



communications

Aviation Recorders

Marine Systems

ProTec AIS Introduction

1.1. General

The L-3 ProTec is an Automatic Identification System transponder which is fully compliant to the technical specifications defined by the IMO and outlined in ITU.R.M 1371-1. The transponder employs the latest radio frequency and SOTDMA and DSC controller technology to provide a high performance, automated, and reliable identification system for commercial mariners. The Transponder is a fully automated system which ties into ship's navigational instruments to provide automatic transmission of ships identity, status, and maneuvering intentions via standard marine VHF communication techniques. Sequencing of transmission between all vessels within VHF range is provided through SOTDMA controlling software to handle high traffic volume situations.

The Transponder is a fully automated system. This means that once it is installed and turned on, no maintenance is required to keep it operational. The only time the user needs to perform any function on the transponder is to change the ship's Vessel/Voyage data as required.

1.1.1. System Overview

The L-3 ProTec is an Automatic Identification System fully compliant with the IMO specifications defined in IMO MSC.74(69) Annex 3, IEC 61993-2, and ITU.R M.1371-1. This AIS transponder has been developed using technology applied in the design of our VHF DSC Class A radio, a design which has been field tested for over a decade with over 10000 units operational in the field. With the addition of the SOTDMA controllers, the L-3 ProTec provides a cost-effective AIS solution which will meet the needs of any vessel required to carry AIS. The compact, single-box design allows the L-3 ProTec to be easily incorporated into any bridge layout thus simplifying installation and cabling requirements.

The L-3 ProTec has been designed as maintenance-free unit which makes extensive use of surface mount technology (SMT). The repair of printed wiring assemblies (PWAs) containing SMT components requires specialized factory equipment, training, and techniques, therefore, such PWAs are not field-repairable.

As a result, maintenance philosophy for the L-3 ProTec is replacement of failed assemblies. In the case of the L-3 ProTec, the replaceable assemblies are the Face-plate Assembly (192M0093-00), the RF PWA (205M0597-00), the CPU PWA (205M0596-00), and the PS PWA (205M0598-00).



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When it has been determined that one or more of these assemblies is faulty, the faulty assembly(ies) should be removed and returned to the Aviation Recorders factory for repair or replacement. Attempts to repair any of these assemblies will void the warranty. Extreme care should be used when handling these assemblies.

For repair service, ship units to:

L-3 Communications, Aviation Recorders
6000 East Fruitville Road
Sarasota, FL 34232 USA
Attn: Repair Department
Tel: (941) 377-5558
Fax #: (941) 377-5585

CAUTION: THE L-3 ProTec CIRCUIT BOARDS ARE SUSCEPTIBLE TO ELECTROSTATIC DESTRUCTION (ESD). PRIOR TO HANDLING PWAs, ENSURE PROPER PERSONNEL GROUNDING TECHNIQUES ARE USED. ENSURE THAT CARDS ARE PLACED INTO STATIC SHIELDING CONDUCTIVE BAGS WHEN HANDLING OR STORING.



1.1.2. **References**

IMO Resolution MSC.74(69), Annex 3, Recommendation on Performance Standards for an Universal Shipborne Automatic Identification Systems (AIS)

IMO SN/Circ. 227, Guidelines for the INstallation of a Shipborne Automatic Identification System (AIS)

International Telecommunications Union Sector for Radio Communications (ITU-R) Recommendation M.1371-1, Technical Characteristics for a Universal Shipborne Automatic Identification System Using Time Division Multiple Access in the Maritime Mobile Band.

IEC 61993-2 Edition1, Maritime Navigation and Radiocommunication Requirements - Automatic Identification Systems (AIS) - Part 2: Class A shipborne Equipment of the Universal Automatic Identification System (AIS) - Operational and Performance Requirements, Methods of Test and Required Test Results

IEC 60945 Edition 4, Maritime Navigation and Radiocommunication Equipment and Systems - General Requirements - Methods of Testing and Required Test Results.

IALA Recommendation on AIS Shore Stations and Networking Aspects Relating to the AIS Service, Edition 1.0, September 5, 2002