

Oservice Sample File

TEKTRONIX®

577-178-D1

LINEAR IC
CURVE TRACER

INSTRUCTION MANUAL

Tektronix, Inc.
P.O. Box 500
Beaverton, Oregon 97005

Serial Number _____

WARRANTY

All TEKTRONIX instruments are warranted against defective materials and workmanship for one year. Any questions with respect to the warranty should be taken up with your TEKTRONIX Field Engineer or representative.

All requests for repair and replacement parts should be directed to the TEKTRONIX Field Office or representative in your area. This will assure you the fastest possible service. Please include the instrument Type Number or Part Number and Serial Number with all requests for parts or service.

Specifications and price change privileges reserved.

Copyright © 1973 by Tektronix, Inc., Beaverton, Oregon. Printed in the United States of America. All rights reserved. Contents of this publication may not be reproduced in any form without permission of Tektronix, Inc.

U.S.A. and Foreign TEKTRONIX products covered by U.S. and foreign patents and/or patents pending.

TEKTRONIX is a registered trademark of Tektronix, Inc.

TABLE OF CONTENTS

	Page
SPECIFICATION	
Introduction	1-1
CHARACTERISTICS—ELECTRICAL	
Vertical Deflection Factors	1-3
Collector Supply	1-3
Positive and Negative Supplies	1-4
Sweep Generator	1-4
Source Resistance	1-4
Load Resistance	1-4
Function Switch	1-5
Display Zero	1-6
Collector Supply	1-6
Step Generator	1-6
Current Mode	1-6
Voltage Mode	1-7
Display Amplifiers	1-7
Indicator and CRT	1-8
Power Input	1-8
ENVIRONMENTAL	
Temperature	1-8
Altitude	1-8
Transportation	1-8
PHYSICAL	
Dimensions	1-9
Weight	1-9
Standard Accessories	1-9
OPERATING INFORMATION	
Introduction to Curve Tracers	2-1
How the 178 Tests Linear IC's	2-2
Operating the Linear IC Curve Tracer	2-8
Function of Controls	
Function Selector—Group 1	2-8
Sweep Generator—Group 2	2-9
Regulated Power Supplies—Group 3	2-9
Collector Supply—Group 4	2-10
Step Generator—Group 5	2-11
Power, Loads, and Source Resistance—Group 6	2-13
Deflection Controls—Group 7	2-14
Display Controls—Group 8	2-15
DEVICE CARDS	
Connecting to the DUT	2-18
Connecting to the 178	2-18
Compensation and other External Networks	2-19
External Feedback Amplifier	2-19
Useful Accessories	2-22

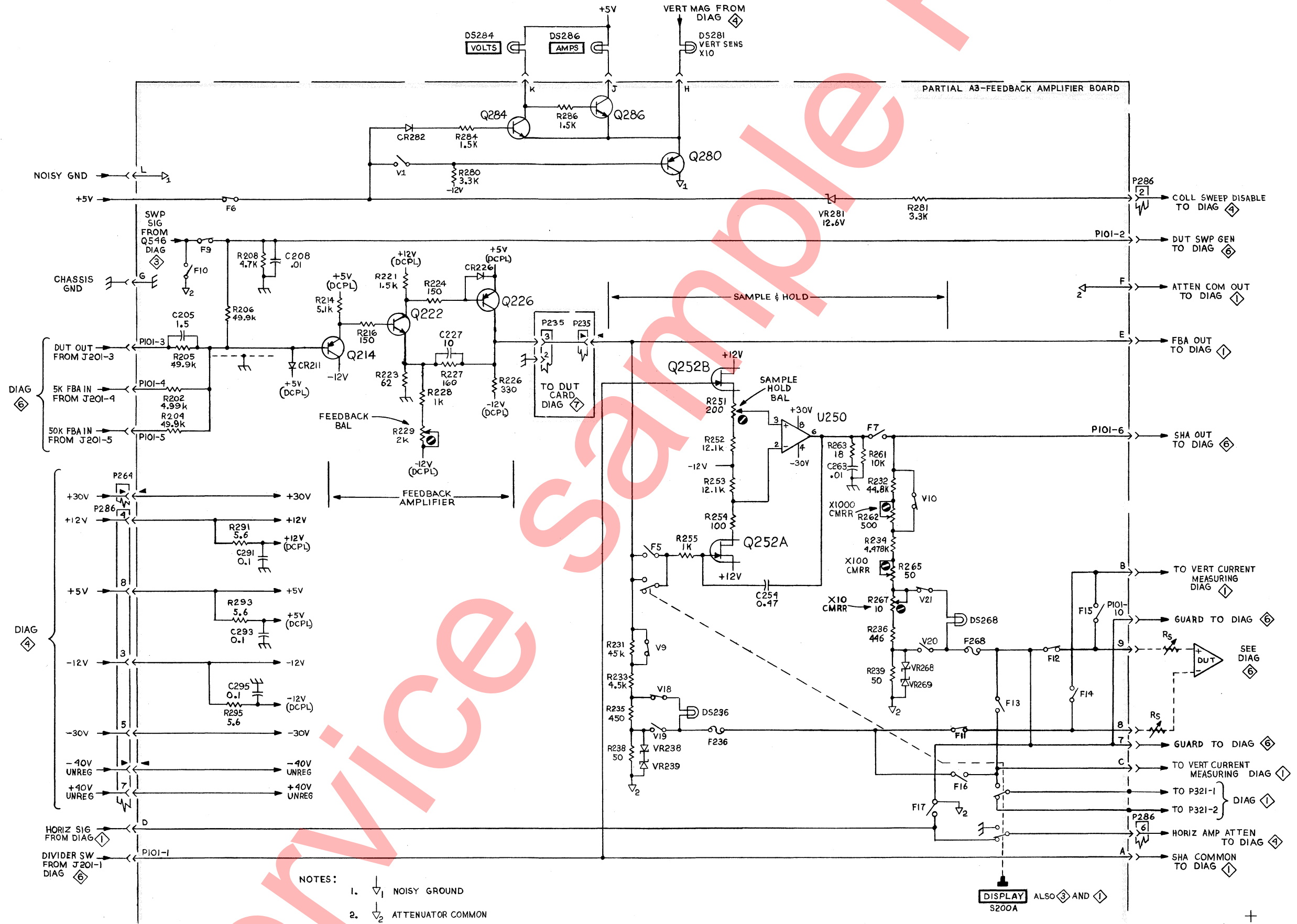
TABLE OF CONTENTS (cont)

	Page
FIRST-TIME OPERATION	
Op-Amp Terminology	2-22
Connecting the Device Under Test (DUT)	2-25
Patching the DUT Card for the 741	2-25
Current Limits	2-26
Initial Setup—Obtaining a Display	2-26
Troubleshooting the Setup	2-28
Measuring Offset Voltage	2-28
Measuring Common-Mode Rejection Ratio	2-32
Measuring Power-Supply Rejection Ratio	2-33
Measuring Input Current	2-34
Measuring Supply Current	2-36
CIRCUIT DESCRIPTION	
Power Supply	3-1
Feedback Amplifier	3-3
Vertical Preamplifier	3-4
Function Switching	3-5
MAINTENANCE	
Introduction	4-1
PREVENTIVE MAINTENANCE	
General	4-1
Cleaning	4-1
Lubrication	4-1
Visual Inspection	4-2
Transistors and Integrated Circuits	4-2
Recalibration	4-2
TROUBLESHOOTING	
Introduction	4-3
Troubleshooting Equipment	4-3
Troubleshooting Aids	4-3
Access to Circuit Boards	4-6
Removing the Vertical Preamp and Feedback Amplifier Boards	4-7
Removing and Replacing the Feedback and Vert Preamp Board from Cam-Switch Assembly	4-12
Removing and Replacing the Cam-Switch Assembly	4-12
Removal of Storage Compartment Shields Preliminary	4-12
Removal—Right Shield	4-15
Removal—Left Shield	4-15
Replacement of Storage Compartment Shield—Left Side	4-15
Replacement of Storage Compartment Shield—Right Side	4-15
PERFORMANCE CHECK/ADJUSTMENT PROCEDURE	
Introduction	5-1
Services Available	5-1

TABLE OF CONTENTS (cont)

	Page
PERFORMANCE CHECK/ADJUSTMENT PROCEDURE (cont)	
Test Equipment Required	5-1
PERFORMANCE CHECK	5-2
ADJUSTMENT PROCEDURE	5-21
ELECTRICAL PARTS LIST	
SCHEMATIC DIAGRAMS & CIRCUIT BOARD ILLUSTRATIONS	
MECHANICAL PARTS LIST & ILLUSTRATIONS	
APPLICATIONS	
Op Amp Gain Error	
Op Amp Gain at Higher Frequencies	
Measurement Restrictions Due to Insufficient DUT Gain	

Qservice sample File



IT8 LINEAR IC TEST FIXTURE

- NOTES:
1. ∇_1 NOISY GROUND
 2. ∇_2 ATTENUATOR COMMON
 3. 'V' SWITCHING = VERTICAL SWITCH S350 SEE DIAG (SHOWN IN FULL CCW POSITION)
 4. 'F' SWITCHING = FUNCTION SWITCH S300 SEE DIAG (SHOWN IN FULL CCW POSITION)

FEEDBACK AMPLIFIER 373