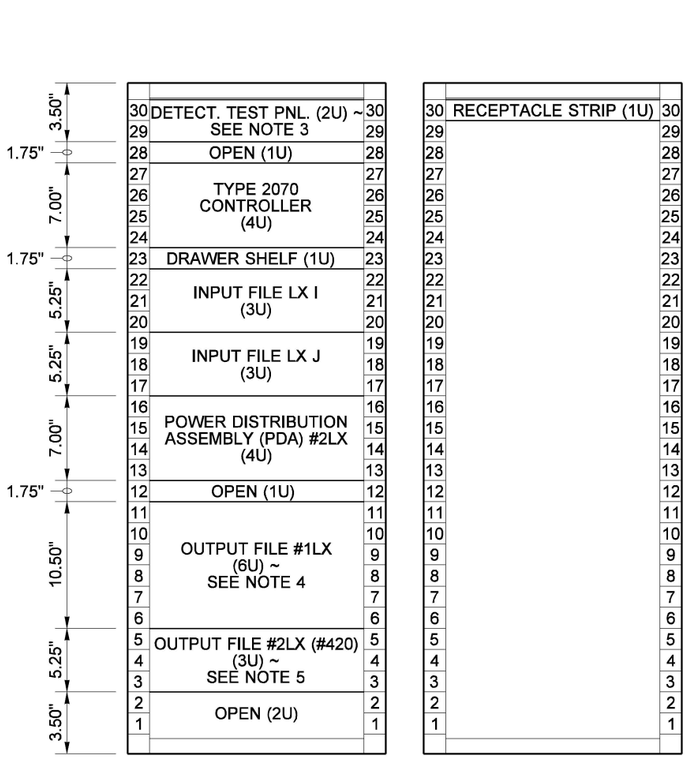
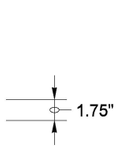
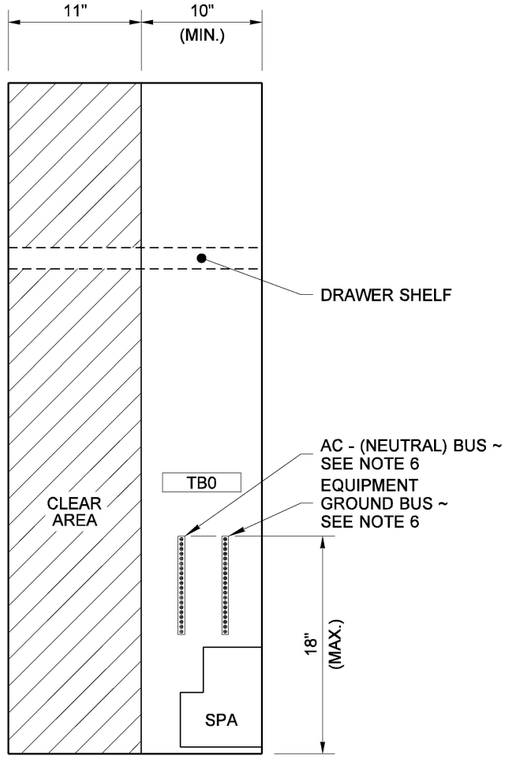


FRONT VIEW

REAR VIEW

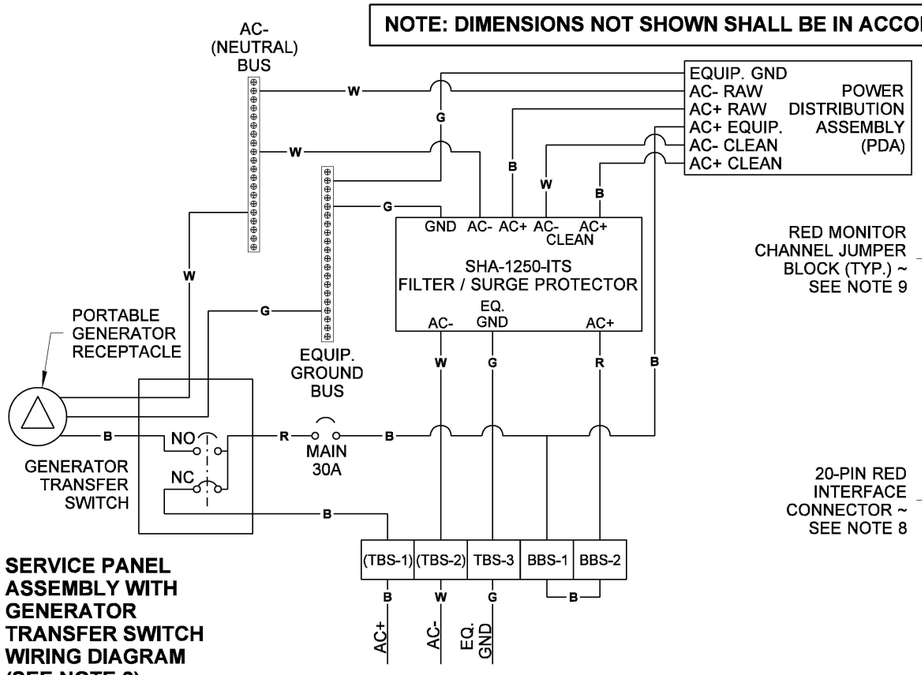


INPUT PANEL #1 LAYOUT

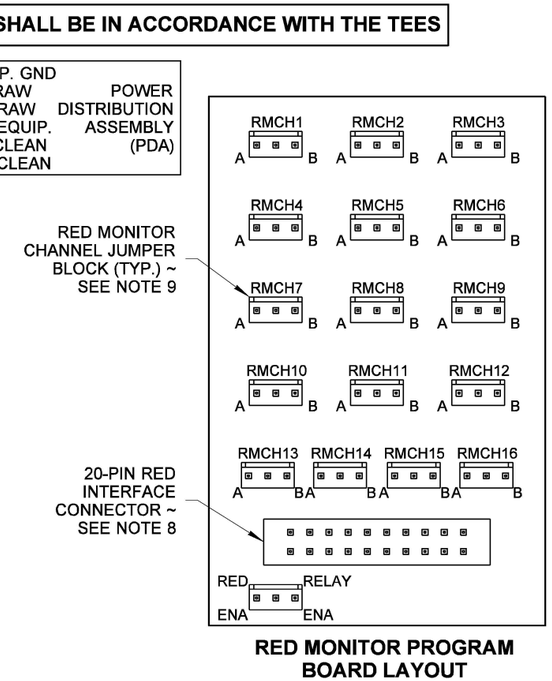


SERVICE PANEL #1 LAYOUT

NOTE: DIMENSIONS NOT SHOWN SHALL BE IN ACCORDANCE WITH THE TEES



SERVICE PANEL ASSEMBLY WITH GENERATOR TRANSFER SWITCH WIRING DIAGRAM (SEE NOTE 2)



RED MONITOR PROGRAM BOARD LAYOUT (FRONT VIEW)

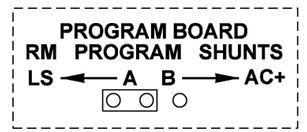
RED MONITOR CONNECTOR PIN ASSIGNMENTS

P1 CONNECTOR *			RED INTERFACE CONNECTOR (20-PIN)	
PIN	CONNECT TO	FUNCTION	PIN	FUNCTION
1	FT3-125	Ø1 RED	1	CHANNEL 15 RED
2	FT3-128	Ø2 RED	2	CHANNEL 16 RED
3	FT2-116	Ø3 RED	3	CHANNEL 14 RED
4	FT1-101	Ø4 RED	4	N/A
5	FT3-131	Ø5 RED	5	CHANNEL 13 RED
6	FT3-134	Ø6 RED	6	SPECIAL FUNCTION #2
7	FT2-122	Ø7 RED	7	CHANNEL 12 RED
8	FT1-107	Ø8 RED	8	SPECIAL FUNCTION #1
9	FT6-A121	OLA RED	9	CHANNEL 10 RED
10	FT6-A124	OLB RED	10	CHANNEL 11 RED
11	FT5-A114	OLC RED	11	CHANNEL 9 RED
12	FT4-A101	OLD RED	12	CHANNEL 8 RED
13	NC	N/A	13	CHANNEL 7 RED
14	AC+	AC+	14	CHANNEL 6 RED
P2 CONNECTOR *			15	CHANNEL 5 RED
1	FT2-113	PED2 RED	16	CHANNEL 4 RED
2	FT1-104	PED4 RED	17	CHANNEL 3 RED
3	FT2-119	PED6 RED	18	CHANNEL 2 RED
4	FT1-110	PED8 RED	19	CHANNEL 1 RED
P3 CONNECTOR *			20	RED ENABLE
1	02-1	+24V RM COIL		
2	02-6	DC GND		

*** NOTE: CONNECTORS P1, P2, AND P3 MOUNTED ON BACK OF BOARD**

NOTES

1. Equipment shall meet the requirementsof and be constructed in accordance with the California Department of Transportation (CalTrans) Transportation Electrical Equipment Specs. (TEES) as currently published, including all errata, with modifications as shown here and described in **Standard Specification section 9-29.13(10).**
2. The Generator Transfer Switch shall be wired into the Service Panel Assembly as shown.
3. See **Standard Plan J-80.15** for Detector Test Panel details.
4. Output File #1LX shall include a Red Monitor Program Board and OL Monitor Cable terminal. The Red Monitor Program Board shall use the general layout and be labeled as shown here. The field terminal panel shall be modified as shown in **Standard Plan J-80.12.**
5. Output File #2LX shall be Model #420 and shall only be provided when specified in the Contract.
6. Bus Bars shall be capable of being used without installing lugs on field wires.
7. The Detector Termination and Interface Panel shall be located on the Input Panel side of the cabinet and above the controller as shown for accessibility. To accomodate installation, Input Panel #1 may be expanded to 21 inches in width, with clear area maintained as shown, or a separate mounting panel may be installed and bolted to both the cabinet rack and Input Panel #1.
8. A 20-wire ribbon cable, 36 inches in length, shall be installed between the Red Interface Connectors on the Red Monitor Program Board and the front of the installed Conflict Monitor. Terminate the cable with compatible 2-row, 20-pin IDC connectors.
9. Jumpers may be oriented horizontally or vertically.
10. The Red Monitor Program Board shall have the label shown printed on the back of Output File #1LX, directly above the cutout for the board.



RED MONITOR BOARD LABEL (SEE NOTE 10)

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TYPE 332 SIGNAL CABINET LAYOUT

STANDARD PLAN J-80.10-01

SHEET 1 OF 1 SHEET

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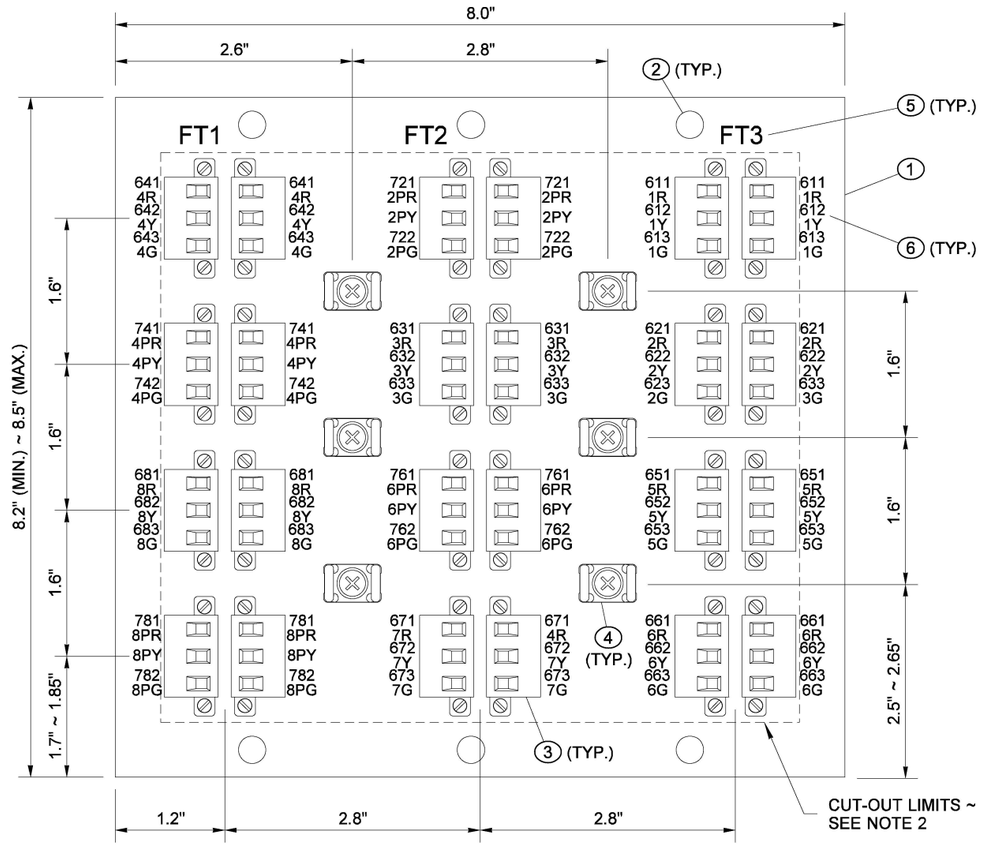


OUTPUT FILE #1LXW
FIELD TERMINATION PANEL
FRONT VIEW

KEY

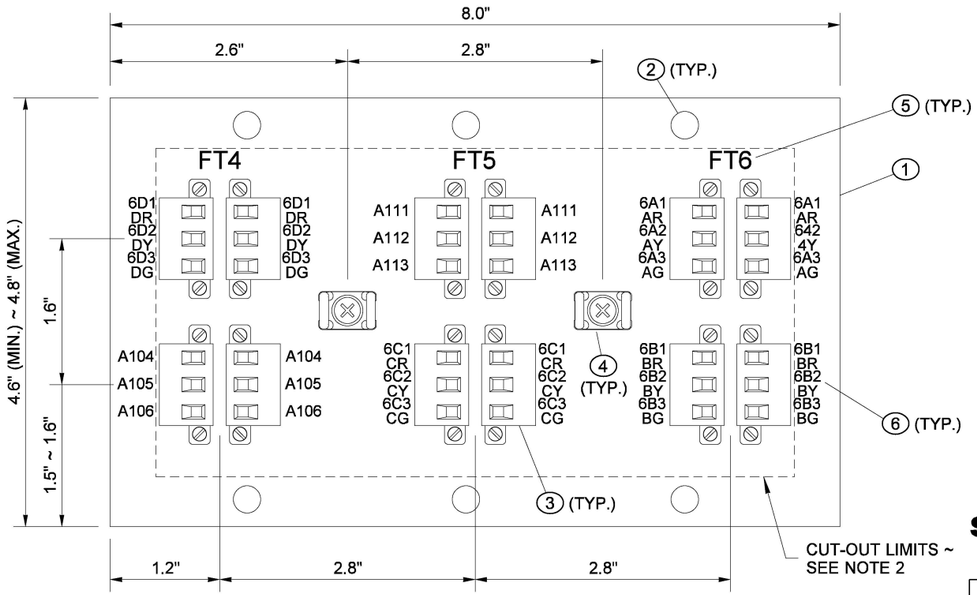
1. REMOVABLE TERMINAL PANEL ASSEMBLY ~ SEE NOTE 1
2. HOLE FOR MOUNTING SCREW (6 PLACES)
3. 7.62 MM PITCH PCB CONNECTOR AND HEADER, PHOENIX CONTACT PART NUMBERS 1777736 AND 1861167 OR EQUAL (1LXW: 24 PLACES, 2LXW: 12 PLACES) ~ SEE NOTE 2
4. CABLE TIE BRACKET, HEAT STABILIZED NYLON, PANDUIT TM2S6 OR EQUAL (1LXW: 6 PLACES, 2LXW: 2 PLACES) ~ SEE NOTE 3
5. TERMINAL BLOCK LABEL ~ SEE NOTE 4
6. TERMINAL LABEL ~ SEE NOTE 5

NOTES

1. Field Termination Panel Assemblies replace those shown in the **California Department of Transportation (CalTrans) Transportation Electrical Equipment Specifications (TEES),** Errata 3 Detail A6-44 (Output File #1LX) and Errata 4 Detail A6-54 (Model #420 Output File #2LX). Panel dimensions and mounting shall meet CalTrans specifications.
2. Dimensions shown are nominal. Connectors shall be installed in pairs as shown. Connectors shall be evenly spaced on the panel, but no part of the PCB header, including the mounting screw flanges, shall extend beyond the panel cut-out limits shown. Identical terminal numbers on paired connectors shall be electrically common.
3. Cable tie brackets shall be installed vertically and horizontally centered between connectors as shown. Dimensions shown are nominal.
4. Each column of connectors shall be labeled with the CalTrans terminal block number as shown.
5. Each connector shall have WSDOT terminal identification numbers adjacent to each wire connection point as shown. WSDOT equivalents of CalTrans standard terminal numbers are shown in the table on this sheet for wiring reference.

OUTPUT FILE #2LXW (MODEL #420) - WSDOT TERMINAL IDENTIFICATION

TERMINAL BLOCK FT4			TERMINAL BLOCK FT5			TERMINAL BLOCK FT6		
WSDOT TERMINAL #	FUNCTION	CALTRANS TERMINAL #	WSDOT TERMINAL #	FUNCTION	CALTRANS TERMINAL #	WSDOT TERMINAL #	FUNCTION	CALTRANS TERMINAL #
6D1	OLD R	A101	A111	N/A	A111	6A1	OLA R	A121
6D2	OLD Y	A102	A112	N/A	A112	6A2	OLA Y	A122
6D3	OLD G	A103	A113	N/A	A113	6A3	OLA G	A123
A104	N/A	A104	6C1	OLC R	A114	6B1	OLB R	A124
A105	N/A	A105	6C2	OLC Y	A115	6B2	OLB Y	A125
A106	N/A	A106	6C3	OLC G	A116	6B3	OLB G	A126



OUTPUT FILE #2LXW (MODEL #420)
FIELD TERMINATION PANEL
FRONT VIEW

OUTPUT FILE #1LXW - WSDOT TERMINAL IDENTIFICATION

TERMINAL BLOCK FT1			TERMINAL BLOCK FT2			TERMINAL BLOCK FT3		
WSDOT TERMINAL #	FUNCTION	CALTRANS TERMINAL #	WSDOT TERMINAL #	FUNCTION	CALTRANS TERMINAL #	WSDOT TERMINAL #	FUNCTION	CALTRANS TERMINAL #
641	4R	101	721	2PR	113	611	1R	125
642	4Y	102	(NO LABEL)	2PY	114	612	1Y	126
643	4G	103	722	2PG	115	613	1G	127
741	4PR	104	631	3R	116	621	2R	128
(NO LABEL)	4PY	105	632	3Y	117	622	2Y	129
742	4PG	106	633	3G	118	623	2G	130
681	8R	107	761	6PR	119	651	5R	131
682	8Y	108	(NO LABEL)	6PY	120	652	5Y	132
683	8G	109	762	6PG	121	653	5G	133
781	8PR	110	671	7R	122	661	6R	134
(NO LABEL)	8PY	111	672	7Y	123	662	6R	135
782	8PG	112	673	7G	124	663	6G	136

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SIGNAL CABINET FIELD OUTPUT TERMINAL PANELS
STANDARD PLAN J-80.12-00

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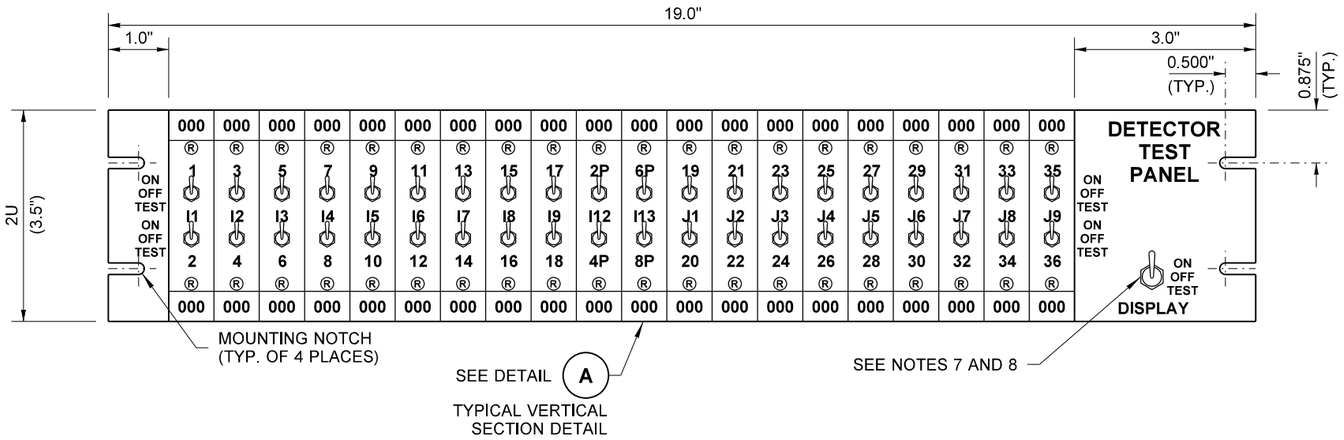
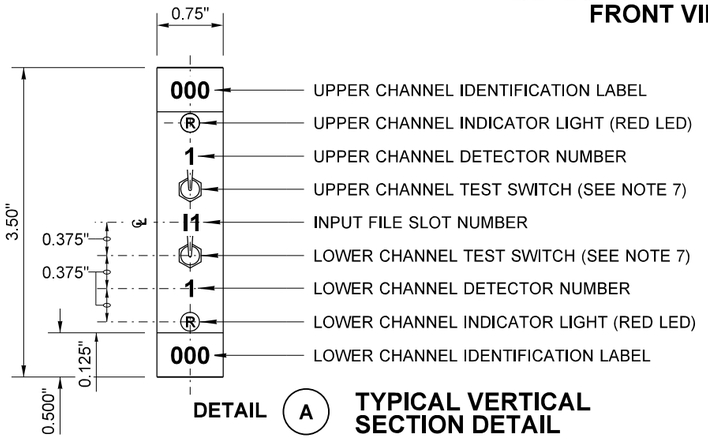
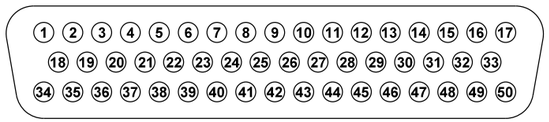


DETECTOR TEST PANEL FRONT VIEW



DETAIL (A) **TYPICAL VERTICAL SECTION DETAIL**



DD50 D-SUB CONNECTOR PINS

PLUG (MALE) CONNECTOR SHOWN ~
MIRROR FOR SOCKET (FEMALE) CONNECTOR ~
SEE NOTE 2

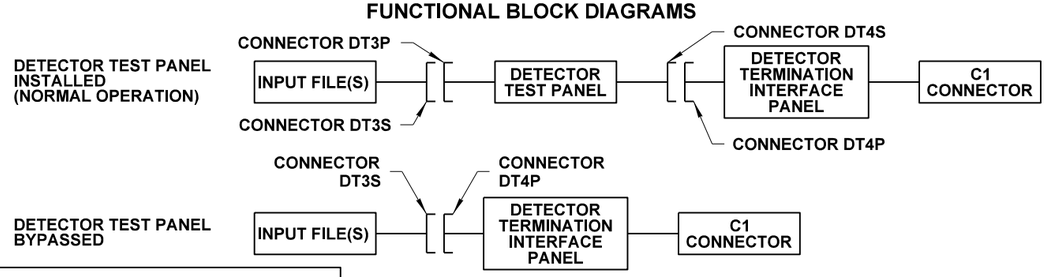
NOTES

1. Upper and lower channel identification labels shall match the detector channels shown in the Contract Plans.
2. Connectors **DT3S**, **DT3P**, **DT4S**, and **DT4P** are **Type DD50 D-Sub** connectors with pin layouts and assignments as shown. The suffix "**S**" indicates a socket (female connector) and the suffix "**P**" indicates a plug (male connector).
3. **Detector Termination Interface Panel** terminals not shown due to variations in arrangement and numbering between manufacturers.
4. Connectors **DT3P** and **DT4S** shall be installed in one of the following arrangements:

   a) Mounted to the back of the **Detector Test Panel**. Connectors shall use a spring latch (bail) to secure the connection.

   b) Mounted on a cable, within six inches of the back of the **Detector Test Panel**. Connectors shall use thumb-screws to secure the connection.
5. Connectors **DT3S** and **DT4P** shall be designed such that they can be connected directly, bypassing the **Detector Test Panel**.
6. The **Detector Termination Interface Panel** shall be installed electrically between the **Detector Test Panel** and the **C1** connector. A second additional terminal block may be installed electrically between the **Input File(s)** and the **Detector Test Panel**.
7. Test switches shall be three position switches with the "**Test**" position being a momentary contact with spring return to the "**OFF**" position. Test switch position functions shall be as described in **Standard Specification section 9-29.13(10)**.
8. Location of the **Display On/Off** switch is approximate. This switch shall be located to the right of all of the individual channel test switches and clear of the mounting rack.

FUNCTIONAL BLOCK DIAGRAMS



CONNECTOR PIN ASSIGNMENTS (SEE NOTE 3)

CONNECTOR DT3S

PIN	CONNECT TO	FUNCTION	PIN	CONNECT TO	FUNCTION
1	I-1F	DET. 1	26	J-3F	DET. 23
2	I-2F	DET. 3	27	J-4F	DET. 25
3	I-3F	DET. 5	28	J-5F	DET. 27
4	I-4F	DET. 7	29	J-2W	DET. 22
5	I-1W	DET. 2	30	J-3W	DET. 24
6	I-2W	DET. 4	31	J-4W	DET. 26
7	I-3W	DET. 6	32	J-5W	DET. 28
8	I-4W	DET. 8	33	J-6F	DET. 29
9	I-5F	DET. 9	34	J-7F	DET. 31
10	I-6F	DET. 11	35	J-8F	DET. 33
11	I-7F	DET. 13	36	J-9F	DET. 35
12	I-8F	DET. 15	37	J-6W	DET. 30
13	I-5W	DET. 10	38	J-7W	DET. 32
14	I-6W	DET. 12	39	J-8W	DET. 34
15	I-7W	DET. 14	40	J-9W	DET. 36
16	I-8W	DET. 16	41	NC	NA
17	I-9F	DET. 17	42	NC	NA
18	I-12F	Ø2 PED	43	NC	NA
19	I-13F	Ø6 PED	44	NC	NA
20	J-1F	DET. 19	45	NC	NA
21	I-9W	DET. 18	46	NC	NA
22	I-12W	Ø4 PED	47	NC	NA
23	I-13W	Ø8 PED	48	NC	NA
24	J-1W	DET. 20	49	I15-1	POWER
25	J-2F	DET. 21	50	I15-2	GROUND

CONNECTOR DT3P

PIN	CONNECT TO	FUNCTION	PIN	CONNECT TO	FUNCTION
1	I1U - IN		26	J3U - IN	
2	I2U - IN		27	J4U - IN	
3	I3U - IN		28	J5U - IN	
4	I4U - IN		29	J2L - IN	
5	I1L - IN		30	J3L - IN	
6	I2L - IN		31	J4L - IN	
7	I3L - IN		32	J5L - IN	
8	I4L - IN		33	J6U - IN	
9	I5U - IN		34	J7U - IN	
10	I6U - IN		35	J8U - IN	
11	I7U - IN		36	J9U - IN	
12	I8U - IN		37	J6L - IN	
13	I5L - IN		38	J7L - IN	
14	I6L - IN		39	J8L - IN	
15	I7L - IN		40	J9L - IN	
16	I8L - IN		41	NC	NA
17	I9U - IN		42	NC	NA
18	I12U - IN		43	NC	NA
19	I13U - IN		44	NC	NA
20	J1U - IN		45	NC	NA
21	I9L - IN		46	NC	NA
22	I12L - IN		47	NC	NA
23	I13L - IN		48	NC	NA
24	J1L - IN		49	+24 VDC	POWER
25	J2U - IN		50	LOGIC GND	GROUND

CONNECTOR DT4S

PIN	CONNECT TO	FUNCTION	PIN	CONNECT TO	FUNCTION
1	I1U - OUT		26	J3U - OUT	
2	I2U - OUT		27	J4U - OUT	
3	I3U - OUT		28	J5U - OUT	
4	I4U - OUT		29	J2L - OUT	
5	I1L - OUT		30	J3L - OUT	
6	I2L - OUT		31	J4L - OUT	
7	I3L - OUT		32	J5L - OUT	
8	I4L - OUT		33	J6U - OUT	
9	I5U - OUT		34	J7U - OUT	
10	I6U - OUT		35	J8U - OUT	
11	I7U - OUT		36	J9U - OUT	
12	I8U - OUT		37	J6L - OUT	
13	I5L - OUT		38	J7L - OUT	
14	I6L - OUT		39	J8L - OUT	
15	I7L - OUT		40	J9L - OUT	
16	I8L - OUT		41	NC	NA
17	I9U - OUT		42	NC	NA
18	I12U - OUT		43	NC	NA
19	I13U - OUT		44	NC	NA
20	J1U - OUT		45	NC	NA
21	I9L - OUT		46	NC	NA
22	I12L - OUT		47	NC	NA
23	I13L - OUT		48	NC	NA
24	J1L - OUT		49	NC	NA
25	J2U - OUT		50	NC	NA

CONNECTOR DT4P

PIN	CONNECT TO	FUNCTION	PIN	CONNECT TO	FUNCTION
1	C1 - 56	DET. 1	26	C1 - 64	DET. 23
2	C1 - 39	DET. 3	27	C1 - 48	DET. 25
3	C1 - 63	DET. 5	28	C1 - 57	DET. 27
4	C1 - 47	DET. 7	29	C1 - 44	DET. 22
5	C1 - 56	DET. 2	30	C1 - 77	DET. 24
6	C1 - 43	DET. 4	31	C1 - 48	DET. 26
7	C1 - 76	DET. 6	32	C1 - 57	DET. 28
8	C1 - 47	DET. 8	33	C1 - 42	DET. 29
9	C1 - 58	DET. 9	34	C1 - 66	DET. 31
10	C1 - 41	DET. 11	35	C1 - 50	DET. 33
11	C1 - 65	DET. 13	36	C1 - 59	DET. 35
12	C1 - 49	DET. 15	37	C1 - 46	DET. 30
13	C1 - 58	DET. 10	38	C1 - 79	DET. 32
14	C1 - 45	DET. 12	39	C1 - 50	DET. 34
15	C1 - 78	DET. 14	40	C1 - 61	DET. 36
16	C1 - 49	DET. 16	41	NC	NA
17	C1 - 60	DET. 17	42	NC	NA
18	C1 - 67	Ø2 PED	43	NC	NA
19	C1 - 68	Ø6 PED	44	NC	NA
20	C1 - 55	DET. 19	45	NC	NA
21	C1 - 62	DET. 18	46	NC	NA
22	C1 - 69	Ø4 PED	47	NC	NA
23	C1 - 70	Ø8 PED	48	NC	NA
24	C1 - 55	DET. 20	49	NC	NA
25	C1 - 40	DET. 21	50	NC	NA

PIN TABLE EXAMPLES:

J1F: Input File J, Slot 1, Terminal F

DET. 14: Detector #14

I9U - IN: Detector Test Panel Position I9, Upper Channel, Input Terminal

C1 - 58: C1 Connector, Pin 58

N/A: Not Applicable

NC: Not Connected

TYPE 332 SIGNAL CABINET DETECTOR TEST PANEL

STANDARD PLAN J-80.15-00

SHEET 1 OF 1 SHEET

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Washington State Department of Transportation

DRAWN BY: BILL BERENS