

TECHNICAL MANUAL

DIRECT SUPPORT AND GENERAL SUPPORT  
MAINTENANCE MANUAL

RADIOSONDE BASELINE CHECK SETS

**AN/GMM-1 AND AN/GMM-1A**

(NSN 6660-00-527-6392) WITH RADIOSONDE TEST SET TS-1348/GMM-1A  
(NSN 6625-00-924-0327)

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

---

HEADQUARTERS, DEPARTMENT OF THE ARMY  
DECEMBER 1971

TECHNICAL MANUAL.     )  
  )  
No. 11-6660-219-34     )

**\*TM 11-6660-219-34**  
HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, DC, 20 December 1971

**DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL  
RADIOSONDE BASELINE CHECK SETS AN/GMM-1 AND AN/GMM-1A  
(NSN 6660-00-527-8392)  
WITH RADIOSONDE TEST SET TS-1348/GMM-1A  
(NSN 6625-00-924-0327)**

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, NJ 07703-5007.

In either case, a reply will be furnished direct to you.

\* This manual together with TM 11-6660-219-12, 20 July 1961, supercedes TM 11-2440, 31 December 1952, including all changes.

		Paragraph	Page
CHAPTER	1. INTRODUCTION .....	1-1	1-1
	2. FUNCTIONING OF EQUIPMENT .....		
SECTION	I. Test set TS-1348/GMM-1A .....	2-1	2-1
	II. Baseline check set .....	2-8	2-9
CHAPTER	3. DIRECT SUPPORT .....		
SECTION	I. General troubleshooting information .....	3-1	3-1
	II. Functioning troubleshooting .....	3-4	3-2
	III. Adjustments, alignment, repair, removal and replacement .....	3-14	3-17
CHAPTER	4. GENERAL SUPPORT .....	4-1	4-1
APPENDIX	A. REFERENCES .....		A-1

## ILLUSTRATIONS

<i>Figure No.</i>	<i>Title</i>	<i>Page</i>
2-1	Radiosonde Baseline Check Set AN/GMM-1(*) .....	2-2
2-2	TS-1348/GMM-1A, block diagram .....	2-3
2-3	TS-1348/GMM-1A, front view .....	2-4
2-4	Check set AN/ GMM-1(*), block diagram .....	2-9
2-5	Ac power circuit, simplified schematic diagram .....	2-10
2-6	Relay control circuit with selector switch S1 in AUTOMATIC position, simplified schematic diagram, Radiosonde Baseline Check Set AN/GMM-1 .....	2-11
2-6.1	Relay Control Circuit with selector switch S1 in AUTOMATIC position, simplified schematic diagram, Radiosonde Baseline Check Set AN/GMM-1A .....	2-12
2-7	Relay control circuit with selector switch S1 in HUMIDITY position, simplified schematic diagram .....	2-12
2-8	Relay control circuit with selector switch S1 in REFERENCE position, simplified schematic diagram .....	2-13
2-9	Check Set AN/GMM-1, schematic diagram .....	2-14
2-9.1	Check Set AN/GMM-1A, schematic diagram .....	2-15
2-10	Illumination and test light circuit, simplified schematic diagram .....	2-16
2-11	Fan and heater circuit, simplified schematic diagram .....	2-16
3-1	Control unit, front panel .....	3-4
3-2	Calibration chamber, interior view .....	3-5
3-3	Cabinet assembly, cover removed (Order No. 32148 Phil-51) .....	3-7
3-4	Cabinet assembly, cover removed (Order No. 3139 Phil-51) .....	3-8
3-5	Control unit, cover removed, top view (Order No. 32148 Phil-51) .....	3-9
3-6	Control unit, cover removed, top view (Order No. 3139 Phil-51) .....	3-10
3-7	AN/ GMM-1A control unit, bottom view .....	3-11
3-8	Control unit, bottom view (Order No. 3139 Phil-51) .....	3-12
3-9	Control unit, bottom view (Order No. 32148 Phil-51) .....	3-13
3-10	Control unit, with binding post assembly, bottom view .....	3-13
3-11	Fan assembly, exploded view .....	3-20
3-12	TS-1348/GMM-1A, schematic diagram .....	Fold-in
3-13	TS-1348/GMM-1A, wiring diagram .....	Fold-in
4-1	Check set AN/ GMM-1A test setup .....	4-2
4-2	Resistor-inductor-capacitor color code chart .....	Fold-in

# CHAPTER 1 INTRODUCTION

---

## 1-1. Scope

a. This manual covers direct and general support maintenance for Radiosonde Baseline Check Set AN/GMM-1 and AN/GMM-1A. It includes instructions appropriate to direct and general support for troubleshooting, testing, alignment, and repair of the equipment, replacement of maintenance parts, and repair of specific maintenance parts. It also includes tools, materials and test equipment for direct and general support maintenance. Detailed functions of the equipment are covered in chapter 2.

b. The appendix contains a list of current references, including supply catalogs, test manuals, and other available publications applicable to this equipment.

c. official nomenclature followed by (\*) is used to indicate models of similarly nomenclature equipment covered in this manual. Thus, Radiosonde Baseline Check Set AN/GMM-(\*) represents Radiosonde Baseline Check Sets AN/GM M-1 and AN/GMM-1A. Radiosonde Set AN/AMT-4(\*) represents Radiosonde Sets AN/AMT-4A, AN/AMT-4B, AN/AMT-4C, and AN/AMT-4D. Radiosonde Set AN/AMT-12(\*) represents Radiosonde Sets AN/AMT-12 and AN/AMT-12A.

## 1-2. Consolidated Index of Army Publications and Blank Forms

Refer to the latest issue of DA Pam 310-1 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

## 1-3. Maintenance Forms, Records, and Reports

a. *Reports of Maintenance and Unsatisfactory Equipment.* Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750 as contained in Maintenance Management Update.

b. *Report of Packaging and Handling Deficiencies.* Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55 /NAVMATINST 4355.73A/AFR 400-

54/MCO 4430.3F.

c. *Discrepancy in Shipment Record (DISREP) (SF 361).* Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 4500.15.

## 1-4. Reporting Equipment Improvement Recommendations (EIR)

If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you do not like about your equipment. Let us know why you do not like the design. Put it on an SF 368 (Quality Deficiency Report), Mail it to the Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703-5007. We will send you a reply.

## 1-5. Internal Differences in Models

Internal differences in models are listed in the chart below. For external differences and other internal differences, refer to TM 11-6660-219-12.

Model	Differences
AN/GMM-1, Order Control unit (fig. 3-6): No. 3139-P-51	There are 3 micro switches, S3, S4, and S5 (fig. 3-9), cam operated, used to operate relays K1 and K2. Cabinet assembly (fig. 3-4): Terminal board E1 (fig. 3-4) and capacitor C1 are placed lengthwise on chassis.
AN/GMM-1, Order Control unit (fig. 3-9): No. 32148-P-51.	There are 3 microswitches, S3, S4, and S5 (fig. 3-9), cam operated, used to operate relays K1 and K2. Cabinet assembly (fig. 3-3): Terminal board E1 (fig. 3-4) and capacitor C1 are placed crosswise on chassis.
AN/GMM-1A	Control unit (fig. 2-1): There are 2 microswitches, S3 and S4 (fig. 3-8), cam operated, used to operate relays K1 and K2. Cabinet assembly (fig. 3-4): Terminal board E1 (fig. 3-4) and capacitor C1 are placed crosswise on chassis.

## CHAPTER 2

### FUNCTIONING OF EQUIPMENT

---

#### Section I. TEST SET TS-1348/GMM-1A

##### 2-1. Introduction

Radiosonde Baseline Check Set AN/GMM-1(\*) (fig. 2-1), is a dual purpose test set, as modified by MWO 11-6660-219-35/2. The radiosonde set has capabilities for preflight testing with battery packs or other radiosonde sets, using Radiosonde Test Set TS-1348/GMM-1A; it has a transportable, temperature- and humidity-controlled chamber for testing the temperature and humidity circuits and establishing basic values for slide rule evaluation of atmospheric data. These checks are made in conjunction with Rawin Set AN/GMD-1 and Radiosonde Recorder AN/TMQ-5. The rawin set receives the signals transmitted by the radiosonde unit and relays the signals to the radiosonde recorder, which, in turn, records temperature, humidity, and reference on a graph.

##### 2-2. Block Diagram Analysis

For the purpose of block diagram coverage, Radiosonde Baseline Check Set AN/GMM-1A is divided into two major functional areas.

*a. Preflight Testing.* Preflight tests can be made of the following components: Battery Pack BA-259/U with a dummy load to measure the output voltage, Radiosonde Sets AN/AMT-4(\*) and AN/AMT-12(\*) when powered by a battery pack, or a 24-volt vehicular battery using Radiosonde Test Set TS-1348/GMM-1A (para 2-3 and 2-7).

*b. Baseline Check Set.* Testing of assembled radiosonde sets can be made using the transportable chamber for measurement of temperature and humidity circuits under controlled conditions in conjunction with the rawin system (para 2-8 and 2-12).

##### 2-3. Radiosonde Test Set TS-1348/GMM-1, Test Circuits

The block diagram functional description of the test set (fig. 2-2) is divided into four major test areas. The control and indicator settings for the

test set (fig. 2-3) and the individual operational functions are described in detail in TM 11-6660-219-12.

*a. Ammeter Circuit.* A selective load current switch, in conjunction with a current load ammeter, indicates the value of the filament or total plate current in the power circuit under test. Current readings can be made when either a battery pack or a vehicular battery is used as a source of power, using either a rated dummy or a radiosonde load. An internal shunting circuit enables the ammeter to measure two current ranges, 0-50 and 0-250 milliamperes.

*b. A1 Circuit.* Selector load selector switch S2, in conjunction with a voltmeter connected across the input, measures the A1 filament voltage output (1.1 to 1.7 volts) from either a battery pack or a vehicular battery when the circuit is loaded by a radiosonde set or a rated dummy load.

*c. A Circuit.* The LOAD SELECTOR switch (S2) connects the A-VOLTS meter directly across the input for a measurement of filament voltage (5.5 to 7.9 volts) supplied from the battery pack when the circuit is loaded by a radiosonde set or a rated dummy load. When a vehicular battery is used as a power source, the A-VOLTS meter is connected across an equivalent load, in series with, and equal to the load.

*d. B Circuit.* The LOAD SELECTOR switch connects the B-VOLTS meter directly across the input for a measurement of plate voltage (100 to 115 volts) direct current (dc) from the battery pack power source, when the B circuit is loaded with a rated dummy load or a radiosonde set. When a vehicular battery is used as a source of power, the B-VOLTS meter is connected across the output of the converter for measurement of plate voltage.

##### 2-4. Ammeter Circuits

Depending on the position of LOAD CURRENT SELECTOR switch S1, LOAD CURRENT meter

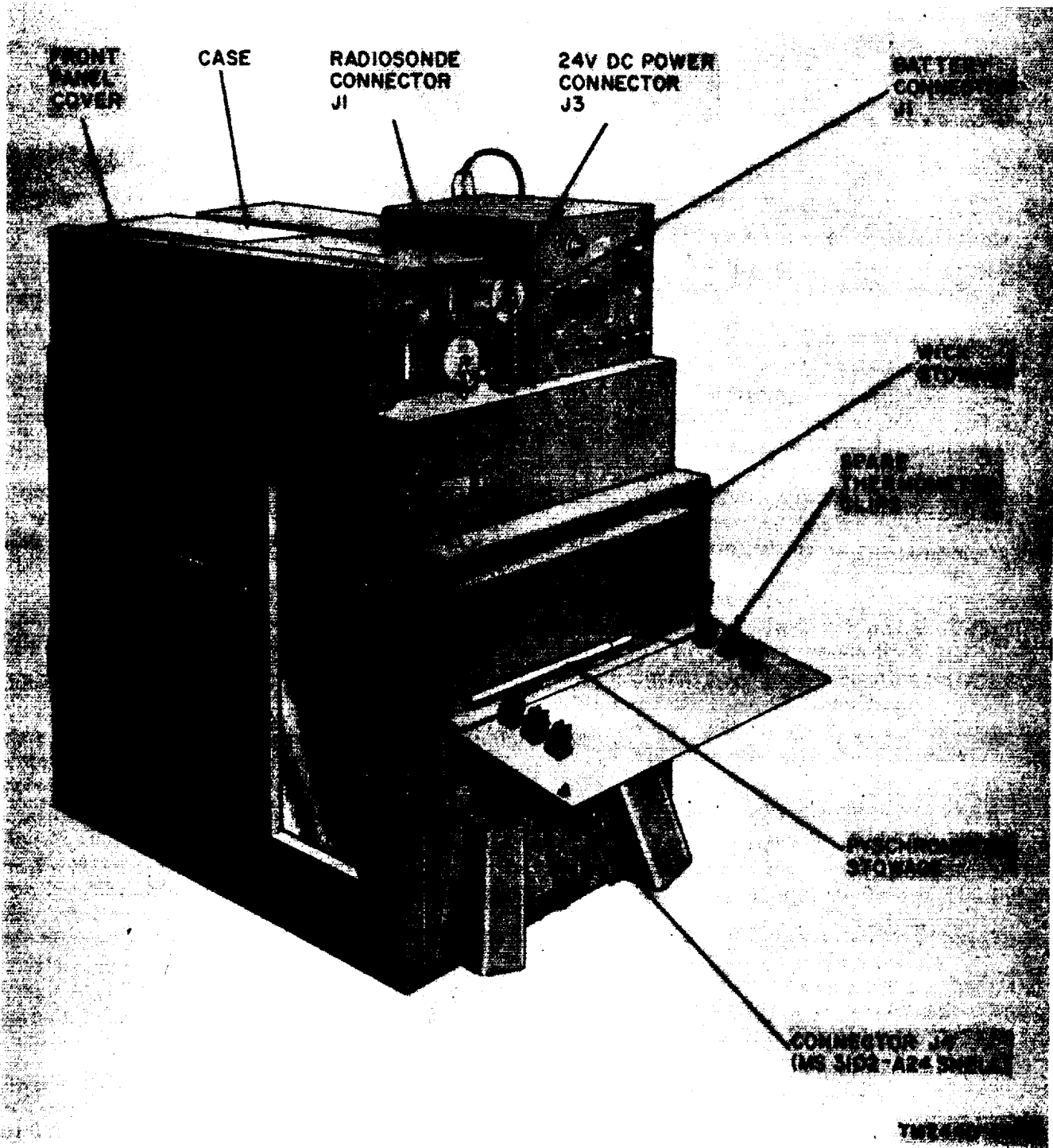
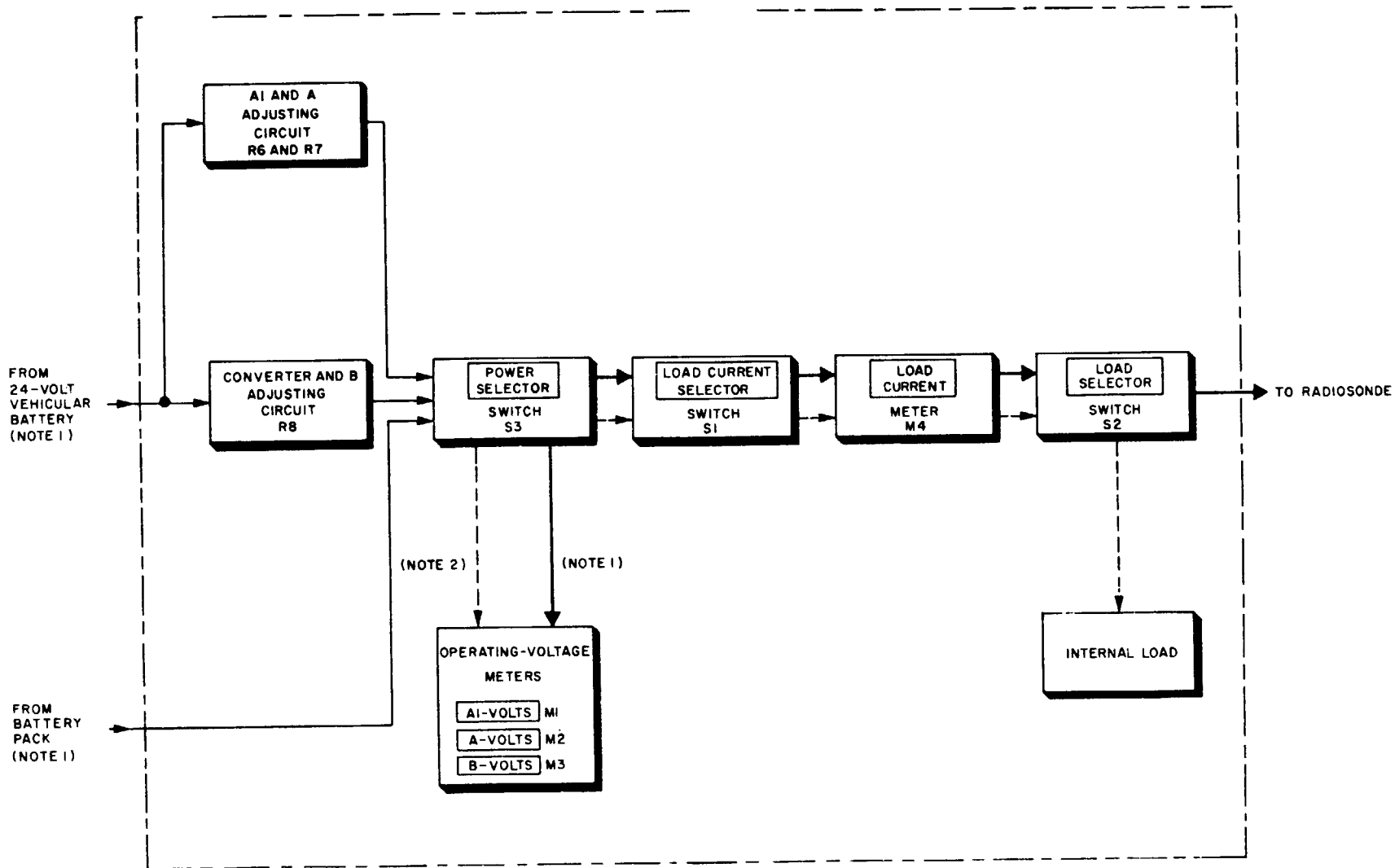


Figure 2-1. Radiosonde Baseline Check Set  
AN/GMM-1(\*).

M4 indicates the value of current in the circuit under test. The current indications are obtained with either a battery pack (*a* below) or a vehicular battery as the source of power (*b* below)

and with either type of load (DUMMY or RADIOSONDE). An internal shunting circuit enable the ammeter to measure two current ranges (0-50 and 0-250 milliamperes).



NOTES:

1. INPUT MAY BE FROM EITHER A BATTERY PACK OR A VEHICULAR BATTERY.
2. --- INDICATES CIRCUIT SET UP FOR TESTING BATTERY PACK
3. ——— INDICATES CIRCUIT SET UP FOR TESTING RADIOSONDE

Figure 2-5. TS-1848/GMM-1A, block diagram.

TM2440-C6-8