TM 11-6605-202-12
TO 5N3-3-10-1

OPERATOR'S AND

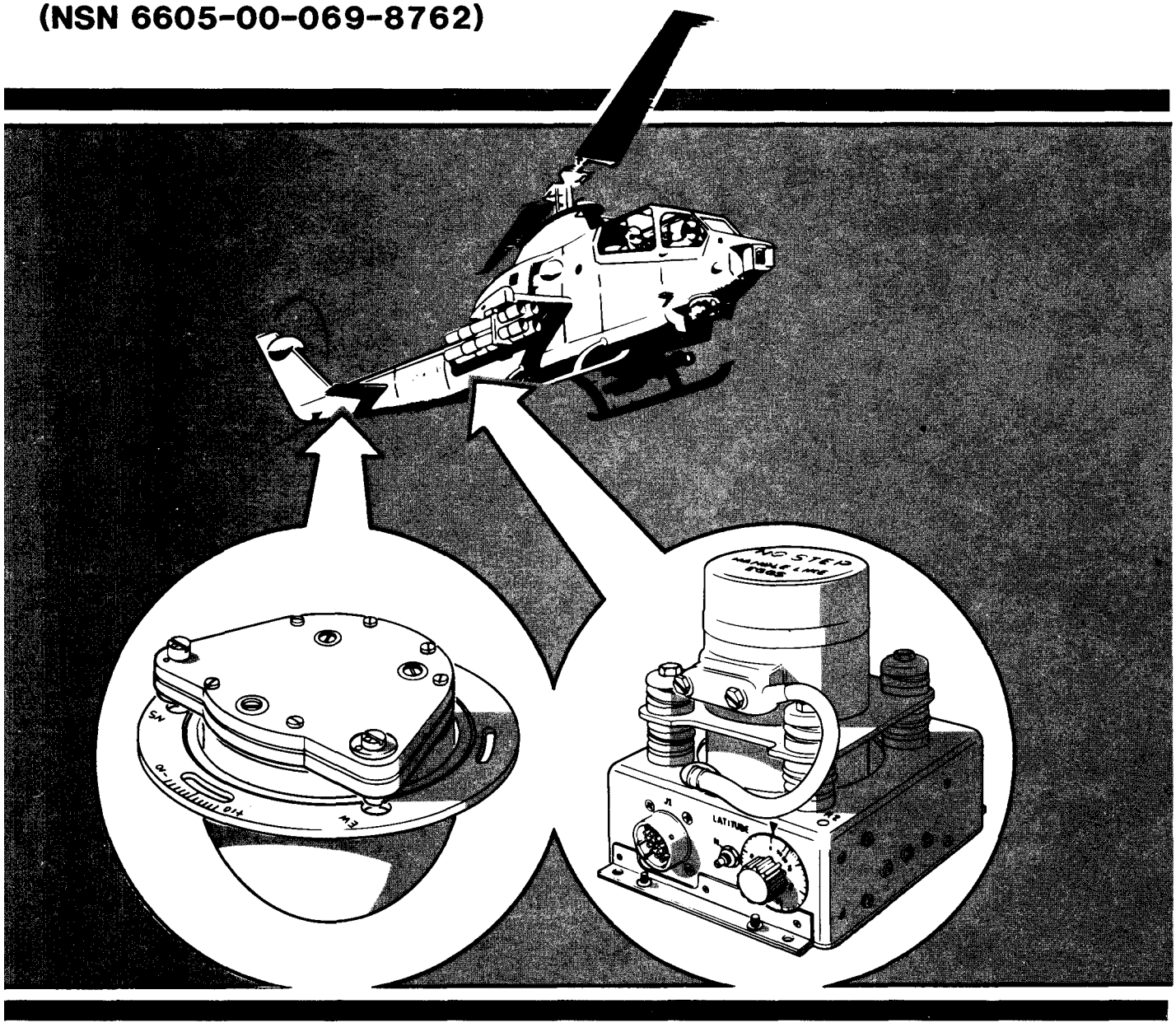
ORGANIZATIONAL MAINTENANCE MANUAL

AVIATION UNIT MAINTENANCE (AVUM)

GYROMAGNETIC COMPASS SETS

AN/ ASN-43 and AN/ ASN=43A

(NSN 6605-00-069-8762)



HEADQUARTERS, DEPARTMENT OF THE ARMY, WASHINGTON, D.C.

5 MAY 1983

5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1 DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL

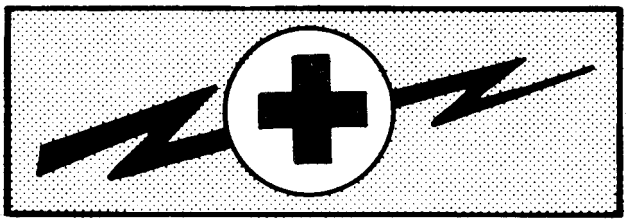
2 IF POSSIBLE, TURN OFF THE ELECTRICAL POWER

3 IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A WOODEN POLE OR A ROPE OR SOME OTHER INSULATING MATERIAL

4 SEND FOR HELP AS SOON AS POSSIBLE

5 AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

WARNING



MI 131637

WARNING

HIGH VOLTAGE

is used in the operation of this equipment

DEATH ON CONTACT

may result if personnel fail to observe safety precautions

Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Whenever possible, the power supply to the equipment must be shut off before beginning work on the equipment. Take particular care to ground every capacitor likely to hold a dangerous potential. When working inside the equipment, after the power has been turned off, always ground every part before touching it.

Be careful not to contact high-voltage connections of 115 volt ac input connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

WARNING

When using trichlorotrifluoroethane, use adequate ventilation. Avoid prolonged or repeated breathing of vapor. Avoid prolonged or repeated skin contact. Use rubber gloves and apron. Do not use near sparks or open flames. Do not take internally. In case of eye contact, consult a physician immediately.

WARNING

Do not be misled by the term "low voltage". Potentials as low as 50 volts may cause death under adverse conditions.

For Artificial Respiration, refer to FM 21-11.

TECHNICAL MANUAL

TM 11-6605-202-12

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 5 May 1983

OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL AVIATION UNIT MAINTENANCE (AVUM) GYROMAGNETIC COMPASS SETS AN/ ASN-43 AND AN/ ASN-43A (NSN 6605-00-069-8762)

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 the back of this manual direct to: Commander, US Army Communications-Electronics Command at Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703. A reply will be furnished direct to you.

***This manual supersedes TM 11-6605-202-12, 29 September 1965, including all changes.**

HOW TO USE THIS MANUAL

This manual tells about operating and maintaining the AN/ASN-43 Gyromagnetic Compass Set at the Aviation Unit Maintenance level.

This manual is divided into chapters, sections, and paragraphs. The chapters are numbered sequentially throughout the manual. Most chapters are divided into sections. The sections are, in turn, divided into paragraphs which are also numbered sequentially within the chapter. Large sections begin with a "Section Contents" which lists the procedures by title and page number. In addition to this numbering system, you will find a system of captions highlighted in orange print to help you quickly find the Information you need. These captions name the pieces of equipment and/or operational maintenance procedures that you will be doing. Some of the procedures, such as operational checks, may consist of several smaller procedures; for example, power on, switching, and synchronization. The captions for the smaller procedures will appear under the captions for the larger ones; both appear on every page as they are continued.

CHAPTER 1

INTRODUCTION

SECTION I

GENERAL

SCOPE

1-1. This manual covers the operation and maintenance of the Gyromagnetic Compass Set AN/ASN-43. It is to be used by Aviation Unit Maintenance (AVUM) personnel responsible for maintaining the AN/ASN-43.

MAINTENANCE FORMS AND RECORDS

1-2. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System (TAMMS). Refer to Appendix A for specific forms needed.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS
(EIRs)

1-3. 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 don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, US Army Communications-Electronics Command, ATTN: DRSEL-ME-MP, Fort Monmouth, NJ 07703. A reply will be sent to you.

QUALITY DEFICIENCY REPORT
(Category II)

SECTION I

1a. From (Originating point)	2a. To (Screening point)
HQ 105 SPT BN Fort Knox, KY 40121 UIC WHAEAA	Commander US Army Tank-Automotive Materiel Readiness Command, Warren, MI 48090
1b. Typed Name, Duty Phone and Signature J. CLARK A/V 464-1234	2b. Typed Name, Duty Phone and Signature

3. Report Control No.	4. Date Deficiency Discovered	5. National Stock No. (NSN)	6. Nomenclature
JC7209	27 Jul 77	2920-00-335-4678	Regulator

7. Manufacturer/Mfg. Code/Shipper	8. Mfg. Part No.	9. Serial/Lot/Batch No.	10. Contract/PO/Document No.
XYZ Corporation	CXZ-497	639 4786	DAAD-05-C-69-XXXX

11. Item	12. Date Manufactured/ Repaired/Overhauled	13. Operating Time at Failure	14. Government Furnished Material
☐ New ☐ Repaired/ Overhauled	UNK	170 Hrs	☐ Yes ☒ No

15. Quantity	a. Received	b. Inspected	c. Deficient	d. In Stock
	271	225	46	UNK

16. Deficient Item Works On/With	a. End Item (Aircraft, tank, ship, howitzer, etc.)	(1) Type/Model/Series	(2) Serial No.
		M-151 TRUCK	2000 9939

	b. Next Higher Assembly	(1) National Stock No. (NSN)	(2) Nomenclature	(3) Part No.	(4) Serial No./Lot No.
		2350-00-542-4783	TRUCK M-151	N/A	2000-9939

17. Dollar Value	18. Est. Correction Cost	19. Item Under Warranty	20. Work Unit Code/EIC (Navy and Air Force only)
		☐ Yes ☐ No ☒ Unknown	

21. Action Disposition
☒ Holding Exhibit for 25 days ☐ Released for Investigation ☐ Returned to Stock/ Disposed of ☐ Rerouted ☐ Other (Explain in Item 22)

22. Details (Describe, to best ability, what is wrong, how and why, circumstances prior to difficulty, description of difficulty, cause, action taken including disposition, recommendations. Identify with related item number. Include and list supporting documents. Continue on separate sheet if necessary.)

Utilization Code: ON. Failure detected during normal operation of the vehicle. First indication of trouble was the inoperability of the regulator, TM 9-2320-218-34P, June 1971, PP 15-3. Circumstances, prior to difficulty-normal use of vehicle in cross country travel. Description of difficulty - the voltage regulator has failed in 46 of 271 vehicles on hand. All failures have occurred with less than 8000 miles recorded on the vehicle odometers. Only 139 of 271 vehicles have operated for 5000 or more miles. Cause - Unknown. Action taken - Photographs of the defective regulators have been taken and are attached. Recommendation - None.

SECTION II

23a. To (Action Point)	24a. To (Support Point) (Use Items 25 and 26 if more than one)
23b. Typed Name, Duty Phone and Signature	24b. Typed Name, Duty Phone and Signature
25a. To (Support Point)	26a. To (Support Point)
25b. Typed Name, Duty Phone and Signature	26b. Typed Name, Duty Phone and Signature

368-101 STANDARD FORM 368, April 1974
General Services Administration (FPMR 101-26-7)

NOMENCLATURE CROSS REFERENCE LIST

1-4. A cross reference of the official and common names of the equipment used in the Gyromagnetic Compass Set AN/ASN-43 is shown below. The common names will be used throughout this manual.

Official Names	Common Names
Gyromagnetic Compass Sets AN/ASN-43 and AN/ASN-43A	Compass Set
Directional Gyro CN-998/ASN-43, Directional Gyro CN-998A/ASN-43, Directional Gyro CN-998B/ASN-43	Gyro (all)
Directional Gyro CN-998/ASN-43	Gyro 1
Directional Gyro CN-998A/ASN-43	Gyro 2
Directional Gyro CN-998B/ASN-43	Gyro 3
Magnetic Flux Compensator CN-405/ASN	Flux Compensator
Induction Compass Transmitter T-611/ASN	Fluxgate
Amplifier, Electronic Control AM-32091ASN	ECA
Controller, Compass C-6347 ( )/ASN-43	Compass Controller
Indicator, Radio-Magnetic Compass ID-998/ASN	Course Indicator 1
Indicator, Heading-Radio Bearing ID-1351 ( )/A	Course Indicator 2
Indicator, Course lD-250/ARN	Course Indicator 3
Switch MS35058-24	MAG-DG Switch

1-5. Refer to MIL-STD-12 for all abbreviations used in this manual.

SECTION II

EQUIPMENT DESCRIPTION

SECTION CONTENTS	PAGE

EQUIPMENT PURPOSE, CAPABILITIES, AND FEATURES

1-6. The compass set is used in fixed- and rotary-wing aircraft to provide an accurate heading in one of two modes of operation. These two modes are MAG mode (magnetic) and DG mode (free gyro). In the MAG mode, the system is referenced to the Magnetic North Pole; in the DG mode, the system is referenced to the True North Pole.

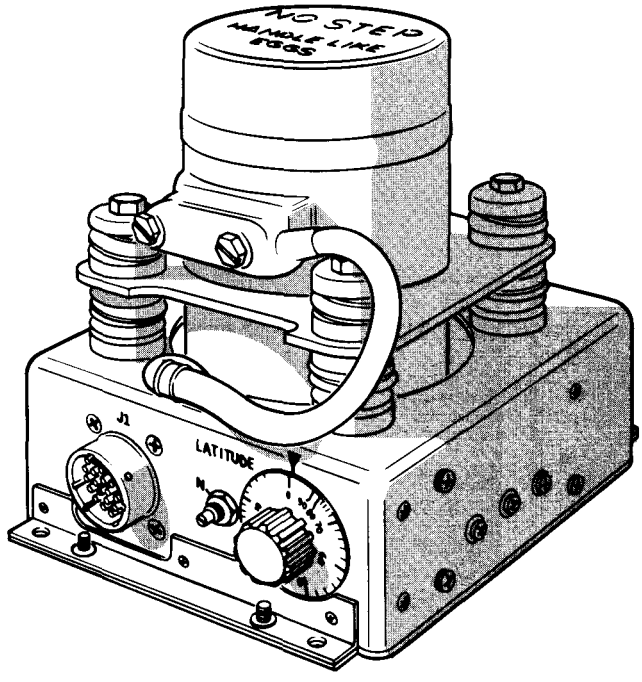
The compass set consists of a gyro, fluxgate, and a flux compensator.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

1-7. The compass set is located in the cockpit and wing or body area of the aircraft. It is usable at any latitude and at any elevation up to 50,000 feet. Each component of the compass system is described as follows:

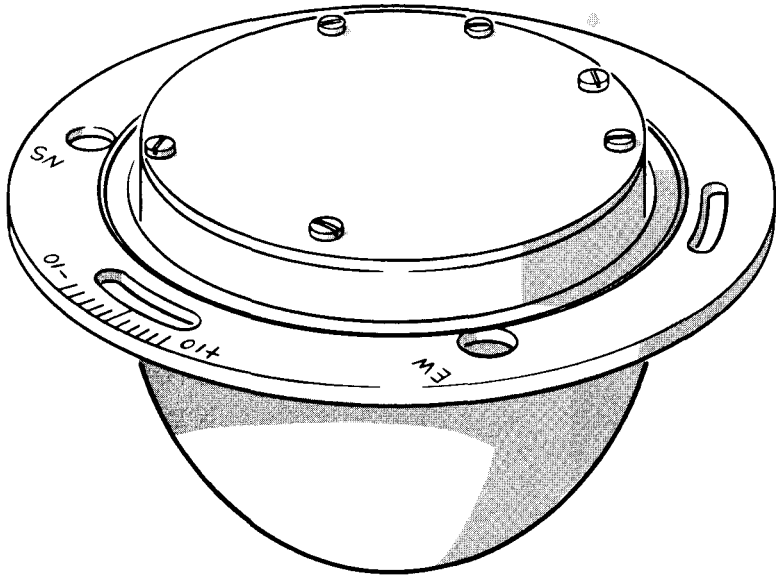
GYRO

The gyro is in a stable location within the aircraft. It is black in color and contains a sealed unit mounted on a base. The sealed base is a rectangular box, which consists of a cable connector, hemisphere selector, and latitude adjustment on its face.



LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (continued)

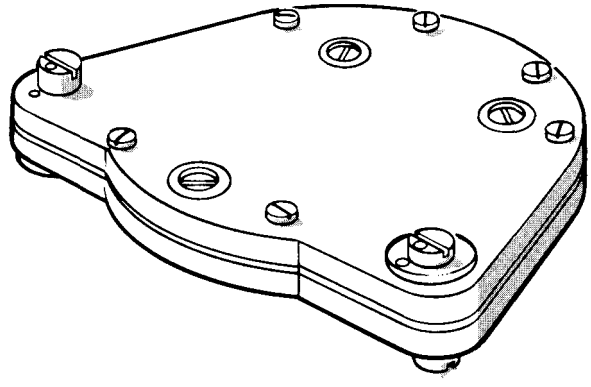
FLUXGATE



The fluxgate is located in the wing or body of the aircraft. It is a single, sealed unit with a mounting flange for proper alinement in the aircraft. The sealed unit is black in color, with three holes in its cover for mounting the flux compensator. The bottom of the sealed unit is oval in shape. The mounting flange is an aluminum ring approximately 1½ inches wide, with three mounting slots, and has component information engraved in it.

FLUX COMPENSATOR

The flux compensator is a flat, bell-shaped object, dark green in color, and approximately 1/2 inch thick. It is mounted flush on the top of the fluxgate by three screws. The flux compensator has two screwdriver adjustments and component information in raised lettering on its top face.

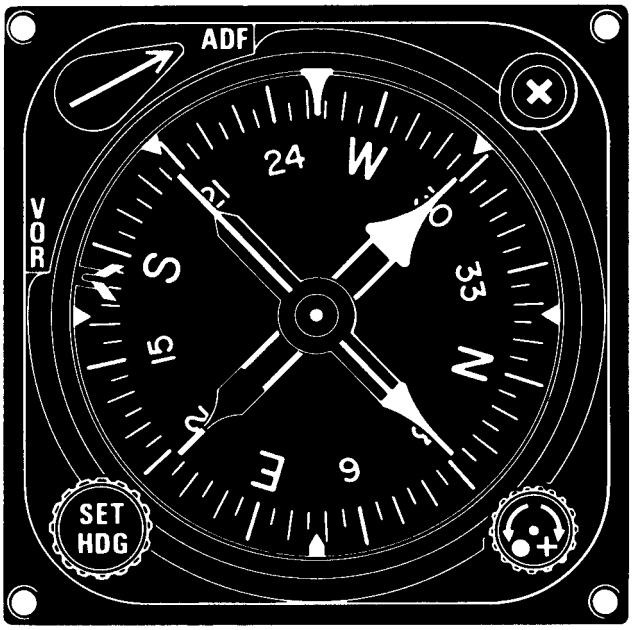


LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (continued)

ADDITIONAL EQUIPMENT

The following equipments are typical examples of the equipment which may be used in your aircraft panel area. This equipment is required for use with the compass set, but is not supplied as part of the compass set. Three different course indicators are presented. Your aircraft will contain only one.

COURSE INDICATOR 1



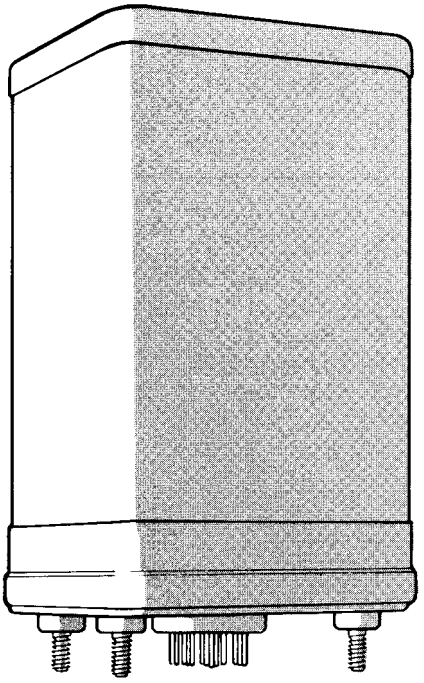
Course indicator 1 is required to provide a heading readout for the compass set. The ECA and the MAG-DG switch must be used with course indicator 1.

MAG-DG SWITCH

The MAG-DG switch is required to operate the relay in the gyro to place the compass set into the MAG or DG mode of operation.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (continued)

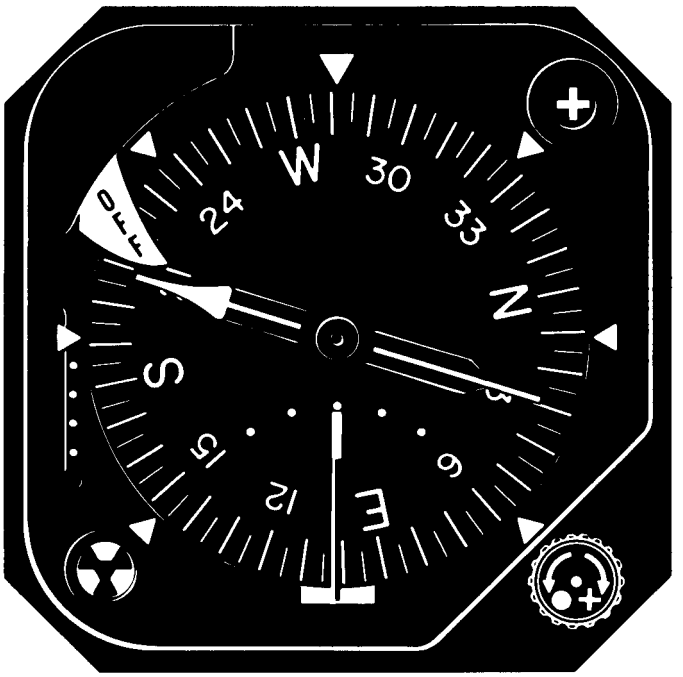
ECA



The ECA is required to amplify error signals for course indicator 1 and supply power to drive a heading card in the course indicator.

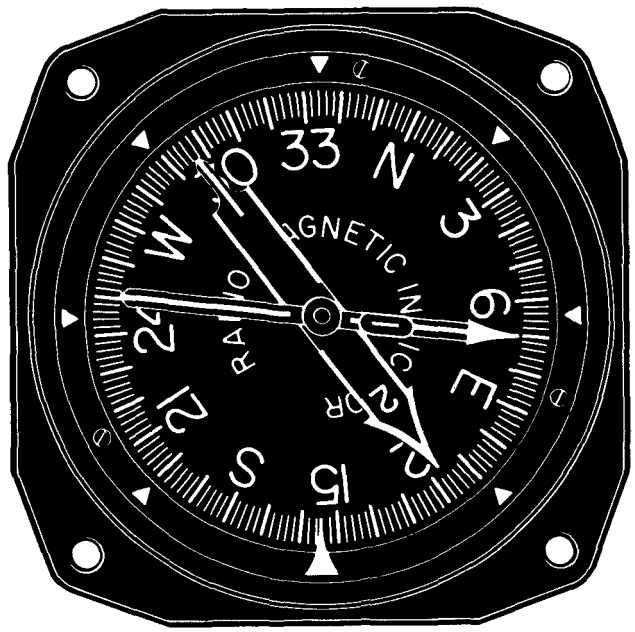
COURSE INDICATOR 2

Course indicator 2 is another means used to provide a heading readout for the compass set. The MAG-DG switch must be used with course indicator 2.



LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (continued)

COURSE INDICATOR 3



Course indicator 3 is a third means of providing a heading readout for the compass set. The compass controller must be used with course indicator 3.

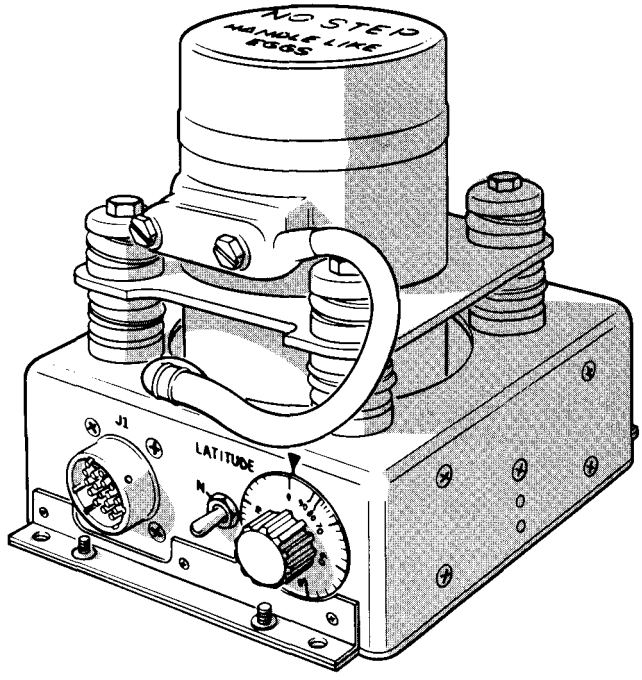
COMPASS CONTROLLER

The compass controller is required to place the compass set in MAG or DG mode of operation.

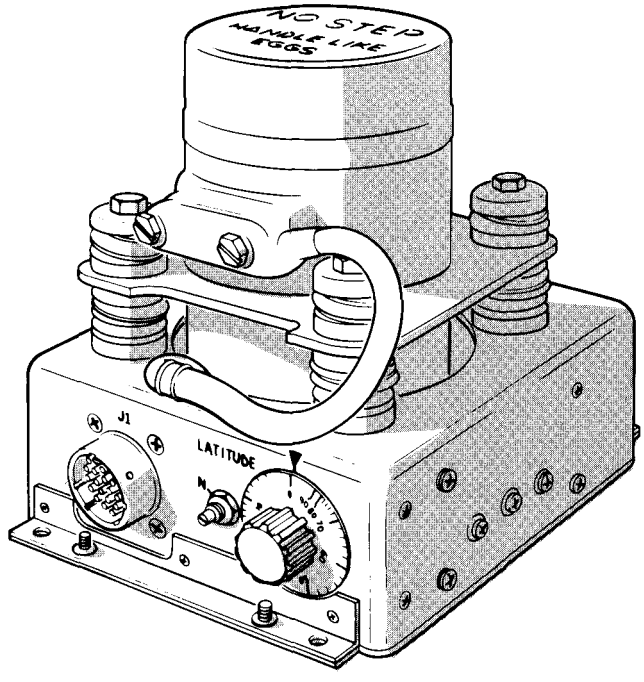
DIFFERENCES BETWEEN MODELS

1-8. The latitude switch on gyro 1 and gyro 2 is a toggle switch. The latitude switch on gyro 3 is a sealed rotary switch.

GYRO MODEL 1 & 2



GYRO MODEL 3



PHYSICAL DATA

1-9. The dimensions and weight of the compass set are given below.

Gyro 1

height	5.88 inches (6.28" max. sway)
depth	7.56 inches
width	5.78 inches
weight	5.5 pounds

Gyro 2

height	5.94 inches (6.41" max. sway)
depth	7.56 inches
width	5.81 inches
weight	5.8 pounds

Gyro 3

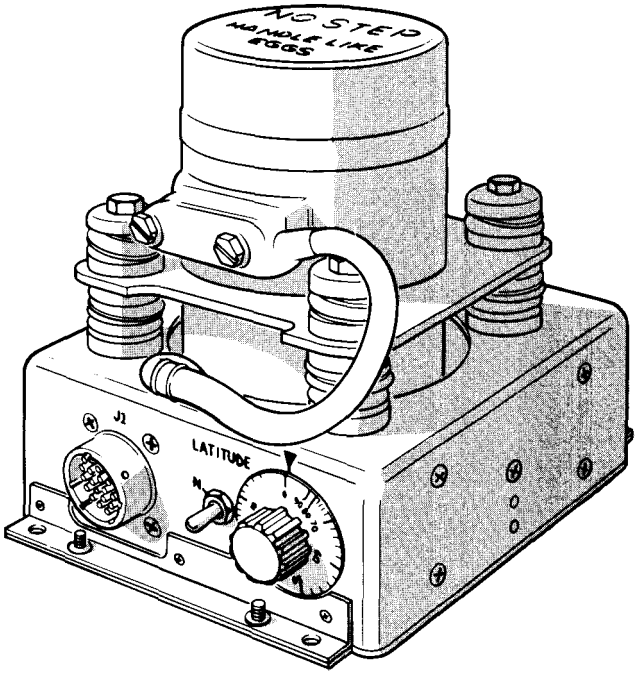
height	5.94 inches (6.41" max. sway)
depth	7.56 inches
width	5.81 inches
weight	6.0 pounds

Fluxgate

height	2.66 inches
depth	4.78 inches
width	4.78 inches
weight	1.25 pounds

Flux compensator

height	0.56 inch
depth	4.78 inches
width	4.78 inches
weight	0.5 pound



PERFORMANCE DATA

1-10. Performance characteristics of the compass set are listed below.

Gyro

- Magnetic heading has an accuracy of ± 1°.
- Slaving rate is 2.5° ± 1° per minute.
- Power requirements are 115 volts ac, 400 Hz; 30 va starting and 20 va running.

Fluxgate

- An accuracy of 0.75°.
- A 30° roll and pitch mechanical freedom of pendulous element.
- Power requirements are 23.5 volts ac, 400 Hz, and 0.06 amp.
- A three-wire output signal at 800 Hz.

Flux compensator

- Has a compensation range of 8° to 13° heading change (single-cycle, hard-iron correction).

CHAPTER 2

FUNCTIONING OF EQUIPMENT

CHAPTER CONTENTS	PAGE

GENERAL

2-1. This chapter describes how the compass set functions so that you may have a better understanding of its use and care.

BASIC SYSTEM

2-2. The compass system has the following capabilities:

- It provides accurate heading information referenced to Magnetic North or to True North for navigation and weapons systems.

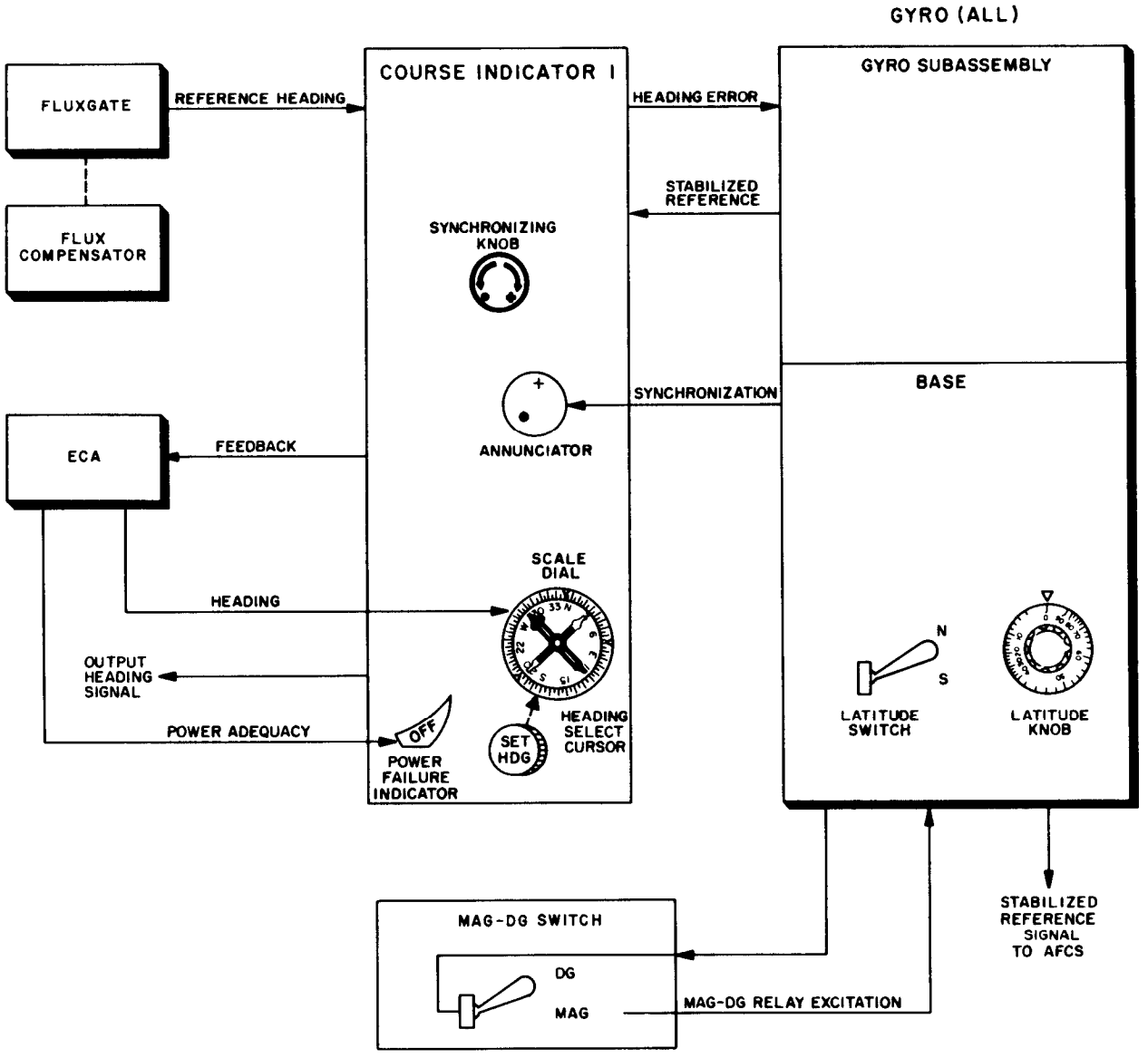
BASIC FUNCTIONS

2-3. The following functional descriptions are typical block diagrams of the compass system used with the additional equipment mentioned earlier. Other combinations may be encountered.

BASIC FUNCTIONS (continued)

BLOCK DIAGRAM **1**

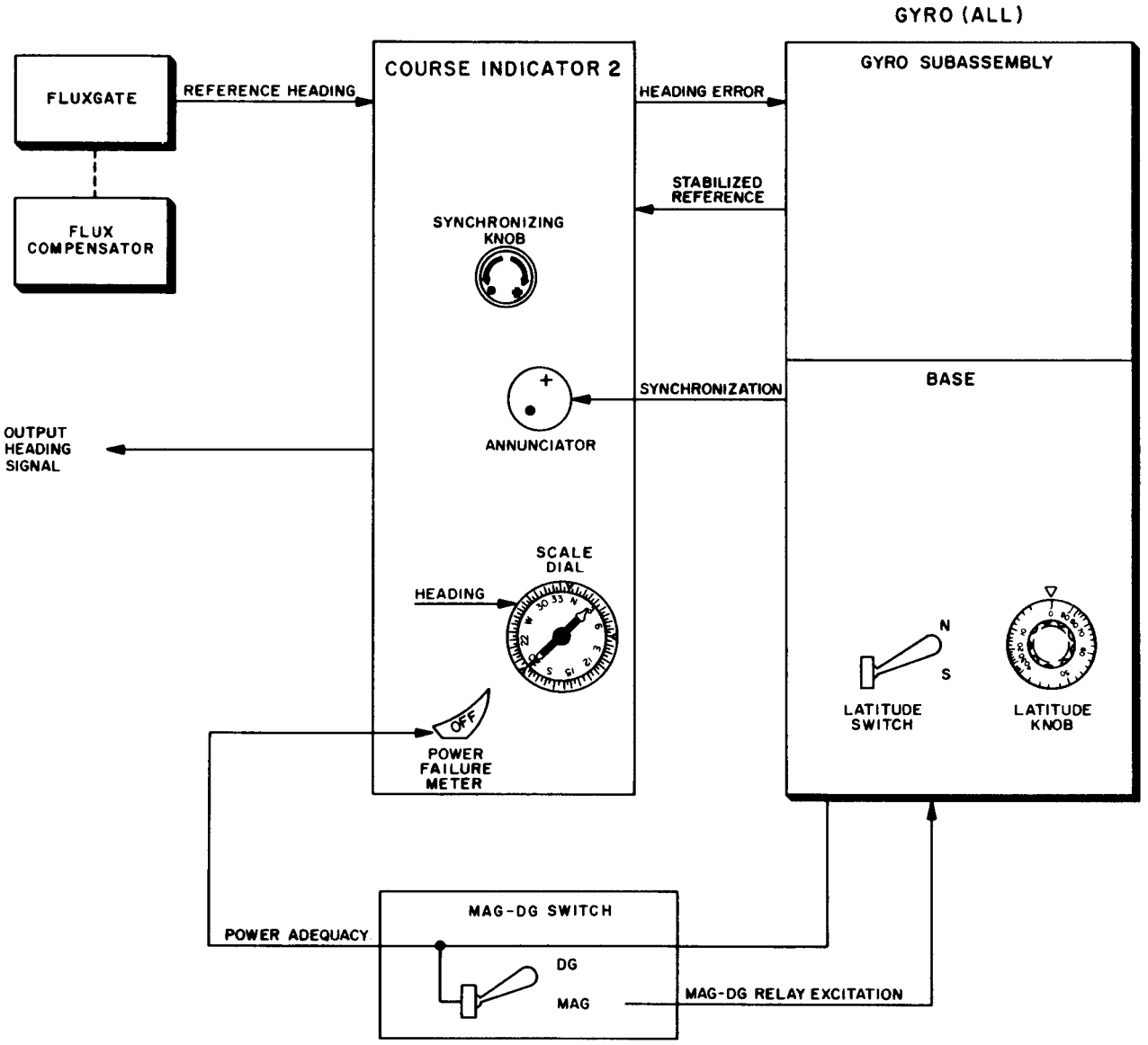
Block diagram 1 uses course indicator 1, the ECA, and the MAG-DG switch as additional equipment with the compass set. The mode of operation is selected by setting the MAG-DG switch to the desired position. In the MAG mode, the gyro is slaved to the fluxgate. The heading indicated will be referenced to Magnetic North, stabilized by the gyro. In the DG mode, the gyro functions as a latitude-corrected free gyro. The heading indicated will be referenced to True North. In either mode of operation, an additional synchro output is available to provide a stabilized reference signal to an Automatic Flight Control System (AFCS).



BASIC FUNCTIONS (continued)

BLOCK DIAGRAM 2

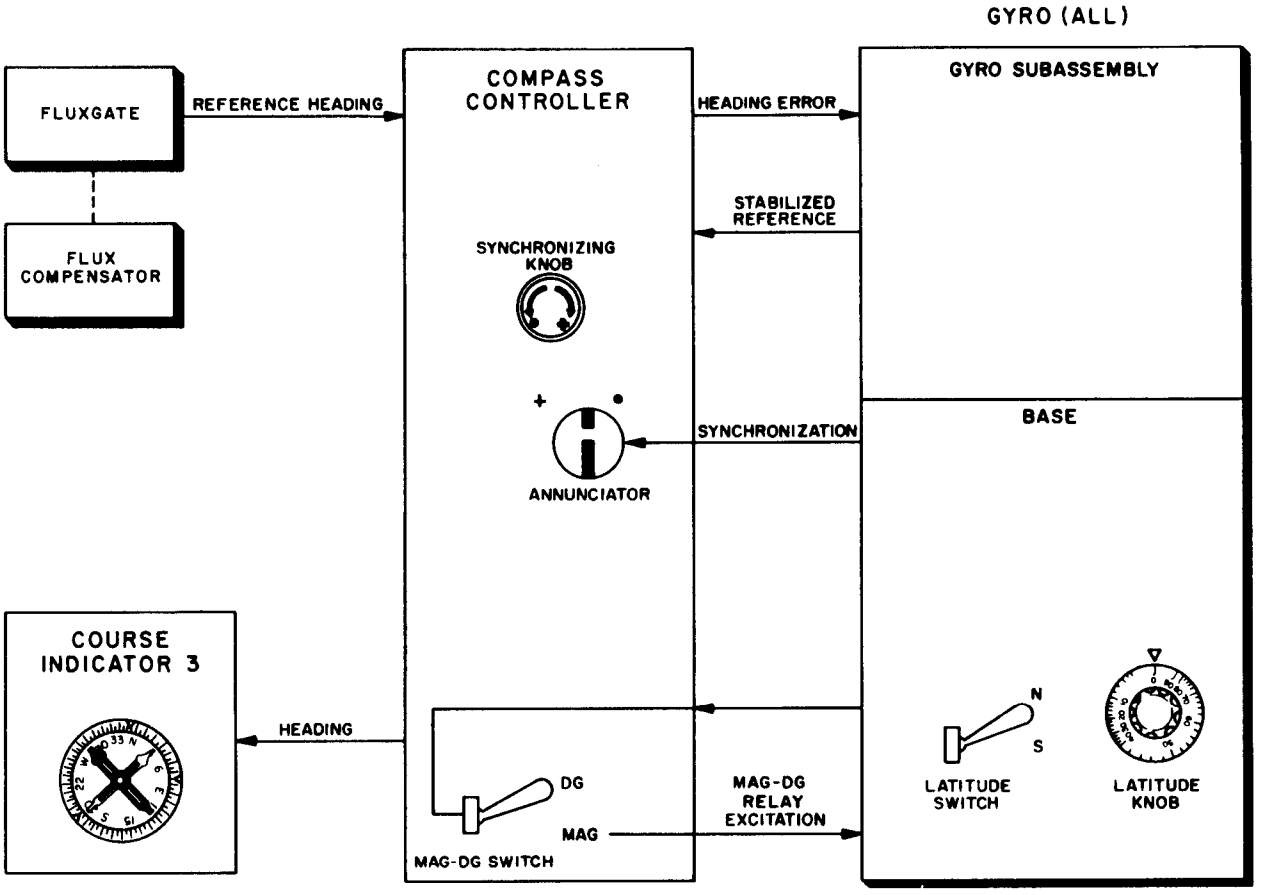
Block diagram 2 uses course indicator 2 and the MAG-DG switch as additional equipment with the compass set. Operation differs from the operation given in block diagram 1 above, in that the synchro in the gyro subassembly is used with the slaving circuits and cannot be used to provide a heading output to external equipment.



BASIC FUNCTIONS (continued)

BLOCK DIAGRAM 3

Block diagram 3 uses course indicator 3 and compass controller as additional equipment with the compass set. Operation is similar to block diagram 2, except that the switch which selects MAG-DG operations is part of the compass controller. The synchro in the gyro subassembly is used with the slaving circuits and cannot be used to provide a heading output to external equipment.



CHAPTER 3

OPERATING INSTRUCTIONS

SECTION I

DESCRIPTION AND USE OF CONTROLS AND INDICATORS

SECTION CONTENTS	PAGE

PURPOSE

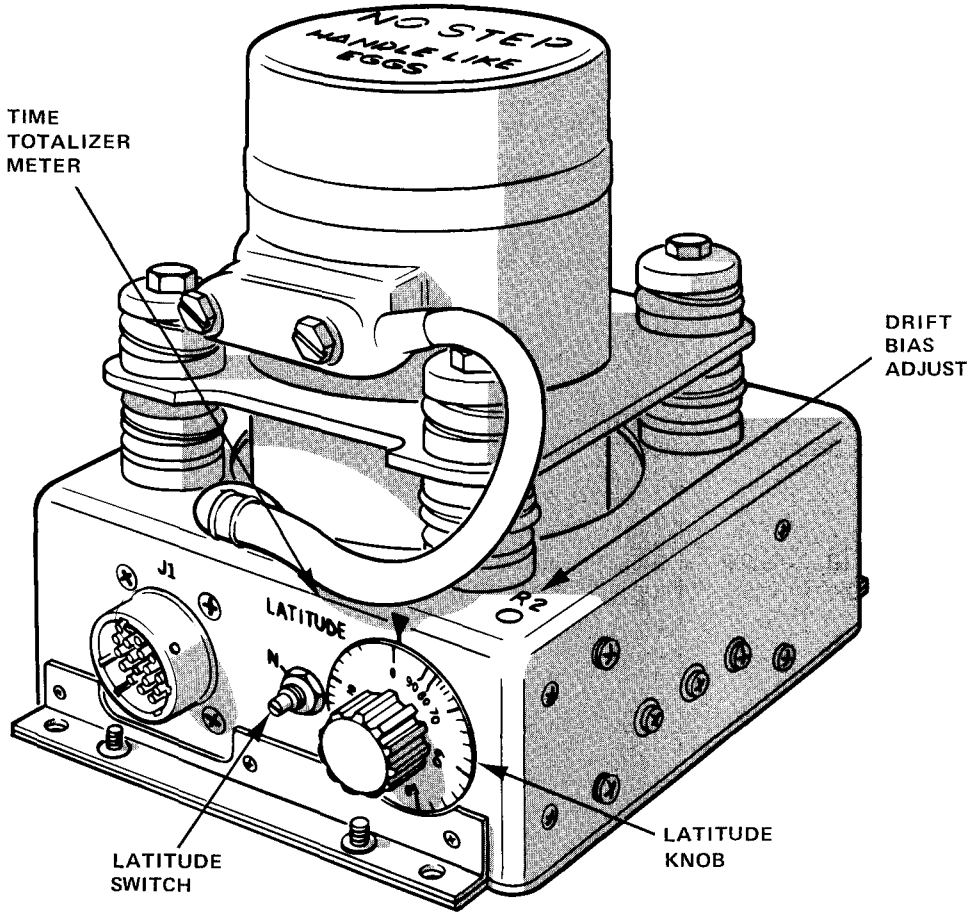
3-1. Cooperate and maintain the compass set, you must know the location and function of all controls and indicators. This section describes the controls and indicators of the compass set.

CONTROLS AND INDICATORS

3-2. The following illustration shows the controls and indicators of the individual compass set components and the additional equipment. The associated table explains the function of each item.

Controls and indicators (continued)

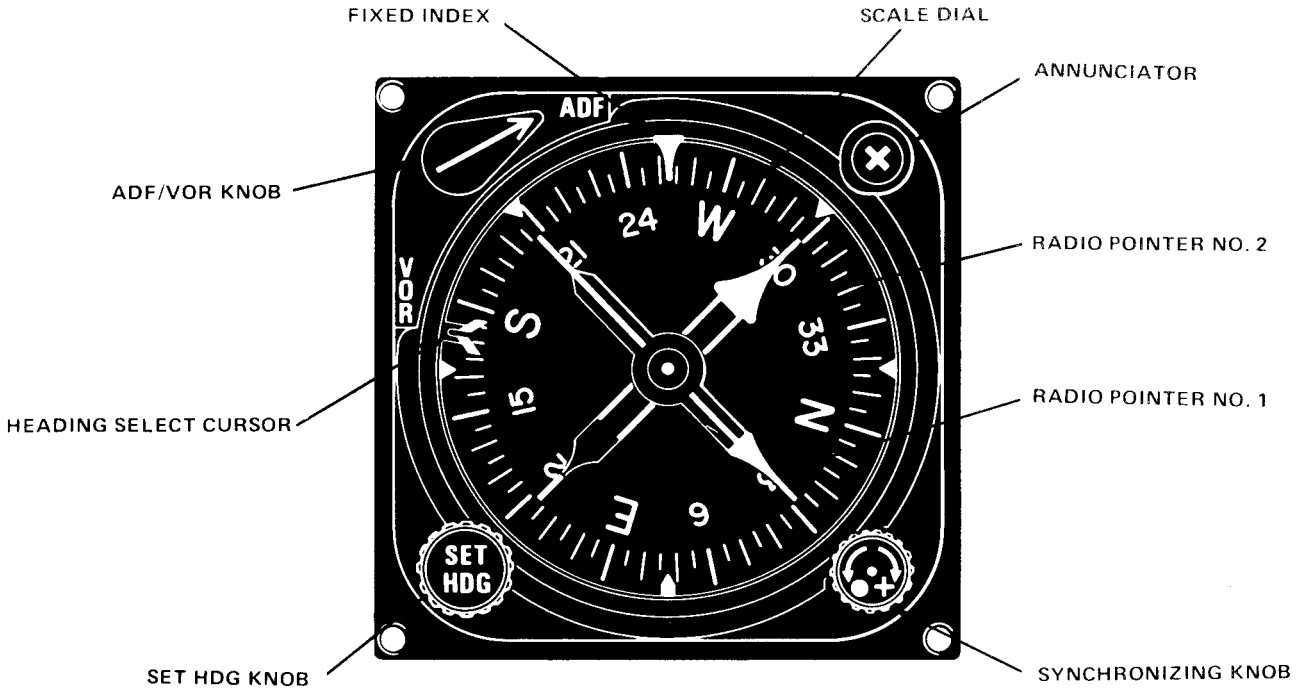
GYRO



Time totalizing meter (not shown)	Indicates total time in hours that the gyro (all) has been operating.
Drift bias adjust	Adjust gyro drift rate (gyro 3 only).
Latitude knob	Sets local latitude when the compass set is to be operated in DG mode.
Latitude switch	Switches latitude correction to appropriate precession coil for operation in northern hemisphere (N position) or southern hemisphere (S position).

CONTROLS AND INDICATORS (continued)

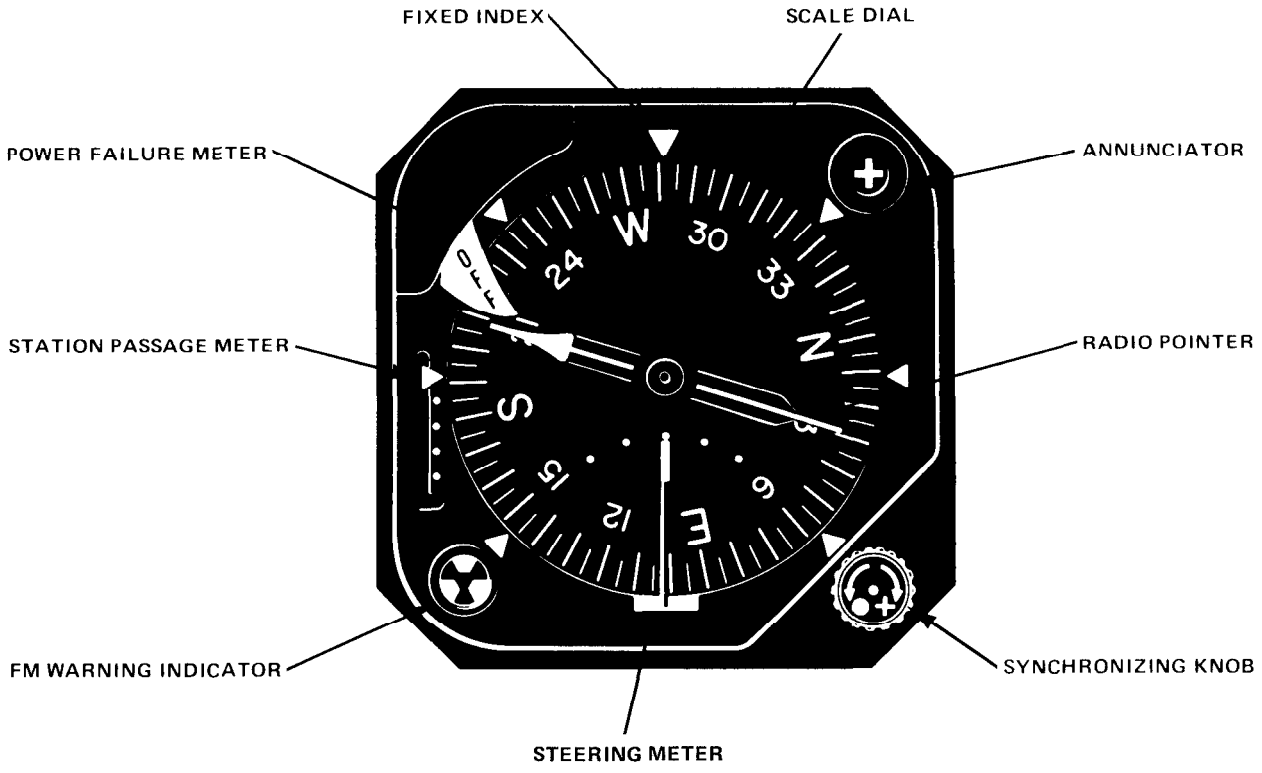
COURSE INDICATOR 1



Fixed index	Provides reference mark for scale dial.
Scale dial	Rotates under fixed index reference mark to indicate aircraft heading.
Annunciator	Shows dot (.) or cross (+) to indicate misalinement (non-synchronization) of the compass set.
Radio pointer No. 2	Indicates bearing of No. 2 adf (automatic direction finder) or vor (very high-frequency, omni-directional radio range) radio signal.
Radio pointer No. 1	Indicates bearing of No. 1 adf or vor radio signal.
Synchronizing knob	Is manually rotated to null annunciator and synchronize (electrically and mechanically aline) the compass set.
SET HDG knob	Moves the heading select cursor to desired heading.
Heading select cursor	Indicates desired heading.
Power failure indicator (not shown)	Shows to indicate loss of power to compass set.
ADF/VOR knob	Selects adf or vor signal for radio pointers No. 1 and No. 2.

CONTROLS AND INDICATORS **(continued)**

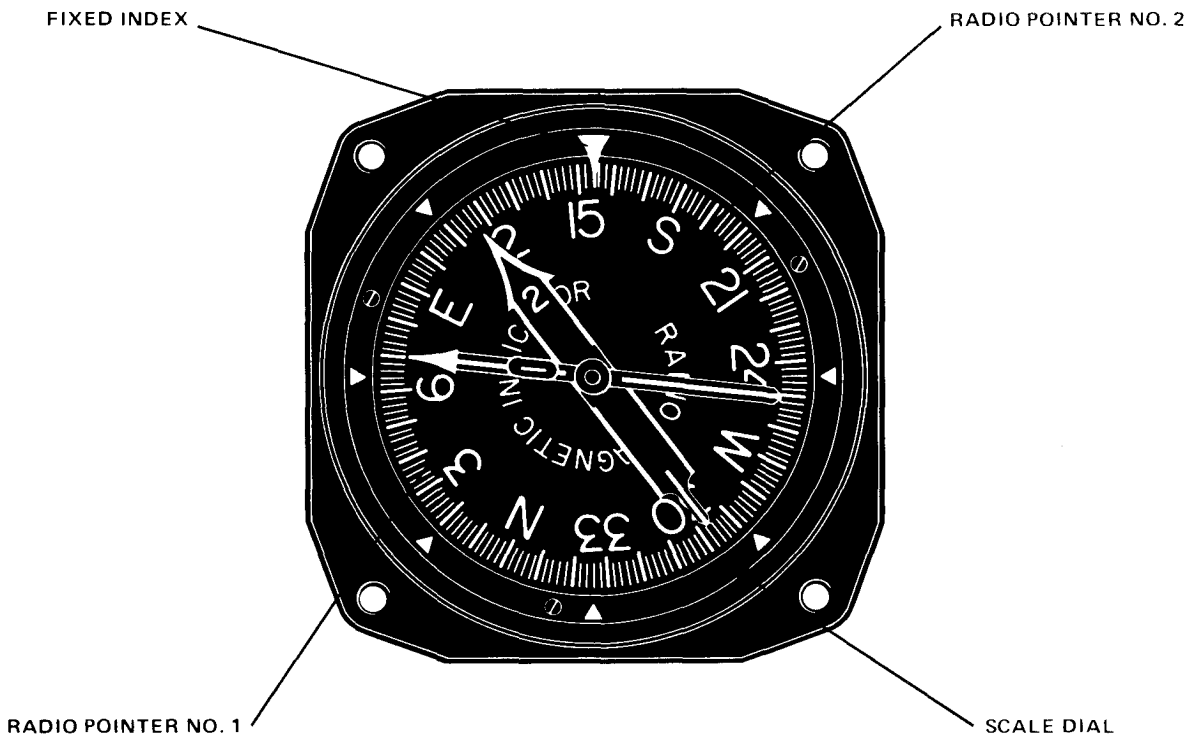
COURSE INDICATOR 2



Fixed index	Provides reference mark for scale dial,
Scale dial	Rotates under fixed index reference mark to indicate aircraft heading.
Annunciator	Shows dot (.) or cross (+) to indicate misalinement (non-synchronization) of compass set.
Radio pointer	Indicates bearing of an adf radio signal.
Synchronizing knob	Is manually rotated to null annunciator and synchronize (electrically and mechanically aline) the compass set.
Steering meter	Moves left or right to show deviation from approach path to fm radio transmitter.
Fm warning indicator	Shows red when fm radio receiver signal is absent.
Station passage meter	Rises and falls to indicate passage over an fm radio transmitter.
Power failure meter	Shows to indicate loss of power to the compass set.

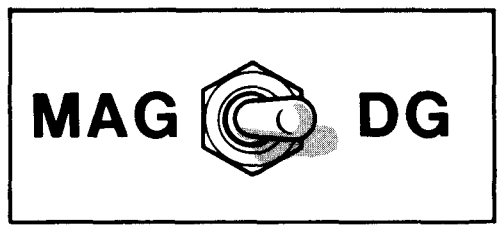
CONTROLS AND INDICATORS (continued)

COURSE INDICATOR 3



Fixed index	**Provides reference mark for scale dial.**
Radio pointer No. 2	**Indicates bearing of No. 2 adf or vor radio signal.**
Scale dial	**Rotates under fixed index reference mark to indicate aircraft heading.**
Radio pointer No. 1	**Indicates bearing of No. 1 adf or vor radio signal.**

MAG-DG SWITCH

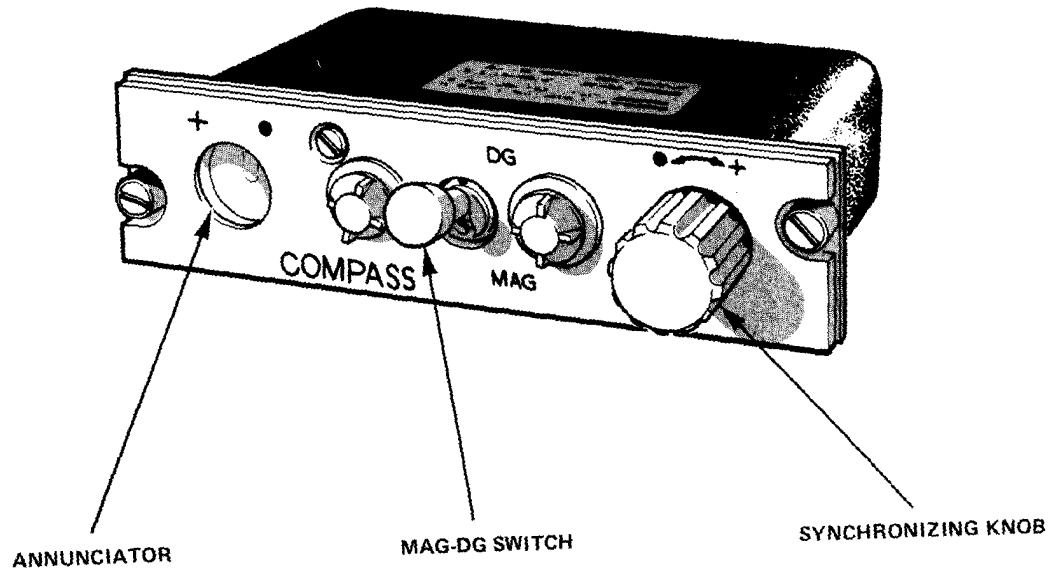


Magnetically slaved operation of the compass set.

Free gyro operation of the compass set.

CONTROLS AND INDICATORS **(continued)**

COMPASS CONTROLLER



Annunciator	Moves left (+) or right (.) of center to indicate misalinement (non-synchronization) of the compass set.
MAG-DG switch	Selects either magnetically slaved (MAG position) or free gyro (DG position) operation of the compass set.
Synchronizing knob	Is manually rotated to null annunciator and synchronize (electrically and mechanically aline) the compass set.

SECTION II

OPERATIONAL CHECK PROCEDURES

SECTION CONTENTS

GENERAL

3-3. This section contains instructions for performing operational checks on the compass set. You should perform these checks concurrent with the operational checks performed on the aircraft in which the compass set is installed.

The following checks are performed with the external power connected to the aircraft. Refer to the applicable aircraft organizational maintenance manual for connecting the external power. Perform the following checks in the order given below.

OPERATIONAL CHECKS

3-4. Power On

a. Turn on the 115-volt, 400 Hz, single-phase aircraft ac power.

b. Using multimeter AN/VRM-105, check that the 400 Hz power is between 107.5 and 119.5v ac.

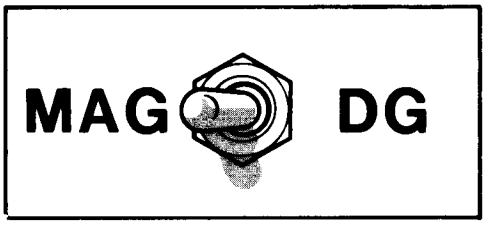
Power failure indicator on course indicator 1 or power failure meter on course indicator 2 (as applicable) should disappear.

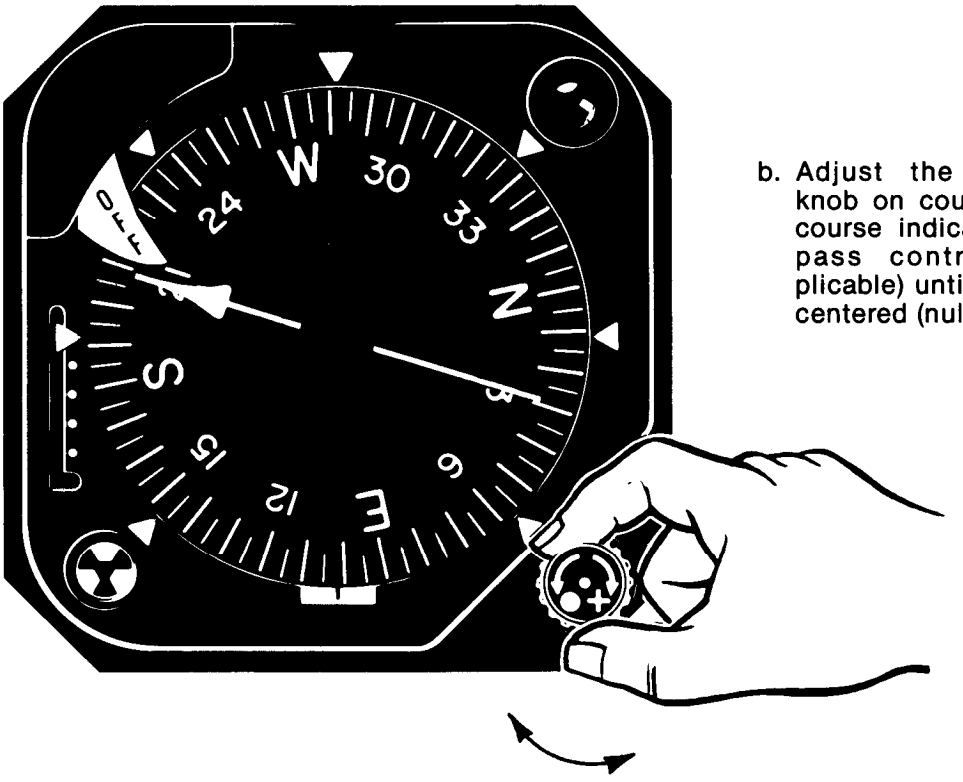
d. Panel lights on either course indicator 1 or compass controller (as applicable) are lighted.

OPERATIONAL CHECKS (continued)

3-5. Switching and Synchronization

a. Set the MAG-DG switch to MAG. If you are using course indicator 3 with the compass controller as your additional equipment, set the MAG-DG switch on the compass controller to MAG.



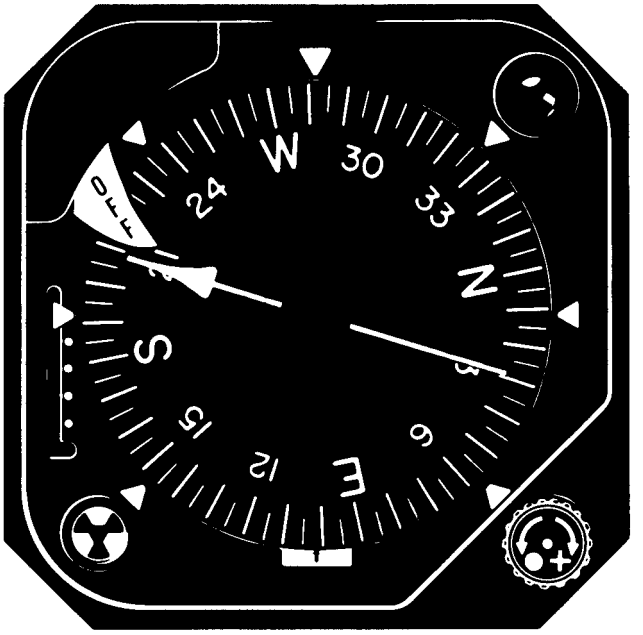


b. Adjust the synchronizing knob on course indicator 1, course indicator 2, or compass controller (as applicable) until annunciator is centered (nulled).

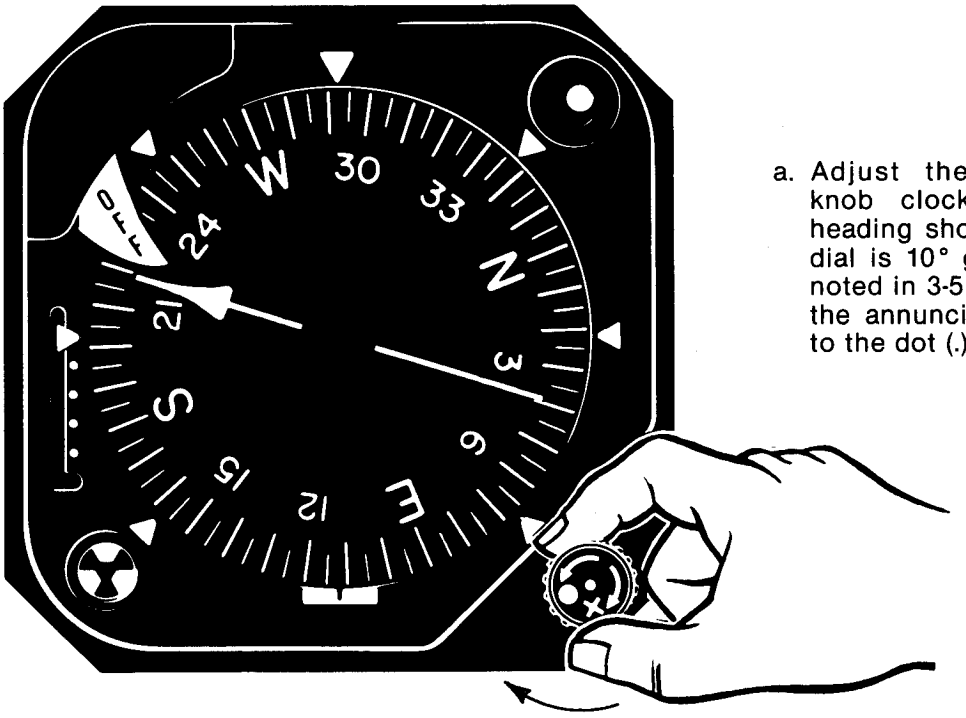
OPERATIONAL CHECKS (continued)

3-5. Switching and Synchronization (continued)

c. Check to see that the magnetic heading indicated by the scale dial on course indicator 1, course indicator 2, or course indicator 3 (as applicable)agrees with a known magnetic heading (declination). Note the heading shown on the scale dial.



3-6. Static Settling and Polarity

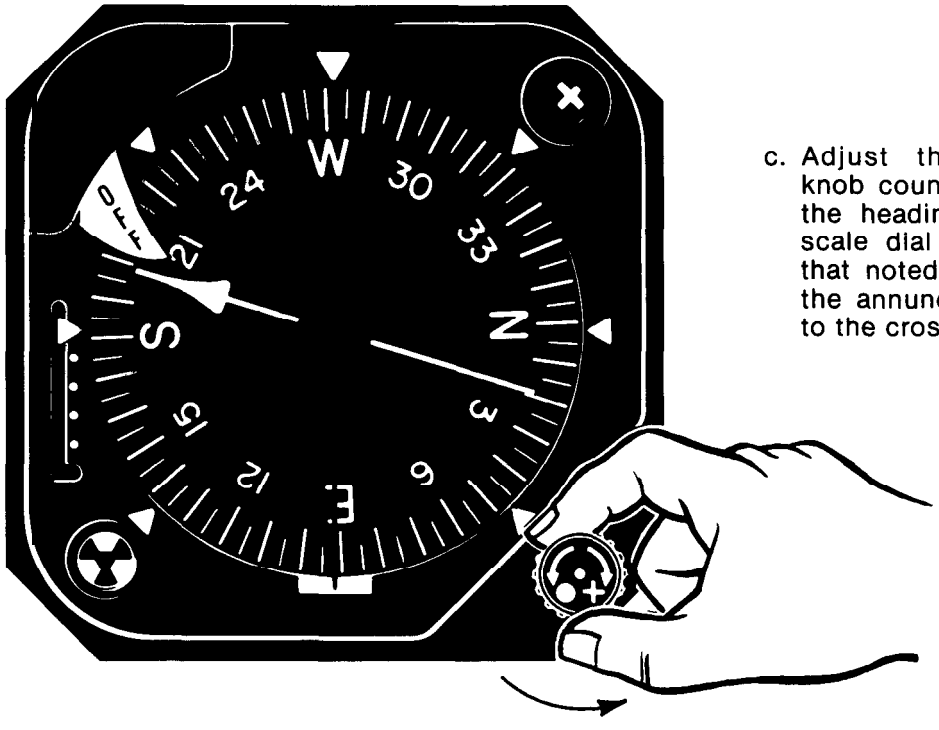


a. Adjust the synchronizing knob clockwise until the heading shown on the scale dial is 10° greater than that noted in 3-5 above. Note that the annunciator moves fully to the dot (.).

OPERATIONAL CHECKS (continued)

3-6. Static Settling and Polarity (continued)

b. Wait 10 minutes, then check to see that the heading shown on the scale dial is the same noted in 3-5 ± 1°.

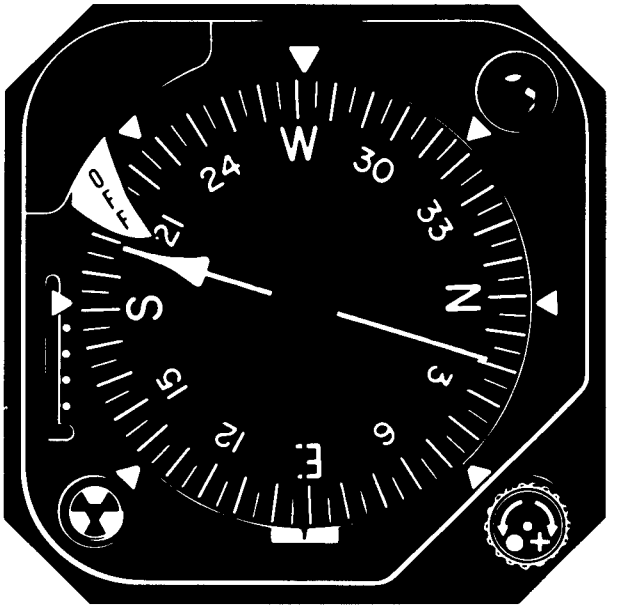


c. Adjust the synchronizing knob counterclockwise until the heading shown on the scale dial is 10° less than that noted in 3-5. Note that the annunciator moves fully to the cross (+).

OPERATIONAL CHECKS (continued)

3-6. Static Settling and Polarity (continued)

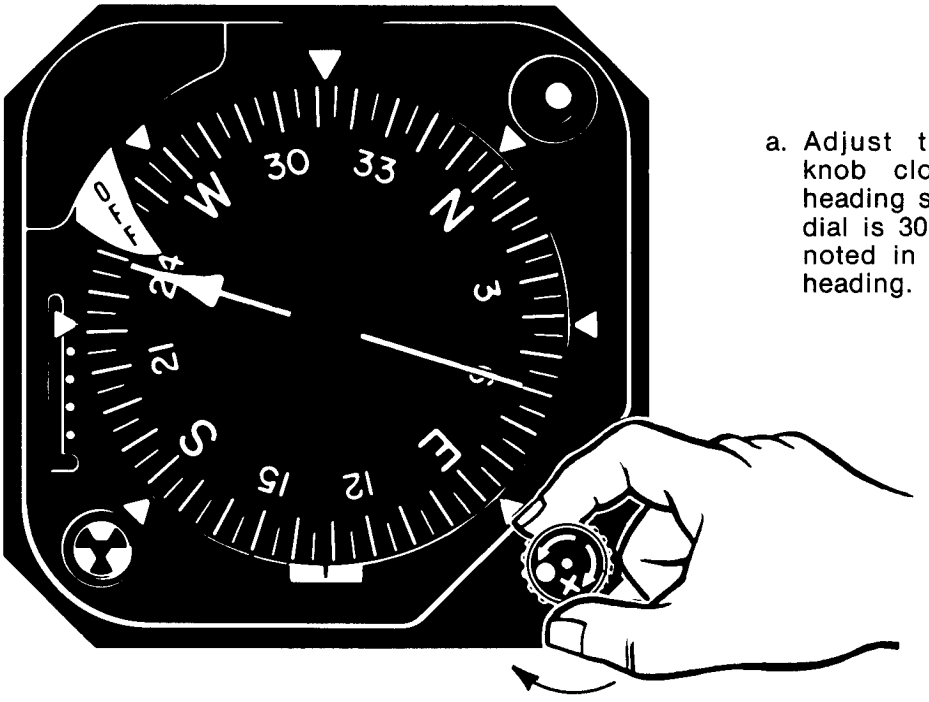
d. Wait 10 minutes, then check to see that the heading shown on the scale dial is the same as that noted in 3-5 ±1°.



NOTE

The headings noted in steps 3-6b and 3-6d should be the same ± 1°.

3-7. Slaving Rate

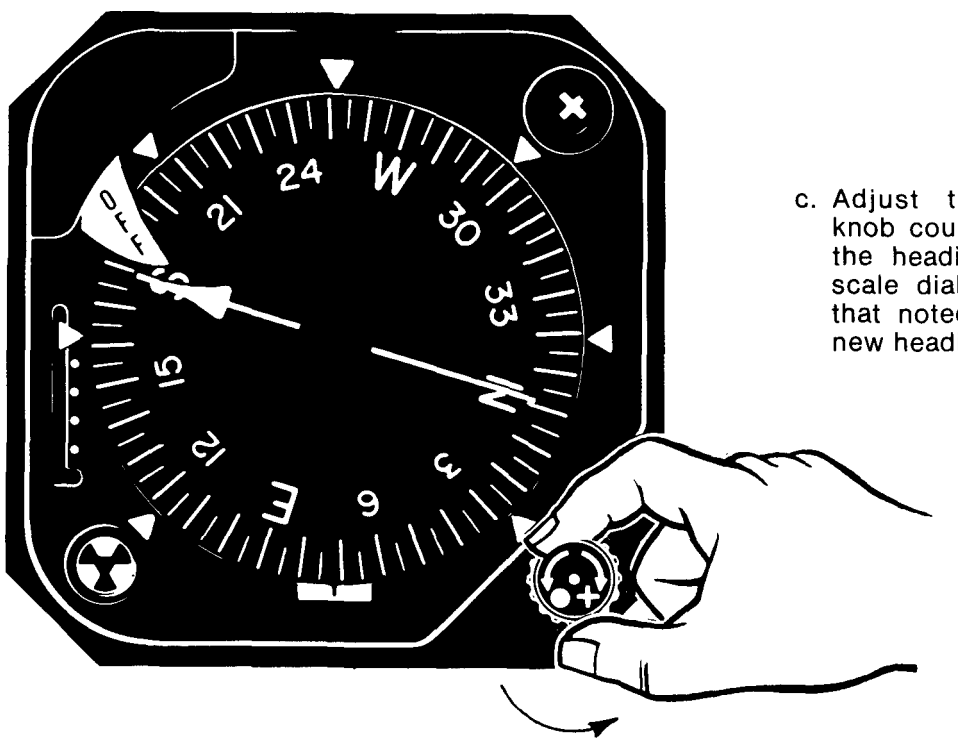


a. Adjust the synchronizing knob clockwise until the heading shown on the scale dial is 30° greater than that noted in 3-5. Note the new heading.

OPERATIONAL CHECKS (continued)

3-7. Slaving Rate (continued)

b . Wait 5 minutes, then check to see that the heading shown on the scale dial is only 10° to 25° greater than that noted in 3-5.



c. Adjust the synchronizing knob counterclockwise until the heading shown on the scale dial is 30° less than that noted in 3-5. Note the new heading.

OPERATIONAL CHECKS (continued)

3-7. Slaving Rate (continued)

d. Wait 5 minutes, then check to see that the heading shown on the scale dial is only 10° to 25° less than that noted in 3-5.

3-8. Power Off

a. Turn off the 115-volt, 400 Hz, single-phase aircraft ac power.

b. Power failure indicator on course indicator 1 or power failure meter on course indicator 2 (as applicable) should appear.

c. Panel lights on either course indicator 1 or compass controller (as applicable) extinguish.

SECTION III

OPERATION UNDER USUAL CONDITIONS

GENERAL

3-9. During normal operation, the compass set may be operated in the MAG mode or the DG mode. The following paragraphs describe the starting procedures for both MAG and DG preflight operations. Inflight operations and stopping procedures are also described.

STARTING PROCEDURES

NOTE

If an abnormal indication is obtained during the starting procedure, MAG mode and DG mode preflight operation, or the stopping procedure, refer to the troubleshooting chart (para 4-14) for corrective measures.

3-10. Starting procedures are applicable to both the MAG mode and DG mode of operation. Refer to the appropriate block diagram in Chapter 2 and perform the following procedures:

a. Turn on the aircraft power to the compass set. Refer to the aircraft configuration technical manual for power-on procedures.

b. Note that the power failure indicator “off” (block diagram 1, Chapter 2) or the power failure meter “off” (block diagram 2, Chapter 2) disappear.

c. Note that all panel lights are lighted and that all controls and indicators are clearly visible.

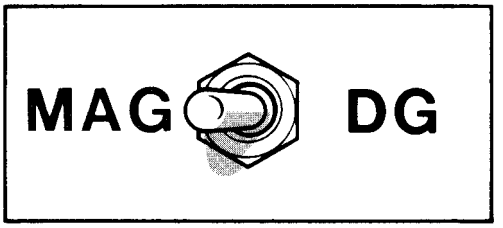
MAG MODE PREFLIGHT OPERATION

3-11. The following procedure provides you with the information needed for preflight operation in MAG mode.

a. Start the compass set as instructed in paragraph 3-4.

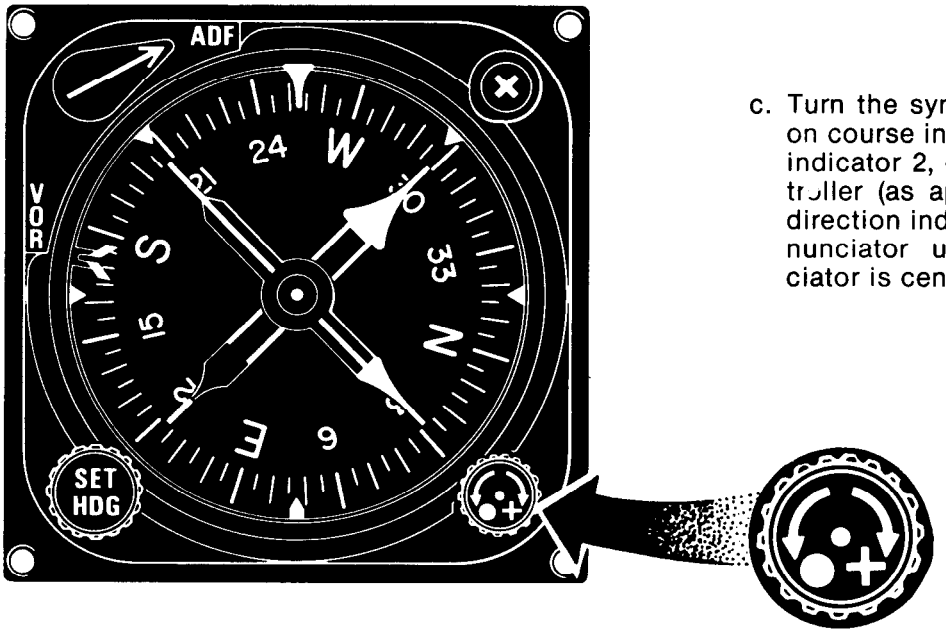
MAG MODE PREFLIGHT OPERATION (continued)

b. Set MAG-DG switch to MAG.



NOTE

Allow a 3-5 minute warm-up prior to making any adjustments.



c. Turn the synchronizing knob on course indicator 1, course indicator 2, or compass controller (as applicable) in the direction indicated by the annunciator until the annunciator is centered (nulled).

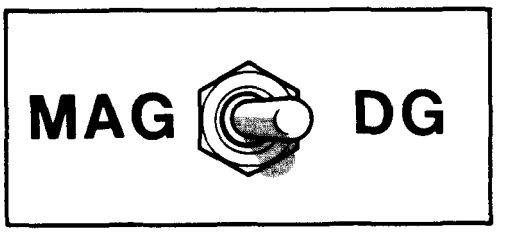
d. Looking at course indicator 1, course indicator 2, or course indicator 3, check to see that the magnetic heading on the scale dial agrees with a known magnetic heading (declination). The compass set is then synchronized (electrically and mechanically alined).

DG MODE PREFLIGHT OPERATION

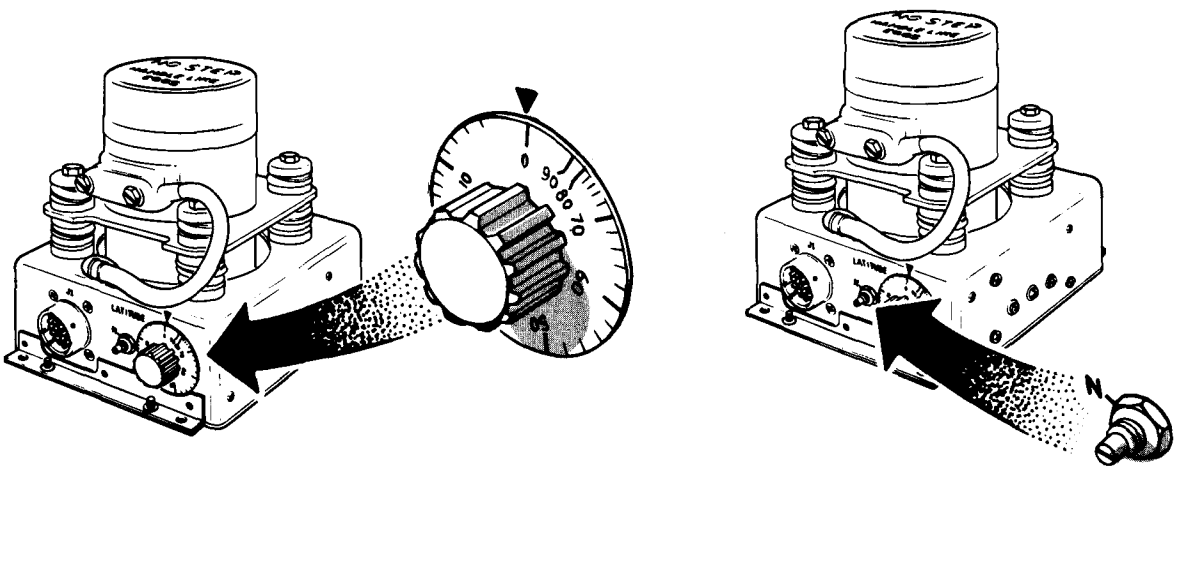
3-12. The following procedure provides you with the information needed for preflight operation in DG mode.

a. Start the compass set as instructed in paragraph 3-4.

b. Set MAG-DG switch to DG.



c. On the gyro, set the latitude knob to zero latitude. Set the latitude switch to the N position for northern hemisphere operation or to S position for southern hemisphere operation, then set the latitude knob to the local latitude.

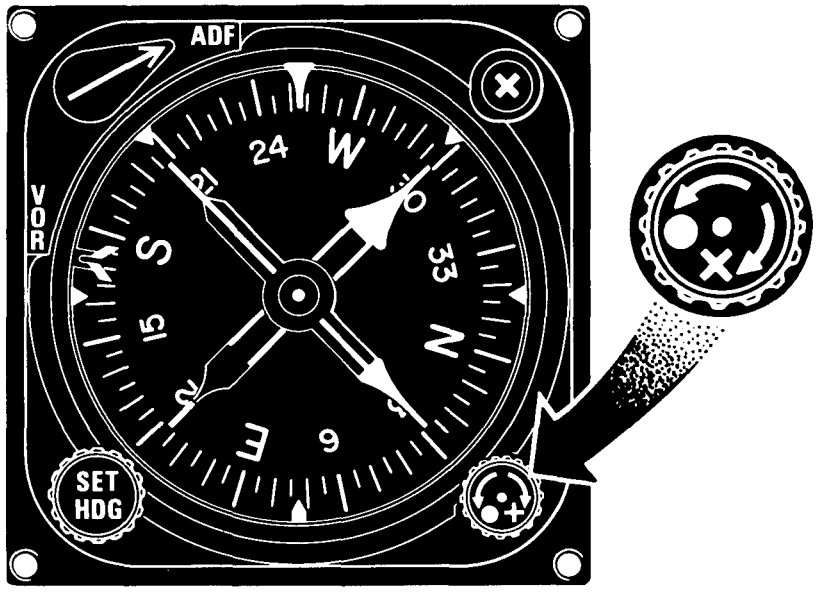


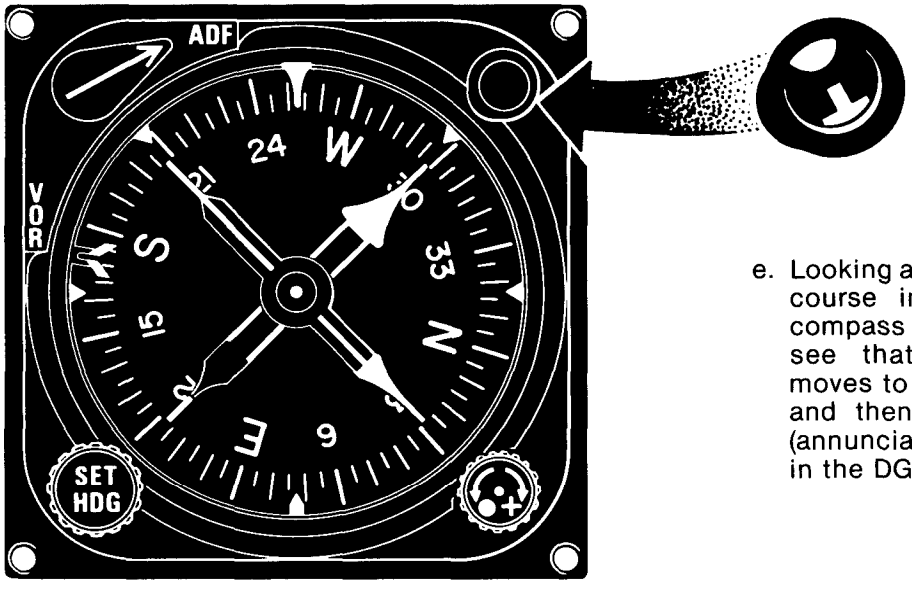
NOTE

Allow a 3-5 minute warm-up prior to making any adjustments.

DG MODE PREFLIGHT OPERATION (continued)

d. On the course indicator 1, course indicator 2, or compass controller, rotate the synchronizing knob to set the scale dial on the course indicator to a known heading reference (declination).





e. Looking at course indicator 1, course indicator 2, or the compass controller, check to see that the annunciator moves to the center position and then does not change (annunciator is deenergized in the DG mode).

NOTE

Either MAG mode (para 3-5) or DG mode (para 3-6) may be used for the preflight operation.

IN FLIGHT OPERATION

3-13. The following procedure provides you with the information needed for inflight operation.

a. Set the MAG-DG switch to either MAG mode for magnetically slaved operation, or DG mode for free gyro operation

NOTE

DG mode of operation is recommended when flying in latitudes higher than 70°.

b. When operating in MAG mode, the compass set will remain synchronized.

During normal operation (MAG mode), the annunciator will fluctuate slightly about center position. During certain rapid aircraft maneuvers, the compass set may become unsynchronized. The annunciator will move off center when this happens. The slaving circuits in the compass set will return the set to synchronization.

NOTE

For fast synchronization, turn the synchronizing knob in the direction indicated by the annunciator until the annunciator is centered again.

d. When operating in DG mode, periodically update the compass set heading to a known reference (declination) by rotating the synchronizing knob.

STOPPING PROCEDURE

3-14. The following procedure provides you with the information needed to shut off the compass set.

a. Remove aircraft power to the compass set.

b. Note that the power failure indicator on course indicator 1 or the power failure meter on course indicator 2 appears.

Note that panel lights on either course indicator 1, course indicator 2, or compass controller extinguish.

CHAPTER 4

MAINTENANCE

SECTION I

INTRODUCTION

TOOLS AND EQUIPMENT

4-1. The tools required to maintain the compass set are contained in your tool kit. refer to Appendix B for a list of its contents.

LUBRICATION

4-2. The compass set does not require lubrication.

INSPECTION

4-3. As a technician, you're often working around the compass set and should constantly be inspecting the equipment for cracks, damage, chipped paint, etc. The PMCS in Section III gives a detailed equipment checklist that you should refer to during your inspection and while performing maintenance. Your care and alertness will help keep the compass set in top operating condition.

CLEANING

NOTE

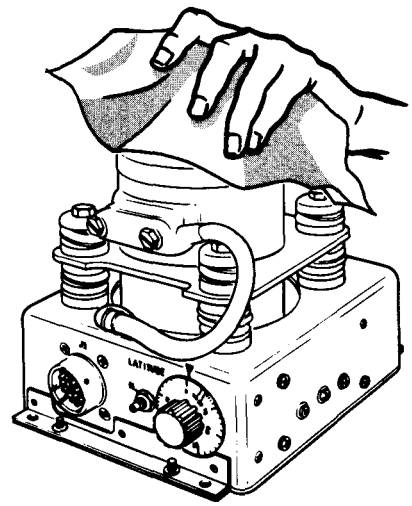
Refer to Appendix E for material identification and ordering information.

4-4. Cleaning your equipment is one of the most important maintenance functions that you can perform. It is often overlooked. Proper cleaning is necessary to keep your equipment in A-1 shape.

a. Inspect the exterior of the compass set. The exterior surfaces should be free of moisture, dirt, grease, and fungus.

CLEANING (continued)

b. Remove loose dirt and moisture with a clean cloth.

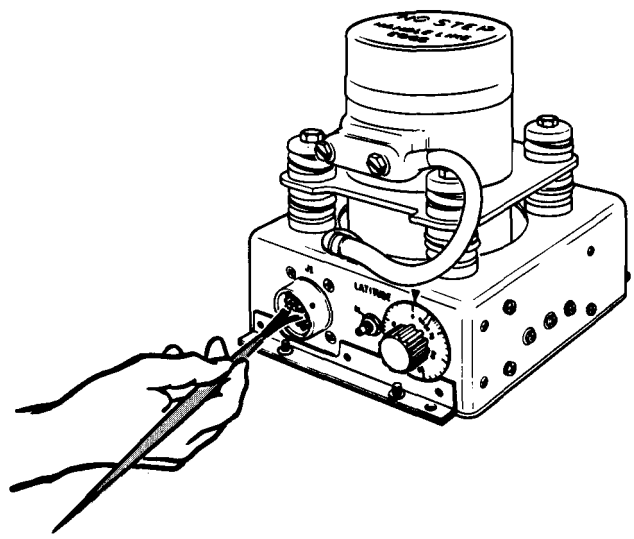


WARNING

When using trichlorotrifluoroethane, use adequate ventilation. Avoid prolonged or repeated breathing of vapor. Avoid prolonged or repeated skin contact. Use rubber gloves and apron. Do not use near sparks or open flames. Do not take internally. In case of eye contact, consult a physician immediately.

c. Remove grease, fungus, and ground-in dirt from the appropriate cases; use a cloth dampened (not wet) with cleaning solvent.

d. Remove dirt from the connectors with a soft bristle brush; remove moisture with a dry cloth.

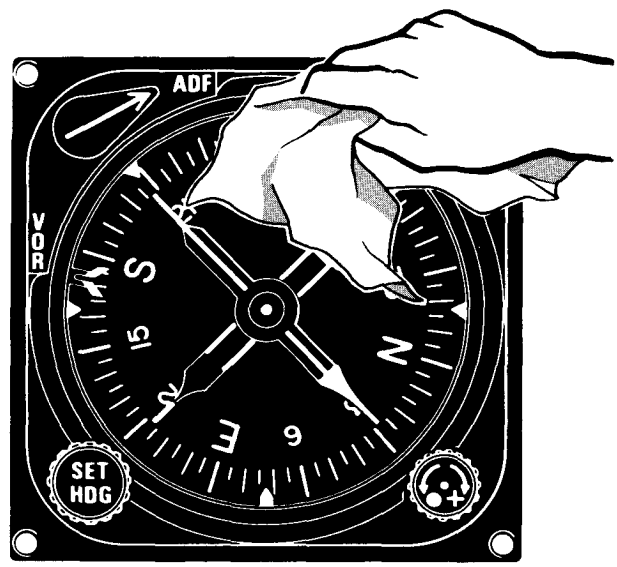


CLEANING (continued)

CAUTION

Do not rub hard on scale markings on gyro latitude knob. Damaged scale markings may result.

e. Clean the indicator and meter faces; use a soft clean cloth. If dirt is difficult to remove, dampen the cloth with water; mild soap may be used to make the cleaning more effective.



PAINTING

chipped or corroded, refer to TB 746-10 and TB 43-0118 for the correct cleaning and refinishing practices.

NOTE

Refer to Appendix E for material identification and ordering information.

a. Remove rust and corrosion from metal surfaces by lightly sanding them with #000 sandpaper.

b. Apply pretreatment coating to bare metal surfaces.

c. Brush two thin coats of Lusterless Enamel on the bare metal to protect it from further corrosion.

d. Restore white engraved markings on the gyro with white epoxy ink.

EXPENDABLE SUPPLIES & MATERIALS

4-6. Refer to Appendix E for a listing of supplies and consumable materials.

SECTION II

INSTALLATION INSTRUCTIONS

GENERAL

4-7 The following paragraph provides you with the appropriate configuration manual containing instructions for installing the compass set.

INSTALLATION

4-8. Refer to the Aircraft Configuration Manual for installation procedures.

CAUTION

Due to the sensitivity of the fluxgate, it must be located in an area of the aircraft free from magnetic or electrical disturbances.

SECTION III

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

GENERAL

4-9 The preventive maintenance checks and services (PMCS) are an easy way to find and correct faults before they cause serious damage to the compass set. To make sure the set is in good running order before, during, and after operation, perform the PMCS procedures listed in the tables in paragraph 4-12.

Before you begin the PMCS procedures, REMEMBER:

a. Before you operate, perform your B (before) PMCS to be sure that your equipment is ready to go.

b. After you operate, perform your A (after) PMCS to help keep the compass set in top shape.

c. Always remember PMCS cautions and warnings.

d. If your compass set fails to operate, record the problem on DA Form 2404 and notify Intermediate Maintenance as soon as possible.

e. In addition to performing your PMCS procedures, check all your equipment for scratches, dents, exposed metal surfaces, cleanliness, and rust. Make a note of all minor defects discovered during operation and inspection on DA Form 2404. Correct them when operations are over.

CAUTION

If you find a problem or weakness in the compass set which, if you continued to operate would cause damage or failure, stop operations immediately.

BASIC PMCS INFORMATION

4-10. These Procedures assume that the compass set is properly shut down. Preventive maintenance is done without the power system energized. Be careful in areas where voltage may exist. If at any point in the procedures you cannot perform an operation, do not proceed to subsequent steps before Maintenance has corrected the problem. If you (or anyone in the crew) cannot perform the required maintenance or corrective action, please notify Intermediate Maintenance immediately.

COLUMN ENTRIES USED IN PMCS TABLES

4-11. Each of the column entries used in the PMCS tables is explained below:

a. *Column 1-Itern No.* Numbers the checks and services to be performed in order. This column is also used as a source of item numbers on DA Form 2404.

b. Column 2-Interval. Tells you when each PMCS should be performed.

B = Before operation
A = After operation
H = Hours (time interval replacement)

c. Column 3-Itern to *be Inspected.* Identifies which part of the set is to be inspected and the procedure to follow.

d. Column *4-Readiness Reporting.* Explains how to tell if the set is not ready to perform.

PMCS PROCEDURES

4-12. The following pages contain PMCS tables. Please read them carefully and follow the directions “to the letter.” REMEMBER, if you reach a point where you can’t perform the procedure listed, notify Intermediate Maintenance.

PMCS PROCEDURES (continued)

B = Before A = After H = Hours

Item No.	Interval B	Interval A	Interval H	Item to be Inspected Procedure	For Readiness Reporting Equipment is not ready/ available if:
				NOTE BE ALERT: If you find a fault which you can fix, fix it. Check out anything that seems wrong or unusual.	
1.	•			EXTERNAL STRUCTURES. Inspect seating and stability of mountings. Check for loose or missing hardware and replace and tighten as necessary. Check to see that the shock-mounted components are securely mounted with sufficient clearance around components. Check to see that all other components are securely mounted. Inspect all bonding for electrical and mechanical connection.	Missing or loose hardware prevents proper use of compass set.
2.	•			Check each control for proper mechanical action. Observe that the mechanical action is positive without backlash, binding, or scraping.	Knobs, dials, or switches are missing or defective.
3.	•			Check to see that exterior surfaces are free from all dirt, grease, and moisture. Check general condition of each component. Inspect for scratched paint, missing screws, and bent or broken hardware.	Defects exist which prevent proper operation of equipment.
4.	•	•		Check to see that the indicators are in good condition and that their glass surfaces are clean and not cracked or damaged.	Indicator face is broken or dirty.

PMCS PROCEDURES (continued)

B = Before A = After H = Hours

Item No.	Interval B	Interval A	Interval H	Item to be Inspected Procedure	For Readiness Reporting Equipment is not ready/ available if:
5.	•			CONNECTORS. Check all connections to all components of the compass system and the additional equipment required and assure that they are clean, intact, and not loose-fitting.	Connectors are damaged.
6.	•			Check all intercabling for cracks and breaks. Replace cables that have cracks or broken connectors.	Cables are missing or broken.
7.			•	ALINEMENT. Check to see that gyro is alined. Gyro should be alined at least once a year.	Gyro is misalined.
8.		•		OPERATIONAL CHECKS. Check to see that the compass system operates in accordance with operational check procedures in Chapter 3.	Operations cannot be performed as stated in Chapter 3.

SECTION IV

TROUBLESHOOTING

GENERAL

4-13. Troubleshooting and replacement of parts at the AVUM level are limited to those operations that you can perform while the compass set is installed in the aircraft. This includes inspection of components, cable connections, and replacement of a faulty source.

The level of disassembly is defined by the Maintenance Allocation Chart (MAC) contained in Appendix B. Any replacement of parts beyond your scope must be performed after removal of the unit from the aircraft.

When using the troubleshooting tables, you will observe that the chart contains three columns, plus the step indication, as shown in the sample below.

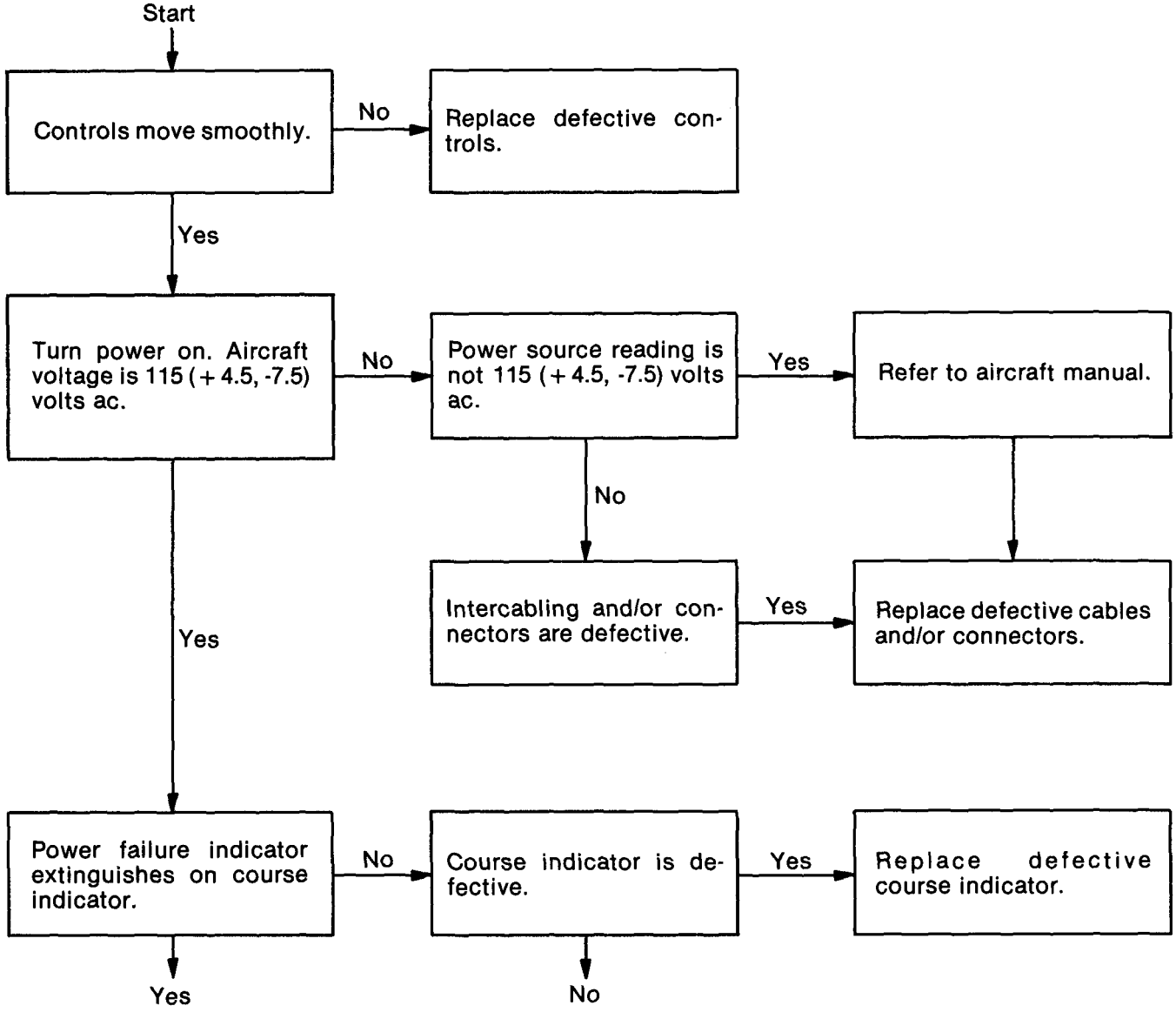
MALFUNCTION	This column lists the fault you observed when performing your operating procedures.
TEST OR INSPECTION	This column directs you to the probable area causing the malfunction.
CORRECTIVE ACTION	This column tells you what to do to correct the problem.

TROUBLESHOOTING TABLE

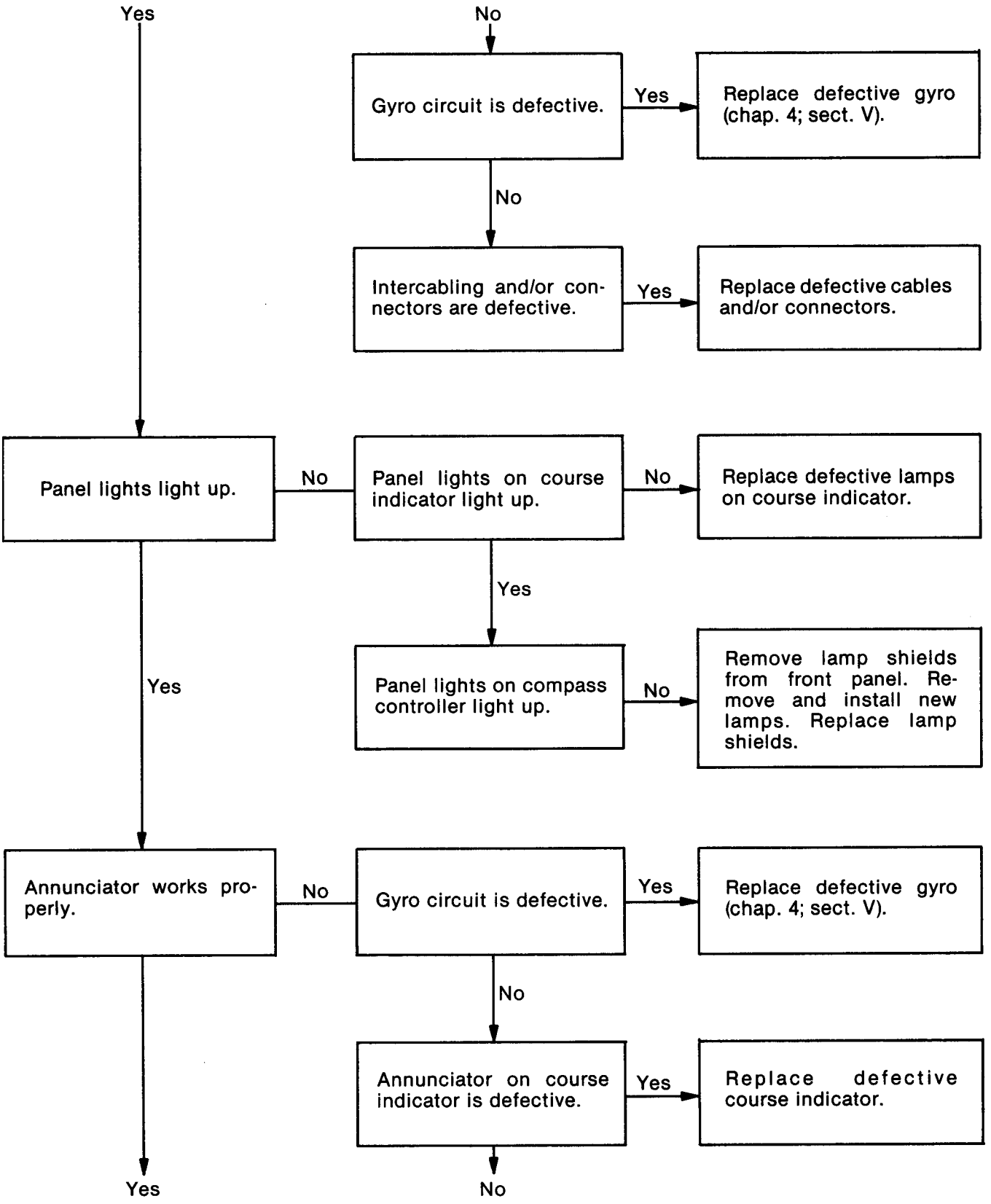
4-14. The troubleshooting chart shown below is based upon the operational check procedures in Chapter 3. If you observe an abnormal condition or result, refer to the troubleshooting chart below. Perform the checks and corrective actions indicated. If the corrective actions do not result in correction of the trouble, a higher category of maintenance is required.

NOTE

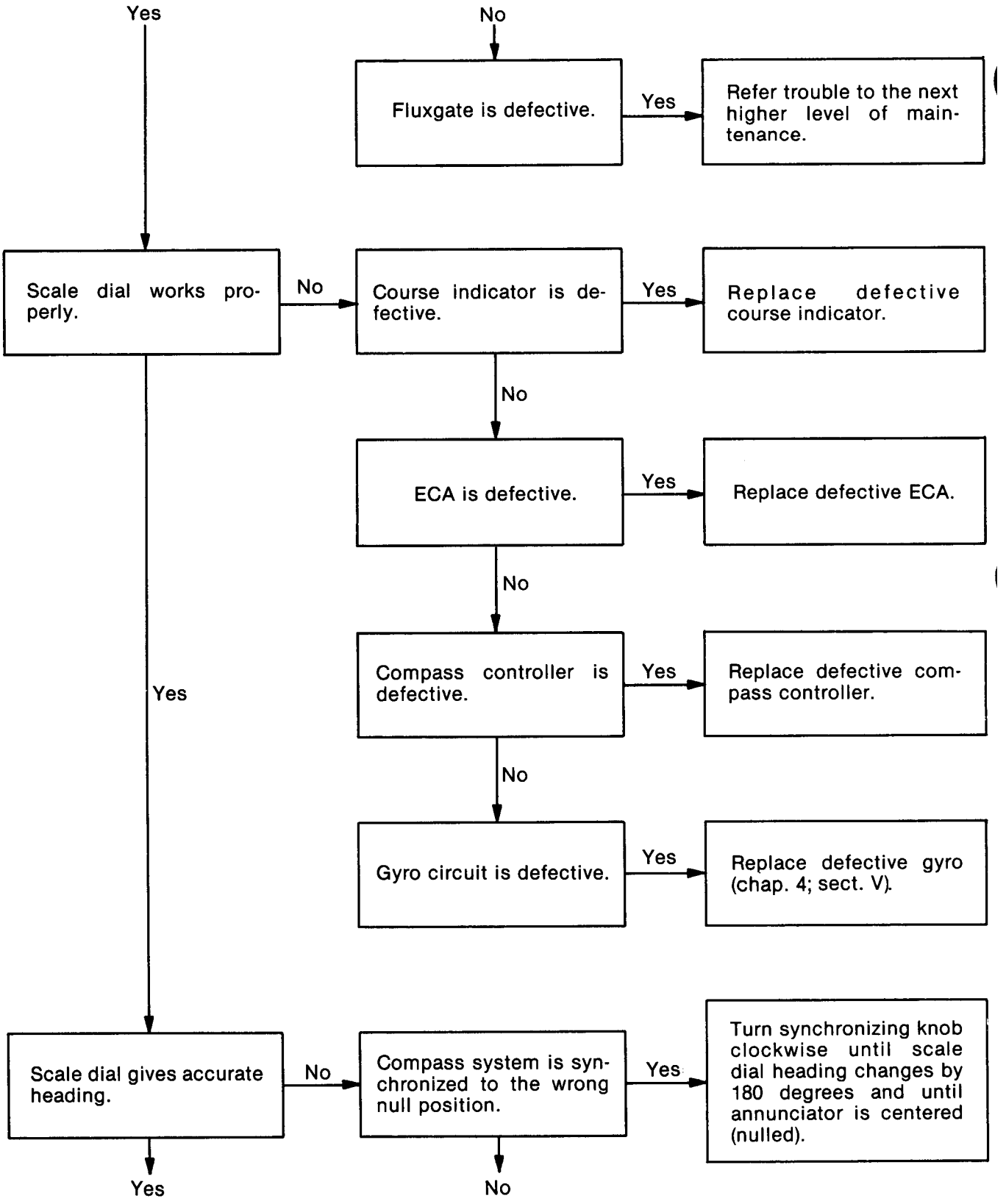
For the replacement of defective equipment, refer to the manuals pertaining to the equipment (unless otherwise specified).



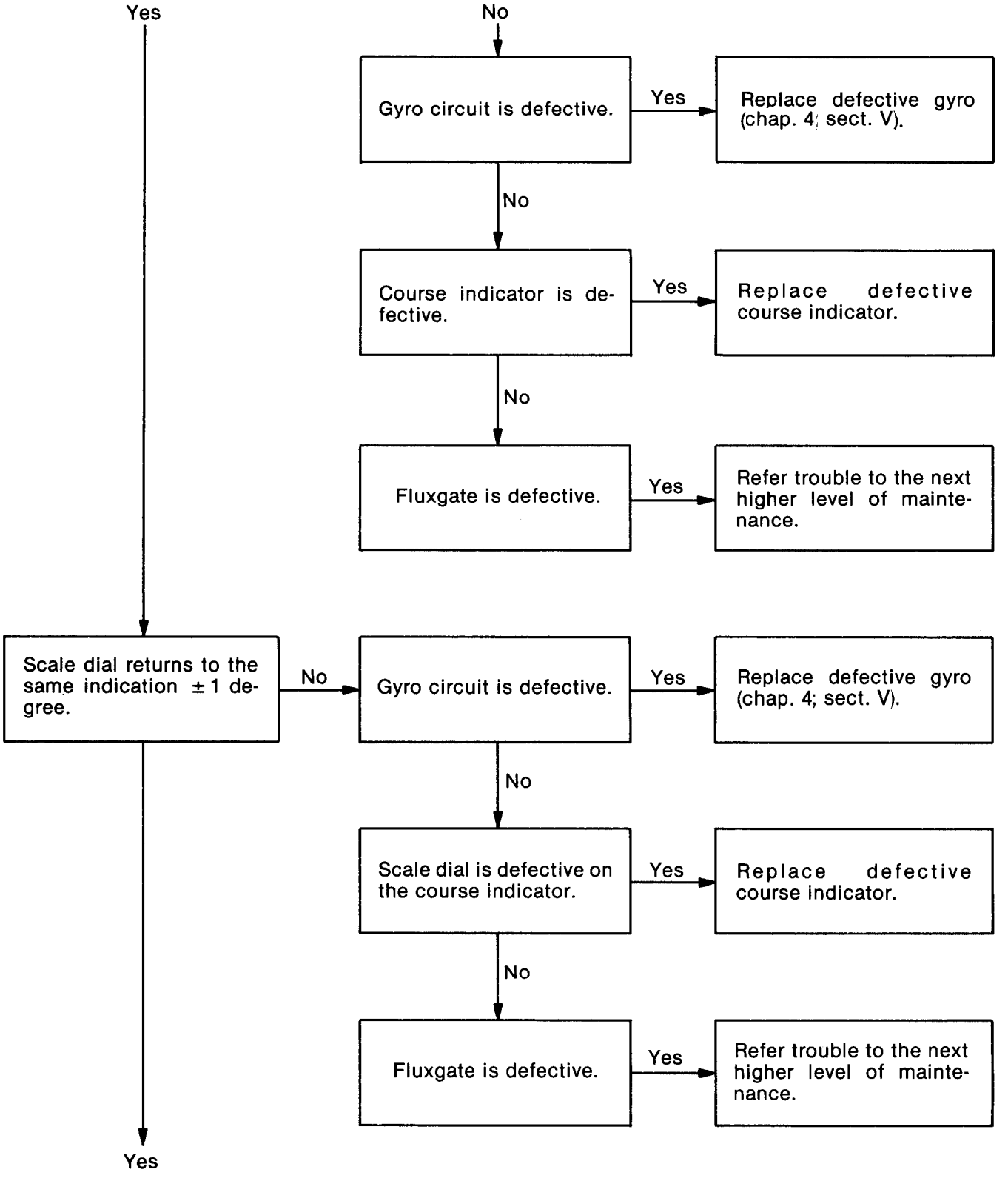
TROUBLESHOOTING TABLE (continued)



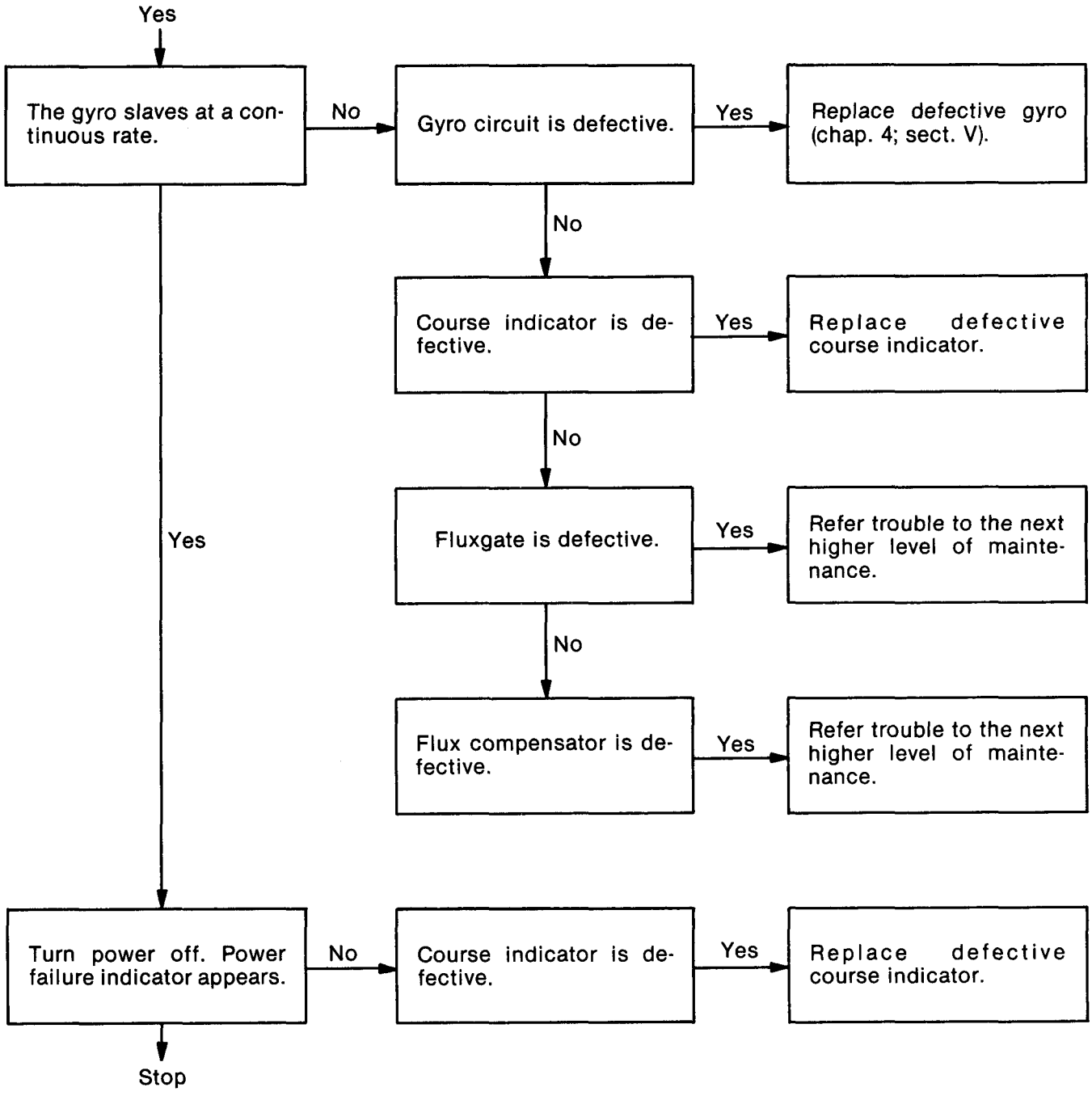
TROUBLESHOOTING TABLE (continued)



Troubleshooting Table (continued)



TROUBLESHOOTING TABLE (continued)



SECTION V

REPLACEMENT PROCEDURES

GENERAL

4-15. This section contains instructions for replacing the compass set components and additional equipment as required by the Maintenance Allocation Chart (MAC) in Appendix B. These step-by-step instructions are intended for the AVUM technician and enable him to remove and replace the gyro, fluxgate, flux compensator, and additional equipment.

REPLACEMENT OF THE GYRO

CAUTION

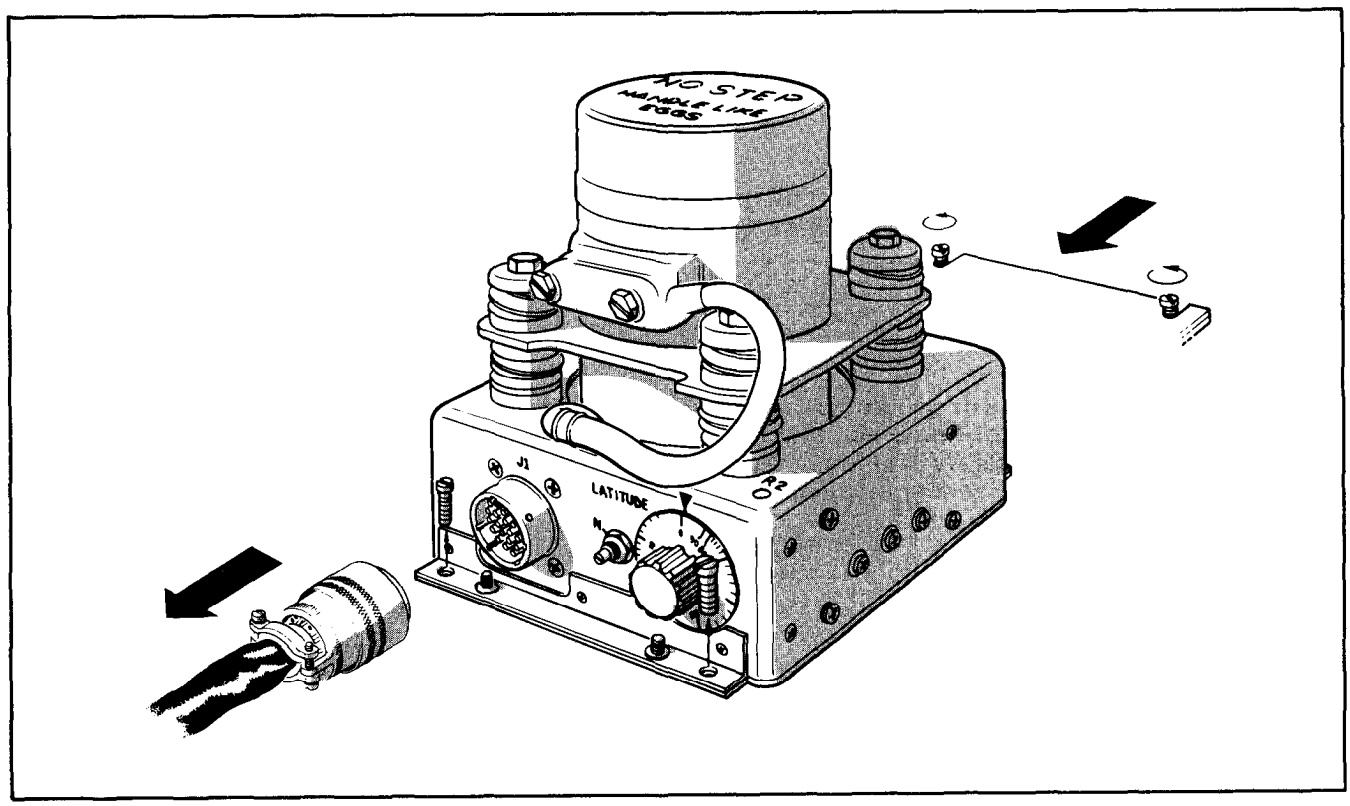
Be very careful when handling the gyro. Do not drop it or let it receive hard shocks; shocks can easily damage the gyro and make the compass set inaccurate.

4-16. Removal

- Remove power from the compass set.
- Disconnect the aircraft mating connector from J1 on the base of the gyro assembly.
- Remove the two front mounting screws that connect the gyro base to the aircraft.
- Loosen the two rear mounting screws that connect the gyro base to the aircraft.
- Slide gyro forward until the rear mounting flange clears the screws and then remove.
- After you have removed the replacement gyro from its box, place the damaged gyro in the box to prevent further damages.

REPLACEMENT OF THE GYRO (continued)

4-16. Removal (continued)



4-17. Replacement

- Make sure that the power is not applied to the compass set.
- Loosen back screws by turning counterclockwise.
- Set gyro assembly on mounting plate, slide gyro away from you, toward rear mounting screws, till the two notches on the rear mounting flange engage the two screws. DO NOT TIGHTEN SCREWS.
- Line up the two front holes in the gyro front mounting flange with the holes in the mounting plate. Insert screws and tighten.
- Tighten rear mounting screws.
- Connect the aircraft mating connector to J1 on the base of the gyro assembly.

REPLACEMENTOF THE FLUXGATE

CAUTION

Assure that the non-magnetic mounting hardware supplied has been used to mount the fluxgate.

4-18. Removal and Replacement

• The AVUM technician should not attempt to remove or replace the fluxgate. If removal or replacement of the fluxgate is required, it must be done by a higher category of maintenance.

REPLACEMENT OF THE FLUX COMPENSATOR

CAUTION

Use only the non-magnetic attaching hardware supplied.

4-19. Removal and Replacement

• The AVUM technician should not attempt to remove or replace the flux compensator. If removal or replacement of the flux compensator is required, it must be done by a higher category of maintenance.

REPLACEMENT OF THE ADDITIONAL EQUIPMENT

4-20. Removal and Replacement

• Refer to the appropriate Aircraft Configuration Technical Manual for removal and replacement procedures for course indicator 1, course indicator 2, course indicator 3, compass controller, ECA, and MAG-DG switch (as applicable).

APPENDIX A

REFERENCES

A-1. Publications Indexes

The following indexes should be consulted frequently for latest changes or revision of references given in this appendix and for new publications relating to material covered in this manual.

Consolidated Index of Army Publications and Blank Forms . . . . DA PAM 310-1

A-2. Forms and Records

The following forms and records pertain to this material:

Quality Deficiency Report . . . . SF 368

Recommended Changes to Publications. . . . . .. DA FORM 2028

Report of Packaging and Handling Deficiencies . . . . SF FORM 6

A-3. Other Publications

The following publications contain information pertinent to this material and associated equipment:

a. *General.*

The Army Maintenance Management System (TAMMS). . . . . .TM 38-750

b. *Maintenance.*

Field Instructions for Painting and Preserving Electronics Command Equipment Including Camouflage Pattern Painting of Electrical Equipment Shelters. . . . . .. TB 746-10

Painting instructions for Field Use. . . . . .. TM 9-213

c. Related Publications.

Navigation for Army Aviation . . . . TM 1-225

APPENDIX B

MAINTENANCE ALLOCATION CHART

SECTION I

INTRODUCTION

B-1 Maintenance Allocation Chart

a. This Maintenance Allocation Chart (MAC) assigns maintenance functions in accordance with the Three Levels of Maintenance concept for Army Aviation. These maintenance levels (categories) - Aviation Unit Maintenance (AVUM), Aviation Intermediate Maintenance (AVIM), and Depot Maintenance (Depot) - are depicted on the MAC as:

AVUM, which corresponds to an 0 Code in the Repair Parts and Special Tools List (RPSTL)

AVIM, which corresponds to an F Code in the Repair Parts and Special Tools List (RPSTL)

DEPOT, which corresponds to a D Code in the Repair Parts and Special Tools List (RPSTL).

b. The maintenance to be performed below depot and in the field is described as follows:

(1) Aviation Unit Maintenance (AVUM) activities will be staffed and equipped to perform high-frequency "On-Aircraft" maintenance tasks required to retain or return aircraft systems to a serviceable condition. The maintenance capability of the AVUM will be governed by the Maintenance Allocation Chart (MAC) and limited by the amount and complexity of ground support equipment (GSE), facilities required, authorized manning strength, and critical skills available. The range and quantity of authorized spare modules/components will be consistent with the mobility requirements dictated by the air mobility concept. (Assignments of maintenance tasks to divisional company size aviation units will consider the overall maintenance capability of the division, the requirement to conserve personnel and equipment resources, and air mobility requirements.)

(a) Company Size Aviation Units: Perform those tasks which consist primarily of preventive maintenance and maintenance repair and replacement functions associated with sustaining a high level of aircraft operational readiness. Perform maintenance inspections and servicing to include preflight, daily, intermediate, periodic (or phased), and special inspections as authorized by the MAC or higher headquarters. Identify the cause of equipment/system malfunctions using applicable technical manual troubleshooting instructions, built-in-test equipment (BITE), installed aircraft instruments, or test, measurement, and diagnostic equipment (TMDE). Replace worn or damaged modules/components that do not require complex adjustments or system alinement and which can be removed/installed with available skills, tools, and ground support equipment. Perform operational and continuity checks and make minor repairs to the electrical system. Inspect, service and make operational, capacity, and pressure checks to hydraulic systems. Perform servicing, functional adjustments, and minor repair/replacement to the flight control, propulsion, power train, and fuel systems. Accomplish airframe repair that does not require extensive disassembly, jigging, or alinement. The manufacture of airframe parts will be limited to those items which can be fabricated with tools and equipment found in current air mobile tool and shop sets. Evacuate unserviceable modules/components and end items beyond the repair capability of AVUM to the supporting AVIM.

B-1. Maintenance Allocation Chart (continued)

(b) Less than Company Size Aviation Units: Aviation elements organic to brigade, group, battalion headquarters, and detachment size units are normally small and have less than ten aircraft assigned. Maintenance tasks performed by these units will be those which can be accomplished by the aircraft crew chief or assigned aircraft repair person and will normally be limited to preventive maintenance, inspections, servicing, spot painting, stop drilling, application of nonstress patches, minor adjustments, module/component fault diagnosis, and replacement of selected modules/components. Repair functions will normally be accomplished by the supporting AVIM unit.

(2) Aviation Intermediate Maintenance (AVIM) provides mobile, responsive "One-Stop" maintenance support. (Maintenance functions which are not conducive to sustaining air mobility will be assigned to depot maintenance.) AVIM may perform all maintenance functions authorized to be done at AVUM. Repair of equipment for return to user will emphasize support or operational readiness requirements. Authorized maintenance includes replacement and repair of modules/components and end items which can be accomplished efficiently with available skills, tools, and equipment. AVIM establishes the Direct Exchange (DX) program for AVUM units by repairing selected items for return to stock when such repairs cannot be accomplished at the AVUM level. The AVIM level inspects, troubleshoots, performs diagnostic tests, repairs, adjusts, calibrates, and alines aircraft system modules/components. AVIM units will have capability to determine the serviceability of specified modules/components removed prior to the expiration of the Time Between Overhaul (TBO) or finite life. Module/component disassembly and repair will support the, DX program and will normally be limited to tasks requiring cleaning and the replacement of seals, fittings, and items of common hardware. Airframe repair and fabrication of parts will be limited to those maintenance tasks which can be performed with available tools and test equipment. Unserviceable repairable modules/components and end items which are beyond the capability of AVIM to repair will be evacuated to Depot Maintenance. AVIM will perform aircraft weight and balance inspections and other special inspections which exceed AVUM capability. Provides quick response maintenance support, including aircraft recovery and air evacuation, on-the-job training, and technical assistance through the use of mobile maintenance contact teams. Maintains authorized operational readiness float aircraft. Provides collection and classification services for serviceable/unserviceable material. Operates a cannibalization activity in accordance with AR 710-2. The aircraft maintenance company within the maintenance battalion of a division will perform AVIM functions consistent with air mobility requirements and conservation of personnel and equipment resources. Additional intermediate maintenance support will be provided by the supporting nondivisional AVIM unit.

B-2. Use of the Maintenance Allocation Chart (Sect. 11)

(The following note shall be included only if applicable.)

NOTE

Nomenclatures used throughout the MAC are approved item names. Those terms/nomenclatures expressed in parentheses are generic in nature and are not to be considered as official terminology.

a. The Maintenance Allocation Chart assigns maintenance functions to the lowest category of maintenance based-on past experience and the following considerations:

(1) Skills available.

(2) Work time required.

(3) Tools and test equipment required and/or available.

B-2. Use of the Maintenance Allocation Chart (Sect. 11) (continued)

b. Only the lowest category of maintenance authorized to perform a maintenance function is indicated. If the lowest maintenance category cannot perform all tasks of any single maintenance function (e.g., test, repair), then the higher maintenance level(s) that can accomplish additional tasks will also be indicated.

c. A maintenance function assigned to a maintenance category will automatically be authorized to be performed at any higher maintenance category.

d. A maintenance function that cannot be performed at the assigned category of maintenance for any reason may be evacuated to the next higher maintenance category. Higher maintenance categories will perform the maintenance functions of lower maintenance categories when required or directed by the commander that has the authority to direct such tasking.

e. The assignment of a maintenance function will not be construed as authorization to carry the related repair parts or spares in stock. Information to requisition or otherwise secure the necessary repair parts will be as specified in the associated Repair Parts and Special Tools List (RPSTL).

f. Normally there will be no deviation from the assigned level of maintenance. In cases of operational necessity, maintenance functions assigned to a maintenance level may, on a one-time basis and at the request of the lower maintenance level, be specifically authorized by the maintenance officer of the level of maintenance to which the function is assigned. The special tools, equipment, etc. required by the lower level of maintenance to perform this function will be furnished by the maintenance level to which the function is assigned. This transfer of a maintenance function to a lower maintenance level does not relieve the higher maintenance level of the responsibility for the function. The higher level of maintenance will provide technical supervision and inspection of the function being performed at the lower level.

g. Changes to the Maintenance Allocation Chart will be based on continuing evaluation and analysis by responsible technical personnel and on reports received from field activities.

B-3. Maintenance Functions

Maintenance functions will be limited to and defined as follows:

a. *Ispect.* **To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.**

b. *Test.* **To verify serviceability by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.**

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

d. *Adjust.* **To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.**

e. *Aline.* **To adjust specified variable elements of an item to bring about optimum or desired performance.**

INTRODUCTION (continued)

B-3. Maintenance Functions (continued)

f. *Calibrate.* To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fixing into position an item, part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. *Replace.* The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services[1] or other maintenance actions[2] to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. *Overhaul.* That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. *Rebuidl.* Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipments/components.

B-4. Group Number and Component/Assembly (Columns 1 and 2, Respectively)

a. *Group Number (Column 1).* Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. *Component/Assembly (Column 2).* Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

B-5. Maintenance Function (Column 3)

Column 3 lists the functions to be performed on the items listed in Column 2.

B-6. Maintenance Categories and Work Times (Column 4)

The maintenance categories (levels) AVUM, AVIM, and DEPOT are listed on the Maintenance Allocation Chart with individual columns that include the work times for maintenance functions at each maintenance level. Work time presentations such as “0.1” indicate the average time it requires a maintenance level to perform a specific maintenance function. If a work time has not been established, the columnar presentation shall indicate **‘‘___.___’’.**Maintenance levels higher than the level of maintenance indicated are authorized to perform the indicated function.

INTRODUCTION (continued)

B-7. Tools and Test Equipment (Column 5 and Section Ill)

Common tool sets (not individual tools), special tools, test, and support equipment required to perform maintenance functions are listed alphabetically in Section Ill with a reference number to permit cross--referencing to column 5 in the MAC. In addition, the maintenance category authorized to use the device is listed along with the item National Stock Number (NSN) and, if applicable, the tool number to aid in identifying the tool/device.

B-8. Remarks (Column 6 and Section IV)

Remarks (identified by an alphabetic code in column 6) and other notes (identified by a number in parentheses in the applicable column) are listed in Section IV to provide a ready reference to the definition of the remark/note.

[1]Services - inspect, test, service, adjust, aline, calibrate, or replace.
[2]Actions - welding, grinding, riveting, straightening, facing, remachining, or resurfacing.

SECTION II

MAINTENANCE ALLOCATION CHART

GYROMAGNETIC COMPASS SET

AN/ASN-43, AN/ASN-43A

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) TOOLS AND EQUIPMENT	(6) REMARKS
00	GYROMAGNETIC COMPASS SET AN/ASN-43A	INSPECT	0.1			1,6	
		REPLACE	0.3			1	
		TEST		1.0		7,12,13	
		ADJUST		0.3		2,4,7	
		ALIGN		0.5		2,3,7,15,16,77 78	1 2
		REPAIR		0.5		2-13	3
		REPAIR			15.0	2-76	4
		OVERHAUL			30.0	2-76	
01	INDUCTION COMPASS TRANSMITTER T-611/ASN	INSPECT	0.1			1	
		REPLACE		0.5		2,3,4,7	2
		REPAIR			4.0	2-76	
02	GYRO DISPLACEMENT CN-998B/ASN-43	INSPECT		0.1		1	
		ALIGN		0.2		15,16	1
		REPLACE		0.5		2-13,73,74	4
		REPAIR		2.0		2-13	5
		REPAIR			24.0	2-76	
0201	AMPLIFIER BASE ASSEMBLY (SM-D-498775)	INSPECT		0.1		1	
		REPLACE		0.3		2,3,4,7	
		TEST		0.5		2,3,7,8,11-15	
		REPAIR		2.0		2,3,7,8,11-15	
020101	AMPLIFIER, ELECTRONIC CONTROL ASSEMBLY (SM-D-498788)	INSPECT		0.1		1	
		REPLACE		0.3		2,3,4,7	
		TEST		0.5		2,3,7,8,11-15	
		REPAIR		2.0		2,3,7,8,11-15	
0202	GYROSCOPE, DISPLACEMENT, SUBASSEMBLY (SM-D-493408) A3	INSPECT		0.1		1	
		REPLACE		0.3		2-13	
		TEST			1.0	15-76	
		REPAIR			16.0	15-76	
020201	GIMBAL ASSEMBLY (SM-D-493409)	REPAIR			8.0	15-76	
		TEST			1.0	15-76	
020202	GYRO ASSEMBLY (SM-D-493419)	REPAIR			8.0	15-76	
		TEST			1.0	15-76	

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SECTION III

TOOL AND TEST EQUIPMENT

GYROMAGNETIC COMPASS SET

ANIASN-43, AN/ASN-43A

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	AVUH	TOOL KIT, TK-101/U	5180-00-064-5178	
2	AVUH DEPOT	TOOL KIT, TK-100/U	5180-00-605-0079	
3	AVUH DEPOT	TOOL KIT, TK-105/G	5180-00-610-8177	
4	AVUH DEPOT	OSCILLOSCOPE AN/USM-281C	6625-W-106-9622	
5	AVUH DEPOT	TEST SET, TRANSISTOR TS-18360/U	6625-00-138-7320	
6	AVUH	MULTIMETER. AN/URM-105	6625-W-581-2036	
7	AVUH DEPOT	MULTIMETER. AN/USM-223	6625-W-999-7465	
8	AVUH OEPOT	VOLTMETER, M3-30C/U	6625-00-643-1670	
9	AVUH DEPOT	STOP WATCH, PN-560	6645-W-719-8670	
10	AVUH DEPOT	RESISTANCE BRIDGE, Zm-4/U	6625-00-166-0398	
11	AVUH DEPOT	VOLTMETER, PHASE ANGLE ME-223/APN-129	6625-00-810-3917	
12	AVUH DEPOT	TEST SET, TS-2644/ASN U/U ID-998/ASN	6625-W-879-1965	
13	AVUH DEPOT	TEST SET, TS-2645/ASN U/Y ID-1351/ASN	6625-W-879-1960	
14	AVUH DEPOT	SCORSBY TILT TABLE, MX-4042A	4920-W-069-8974	
15	AVUH	CALIBRATOR SET, MAGNETIC COMPASS AN/ASH-339	6605-W-782-0281	
16	AVUH	ADAPTER KIT. MAGNETIC COMPASS CALIBRATOR MK-1MOA/ASN	6605-W-816-0329	
17	DEPOT	BEARING PULLER	T-100948	
18	DEPOT	ARBOR PRESS ADAPTER	T-100949	
19	DEPOT	DRILLING UNIT	T-100960	
20	DEPOT	STATOR REMOVER FIXTURE	T-269636	
21	DEPOT	BALANCING FIXTURE	T-270191	
22	DEPOT	CHECKING FIXTURE	T-274902	
23	DEPOT	INDICATOR POST	T-276882	
24	OEPOT	VIBRATOR PLATE	T-280605	
25	DEPOT	NO. 2 RETAINER RING PLIERS	T-289635	
26	DEPOT	STANDARD PEEN .093 DIA.	T-296153	
27	DEPOT	ADAPTER	T-296422	
28	DEPOT	SCORSBY BENCH S PLATE	T-301316	
29	AVUH DEPOT	SCORSBY	1-305967-1	
30	DEPOT	READOUT TEST FIXTURE	T-307702	
31	DEPOT	SCORSBY ADAPTER PLATE	T-307956	
32	DEPOT	SETTING FIXTURE	T-269949	
33	DEPOT	BEARING PULLER	T-100947	
34	DEPOT	CALIBRATOR MOUSING AND COVER	T-307957	
35	DEPOT	LEVELING FIXTURE	T-307959	
36	DEPOT	ANVIL .093 DIA. TABULAR UNIT	T-444423	
37	DEPOT	SPRING CLAMP	T-605112	
38	DEPOT	TORQUE WRENCH O-32 0Z	T-611169	
39	DEPOT	CALIBRATION JEST FIXTURE	T-307970	
40	DEPOT	BALL BEARING SEAT TOOL	T-658883	
41	DEPOT	CLAMP FOR ROTOR ASSEMBLY	T-674661	
42	DEPOT	SOLDERING FIXTURE WITH TURNTABLE	1-675342	
43	DEPOT	TUBE PINCHOFF PLIERS	T-853814	
44	DEPOT	BALANCING FIXTURE	T-891669	
45	DEPOT	GAGE AND PNEUMATIC AMPLIFIER	T-893119	
46	DEPOT	THERM0 GUN	1-893345	
47	DEPOT	HOLDING FIXTURE	T-896155	
48	DEPOT	JET AIR RING GAGE W/SET PLUGS	T-897577	
49	DEPOT	ADAPTER	T-897964	
50	DEPOT	HOLDING FIXTURE	1-3000626	
51	DEPOT	TORQUE SCREMRIVER SET 5/16 HEX	T-3001160	
52	DEPOT	ALIGNING FIXTURE	T-3002162	
53	DEPOT	SLIP RING PROTECTOR	T-3002163	
54	DEPOT	RING ASSEMBLY TOOL	T-3002182	
55	DEPOT	SLIP RING CEMENTING FIXTURE	T-3002191	
56	DEPOT	SOLDERING FIXTURE	1-3002203	
57	DEPOT	PRELOAD FIXTURE	T-3002317	
58	DEPOT	ASSEMBLY HOLDING FIXTURE	1-3002752	
59	DEPOT	GYRO RUN-IN FIXTURE	T-3002203	
60	DEPOT	DEMAGNETIZER FIELD BOX TYPE	T-301306	
61	DEPOT	FLUX VALVE TEST FIXTURE	T-300458	
62	DEPOT	FLUX VALVE KIT	T-300640	
63	DEPOT	SEALING FIXTURE	T-195627	
64	DEPOT	FLUX VALVE CONTINUITY	T-100870	
65	DEPOT	TORQUE WRENCH	1-416077	
66	DEPOT	TORQUE WRENCH	T-417461	
67	DEPOT	VACUUM OIL FILLING FIXTURE	T-195626	
68	DEPOT	WATER TEST HOLDING FIXTURE	1-601219	
69	DEPOT	PIVOT PULLER	T-716856	
70	DEPOT	END PLAY FIXTURE	T-601407	
71	DEPOT	FLUX VALVE HEADING SIMULATOR	1-307967	
72	DEPOT	DEMAGNETIZER	T-301285	
73	DEPOT	OFF-SET WRENCH, 180 DEGREES	T-3002401	
74	DEPOT	OFF-SET WRENCH, 90 DEGREES	T-896985	
75	OEPOT	REWORK FIXTURE, MULTIMETER TS-505D/U	T-297862	
76	DEPOT	ARBOR PRESS	T-100236	
		(NOTE: ALL -T- NUMBERS SHOWN ARE SPERRY PART NUMBERS)		

SECTION III

TOOL AND TEST EQUIPMENT REQUIREMENTS

GYROMAGNETICCOMPASSSET

AN/ASN-43,AN/ASN-43A (Cont'd)

'OOLOR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
77	AVIN	AIMING CIRCLE M2A2 OR EQUIVALENT COMMERCIAL TRANSIT	1290-01-067-0687	
78	AVIN	PRECISION ANGLE INDICATOR (MODEL 800) NORTH ATLANTIC IND, OR EQUIVALENT		
79	AVIN	ADAPTOR CABLE (CV-3338/ASN-43 to PAI)		

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(Edition of 1 Oct 74 may be used until exhausted)

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SECTION IV

REMARKS

GYROMAGNETIC COMPASS SET

AN/ASN-43, AN/ASN-43A

REFERENCE CODE	REMARKS
1.	Adjust CN-998B for appropriate latitude conditions.
2.	Replacement of T-611/ASN will require alignment and/or reorientation of the compass.
3.	Repair/replacement of major assemblies and repair subassemblies, align as required.
4.	Repair includes replacement of throw-away magnetic flux compensator.
5.	Repair base assembly and amplifier.

APPENDIX C

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LIST

SECTION 1

INTRODUCTION

SCOPE

C-1. This appendix lists components of end item and basic issue items for the compass set to help you inventory items required for safe and efficient operation.

GENERAL

C-2. The components of End Item and Basic Issue Items are divided into the following sections:

a. *Section II Components of End Item.* This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

b. *Section Ill Basic Issue Items.* These are the minimum essential items required to place the test set in operation, to operate it, and to perform emergency repairs. Although shipped separately, packaged B11 must be with the test set during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request/requisition replacement B11, based on TOE/MTOE authorization of the end item.

EXPLANATION OF COLUMNS

C-3. The following provides an explanation of columns found in the tabular listings:

a. *Column 1- Illustration Number (Illus Number).* This column indicates the number of the illustration in which the item is shown.

b. *Column 2- National Stock Number.* This column indicates the national stock number assigned to the item and will be used for requisitioning purposes.

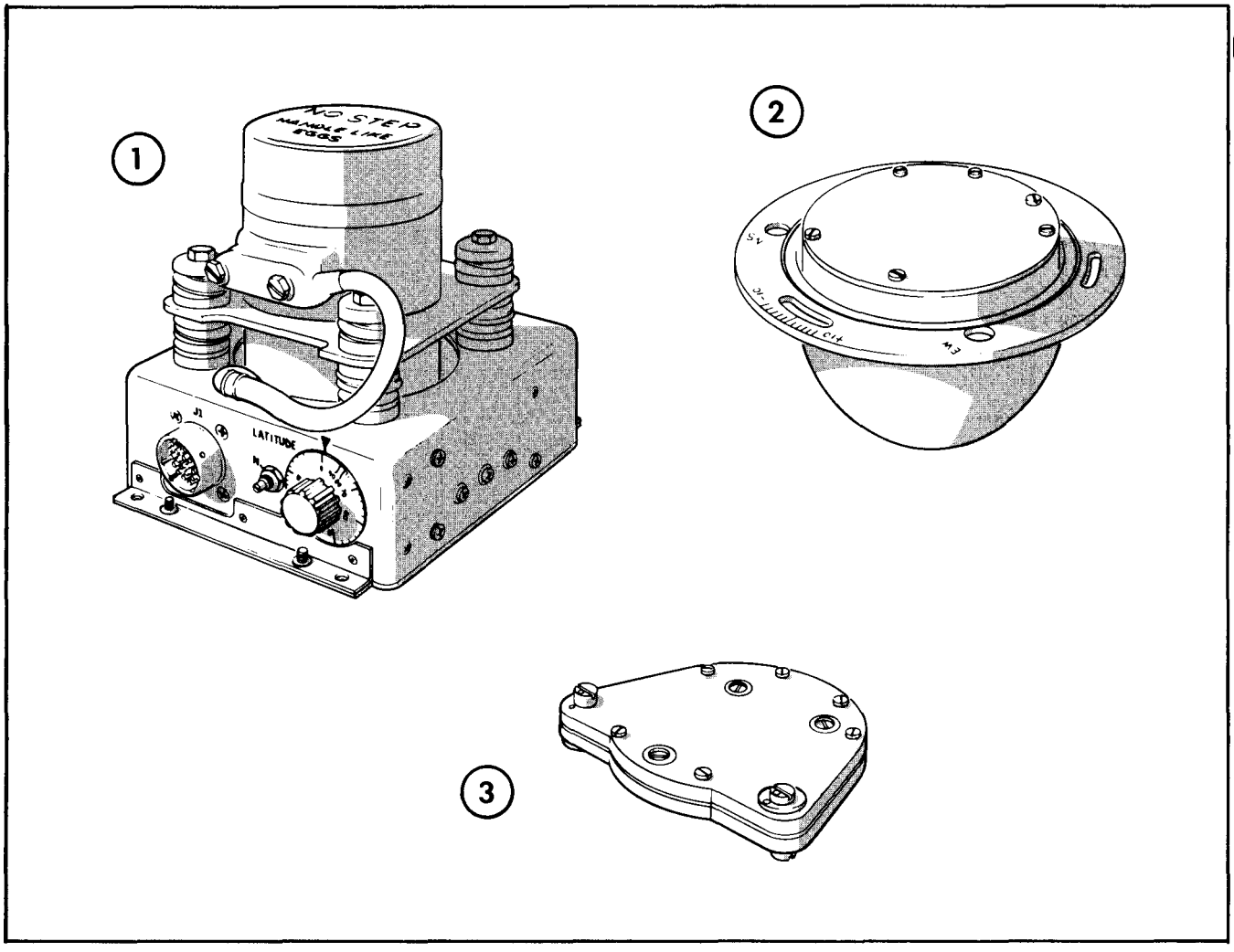
c. Column 3- Description. This column indicates the National item name and, if required a minimum description identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number.

d. *Column 4- Unit of Measure (U/M).* This column indicates the measure used in performing the-actual operationa/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr).

e. Column 5- Quantity Required (Qty Rqr). This column indicates the quantity of the item authorized to be used with/on the equipment.

SECTION II

COMPONENTS OF END ITEMS



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
1	6615-00-167-9757	Directional Gyro CN-998(all)/ASN-43		EA	1
2	6605-00-531-2992	Induction Compass Transmitter T-611/ASN		EA	1
3	6605-00-487-4773	Magnetic Flux Compensator CN-405/ASN		EA	1

SECTION III

BASIC ISSUE ITEMS (NOT APPLICABLE)

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER USABLE ON CODE	(4) U/M	(5) QTY RQR

APPENDIX E

EXPENDABLE SUPPLIES AND MATERIALS

SECTION I

INTRODUCTION

SCOPE

E-1. This appendix lists expendable supplies and materials you will need to operate and maintain the compass set. These items are authorized to you by CTA 50-970, Expendable items (except medical, Class V, Repair parts and Heraldic Items).

EXPLANATION OF COLUMNS

a. *Column 7- Itern Number.* This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use dry cleaning solvent, Item 4, App. E").

b. *Column* 2- Level. This column identifies the lowest level of maintenance that requires the listed item.

O - Organizational Maintenance
AVUM - Aviation Unit Maintenance
F - Direct Support Maintenance
AVIM - Aviation Intermediate Maintenance

c. *Column 3- National Stock Number.* This is the national stock number assigned to the item; use it to request or requisition the item.

d. *Column 4- Description.* Indicates the federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. *Column 5- Unit of Measure (UIM).* Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

SECTION II

EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	0		Cleaning Cloth	YD
2	0		Soft Bristle Brush	EA
3	0		Fine Sandpaper #000	AR
4	0		Dry Cleaning Solvent P-D-680 Type II	AR
5	0		Pretreatment Coating MIL-P-15328	AR
6	0	8010-00-817-1213	Lusterless Enamel TT-E-527, Federal Standard 595, Color 37038, black	AR
7	0		White Epoxy Ink, 50-100, white CAT-L-ink w/catalyst No. 20	AR

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