Agilent 35900E Dual Channel Interface

Service Manual

Agilent Technologies

35900E Dual Channel Interface

Agilent 35900E Service Manual

Electrical Shock Hazard

WARNING

This product is a Safety Class 1 instrument (provided with a protective earth terminal). To avoid electrical shock, the instrument must be connected to the AC power supply mains through a three-conductor power cord, with the third wire firmly connected to an electrical ground (safety ground) at the power outlet. Any interruption of the protective (grounding) conductor or disconnection of the protective earth terminal, under a fault condition could cause a shock, that could result in personal injury.

Safety Symbols

CAUTION
A caution calls attention to a condition or possible situation that could damage or destroy the product or the user's work.

WARNING
A warning calls attention to a condition or possible situation that could cause injury to the user.

Contents

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Introduction

Introduction

The *Agilent 35900E Dual Channel Interface Service Manual* provides step-by-step instructions for removing and replacing various parts in your 35900E Dual Channel Interface. Refer to Chapter 3: Parts Replacement for parts identification.

For operating directions, see the *Agilent 35900E Dual Channel Interface Users Manual.*

Caution   The 35900E contains parts that are sensitive to electrostatic discharge. Wear an ESD wrist strap during all assembly and disassembly procedures.

Manual Overview

This manual contains four chapters.

Chapter 1: Introduction, provides the purposes of this manual and an overview of its contents.

Chapter 2: Troubleshooting the 35900E, provides a troubleshooting checklist, an explanation of the LEDs, and a recommendation for use of DEMO chromatograms.

Chapter 3: Parts Replacement, provides a description of how to remove each part from the 35900E Dual Channel Interface.

Chapter 4: Instrument Parts Breakdown, provides part numbers and illustrations of each part in the 35900E Dual Channel Interface.

Troubleshooting the 35900E

Troubleshooting the 35900E

Verify the 35900E is Ready for Operation

At power up, the 35900E automatically executes internal self-tests to determine the amount of memory installed and to verify that the main power, system memory, and the MIO communication interface, and other internal circuits are operating properly. These tests take about 30 seconds for a 1-MByte system. The FAULT light will blink ON/OFF during this time.

When the 35900E has completed the internal self-tests, verify that:

1. the FAULT lamp is OFF

2. the POWER indicator is ON

3. no other indicators are blinking

In Case of Difficulty

If the 35900E does not power up correctly, turn power off and check the following:

1. Rear panel configuration switches 3 through 6 are DOWN (for normal operation).

2. MIO card is correctly configured for host computer communications.

3. MIO card is connected to host computer or network.

4. Analog signal cables are connected.

5. Remote control cables are connected (if needed).

6. Digital I/O cables are connected (if needed).

7. Power cord is connected.

If the problem persists after cycling the power, note the LED pattern on the front panel display. Check the following table for possible causes for failure.

Table 1.   Possible Causes for Failure

Condition	Possible Causes
POWER light is OFF	Power cord is disconnected or problem with the power supply
FAULT light remains ON and COMM light is flashing (note: other lights may also be flashing)	MIO card may be loose or there may be a problem with the MIO card
FAULT light remains ON and Channel B NOT READY light is ON	No SIMM module in the front slot or there may be a problem with the SIMM module installed
FAULT light remains ON and Channel B RUN light is ON	Problem found with SIMM module installed in the rear slot

Verify the System is Ready for Operation

Once you have verified that the 35900E is ready for operation, you can use the test chromatogram stored in the 35900E ROM in conjunction with the Host computer software to check the operation of the entire system. The test chromatogram is turned on via configuration switches 3 through 6 on the 35900E's back panel.

Parts Replacement

Parts Replacement

Overview

This chapter provides a description of how to remove and replace each of the major components from the 35900E Dual Channel Interface. Since the 35900E repair strategy is only to the board or subassembly level, more detailed information is not needed.

See Chapter 4 for an illustrated parts breakdown.

The 35900E has been designed for easy assembly and disassembly of all the replaceable modules. The only tool needed for this process is a Pozidriv® screwdriver No. 2 Pt (Part No. 8710-0900).

All electronic assemblies and parts should be handled with proper ESD procedures. This means that the parts should be packed in conductive packaging material and, when not in this packaging, should be placed only on a static-free surface. Anyone handling these items should be properly grounded through a wrist strap that has a common ground with the static-free work surface.

The following table lists all of the assembly part numbers for the 35900E.

Table 2. Parts List for the 35900E

Part No.	Description
0403-0102	Mother Board Guides
0403-0166	MIO Card Guides
0950-2557	Power Supply
1818-4271	SIMM Memory Board, 1 MB
1818-5222	SIMM Memory Board, 4 MB
35900-00160	MIO Bracket
35900-00180	Top Cover
35900-00190	Chassis
35900-60890	Front Panel (Front Cover)
G1279-60010	Mother Board
G1279-69010	Exchange Mother Board
G1279-60020	Connector Board
G1241-60010	MIO Card-GPIB/RS-232
J2552-69013	MIO Card-JetDirect Card
J4100-69001	MIO Card-JetDirect Card 10/100 10Base2

Assorted Screws

0515-1040	Screw, M4 x 8 Pozidriv, panhead, SS with external tooth lockwasher
2360-0544	Screw, 6-32 UNC-2A .375 inch long, Pozidriv, panhead, with external tooth lockwasher

Remove/Replace the Top Cover

1. Place the unit on a table so that the back is visible to you (cables visible).

2. Remove the power cord.

WARNING When removing or replacing the subassembly inside the 35900E, be certain the AC line cord is unplugged from the rear of the unit in order to avoid a potentially dangerous electrical shock.

3. Remove any cables attached to the rear panel.

4. Remove the two screws attaching the cover to the rear panel. (See Figure 1 and part "A" of Figure 4.)

5. Lift up the back of the cover and slide the lip of the cover over the frame, slipping the front tabs under the front panel edge.

6. When you are ready to replace the cover, fit the cover over the frame, slipping the front tabs under the front panel edge.

7. Push the cover firmly down until the screw holes are aligned.

8. Reattach the two screws on the back of the unit.

Lip

Front Panel

Power Cord Connection
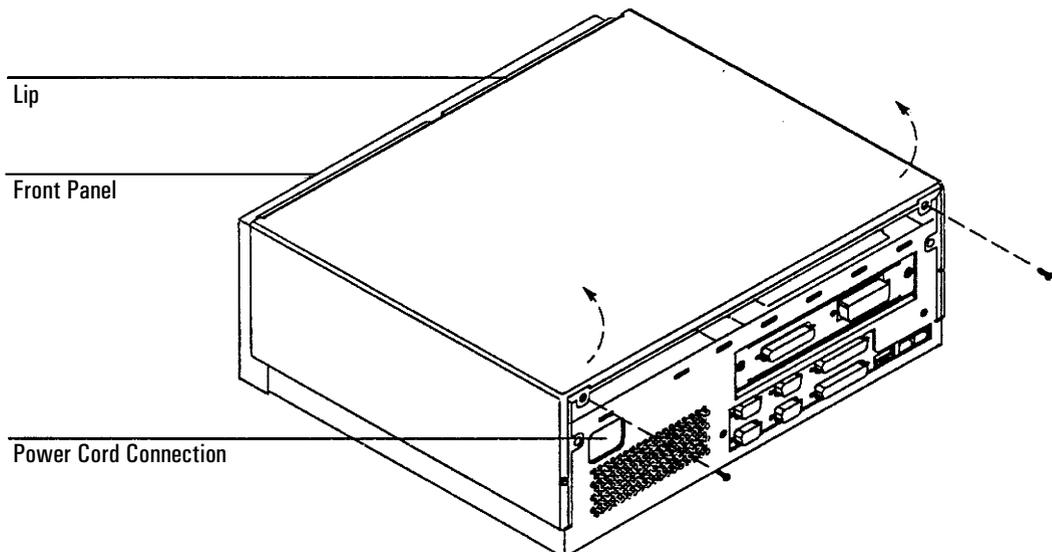
Figure 1.   Removing the top cover.

Remove/Replace the Front Panel

1. Remove the top cover. (See Figure 1.)

2. Disconnect the front panel connector from the mother board by pressing down on the two latches on the end of the connector on the mother board and lifting the connector straight up. (See Figure 2)

3. Remove the four screws holding the front panel to the unit.

4. Gently pull the front panel forward until it is detached from the frame.

5. Remove the ground wire connection (green wire) from the ground clip by pulling it firmly.

6. When you are ready to replace the front panel, reattach the green ground wire to the ground clip on the chassis.

7. Fit the bottom lip of the front panel under the lip of the frame and push it against the frame, fitting the power switch into the hole.

8. Connect the front panel cable to the connector, pressing firmly until the ears of the connector lock over the ends of the black connector.

9. Replace the four screws, two on each side.

Disconnect front panel
cable from connector

Disconnect ground wire
from ground clip

Ground Clip

Remove 4 screws
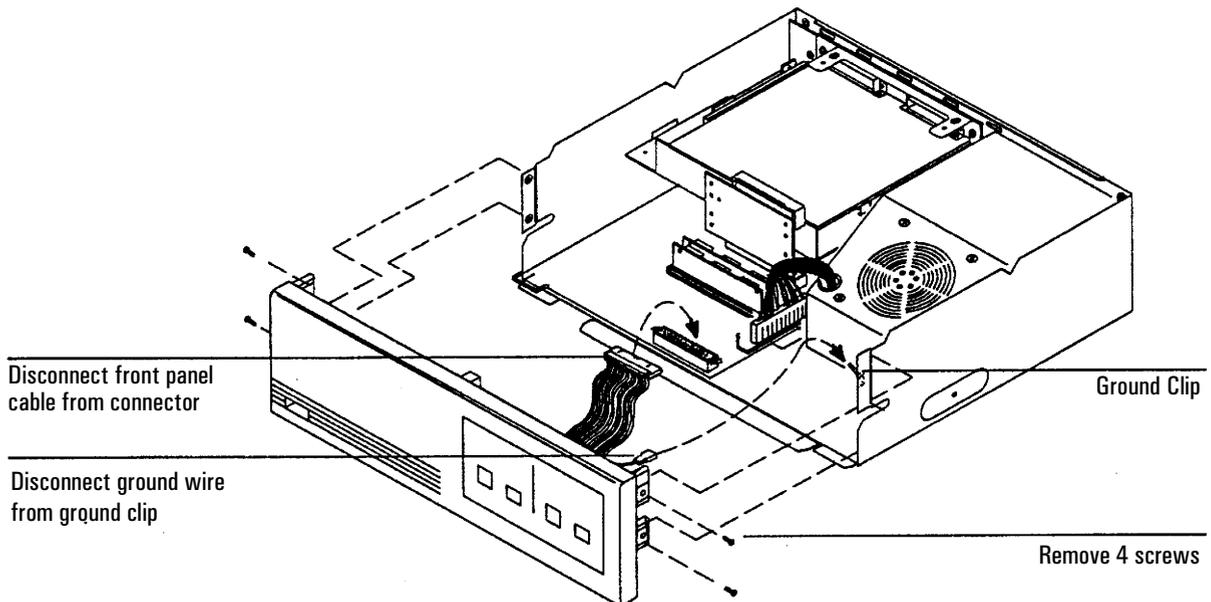
Figure 2.   Removing the front panel.

Remove/Replace the Power Supply

1. Remove the top cover. (See page 13.)

2. Remove the screw attaching the power supply to the right side of the frame. (See Figure 4.)

3. Disconnect the power supply cable. (See Figure 5.)

    a. Slide a flat-blade screwdriver (or your thumb nail) between the back of the connector and the white locking ridge.

    b. Grasp the ends of the connector between your thumb and forefinger and pull firmly upwards.

4. Pull the power supply unit forward to slip it off of the tabs, then pull upwards to remove it from the frame.

5. When you are ready to replace the power supply, fit the new power supply over the hooked tabs and press it against the frame.

6. Reattach the power supply to the frame by replacing the holding screw on the right side of the unit.

7. Reconnect the power supply cable to the white connector. Push the connector down firmly, until the locking ridge fits over the back of the connector.

Remove the MIO Bracket

1. Remove the top cover. (See page 13.)

2. Remove the MIO card by first removing the two thumb screws holding the card at the back of the unit. The card can then be pulled out from the rear plate.

3. Remove the three screws attaching the MIO bracket to the frame. (See part "A" in Figure 5.)

4. Firmly pull up on both the plate and the connector board, holding them together at a right angle.

Remove the Connector Board

1. Remove the top cover. (See page 13.)

2. Remove the MIO bracket. (See page 13.)

3. Remove the two screws attaching the connector board to the plate. The board will separate from the plate. (See part "A" in Figure 5.)

Remove/Replace the Mother Board

1. Remove the top cover. (See page 13.)

2. Remove the front panel. (See page 14.)

3. Remove the MIO bracket and connector board. (See page 15 and 16.)

4. Disconnect the power supply cable. (See page 15.)

5. Remove the two screws attaching the mother board to the back of the unit. (See Figure 5.)

6. Slide the mother board out the front of the unit. (See part "4" in Figure 5)

7. When you are ready to replace the mother board, slide the new mother board into the guides from the front of the unit so that the cable connections fit through the back of the unit.

8. Replace the two screws on the back of the unit and all other removed parts.
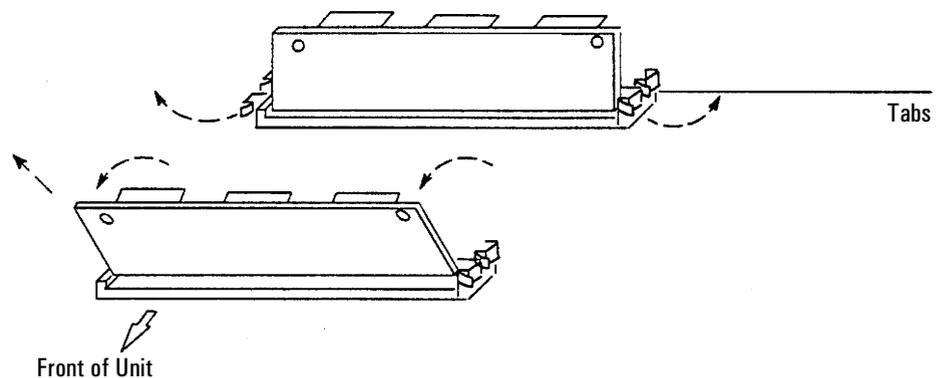
Remove/Install the SIMM Memory Boards

1. Remove the top cover. (See page 13)

2. Push out on the metal tabs holding the board in place. (See Figure 3)

3. Tilt the SIMM memory board towards the front of the unit about 45° and slide it out. (See Figure 3)

4. If installed, repeat the process for the second SIMM.

   If using only one SlMM board, it must be installed in the slot closest to the front of the unit.

   If using two SIMM boards, the front slot must be empty in order to install a SIMM in the rear slot. Therefore, when using two SIMM boards, install the rear SIMM first and then the front one.

5. Seat the SIMM memory board in the slot so that the posts are aligned with the holes in the upper corners of the board and the memory chips mounted on the SIMM board face the rear of the unit. (The board will be slightly tilted forward.)

6. Push the board backwards until the metal tabs slip over the ends of the SIMM board and the white posts fit through the holes. The board will be seated vertically in the connector.

Tabs

Front of Unit

Figure 3.   Removing the SIMM memory board.

4

Instrument Parts Breakdown

Instrument Parts Breakdown

Parts Breakdown—Figure 4

Item No.	Description	Part No.	Qty
1	Top Cover	35900-00180	1
2	MIO Card-GPIB/RS-232	GI241-60010	1
3	MIO Bracket	35900-00160	1
4	Power Supply	0950-2557	1
5	Front Panel (Front Cover)	35900-60890	1
6	MIO Card Guides	0403-0166	2
7	Chassis	35900-00190	1

Assorted Screws

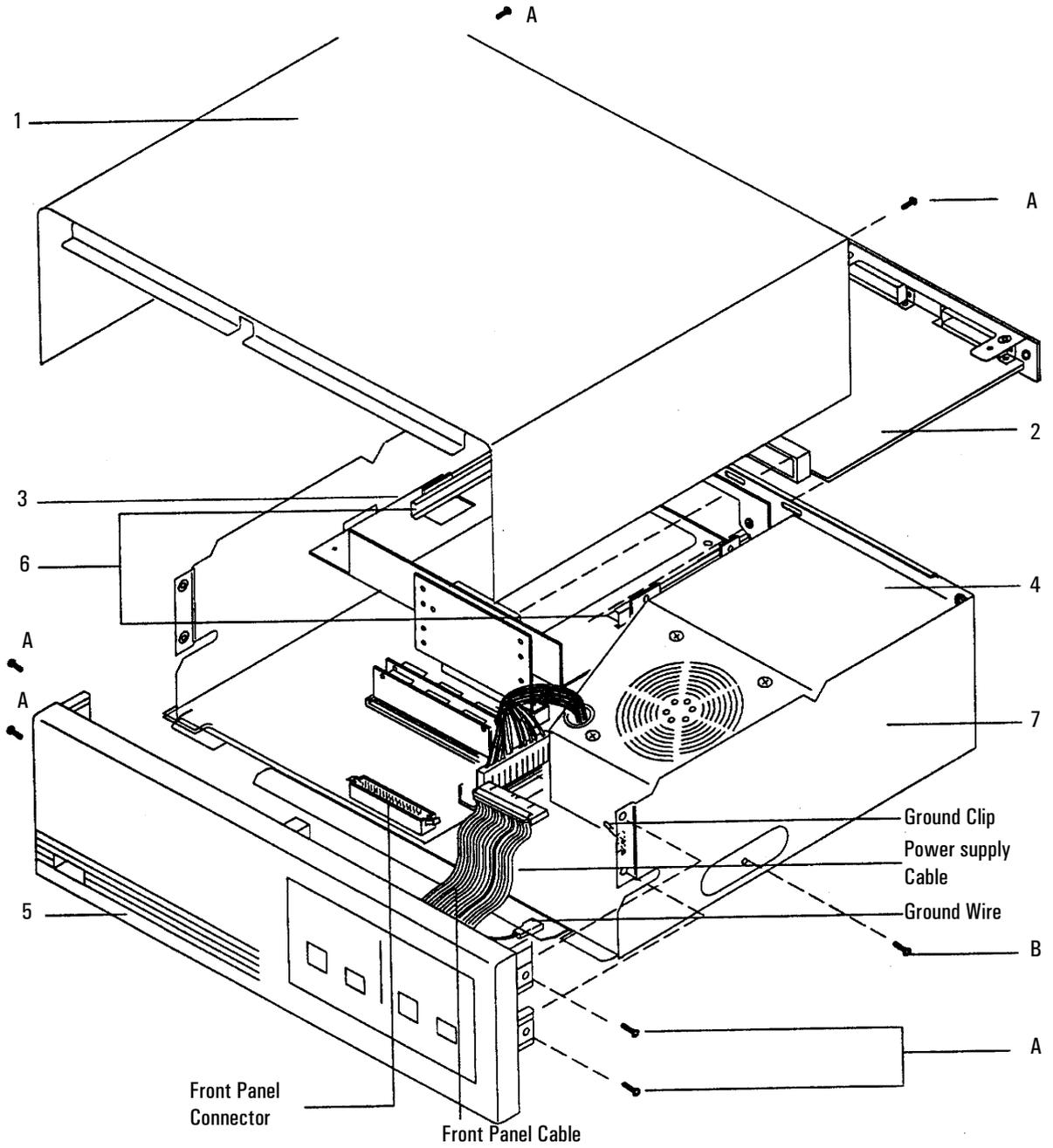|			
A	Screws, M4 x 8 Pozidriv, panhead, SS with external tooth lockwasher	0515-1040	6
B	Screw 6-32 UNC-2A .375 inch long, Pozidriv, panhead, with external tooth lockwasher	2360-0544	1

A

1

A

2

3

6

4

A

A

7

Ground Clip

Power supply
Cable

Ground Wire

5

B

A

Front Panel
Connector

Front Panel Cable

Figure 4.

Parts Breakdown—Figure 5

Item No.	Description	Part No.	Qty
1	Power Supply	0950-2557	1
2	MIO Bracket	35900-00160	1
3	Connector Board	G1279-60020	1
4	Mother Board	G1279-60010	1
	Exchange	G1279-69010	
5	SIMM Memory Board, 1 MB	1818-4271	1
	SIMM Memory Board, 4 MB (optional)	1818-5222	2
6	Mother Board Guides	0403-0102	2

Assorted Screws

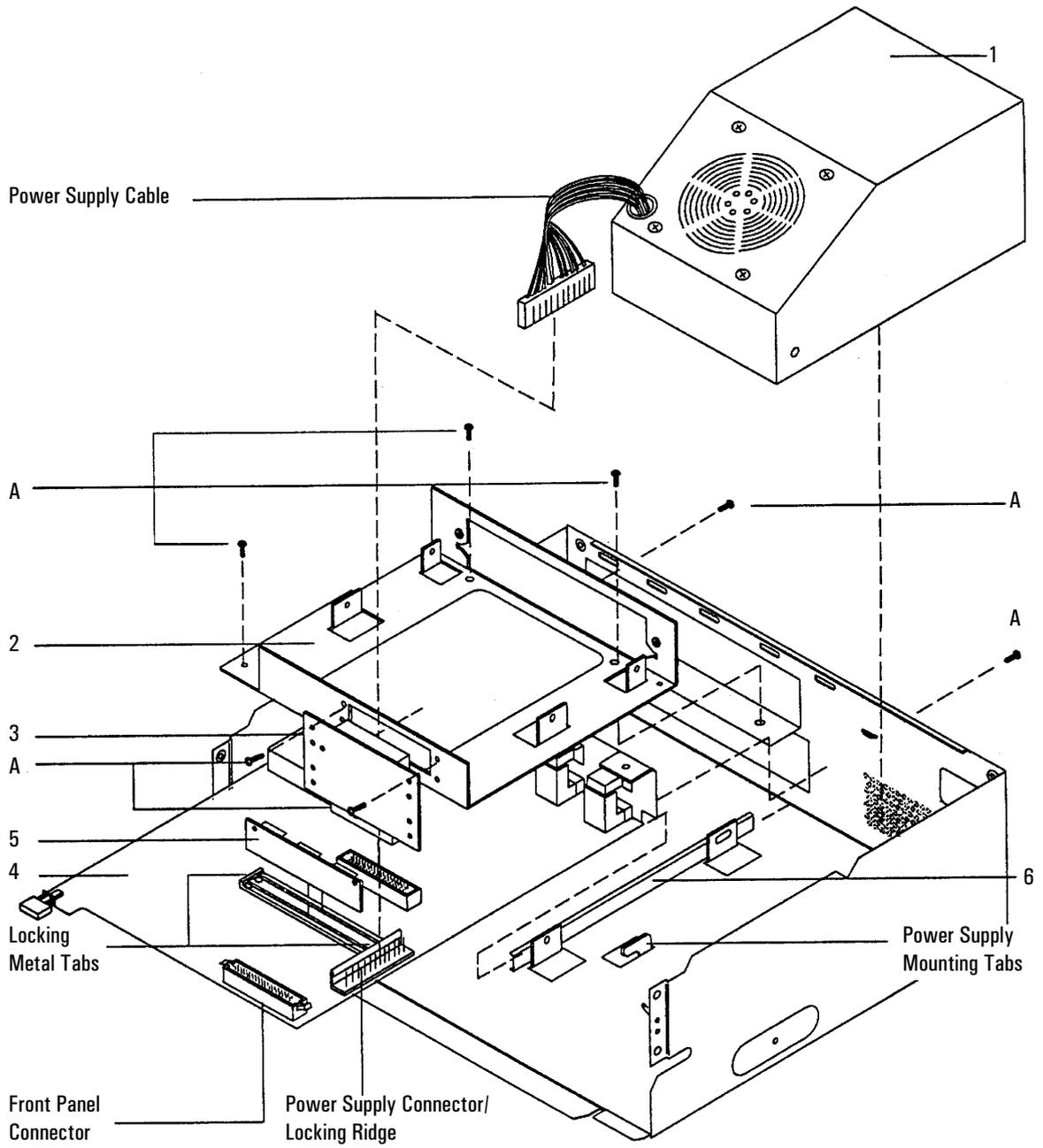| A	Screws M4 x 8 Pozidriv, panhead, SS with external tooth lockwasher	0515-1040	7

Power Supply Cable

1

A

A

A

A

2

3

5

4

6

Locking
Metal Tabs

Power Supply
Mounting Tabs

Front Panel
Connector

Power Supply Connector/
Locking Ridge

Figure 5.