

Preface

Safety Notices

OPERATOR SAFETY

Watch for the rotating antenna:

The radar antenna will start to rotate without notice. For your safety, keep away from the area in the vicinity of the radar antenna.

Be aware of RF Radiation Hazard:

The active radar antenna radiates powerful RF energy. Continuous exposure to RF energy may cause harmful effects to the human body. It also causes Cardiac Pacemaker to malfunction. A person who uses a Cardiac Pacemaker should under no circumstances be exposed to RF radiation.

Most countries accept that RF power density levels below 100 W/m^2 cause no significant RF hazard.

Distance vs. specified RF Power Density Level

Power / antenna length	100 W/m^2	10 W/m^2
6 KW / 4 ft Aerial	1.09 m	3.46 m
6 KW / 6 ft Aerial	1.3 m	4.10 m
12 KW / 4 ft Aerial	1.55 m	4.89 m
12 KW / 6 ft Aerial	1.84 m	5.81 m
25 KW / 4 ft Aerial	2.45 m	7.73 m
25 KW / 6 ft Aerial	2.82 m	8.91 m

Dangerous HIGH voltage inside:

Life threatening high voltage is present in the antenna and display units. This high voltage may be present even after the power switch has been turned off. The high voltage circuits are provided with protection covers and warning labels to avoid unintentional contact with these sections. For safety reasons, switch the power off before accessing the internal circuitry and discharge any residual voltages in capacitors by an appropriate method. Only qualified personnel should attempt these maintenance procedures.

MAINTENANCE SAFETY

Beware of residual high voltages:

High voltages may remain in the capacitors and the anode cap on the Cathode Ray Tube several minutes after you have turned the power switch off. Wait at least five minutes or discharge them to ground before starting your inspection.

Make sure the main power supply is OFF:

To prevent an electrical injury due to erroneous power switching, make sure that the main power supply and the system power switch are both OFF. Also attach a safety label showing that service is in progress.

Avoid inhaling dust:

The dust could be a temporary health hazard. When cleaning inside of the equipment, avoid inhaling the dust.

Avoid static electricity:

Take care not to damage the ESDs (Electrostatic Sensitive Devices) due to static electricity from carpet and cloths.

Various symbols used in this manual

The following symbols are used in this manual. You are requested to be fully aware of the meaning of each symbol before carrying out inspection and maintenance on this radar system

Warning mark



To handle the equipment ignoring this sign may lead to fatal damage or injury to human body.

Alarm mark



To handle the equipment ignoring this sign may lead to injury to human body or damage to the equipment.

Caution mark



To handle the equipment ignoring this sign may lead to a malfunction of the equipment.

Warning High Voltage mark



To handle the equipment ignoring this sign may lead to electrical shock to human body.

Prohibition mark



This sign indicates that a specified action is prohibited. The prohibited action will be shown in the vicinity of the mark.

HOW TO USE THIS MANUAL

Scope of this manual

This manual provides necessary information for installation, operation and maintenance of RA83/84/85/93/94/95 Series radar systems.

Organization of this manual

This manual is divided into chapters for quick and easy finding of the information you require. The titles and contents of each chapter are as follows:

Chapter 1: GENERAL DESCRIPTIONS

- Outline of the equipment
- Equipment category
- EMC compliance statement
- System configuration
- Software type name used

Chapter 2: EQUIPMENT SUPPLIED

- Standard equipment list
- Spare parts list
- Installation material list
- Optional items

Chapter 3: TECHNICAL SPECIFICATIONS

- Antenna specification
- Processor specification
- ATA Specification
- Serial data and sentence used
- Power supply
- Compass Safe Distance
- Environmental specification
- Mechanical specification

Chapter 4: INSTALLATION

- Installation considerations
- Unpacking each component of the system
- Inspection of each component unit and accessories
- Setting the units
- Cable routing and connections
- Installation procedure
- Setting up after installation
- Setting up option

Chapter 5: BASIC OPERATION

- Introduction
- Control panel layout
- Operating controls
- Getting started
- Basic radar operations

Chapter 6: USING THE MENU

- RADAR MENU
- DISP MENU
- ADJUST MENU
- SYSTEM MENU
- MAINTENANCE MENU
- Operation of EPA
- Operation of ATA
- Operation of AIS

Chapter 7: GRAPHIC DISPLAYS

- Entering Graphic Mode
- Selecting the Graphic Display/DISPLAY ITEM SELECT MENU
- Registering or modifying the NAVLINE data / NAVLINE DATA INPUT MENU

Chapter 8: TROUBLE SHOOTING AND ON BOARD SERVICING

- Information required for service
- Self diagnosis functions provided
- Trouble shooting
- On board servicing

Chapter 9: MAINTENANCE

- Periodic inspection and cleaning

Chapter 10: TECHNICAL REFERENCES

- Serial input data sentence detail
- Tracking data output sentence detail
- Radar output sentence detail
- Interface requirements