

PYLON ELECTRONIC DEVELOPMENT company, ltd.

PYLON ® MODEL 3789
DISTRIBUTION AMPLIFIER

INSTRUCTION MANUAL

Rev 0

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Part Number A900065

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WARRANTY

PYLON ELECTRONIC DEVELOPMENT company, ltd. products are warranted against defects in material and workmanship for a period of one year from the date of shipment. Our warranty obligation is limited to repairing or replacing products, or parts thereof, returned, prepaid, to our factory and which, on our examination, prove to be defective during the warranty period. The warranty shall not apply to any equipment which has been subject to accident, incorrect wiring not of our own or operation not in accordance with manufacturer's written instructions.

PYLON does not warrant accessories, equipment and parts incorporated into the goods but not made exclusively to PYLON detailed design. PYLON shall have no liabilities for vacuum tubes, semi-conductors or expendable items such as pilot lamps and fuses. The foregoing warranty is given by PYLON in lieu of all other warranties arising in law or otherwise in respect of the goods, and this Company shall not be liable under any circumstances for consequential damage.

PYLON TYPE 3789 DISTRIBUTION AMPLIFIER

SPECIFICATIONS

Inputs: (up to 3, rear panel, BNC)

Input Impedance 10K ohm nominal, 50 to 600 ohm termination available

Input level of 5 volts r.m.s. maximum

Outputs: (up to 12, rear panel, BNC)

Maximum drive to 50 ohm load 5 volts r.m.s.

Capable of withstanding momentary short circuit

Amplifiers: Frequency response flat to 1 MHz

Phase shift of 30° at 1 MHz

Isolation: The signal level at any output connector is changed less than 1% when any other output is shorted

Metering: Front Panel switch and meter provides a means of monitoring all input and output signal levels

Temperature: 0°C to 50°C operating
 -40°C to 75°C storage

Humidity: 0 to 85% relative humidity

Size: 8.89 cm x 48.26 cm Front Panel, 31.75 cm behind Front Panel, ($3\frac{1}{2}$ " x 19", 12.5" behind Front Panel)

Weight: 5 kg (11 lbs.)

Power Requirements: 115 volts 10% 50 - 60 Hz
60 watts maximum
36 watts nominal

SECTION 1 - GENERAL INFORMATION

1.0 The Pylon 3789 Distribution Amplifier is a 19" rack mountable unit, designed to perform the following functions:

- a) Distribute three channels to four outputs each, with a maximum isolation between the lines.
- b) Provide by means of a calibrated r.m.s. voltmeter a method of monitoring all input and output signal levels.
- c) Display by 3 front panel LED's an input overdrive condition.

SECTION 2 - THEORY OF OPERATION

2.1 Distribution Amplifier - Refer to Drawing D220201

The Pylon 3789 Distribution Amplifier consists of three separate distribution amplifiers driving 4 outputs each. Each distribution amplifier consists of one common non-inverting buffer driving 4 separate final amplifiers. The buffers uses a LM310H voltage follower and has separate gain and balance controls. Each of the final amplifiers uses a CA3100T operational amplifier followed by a complementary-symmetry driver. Separate gain and balance controls are provided for each final amplifier. The design and layout is such as to provide maximum isolation between the lines.

2.2 Meter Driver - Amplifier - Refer to Drawing B220205

The first section of the meter circuitry uses a LM318 as a fast half wave rectifier. The second half uses a LM318 as a leaky integrator. The configuration of these two parts cascaded together represents an average detector. The meter is calibrated in r.m.s. volts based on a sine wave input.

2.3 Input Overdrive Detection - Refer to Drawing D220202

Input Overdrive Detection is provided by two wired-on comparitors with set levels for positive and negative excursions of the input signals. The positive and negative levels are set by R20 and R22 respectively and are factory adjusted for 5 volts r.m.s.

SECTION 3 - TEST AND ALIGNMENT

3.1 REQUIREMENT

3.1.1 Drawings

- D220201 - Distribution Amplifier Schematic
- D220202 - Power Supply Schematic
- D220203 - Chassis Wiring
- B220205 - Meter Amplifier Schematic

3.1.2 Test Equipment

- Digital Voltmeter - Fluke 8020A or equivalent
- Oscilloscope (x 10 probes)
- Oscillator, 50 ohm output, capable of 5v rms out at 1 KHz

3.2 MECHANICAL

- 3.2.1 Check all screws, BNC connectors, line filter, fuse holder, pilot lamp, power switch, output selector switch, meter, and overdrive LED's. Tighten if necessary.
- 3.2.2 Check alignment of output selector knob.
- 3.2.3 Check zero adjustment of meter.

3.3 TEST AND ELECTRICAL ADJUSTMENT

3.3.1 Front Panel - Inspect wiring and components; reference D220203

3.3.2 Back Panel - Inspect wiring and components; reference D220203

3.3.3 Power Supply Board - Inspect for proper components and polarity; reference D220202

- Attach the DVM between pin 15 (pin 15 is GND) and pin 16 of the power board
Adjust R4 for -15 volts
- Attach the DVM between pins 15 and 14 of the power board and adjust R3 for +15 volts
- Measure the voltage on pin 8 of V4, adjust R21 for 7 volts
- Measure the voltage on pin 11 of V4, adjust R20 for 7 volts

3.3.4 Meter Amplifier - Reference B220205

- Connect a sine wave source of known r.m.s. value (ideally 5 v rms at 1 KHz). Rotate selector switch to its input. Adjust R6 for appropriate reading.

3.3.5 Distribution Amplifier - Reference B220205

- Disconnect all input sources
- Connect a DVM or scope to pin 6 of U1, adjust R3 for zero DC offset. Repeat for U101/R103 and U201/R203.
- Connect a DVM or scope to output 1, adjust R5 for zero DC offset; repeat for output 2/R17, output 3/R29 and output 4/R41. Repeat for outputs 5-8 using R105, R117, R129, R141 and again for outputs 9-12 using R205, R217, R229 and R241.
- Connect a sine wave source of known RMS value (ideally 5 v rms at 1 KHz). Set R1, R101, R201 to 2.5 vrms (or about $\frac{1}{2}$ of incoming signal) on pin 6 of U1, U101, and U201.
- Now monitor the output of each amplifier and adjust for a unit's gain using R52, R53, R54, R55, R152, R153, R154, R155, R252, R253, R254, R255 for outputs 1-12 respectively.

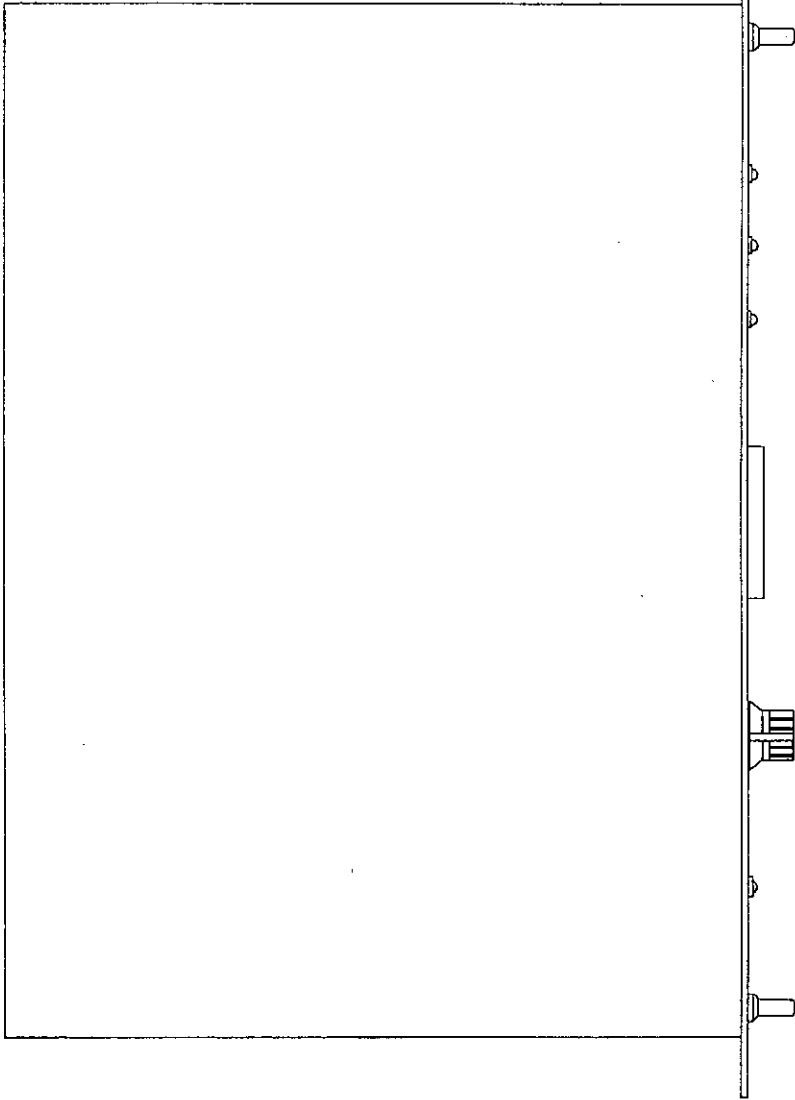
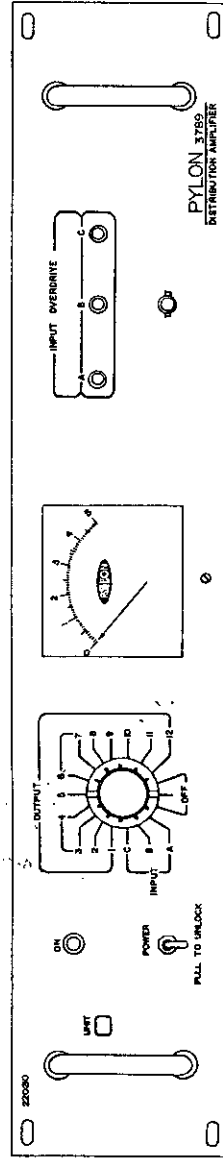


FIGURE 5-1



REFERENCE ONLY

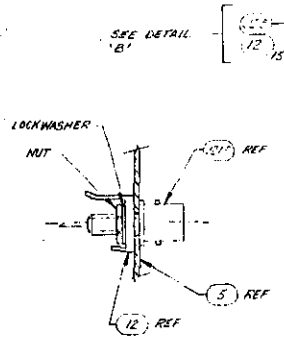
TITLE		DISTRIBUTION AMPLIFIER 3789	
DRAWN		Pylon Electronic Development Company, Ltd.	
C.E.M.		OTTAWA, CANADA	
DATE	CHECKED	D220200	
07/10/60	BY		
NUMBER	OF		
741	PAGES		

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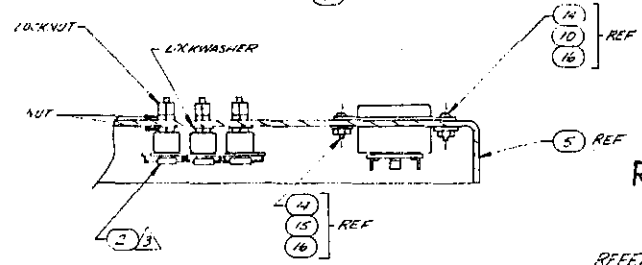
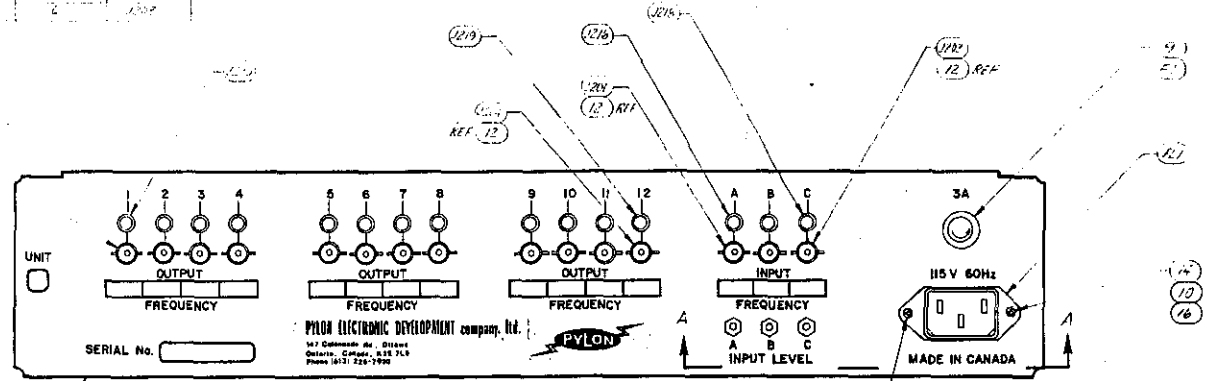
REV 1 ECN 189A
 APR 7 1962 KR
 REV 02 REV B05F
 23/00189 SMP

TERMINAL CHART	
TERMINAL NO.	ITEM
1	J150
2	J270
3	J21A
4	J21A
5	J270
6	J275
7	J274
8	J273
9	J272
10	J271
11	J250
12	J13
A	J21A
B	J21A
C	J21A

BNC CONNECTOR CHART	
CONNECTOR NO.	ITEM
1	J275
2	J21A
3	J21A
4	J21A
5	J270
6	J270
7	J270
8	J270
9	J271
10	J271
11	J271
12	J271
A	J21A
B	J21A
C	J21A



DETAIL 'B'
 NTS
 15 PLACES



PARTIAL VIEW A-A
 NTS

REFERENCE ONLY FIG. 5-2

REFER TO PARTS LIST A220280

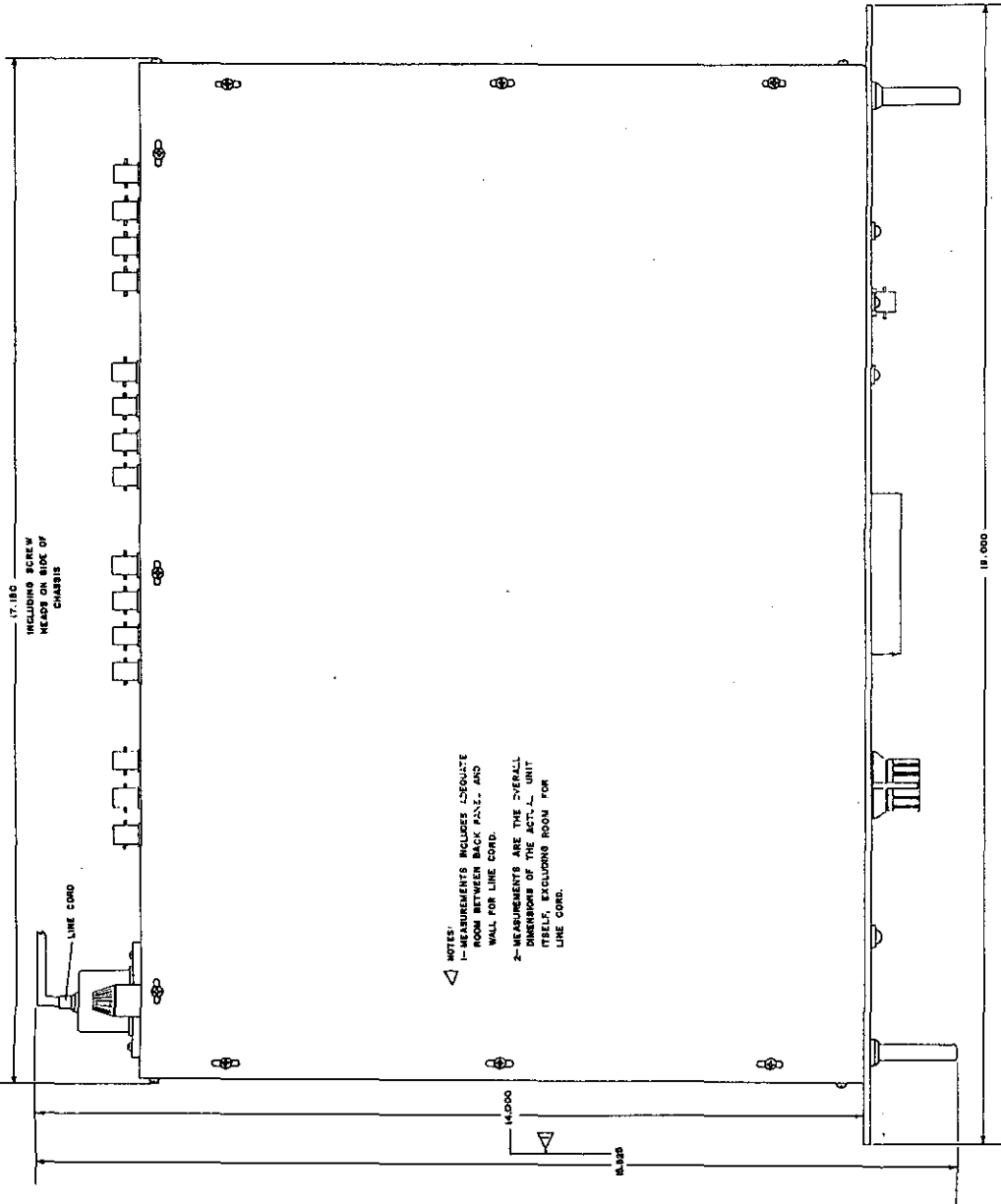
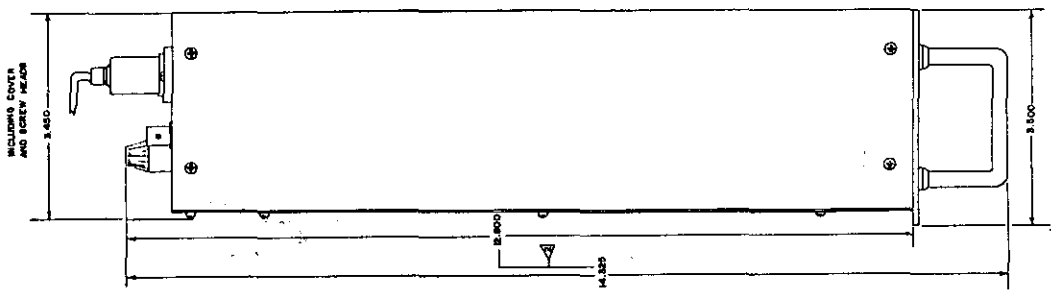
- NOTES:
- SCALE 1:1
 - ITEM 11 (CSD, POWER SUPPLY, DETACHABLE, ETC.) NOT SHOWN ON ASSEMBLY
 - ADJUST INPUT FREQ (ITEM 2) TO REAR PANEL (ITEM 5) USING MOUNTING HARDWARE OF POTENTIOMETERS, AS SHOWN.

TITLE		
ASSEMBLY PANEL, REAR DISTRIBUTION AMPLIFIER 3769		
Pylon Pylon ELECTRONIC DEVELOPMENT company, Inc. CANADA		
DRAWN LVZ	ALF	CHECKED
ENGINEER	AP. MFL.	D 220282

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REVISIONS

Rev. 1 E.C. 8/11/60
 Add Dimensions
 To Front Panel
 R.L.



NOTES:
 1- MEASUREMENTS INCLUDE SQUARED ROOM BETWEEN BACK PANEL AND WALL FOR LINE CORD.
 2- MEASUREMENTS ARE THE OVERALL DIMENSIONS OF THE ACTUAL UNIT ITSELF, EXCLUDING ROOM FOR LINE CORD.

FIGURE 5-3
 REFERENCE ONLY

TITLE		OUTLINE DIMENSIONS	
DISTRIBUTION AMPLIFIER			
		PULSE ELECTRONIC INDUSTRIES COMPANY, LTD.	
OTTAWA, CANADA			
DESIGN	DATE	CHECKED	BY
C.A.M.	08/01/60	J.P.W.	
ENGINEER			
PART		D220217	

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