

**MC170-X**  
**Portable Module Case**

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**Application Notes - Product Data Sheets**

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**1.0 DESCRIPTION**

The MC170-X is a mobile module holding case for the MC170 family of signal conditioning modules. The unit is powered by 10 thru 36 VDC. The case comes in 4, 8, 12, or 16 channel sizes. The cases can be adjusted up or down in size in 4 channel increments between 4 and 16 channels.

**1.1 SPECIFICATIONS**

Output Voltage:	±10Vdc, from signal conditioning plug-in modules.
Power Requirements:	10 to 36 Vdc @ approximately 1 watt per plug-in channel.
Internal Power:	15 Vdc @ 320 mA maximum.
Carrier Power:	5 volts rms @ 3000 Hz, 2 watts maximum, for all sensors.

Regulation:	Amplitude	Frequency
Load 0 to 100%	.05%	.1%
Input Volts 10 to 36	.01%	.01%
Temperature (0°F to 160°F)	.01%/°F	.006%/°F

Size (4, 8, 12, or 16 Channels):	Height	Width	Depth
MC170-X-04	3.45" X	6" X	9.45"
-08	3.45" X	8" X	9.45"
-12	3.45" X	10" X	9.45"
-16	3.45" X	12" X	9.45"

Approximate Weight (Includes signal conditioning modules):

MC170-X-04	6 lbs
-08	8 lbs
-12	10lbs
-16	12 lbs

**1.2 MODULES AVAILABLE**

BA 172	CD 173	PT 174-X-1	PT 174-X-2
PT 174-X-3	PA 175	CA 192-HI/LO	CA 192-A
CA 192-B	CA 192-A/B	PC 202	BA 214
CD 218-1	CD 218-2	FC 268	TC 292
AL 293-X-1	AL 293-X-2	AL 293-X-3	AL 293-X-4
SG 297	SR 302	BA 332	BA 332-150
TC 387	BA 389		

### 1.3 POWER INPUT CONNECTION

Power can be furnished in two ways:

1. By the AC power adapter which plugs into a jack or into a dual binding post on the rear of the case.
2. By an external battery or DC power source between 10 and 36 VDC.

### 1.4 INPUT CONNECTIONS

The 9 pin D-Sub connections are determined by the signal conditioning module chosen for that channel. The connections required for each card can be found in drawing 12912 MC170-X wiring diagram matrix in the appendix. Consult appropriate module instruction manual for specific information on the input and output connections.

### 1.5 OUTPUT CONNECTIONS

The channel pin connections for the 25 pin D-Sub output connector can be selected from drawing 12912 MC170-X in the appendix.

## 2.0 OPERATION

After modules are inserted and power supply and input/output connections are made, operation of the MC170-X requires calibration and adjustment of the signal conditioning modules. These operations are described in the instruction manuals. Power is turned on by the front ON/OFF switch and is indicated by an LED above the switch.

## 3.0 ACCESSORIES

Part No.	Description
12900	9 Pin D-Sub Round Cable Connector
12901R	25 Pin D-Sub Round Cable Connector
12904D	4 Slot Expansion Kit
3000-4000	AC Power Adapter
12876	Spare DC Power Supply
12883	Mounting Kit
8609	Module Extender

# WARRANTY

VALIDYNE ENGINEERING CORPORATION warrants equipment of its own manufacture to be free from defects in material and workmanship under normal conditions of use and service.

VALIDYNE will rework or replace any item found to be defective on as return to VALIDYNE within the time specified below:

1. Pressure Transducers and Pressure Transmitters (including transducers supplied as part of Digital Manometer Systems) within three (3) years of its original purchase.
2. Electronics products (Transducer Indicators, Carrier Demodulators, plug-in SignalConditioners, Module Cases, etc.) within one (1) year of its original purchase.
3. OEM Transducers within one (1) year of its original purchase.

Buyer is requested to secure authorization of VALIDYNE, and to describe defect prior to return of equipment under warranty. Shipment to VALIDYNE shall be at Buyer's expense, with return at VALIDYNE's expense. NON-VERIFIED problems or malfunctions, whether warranty or not, are subject to a \$100.00 evaluation charge.

The warranty carries no liability, either expressed or implied, beyond our obligation to rework or replace, at VALIDYNE's option, the unit which carries the warranty to the original purchaser. Prices, specifications, and designs are subject to change without notice. This warranty is void if the product is subjected to misuse, accident, neglect, or improper application or operation.

## Out of Warranty Rework

Units returned to VALIDYNE for rework which are out of warranty will be subject to the following conditions:

1. A description of the problem or malfunction shall accompany the unit returned for rework, or be communicated to VALIDYNE prior to shipment. Otherwise there will be a minimum evaluation and/or calibration charge of \$100.00.
2. Unit will be reworked automatically if the charge is less than 65% of current list price, unless other specific instructions are received. Above 65% VALIDYNE will request authorization by Buyer.
3. If a quotation is required before proceeding with rework, unit should be accompanied by a document so stating, or communicated to VALIDYNE prior to shipment. A \$100.00 evaluation charge will be invoiced for this service.
4. Shipping charges in both directions are the responsibility of the Buyer for all out of warranty returns.

## Warranty on Rework

Warranty coverage on rework is 90 days on work done, or to the end of the original warranty period, whichever is longest.



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**MC170-X COMPUTER ENTRY FOR BILL OF MATERIAL**

NOTE: PARENT IS ENTERED W/O LETTER PREFIX & DASHES  
 EXAMPLE: MC170-X-04-D-D = 170X04DD

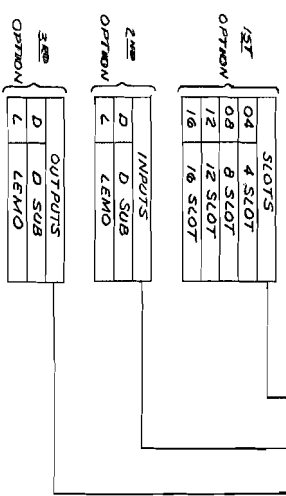
EIM PARTS KIT		
1ST OPTION	ENTER PN	QTY
04	12875-4	1
08	12875-8	1
12	12875-12	1
16	12875-16	1

INPUT CONV KIT			
1ST OPTION	2ND	ENTER PN	QTY
04	D	12908-D-4	1
	L	12908-L-4	
08	D	12908-D-8	2
	L	12908-L-8	
12	D	12908-D-12	3
	L	12908-L-12	
16	D	12908-D-16	4
	L	12908-L-16	

OUTPUT CONV KIT			
1ST OPTION	2ND	ENTER PN	QTY
04 & 08	D	12909-D-1	1
	L	12909-L-1	
12 & 16	D	12909-D-2	1
	L	12909-L-2	

**MODEL NUMBER BREAKDOWN**

MODEL NO. MC170-X-04-D-D



NOTES: UNLESS OTHERWISE SPECIFIED

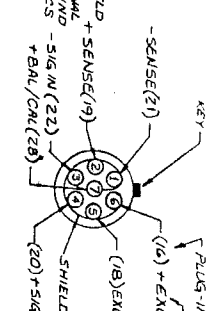
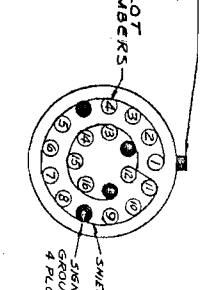
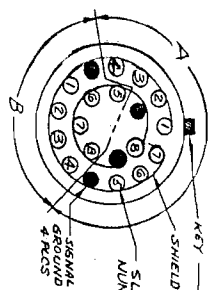
CODE IDENT NO  
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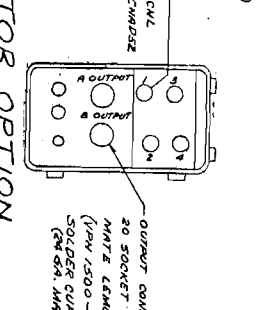
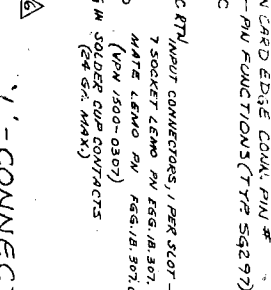
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REV	DESCRIPTION	DATE	APPROVED

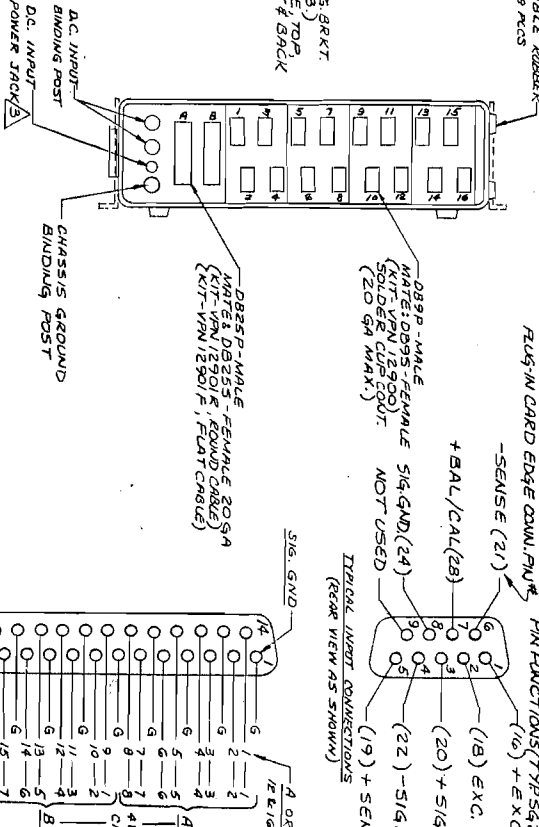
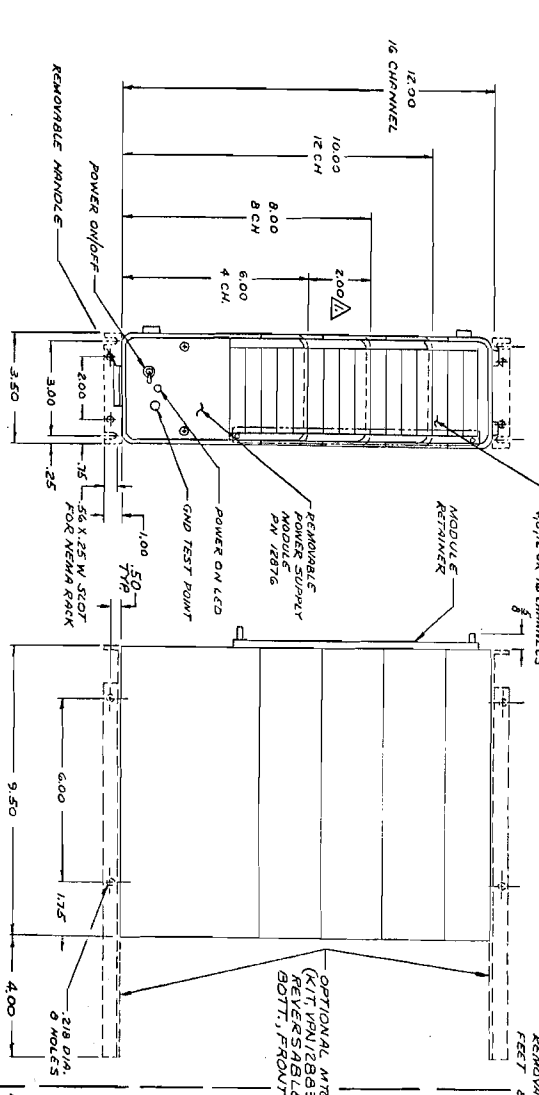


COMBINED OUTPUT CONNECTIONS  $\Delta$  TYPING A OR B OUTPUT CONNECTIONS FOR 16 CHANNELS  
 TYPICAL INPUT CONNECTIONS (REAR VIEW AS SHOWN)  $\Delta$



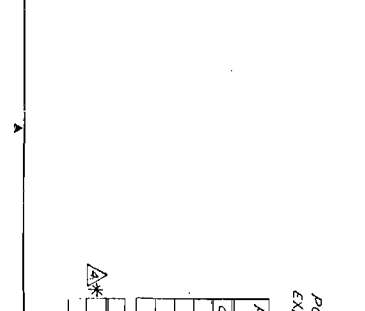
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1	PRODUCTION RELEASE	5-10-68	JAK
2	CHANGE FROM INPUT CONNECTOR AND SOX	5-14-68	JAK
3	WIRING SEE NOTE 1 AND SOX	5-14-68	JAK

### D'-CONNECTOR OPTION



- LEMO CONN. PIN NUMBERS (ASSIGNED BY VEC) ARE NOT MARKED ON CONN.. USE SHIELD AND KEY AS REFERENCE FOR WIRING.
  - REF. WIRING DIAGRAM 12912.
  - STANDARD, CONSULT FACTORY FOR OPTION AVAILABILITY.
  - 10 TO 36 VDC, APPROX. 1 WATT PER CHANNEL.
  - ADAPTER, VBN 3000-4000.
- WEIGHT INCLUDING MODULES:
- 4 CH — 6 LB.
  - 8 CH — 8 LB.
  - 12 CH — 10 LB.
  - 16 CH — 12 LB.
- FOUR CHANNEL EXPANSION KIT 12904D & 12904L.

NOTES: UNLESS OTHERWISE SPECIFIED.



DATE DESIGNED 33107

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MODULE CASES				PLUG-IN MODULE FUNCTIONS																							
BUS PIN	MC170X NO OPTIONS	MC170-32 DAS 932 MC3744D NO OPTIONS	MC170T & MC308 MUST SPECIFY OPTIONS WHEN ORDERING 9552-(NUMBER)																								
				BA172	CD173	CD173-Q2	PT174	PT174-X-Q2	PA175	CA182	CA182A	CA182B	CA182AB	PC202	BA214	CD216-1	CD216-2	FC268	TC292	TC292-X-Q2	AL293-1	AL293-2	AL293-3	AL293-4	SG297		
				OPTION B/C	OPTION A	OPTION A	OPTION A	OPTION A	OPTION B	OPTION A	OPTION A	OPTION A	OPTION E	OPTION E	OPTION A	OPTION A	OPTION B	OPTION B	OPTION A	OPTION A	OPTION A	OPTION D	OPTION D	OPTION D	OPTION D	OPTION	
16	(1)	△	N/C N/C N/C (1) (1)	+EXCITA	+EXC	+EXC	+EXC	+EXC	GND	+EXC	+EXC	N/C	N/C	+EXC	+EXC	+EXC	+EXC	N/C	EXT.COMP.	EXT COMP	EXT RESET	EXT RESET	EXT RESET	EXT RESET	+EXC		
18	(2)	△	N/C N/C N/C (2) (2)	-EXCITA	-EXC	-EXC	-EXC	-EXC	GND	-EXC	-EXC	N/C	N/C	-EXC	-EXC	-EXC	-EXC	-EXC	SIG OUT	SIG GND	SIG GND	GND	GND	GND	EXC RTN		
20	(3)	△	(1) (2) (1) (3) (3)	+IN A	+IN SIG	+SIG IN	+IN SIG	+SIG IN	INPUT	SIG IN	SIG IN	SIG IN	SIG IN	+IN SIG	+SIG IN	IN A	IN A	N/C	+IN	+IN	SIG IN	SIG IN	SIG IN	SIG IN	+SIG IN		
22	(4)	△	(3) (3) (2) N/C (4)	-IN A	-IN SIG	-SIG IN	-IN SIG	-SIG IN	GND	LO AL	HI AL RLY	EXT RES	HI AL RLY	-IN SIG	-SIG IN	N/C	N/C	N/C	SIG IN	-IN	-IN	LO AL OUT	N/C	HI AL RLY	HI AL RLY	-SIG IN	
19	(5)	△	N/C N/C (3) (4) N/C	+IN B	+IN SIG	N/C	N/C	N/C	N/C	EXT RESET	EXT RESET	LO AL RLY	LO AL RLY	N/C	N/C	N/C	N/C	N/C	GND	+IN	+IN	N/C	LO AL RLY	N/C	LO AL RLY	+SENSE	
21	(6)	△	N/C N/C (4) N/C N/C	-IN B	-IN SIG	N/C	N/C	N/C	N/C	N/C	N/C	LO AL RLY	LO AL RLY	N/C	N/C	N/C	N/C	N/C	SIG IN	-IN	-IN	N/C	LO AL RLY	N/C	LO AL RLY	-SENSE	
28	(7)	△	(4) (4) N/C N/C (7)	DC OUT	CAL RLY(OPT)	CAL RLY	N/C	EXT CAL CMD	B. OUT	HI AL	HI AL RLY	N/C	HI AL RLY	N/C	N/C	N/C	N/C	N/C	GND	N/C	N/C	HI AL OUT	N/C	HI AL RLY	+BAL/CA		
23/24	(8)	J3-△	(2) (6) (6) (6) (6)	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND		
N/C	(9)	N/C	N/C N/C N/C N/C N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
14	N/C	N/C	N/C (1) N/C N/C N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	RMT RESET	RMT RESET	N/C	N/C
27	N/C	N/C	(6) (5) N/C N/C N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	
29	N/C	N/C	(7) (7) N/C N/C N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	
CH. 25 FOR CA182 OPT E				CH.25 CH.25																							
1	N/C	N/C	(1) N/C N/C N/C N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	+EXC	+EXC	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
3	N/C	N/C	(4) N/C N/C N/C N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	-EXC	-EXC	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
REAR OUTPUT PIN No'S																											
26	(A)	J1-A	N/C N/C (7) (5) (5)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	N/C	N/C	N/C	N/C	A	
25	(B)	J2-B	(5) N/C (5) (7) N/C	B	N/C	N/C	B	B	B	N/C	N/C	N/C	N/C	B	N/C	N/C	B	B	B	B	B	N/C	N/C	N/C	N/C	+B	

+B = REMOTE CAL OPTION SPEC 2115

MODULE CASES				PLUG-IN MODULE FUNCTIONS											
BUS PIN	MC170X NO OPTIONS	MC170-32 DAS 932 MC3744D NO OPTIONS	MC170T & MC308 MUST SPECIFY OPTIONS WHEN ORDERING 9552-(NUMBER)												
				SR302	SR302-Q3	D1325-XX-Q2	BA332-150-Q2	BA332-Q2	PA375	TC387	BA389	TF383	VC420	FR451	PA452
				OPTION A	OPTION A	OPTION A	OPTION A	OPTION A	OPTION A	OPTION A	OPTION A	OPTION A	OPTION C	OPTION A	OPTION A
16	(1)	△	N/C N/C N/C (1) (1)	N/C	N/C	IN #3	N/C	+EXC	GND	EXT SENSE	+EXC	HI PASS OUT	N/C	OUT #3	GND
18	(2)	△	N/C N/C N/C (2) (2)	N/C	N/C	IN #4	-EXC	-EXC	GND	GND	-EXC	GND	N/C	OUT #2	GND
20	(3)	△	(1) (2) (1) (3) (3)	+IN	+IN	IN #1	+SIG IN	+SIG IN	SIG IN	+SIG IN	+SIG IN	SIG IN	+SIG IN	+IN	OPT IN
22	(4)	△	(3) (3) (2) N/C (4)	GND	GND	IN #2	-SIG IN	-SIG IN	N/C	-SIG IN	-SIG IN	CONT IN	N/C	-IN	GND
19	(5)	△	N/C N/C (3) (4) N/C	+IN	+IN	INPUT RTN	+SIG IN	+SIG IN	N/C	N/C	N/C	GND	+SIG IN	OUT #1	A OUT
21	(6)	△	N/C N/C (4) N/C N/C	GND	GND	N/C	-SIG IN	-SIG IN	GND	N/C	N/C	INDPS OUT	GND	GND	N/C
28	(7)	△	(4) (4) N/C N/C (7)	N/C	N/C	N/C	CAL CMD	CAL CMD	CAL CMD	N/C	N/C	LO OUT	N/C	OUT #4	B OUT
23/24	(8)	J3-△	(2) (6) (6) (6) (6)	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	SIG GND	GND	SIG GND	GND
N/C	(9)	N/C	N/C N/C N/C N/C N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
14	N/C	N/C	N/C (1) N/C N/C N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
27	N/C	N/C	(6) (5) N/C N/C N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
29	N/C	N/C	(7) (7) N/C N/C N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
CH. 25 FOR CA192 OPT E				CH.25 CH.25											
1	N/C	N/C	(1) N/C N/C N/C N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
3	N/C	N/C	(4) N/C N/C N/C N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
REAR OUTPUT PIN No'S															
26	(A)	J1-A	N/C N/C (7) (5) (5)	A	A	A	A	A	A	A	A	A	N/C	A	A
25	(B)	J2-B	(5) N/C (5) (7) N/C	B	B	B	B	B	B	B	B	B	B	B	B

NOTES: UNLESS OTHERWISE SPECIFIED:

INPUT / OUTPUT CONNECTION	MODEL No.	WIRING DIA.
(30) INTERNAL .025 SQUARE PIN	MC170	N/A
(7) INDIVIDUAL #6 SCREW TERMINAL	MC170T	N/A
(9) PLUGGABLE MULTI-PIN CONNECTOR	MC170X	12912
△ PLUGGABLE CAGE CLAMP TERM STRIP	MC170-32 MC3744D DAS932	11969 11983 12041
N/C NO CONNECTION		

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 DRAWING NO: 33107  
 WIRING/FUNCTION DIAGRAM

CODE IDENT NO. 33107



# MC170X MODULE CASE

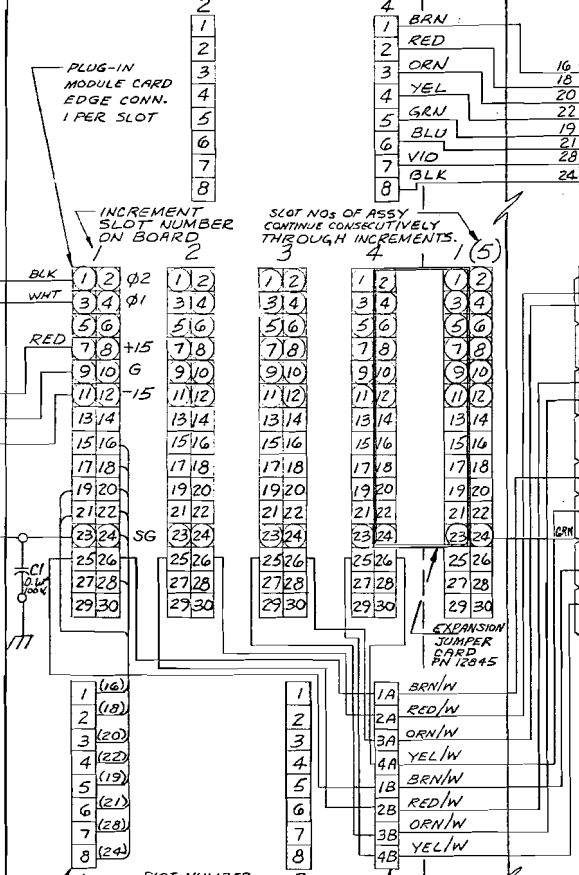
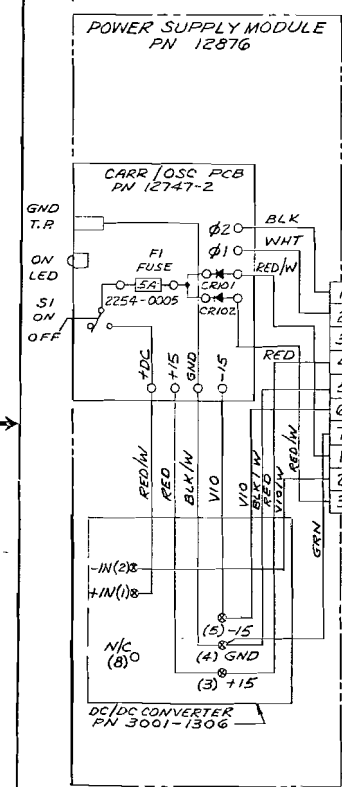
REV. NO.	12512
SYMBOL	DESCRIPTION
DATE	APP
PRODUCTION RELEASE	

FRONT

REAR

## MOTHER BD ASSY, PN 12837

1ST & 2ND SLOT INCREMENT



TYP. INPUT CONNECTOR WIRINGS (7 PIN CONNECTORS ONLY USE THE FIRST 7 POSITIONS) ONE PER PLUG-IN MODULE SLOT

Module	Pin	Color	Signal	Output
BA172	1	BRN	+EXC	A
CD173	2	RED	-EXC	A
DT174	3	ORN	+IN SIG	A/B
PA175	4	YEL	-EXC	A
BA219	5	GRN	+IN SIG	A/B
SR302	6	BLU	-EXC	A
PC202	7	VIO	+IN SIG	A/B
FC268	8	BLK	-EXC	A
TC292				
PA375				
VC420				
CD218-1				
CO218-2				

TYP. INPUT CONNECTOR

Module	Pin	Color	Signal	Output
CA192	1	GRN	+EXC	A
CA192A	2	RED	-EXC	A
CA192B	3	ORN	+IN SIG	A/B
CA192AB	4	YEL	-EXC	A
AL293-1	5	GRN	+IN SIG	A/B
AL293-2	6	BLU	-EXC	A
AL293-3	7	VIO	+IN SIG	A/B
AL293-6	8	BLK	-EXC	A
SG297				
TC387				
BA389				

TYPICAL OUTPUT CONNECTOR WIRING FOR 25 PIN 'D' SUB

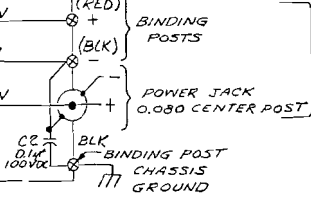
\* B = REMOTE CAL (OPTION)

Module	Pin	Color	Signal	Output
CA192	1	GRN	+EXC	A
CA192A	2	RED	-EXC	A
CA192B	3	ORN	+IN SIG	A/B
CA192AB	4	YEL	-EXC	A
AL293-1	5	GRN	+IN SIG	A/B
AL293-2	6	BLU	-EXC	A
AL293-3	7	VIO	+IN SIG	A/B
AL293-6	8	BLK	-EXC	A
SG297				
TC387				
BA389				

3 - 0 DENOTES PCB SOLDER JOINT - 0 IS SOLDERED TO LEAD.  
 2. ALL POWER WIRE IS 22 GA. OTHER IS 28 GA.  
 1. CIRCLED PINS INDICATE BUSSED ROWS.

NOTES: UNLESS OTHERWISE SPECIFIED.

4 & 8 SLOT UNITS HAVE A & B ON SAME CONNECTOR  
 12 & 16 SLOT UNITS HAVE ONE CONN. FOR A & ONE CONN. FOR B



CODE IDENT NO. 33107

UNLESS NOTED OTHERWISE, DIMENSIONS WITH TOLERANCE SHALL BE CENTER UNLESS OTHERWISE SPECIFIED. DIMENSIONS MUST BE WITHIN AND PER IN. DIMENSIONS SHALL BE TO CENTER UNLESS OTHERWISE SPECIFIED. DIMENSIONS SHALL BE TO CENTER UNLESS OTHERWISE SPECIFIED.

Validyne ENGINEERING CORPORATION

ED 290 WORK MC170-X

DATE: 1968

TITLE: WIRING DIAGRAM