

TECHNICAL MANUAL
OPERATION, MAINTENANCE,
ILLUSTRATED PARTS BREAKDOWN

SYSTEM/STACK TESTER

MODEL PT1585

PART NO. 286823-000

F41608-71-C-0948
F41608-71-D-0973

**This copy is a reprint which includes
current pages from Changes 1 through 5.**

**BASIC AND ALL CHANGES HAVE BEEN MERGED
TO MAKE THIS A COMPLETE PUBLICATION.**

Published Under Authority of the Secretary of the Air Force



TABLE OF CONTENTS

Section	Title	Page
I	INTRODUCTION	1-1
	1-1. Introduction	1-1
	1-3. General	1-1
	1-5. Leading Particulars	1-1
II	SPECIAL TOOLS AND TEST EQUIPMENT	2-1
	2-1. Special Tools and Test Equipment	2-1
III	PREPARATION FOR USE AND RESHIPMENT	3-1
	3-1. General	3-1
	3-3. Unpackaging and Assembly	3-1
	3-5. Packaging for Reshipment.....	3-1
IV	OPERATION INSTRUCTIONS.....	4-1
	4-1. General	4-1
	4-8. Assembly of MA31 Long Stack.....	4-3
	4-9. Test Procedures for MA31 Long Stack.....	4-4
	4-10. Assembly of L-Z-J-S-R-T Partial Stack.....	4-7
	4-11. Test Procedures for L-Z-J-S-R-T Partial Stack	4-10
	4-12. Assembly of Z-J-S-R-T Partial Stack	4-11
	4-13. Test Procedures for Z-J-S-R-T Partial Stack	4-13
	4-14. Assembly of L-Z-J-R-T Partial Stack	4-15
	4-15. Test Procedures for L-Z-J-R-T Partial Stack	4-18
	4-16. Assembly of Z-J-R-T Partial Stack	4-21
	4-17. Test Procedures for Z-J-R-T Partial Stack	4-21
	4-18. Assembly Test of MA31 Sensor	4-23
	4-19. Assembly of MA33 or MA37 Short Stack.....	4-25
	4-20. Test Procedures for MA33 or MA37 Short Stack	4-26
	4-21. Assembly of Z-L-T Partial Stack	4-29
	4-22. Test Procedures for Z-L-T Partial Stack	4-30
	4-23. Assembly of Z-T Partial Stack	4-31
	4-24. Test Procedures for Z-T Partial Stack	4-32
	4-25. Assembly Test of MA33 or MA37 Sensor.....	4-33
	4-25A. Stack Test for MA56 and MA87 EXRAY'S	4-34A
	4-25B. Canopy EXRAY Assembly.....	4-34C
	4-25C. Backpack EXRAY Assembly	4-34H
	4-25D. MA88 Hi-Rise EXRAY Stack Test	4-34N
	4-25E. MA88 Hi-Rise EXRAY Assembly.....	4-34N
	4-26. Operation	4-39
	4-27. Modulator Logic	4-39
	4-30. Data for Transmission Logic	4-39
	4-33. Received Data Logic.....	4-41
	4-36. ID Code Converter Logic	4-42

TABLE OF CONTENTS (cont)

Section	Title	Page
V	MAINTENANCE INSTRUCTIONS.....	5-1
	5-1. General	5-1
	5-3. Preventive Maintenance	5-1
	5-6. Troubleshooting	5-1
	5-13. Calibration.....	5-1
	5-16. Calibration of Power Supplies.....	5-2
	5-17. Calibration of Monitor Meter Input Current Ranges	5-4
	5-18. Command Transmitter Output Power Check	5-5
	5-19. Calibration of Monitor Meter Output Pwr Range.....	5-5
	5-20. Command Transmitter Frequency Check.....	5-6
	5-21. Attenuator Setting Check.....	5-6
	5-22. Receiver Frequency Check	5-6
VI	DIAGRAMS.....	6-1
	6-1. General	6-1
	6-3. Diagram Index	6-1
	6-5. Wire List.....	6-51
VII	ILLUSTRATED PARTS BREAKDOWN.....	7-1
	PART I INTRODUCTION	7-1
	PART II NUMERICAL INDEX	7-11
	PART III REFERENCE DESIGNATION INDEX.....	7-19
	PART IV GROUP ASSEMBLY PARTS LIST	7-25
VIII	DIFFERENCE DATA SHEETS.....	8-1
	Not Applicable	

Change 2 ii

LIST OF ILLUSTRATIONS

Figure	Title	Page
1-1.	System/Stack Tester, Model PT1585	vi
1-2.	CL Module Stack Under Test.....	1-2
1-3.	Partial CL Module Stack Under Test	1-3
1-4.	Partial CL Module Stack Under Test	1-4
1-5.	NCL Module Stack Under Test	1-5
1-6.	Partial NCL Module Stack Under Test.....	1-6
1-7.	Partial NCL Module Stack Under Test.....	1-7
1-8.	CL Sensor (MA31) Under Test	1-8
1-9.	NCL Sensor (MA33 or MA37) Under Test	1-9
3-1.	Installed Locations of Units	3-1
3-2.	Cabling Hook-Up.....	3-1
4-1.	PT1585 Panel	4-2
4-2.	MA31 Long Stack Under Test.....	4-5
4-3.	MA33/MA37 Short Stack Under Test.....	4-27
4-3A.	EXRAY Stack Test Setup	4-34B
4-3B.	Record of Assembly/Implantation	4-34E
4-3C.	MA56 EXRAY Load Ring Installation.....	4-34F
4-3D.	MA56 EXRAY Exploded View.....	4-34G
4-3E.	MA56 EXRAY Case Assembly	4-34H
4-3F.	MA56 Container	4-34J
4-3G.	MA87 EXRAY Module Can Assembly	4-34K
4-3H.	MA87 EXRAY Package	4-34L
4-3J.	Record of Assembly/Implantation (MA88)	4-34P
4-3K.	TC665 Trough, Spike Case, and EXRAY Components	4-34Q
4-3L.	Details of Antenna Cable Dispenser and Mast Assembly	4-34S
4-3M.	Rocket Motor Details	4-34U
4-3N.	Assembled Hi-Rise EXRAY	4-34V
4-4.	Command Format.....	4-40
4-5.	Command Bit Timing	4-40
4-6.	Split Phase Decoder	4-42
4-7.	Decoder Clock Pulse Timing	4-43
4-8.	Comparator	4-43
4-9.	Comparator Inhibit/Audio Modulation Enable	4-44
4-10.	Code Conversion Logic Equations.....	4-44
4-11.	Decimal ID and Coded Equivalents	4-45
5-1.	D4003 Printed Circuit Card	5-7
5-2.	D4004 Printed Circuit Card	5-7
5-3.	D4007 Printed Circuit Card	5-8
5-4.	D4008 Printed Circuit Card	5-8
5-5.	D4022 Printed Circuit Card	5-9
5-6.	D4025 Printed Circuit Card	5-9
5-7.	D4031 Printed Circuit Card.....	5-10
5-8.	D4036 Printed Circuit Card.....	5-10

LIST OF ILLUSTRATIONS (cont)

Figure	Title	Page
5-9.	D4208 Printed Circuit Card	5-11
6-1.	PT1585 Schematic Diagram (1 of 5)	6-3
6-1.	Modulator Logic Diagram (2 of 5)	6-5
6-1.	Data for Transmission Logic Diagram (3 of 5)	6-7
6-1.	Received Data Logic Diagram (4 of 5)	6-9
6-1.	ID Code Converter Logic Diagram (5 of 5)	6-11
6-2.	D4003 Logic Diagram	6-13
6-3.	D4004 Logic Diagram	6-15
6-4.	D4007 Logic Diagram	6-17
6-5.	D4008 Logic Diagram	6-19
6-6.	D4022 Logic Diagram	6-21
6-7.	D4025 Logic Diagram	6-23
6-8.	D4031 Logic Diagram	6-25
6-9.	D4036 Logic Diagram	6-27
6-10.	D4208 Logic Diagram	6-29
6-11.	A5 Card Logic Diagram	6-31
6-12.	A6 Card Logic Diagram	6-33
6-13.	A15 Card Schematic Diagram	6-35
6-14.	A22 Card Logic Diagram (1 of 2)	6-37
6-14.	A22 Card Logic Diagram and Truth Table (2 of 2)	6-39
6-15.	A23 Card Schematic Diagram	6-41
6-16.	A30 Card Schematic Diagram	6-43
6-17.	U7674 Simulated Code Plug Schematic Diagram	6-45
6-18.	CA1541 Cable Diagram	6-47
6-19.	CA1542 Cable Diagram	6-47
6-20.	CA1543 Cable Diagram	6-49
6-20A.	CA2060 Cable Diagram	6-50
6-21.	Wire List Explanation	6-51
1.	PT1585 Sensor/Stack Tester	7-26
2.	U7650 Cable Connector Head	7-28
3.	U7674 Simulated Code Plug	7-30
4.	Cover	7-36
5.	Component Assembly	7-38
6.	U7651 Assembling Fixture	7-41
6A.	PT1585 Phase 3 CL Stack Tester	7-46
7.	PT1585 Phase 3 CL Stack Tester	7-46B
8.	PT1585 Phase 3 CL Stack Tester	7-50
9.	PT1585 Phase 3 CL Stack Tester	7-54
10.	PT1585 Phase 3 CL Stack Tester	7-56
11.	Component Board Assembly	7-60
12.	U7722 Chassis Assembly	7-62

LIST OF ILLUSTRATIONS (cont)

Figure	Title	Page
12A.	Holding Fixture, TC613	7-72
12B.	Crimping Tool, TC614	7-72B
13.	CA1541 Cable Assembly	7-72D
14.	CA1542 Cable Assembly	7-74
15.	CA1543 Cable Assembly	7-76
15A.	CA2060 Cable Assembly	7-78
16.	Signal Conditioner	7-78B
17.	Diagnostic Signal Modulation Buffer	7-82
18.	Resistor Entrance PC Card	7-84
19.	Full Adder	7-86
20.	Resistor Card	7-88
21.	Resistor Exit Card	7-90

LIST OF TABLES

Table	Title	Page
1-1.	Leading Particulars	1-1
2-1.	Special Tools and Test Equipment	2-1
4-1.	Commands and Indications for Testing MA31 Module Stack	4-8
4-2.	Commands and Indications for Testing L-Z-J-S-R-T Module Stack	4-12
4-3.	PT1585 and U7674 Simulator Switch Positions for Checkout of CL Partial Module Stack Without L Code Plug Module	4-16
4-4.	Commands and Indications for Testing Z-J-S-R-T Module Stack	4-17
4-5.	Commands and Indications for Testing L-Z-J-R-T Module Stack	4-20
4-6.	PT1585 and U7674 Simulator Switch Positions for Checkout of CL Partial Module Stack Without L Code Plug Module	4-24
4-7.	Commands and Indications for Testing Z-J-R-T Module Stack	4-28
4-8.	PT1585 and U7674 Simulator Switch Positions for Checkout of NCL Partial Module Stack Without L Code Plug	4-34
4-8A.	Lamp Indications for EXRAY Stack Test Switch Positions	4-34D
4-9.	Controls and Indicators	4-35
5-1.	Visual Inspection	5-1
6-1.	Card Location List	6-52
6-2.	Computer Wire List	6-53
6-3.	Wire List	6-75

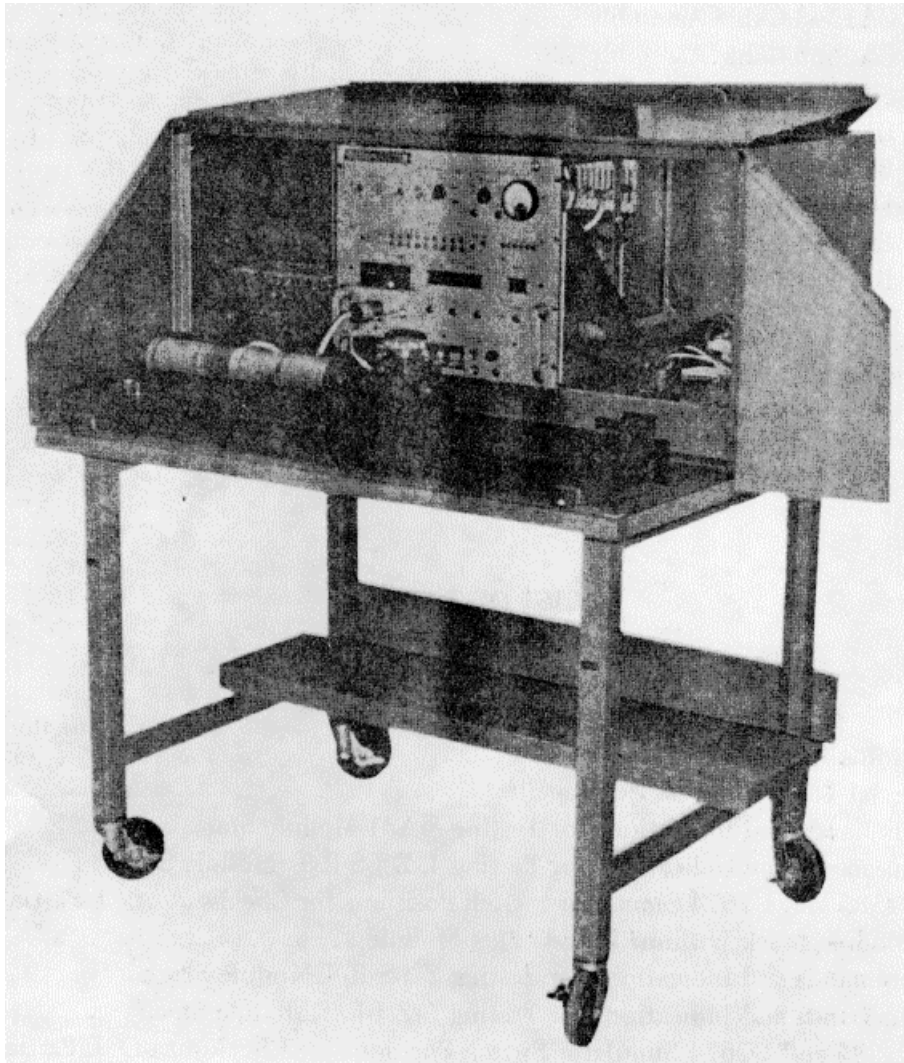


Figure 1-1. System/Stack Tester, Model PT1585.

SECTION I

INTRODUCTION

1-1. INTRODUCTION.

1-2. This manual is for the use of personnel responsible for operation, calibration, and maintenance of the PT1585 System Test Set. The PT1585 is a functional tester for module stacks used in MA31, MA33, MA37, MA124, MA125, MA,133, MA134, MA135, MA136, MA137, MA138, MA139, sensors and MA56, MA87, MA88 EXRAY's; or it may be used to test completely assembled sensors or EXRAY's. The manual is arranged as follows:

Section I	Introduction
Section II	Special tools and Test Equipment
Section III	Preparation for Use and Shipment
Section IV	Operation Instructions
Section V	Maintenance Instructions
Section VI	Diagrams
Section VII	Illustrated Parts Breakdown
Section VIII	Difference Data Sheets Glossary Alphabetical Index

1-3. GENERAL.

1-4. The PT1585 System Test Set is capable of providing voltages and signals necessary to permit voltage, current, and power tests, plus functional

checks of E,Z,L,J,S,R,T, and V modules may be performed and short code messages or status/count bits may be displayed. Audio signals may also be checked. Command Link (CL) module stacks are functionally checked by applying a series of commands from the PT1585 and checking response of the modules by use of indicators (lights or meter readings) on the PT1585 panel. Non-Command Link (NCL) module stacks are function-ally checked by supplying stimulation to the E module and checking the response of the modules by use of indicators on the PT1585 panel. Block diagrams in Figures 1-2 thru 1-9 show functional tests of the modules and sensors.

1-4A. The diagnostic indicators do not check functions of the engine detector module (TC662) and enable/disable module (TC659, TC660, or TC668) in the CAEDET family of sensors. To permit using these indicators to check other modules, the enable/disable module must be removed from the stack.

1-5. LEADING PARTICULARS.

1-6. The leading particulars of the PT1585 System Test Set are shown in Table 1-1.

Table 1-1. Leading Particulars

	Height	Width	Depth	Weight	
				Packed	Unpacked
Chassis & Panel	15 3/4 inches	19 inches	17 inches		
Fixture Assembly					
Power Requirements	105/125 VAC, 50400 Hz, 5 amperes				
Temperature Range: 60 F to 95 F					
Output Signal (Command) 316.5 MC					
Input Signal (Classified)					