
Contents

General Information

Safety Summary	1-2
Terms in Manuals	1-2
Terms on Equipment	1-2
Symbols in Manuals	1-2
Symbols on Equipment	1-2
Power Source	1-2
Grounding the Product	1-2
Danger Arising from Loss of Ground	1-3
Do Not Operate in Explosive Atmospheres	1-3
Do Not Service Alone	1-3
Use Care When Servicing with Power On	1-3
Plug-in to Mainframe Compatibility	1-3
Installing and Removing the Plug-in	1-4
Instrument Options	1-5
Packaging for Shipment	1-5
Operating Environment	1-5

Checks and Adjustments

Using These Procedures	2-6
Conventions in this Manual	2-6
Initialized Setting	2-7
Menu Selections and Measurement Techniques	2-7
Part 1 Initial Setup	2-8
Part 2 Enhanced Accuracy	2-9
Specifications	2-9
Setup to Check Enhanced Accuracy	2-9
Procedure to Check Enhanced Accuracy	2-9
Part 3a High Frequency Response: Standard Procedure	2-11
Measurement Limits	2-11
Specifications (Performance Verification)	2-11
Specification (Functional Test)	2-11
Setup to Examine Mainframe High Frequency Response	2-11
Procedure to Examine Mainframe High Frequency Response	2-12
Setup to Examine/Adjust Amplifier Step Response (A1R1015, A1R1025)	2-13
Procedure to Examine/Adjust Amplifier Step Response (A1R1015, A1R1025)	2-13
Setup to Check Amplifier Bandwidth: Performance Verification Procedure	2-16
Procedure to Check Amplifier Bandwidth: Performance Verification Procedure	2-16
Setup to Check Amplifier Bandwidth: Functional Test Procedure	2-18
Procedure to Check Amplifier Bandwidth: Functional Test Procedure ..	2-18
Part 3b High Frequency Response: Alternate Procedure	2-19
Measurement Limits	2-19
Specifications (Performance Verification)	2-19
Specification (Functional Test)	2-19

Section 2 Checks and Adjustments (cont)

Setup to Examine Mainframe High Frequency Response	2-19
Procedure to Examine Mainframe High Frequency Response	2-20
Setup to Examine/Adjust Amplifier Step Response (A1R1015, A1R1025)	2-21
Procedure to Examine/Adjust Amplifier Step Response (A1R1015, A1R1025)	2-21
Setup to Check Amplifier Bandwidth: Performance Verification Procedure	2-23
Procedure to Check Amplifier Bandwidth: Performance Verification Procedure	2-23
Setup to Check Amplifier Bandwidth: Functional Test Procedure	2-25
Procedure to Check Amplifier Bandwidth: Functional Test Procedure ..	2-25
Part 4 Overload	2-26
Specification	2-26
Setup to Check Overload	2-26
Procedure to Check Overload	2-26
Part 5 Input Resistance	2-28
Specifications	2-28
Setup to Check Input Resistance	2-28
Procedure to Check Input Resistance	2-28
Part 6 Vertical Accuracy	2-29
Specifications	2-29
Setup to Check Vertical Accuracy	2-29
Procedure to Check Vertical Accuracy	2-29
Check Gain	2-30
Check Offset	2-30
Part 7 Bandwidth Limit	2-31
Specifications	2-31
Setup to Check Bandwidth Limit	2-31
Procedure to Check Bandwidth Limit	2-31
Part 8 AC Coupling	2-33
Specifications	2-33
Setup to Check AC Coupling	2-33
Procedure to Check AC Coupling	2-33
Part 9 DC Balance	2-35
Specifications	2-35
Setup to Check DC Balance	2-35
Procedure to Check DC Balance	2-35
Part 10a DV DC Accuracy: 11400-Series Mainframe Procedure	2-37
Specifications	2-37
Setup to Characterize the 11400-Series Mainframe	2-37
Procedure to Characterize the 11400-Series Mainframe	2-37
Setup to Check the Amplifier DV DC Accuracy	2-38
Procedure to Check the Amplifier DV DC Accuracy	2-38
Part 10b DV DC Accuracy: 11300-Series Mainframe Procedure	2-41
Specification	2-41
Setup to Characterize the 11300-Series Mainframe	2-41
Procedure to Characterize the 11300-Series Mainframe	2-41
Setup to Check the Amplifier DV DC Accuracy	2-42
Procedure to Check the Amplifier DV DC Accuracy	2-43

Section 2 Checks and Adjustments (cont)

Part 11 DC Offset Accuracy	2-45
Specifications	2-45
Setup to Characterize the 11400-Series Mainframe	2-45
Procedure to Characterize the 11400-Series Mainframe	2-45
Setup to Characterize the 11300-Series Mainframe	2-46
Procedure to Characterize the 11300-Series Mainframe	2-46
Setup to Check the Amplifier DV DC Offset Accuracy	2-47
Procedure to Check the Amplifier DV DC Offset Accuracy	2-48

Maintenance

Preventive Maintenance	3-1
Amplifier Shield Removal	3-1
Cleaning	3-1
Visual Inspection	3-2
Periodic Electrical Adjustment	3-2
Corrective Maintenance	3-3
Ordering Parts	3-3
Static-Sensitive Device Classification	3-3
Removing and Replacing FRUs	3-4
Removing/Replacing FRU ICs	3-6
Removing/Replacing U310/U410 Hypcon Assemblies	3-8
Circuit Board and Attenuator FRU Removal	3-13
Programming The Unit Identification	3-17
Multi-Pin Connectors	3-18
Diagnostic Troubleshooting	3-19
Diagnostics Overview	3-19
New Configuration Calibration	3-22
Restoring Calibration Data	3-22
Amplifier Memory Backup Power	3-23
Field Replaceable Unit (FRU) Guide	3-23
Fuse Troubleshooting	3-27
Jumpers	3-27

Theory of Operation

Block Diagram Description	4-1
Signal Flow	4-1
Control Flow	4-3
Power	4-3

Replaceable Parts

Parts Ordering Information	5-1
Module Replacement	5-1
Using the Replaceable Parts List	5-2
Item Names	5-2
Indentation System	5-2
Abbreviations	5-2

Change Information

List of Illustrations

Figure 1-1	Installing the 11A34 Amplifier in a Mainframe	1-4
Figure 2-1	A1 Main Board Adjustment Locations	2-15
Figure 3-1	Field Replaceable Units (FRU) Locator and A1 Main Board Securing Hardware	3-5
Figure 3-2	Semiconductor Indexing Diagram	3-7
Figure 3-3	Hypcon Assembly Removal and Replacement	3-10
Figure 3-4	IC Insertion-Extraction Pliers	3-12
Figure 3-5	Location of Screws and Parts for Removal of an Attenuator ..	3-15
Figure 3-6	Location of a Nut Block Securing the Circuit Board to the Frame Section	3-16
Figure 3-7	Indexing of Multi-pin Connectors	3-18
Figure 3-8	Sample LED Fault Code Timing Diagram	3-20
Figure 3-9	Jumper Locator	3-27
Figure 4-1	11A32 Two-Channel Amplifier Block Diagram	4-2

List of Tables

Table 2-1	Measurement Limits, Specifications, Adjustments, and Functional Test	2-1
Table 2-2	Test Equipment	2-4
Table 2-3	11A32 Amplifier Bandwidth	2-17
Table 2-4	11A32 Amplifier Bandwidth	2-24
Table 2-5	11A32 Amplifier DC Balance Table	2-36
Table 2-6	11A32 Amplifier DC Offset Accuracy	2-49
Table 3-1	Relative Susceptibility to Damage from Static Discharge	3-4
Table 3-2	Board FRU	3-23
Table 3-3	Component/Module FRUs	3-24
Table 3-4	Amplifier Kernel Error Index Codes	3-24
Table 3-5	Self-Tests/Extended Diagnostics Error Index Codes	3-25
Table 3-6	Self-Tests/Extended Diagnostics Error Index Codes	3-26