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D E P A R T M E N T O F T H E A R M Y T E C H N I C A L M A N U A L

OPERATOR'S MANUAL
TEST SET GENERATOR AND VOLTAGE REGULATOR, AUTOMOTIVE 12- AND 24-VOLT SYSTEMS (SUN ELECTRIC MODEL LVR-3A) (4910-092-9136)

Headquarters, Department of the Army, Washington, D. C.
22 May 1969

SECTION			PAGE
I	**INTRODUCTION AND DESCRIPTION**		
	1-1	Introduction	
	1-2	Use	
	1-3	Description	1
	1-4	Meter Ranges	1
II	**INSPECTION AND PREPARATION FOR USE**		
	2-1	Inspection	1
	2-2	Preparation For Use	1
III	**OPERATING INSTRUCTIONS**		
	3-1	Precautions	1
	3-2	Amperes D. C.	3
	3-3	Volts D. C.	3
	3-4	Load Bank Switch	3
	3-5	Field Rheostat	3
	3-6	Fixed Resistance 0.25 ohm	3
	3-7	External Shunt 500 Amperes	3
IV	**STARTER AND CHARGING CIRCUIT TESTS**		
	4-2	Battery Cell Voltage	4
	4-3	Starter Circuit Voltage Loss (Insulated Circuit)	4
	4-4	Starter Circuit Voltage Loss (Ground Circuit)	4
	4-5	Starter Motor Amperage Draw	4
	4-6	Ignition Primary Circuit Voltage Loss	4
	4-7	D. C. Charging System Types	5
	4-8	Generator Polarity	5
	4-9	Finding "B" Terminal Of Voltage Regulator	5
	4-10	Finding Type Of Charging System	5
	4-11	Generator Inspection	5
	4-12	Generator Output Current	5
	4-13	Charging Circuit Voltage Loss (Insulated Circuit)	6
	4-14	Charging Circuit Voltage Loss (Ground Circuit)	6
	4-15	Voltage Regulator and Other Tests	6

This copy is reprint which includes current pages from Changes 1

		Page
V	MAINTENANCE	
	5-1 Cleaning	6
	5-2 Inspection	6
	5-3 Servicing	6
VI	PARTS LIST	9
INSTRUCTIONS FOR REQUISITIONING PARTS NOT IDENTIFIED BY FSN		12
RECOMMENDATIONS FOR PUBLICATION IMPROVEMENTS		12

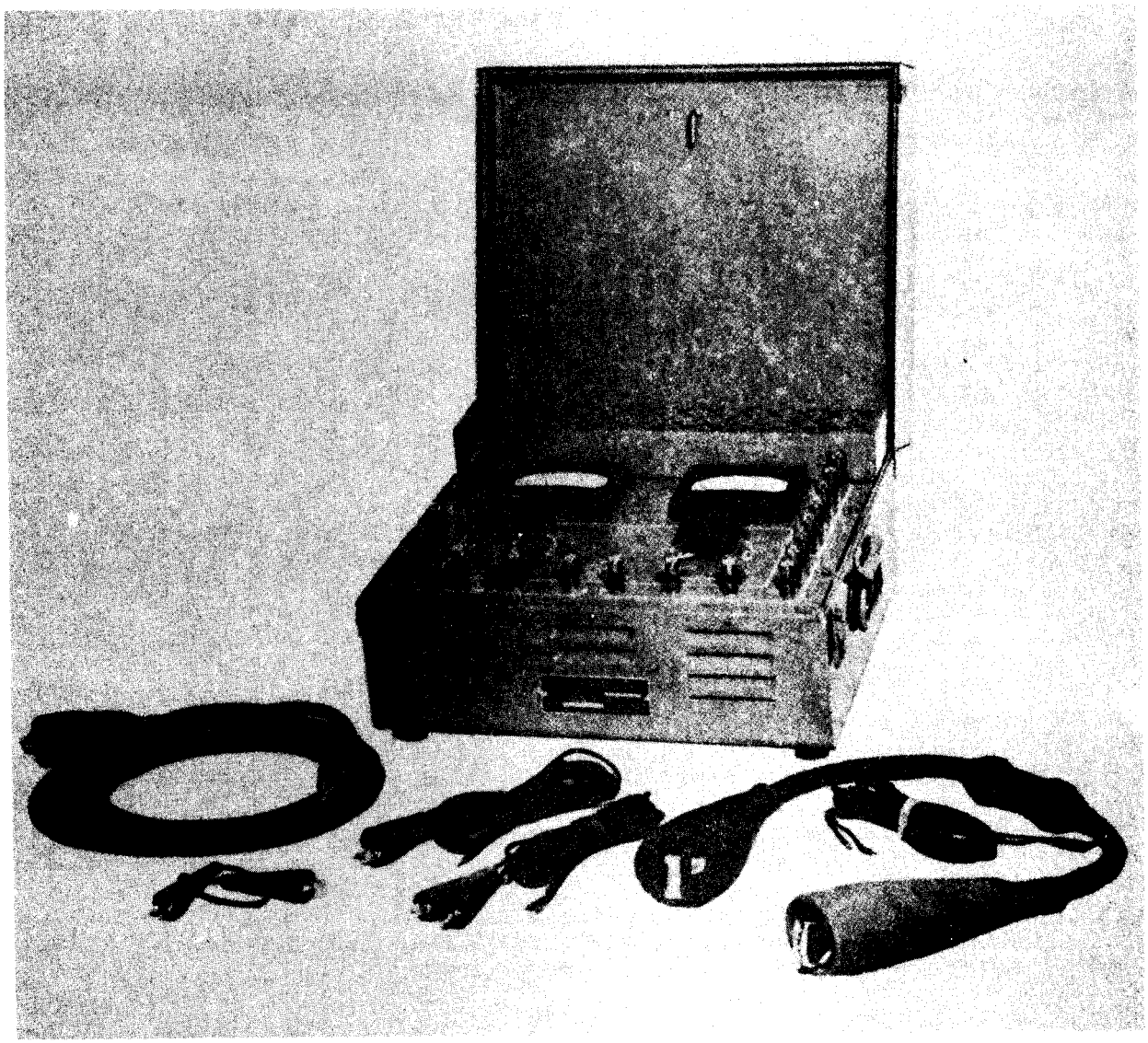

Figure 1. Automotive Low Voltage Circuit Test Set, Model LVR-3A

SECTION I

INTRODUCTION AND DESCRIPTION

1-1 INTRODUCTION. This handbook provides Operating and Maintenance Instructions and a Parts List for the Automotive Low Voltage Circuit Tester, Federal Stock Number 4910-092-9136, manufactured by the Sun Electric Corporation, Chicago, Illinois 60631 and designated as Sun Model LVR-3A.

1-2. USE. The Automotive Low Vo1tage Circuit Tester, referred to in this handbook as the tester is used for testing dc generators, starters, voltage regulators, and other components associated with the electrical systems of Automotive type gasoline engines. Test leads are provided for connecting the tester to engine electrical systems. Instruments and controls of the tester are internally connected to separate binding posts on the panel.

1-3. DESCRIPTION. The tester is a portable unit, consisting of a steel carrying case with removable cover, and containing instruments, controls, and test leads. Test leads are stored inside the cover; circuit diagram and parts list are printed on the bottom (inside) of the case. All the electrical instruments, controls, and binding posts are mounted on the instrument panel which is easily removable for cleaning or servicing. Case has louvers on front, back, and bottom and an expanded metal vent in back of panel to provide ventilation for cooling internal resistance elements. Louvers and vent must be unobstructed when tester is in use. (See figure 1.)

Four voltmeter ranges permit readings from 0.02 volt to 50 volts direct current, and four current ranges permit readings from 0.1 ampere to 500 amperes dc. A variable resistance load circuit is used to check generator output and to provide an electrical load of from 5 to 100 amperes on 6-, 12-, or 24-volt systems. The three lower reading current scales of the ammeter have shunts inside the tester. The high reading (500-ampere) scale requires the use of the external shunt. Generator output is manually controlled with a field rheostat when testing at fixed engine speeds. A fixed resistor of 0.25 ohm resistance is provided for voltage regulator testing. Test leads have color coded (red and black) tip plugs and test clips. The parts list for the tester appears in Section VI; Electrical schematic diagram appears on last page.

1-4. METER RANGES. Each meter has four ranges. Select proper binding posts for desired meter ranges.

TABLE I.

D.C. AMMETER & D.C. VOLTMETER RANGES

D. C. Ammeter	D.C. Voltmeter
- 3 to 0 to 10	0 to 1
- 15 to 0 to 50	0 to 10
- 30 to 0 to 100	0 to 20
-150 to 0 to 500	0 to 50

SECTION II

INSPECTION AND PREPARATION FOR USE

2-1. INSPECTION. Inspect tester for broken binding posts or meters, or any other damage that may have occurred during shipment. See that instruction books and cables are in cover of tester.

2-2. PREPARATION FOR USE. Tester is shipped ready for use. Adjust meter pointers to read zero before making connections. Locate tester where louvers will not be obstructed so that internal components will have adequate cooling air.

SECTION III

OPERATING INSTRUCTIONS

3-1. PRECAUTIONS.

a. Connect test lead tip plugs to panel binding posts before connecting test lead clips to circuit. Always disconnect test lead clips before changing panel connections, to prevent arcing at the binding posts.

b. Always turn LOAD BANK SWITCH knob to OFF position before attaching or removing LOAD BANK test lead clips.

c. The AMMETER "+ COM" binding post and the LOAD BANK "COM" binding post are connected together internally.