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VIRGINIA CONTROLS LLC
2513 MECHANICSVILLE TURNPIKE
RICHMOND, VIRGINIA 23223

ELEVATOR CONTROLLER SCHEMATIC

ELEVATOR CONTRACTOR:
CANTON ELEVATOR, INC.
2575 GREENSBURG ROAD
NORTH CANTON, OH 44720

JOB NAME:
E-STUDIO SUITES
PLAINFIELD, IN

CONTROLLER FEATURES

PROGRAMMABLE CONTROLLER, PROM MEMORY	MH3000
SELECTIVE COLLECTIVE SIMPLEX OPERATION	1 CAR
POWER SUPPLY VOLTAGE (3Ø, 60 HERTZ)	208V
NUMBER OF LANDINGS / NUMBER OF OPENINGS	2 / 2
CAR SPEED (FEET PER MINUTE)	100
CAPACITY (LBS)	2000
CAR TRAVEL (FEET)	11' 3"
MOTOR POWER (HP)	20
FULL LOAD CURRENT	65.4
STARTER: XL = ACCROSS THE LINE; Y-D = WYE-DELTA; SS = SOLID STATE	SS
SOLID STATE STARTER SIZING	PCEC-074
HYDRAULIC VALVE SET	MAXTON
ROPED HYDRAULIC / JACK RESYNCHRONIZATION	NO / NO
PHASE MONITOR (ON STARTER)	YES
OIL VISCOSITY (CHURN) OPERATION	NO
CAR TOP SELECTOR (IP8700) BY CANTON	YES
DOOR OPERATOR TYPE (GAL TYPE)	MOVFR
DIGITAL POSITION AND DIRECTION INDICATORS BY C. E. E.	YES
HALL POSITION INDICATORS	NO
CAR TRAVELING DIRECTION LANTERNS AND GONGS	YES
1 UP AND 2 DOWN STROKE BY VCI	YES
LIGHT UP CAR AND HALL BUTTONS	YES
FIXTURES @ 115VAC	YES
SLOW SPEED ON INSPECTION	YES

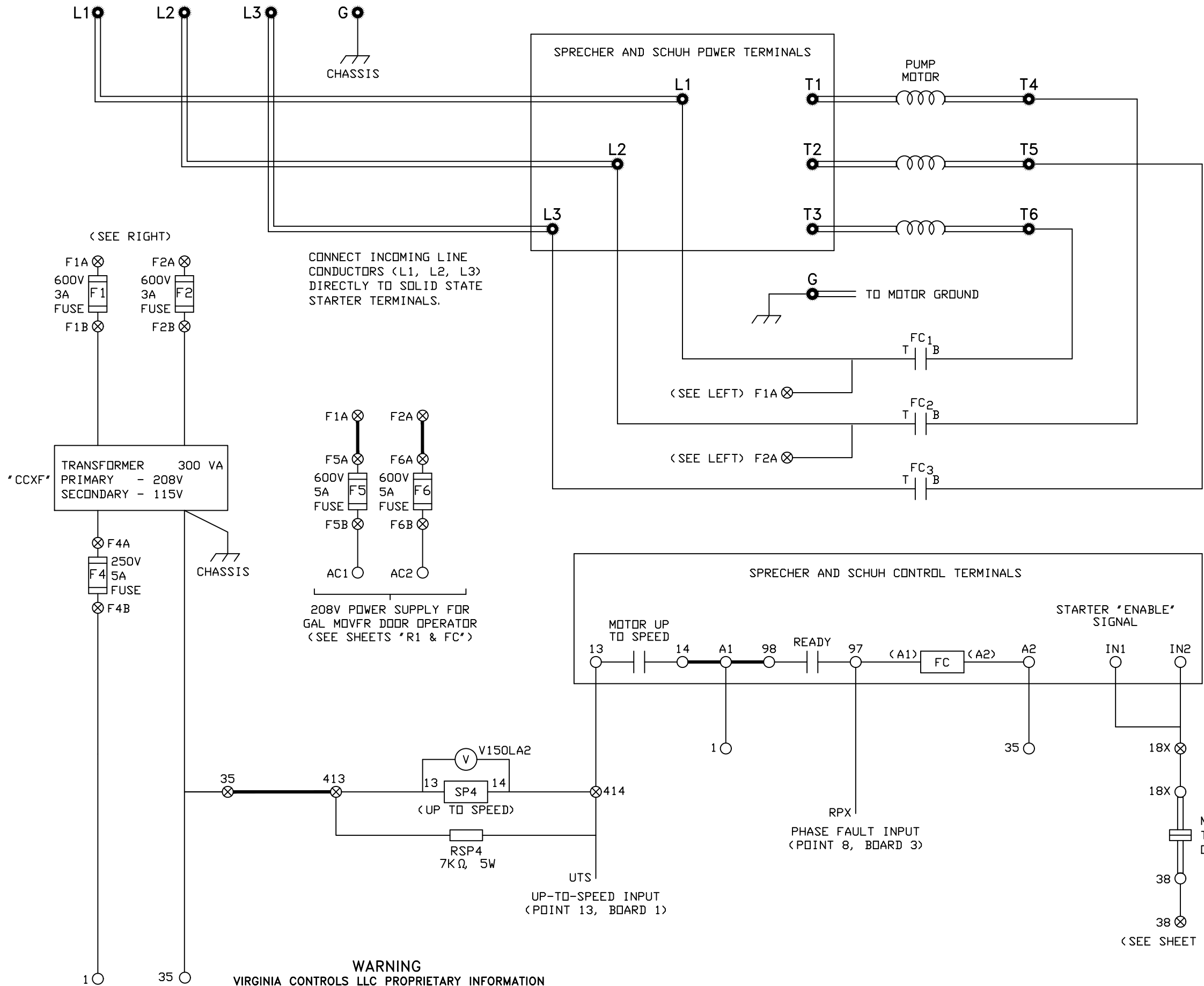
CONTROLLER FEATURES

TOP & BOTTOM HOISTWAY ACCESS SWITCHES	YES
TOP OF CAR INSPECTION	YES
FIRE OPERATION, PHASE II (CAR)	YES
FIRE RECALL, PHASE I (HALL)	YES
FIRE SERVICE & SAFETY CODE (A17.1)	2007
DIFFERENTIAL CAR AND DOOR TIME	YES
DOOR CONTACT FAULT MONITORING	YES
DOOR NUDGING OPERATION	YES
ELECTRIC EYE TIMED CUTOFF	YES
FRONT AND REAR NON-SELECTIVE DOOR OPENINGS	NO
GATE/DOOR BYPASS SWITCHES ON CONTROLLER	YES
INFRARED CURTAIN UNIT (NUDGE ON PHASE I)	YES
SHORTENED DOOR TIME WITH ELECTRIC EYE	YES
ADJUSTABLE HOMING / CAR TO LOBBY SW.	YES / NO
BORIS BATTERY BACKUP UNIT	NO
CARD READER SECURITY IN C. O. P. / CAR FAN & LIGHTING K/O	NO / NO
EMERGENCY POWER OPERATION	NO
EMERGENCY TERMINAL SPEED REDUCING SWITCH	YES
GOVERNOR RESET	NO
INDEPENDENT SERVICE	YES
LOAD WEIGHING BYPASS OPERATION	NO
U. L. LABEL (A17.5/B44.1)	YES
NEMA RATING FOR CONTROLLER ENCLOSURE	1

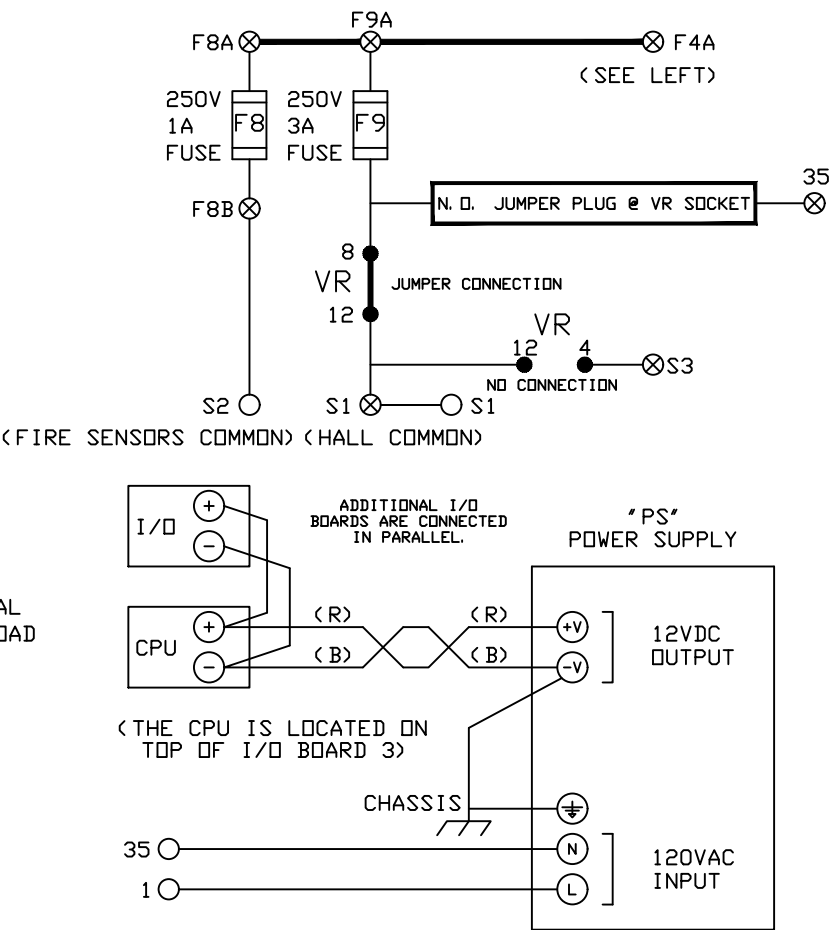
FLOOR MARKINGS	OPENINGS
BLDG. CONTROLLER	FRONT REAR
ALT. FIRE LDG. 2 ——— 2 ——— YES — NO	
MAIN FIRE LDG. 1 ——— 1 ——— YES — NO	

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ELEVATOR CONTROLLER SCHEMATIC	
ELEV. CO.:	CANTON ELEVATOR, INC.
JOB NAME:	E-STUDIO SUITES
P. O. #	30859-01
DATE:	11-28-2023
TYPE:	*V3MH-2-SC*
DRAWING NUMBER	
27089	

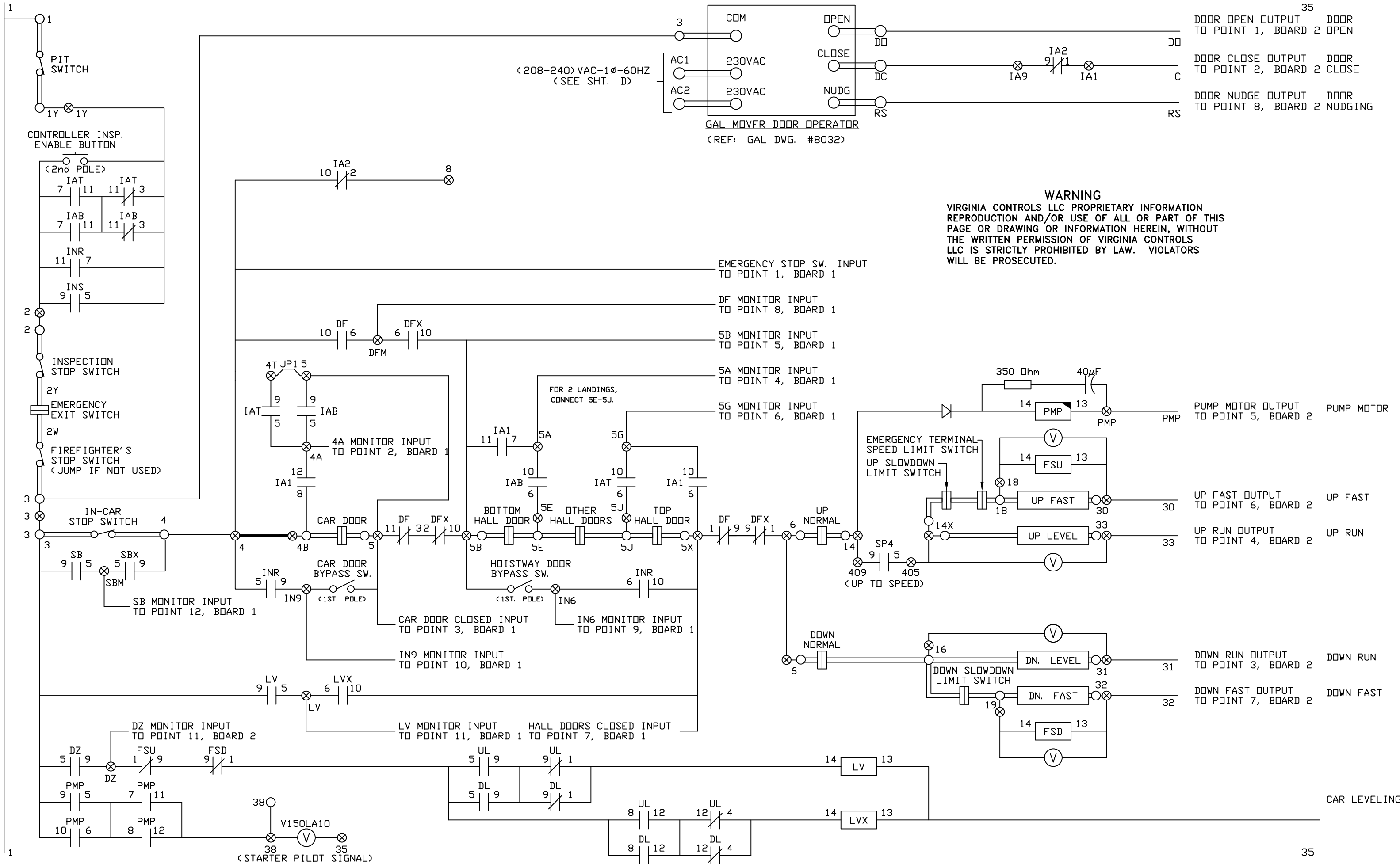
208V - 3Ø - 60HZ (FROM FUSED POWER SUPPLY)

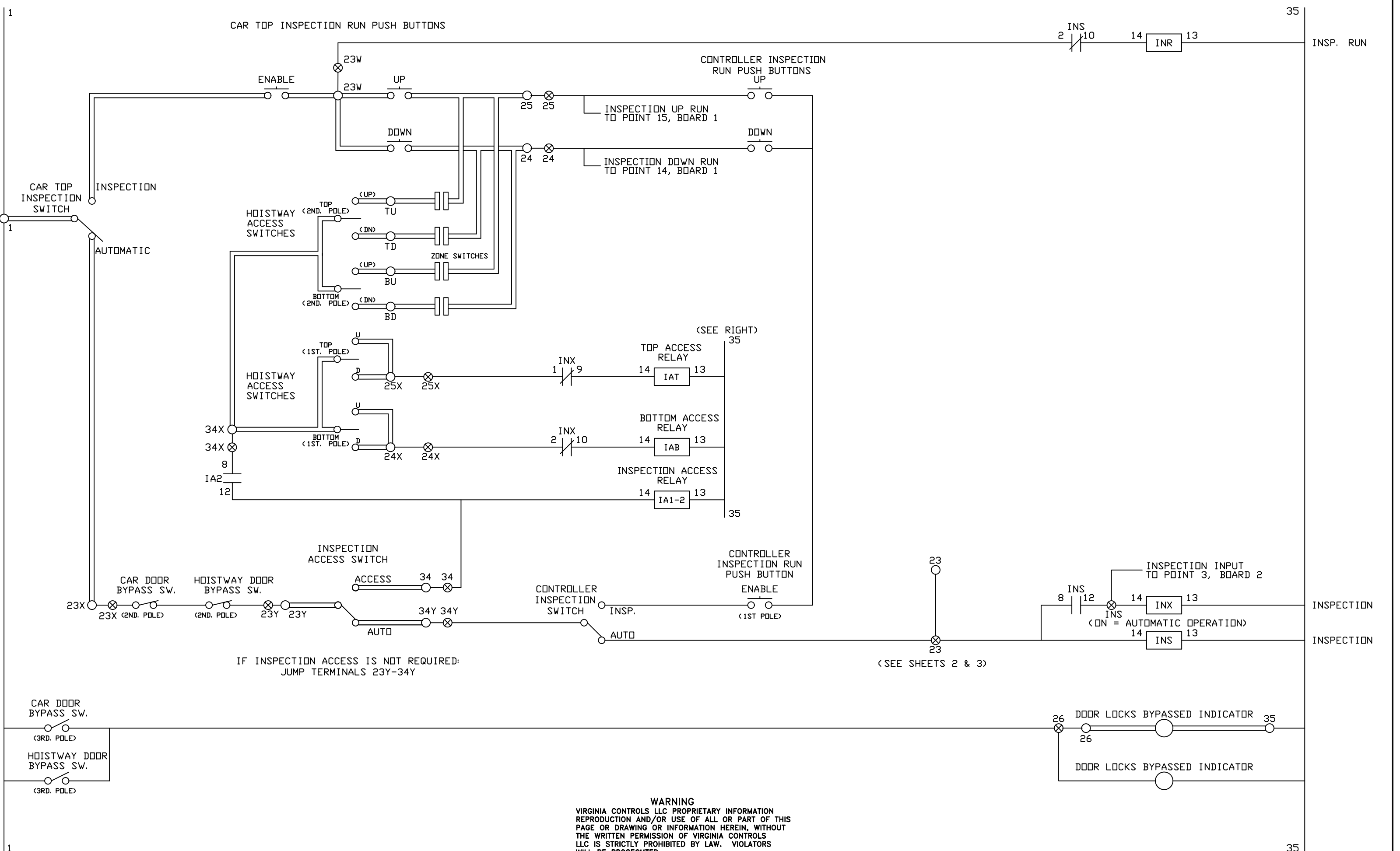


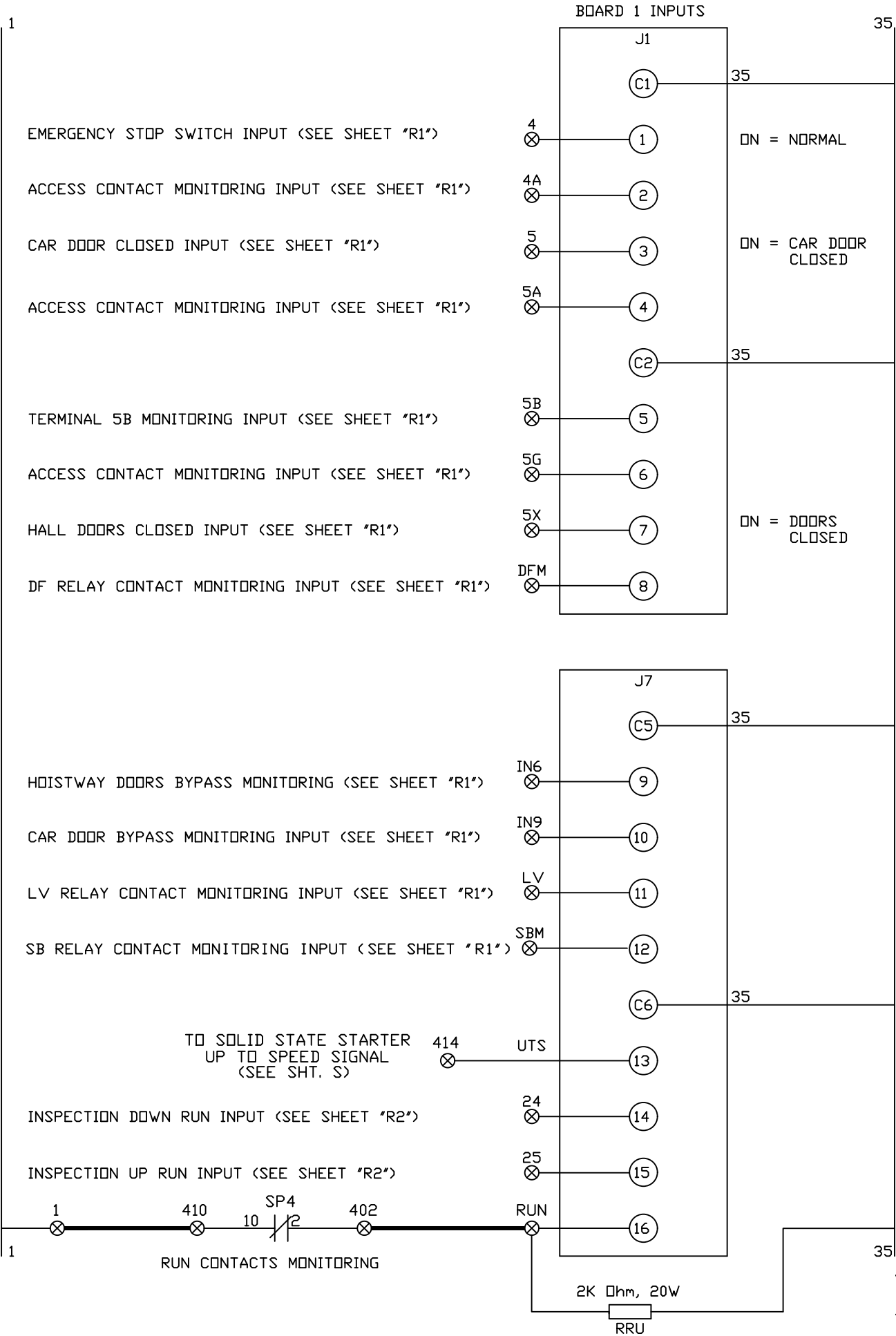
SPRECHER AND SCHUH DIP SWITCH SETTINGS		
1	OFF	START TIME = 2 SEC.
2	OFF	
3	ON	SOFT START MODE
4	OFF	STARTING CURRENT = 350%
5	ON	
6	OFF	SOFT STOP TIME = OFF
7	OFF	
8	OFF	NOT USED
9	OFF	ABC ROTATION
10	OFF	PHASE IMBALANCE ENABLED
11	ON	OVERLOAD CLASS = 10
12	OFF	
13	OFF	OVERLOAD RESET = MANUAL
14	ON	AUX. CONTACT #1 = UP-TO-SPEED
15	OFF	MOTOR CONNECTION TYPE = DELTA
16	ON	STOP DELAY = 0.75 SEC.
SPRECHER AND SCHUH OVERLOAD SETTING = 59A		



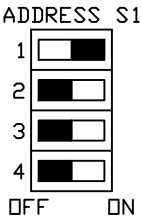
(SEE SHEET "L" FOR TEMPORARY RUN CIRCUIT DRAWING).



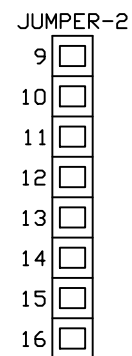
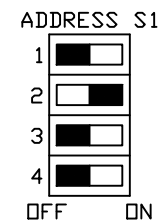
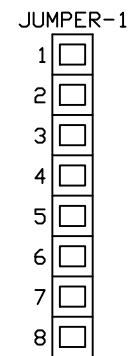
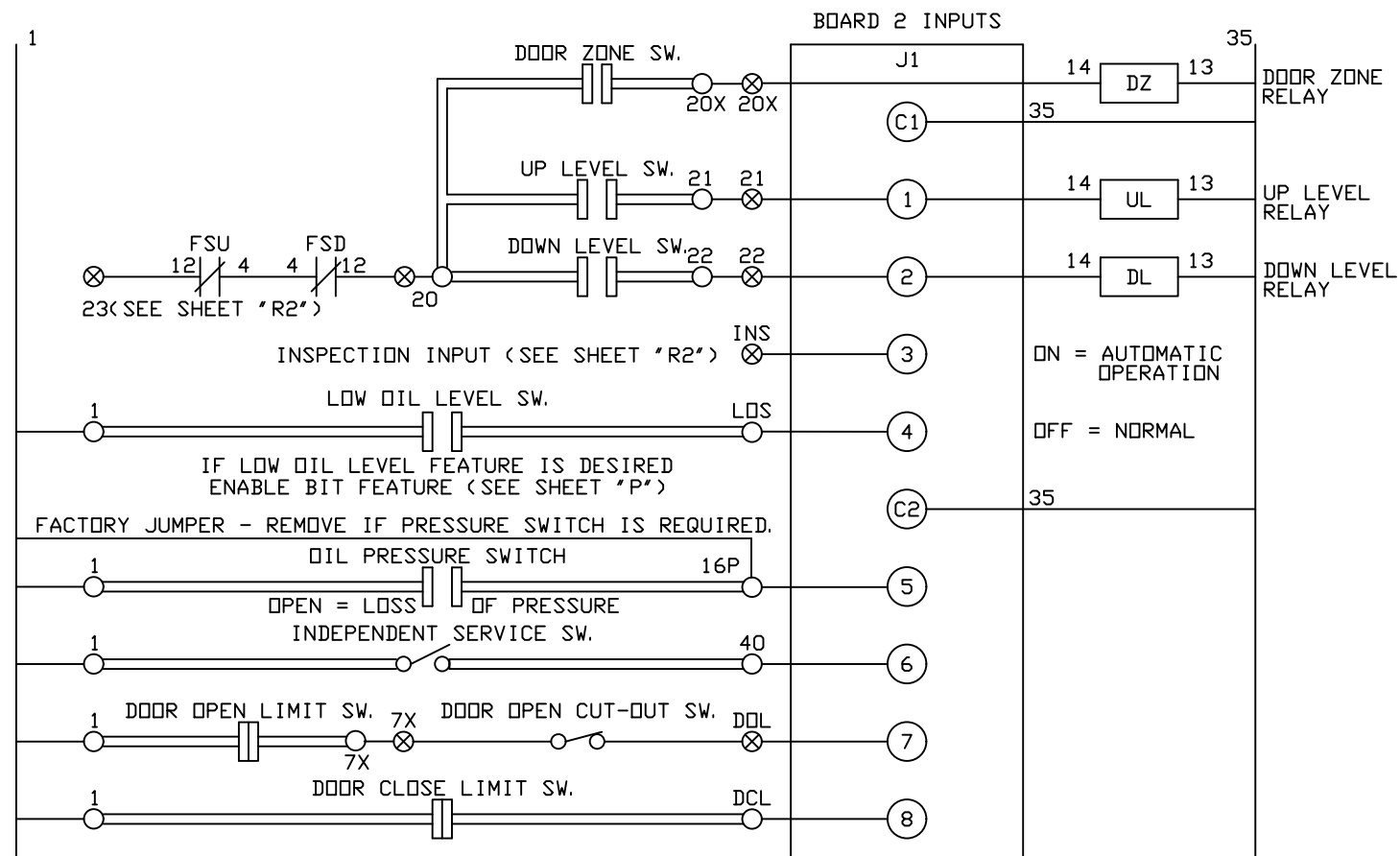




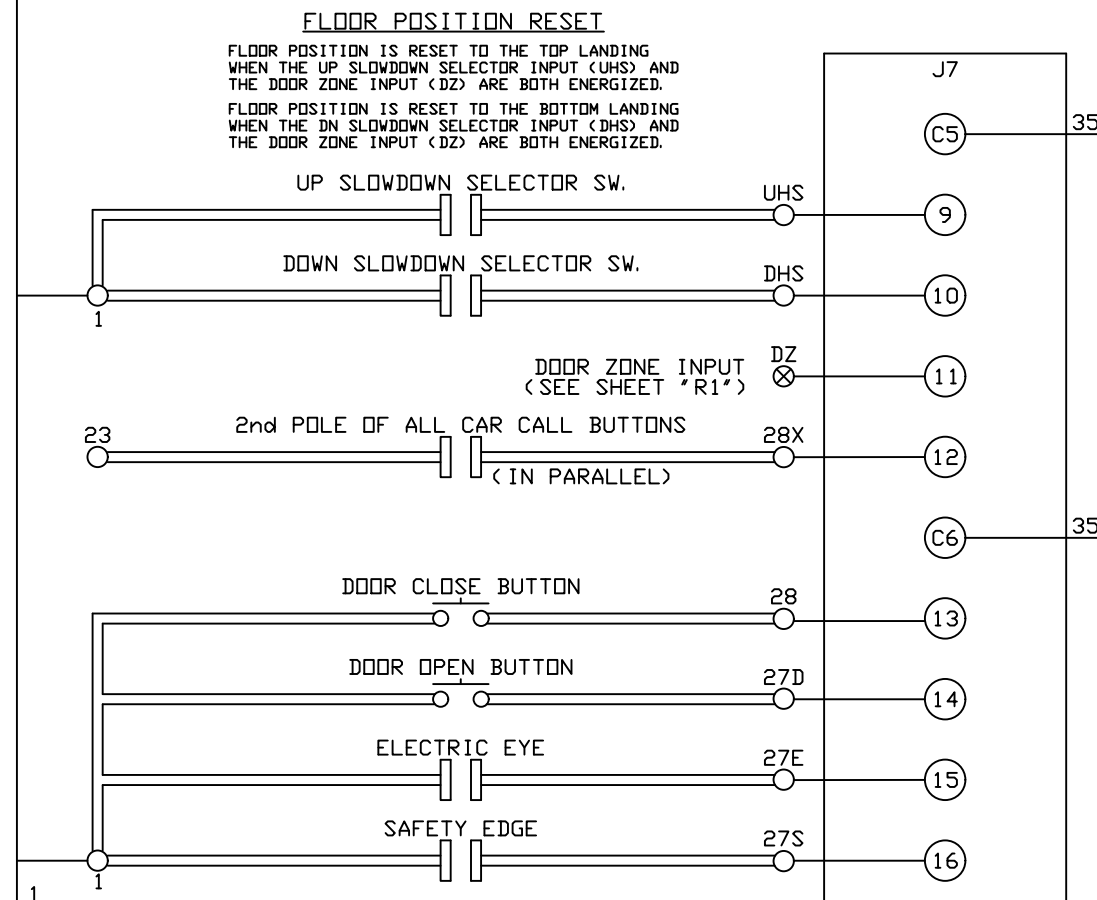
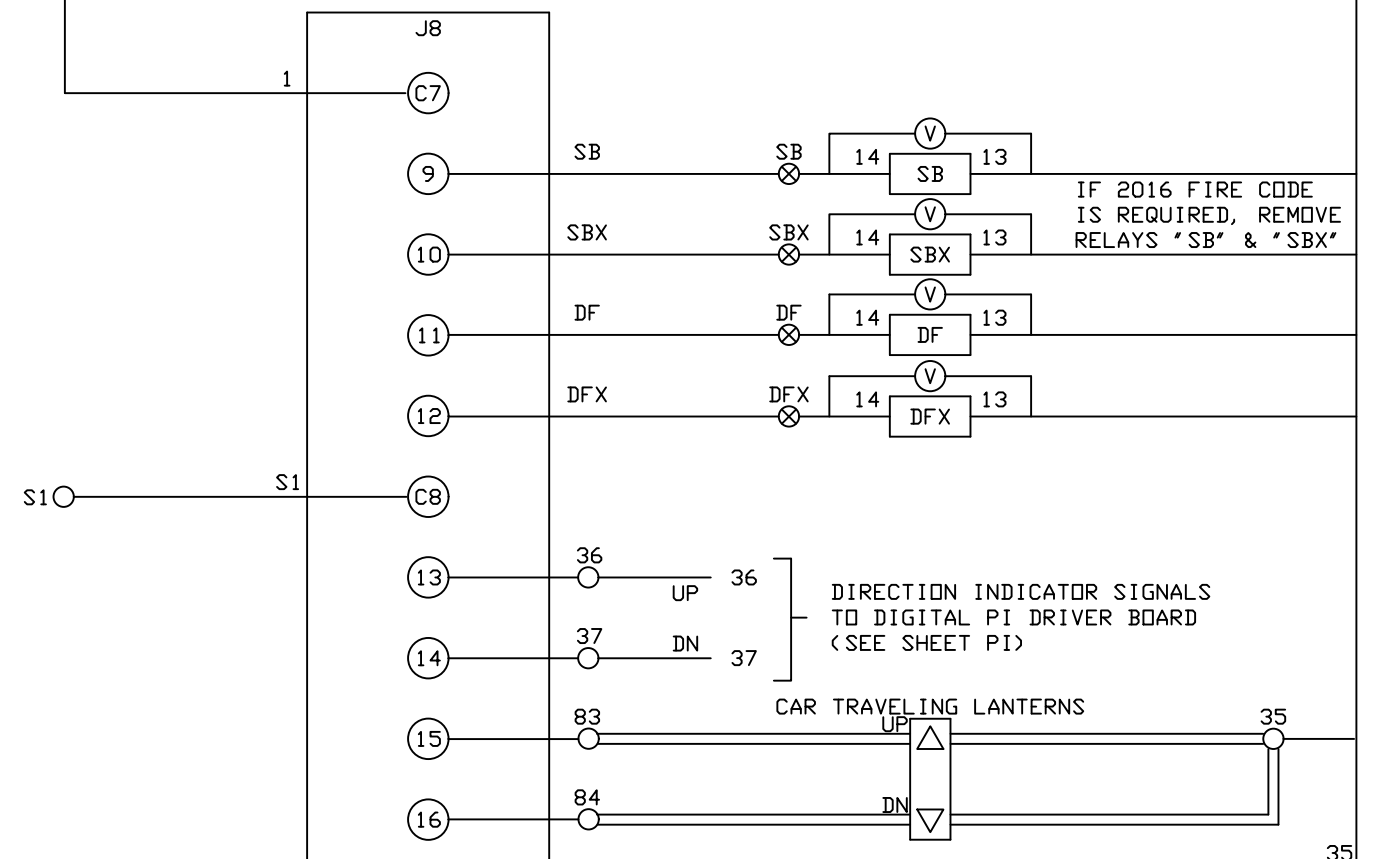
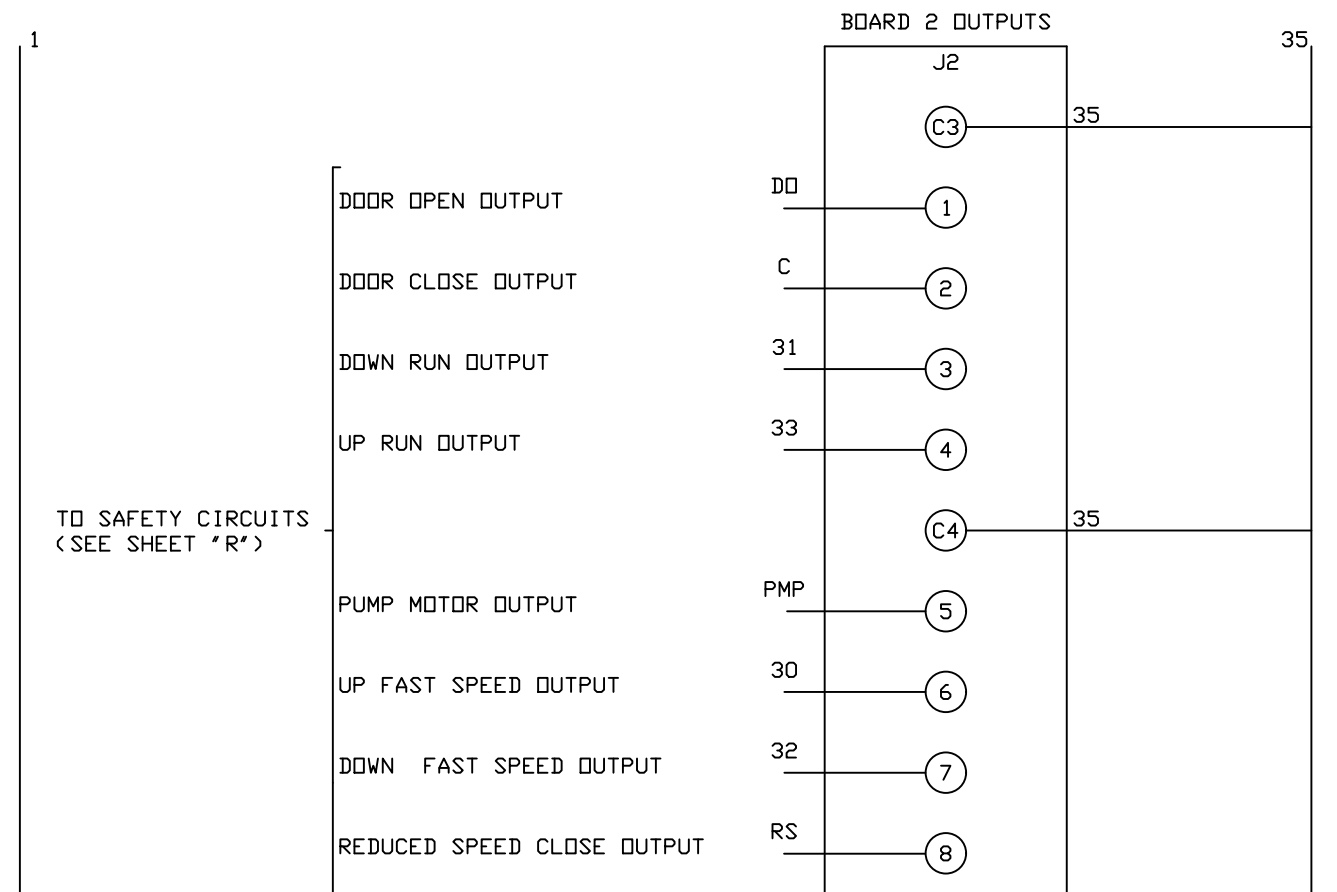
NOTE: THERE ARE NO OUTPUTS ON BOARD 1. IT IS A 16 POINT INPUT BOARD ONLY.
THIS BOARD IS MOUNTED OVER TOP OF THE FIRST LARGE (16IN/16OUT) CIRCUIT
BOARD LOCATED ON THE LEFT SIDE OF THE CONTROLLER.



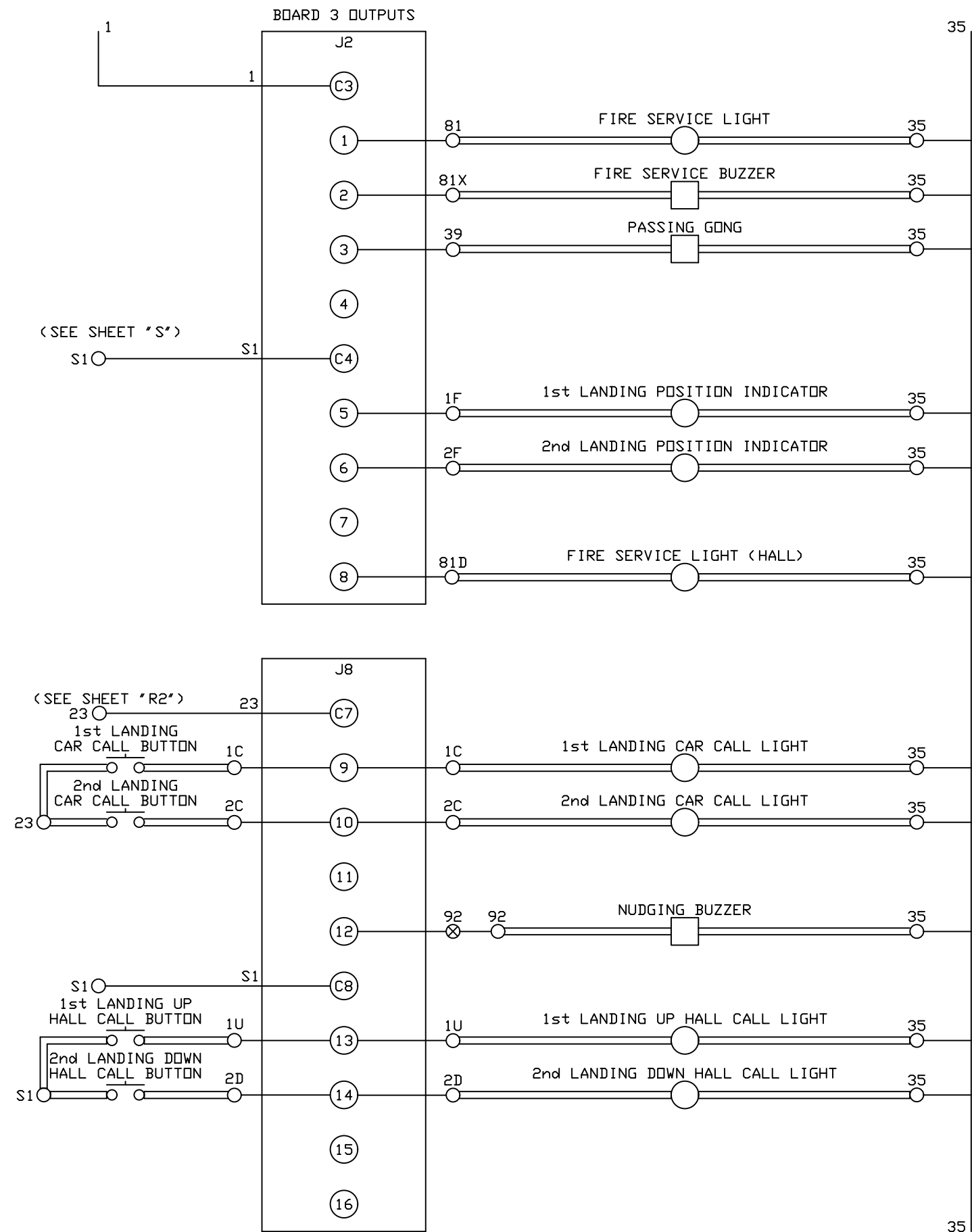
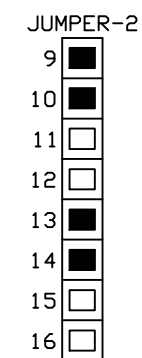
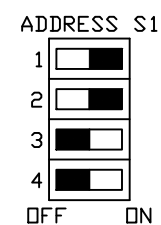
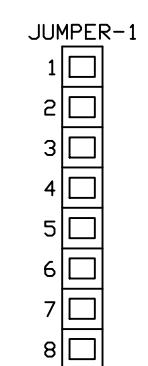
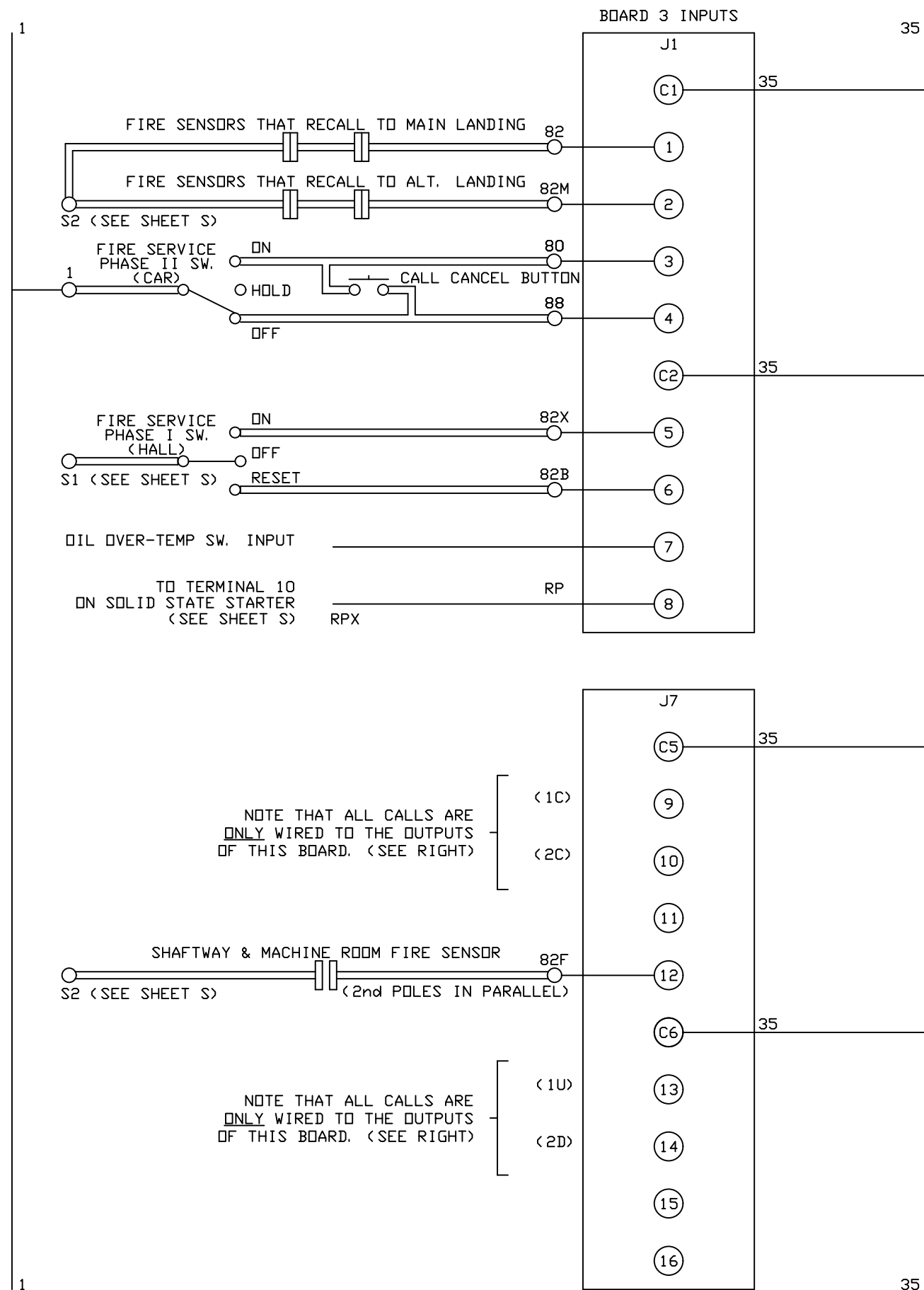
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INFRARED CURTAIN UNIT
WIRE INFRARED CURTAIN UNIT TO TERMINAL "27E" AS IT
IS OVER-RIDDEN BY TIMED ELECTRIC EYE CUT-OUT FEATURE



WARNING

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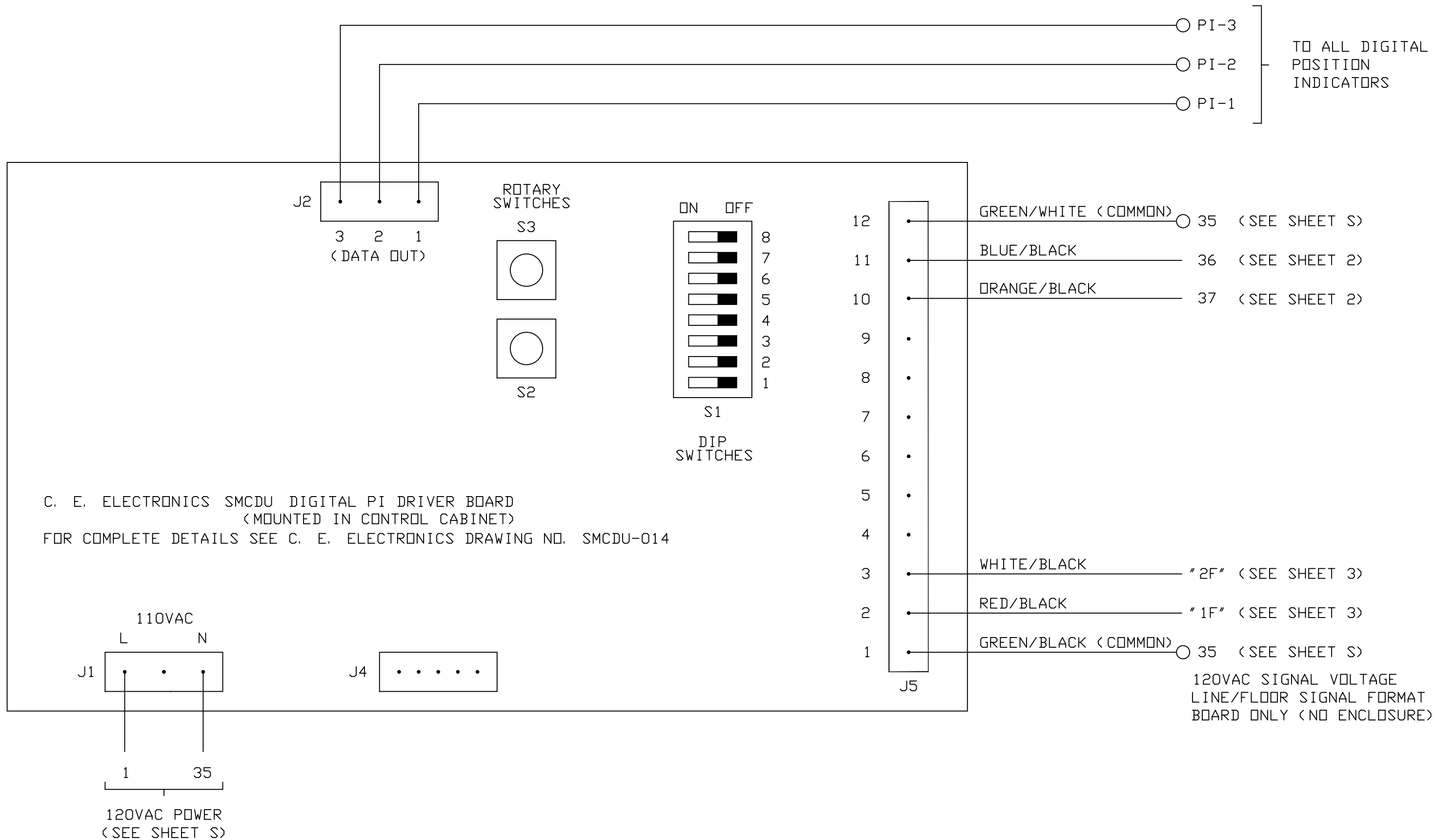
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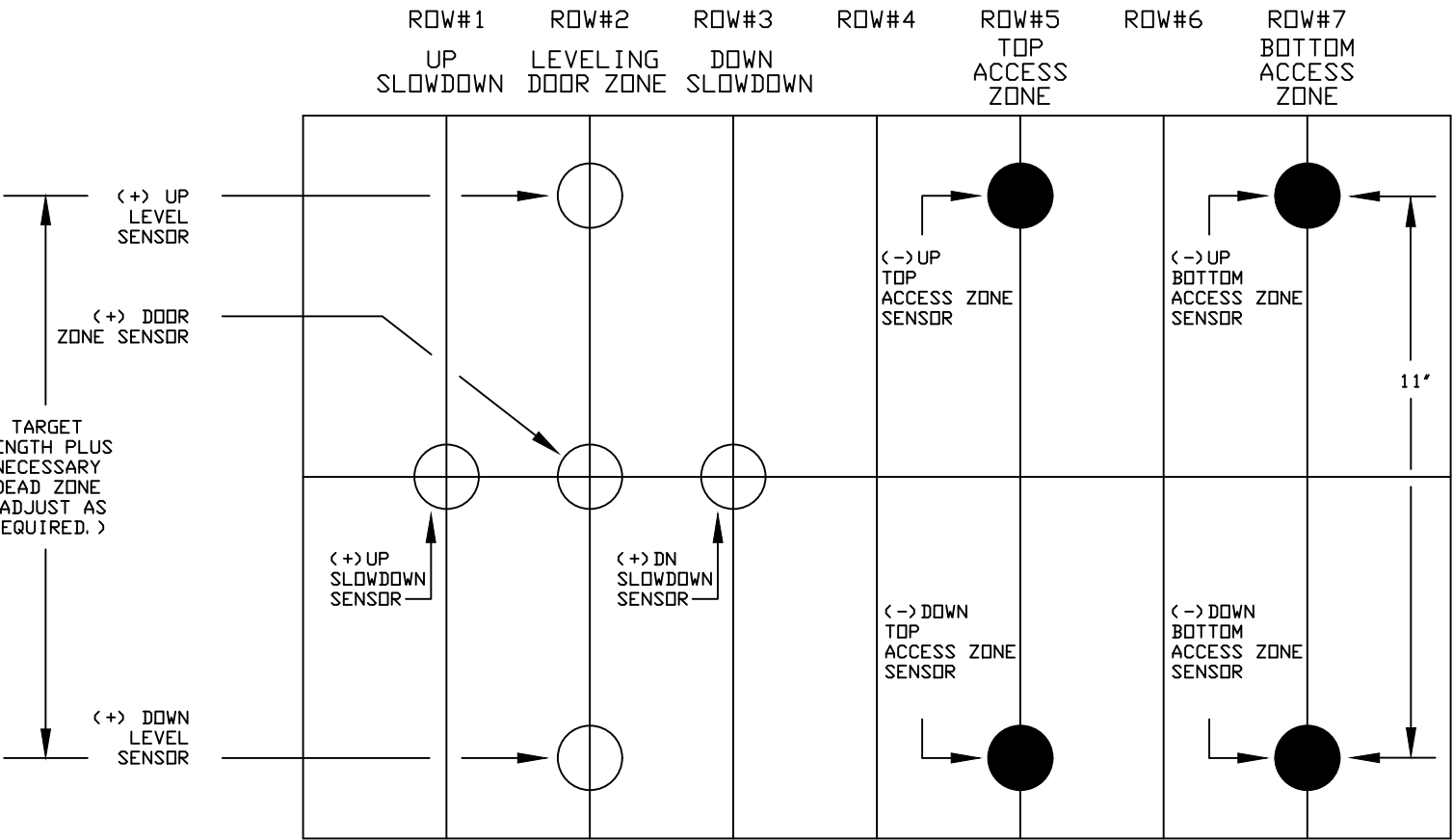
C. E. ELECTRONICS SMCDU DIGITAL PI DRIVER BOARD
(MOUNTED IN CONTROL CABINET)
FOR COMPLETE DETAILS SEE C. E. ELECTRONICS DRAWING NO. SMCDU-014

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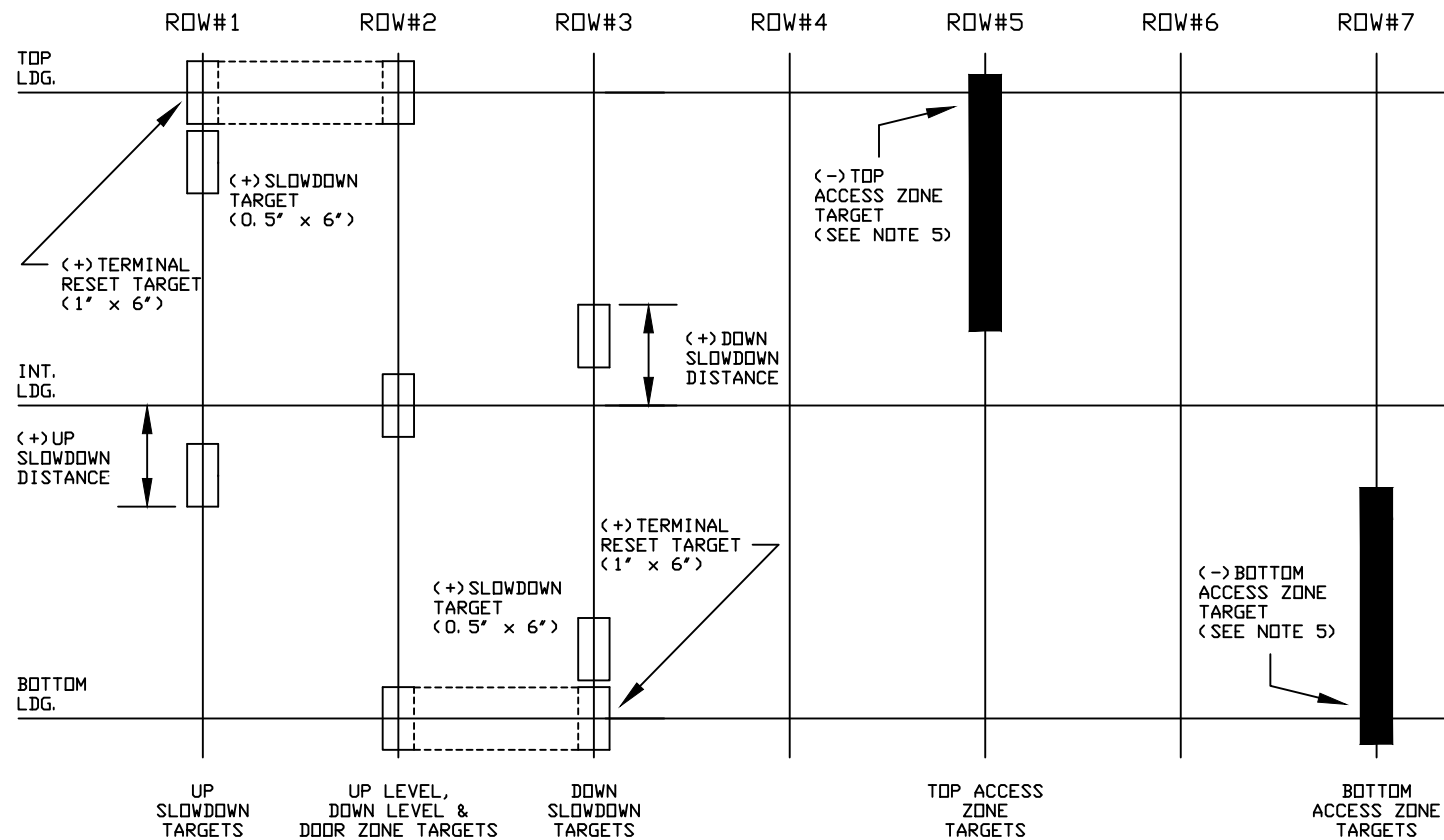
PI DRIVER BOARD

TYPICAL CAR TOP SELECTOR WIRING DIAGRAM, SENSOR & TARGET LAYOUT

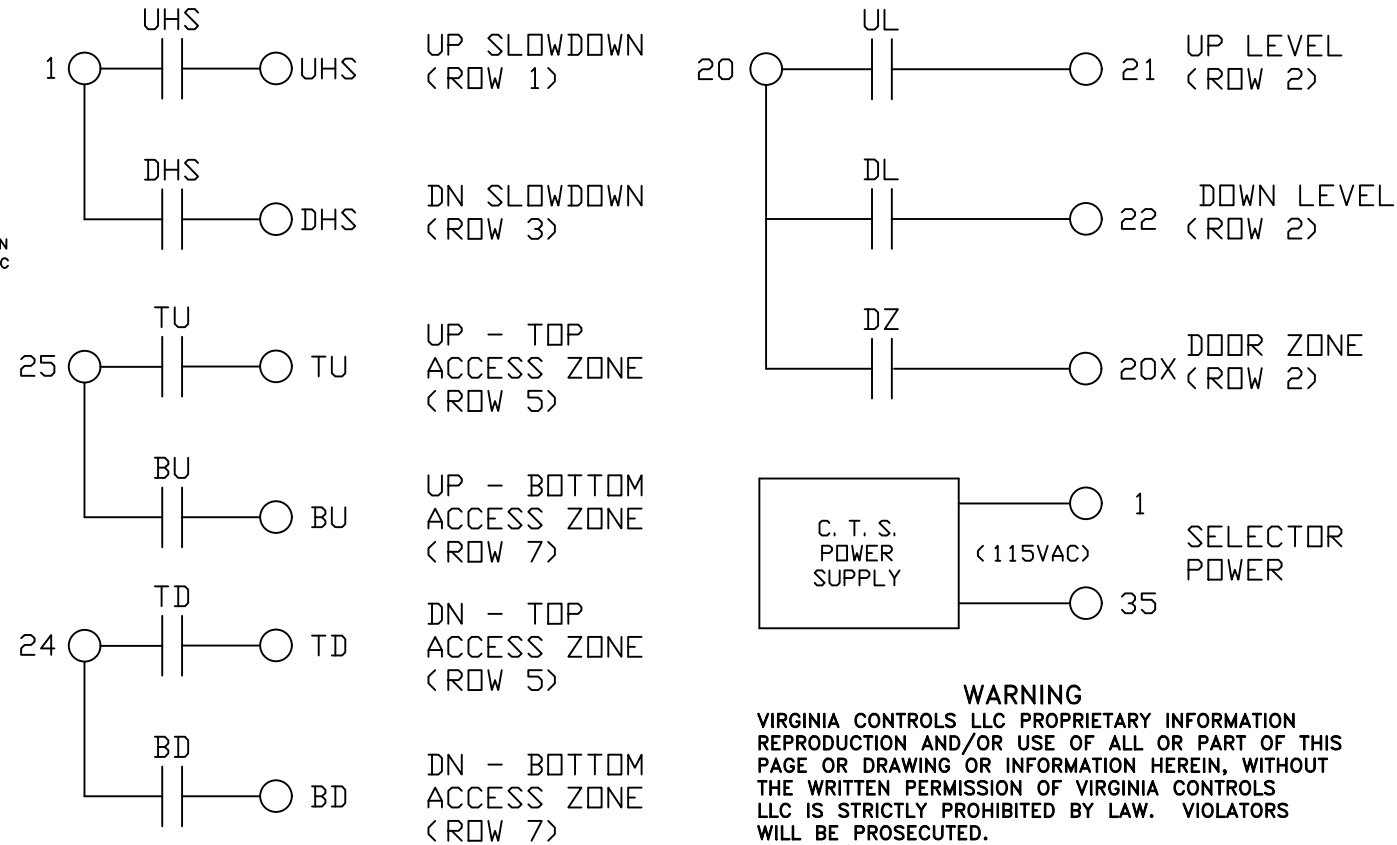
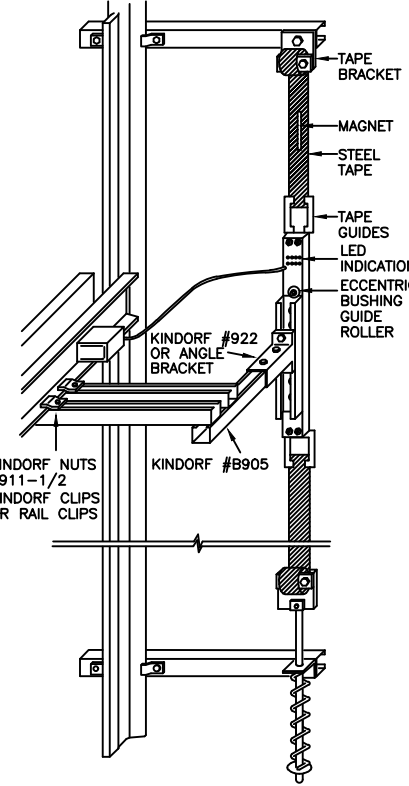
CAR TOP SELECTOR SENSOR LAYOUT



CAR TOP SELECTOR TARGET LAYOUT



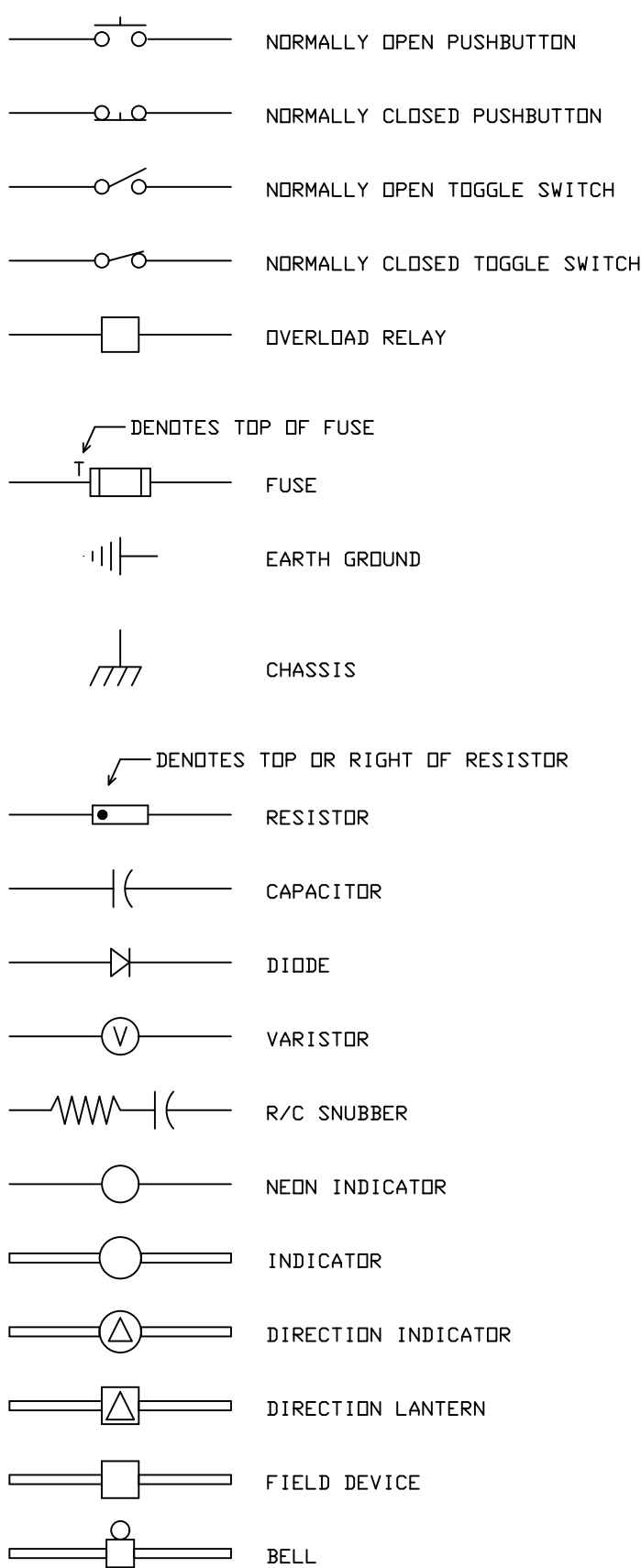
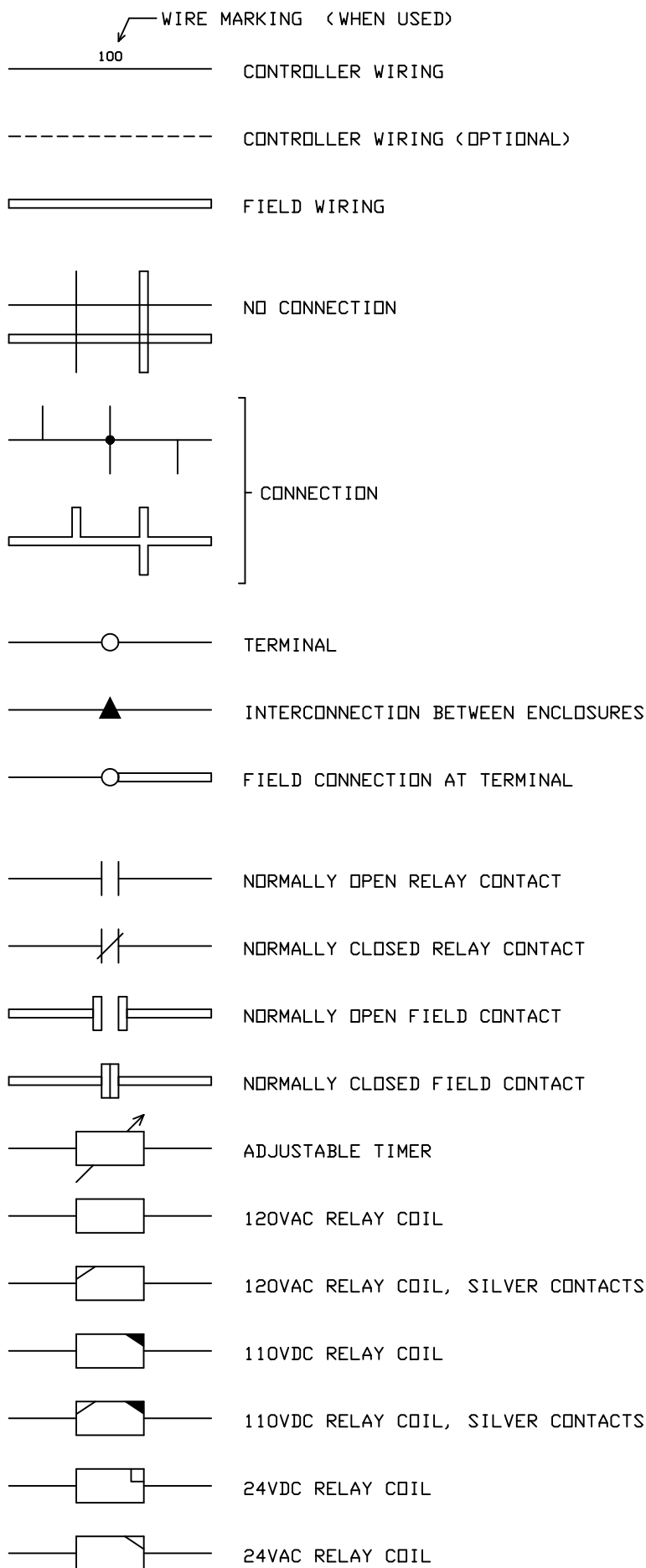
SELECTOR OUTPUT WIRING



- NOTES:
1. SET THE TARGETS IN EACH ROW THE SAME DISTANCE FROM THE FLOOR.
 2. SLOWDOWN IS INITIATED WHEN THE CAR ENCOUNTERS THE SLOWDOWN TARGET FOR THE NEXT LDG.
 3. DRAWING SHOWS 2 LDGS
 4. DISTANCE BETWEEN UP & DOWN LEVELING SWS. IS EQUAL TO THE LENGTH OF THE LEVELING TARGET PLUS THE DESIRED DEAD ZONE.
 5. SLOWDOWN TARGET LENGTH IS 6 INCHES. LEVELING TARGETS & TERMINAL RESET TARGETS ARE 6 INCHES. ACCESS ZONE TARGETS ARE 10 FEET LONG. (CUT ACCESS ZONE TARGETS TO DESIRED LENGTH FOR PROPER CAR TRAVEL ON INSPECTION ACCESS)
 6. THE FOLLOWING WIRES ARE CONNECTED FROM THE CAR TOP SELECTOR TO THE CONTROLLER: 1, 20, 20X, 21, 22, 24, 25, 35, UHS, DHS, TU, TD, BU, BD. (14 WIRES)

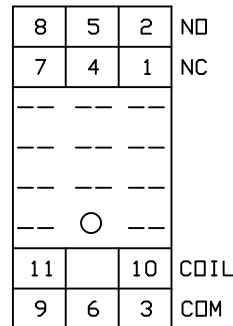
NO. OF LDGS: 2	NO. OF CARS: 1	(SLOWDOWNS & INTERMEDIATE LEVELING)
NO. OF ROWS: 7	NO. OF 6" x 0.5" (+) TARGETS: 2	(TERMINAL RESET & LEVELING)
NO. OF (+) SENSORS: 5	NO. OF 6" x 1" (+) TARGETS: 2	(ACCESS ZONES)
NO. OF (-) SENSORS: 4	NO. OF 10ft. x 0.5" (-) TARGETS: 2	
CAR SPEED: 100 FPM.	TRAVEL: 11' 3"	
SLOWDOWN DISTANCE IS APPROXIMATELY 24 INCHES.		

TYPICAL CAR TOP SELECTOR WIRING DIAGRAM & TARGET LAYOUT

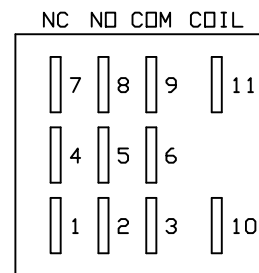


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SURFACE MOUNTED
RELAY SOCKET
TERMINAL NUMBERS



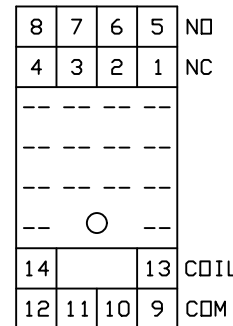
PANEL MOUNTED
RELAY SOCKET
TERMINAL NUMBERS



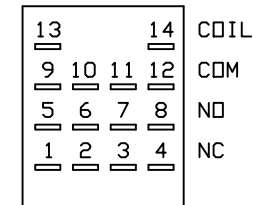
(AS VIEWED FROM THE REAR)

NOTE: THIS DIAGRAM AND THE
SCHEMATIC PIN NUMBERS ARE
DIFFERENT FROM THE ACTUAL
RELAY AND SOCKET MARKINGS.

SURFACE MOUNTED
RELAY SOCKET
TERMINAL NUMBERS



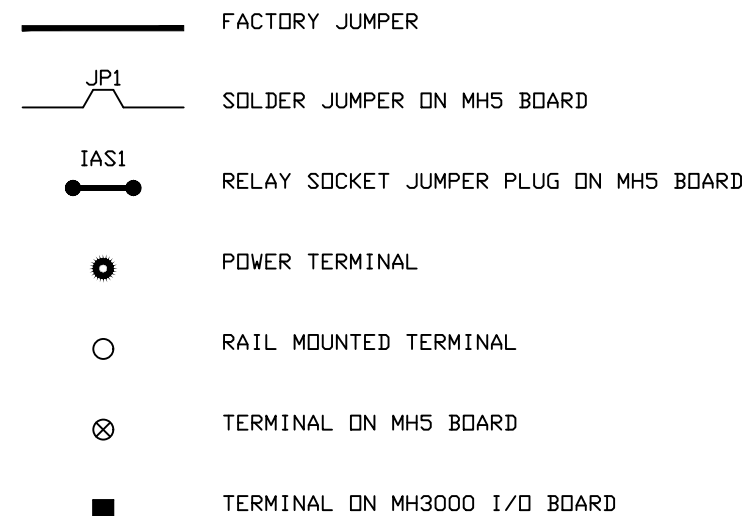
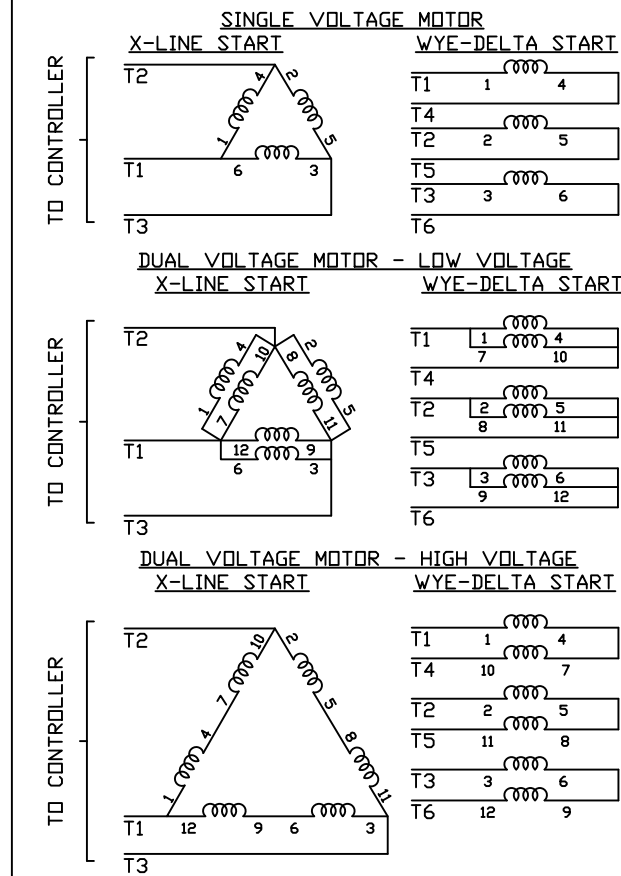
CIRCUIT BOARD
RELAY SOCKET
TERMINAL NUMBERS



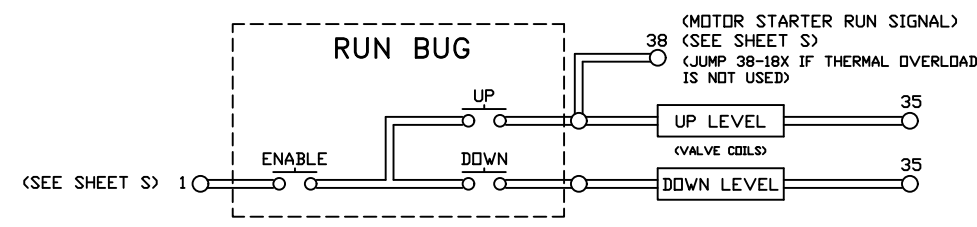
NOTES:

(1) CAUTION. TO REDUCE THE RISK OF FIRE,
REPLACE ONLY WITH THE SAME TYPE & RATING
OF FUSE OR EQUIVALENT.
(2) MAIN DISCONNECT & BRANCH CIRCUIT
PROTECTION TO BE PROVIDED BY OTHERS.

PUMP MOTOR CONNECTION DATA



TEMPORARY RUN CIRCUIT



BREAKDOWN OF BIT SETTINGS

255	Val	Set	FRONT DOOR CODE
1	1	ON	Enable Front Door at 1
2	2	ON	Enable Front Door at 2
4	4	ON	Enable Front Door at 3
8	8	ON	Enable Front Door at 4
16	16	ON	Enable Front Door at 5
32	32	ON	Enable Front Door at 6
64	64	ON	Enable Front Door at 7
128	128	ON	Enable Front Door at 8
0	Val	Set	REAR DOOR CODE
	1	OFF	Enable Rear Door at 1
	2	OFF	Enable Rear Door at 2
	4	OFF	Enable Rear Door at 3
	8	OFF	Enable Rear Door at 4
	16	OFF	Enable Rear Door at 5
	32	OFF	Enable Rear Door at 6
	64	OFF	Enable Rear Door at 7
	128	OFF	Enable Rear Door at 8
14	Val	Set	BIT FEATURES # 1
	1	OFF	Disable Fire Service
2	2	ON	Enable 2000+ ANSI Fire Code
4	4	ON	Enable 2005+ ANSI Fire Code
8	8	ON	Enable 2007+ ANSI Fire Code
	16	OFF	Enable New York Fire Code
	32	OFF	Enable 2001 Chicago Fire Code
	64	OFF	Enable Canadian Fire Code
	128	OFF	Enable Bldg Fire Sw for 2000 Fire Code
0	Val	Set	BIT FEATURES # 2
	1	OFF	Kill Independent immediately on Fire Service
	2	OFF	No Timed Kill of Independent on Fire Service
	4	OFF	Never kill Indep. on Fire Service
	8	OFF	Main Fire Landing at Rear Opening
	16	OFF	Alternate Fire Landing at Rear Opening
	32	OFF	Disable Shunt Trip on Fire Service Phase 2
	64	OFF	Enable Shunt Trip on Inspection
	128	OFF	Disable ECReturn Latch on 2000 Fire Code
13	Val	Set	BIT FEATURES # 3
1	1	ON	Enable Pulsing Selector (off=Floor Sws)
	2	OFF	Enable Separate Call I/O (4 Wire Calls)
4	4	ON	Enable Door Check Feature
8	8	ON	Enable Redundancy Fault Checking
	16	OFF	Use Car Lantern outputs for Hall Lanterns
	32	OFF	Do Not Run On Fire Service and BORIS
	64	OFF	Do Not Run on Fire Service and Shutdown
	128	OFF	Allow Stop at Upper Floor on Shutdown
112	Val	Set	BIT FEATURES # 4
	1	OFF	Enable CKO on Independent
	2	OFF	Fire Sensors are Normally Open Inputs
	4	OFF	Dir Indicators show actual direction on Attend.
	8	OFF	Med Emerg Buzzer on Independent only
16	16	ON	Enable Full Redundancy Fault Checking
32	32	ON	Always Enable DOB at Front Openings
64	64	ON	Always Enable DOB at Rear Openings
	128	OFF	Disable Non-Shutdown Faults in Fault Log

40	Val	Set	BIT FEATURES # 5
	1	OFF	Flood Return Ldg is 3 (not 2)
	2	OFF	Flood Return Ldg is Top Ldg (not 2)
	4	OFF	Flood overrides Independent, Attendant, Med Emerg
8	8	ON	Flood overrides Shutdown (Low Oil, Rev. Phase, etc)
	16	OFF	Do Not Run on Flood and BORIS
32	32	ON	Do Not Run Down Below Main on Flood and Shutdown
	64	OFF	Fire Service Overrides Flood Operation
	128	OFF	Flood Operation Overrides Hall Fire Service
50	Val	Set	BIT FEATURES # 6
	1	OFF	Enable Shunt Trip Feature
2	2	ON	Enable Low Oil Sw or Oil Temp Feature
	4	OFF	Disable Door Close on Inspection
	8	OFF	Enable False Down Level on Fire Service
16	16	ON	Enable Flashing Hall Fire Light
32	32	ON	Enable Short Leveling Lockout on Down Run
	64	OFF	Enable Parking with Doors Open
	128	OFF	Use Negative Pressure Input for Flood Sw
192	Val	Set	BIT FEATURES # 7
	1	OFF	Enable CKO Output
	2	OFF	Enable PI Blanking Fire Output
	4	OFF	Enable Oil Viscosity Feature
	8	OFF	Enable Rear Door Open Output
	16	OFF	Enable RD (RearDoor) Output
	32	OFF	Enable Car To Lobby Input
64	64	ON	Disable DISC Input (BORIS)
128	128	ON	Enable Nudging Output
112	Val	Set	BIT FEATURES # 8
	1	OFF	Park with Doors Open at All Ldgs
	2	OFF	Code Blue Overrides Fire Service
	4	OFF	Allow Car Call Cancel if Running on EMT
	8	OFF	Allow Door Zone Fault on Fast Speed
16	16	ON	Enable Low Oil Switch (Turn On BF6.2 also)
32	32	ON	Enable Oil Temp Sw (Turn On BF6.2 also)
64	64	ON	Disable Fault Latch Feature (2010 Code)
	128	OFF	Manual Reset on Redundancy/Dr Zone Faults
1	Val	Set	BIT FEATURES # 9
1	1	ON	Flash Fire Light per 2005 Code
	2	OFF	Disable Reset at Intermediate Floors
	4	OFF	Allow Full Door Operation on Fire2+Stop Sw
	8	OFF	Not Used
	16	OFF	Not Used
	32	OFF	Not Used
	64	OFF	Not Used
	128	OFF	Not Used
0	Val	Set	BIT FEATURES # 10
	1	OFF	Not Used
	2	OFF	Not Used
	4	OFF	Not Used
	8	OFF	Not Used
	16	OFF	Not Used
	32	OFF	Not Used
	64	OFF	Not Used
	128	OFF	Not Used

ADJUSTABLE SETTINGS

Value	Setting Description	
3	Number Of IO Boards	
2	Number Of Landings	
1	Main Fire Landing	
2	Alternate Fire Landing	
1	Home Landing	
255	Front Door Code (See Left)	
0	Rear Door Code (See Left)	
14	Bit Features # 1 (See Left)	
0	Bit Features # 2 (See Left)	
13	Bit Features # 3 (See Left)	
112	Bit Features # 4 (See Left)	
40	Bit Features # 5 (See Left)	
50	Bit Features # 6 (See Left)	
192	Bit Features # 7 (See Left)	
112	Bit Features # 8 (See Left)	
1	Bit Features # 9 (See Left)	
0	Bit Features # 10 (See Left)	
0	Custom Time # 0.1	
0	Custom Time # 0.2	
0	Custom Time # 0.3	
0	Custom Time # 0.4	
0	Custom Time # 0.5	
50	Door Time, Hall Calls	0.1 SEC
30	Door Time, Car Calls	TIMERS
10	Door Time, Shortened	
20	Leveling Lockout	
15	Custom Time #1.1 - Reversal Delay	
0	Custom Time #1.2	
0	Custom Time #1.3	
25	Shutdown Time	1.0 SEC
25	Nudging Delay	TIMERS
20	Electric Eye Cutout Time	
60	Homing Delay	
15	Car Stuck Time	
20	Door Stuck Time	
10	Door Stuck Reset Time	
25	Kill Independent On Fire Service	
12	Door Close on Fire Service	
30	Custom Time #2.1	
0	Custom Time #2.2	
0	Custom Time #2.3	
0	P.I. Cut Out Time	10 SEC
30	Custom Time #3.1	TIMERS
30	Custom Time #3.2	
0	Custom Time #3.3	
1	Special Value 1	Password
0	Special Value 2	Protected
0	Special Value 3	Settings
0	Special Value 4	
0	Special Value 5	

ADJUSTABLE FEATURES

Setting	Feature Description	
Disabled	Override Shortened Door Time	
Enabled	Timed Electric Eye Cutout	
Enabled	Door Nudging	
Disabled	1 Stroke Down Lanterns	
Enabled	Slow Speed On Inspection	
Enabled	Proximity Detector	
Disabled	Short Floor Circuitry	
Disabled	Homing	
Disabled	Special Feature 1	Password
Disabled	Special Feature 2	Protected
Disabled	Special Feature 3	Features
Disabled	Special Feature 4	
Disabled	Special Feature 5	

NOTES

- To check or change the settings and features:
- Make sure the car is empty and not running.
 - Press NXT to scroll to “GO TO SETUP MENU”.
 - Press ENT twice to enter the Setup Mode.
 - Press ENT at the “Reset Factory Default” menu screen to reset the factory default values, OR,
 - Press NXT until you get to the Settings or Features menu selection, then press ENT.
 - Enter the password “911”, and press ENT.
 - Press NXT or PRV to scroll through the settings.
 - To change a setting, enter the new value, press ENT.
 - To change a feature, press AUX, then press ENT.
 - Press ESC twice to return the car to service.

The password “911” allows access to the settings and features.

Refer to the manual for complete instructions.

The settings and features have been preset according to the requested job features. It is recommended that on initial installation, all settings and features be checked to verify they are as required.

To determine the correct values for the Front and Rear Door Codes, and Bit Features, refer to the tables at the left. Add up the number in the “Val” (value) column for each feature that should be on, and use the total for the value of that setting. For example, to enable Rear Doors at Ldgs 1,3 and 6, calculate the desired value: (1+4+32) = 37, then enter “37” as the value for the Rear Door Code. The value will always be between 0 and 255.

NOTE: To disable **Redundancy Fault Checking** during installation, turn ON Switch 3 on the S2 Dip Switches on the CPU. This will also turn on the Fire Audible Visible as a reminder to turn the switch off after installation.
NOTE: To reset **latched shutdown faults**, jump the Fault Reset Input or cycle Sw 3 on the S2 Dip Sw on the CPU.

MH3000 ADJUSTABLE VALUES

PARTS LIST

ITEM	DESCRIPTION	MANUFACTURER	PART NO
RELAYS			
A1	4PDT, 120VAC, PLUG-IN RELAY	IDEC or equivalent	RU4S-A110
A2	4PDT, 110VDC, PLUG-IN RELAY	IDEC or equivalent	RU4S-D110
A3	4P SURFACE MOUNT RELAY SOCKET	P&B	27E894
A4	TIMER, 0-102.3 SECONDS	Airtronics	THCU102S3E
A5	3PDT, 120VAC, PLUG-IN RELAY	P&B or equivalent	KUP-14A35
A6	3P SURFACE MOUNT RELAY SOCKET	P&B	27E893
CONTACTORS, STARTERS, OVERLOAD			
B1	Y-D REVERSING CONTACTOR (NEMA)	SQ D	S_O_V02
B2	3 POLE THERMAL OVERLOAD (NEMA)	SQ D	SEO_
B3	ACROSS-THE-LINE STARTER (NEMA)	SQ D	S_O_V02
B4	HEATERS FOR 3 POLE OVERLOAD (NEMA)	SQ D	(TYPES: B, CC, DD)
B5	Y-D REVERSING CONTACTOR (IEC)	TELEMECANIQUE	LC2____G6
B6	ACROSS-THE-LINE STARTER (IEC)	TELEMECANIQUE	LC1____G6
B7	3 POLE OVERLOAD (IEC)	TELEMECANIQUE	LR____
TRANSFORMERS, FUSES, TERMINALS			
C1	460-230-208/230-115, (300 & 600VA)	SQ D	9070K____D48
C2	250V INSTANTANEOUS FUSE	BUSSMAN	TYPE BAF
C3	600V TIME DELAY FUSE	BUSSMAN	TYPE FNQ-R
C4	FUSEHOLDER	CURTIS	PW1F
C5	TRACK FOR FUSEHOLDERS	CURTIS	SW192
C6	3 POLE TERMINAL, 600V, 50AMP	CURTIS	3PSWT
C7	MOUNTING TRACK FOR TERMINALS	CURTIS	SW192
MICRO-PROCESSOR			
D1	MICROPROCESSOR CPU BOARD	V.C.	MH3000-CPU
D2	MH-3000 CPU BATTERY	PANASONIC	CR2032
D3	16-INPUT/16-OUTPUT MODULE	V.C.	MH3000-16IO
D4	16-INPUT MODULE	V.C.	MH3000-16IN
D5	KEYPAD	V.C.	MH3000-KEYPAD
D6	LCD SCREEN	V.C.	MH3000-LCD
MISCELLANEOUS COMPONENTS AND HARDWARE			
E1	PRINTED CIRCUIT BOARD	V.C.	MH-5
E2	PHASE MONITOR (208V/230V/460V)	SSAC	TVM____A100.5S3S
E3	3 PHASE FULL WAVE BRIDGE	COUGAR	SKD-25/12
E4	1 PHASE FULL WAVE BRIDGE	COUGAR	SKB-25/12
E5	DUCT, COVER, MOUNTING CLIP	PANDUIT	
E6	CONTROLLER ENCLOSURE	PAULETTE	(SIZE)
CONTROLLER NOMENCLATURE			
SYMBOL	DESCRIPTION	PARTS LIST ITEM NO	
C	DOOR CLOSE RELAY (IN MODSS ON TOP OF THE CAR)	A5	
DF/DFX	DOOR FAULT MONITOR RELAYS	A1	
DL	DOWN LEVEL RELAY	A1	
DZ	DOOR ZONE RELAY	A1	
FSD	FAST SPEED DOWN RUN RELAY	A1	
FSU	FAST SPEED UP RUN RELAY	A1	
IA1-2, IAB, IAT	INSPECTION ACCESS RELAYS	A1	
INR	INSPECTION RUN RELAY	A1	
INS, INX	INSPECTION RELAYS	A1	
LV, LVX	CAR LEVELING RELAYS	A1	
N	DOOR NUDGE RELAY	A1	
O	DOOR OPEN RELAY (IN MODSS ON TOP OF THE CAR)	A5	
OLX	MOTOR OVERLOAD MONITOR RELAY	A1	
PM	STARTER (ACROSS THE LINE START)	B3/B6	
PMP	PUMP MOTOR PILOT RELAY (110VDC)	A2	
RU	MOTOR RUN CONTACTOR (WYE-DELTA START)	B1/B5	
SB, SBX	EMERGENCY STOP SWITCH BYPASS RELAYS	A1	
SP1-SP5	SPARE RELAYS – SEE PRINT FOR ACTUAL USE	A1	
STR	MOTOR START CONTACTOR (WYE-DELTA START)	B1/B5	
TRU	WYE-DELTA MOTOR RUN RELAY	A1	
TRUP	WYE-DELTA MOTOR RUN TIMER	A4	
UL	UP LEVEL RELAY	A1	
VR	VOLTAGE RELAY (OPTIONAL)	A1	

ALL PARTS ARE COMMERCIALY AVAILABLE FROM THE MANUFACTURER, OR FROM VIRGINIA CONTROLS AT (804) 225-5530 (PARTS DEPT). PARTS ARE SUBJECT TO

CHANGE WITHOUT NOTICE. CONSULT VIRGINIA CONTROLS, INC. FOR CURRENT PRICING INFORMATION. NON-STANDARD MATERIAL IS IDENTIFIED ON THE SCHEMATIC.

MH-3000 INSTALLATION NOTES

- THE SYSTEM HAS BEEN PROGRAMMED AND TESTED FOR THE SPECIFIC ELEVATOR SYSTEM, SO NO FURTHER CHANGES SHOULD BE MADE WITHOUT CONSULTING WITH VIRGINIA CONTROLS.
- BEFORE APPLYING POWER TO THE MICRO-PROCESSOR, VERIFY THAT THE VOLTAGE TO LINE 1 AND 35 IS 110-125VAC. VERIFY THAT THERE ARE NO SHORT-CIRCUITS IN ANY OF THE FIELD WIRING. THIS CAN BE DONE BY UNPLUGGING THE INPUT/OUTPUT TERMINAL STRIPS, AND CHECKING FOR GROUNDS AT THE TERMINAL STRIP.
- WHEN THE CONTROLLER IS READY TO BE RUN ON AUTOMATIC, IT IS RECOMMENDED THAT A FACTORY RESET BE PERFORMED. THIS CAN BE DONE BY (1) TURNING OFF THE POWER; (2) PUT THE CAR ON INSPECTION; (3) JUMP TERMINALS 1 TO 21 AND 1 TO 22; (4) TURN ON THE POWER FOR 10 SECONDS; (5) TURN OFF THE POWER, AND REMOVE THE JUMPERS, AND CONTINUE AS NORMAL. ALTERNATIVELY, THE KEYPAD CAN BE USED. PRESS "NXT" UNTIL THE MENU ITEM "GO TO SETUP MENU" IS DISPLAYED, THEN PRESS "ENT" 3 TIMES. (THE SCREEN WILL SHOW A WARNING, THEN GO TO THE SETUP MENU, WHERE THE FIRST ITEM IS RESET FACTORY SETTINGS). PRESS "ESC" TO RETURN THE ELEVATOR TO SERVICE.
- THE PROGRAM IS IN PROM (PROGRAMMABLE READ ONLY MEMORY). THE FLOOR RELAYS AND FIRE SERVICE RELAYS ARE MAINTAINED IN THE MICRO-PROCESSOR RAM MEMORY AND ARE HELD THROUGH POWER LOSS BY A CAPACITOR ON THE CPU BOARD. THE FLOOR RELAYS MAY NEED TO BE RESET WHEN THE CONTROLLER IS INITIALLY INSTALLED. THIS WILL BE ACCOMPLISHED WHEN THE ELEVATOR HITS ANY FLOOR SWITCH. **WITH A PULSING TYPE SELECTOR, THE FLOOR POSITION IS RESET AT EITHER TERMINAL LANDING WHEN A SLOWDOWN SWITCH AND THE DOOR ZONE SWITCH ARE ENERGIZED AT THE SAME TIME.** NOTE: IF FLOOR SWITCHES ARE USED, THEY SHOULD BE MAINTAINED AT THE TERMINAL LANDINGS, SO THAT THEY ARE ENERGIZED WHENEVER THE CAR IS IN THE SLOWDOWN ZONE AT THAT LANDING.

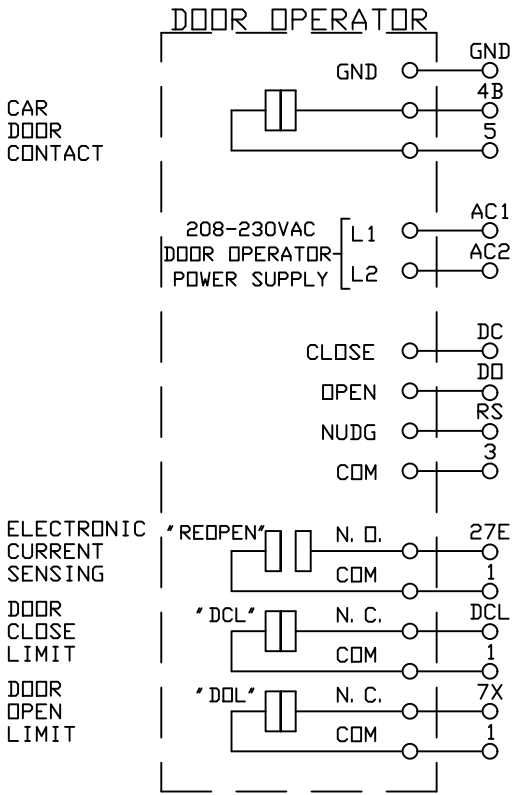
TROUBLESHOOTING SUGGESTIONS

- TROUBLESHOOTING IS SIMILAR TO ANY OTHER CONTROLLER, AND HAS SEVERAL FEATURES TO SPEED UP DETERMINING THE CAUSE OF ANY PROBLEM. NO SPECIAL KNOWLEDGE OF THE OPERATION OF THE MICRO-PROCESSOR IS REQUIRED TO BE ABLE TO TROUBLESHOOT IT.
- STANDARD LED OPERATION (SEE THE SCHEMATIC FOR THE FUNCTION OF THE LEDS FOR A SPECIFIC JOB). LED "D1" IS "AUTOMATIC OPERATION" WHICH IS ENERGIZED WHEN THE CAR CAN ANSWER HALL CALLS AND DE-ENERGIZED WHEN IT CANNOT (CAR IS ON FIRE SERVICE, INSPECTION, INDEPENDENT SERVICE, LOW OIL). LED "D2" IS "FIRE SERVICE" AND IS ENERGIZED IF THE CAR IS ON FIRE SERVICE PHASE I (HALL) OR PHASE II (CAR). LED "D3" IS "SHUTDOWN" AND IS ENERGIZED ON LOW OIL. LED "D4" IS "ERROR" AND IS ENERGIZED IF THE COMMUNICATIONS ARE NOT OPERATING PROPERLY. LED "D5" IS "WATCHDOG" AND FLASHES IF THE MICRO-PROCESSOR IS RUNNING. REFER TO MH-3000 MANUAL FOR MORE DETAILS ON LED STATUS INDICATORS .
- A SAFETY RELAY INTERFACE IS PROVIDED TO PREVENT DANGEROUS OPERATION DUE TO A FAILURE OF THE MICRO-PROCESSOR. IT IS POSSIBLE THAT THE MICRO-PROCESSOR MAY TURN ON AN OUTPUT POINT, YET THE FIELD SAFETY SWITCHES MAY PREVENT THE ASSOCIATED DEVICE FROM ENERGIZING. FOR EXAMPLE, IF THE UP RUN OUTPUT ENERGIZES, BUT THE UP NORMAL SWITCH IS OPEN, THEN THE UP RUN VALVE(S) WILL NOT ENERGIZE.
- ONCE THE SYSTEM HAS BEEN INSTALLED, AND IS RUNNING PROPERLY, THE MOST COMMON PROBLEM WILL BE THE FAILURE OF AN INPUT OR OUTPUT POINT. THE FIRST STEP IN LOCATING THE CAUSE IS TO DETERMINE WHETHER THE FAULT IS IN THE MICRO-PROCESSOR OR WHETHER IT IS IN THE EXTERNAL

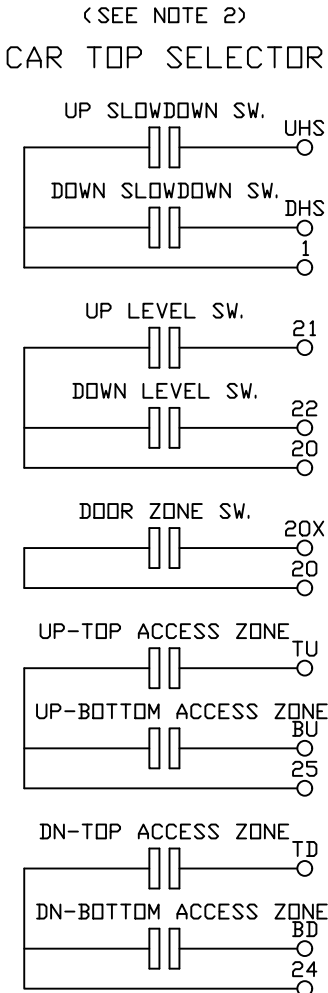
- WIRING. FOR EXAMPLE, IF A POSITION INDICATOR LIGHT IS NOT LIT, CHECK THE OUTPUT MODULE FOR THE APPROPRIATE OUTPUT POINT TO DETERMINE IF THE MICRO-PROCESSOR IS TRYING TO TURN THE LIGHT ON OR NOT. IF THE OUTPUT LIGHT IS ON, THEN CONFIRM THAT THERE IS VOLTAGE AT THE MODULE TERMINAL. IF THERE IS VOLTAGE AT THE MODULE TERMINAL, THEN THE PROBLEM IS EXTERNAL TO THE MICRO-PROCESSOR. IT COULD BE IN THE WIRING TO THE POSITION INDICATOR, OR PERHAPS THE POSITION INDICATOR LIGHT HAS BURNED OUT. SIMILARLY WITH INPUT POINTS, CHECK THAT THE INPUT MODULE LIGHT IS ON, THAT THERE IS POWER AT THE TERMINAL, AND IF NOT THEN THE PROBLEM IS EXTERNAL.
- IF IT IS DETERMINED THAT THE PROBLEM IS WITH THE MICRO-PROCESSOR, THEN THE NEXT STEP IS TO DETERMINE IF THE PROBLEM IS IN THE HARDWARE OR THE SOFTWARE. USING THE KEYPAD, PRESS "NXT" UNTIL THE "SHOW I/O" MENU ITEM IS DISPLAYED. PRESS "ENT". THE SCREEN WILL SHOW THE I/O BOARD NUMBER ON THE LEFT AND THE I/O STATUS ON THE RIGHT. PRESS "NXT" OR "PRV" TO SHOW THE DESIRED I/O BOARD NUMBER AND SEE IF THE CPU IS RESPONDING, SHOWING THE CORRECT STATUS. IF IT IS NOT, THEN THE FAULT IS PROBABLY WITH THE I/O HARDWARE; IF IT IS, THEN THE FAULT IS PROBABLY WITH THE SOFTWARE.
 - IF AN INPUT OR OUTPUT BOARD FAILS, IT MAY BE POSSIBLE TO TEMPORARILY REPLACE THAT DEFECTIVE BOARD WITH ANOTHER BOARD THAT IS USED FOR NON-ESSENTIAL FUNCTIONS (SUCH AS CALL REGISTER LIGHTS), THUS PROVIDING ELEVATOR SERVICE WHILE A REPLACEMENT BOARD IS BEING OBTAINED.
 - WHEN REPLACING A BOARD, THE ADDRESS OF THE NEW BOARD MUST BE SET TO MATCH THE OLD BOARD. THE ADDRESS SWITCH BLOCK “S1” IS LOCATED ADJACENT TO THE “I/O COMM OUT” CONNECTOR. JUMPER BLOCKS MUST ALSO BE SET THE SAME AND ARE LOCATED BETWEEN TERMINAL BLOCKS AT THE TOP AND BOTTOM OF THE I/O BOARD.
 - THE TERMINAL BLOCKS CAN BE UNPLUGGED FROM THE MODULE, AND A NEW MODULE SHOULD BE INSTALLED IN ITS PLACE. IF THIS DOES NOT CORRECT THE PROBLEM, THE POWER SUPPLY, RACK OR THE CPU MODULE COULD BE FAULTY. IF THE CPU FAILS, IT WILL PROBABLY STOP FLASHING LIGHT "D5". THE CPU AND OTHER MODULES CAN BE AFFECTED BY HIGH TRANSIENT SURGES IN THE POWER SUPPLY, SUCH AS THE BUILDING BEING HIT BY LIGHTNING. THIS MAY DAMAGE THE CPU, OR ALTER THE CONTENTS OF THE PROGRAM.
 - IMPORTANT: IF TROUBLESHOOTING ASSISTANCE IS REQUIRED FROM VIRGINIA CONTROLS, GET THE FOLLOWING INFORMATION BEFORE CALLING (ADDITIONAL TROUBLESHOOTING INSTRUCTIONS MAY BE GIVEN, DEPENDING ON THE NATURE OF THE PROBLEM):
 - AN EXACT DESCRIPTION OF THE PROBLEM.
 - THE STATUS OF ALL THE INPUT AND OUTPUT POINTS.
 - THE STATUS OF THE INPUTS/OUTPUTS IN THE CPU (SEE STEP 5 ABOVE)
 - REFER TO MH-3000 INSTALLATION MANUAL FOR KEYPAD OPERATION TO ACCESS THE PROCESSOR SCREENS AND DIAGNOSTICS. AVAILABLE FEATURES INCLUDE MONITORING OF I/O STATUS, CAR STATUS AND FAULTLOGGING.

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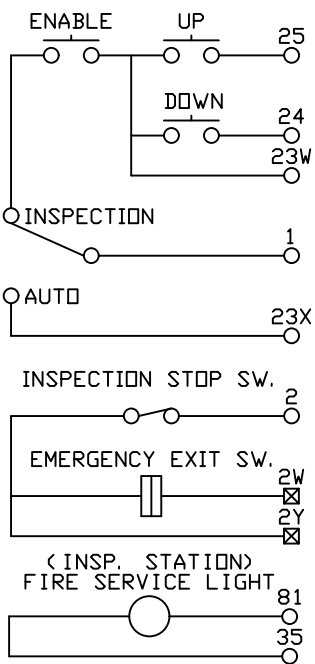
G. A. L. TYPE MOVFR
(SEE SHTS. S, R1 & 2 FOR DETAILS.)
(SEE ALSO GAL DWG. # 8032)



CAR TOP WIRING

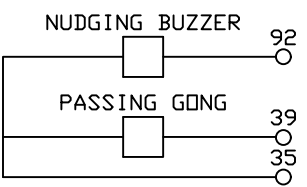
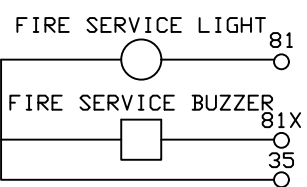
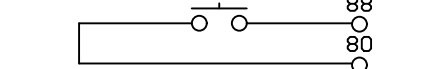
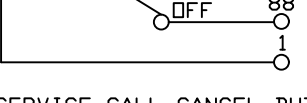
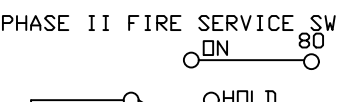
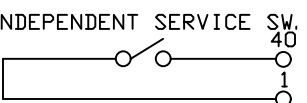
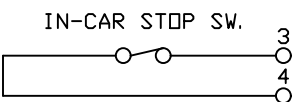
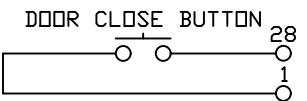
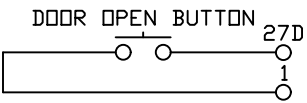
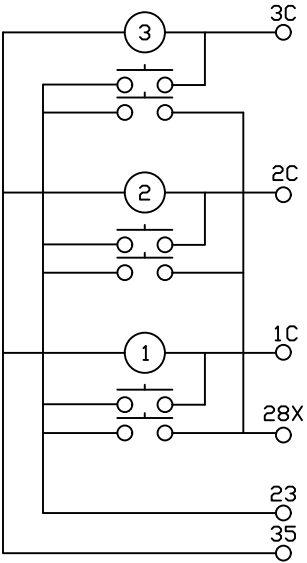


TOP OF CAR INSPECTION



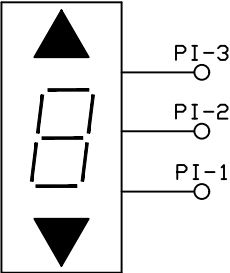
CAR STATION WIRING

CAR CALL BUTTONS & LIGHTS

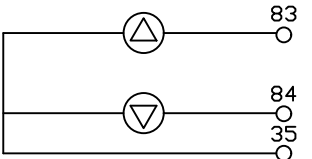


OTHER CAR WIRING

DIRECTION & POSITION INDICATORS



TRAVELING DIRECTION LANTERNS



ALL CONNECTIONS TO RAIL MOUNTED TERMINALS

	1	2	3	4	4B	5		7X	
	20	20X	21	22	23		23W	23X	23Y
	24	25			27D	27E	27S	28	28X
	34	34Y	35			39	40		
	80	81	81X			83	84	88	92
	DHS	UHS		DCL	DD	RS	DC	AC1	AC2
	1C	2C	3C						
	PI-1	PI-2	PI-3				115V	NEUT	GND
						TU	TD	BU	BD

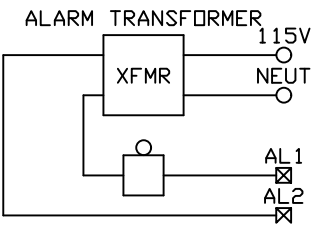
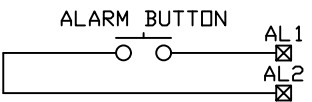
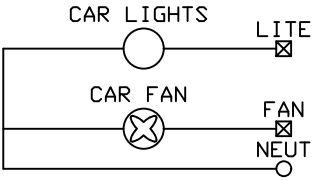
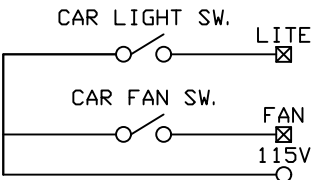
NOTES:

- 3 LANDINGS SHOWN.
FOR 2 LANDINGS, REMOVE: 3C.
- SLOWDOWN SWITCH NOTE: FOR RESETTNG PURPOSES,
SELECTOR SHOULD INCLUDE A SLOWDOWN TARGET
EVEN WITH THE FLOOR AT TERMINAL LANDINGS.
("UHS" IS ENERGIZED AT TOP LANDING; "DHS" IS
ENERGIZED AT BOTTOM LANDING).
(SEE NOTE 4, SHEET N).
(SEE ALSO SHEET "CTX")

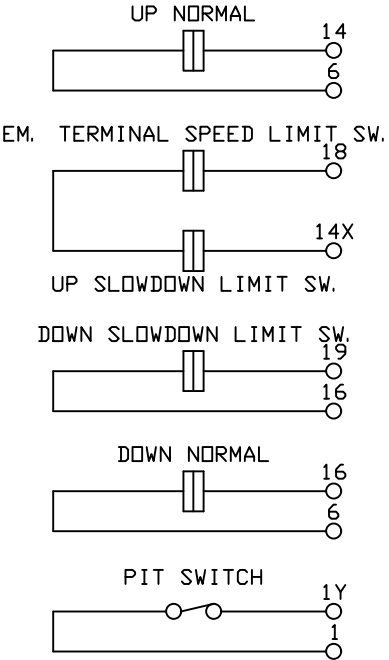
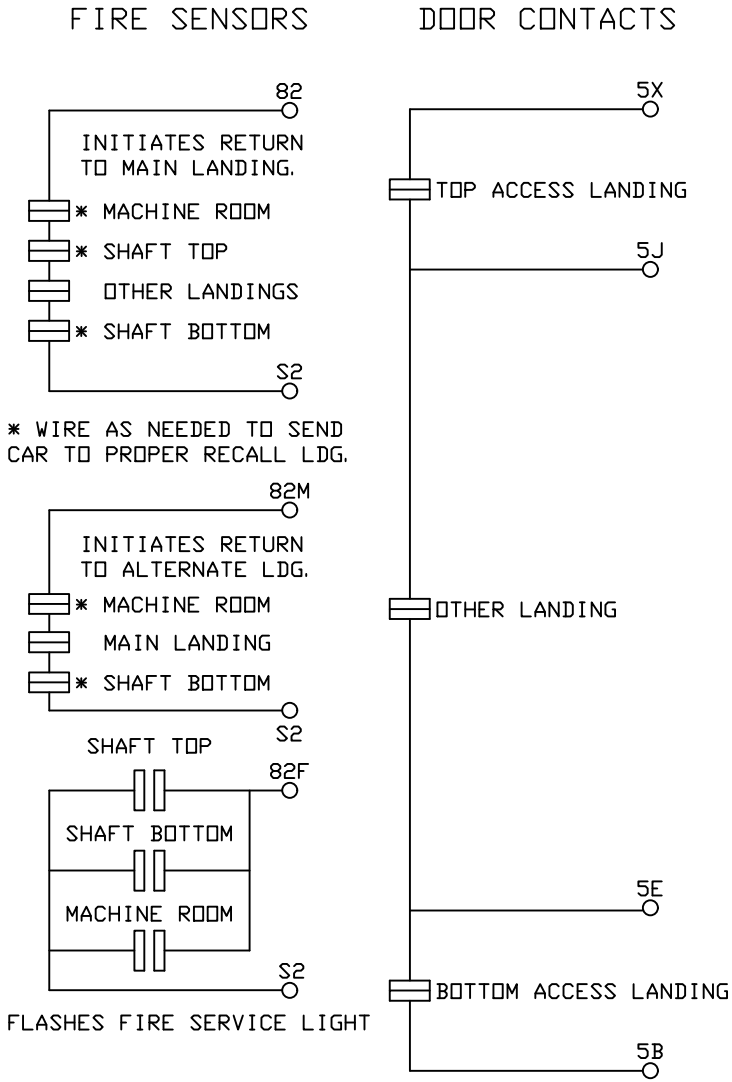
☒ NOT REQUIRED IN
TRAVELING CABLE

2W		2Y	
AL1	AL2	LITE	FAN

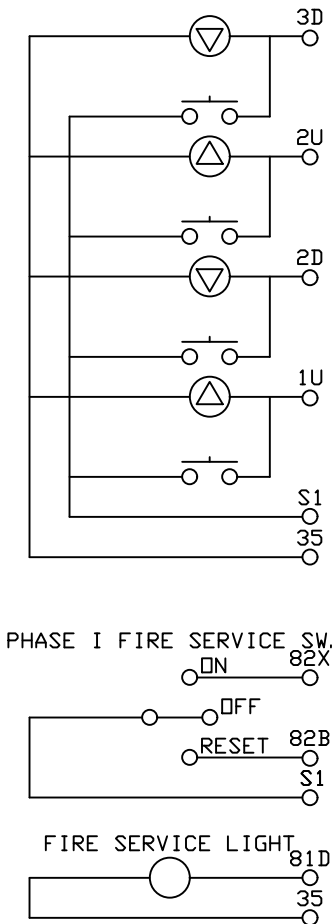
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SHAFTWAY SWITCHES

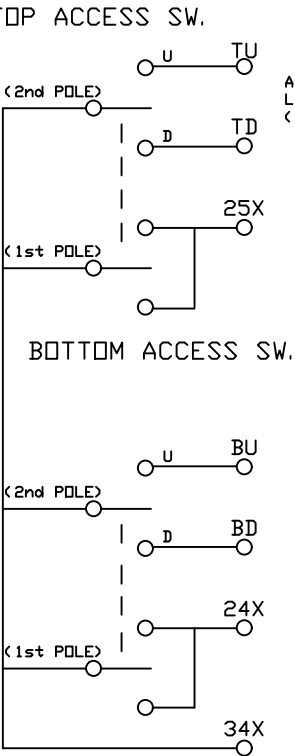


HALL CALL BUTTONS & LIGHTS



HALL STATION WIRING

INSPECTION ACCESS

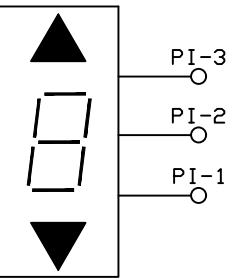


OTHER HALL WIRING

MAIN LANDING

DIRECTION & POSITION INDICATORS

DIGITAL



SHAFTWAY JUNCTION BOX

ALL CONNECTIONS TO RAIL MOUNTED TERMINALS

1			1Y	2	3	4	4B		
	5	5B	5E	5J	5X				
	6		7X						
				14	14X	16			18
	19	20	20X	21	22	23	23W	23X	23Y
24	24X	25	25X	27D	27E	27S	28	28X	
		34	34X	34Y	35				
39		40	80	81	81D	81X	82	82B	82F
82M	82X					83	84	88	
92							DCL	DD	RS
							DC	AC1	AC2
1C	2C	3C							
PI-1	PI-2	PI-3				S1	S2		
1U	2D	2U	3D	DHS	UHS		115V	NEUT	GND
						TU	TD	BU	BD

- NOTES:
- 3 LANDINGS SHOWN. FOR 2 LANDINGS, REMOVE 2U, 3C, 3D .
 - VOLTAGE BETWEEN TERMINALS 1 & 35 MUST BE 110-120VAC.
 - NORMAL LIMIT SHOULD OPEN 1" PAST TERMINAL FLOOR LEVEL.
 - REMOVE JUMPER 1-16P IF OIL PRESSURE SWITCH IS USED.
 - GROUND CONTROLLER, MOTOR, JUNCTION BOXES AND CAR FRAME IN ACCORDANCE WITH N. E. C. ARTICLES 620 AND 250.

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MACHINE ROOM WIRING

