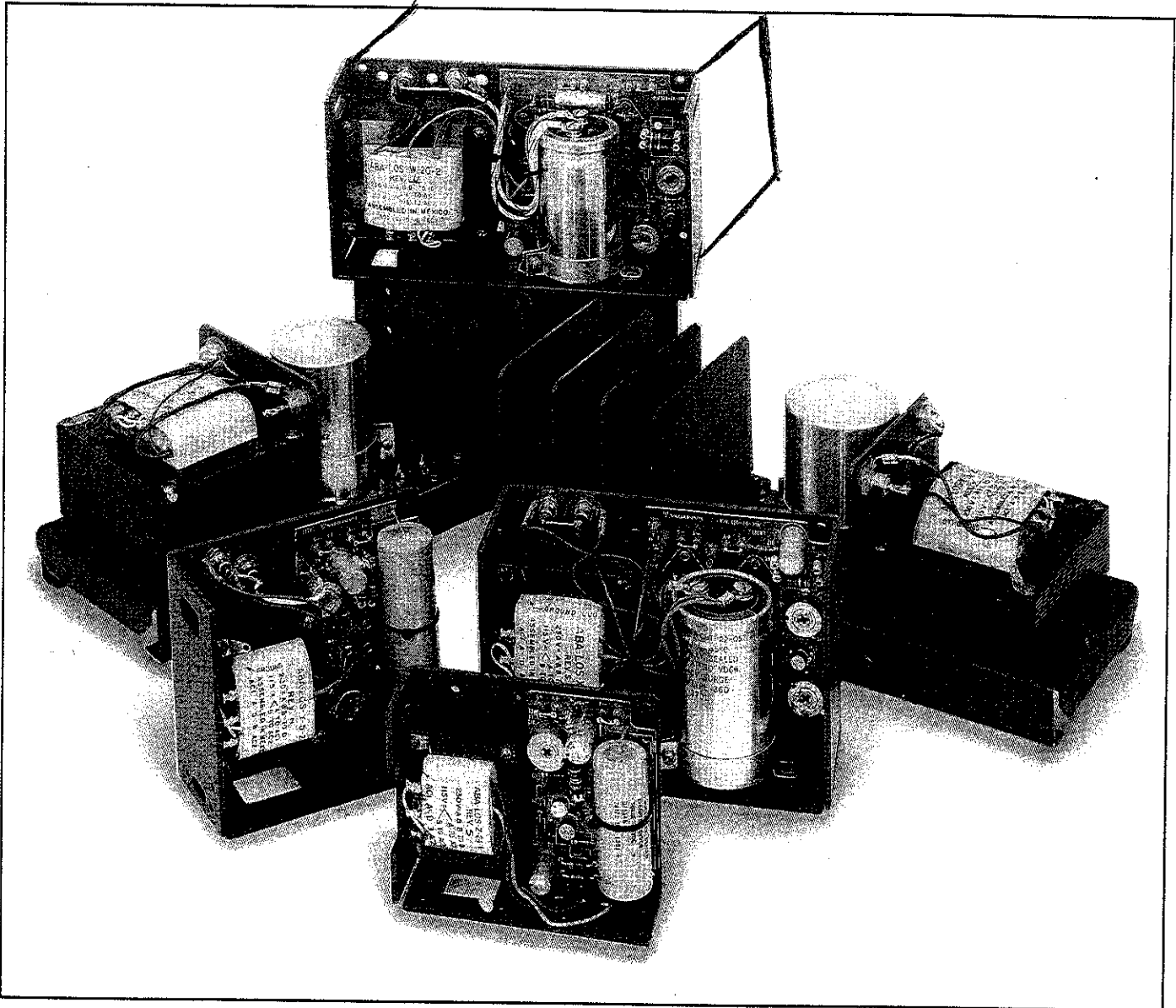


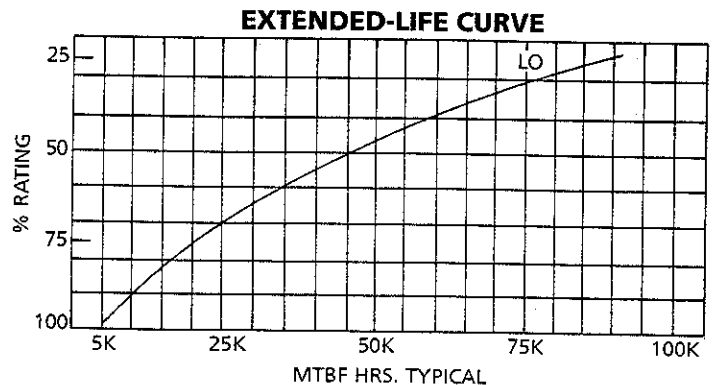
PART IB—AC-TO-DC LINEAR POWER SUPPLIES

LAMBDA'S COMMERCIAL LO SERIES



LOW COST, LOW NOISE LINEAR SUPPLIES FOR THE OEM

- Five package sizes available in single, dual and triple output models allow you to pick the model that best matches your requirements...at the lowest cost.
- All models have wide temperature range operation, from 0°C to 60°C without external forced air cooling thus lowering overall system costs.
- Regulation: 0.15% linear load.
- Ripple and noise: 1.5mV RMS
5mV pk-pk
- Grade 3 design.



PART IB — AC-TO-DC LINEAR POWER SUPPLIES

LAMBDA'S COMMERCIAL LO SERIES

DC OUTPUT

Voltage range shown in tables.

REGULATED VOLTAGE

regulation, line 0.15% from 105 to 125VAC (105 to 132VAC for LZ Series).
 regulation, load 0.15% for 100% load change.
 ripple and noise (20MHz Bandwidth) 1.5mV RMS, 5mV pk-pk with either positive or negative terminal grounded.
 temperature coefficient 0.03%/°C.
 remote programming resistance 200 ohms/volt nominal (LOS units only).
 remote programming voltage volt/volt (LOS units only).

AC INPUT

line LO Series: 105 to 125VAC/210 to 250VAC, 47-440Hz (derate 10% at 50Hz). Consult factory for operation at frequencies other than 47 to 63Hz. Units are factory wired from 105 to 125VAC.
 LZ Series: 105 to 132VAC, 47-63Hz. For 220VAC operation, see options.

EFFICIENCY

25% min for 5V and 6V models. 35% min for 12V, 15V and triple output models. 48% min for 20V, 24V, 28V models and ±15V to ±12V models.

TRACKING ACCURACY

(Dual and Triple Output Models Only) 4% absolute voltage difference (2% for LZ Series), 0.2% change for all conditions of line, load, and temperature.

OVERSHOOT

No overshoot on turn-on, turn-off or power failure.

OPERATING TEMPERATURE RANGE

Continuous duty from 0°C to 60°C for LO Series. From 0 to 50°C for LZ Series.

STORAGE TEMPERATURE RANGE

-55°C to +85°C for LO Series. -25°C to +85°C for LZ Series.

OVERLOAD PROTECTION ELECTRICAL

External overload protection; automatic electronic current limiting circuit limits the output current to a preset value, thereby providing protection for the load as well as the power supply.

OVERVOLTAGE PROTECTION

Available for LO Series only. Lambda will mount an overvoltage protector to a standard LO Series power supply. Consult factory for part numbers and prices.

COOLING

All LO Series are rated at 40°C in free air and must be derated or fan cooled when mounted in a confined area with no air circulation.

DC OUTPUT CONTROLS

Simple screwdriver voltage adjustment over the entire voltage range.

INPUT AND OUTPUT CONNECTIONS

LO Series:
 AC Input — Heavy duty terminals on transformer.
 DC Output — Heavy duty stud terminals on printed circuit board.
 LZ Series:
 Printed circuit solder pins on lower surface of unit.

MOUNTING

The LO Series has three mounting surfaces and three mounting positions for W, X, Y, Z models and one mounting surface for R models. The LZ Series is designed with two 4 × 40 tapped holes on the lower surface of the LZ-10; three 4 × 40 tapped holes on lower surface of LZ-20, 30 models.

REMOTE SENSING

Provision is made for remote sensing on LO Series to eliminate the effects of power output lead resistance on DC regulation. Connected for local sensing at factory.

PHYSICAL DATA

Package Model	Lbs. Net	Lbs. Ship	Size Inches
LZ-10	0.63	1.13	2 1/2 × 3 1/2 × 7/8
LZ-20	1.06	1.56	2 1/2 × 3 1/2 × 1 1/4
LZ-30	1.50	2.00	2 1/2 × 3 1/2 × 1 7/8
LO-Z	2.00	2.25	4 7/8 × 4 × 1 5/8
LO-Y	4.00	4.25	5 5/8 × 4 7/8 × 2 1/2
LO-X	6.50	7.00	7 × 4 7/8 × 2 3/4
LO-W	7.75	8.25	9 × 4 7/8 × 2 3/4
LO-R	14.75	16.25	4 7/8 × 16 3/4 × 4 7/8

ACCESSORIES

For rack adapters and other accessories, see Part IV of this catalog.

OPTIONS AC INPUT

Add Suffix	For Operation At:	Price*
-V	187 to 242VAC 47-63Hz	

*Price Added for "V" option which is available for these models only.

LZS-10, LZD-23: \$10

LZS-30, LZS-33, LZD-35: \$20

Derate current 10%.

FINISH

Gray, Fed. Std. 595, No. 26081.

GUARANTEED FOR 90 DAYS

90-day guarantee includes labor as well as parts. Guarantee applies to operation at full published specification at end of 90 days.

NOTES:

- All LZ models are adjustable between the following limits: LZS-10, LZS-30 (2.5 to 6V); LZS-11, LZS-33 (8.0 to 15V); LZD-21 (±2.5 to ±6V); LZD-22, LZD-23 (±8.0 to ±15V); LZD-35 (±8.0 to 15V). Contact factory for current ratings at voltage setting not indicated in tables.
- Single output ratings for dual output models connected in series.

SAFETY AGENCY APPROVALS

All LO Series models are UL recognized.

PART IB—AC-TO-DC LINEAR POWER SUPPLIES

COMMERCIAL LINEAR SELECTOR GUIDE

LO Series. AC Input. Single Output.

MAX CURRENT AT AMBIENT OF (AMPS)			COMPLETE ELEC. SPEC. PG.	COMPLETE MECH. SPEC. PG.	DIMENSIONS (inches)	PRICE				MODEL
40°C	50°C	60°C				QTY. 1	QTY. 10	QTY. 25	QTY. 100	
5V ± 5% ADJ.										
3.0	2.4	1.8	89	182	4 ⁷ / ₈ × 4 × 1 ⁵ / ₈	\$ 92	\$ 88	\$ 83	\$ 58	LOS-Z-5
6.0	4.9	3.8	89	182	5 ⁵ / ₈ × 4 ⁷ / ₈ × 2 ¹ / ₂	144	137	131	93	LOS-Y-5
9.0	7.6	6.2	89	182	7 × 4 ⁷ / ₈ × 2 ³ / ₄	187	178	171	120	LOS-X-5
12.0	10.5	8.5	89	182	9 × 4 ⁷ / ₈ × 2 ³ / ₄	231	221	211	149	LOS-W-5
12V ± 5% ADJ.										
1.6	1.3	1.0	89	182	4 ⁷ / ₈ × 4 × 1 ⁵ / ₈	92	88	83	58	LOS-Z-12
3.3	2.8	2.3	89	182	5 ⁵ / ₈ × 4 ⁷ / ₈ × 2 ¹ / ₂	144	137	131	93	LOS-Y-12
5.7	4.8	3.9	89	182	7 × 4 ⁷ / ₈ × 2 ³ / ₄	187	178	171	120	LOS-X-12
15V ± 5% ADJ.										
1.4	1.2	1.0	89	182	4 ⁷ / ₈ × 4 × 1 ⁵ / ₈	92	88	83	58	LOS-Z-15
2.8	2.5	2.1	89	182	5 ⁵ / ₈ × 4 ⁷ / ₈ × 2 ¹ / ₂	144	137	131	93	LOS-Y-15
4.8	4.0	3.2	89	182	7 × 4 ⁷ / ₈ × 2 ³ / ₄	187	178	171	120	LOS-X-15
20V ± 5% ADJ.										
1.0	0.8	0.6	89	182	4 ⁷ / ₈ × 4 × 1 ⁵ / ₈	92	88	83	58	LOS-Z-20
2.4	2.1	1.8	89	182	5 ⁵ / ₈ × 4 ⁷ / ₈ × 2 ¹ / ₂	144	137	131	93	LOS-Y-20
24V ± 5% ADJ.										
0.9	0.75	0.55	89	182	4 ⁷ / ₈ × 4 × 1 ⁵ / ₈	92	88	83	58	LOS-Z-24
2.2	1.9	1.6	89	182	5 ⁵ / ₈ × 4 ⁷ / ₈ × 2 ¹ / ₂	144	137	131	93	LOS-Y-24
3.3	2.8	2.2	89	182	7 × 4 ⁷ / ₈ × 2 ³ / ₄	187	178	171	120	LOS-X-24
4.8	3.8	2.8	89	182	9 × 4 ⁷ / ₈ × 2 ³ / ₄	231	221	211	149	LOS-W-24
10.5	8.3	6.0	89	182	4 ⁷ / ₈ × 4 ⁷ / ₈ × 16 ³ / ₄	363	346	332	235	LOS-R-24
28V ± 5% ADJ.										
0.8	0.65	0.45	89	182	4 ⁷ / ₈ × 4 × 1 ⁵ / ₈	92	88	83	58	LOS-Z-28
2.0	1.7	1.4	89	182	5 ⁵ / ₈ × 4 ⁷ / ₈ × 2 ¹ / ₂	144	137	131	93	LOS-Y-28
3.1	2.5	1.9	89	182	7 × 4 ⁷ / ₈ × 2 ³ / ₄	187	178	171	120	LOS-X-28
4.2	3.3	2.4	89	182	9 × 4 ⁷ / ₈ × 2 ³ / ₄	231	221	211	149	LOS-W-28

LO Series. AC Input. Dual Output.

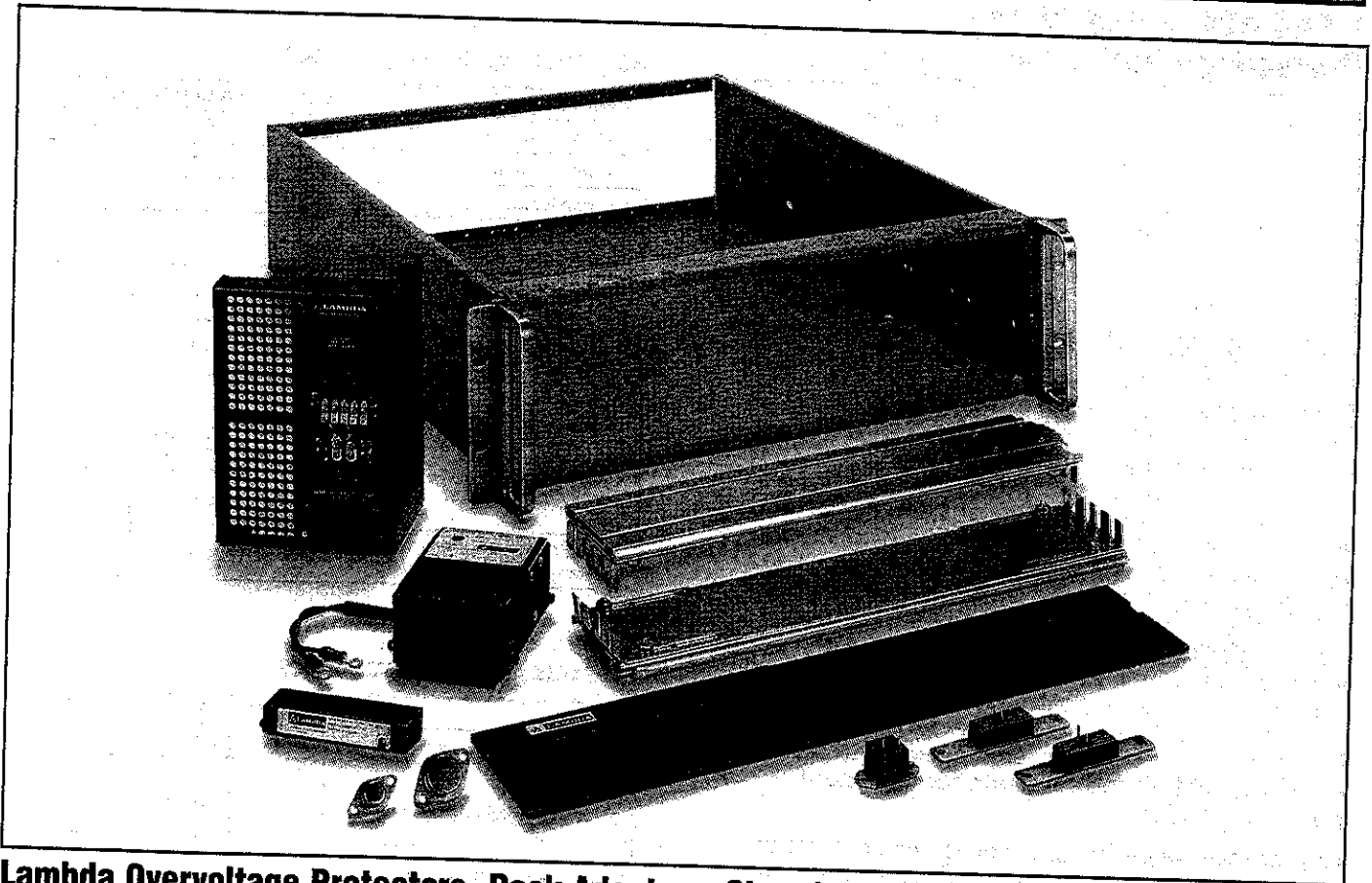
MAX CURRENT AT AMBIENT OF (AMPS)			COMPLETE ELEC. SPEC. PG.	COMPLETE MECH. SPEC. PG.	DIMENSIONS (inches)	PRICE				MODEL
40°C	50°C	60°C				QTY. 1	QTY. 10	QTY. 25	QTY. 100	
± 15 to ± 12V* ADJ.										
0.50	0.37	0.25	89	182	4 ⁷ / ₈ × 4 × 1 ⁵ / ₈	\$122	\$117	\$111	\$ 79	LOD-Z-152
1.0	0.75	0.50	89	182	5 ⁵ / ₈ × 4 ⁷ / ₈ × 2 ¹ / ₂	147	141	134	95	LOD-Y-152
2.0	1.4	0.80	89	182	7 × 4 ⁷ / ₈ × 2 ³ / ₄	215	206	197	137	LOD-X-152
3.0	2.2	1.4	89	182	9 × 4 ⁷ / ₈ × 2 ³ / ₄	252	240	230	162	LOD-W-152

LO Series. AC Input. Triple Output.

VOLT V _o	MAX CURRENT AT AMBIENT OF (AMPS)			COMPLETE ELEC. SPEC. PG.	COMPLETE MECH. SPEC. PG.	DIMENSIONS (inches)	PRICE				MODEL
	40°C	50°C	60°C				QTY. 1	QTY. 10	QTY. 25	QTY. 100	
5V ± 5% ADJ., ± 15 to ± 12V* ADJ.											
5 ± 5%	3.0	2.2	1.4	89	182	7 × 4 ⁷ / ₈ × 2 ³ / ₄	\$233	\$222	\$212	\$149	LOT-X-5152A
± 15 to ± 12	0.50	0.375	0.20								
5 ± 5%	6.0	4.5	3.0	89	182	9 × 4 ⁷ / ₈ × 2 ³ / ₄	287	274	262	186	LOT-W-5152A
± 15 to ± 12	1.0	0.75	0.40								

* ± 15 to ± 12 volts are each dual tracking outputs.

PART IV — ACCESSORIES



Lambda Overvoltage Protectors, Rack Adapters, Chassis Slides, Blank Panels and Filters

Choosing An Overvoltage Protector

The following overvoltage protectors have been designed specifically for use with these power supply series.

POWER SUPPLY SERIES	USE OV SERIES
LDS-(all 01, 02, 03 and 48V models)	ADJUSTABLE LHOV (4)
LDS-P (12V-28V)	(4)
LDS-W (12V-28V)	(4)
LDS-X (12V-28V)	L-12A-OV
LDS-Y (12V-28V)	L-6A-OV
LOS-R (all models)	(4)
LOS-W	L-12A-OV
LOS-X	L-12A-OV
LOS-Y	L-6A-OV
LOS-Z	L-6A-OV
LOD-W	L-12A-OV
LOD-X	L-12A-OV
LOD-Y	L-12A-OV
LOD-Z	L-12A-OV
LOT-W	L-12A-OV (2 ea.)
LOT-X	L-12A-OV (2 ea.)

POWER SUPPLY SERIES	USE OV SERIES
LNS-P (all models)	(4)
LNS-W	(4)
LNS-X	L-12A-OV
LNS-Y	L-6A-OV
LNS-Z	L-6A-OV
LND-P	L-12A-OV
LND-W	L-12A-OV
LND-X	L-12A-OV
LND-Y	L-12A-OV
LND-Z	L-12A-OV
LYS-K	(4)
LYS-P	(4)
LYS-W	(4)
LYS-X	(4)
LYS-Y	L-12A-OV

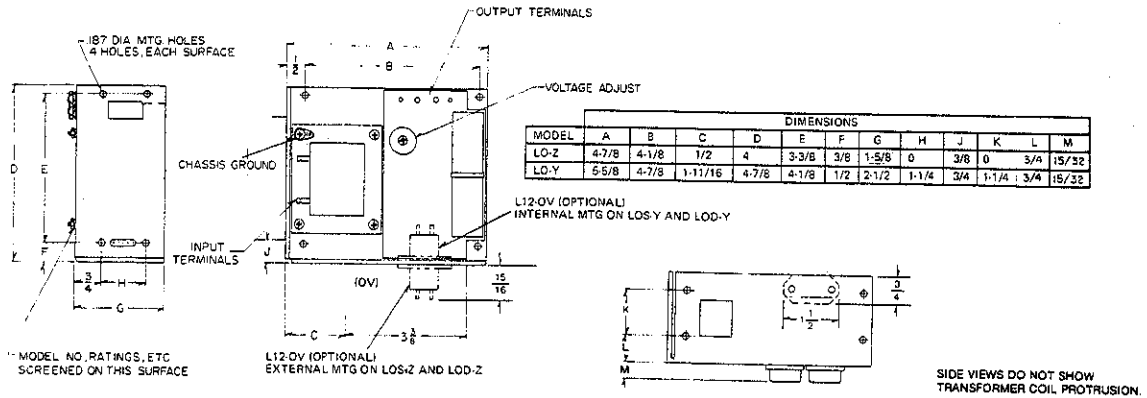
NOTE: (1) SV and LND-MPU are standard with built-in OV included in price.
 (2) Consult the factory for overvoltage protector selection for the LX and LC Series.
 (3) These overvoltage protectors are designed for operation across the outputs of power supplies with foldback current limit only.

(4) Consult the factory for overvoltage protector selection for these power supplies.
 (5) For a full line of UHD accessories and front panel hot pluggable racking system and accessories (including AC input modules and heat) see p. 110-111.

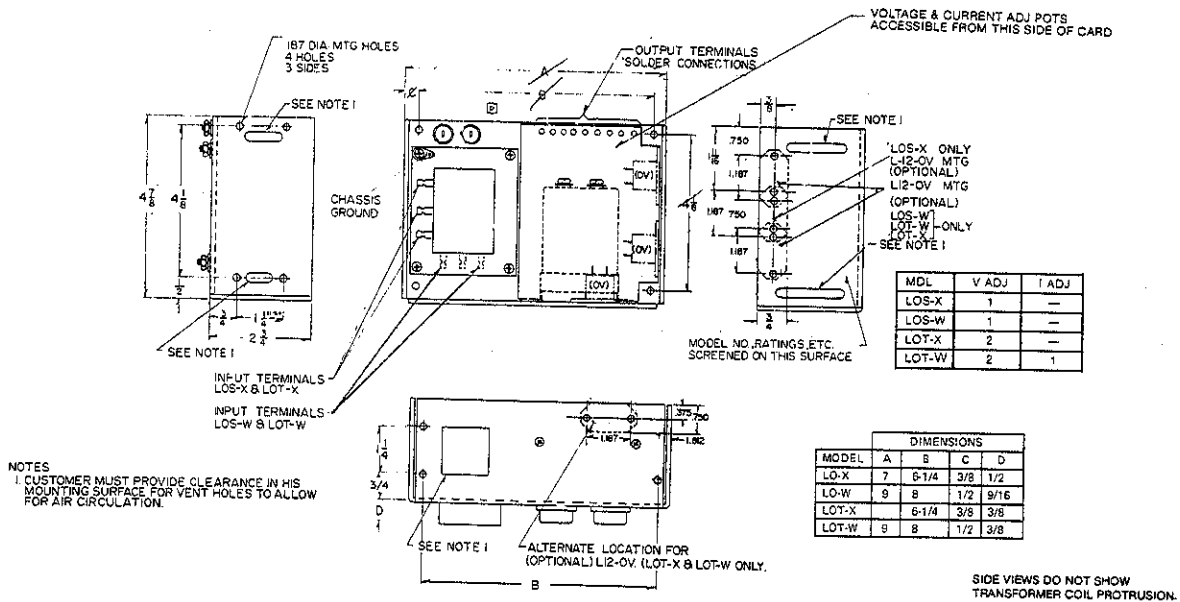
PART V—MECHANICAL DRAWINGS

LO SERIES

LO-Z
LO-Y



LO-X
LO-W



LO-R

