

HAMILTON SAFE  
MODEL ACS-1 ENTRANCE CONTROL SYSTEM

**HAMILTON SAFE**  
**ENTRANCE CONTROL SYSTEM**

VERSION \_\_\_\_\_

WIRING DIAGRAMS

HAMILTON SAFE  
MODEL ACS-I ENTRANCE CONTROL SYSTEM Ver 7.0

PLUG #	Description
1	Door 1 Push Bar
2	IR detector Area 1
3	Door 1 Mag Lock
4	Door 1 Contact 4
5	RED/GREEN Lights (Door 1)
6	IR detector Area 2
7	Door 2 Mag Lock
8	Door 2 Contact
9	RED/GREEN
10	MICROPHONE
11	Door 3 Mag Lock
12	Door 3 Contact
13	Door 4 Push Bar
14	Door 4 Contact
15	GREEN Light (Door 4)
16	Handicap Call Button
17	Door 4 Mag Lock
18	Weapons Detector alarm
19	Weapons Detector power
20	Speaker
21	IR #1 Area 3
22	IR #2 Area 3
J20	28 pin connector. Input from Wiring Harness (plugs 1-17)
J21	9 pin connector. Input from Wiring Harness (plugs 18-22)
J22	28 pin.connector Output to teller operating console

Door 1 = Outside Entrance Door

Door 2 = Inside Entrance Door

Door 3 = Inside Exit Door

Door 4 = Outside Exit /door

Area 1 = Area between Door 1 and the weapons detector.

Area 2 = Area between Door 2 and the weapons detector.

Area 3 = Area between Door 3 and Door 4

Allen-Bradley MicroLogix 1000 Programmable Controller

**INPUT LAMP      WHEN LIGHTED**

0	Door 1 Push Bar Actuated - Overrides system to allow exit - as long as door 2 is still closed and locked
1	Door 1 Closed - Sentrol Magnetic Contact
2	IR Area 1 Detects Person - Entrance Side Over Door 1
3	Weapons Detector Alarm (momentary) - Must be reset from console
4	IR Area 2 Detects Person - Entrance Side Over Door 2
5	Door 2 Closed - Sentrol Magnetic Contact
6	IR Area 3 Detects Person - Exit Side Over Door 4
7	Admit Switch Pressed - Resets Alarm and Unlocks Door 2 (As long as Door 1 is still locked)
8	Door 3 Closed - Sentrol Magnetic Contact
9	Door 1 Locked - Switch inside maglock sensed being locked by conductivity
10	IR Area 3 Detects Person - Exit Side Over Door 3
11	Door 4 Closed - Sentrol Magnetic Contact
12	Door 4 Push Bar Actuated - Must be pushed to exit door 4 - as long as door 3 is closed and locked
13	Door 2 Locked - Switch inside maglock sensed being locked by conductivity
14	Door 3 Locked - Switch inside maglock sensed being locked by conductivity
15	Door 4 Locked - Switch inside maglock sensed being locked by conductivity
16	Release all doors Switch - On back of console removes power to all maglocks
17	Capture person in exit area switch (Requires a 24 volt momentary signal to activate*Not included*)
18	Remove 24 volt red wire to activate – Delayed Egress Feature
19	Fire Alarm Input - Attach building fire alarm here to unlock all doors when alarm sounds

**OUTPUT  
LAMP**

**WHEN LIGHTED**

0	Switch to Alarm Chime Closed - Output to chime on operator console
1	Master Door Power Relay - Removes power to all maglocks
2	Power Applied To Green <u>OK to Exit Lamp</u>
3	Power Applied to OK to Green <u>OK to Enter Door 1 Lamp</u>
4	Power Applied to Weapons Detector Alarm Lamp on Operators Console
5	Power Applied to Multi Persons Alarm Lamp on Operators Console
6	Power Applied to OK to Green <u>To Enter Door 3 Lamp</u>
7	Power Applied to Red <u>Do Not Enter Door 3 Lamp</u>
8	Power applied to Door 1 Lock
9	Power applied to Door 2 Lock
10	Power applied to Door 3 Lock
11	Power applied to Door 4 Lock

J20 PLUG PIN	Device ID	Device Wire Color	Cable drop	Device locatio	Device connection	Plug & cable	Cable Plug Pin#	P20 PLUG PIN	Harness Cable Color	
1	Push Bar	BLACK	1a	D1	24V-	1	2	1	BLACK	Black
1	IR DETECTOR	GRAY	1b	D1	24V-	2	2	1	BLACK	wire
1	MAG Lock	BLACK	1c	D1	24V-	3	2	1	BLACK	is tied to
1	GREEN LIGHT	GREENX2	1d	D1	24V-	5	2	1	BLACK	all
1	RED LIGHT	REDX2	1d	D1	24V-	5	2	1	BLACK	required
1	IR DETECTOR	GRAY	2a	D2	24V-	6	2	1	BLACK	recepticles
1	MAG Lock	BLACK	2b	D2	24V-	7	2	1	BLACK	in
1	GREEN LIGHT	GREENX2	2c	D2	24V-	9	2	1	BLACK	wiring
1	RED LIGHT	REDX2	2c	D2	24V-	9	2	1	BLACK	harness
1	MAG Lock	BLACK	3a	D3	24V-	11	2	1	BLACK	and then
1	Push Bar	BLACK	4a	D4	24V-	13	2	1	BLACK	connected to
1	GREEN LIGHT	GREENX2	4c	D4	24V-	15	2	1	BLACK	Pin 1
1	MAG Lock	BLACK	4b	D4	24V-	17	2	1	BLACK	
2	Push Bar	BLUE	1a	D1	24V+	1	1	2	RED	Red
2	Push Bar	RED	1a	D1	24V+	1	1	2	RED	wire
2	IR DETECTOR	GRAY	1b	D1	24V+	2	1	2	RED	is tied to
2	IR DETECTOR	YELLOW	1b	D1	24V+	2	1	2	RED	all
2	Door Contact	BROWN	1d	D1	24V+	4	1	2	RED	required
2	IR DETECTOR	GRAY	2a	D2	24V+	6	1	2	RED	recepticles
2	IR DETECTOR	YELLOW	2a	D2	24V+	6	1	2	RED	in
2	Door Contact	BROWN	2c	D2	24V+	8	1	2	RED	wiring
2	Door Contact	BROWN	3b	D3	24V+	12	1	2	RED	harness
2	Push Bar	BLUE	4a	D4	24V+	13	1	2	RED	and then
2	Push Bar	RED	4a	D4	24V+	13	1	2	RED	connected to
2	Door Contact	BROWN	4c	D4	24V+	14	1	2	RED	Pin 2
3	Push Bar	ORANGE	1a	D1	I/00	1	3	3	WHITE	
4	IR DETECTOR	YELLOW	1b	D1	I/02	2	3	4	GREEN	
5	MAG Lock	RED	1c	D1	O/08	3	1	5	BROWN	15ohm res.in line
6	MAG Lock	WHITE	1c	D1	I/09	3	3	6	BLUE	
7	Door Contact	BROWN	1d	D1	I/01	4	3	7	ORANGE	
8	RED LIGHT	REDX1	1d	D1	O/08	5	1	8	YELLOW	
9	GREEN LIGHT	GREENX1	1d	D1	O/03	5	3	9	PURPLE	
10	Push Bar	ORANGE	4a	D4	I/12	13	3	10	GRAY	
11	MAG Lock	RED	4b	D4	O/11	17	1	11	PINK	15ohm res.in line
12	MAG Lock	WHITE	4b	D4	I/15	17	3	12	TAN	
13	Door Contact	BROWN	4c	D4	I/11	14	3	13	W/BLACK	
14	GREEN LIGHT	GREENX1	4c	D4	O/02	15	3	14	W/RED	
15	Handicap Button	N.O.	8a	d1/4	J22-25	16	1	15	W/GREEN	
16	Handicap Button	COMMON	8a	d1/4	J22-26	16	3	16	/ORANGE	
17	IR DETECTOR	YELLOW	2a	D2	I/04	6	3	17	W/BLUE	
18	MAG Lock	RED	2b	D2	O/09	7	1	18	W/BROW	15ohm res.in line
19	MAG Lock	WHITE	2b	D2	I/13	7	3	19	/YELLOW	
20	Door Contact	BROWN	2c	D2	I/05	8	3	20	W/PURPLE	
21	RED LIGHT	REDX1	2c	D2	O/07	9	1	21	W/GRAY	
22	GREEN LIGHT	GREENX1	2c	D2	O/06	9	3	22	B/RED	
23	MICROPHONE	RED	2c	D2	J22-23	10	1	23	B/GREEN	
24	MICROPHONE	BLACK	2c	D2	J22-24	10	2	24	B/YELLOW	
25	MAG Lock	RED	3a	D3	O/10	11	1	25	B/BLUE	15ohm res.in line
26	MAG Lock	WHITE	3a	D3	I/14	11	3	26	B/BROWN	
27	Door Contact	BROWN	3b	D3	I/08	12	3	27	/ORANGE	
28	CABLE SHEILD		2c	D2	Ground	n/c	n/c	28	B/GRAY	

J21 PIN#	Component	wire color	Device con.	Cable drop	Device location	Plug Pin#	cable #	Harness Cable Color
1	IR DETECTOR	GRAY	24V-	6a	a3	2	21	BLACK
1	IR DETECTOR	GRAY	24V-	6c	a4	2	22	BLACK
2	WEAPONS DET.	RED	24V+	5a	a1	bare	18	RED
2	IR DETECTOR	GRAY	24V+	6a	a3	1	21	RED
2	IR DETECTOR	YELLOW	24V+	6a	a3	1	21	RED
2	IR DETECTOR	GRAY	24V+	6c	a4	1	22	RED
2	IR DETECTOR	YELLOW	24V+	6c	a4	1	22	RED
3	IR DETECTOR	YELLOW	I/10	6a	a3	3	21	WHITE
4	IR DETECTOR	YELLOW	I/06	6c	a4	3	22	GREEN
5	WEAPONS DET.POWE	RED	24VDC+2	5a	a1	bare	19	BROWN
6	WEAPONS DET.POWE	BLACK	24VDC-2	5a	a1	bare	19	BLUE
7	WEAPONS DET.Alarm	BLACK	I/03	5a	a1	bare	18	ORANGE
8	SPEAKER	BLACK	J22-27	5b	a2	faston	20	YELLOW
9	SPEAKER	RED	J22-28	5b	a2	faston	20	PURPLE

WIRES TO  
DETECTOR  
BLUE 8  
ORANGE 11  
RED 12  
BROWN 7

J22 PIN#	Component	J22 wire color	Device connection	Interconnect Cable. Color		Harness Cable Color
1	Teller Console	BLACK	24V-	B/RED	sw neg	BLACK
2	Teller Console	RED	O/1	RED	sw com	RED
3	Teller Console	WHITE	I/16	B/WHITE	unlock all door	WHITE
4	Teller Console	GREEN	I/18	WHITE	release cap	GREEN
5	Teller Console	BROWN	I/7	B/GREEN	admit	BROWN
6	Teller Console	BLUE	O/0VACVDC	GREEN	chime com	BLUE
7	Teller Console	ORANGE	O/0	B/BROWN	chime no	ORANGE
8	Teller Console	YELLOW	Spare	BROWN	Spare	YELLOW
9	Teller Console	PURPLE	Spare	B/BLUE	Spare	PURPLE
10	Teller Console	GRAY	O/4	BLUE	weap led	GRAY
11	Teller Console	PINK	O/5	B/ORNAGE	multi led	PINK
12	Teller Console	TAN	O/8	ORANGE	d1 lock	TAN
13	Teller Console	W/BLACK	O/9	B/YELLOW	d2 lock	W/BLACK
14	Teller Console	W/RED	O/10	YELLOW	d3 lock	W/RED
15	Teller Console	W/GREEN	O/11	R/BROWN	d4 lock	W/GREEN
16	Teller Console	W/ORANGE	Spare	BROWN	Spare	W/ORANGE
17	Teller Console	W/BLUE	Spare	R/WHITE	Spare	W/BLUE
18	Teller Console	W/BROWN	Spare	WHITE	Spare	W/BROWN
19	N/C	W/YELLOW	N/C	N/C		
20	N/C	W/PURPLE	N/C	N/C		
21	N/C	W/GRAY	sheild	sheild (microphone)		
22	N/C	B/RED	sheild	sheild Speaker		
23	Teller Console	B/GREEN	J20-23	R/GREEN	MIC+	from J20
24	Teller Console	B/YELLOW	J20-24	GREEN	MIC-	from J20
25	Teller Console	B/BLUE	J20-15	R/BLUE	CALL	from J20
26	Teller Console	B/BROWN	J20-16	BLUE	CALL	from J20
27	Teller Console	B/ORANGE	J21-8	R/YELLOW	SPEAKER	from J21
28	Teller Console	B/GRAY	J21-9	YELLOW	SPEAKER	from J21

Operators Coscle with multi- teller audio system

Term#	Connection	J22 Connection	Wire color
1	Microphone +	23	B/GREEN
2	Microphone -	24	B/YELLOW
3	Speaker	27	B/ORANGE
4	Speaker	28	B/GRAY
5	Handicap call butto	25	B/BLUE
6	Handicap call butto	26	B/BROWN
7	Audio Sheild	21&22	
8			
9	External Chime sw	6	BLUE
10	External Chime sw	7	ORANGE

PLUG DETAILS HAMILTON ENTRANCE CONTROL

Version 1.0 11/12/96

Plug number	Cable Plug Pin#	Device ID	Device Wire Color	Cable drop	Device location	Device connection	P20 PLUG PIN	Harness Cable Color	Notes
1	1	Push Bar	BLUE	1a	D1	24V+	2	RED	
1	1	Push Bar	RED	1a	D1	24V+	2	RED	Red & Blue tied together
1	2	Push Bar	BLACK	1a	D1	24V-	1	BLACK	
1	3	Push Bar	ORANGE	1a	D1	I/00	3	WHITE	in plug
2	1	IR DETECTOR	GRAY	1b	D1	24V+	2	RED	
2	1	IR DETECTOR	YELLOW	1b	D1	24V+	2	RED	Gray&Yellow tied together
2	2	IR DETECTOR	GRAY	1b	D1	24V-	1	BLACK	
2	3	IR DETECTOR	YELLOW	1b	D1	I/02	4	GREEN	in plug
3	1	MAG Lock	RED	1c	D1	O/08	5	BROWN	
3	2	MAG Lock	BLACK	1c	D1	24V-	1	BLACK	
3	3	MAG Lock	WHITE	1c	D1	I/09	6	BLUE	
4	1	Door Contact	BROWN	1d	D1	24V+	2	RED	
4	3	Door Contact	BROWN	1d	D1	I/01	7	ORANGE	
5	1	RED LIGHT	REDX1	1d	D1	O/08	8	YELLOW	
5	2	GREEN LIGHT	GREENX2	1d	D1	24V-	1	BLACK	
5	2	RED LIGHT	REDX2	1d	D1	24V-	1	BLACK	
5	3	GREEN LIGHT	GREENX1	1d	D1	O/03	9	PURPLE	
6	1	IR DETECTOR	GRAY	2a	D2	24V+	2	RED	
6	1	IR DETECTOR	YELLOW	2a	D2	24V+	2	RED	Gray&Yellow tied together
6	2	IR DETECTOR	GRAY	2a	D2	24V-	1	BLACK	
6	3	IR DETECTOR	YELLOW	2a	D2	I/04	17	W/BLUE	in plug
7	1	MAG Lock	RED	2b	D2	O/09	18	W/BROWN	
7	2	MAG Lock	BLACK	2b	D2	24V-	1	BLACK	
7	3	MAG Lock	WHITE	2b	D2	I/13	19	W/YELLOW	
8	1	Door Contact	BROWN	2c	D2	24V+	2	RED	
8	3	Door Contact	BROWN	2c	D2	I/05	20	W/PURPLE	
9	1	RED LIGHT	REDX1	2c	D2	O/07	21	W/GRAY	
9	2	GREEN LIGHT	GREENX2	2c	D2	24V-	1	BLACK	This light has a microphone
9	2	RED LIGHT	REDX2	2c	D2	24V-	1	BLACK	inside housing
9	3	GREEN LIGHT	GREENX1	2c	D2	O/06	22	B/RED	
10	1	MICROPHONE	RED	2c	D2	J22-23	23	B/GREEN	
10	2	MICROPHONE	BLACK	2c	D2	J22-24	24	B/YELLOW	
11	1	MAG Lock	RED	3a	D3	O/10	25	B/BLUE	
11	2	MAG Lock	BLACK	3a	D3	24V-	1	BLACK	
11	3	MAG Lock	WHITE	3a	D3	I/14	26	B/BROWN	
12	1	Door Contact	BROWN	3b	D3	24V+	2	RED	
12	3	Door Contact	BROWN	3b	D3	I/08	27	B/ORANGE	
13	1	Push Bar	BLUE	4a	D4	24V+	2	RED	
13	1	Push Bar	RED	4a	D4	24V+	2	RED	Red & Blue tied together
13	2	Push Bar	BLACK	4a	D4	24V-	1	BLACK	
13	3	Push Bar	ORANGE	4a	D4	I/12	10	GRAY	in plug
14	1	Door Contact	BROWN	4c	D4	24V+	2	RED	
14	3	Door Contact	BROWN	4c	D4	I/11	13	W/BLACK	
15	2	GREEN LIGHT	GREENX2	4c	D4	24V-	1	BLACK	
15	3	GREEN LIGHT	GREENX1	4c	D4	O/02	14	W/RED	Red light wired & not used
16	1	Handicap Button	N.O.	8a	d1/4	J22-25	15	W/GREEN	
16	3	Handicap Button	COMMON	8a	d1/4	J22-26	16	W/ORANGE	
17	1	MAG Lock	RED	4b	D4	O/11	11	PINK	
17	2	MAG Lock	BLACK	4b	D4	24V-	1	BLACK	
17	3	MAG Lock	WHITE	4b	D4	I/15	12	TAN	

D1=Door 1, D2=Door 2 etc

PLUG DETAILS HAMILTON ENTRANCE CONTROL

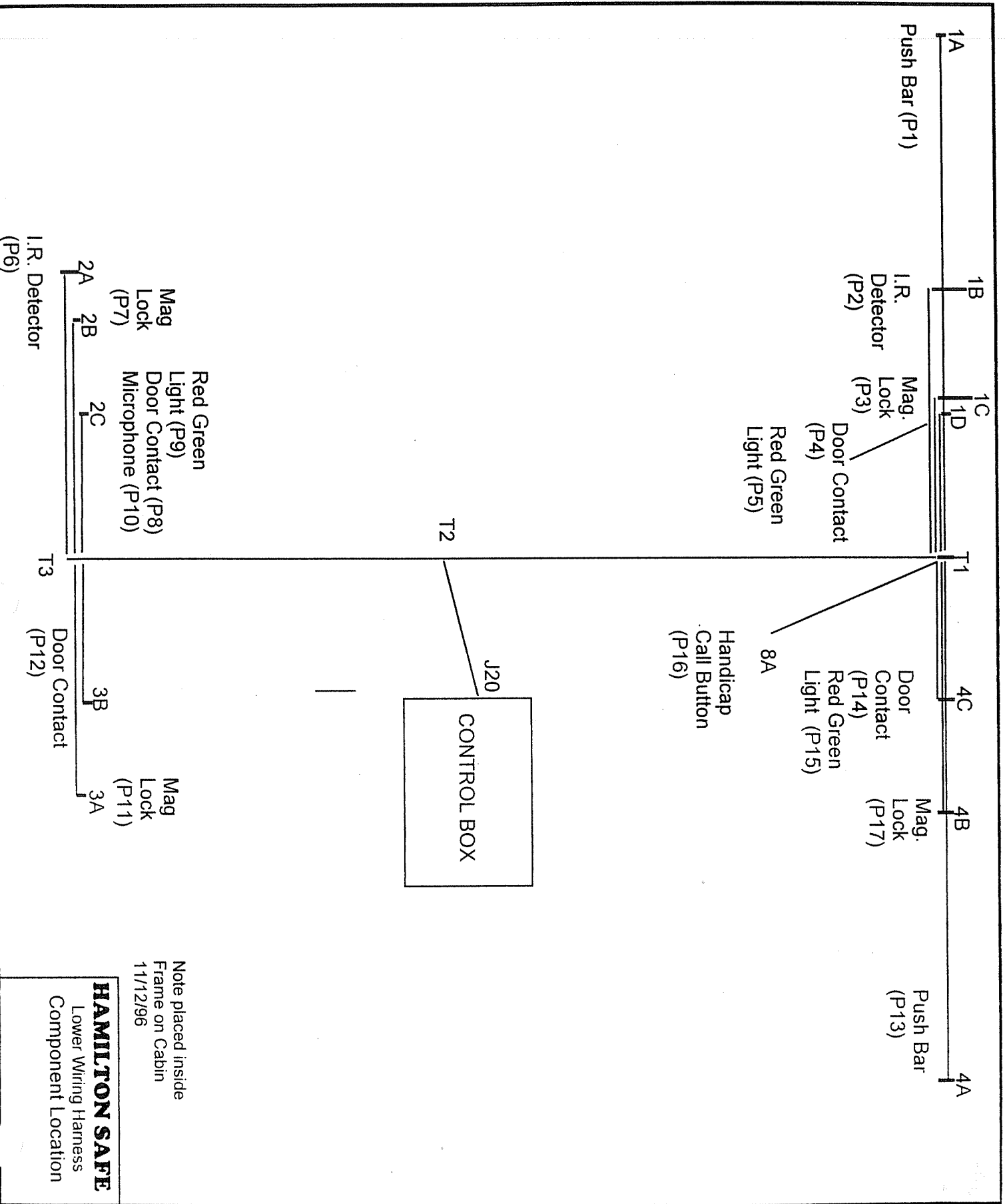
Version 1.0 11/12/96

Plug number	Cable Plug Pin#	Device ID	Device Wire Color	Cable drop	Device location	Device connection	P22	Harness	Notes
							PLUG PIN	Cable Color	
18	bare	WEAPONS DET	BLACK	a1	5a	I/03	7	ORANGE	
18	bare	WEAPONS DET	RED	a1	5a	24V+	2	RED	
19	bare	WEAPONS DET	BLACK	a1	5a	24VDC- (2)	6	BLUE	Separate power
19	bare	WEAPONS DET	RED	a1	5a	24VDC+ (2)	5	BROWN	
20	1	SPEAKER	BLACK	a2	5b	T2-17	8	YELLOW	
20	3	SPEAKER	RED	a2	5b	T2-18	9	PURPLE	
21	1	IR DETECTOR	GRAY	a3	6a	24V+	2	RED	Gray&Yellow tied together in plug
21	1	IR DETECTOR	YELLOW	a3	6a	24V+	2	RED	
21	2	IR DETECTOR	GRAY	a3	6a	24V-	1	BLACK	
21	3	IR DETECTOR	YELLOW	a3	6a	I/10	3	WHITE	
22	1	IR DETECTOR	GRAY	a4	6c	24V+	2	RED	Gray&Yellow tied together in plug
22	1	IR DETECTOR	YELLOW	a4	6c	24V+	2	RED	
22	2	IR DETECTOR	GRAY	a4	6c	24V-	1	BLACK	
22	3	IR DETECTOR	YELLOW	a4	6c	I/06	4	GREEN	

REVISION 7.0  
WIRING CHART FOR  
CONTROL BOX  
HARNESS

J20						
1	BLACK	24v-	15	W/GREEN	J22-25	*15 OHM RESISTOR IN LINE
2	RED	24V+	16	W/ORANGE	J22-26	
3	WHITE	I/00	17	W/BLUE	I/04	
4	GREEN	I/02	18	W/BROWN*	O/09	
5	BROWN*	O/08	19	W/YELLOW	I/13	
6	BLUE	I/09	20	W/PURPLE	I/05	
7	ORANGE	I/01	21	W/GREY	O/07	
8	YELLOW	O/08	22	B/RED	O/06	
9	PURPLE	O/03	23	B/GREEN	J22-23	
10	GREY	I/12	24	B/YELLOW	J22-24	
11	PINK*	O/11	25	B/BLUE*	O/10	
12	TAN	I/18	26	B/BROWN	I/14	
13	W/BLACK	I/11	27	B/ORANGE	I/08	
14	W/RED	O/02	28	B/GREY	2nd DC COM.THEN J22-12	
J21						
1	BLACK	24V-	6	BLUE	24V-	* CONNECT TO RECTIFIER AT TOP OF BOX
2	RED	24V+	7	ORANGE	I/03	
3	WHITE	I/10	8	YELLOW	J22-27	
4	GREEN	6-Jan	9	PURPLE	J22-28	
5	BROWN*	24V+				
J22						
1	BLACK	24v-	12	TAN	O/08	F1-F2 3A FUSES
2	RED	O/01	13	W/BLACK	O/09	
3	WHITE	I/16	14	W/RED	O/10	
4	GREEN	I/18	15	W/GREEN	O/11	
5	BROWN*	I/07	16	W/ORANGE	SPARE	
6	BLUE	O/0-VACVDC	17	W/BLUE	SPARE	
7	ORANGE	O/00	18	W/BROWN*	SPARE	
8	YELLOW	SPARE	19	W/YELLOW	SPARE	
9	PURPLE	SPARE	20	W/PURPLE	SPARE	
10	GREY	I/12	21-28 NOT USED			
11	PINK*	O/05				





Note placed inside  
Frame on Cabin  
11/12/96

**HAMILTON SAFE**  
Lower Wiring Harness  
Component Location

5A  
Weapons  
Detector  
P18,P19

6C  
I.R Detector  
P22

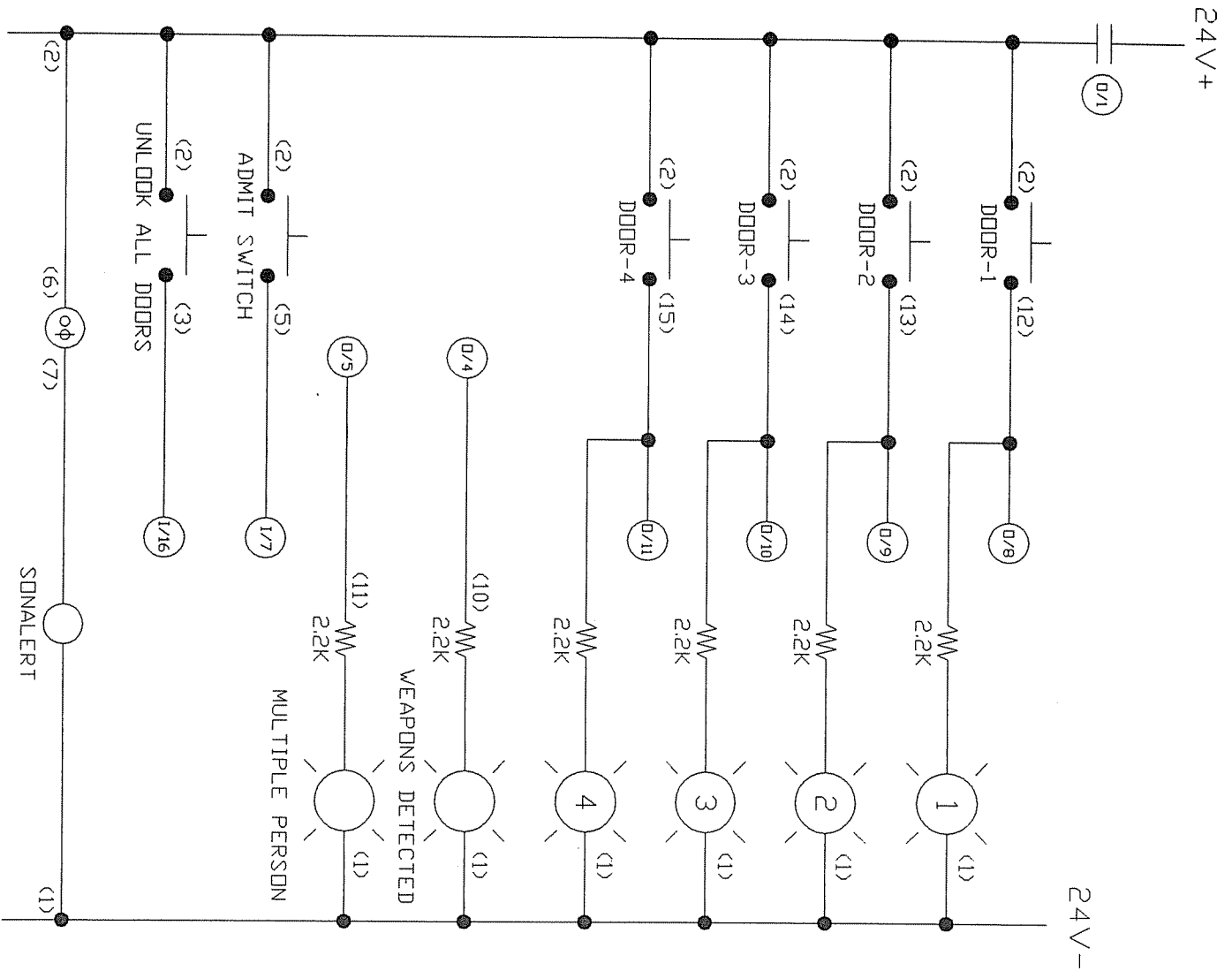
6B  
I.R. Detector  
P21

5B  
Speaker  
P20

**J21**  
(9 pin AMP  
Connector)

### Upper Wiring Harness

11/12/96



REVISION-1  
 ADDED AN OPEN SET  
 OF CONTACTS 0/1

AUDDI CONNECTIONS

- SHEILD MIC-21
- SHEILD SPEAKER-22
- MIC + PIN-23
- MIC - PIN-24
- CALL PIN-25
- CALL PIN-26
- SPEAKER PIN-27
- SPEAKER PIN-28

NOTE:

NUMBERS IN (#) ARE  
 PLUG PIN NUMBERS.  
 NUMBERS IN BALLOONS  
 ARE CONTROL INPUTS  
 AN DUT PUTS.

COLOR CODE - 28 PIN PLUG

- |               |               |
|---------------|---------------|
| (1)=BLACK     | (17)=W/BLUE   |
| (2)=RED       | (18)=W/BROWN  |
| (3)=WHITE     | (19)=W/YELLOW |
| (4)=GREEN     | (20)=W/PURPLE |
| (5)=BROWN     | (21)=W/GRAY   |
| (6)=BLUE      | (22)=B/RED    |
| (7)=ORANGE    | (23)=B/GREEN  |
| (8)=YELLOW    | (24)=B/YELLOW |
| (9)=PURPLE    | (25)=B/BLUE   |
| (10)=GRAY     | (26)=B/BROWN  |
| (11)=PINK     | (27)=B/DRANGE |
| (12)=TAN      | (28)=B/GRAY   |
| (13)=W/BLACK  |               |
| (14)=W/RED    |               |
| (15)=W/GREEN  |               |
| (16)=W/DRANGE |               |

**HAMILTON SAFE CD.**

DPC

PART NAME:

WIRE DIAGRAM

(ECS-CONSOLE)

PART NO:

ECS-5

MATERIAL:

0

TOLERANCES:

± .005

BEND ALLOWANCE:

(UNLESS OTHERWISE INDICATED)

0

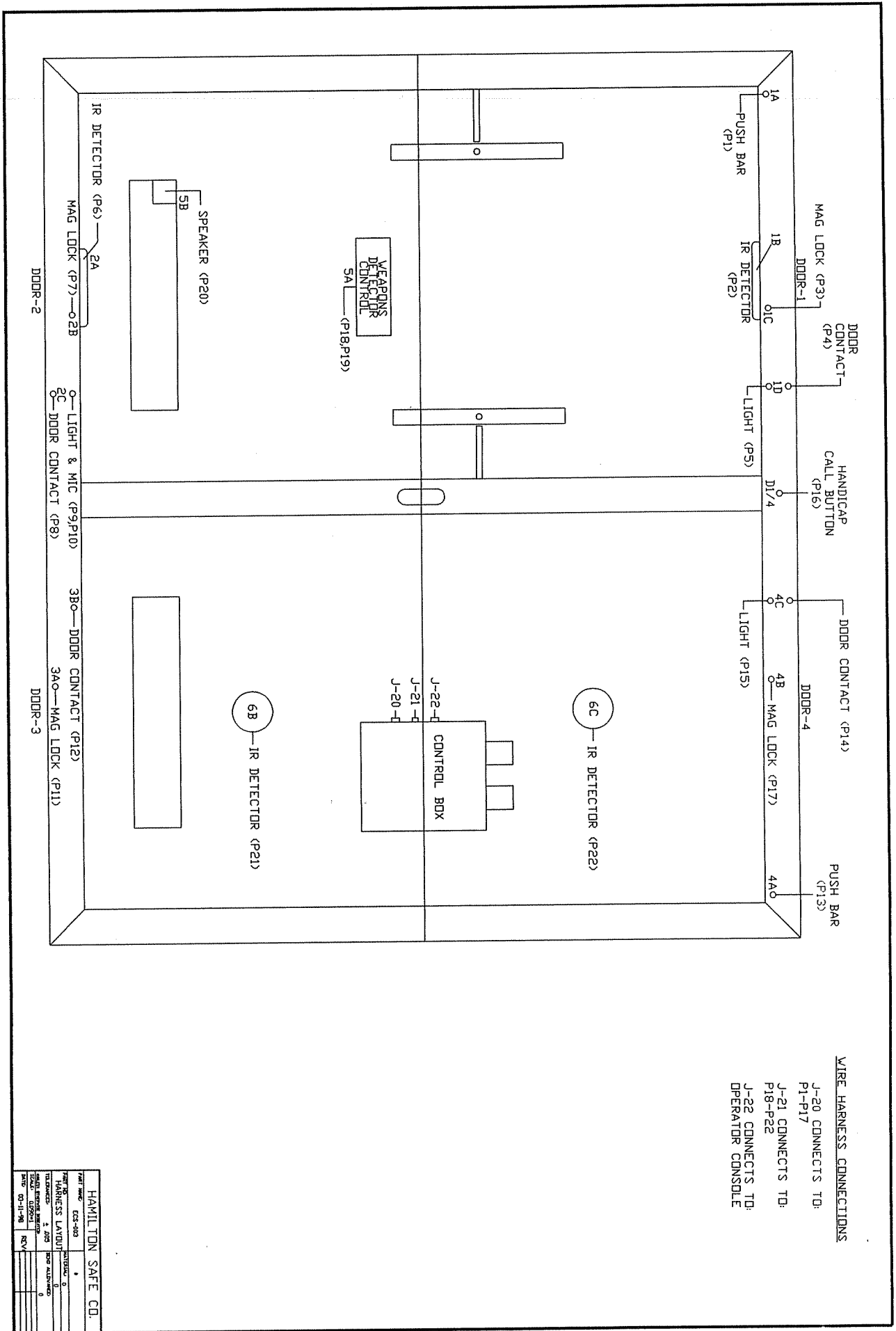
SCALE:

1 = 1

REV:

DATE:

2-24-97



WIRE HARNESS CONNECTIONS  
 J-20 CONNECTS TO:  
 P1-P17  
 J-21 CONNECTS TO:  
 P18-P22  
 J-22 CONNECTS TO:  
 OPERATOR CONSOLE

HAMILTON SAFE CO.	
PART NO.	CS-403
REV.	1
DATE	10-11-58
BY	REV
CHKD	
APPROVED	
DESIGNED	
DRAWN	
TESTED	
INSPECTED	
DATE	
BY	
REV	