CHAPTER 1
GENERAL INFORMATION AND SAFETY PRECAUTIONS

1.1 SAFETY PRECAUTIONS

The equipment is equipped with fuses protecting the electronics devices from short circuits, which may damage the equipment or cause fires.

Depending upon the material to be highlighted, the following attention letter headings are used in the technical manual content.

DANGER

BEFORE TURNING ON THE RADAR, MAKE SURE THAT THERE IS NO PERSONNEL NEAR THE ANTENNA.

WARNING

THE ELECTRONICS OF THE EQUIPMENT ARE SUPPLIED WITH THE MAINS POWER, ALSO WHEN THE EQUIPMENT IS SWITCHED OFF. FOR THIS REASON, OPENING A UNIT MUST BE PERFORMED ONLY BY SKILLED PERSONNEL.

WARNING

AN OPERATING OR MAINTENANCE PROCEDURE, PRACTICE, CONDITION AND STATEMENT WHICH, IF NOT STRICTLY OBSERVED, COULD RESULT IN INJURY OR DEATH OF PERSONNEL.

WARNING

AN OPERATING OR MAINTENANCE PROCEDURE, PRACTICE, CONDITION AND STATEMENT WHICH, IF NOT STRICTLY OBSERVED, COULD RESULT IN DAMAGE TO, OR DESTRUCTION OF, UNIT OR LOSS OF EMISSION EFFECTIVENESS.

NOTE

An essential operating or maintenance procedure, condition or statement which must be highlighted.

When a precaution is required which relates specifically to a part of the technical manual contents, the information is given in the relevant part of the manual.

Warning and Cautions precede applicable text.

1.1.1 **High voltage**

Radar equipment requires the use of high voltages. This can cause injury, or loss of life. Danger exists only when the units are opened, exposing internal circuits, as when servicing the equipment. You do not face any danger during normal operation. The SRT S-Band Radar System has been carefully designed to protect personnel from possible injury from high voltages at normal operation.

When inspecting or servicing the equipment, nevertheless, it is recommended that the Line Switch to left open, as an added protection.

Although every effort has been made to eliminate danger to personnel, no responsibility is accepted for any injury or loss of life suffered in connection with the equipment.

1.1.2 **Safety switch**

The Radar Unit is provided with a safety switch, which disable the Antenna movement during maintenance operations and avoids high voltage damage. Always turn the safety switch off, whenever advised in this manual (for instance, before performing any maintenance or installation procedure). Ignoring safety switch operation may produce hazard of electrocution as well as other severe injures.

1.1.3 **Safety precautions**

Purpose

The safety precautions described in this paragraph are applicable to Up Mast S-Band. Depending upon the material to be highlighted, the following attention letter headings are used in the technical manual content.

NOTE
An essential operating or maintenance procedure, condition or statement which must be highlighted.

Whenever a precaution, relating specifically to a part of the technical manual is needed, the information is given in the relevant part of the manual. Warnings and Cautions precede applicable text.

Safety Operations

During normal operation (front cover closed), the unit can be quickly disconnected from the main power line, setting to OFF the relevant circuit breaker located on the electric switchboard.

During maintenance (front cover opened) it is possible to turn-on the unit by setting to SERVICE MODE the SW2 switch, mounted on the RTM Supply Assy. This switch is connected in parallel with the relay, controlled by the POWER ON command, and during normal operation must be set to

NORMAL. During maintenance, in order to prevent RTM occasional turning-on it is better to disconnect and insulate, momentarily, PWON terminal from the relevant terminal board.

NOTE
Main power line is always present on terminal board and on fuses.

Safety Summary

The following are general safety precautions that are not related to any specific procedure and therefore do not appear elsewhere in this technical manual. These are recommended precautions that personnel must understand and apply during most phases of operation and maintenance.

KEEP AWAY FROM LIVE CIRCUIT

Operating personnel must at all times observe all safety regulations.

Do not replace components or make adjustments inside the unit with the high voltage supply turned ON. Under certain conditions, dangerous potentials may exist when the power breaker is in the OFF position, also due to charges retained by capacitors. To avoid casualties, always remove power and discharge to ground a circuit before touching it.

DO NOT SERVICE OR ADJUST ALONE

Under no circumstances should any person initiate servicing or adjusting the unit except in the presence of someone capable of helping help.

RESUSCITATION

Personnel working with or near high voltage should be familiar with modern methods of resuscitation. Such information may be obtained from the Bureau of Medicine and Surgery.

Warning Information

The following warnings appear in the text of this technical manual, and are repeated here for emphasis.

WARNING

USE EXTREME CARE WHEN WORKING ON THE UNIT ONCE THE COVER HAS BEEN OPENED. THE MAGNETRON ASSEMBLY OPERATES AT VOLTAGES THAT MAY PROVE FATAL.

WARNING

BEWARE OF HIGH VOLTAGE CAPACITORS. IT IS NECESSARY TO SHORT-CIRCUIT THEIR LEADS BEFORE PERFORMING ANY MAINTENANCE ACTION ON THEM.

WARNING

ON THE ELECTRIC SWITCHBOARD, SET TO OFF THE POWER BREAKER DEDICATED TO THE PRESENT EQUIPMENT AND HANG TO IT A PLACARD READING: “WORK IN PROGRESS-DO NOT SWITCH ON”.

WARNING

USE EXTREME CARE WHEN WORKING ON THE EQUIPMENT ONCE THE FRONT COVER HAS BEEN OPENED. THE MAGNETRON ASSEMBLY OPERATES AT VOLTAGES THAT MAY PROVE FATAL.

WARNING

SET MAIN LINE BREAKER TO OFF BEFORE REPLACING ANY FUSE. FUSES ARE UNDER VOLTAGE LEVELS WHICH MAY PROVE FATAL.

1.1.4 **X-ray radiation**

X-RAY radiation may be generated by Transceiver units and care must be taken to avoid possible harmful effects when they are opened for maintenance. When power is on, care should be taken not to approach **closer than 1 ft. from the unit unless front cover is in place**.

1.1.5 **Radio-frequency radiation**

Harmful effects (particularly to the eyes) may be caused by exposure of any part of the human body to radio-frequency mean power densities. Hazard distances at which power densities of 100 W/ m², 50 W/ m² and 10 W/m² exist, are given in the following table.

Table 1.1.1 Hazard zone

Configuration	On the antenna surface [W/m²]	Distance at 0,9 m in front of the antenna [W/m²]
30 kW Transceiver + 12'S-Band Antenna (ANT12S/LP)	28	10

The system is however designed to disable radiation when the antenna is not rotating.

The pedestals have also been predisposed for the installation of an external safety switch, which can be mounted on, or near the platform. This switch removes power from the Pedestal eliminating the possibility of accidental operation during servicing and also causes disabling of transmission.

Whenever it is necessary to disconnect the waveguide system from a radar transmitter for maintenance purpose, the transmitter output should, when practicable, be terminated in a matched load. If this is not possible, care should be taken to avoid standing in front of an open-ended waveguide from which power is being radiated.

NEVER look down a waveguide/coaxial cable from which power is being radiated.