

TM 9-4910-472-10

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S MANUAL

**TEST SET,
GENERATOR AND VOLTAGE REGULATOR,
AUTOMOTIVE:
6, 12, AND 24 VOLT SYSTEMS
(SUN ELECTRIC CORP., MODEL NO. VAT-25)
(4910-270.3780)**

This copy is a reprint which includes current
pages from Change 1.

HEADQUARTERS, DEPARTMENT OF THE ARMY

AUGUST 1966

TABLE OF CONTENTS

Section

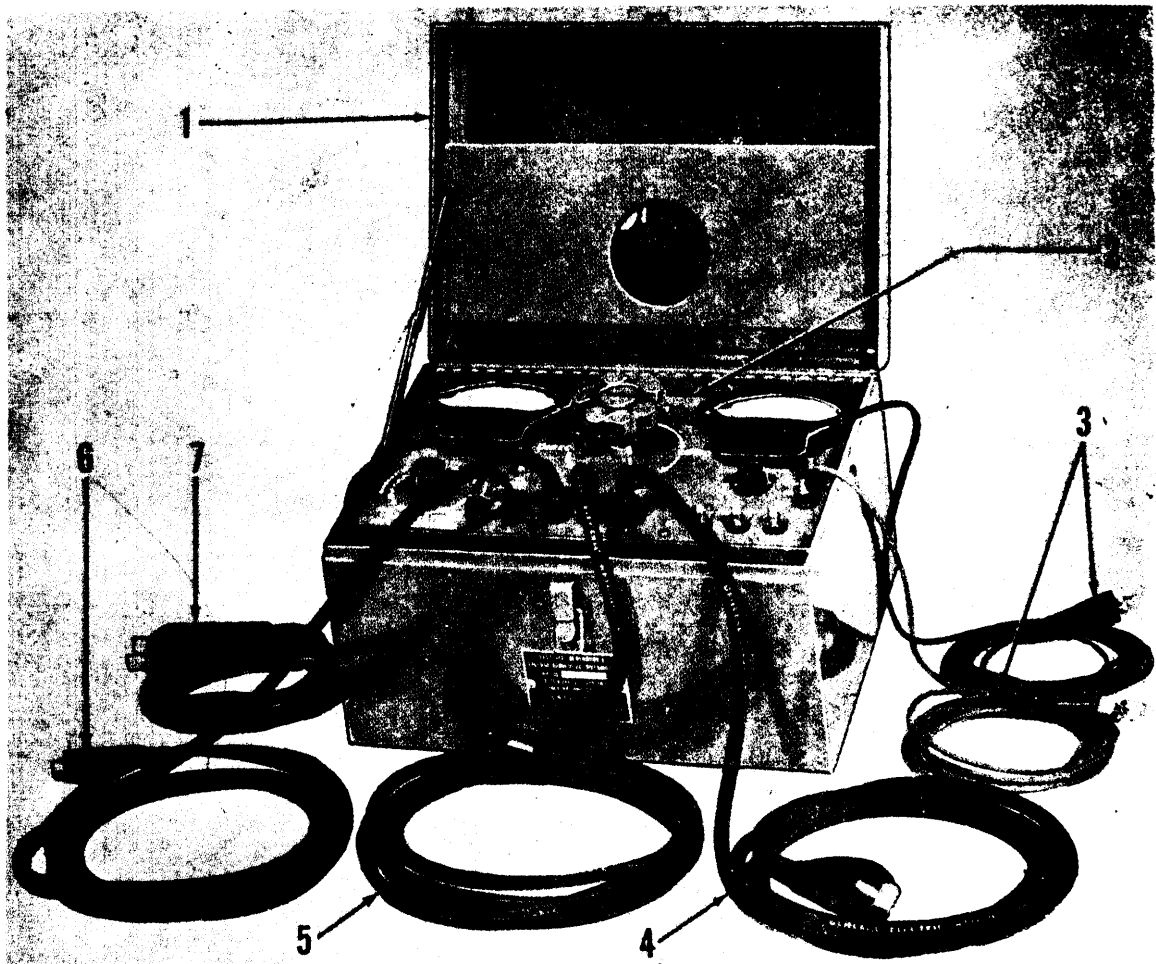
	Page
I INTRODUCTION AND DESCRIPTION	
1-1. Introduction	1
1-2. Description of Instruments and Operating Controls	1
1-3. Test Leads	3
1-4. Fixed Loads	3
1-5. Connecting Test Leads	3
II BATTERY CHARGING SYSTEM TESTS	
2-1. Needs For Tests	5
2-2. Generator Output Test	5
2-3. Cutout Relay Test	5
2-4. Insulated and Ground Circuit Resistance Tests.....	5
2-5. Regulator Ground Circuit Resistance Test.....	5
2-6. Voltage Regulating Relay Test	5
2-7. Current Regulating Relay Test.....	5
2-8. Auxiliary Tests	6
III BATTERY CHARGING SYSTEM TESTS	
3-1. General	7
3-2. Externally Grounded Generator Field (A Circuit).....	7
3-3. Internally Grounded Generator Field (B Circuit).....	7
3-4. Alternator Charging Systems	7
3-5. Testing Alternator Charging Systems With VAT-25	7
IV PREPARATION FOR TESTS	
4-1. Preliminary Control Settings.....	7
4-2. Preliminary Test—Engine Nonoperating	8
4-3. Preliminary Connections For Volts Test Leads	8
4-4. Preliminary Connections For Field Leads	8
4-5. Preliminary Connections For Bat., Reg., and GRD., Test Leads	8
4-6. Connections and Control Positions During Test Procedures	8
V TEST PROCEDURES	
5-1. Generator Output Test.....	9
5-2. Cutout Relay Test.....	9
5-3. Insulated Circuit Resistance Test.....	9
5-4. Ground Circuit Resistance Test.....	11
5-5. Voltage Regulator Ground Circuit Resistance Test.....	11
5-6. Voltage Regulating Relay Tests	12
5-7. Single and Double Contact Voltage Regulating Relays	12
5-8. Test Lead Connections For $\frac{1}{4} \Omega$ Test	13
5-9. Test Lead Connections For Open Circuit Test.....	13
5-10. Test Lead Connections For Fixed Resistance Test	14
5-11. Test Procedures For Single Contact Type Voltage Regulating Relay.....	14
5-12. Test Procedure For Double Contact Type Voltage Regulating Relay.....	15
5-13. Current Regulating Relay Test	15
5-14. Variable Resistance	15
5-15. Circuit Loading.....	15

TABLE OF CONTENTS

Section	Page
5-16. Voltage Measurements	15
5-17. Current Measurement	16
 VI TEST INDICATIONS	
6.1 Testing Indications.	17

LIST OF ILLUSTRATIONS

Figure No.	Title	Page
1	Automotive Generator and Voltage Regulatory Test Set, Sun Model VAT-25	iii
2	Sun Model VAT-25 Control Panel, Test Leads Removed	4
3	Externally Grounded Generator (A Circuit), Test Connections	10
4	Internally Grounded Generator (B Circuit), Test Connections	10
5	Insulated Circuit Resistance, Test Connections	10
6	Ground Circuit Resistance, Test Connections	11
7	Voltage Regulator Ground Circuit Resistance, Test Connections	12
8	Test Lead Connections for $\frac{1}{4}\Omega$ Test	13
9	Test Lead Connections for Open Circuit Test	13
10	Test Lead Connections for Fixed Resistance Test	14
11	Test Lead Connections for Current Regulating Relay Test	14



- | | |
|---|---------------------------------|
| 1. Test set case:7006-006 | 5. Regulator test lead:6002-&2° |
| 2. Control panel:7001-05 | 6. Battery test lead:6002-043 |
| 3. Voltmeter test leads:
6002-45 and 6002-46 | 7. Field test leads:6002-026 |
| 4. Ground test lead:6002-044 | |

Figure 1. Automotive Generator and Voltage Regulator Test Sets
Model VAT-25