.
KIR980.

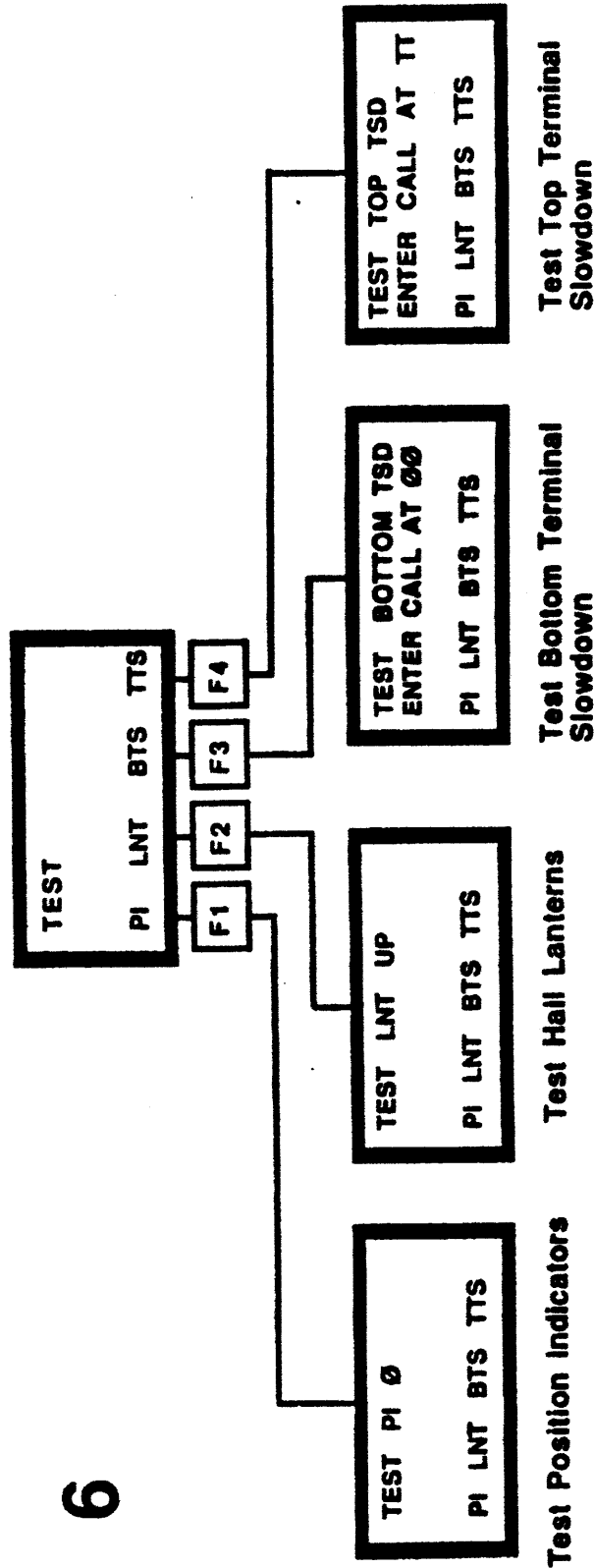
(Note: ATSV STATUS will also change while on IR feature)

00 = normal
01 = ready for return to lobby
02 = start return
03 = return in progress
04 = OOS feature on
05 = deactivating OOS

SPECTRUMPROB SPECTRUM communications problem
(SPECTRUM job only)

EPOCH I - TEST MODE

6



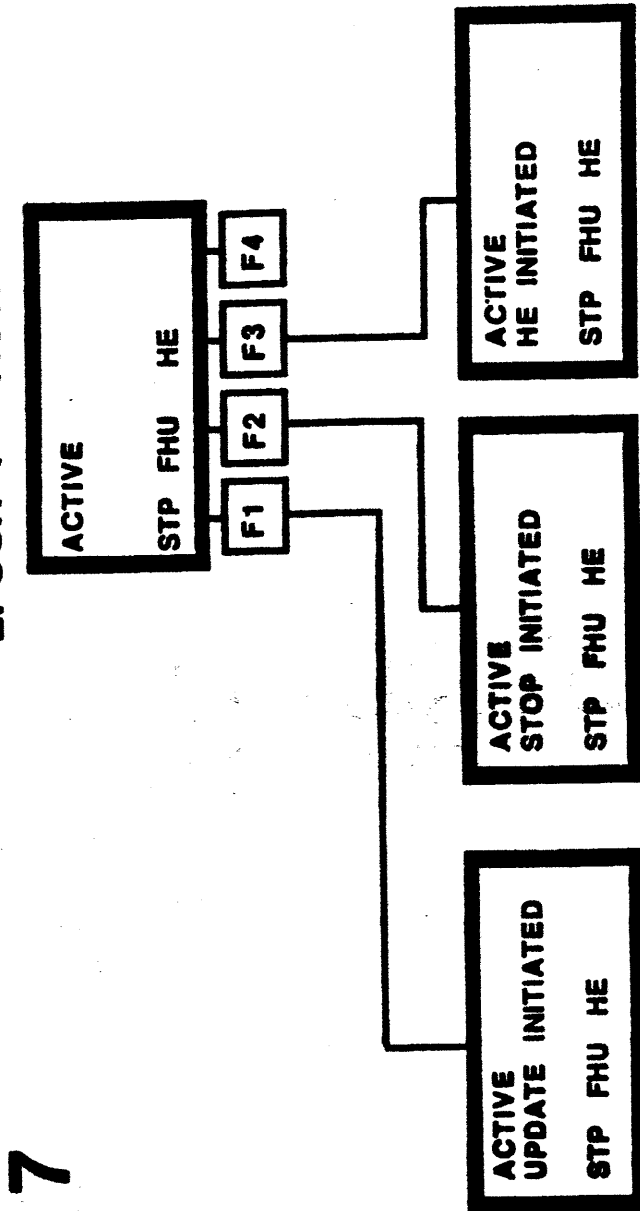
Note: On both Position Indicator and Hall Lantern Test, you must use an ammeter to see if any current is flowing.

NOTE: TO TEST TERMINAL SLOWDOWN, YOU MUST FIRST POSITION THE CAR AWAY FROM THE TERMINAL LANDING.

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EPOCH I - ACTIVE MODE



Forces a 55 Stop at the next floor with car running.

Initiates a floor height update.

Car must meet the following conditions:

1. Car at bottom floor.
2. Door power off.
3. Car on Auto.
4. No features active. (i.e., FR, HE, ATSV, etc.)

NOTE: F3 puts car on hospital emergency. To remove from hospital emergency, toggle the hand switch.

NOTE: Remember, any time the logic power switch is turned off, the random access memory will be erased and the car will revert to the floor heights programmed in the COE PROM.

EPOCH I HHT

3.6 EPOCH I GENERAL INFORMATION

3.6.1 MGI Board Adjustments.

(NOTE: Do Not Adjust Pot R-10)

R-5 - Velocity Clamp

R-6 - Acceleration Clamp

R-7 - Hand Speed (Regulated Hand)

R-8 - Velocity Feedback Pot

R-9 - Acceleration Feedback Pot

R-11 - Armature Voltage Feedback Pot

3.6.2 Things to Check For a Car Not Leveling Correctly.

- a. Check HHT for status POS16. (Status + F1) Compare the actual car position to the target to see if the car is running for the correct position. If not, then run a floor height update.
- b. Check the overlap on the landing device. The beams on the landing device will spread and make the landing zone too wide. The PE2 boards may need to be spread out to close up the "dead zone." The best solution may be to replace the PE2 boards with the replacement kit shown in technical bulletin 1C0519002.00, EPOCH-MPM/MGI PE2 PC Board Replacement Kit, dated January 11, 1990.
- c. If both items a. and b. are satisfactory, then try the acceleration feedback adjustment. This adjustment can be used to remove pauses or overshoots within a small window. Do not move over 2 turns (Note: This is not a "cure all.")
 - If the car pauses before the floor, increase damping by turning potentiometer MGI-R9 counterclockwise.
 - If the car overshoots the floor, decrease damping by turning potentiometer MGI-R9 clockwise.
- d. Check the MGI board adjustments if these items do not help.

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- e. To adjust a replacement MGA board over acceleration detection circuit:
 1. Remove plug jumper MGA-J1.
 2. Place clip jumper across terminals TB1-10 and TB1-12.
 3. Adjust potentiometer MGA-R61 until LED MGA-DS1 just lights as car accelerates.
 4. Remove clip jumper.
 5. Reinsert plug jumper.

3.6.3 Other Items that Might Help

- a. If the weight signal is removed, the car will not run.
- b. If W75 signal is missing, the car will run down only.
- c. If the TSLT signal is low and the door signal is high, doors closed, the car will not run.
- d. If KINT signal goes low, the car will not run. Due to the common backplane, this signal can be pulled low by another board although this signal is not used on any board except MGI and SBC. Pull boards out one at a time until the signal goes high, then cut the trace on that board to clear the problem.
- e. On a single IR with the doors closed and the 40's and 41's up and the door switch pulled, if the main line switch is pulled or the logic switch is turned off, when the power is restored, the car may run to the main floor and not run again. The car will not run at all. It is looking for the TSLT input. The doors can be cycled or TSLT brought high momentarily. (Note: If TSLT does not occur, the car will shut down. Use the extra microswitch, unused door contact, in series with the TSLT contact, to insure the signal goes low.)
- f. The power to the fuse and fuse module is not killed by turning the power switch off. The main line power must be killed to remove the power.
- g. On 83 software and above, the PWBL light shows the program working.
- h. The SBC in slot S of the B7 panel can be pulled out and the system will still run. The system does not look at this board for start up.
- i. The power supply in the fuse and switch module needs to be at least 30 amps. If a replacement is ordered or if the car is shutting down without any reason, the power supply may be too small.
- j. The power supply going low will stop the processor. One of the things that helps is the new grounding scheme.
- k. All pico fuses that are driving a mercury wetted relay should be 1/8 amp. The print calls for a 3/4 pico fuse. Should check.

- l.** To test for a bad negative feedback diode, check for voltage between E1 and E3. If voltage is present or the negative feedback resistors are very hot, then the negative feedback diode is faulty.
- m.** On the governor selector assembly, check the battery charging voltage to see if it is at 12 Vdc to hold the charge on the DDD battery.
- n.** On the EBP, the interrupt 7 line, a ground will pull the DDD pulse low on the MGI board. Lift the boards one at a time to locate the bad board and cut the trace on that board or cut the trace on the EBP running from the MGI toward slot A.
- o.** A poor contact or contact bounce on contact 1A/13 or 2A/13 in the 6S coil circuit can burn up the MGA board. One way to insure better operation is to double these contacts.
- p.** If the job COE does not contain the out-of-service, the car station service switch will not work.
- q.** Anytime a board is plugged into the EBP, try to check the pins, as the end-play is great enough to cause problems. The line up pins do not hold the board in the right place.

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SIGNAL CONDITIONS FOR SPECIFIED OPERATION

Control Port	Bit	AVAS	Lobby Next	Call	Run	Signal Name	Signal Definition
IO8	0	1				KTS	Front Saf-T-Ray Power On
Slot R	1	1				KBEAM	Front Saf-T-Ray Light Beam
C=	2	0				KDLM	Front and Rear Door Lock Monitor Signal
EA	3	1				K CPR	Control Protective Relay
	4	1				K9	Relay "9" is Energized - MG is on
	5	1				K55	Gov. Overspeed
	6	0				K TSLT	Front Door Open to Preset Limit: K TSLT =
	7	0				KHCS	Handicap One Trip Operation Button
IO8	0	0	0			KSDL	Smoke Sensor at Lobby Door
Slot R	1	0	1			KDOR	Power Applied to Front Door Open Relay
B=	2	1	1			KDPO	Front Door Power On
E9	3	1	1			KSTE	Front Door Open Button/Saf-T-Edge
	4	1	0			K40	Front Car Gate Contact
	5	1	0			K41	Front Hatch Door Locks
	6	0	0			K43	Front Door is Closing
	7	0	0			K44	Front Door is Opening
IO8	0	1	1	0	1	DFR1	Energize FR1 for Full Field
Slot S	1	1	1	0	0	DL2	Establish Run Conditions
A=	2	1	1	0	1	DGN	Establish Up Direction
E4	3	1	1	1 0	2 0	DGD	Establish Down Direction
	4	1	1	1 2	0 1	DFEMC	Bypass Door Open Button/Stop Button F.R.P.
	5	1	0	1	1	D44	Open the Front Door
	6	1	1	1	1	DEMP	Select Car to Run on Auto Emergency Power
	7	1	1	1	1	DNUGD	Front Door on Nudging
IO8	0	0			0	KFEM	Firemens Emergency (Place Car on Phase 1)
Slot S	1	1			0	KA	Brake is Set
B=	2	0			0	KFEMCM	Place Car on Firemens Emergency Phase II
E5	3	0			1	KHOLD	Firemens Door Hold Phase II
	4	0			1	K32L	Car is Running
	5	1			1	K29	Safety Circuit Completed
	6	0			0	K5K	Emergency Power is Available
	7	0			0	KEMP	Car has been Selected to Run on Emergency Power
IO8	0	1	1	1		K50	50% Weight Switch
Slot S	1	1	1	1		K75	75% Weight Switch
C=	2	0	0	0		KHEM	Hospital Emergency Operation
E6	3	1	1 B	1 T		K980M	Car in Service
	4	0	0 O	0 O		KU	A.S. Up Button and Initiate Door Closing
	5	0	0 T.	0 P		KD	A.S. Dn Button and Initiate Door Closing
	6	1	1	0		KTOP	Selector Reset from Top Terminal
	7	1	0	1		KBOT	Selector Reset from Bottom Terminal

SIGNAL CONDITIONS FOR SPECIFIED OPERATION (CONT)

Control Port	Bit	AVAS	Lobby Next	Call	Run	Signal Name	Signal Definition
IOT	0	0	1	1		AVP0	Advanced Car Position in Binary Bit 0
Slot T	1	0	1	1		AVP1	Advanced Car Position in Binary Bit 1
A=	2	0	1	0 L		AVP2	Advanced Car Position in Binary Bit 2
E0	3	0 B	1 T	0 O		AVP3	Advanced Car Position in Binary Bit 3
	4	0 O	0 O	0 B		AVP4	Advanced Car Position in Binary Bit 4
	5	0 T.	0 P	0 B		AVP5	Advanced Car Position in Binary Bit 5
	6	1	1	0 Y		DAUA	Up Direction Arrow
	7	1	1	1		DADA	Dn Direction Arrow
IOT	0	1	1	1	1	K60	On Automatic Operation
Slot T	1	0	0	1	0	K1	Up Direction Has Been Established
B=	2	0	1 C	0	1	K2	Dn Direction Has Been Established
E1	3	1	1 A	1 U	1 D	KTSD1	Terminal Slowdown - Low Speed Pt.
	4	1	1 L	0 P	0 N	KLU	Level Up
	5	0	1 L	1	1	KL2	Safe to Run Full Speed
	6	1	1	0	0	KLD	Level Dn
	7	1	1	1	1	KTSD2	Terminal Slowdown - High Speed Pt.
IOT	0	1	1			DCLK	Provide Clock Pulse on DOD
Slot T	1	0	0			DSP	Control Loading Parallel Data/Serial Data
C=	2	1	1			DMD	Select Parallel/Serial Mode
E2	3	1	1				(Port C DDD Interface Port)
DDD	4	1	0			KDIR	Direction Input from DDD
Interface	5	0	0			KCTR	Serial Data Input
	6	0	0			KINT	Pulse to Indicate Every 1/4" Car Moves
	7	0	0			KBATT	Monitor Batt. Condition
I08	0	0				KLDO	F.R. Lobby Door Open Button
Slot P	1	0				KDORR	Power Applied to Rear Door Open Relay
IR CAR	2	0				KDPOR	Rear Door Power On
B=	3	0				KSTER	Rear Door Open Button/Saf-T-Edge
ED	4	0				K40R	Rear Car Gate Contacts
	5	0				K41R	Rear Hatch Door Locks
	6	0				K43R	Rear Door is Closing
	7	0				K44R	Rear Door is Opening
I08	0	0				KTSR	Rear Traffic Sentinel Power On
Slot P	1	0				KBEAMR	Rear Saf-T-Ray Light Beam
IR CAR	2	0				KFDCR	Firemens Rear Door Close Button
CEE	3	0				KTSLTR	Rear Door Open to a Preset Limit: KTS
	4	0				KPASS	Attendant Bypass
	5	0				KPARK	Activates Parking Feature
	6	0				KFDC	Firemans Front Door Close Button
	7	0				KFCR	Firemans Car Call Cancel Button

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3.7 TROUBLESHOOTING PROBLEMS

<u>Problem Title</u>	<u>Problem No.</u>	<u>Page No.</u>
AST Triggerings	06	3-57
Cars in Bank on BLOP Operation	02	3-54
Car Doors Will Not Close	07	3-58
Car or Corridor Calls Will Not Register or Lanterns Do Not Function	01	3-54
Inconsistent Landings	04	3-55
One Car on BLOP Operation	03	3-55
55 Switch Tripping	05	3-56

TROUBLE PROBLEM 01 - CAR OR CORRIDOR CALL WILL NOT REGISTER OR LANTERNS DO NOT FUNCTION

PROBABLE CAUSES

CORRECTIVE ACTION

Blown fuse in an output driver circuit

From the I/O signal definition chart, locate the port and pin, check/replace the pico-fuse.

Defective I/O board

If this does not work, replace the I/O board.

Defective SBC board

If the above will not correct the problem, replace the SBC board.

TROUBLE PROBLEM 02 - CARS IN BANK ON BLOP OPERATION

PROBABLE CAUSES

CORRECTIVE ACTION

Blown DIB fuse for corridor call circuit

Check for CV125 at OBD terminal and in the B6 panel. If the DIB fuse is blown, check the corridor call wires for grounded condition.

TROUBLE PROBLEM 02 - CARS IN BANK ON BLOP OPERATION (CONT)

PROBABLE CAUSES

Communication faulty

Defective ATM SBC or defective DMM or
REM on the ATM SBC (slot W)

Shared memory board defective

Open data link

CORRECTIVE ACTION

If all cars in bank are affected, then
replace the communications processor in
slot U of the B7 panel.

If the whole bank is affected, then check
all bank operation including the main
SBC in slot W of the B7 panel.

Replace the shared memory board.

Check the data link wiring.

TROUBLE PROBLEM 03 - ONE CAR ON BLOP OPERATION

PROBABLE CAUSES

Defective car REM module

Defective data link to car

CORRECTIVE ACTION

Check/replace the REM module on the
car SBC.

Check the car data link.
Check data link plugs in the B6 and the
B7 panels.

TROUBLE PROBLEM 04 - INCONSISTENT LANDINGS

PROBABLE CAUSES

Incorrect floor height information.

(NOTE: Any time the logic is turned off,
the floor height count will revert to the
value burned in the PROM's. If the
PROM count differs from the value stored
in RAM by more than 5 or 6 counts, burn
new PROM's.)

CORRECTIVE ACTION

Check STATUS + F1 to compare the
actual count to the target count. Next,
compare the actual count from F1 to the
AVP count on screen F2. If the
difference between the target and the
APV count is greater than four counts,
then run an FHU. To run an FHU, go to
the ACTIVE MODE page of the HHT
section.

TROUBLE PROBLEM 04 - INCONSISTENT LANDINGS (CONT)**PROBABLE CAUSES****CORRECTIVE ACTION**

Missing position pulses

Compare the count of POS16 to the count of AVP16 to see if there is a large error between them. If a large error exists, then check the governor pulse wheel, the photodetectors, and the wiring. Use a chart recorder to check the pulse train.

DDD board defective

If the chart recorder shows pulses missing and the photodetector, wiring, and pulse wheel are good, then replace the DDD board.

I/O T or SBC defective

If pulses are present at the FTM and not at POS16 on the HHT, replace the I/O T board. If that does not correct the problem, then try replacing the SBC board.

Loss of generator shunt field negative feedback voltage

Check the negative feedback voltage.

Faulty MGI or MGA

Try changing the MGI or MGA to find the cause of the bad landings.

TROUBLE PROBLEM 05 - 55 SWITCH TRIPPINGS**PROBABLE CAUSES****CORRECTIVE ACTION**

Faulty speed tachometer

Check the tach for a loose coupling, bad brushes, bad bearings, slipping, or poor wiring connection.

Weak motor field

Check the motor field.

Defective MGI board

The pattern voltage, with the car running should equal 1 volt for 50 fpm of car speed.

TROUBLE PROBLEM 05 - 55 SWITCH TRIPPINGS (CONT)

PROBABLE CAUSES

Acceleration feedback or velocity feedback

(NOTE: The car will make one floor runs with the 55 switch tripped if the doors are closed.)

CORRECTIVE ACTION

If none of the above items cure the problem, then check the basic board adjustments.

TROUBLE PROBLEM 06 - AST TRIGGERING

PROBABLE CAUSES

Faulty contact or connection in the generator field circuit

Faulty connection in the MGI/MGA cabling

Defective MGI board

Defective MGA board

Defective SBC board

Selector out of step

AST LED blinking

CORRECTIVE ACTION

Check contacts and connections in the generator field circuit.

Inspect the MGI/MGA cable connectors. With a DDM meter, measure the voltage of VAF1 (pin 'a' of the MGI board to PSC). If voltage is present as the car starts to run, check VAF1 at the MGA (pin PI08 to PSC).

If no voltage appears at pin 'A' on the MGI board, check pin TP02 for pattern voltage. If pattern voltage is present, replace the MGI.

If voltage is at pin PI08 on the MGA and the car does not run or drifts slowly in the overhauling direction, replace the MGA.

If no voltage appears at TP02 on the MGI board and all relays are up, replace the SBC.

Check problem 04 listing.

AST LED blinking indicates two successive failures of the CPR circuit.

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TROUBLE PROBLEM 07 - CAR DOORS WILL NOT CLOSE**PROBABLE CAUSES**

D44 output high 44 up doors will not close

Car feature active; i.e., HE, FR, ATSV

CORRECTIVE ACTION

Use the HHT to check I/O output for D44. If signal is low, turn car on hand, if signal stays low, replace the I/O 8 board for slot S.

Use the HHT to check for active features.
