SECTION 15

POWER SUPPLIES

SUB-SECTIONS

ILLUSTRATIONS

WARNING: To assure safe operation of the projector, the Low Voltage and High Voltage power supplies are NOT field serviceable. Faulty assemblies must either be replaced or returned to Electrohome for repair.

SECTION 15

POWER SUPPLIES

15.1 TECHNICAL DESCRIPTION

15.1.1 General Description

The projection system contains two power supplies; the Low Voltage (Switch Mode) Power Supply, and the High Voltage Power Supply.

15.1.1.1. Low Voltage (Switch Mode) Power Supply

The Low Voltage Power Supply provides +5, +6.3, ±12, ± 24, +150 and +200 VDC. It has short circuit protection. A short circuit, on any output line, will cause the power supply to switch OFF.

15.1.1.2. High Voltage Power Supply

The High Voltage Power Supply provides 34 KV to each CRT anode, 11 KV to the focus circuitry and 800 VDC for G2 cut-off. The High Voltage Power Supply has short circuit protection. A short circuit on the anode output, will prevent the High Voltage Power Supply from turning ON.

15.2 SERVICING AND ALIGNMENT

15.2.1 Disassembly and Access

Module Location:
▸ front slide-out rack

Tools & Equipment Required:
▸ 1/4" hex head socket driver

<u>Low Voltage Power Supply Removal</u>

a) Remove the projector lower front and side panels as described in Section 5.2.

b) Remove the two screws securing the front slide-out rack to the projector chassis. Slide the rack out about 4".

c) Disconnect the M14-P1, M14-P2, M14-P3 and M14-P4 connections from the module. See Figure 15-1.

d) Remove the two securing screws (item 5).

e) Pull back and lower the Low Voltage Power Supply until removed from the front slide-out rack.

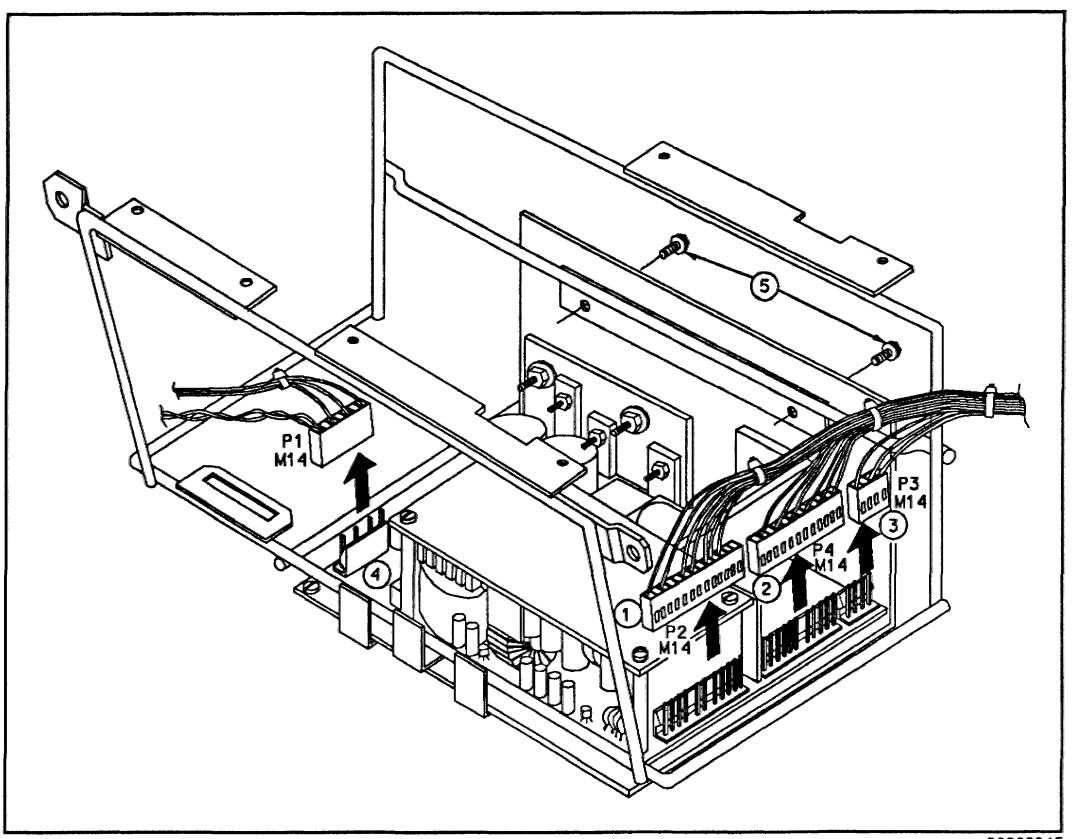

FIGURE 15-1. *Low Voltage Power Supply Removal* 02060345

High Voltage Power Supply Removal

a) Remove the projector lower front and side panels as described in Section 5.2.

b) Remove the two screws securing the slide-out rack to the projector chassis. Slide the rack out about 4".

c) Trace the anode lead from the High Voltage Power Supply to the splitter located in the projection head portion of the projector. Disconnect the anode lead from the splitter and route it back to the power supply.
Note: Some cable ties may require removal. If so, record the cable tie positions for future re-assembly.

d) Trace the focus lead from the High Voltage Power Supply to the Bias module located in the projection head portion of the projector. Disconnect the focus lead from the Bias board and route it back to the power supply. Record the positions of any cable ties requiring removal.

e) Disconnect the M24-P1 and M24-P2 connectors from the module as shown.

f) Remove the 4 hex head screws as shown in Figure 15-2. Guide the High Voltage Power Supply out the right side of the front slide-out rack.

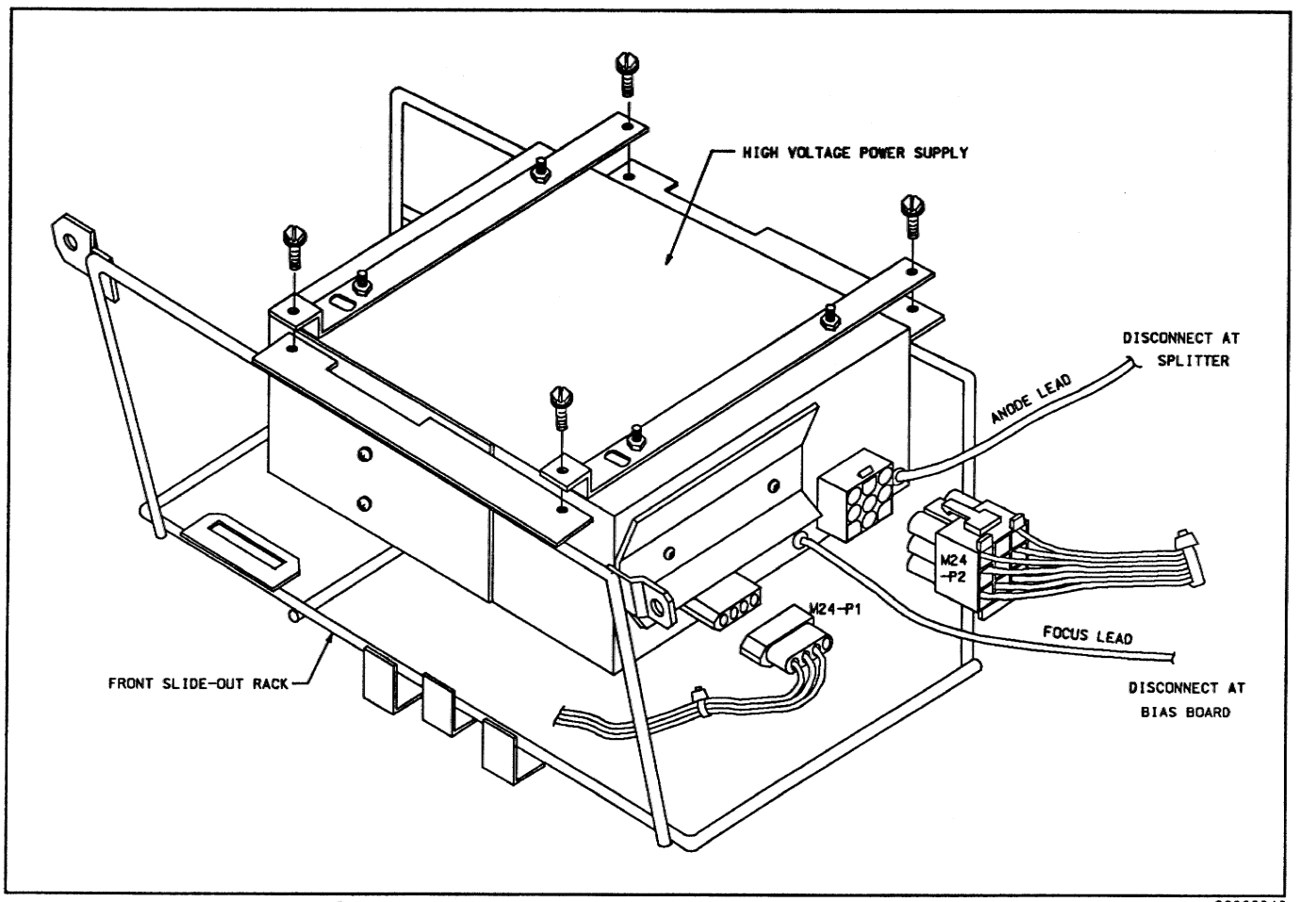

FIGURE 15-2. ***High Voltage Power Supply Removal***

15.2.2 Alignment

Service alignments are not necessary. If one of the power supply modules is out of specification, the module must be replaced.

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15.3 SPECIFICATIONS

15.3.1 Low Voltage Power Supply

Power Requirements:

Voltage
120V mode . . . . . 120VAC +10/-25%
240V mode . . . . . 240VAC +10/-25%

Turn-on Current . . . . . 15A max
Frequency . . . . . 60Hz +5/-20%

Power (full load) . . . . . 350W max

+200V Supply:

Maximum Voltage Range . . . . . 205 to 220VDC
Regulation (line & load) . . . . . ±4%
Average Load Current . . . . . 5mA to 350mA
Peak Load Current (65Os repetition rate) . 400 mA max
Maximum Overload Current . . . . . 1.0A max
Ripple & Noise (to 20MHz with 33μF) . . . 1.5V p-p max

+150V Supply:

Maximum Voltage Range . . . . . 154 to 165VDC
Regulation (line & load) . . . . . ±1%
Average Load Current . . . . . 10mA to 350mA
Peak Load Current (65μs repetition rate) . . 450 mA max
Maximum Overload Current . . . . . 1.2A max
Ripple & Noise (to 20MHz with 33μF) . 500mV p-p max

+24V Supply:

Regulation (line & load) . . . . . ±5%
Average Load Current . . . . . 40 mA to 300mA
Peak Load Current (20ms repetition rate) . . 350 mA max
Maximum Overload Current . . . . . 0.6A max
Ripple & Noise (to 20MHz with 10μF) . 150mV p-p max

-24V Supply:

Regulation (line & load) . . . . . ±5%
Average Load Current . . . . . 40mA to 200mA
Peak Load Current (20ms repetition rate) . . 350 mA max
Maximum Overload Current . . . . . 0.6A max
Ripple & Noise (to 20MHz with 10μF) . 150mV p-p max

+12V Supply:

Maximum Voltage Range . . . . . 13.0 to 14.5VDC
Regulation (line & load) . . . . . ±2%
Average Load Current . . . . . 1.0A to 4.0A
Peak Load Current (20ms repetition rate) . . . . 7.0A max
Maximum Overload Current . . . . . 8.3A max
Ripple & Noise . . . . . 200mV p-p max
(to 20MHz with 6-2200 μF in parallel and 1Ω in series)

-12V Supply:

Regulation (line & load) . . . . . ±2%
Average Load Current . . . . . 1.0A to 2.5A
Peak Load Current (20ms repetition rate) . . . . 2.9A max
Maximum Overload Current . . . . . 5.5A max
Ripple & Noise . . . . . 300mV p-p max
(to 20MHz with 6-2200 μF in parallel and 1Ω in series)

6.3V Supply:

Regulation (line & load) . . . . . ±3%
Average Load Current . . . . . 420mA to 490mA
Maximum Overload Current . . . . . 2.5A max
Ripple & Noise . . . . . 225mV p-p max
(to 20MHz with 6-2200 μF in parallel and 1Ω in series)

+5V Supply:

Regulation (line & load) . . . . . ±2%
Average Load Current . . . . . 1.5A to 5A
Peak Load Current (20ms repetition rate) . . . . 6.0A max
Maximum Overload Current . . . . . 7.0A max
Ripple & Noise (to 20MHz with 10OF) . 200mV p-p max

NOTE: An over-voltage or short circuit fault will cause the supply to shut down in an orderly manner. The supply will attempt to restart itself if the fault is removed.

15.3.2 High Voltage Power Supply

Power Requirements:

Voltage
120V mode ..... 90 to 132 VAC
240V mode ..... 180 to 264 VAC

Turn-on Current ..... 25A max
Frequency ..... 50 to 60 Hz

Power (full load) ..... 140W typ.

Anode Supply:

Voltage adjustment range ..... 34V. nom

Current level ..... 3mA max

Static load regulation
(no load to full load) ..... 0.2% max
thermal drift ..... 200ppm/°C max
Dynamic load regulation
(900pF load capacitance):
0 to 3mA ..... 150V p-p max
Line regulation ..... 0.1% max
ripple & noise
(3mA, 900pF load) ..... 6.6V max

Focus Supply:

Terminal Voltage ..... 10.5KV ±10%
17KV Multiplier Tap Resistor ..... 35.5M Ω, 1%
temperature coefficient ..... 100ppm/ °C max

G2 Supply:

Voltage ..... 800VDC ±5%
Current ..... 1mA max
Dynamic load regulation
(no load to full load) ..... 16V p-p max
Line regulation ..... 0.8V p-p max
Cross regulation (anode switched
no load to full load) ..... 16V p-p max
ripple (1mA load) ..... 5V p-p max

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