TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

RADAR SET AN/SPS-64(V) 5
(NSN 5840-01-034-3946)
TRUE MOTION/ANTI-COLLISION

HEADQUARTERS, DEPARTMENT OF THE ARMY

30 NOVEMBER 1981

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No. 11-5840-360-14-2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *30 November 1981*

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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, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual, direct to: Commander, US Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, NJ 07703.

In either case a reply will be furnished to you.

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A complete set of Technical Manuals for the AN/SPS-64(V) 5 consists of 3 volumes: TM-11-5840-360-14-1-1, Relative Motion, Chapters 0-5; TM 11-5840-360-14-1-2, Relative Motion, Chapter 6; and TM-11-5840-360-14-2, True Motion/Anti-Collision.

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SECTION 0

INTRODUCTION

0.1 SCOPE OF MANUAL

0.1.1 This manual contains instructions for the installation, operation, maintenance, and repair of the True Motion/Anti-Collision (TM/AC) option, portion of the radar set. This option, when added to the basic relative motion radar set, constitutes Radar Set AN/SPS-64(V) 5.

0.1.2 This manual must be used with TM 11-5840-360-14-1-1 and TM 11-5840-360-14-1-2 to provide complete coverage for Radar Set AN/SPS-64(V) 5.

0.1.3 When operating the AN,/SPS-64(V) 5, use this manual for normal operation in both the relative and true motion modes.

0.1.4 *Emergency Operation.* in case of failure in the TM/AC unit, it is possible to bypass the TM/AC and use the set as a relative motion radar (para 3.4).

0.2 INDEXES OF PUBLICATIONS

Refer to the latest issue of DA PAM 310-4 to determine whether there are new editions, changes, additional publications or modification work orders pertaining to the equipment.

0.3 MAINTENANCE FORMS, RECORDS, AND REPORTS

0.3.1 *Reports of Maintenance and Unsatisfactory Equipment.* Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System.

0.3.2 *Report of Packaging and Handling Deficiencies.* Fill out and forward DD Form 6 (Packaging Improvement Report) as prescribed in AR 700-58/NAVSUPINST 4030.29/AFR 71-13/MCO P4030.29A, and DLAR 4145.8.

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

0.4 ADMINISTRATIVE STORAGE

Refer to TM 11-5840-360-14-1-1 as the Headset is an integral component of Radar Set AN/SPS-64(V) 5.

0.5 DESTRUCTION OF ARMY ELECTRONICS MATERIEL

Refer to TM 11-5840-360-14-1-1 as the Headset is an integral component of Radar Set AN/SPS-64(V) 5.

0.6 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR's)

If your AN/SPS-64(V) 5 needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, NJ 07703. We'll send you a reply.

SECTION 1

GENERAL INFORMATION

1.1 INTRODUCTION

1.1.1 Purpose of Manual

This manual presents instructions for the installation, operation and maintenance of the Raytheon TM/EP Unit.

1.1.2 Features of the TM/EP Unit

The TM/EP can be added to any of the Raytheon Mariner's Pathfinder Radar series that use either a 12-inch or a 16-inch PPI screen. The Raytheon TM/EP provides tile radar in which it is installed with the capability of presenting to the observer a true picture of the surrounding area. Stationary objects (land, buoys, etc.) remain stationary on the screen while "own ship" (the vessel itself) moves across the screen on its true course and at its true speed. It also provides the capability to plot and track up to eight separate targets.

The true motion display feature, by itself, would provide a distinct advantage over relative motion presentations in that the direction of the "echo tails" (caused by the afterglow of the successive paints of an echo) of targets is not affected by own ship's motion.

The Raytheon TM/EP enhances this capability by providing the display of the target's position at the time of plot (true mark), elapsed time since the plot, and an electronic bearing line (EBL) which originates at the point of the original plot (EBL true). This capability permits very rapid calculation of the true course and speed of the target as well as own ship's true course and speed. The TM/EP also calculates and displays the position of the original plot displaced by own ship's movement (REL mark) and an EBL which originates from this point (EBL relative).

This last feature, when combined with the elapsed time display, permits rapid calculation of the closest point of approach (CPA) and the time to the closest point of approach (TCPA). Up to eight targets can be plotted and simultaneously tracked.

A trial maneuver feature permits visual display and rapid calculation of CPAs and TCPAs that would result from any change in own ship's course and/or speed without actually performing the maneuver.

1.2 PHYSICAL DESCRIPTION

The TM/EP unit is shown installed on an indicator in Figure 1-1 and the individual TM/EP components are shown in Figure 1-2. The TM/EP consists of six assemblies: the TM/EP headset, the digital card cage, the low voltage power supply, the joystick assembly, the Sin/Cos (heading) potentiometer assembly and the EBL assembly. The TM/EP is connected to the indicator

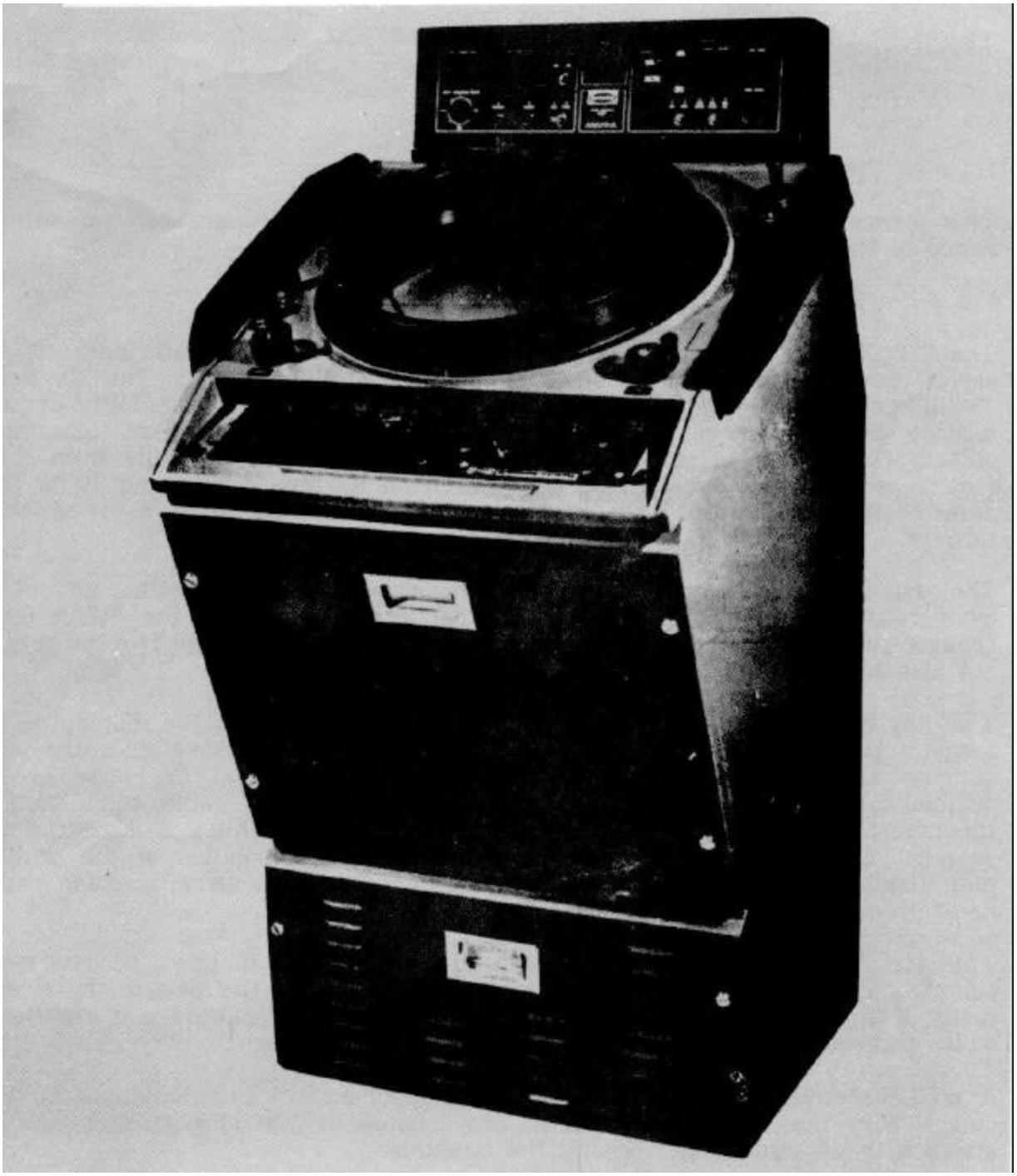

Figure 1-1. Radar Indicator with TM/EP Installed

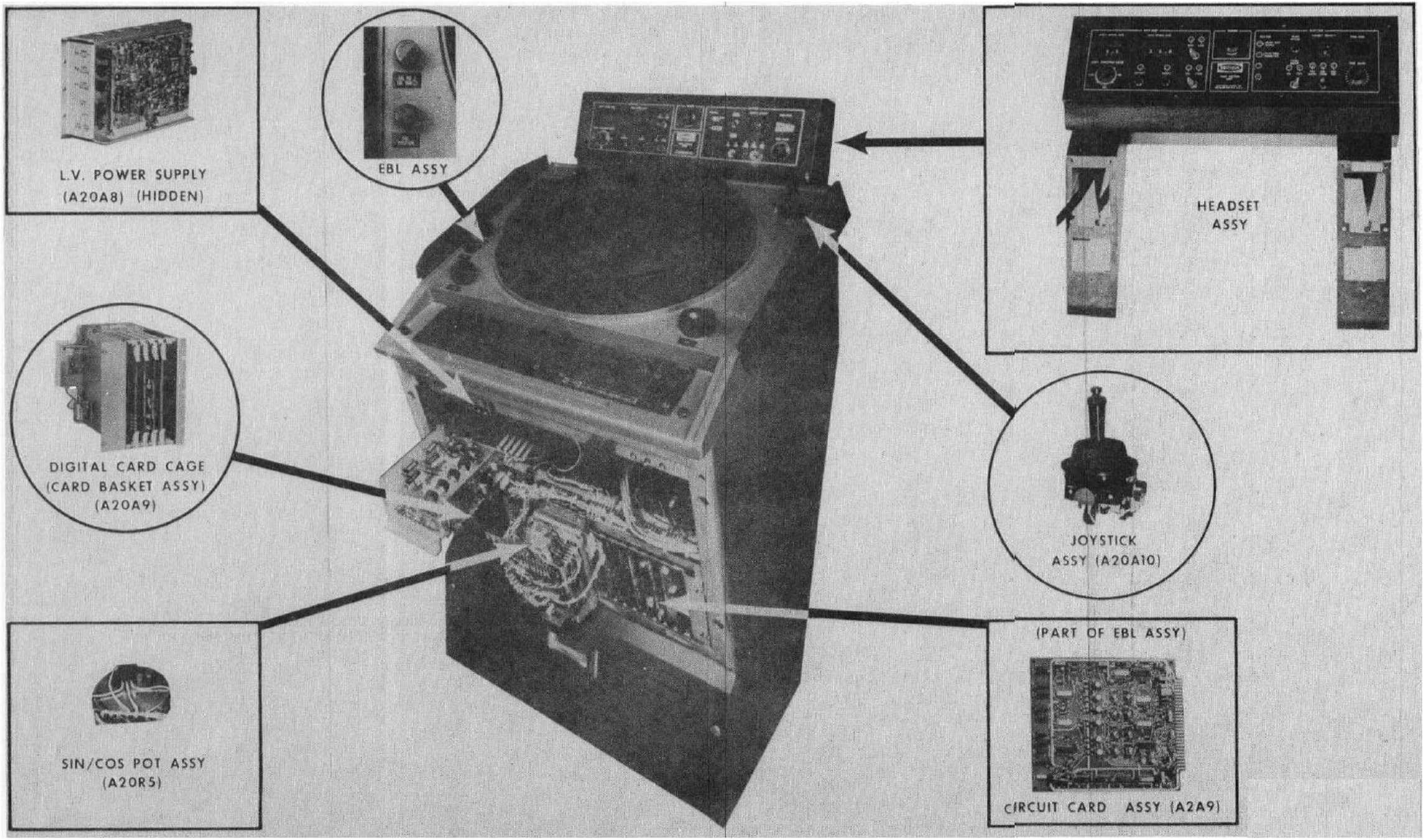

Figure 1-2. TM/EP Assemblies