OceanTRx7™

Maritime Stabilized VSAT System

Technical Note

Shunt Regulator

Document: TEC32-1664-007, Revision A

January 2013

Orbit Communication Systems Ltd. P.O.B. 42504, Israel, Tel: +(972) 9 892 2777, Fax: +(972) 9 885 5944 **www.orbit-cs.com**

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Revision History and Control

Revision History

Rev #	Modified by	Date	Comments
Rev. A	Edox		

About this Manual

This manual is designed to guide you through the procedures required for maintaining the `SHUNT REGULATOR` for the OceanTRx7™ Maritime Satellite Communication System.

Text Conventions

Style	Indicates	Example
Text	Normal descriptive text	Contents
`Text`	Words or figures that appear on the screen or that should be typed The name of a file or directory	`System Status`
`<Text>`	A key to be pressed	`<ESC>`
`TEXT`	The name of a hardware component	`ANTENNA`
Text	The name of a GUI element	**Operation Screen**
➢	The description of a procedure	➢ **To configure…**

Notations

	Indicates important information that should be noted.
	Indicates a potential hazard.
	Indicates the safest method of installation or an operation that *must be adhered to.*

Effective Releases

This document is effective for Release 1 (R1) and Release 2 (R2) of the OceanTRx7™ Maritime Satellite Communication System.

For a description of the changes between R1 and R2, refer to the *OceanTRx7™ Maritime Satellite Communication System Release Notes*.

Table of Contents

1 Introduction

1.1 Purpose

The purpose of this Technical Note is to provide detailed instructions on how to replace and configure a SHUNT REGULATOR.

1.2 Principles

The following principles must be followed when performing the procedures in this Technical Note.

1.2.1 Torque Table

The following table provides the torque that should be used when tightening screws of the listed types, as relevant.

Table 1-1: Torque and Loctite Values

Screw Type	Torque
M8	$25^{N}/_{m}$
M6	$10.2^{N}/_{m}$
M5	$6^{N}/_{m}$
M4	$2.5^{N}/_{m}$
M3	$1.35^{N}/_{m}$

1.3 Shunt Regulator Description

The SHUNT REGULATOR is a DC voltage stabilizer that absorbs the excess back-EMF energy reflected from the SERVO MOTORS whenever the system is rapidly decelerated. The unit, which consists of a power resistor and switching circuit, protects the SERVO DRIVER's 96 VDC power supply from overvoltage due to electrical feedback.

The OceanTRx7™ SYSTEM SUPPORTs the following shunt regulator:

Figure 1-1: Shunt Regulator – R2

The SHUNT REGULATORs have the same mechanical interface and different electrical interfaces.

Note: When replacing old SHUNT REGULATOR (R1) with new SHUNT REGULATOR (R2) old electrical cable interface must be removed and replaced with new one.

1.4 Spare Kit Contents

The following table provides a list of the parts in the `SHUNT REGULATOR` spare kit.

Table 1-2: Spare Part Kit Contents

KIT32-1664-003-SP		
P/N	**Description**	**Quantity**
31-0301-9-2	CABLE FOR NEW SHUNT REGULATOR AL-7107	1
L00128003	SHUNT VOLTAGE REGULATOR	1

1.5 Required Tools and Parts

The following table provides a list of tools and customer-supplied parts that are needed to perform the procedures in this Technical Note.

Table 1-3: Required Tools and Parts

Tool/Part Name	Notes	Figure
Phillips screwdriver		
Tie cutter		
Allen keys: 3mm		

2 Preliminary Procedures

The preliminary procedure described below must be performed before replacing the SHUNT REGULATOR:

1. Perform System Shut-Down of the vessel's main power AC Voltage terminal outside the RADOME.
2. Open the RADOME hatch.
3. Switch off the ADE POWER BOX at the ANTENNA PEDESTAL base (located inside the RADOME).
4. Manually rotate the PEDESTAL AXES to gain convenient access to the serviced unit.

In the following procedures, be very careful when tightening and loosening the screws with which the parts are assembled and attached to the system. Some of these screws are delicate and can be damaged by excess force. When using an Allen key make sure to insert the key all the way into the screw head to avoid thread stripping.

WARNING!

The Utility Outlet is connected directly to the vessel's AC voltage input terminals (125 VAC / 250 VAC). Therefore, there still exists live voltage at the Utility Outlet after disconnecting the power supply to the ADE using the Mains Power On/Off Switch.

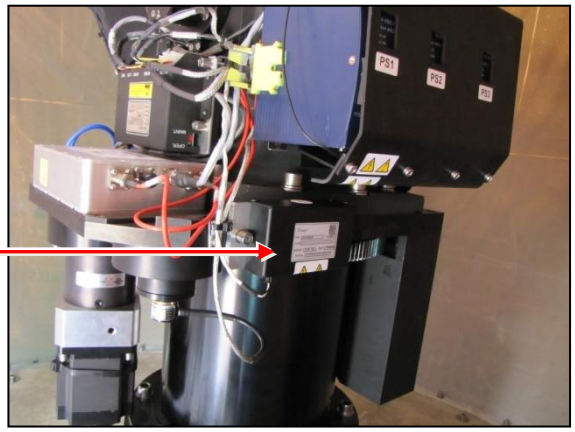
Only qualified and authorized personnel are allowed to carry out system service/maintenance procedures.

3 Replacing the Shunt Regulator

3.1 Removing the Shunt Regulator (R2/R1)

Step 1

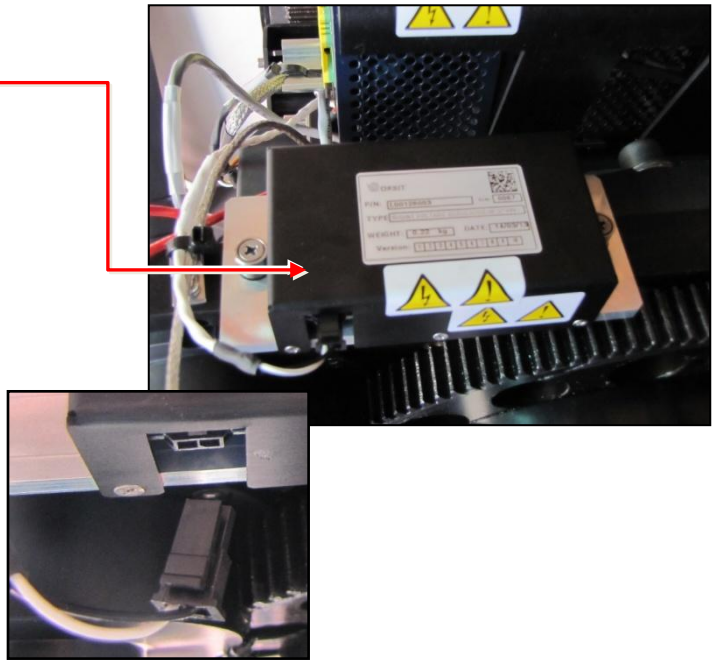
Locate SHUNT VOLTAGE REGULATOR.



Attention: When replacing a SHUNT REGULATOR (R1) with a SHUNT REGULATOR (R2) refer to Appendix A for a cable replacement description.

Step 2

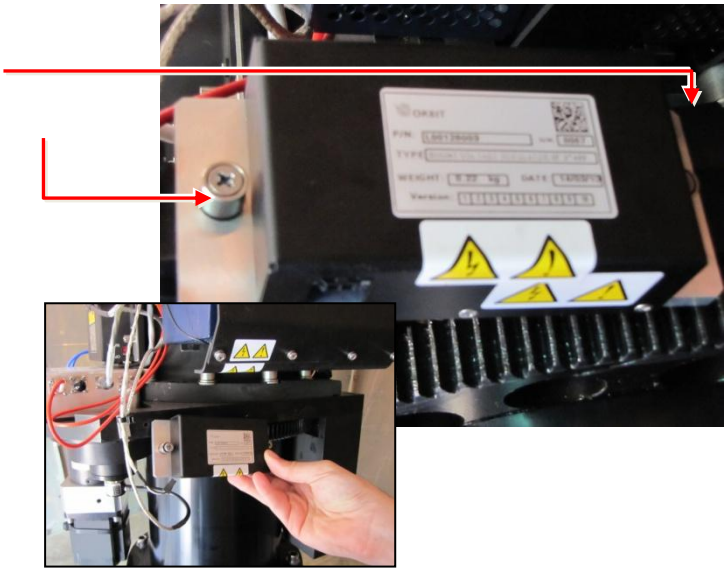
Unlock SHUNT VOLTAGE REGULATORS plug and pull plug down to remove.



Attention: Gently unlock plug before pulling down.

Step 3

Use a Philips Screw driver to release two captive Philips screws securing the SHUNT VOLTAGE REGULATOR to the PEDESTAL.



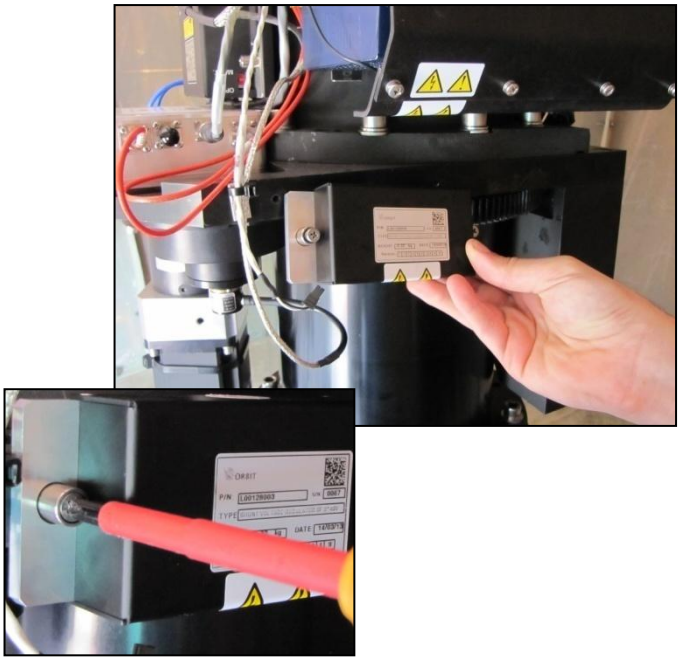
Attention: Hold SHUNT VOLTAGE REGULATOR with other hand while unscrewing Philips screws.

Note: R1 system SHUNT system might use Allen screws.

3.2 Installing a Shunt Regulator

Step 1

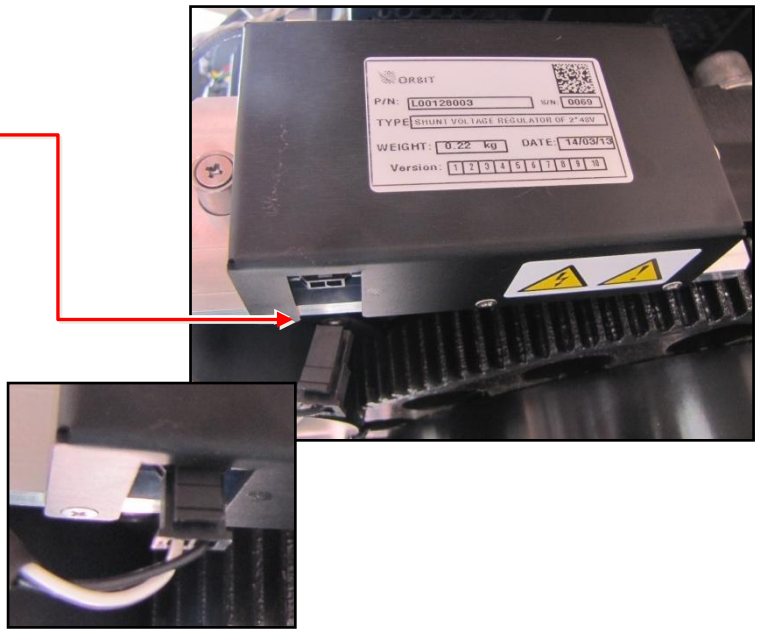
Secure the new SHUNT VOLTAGE REGULATOR to the PEDESTAL using its two captive Philips screws.



Step 2

Connect SHUNT VOLTAGE REGULATOR'S plug.

Attention: Make sure plug locked.



4 Appendixes

4.1 Appendix A: Replacing Shunt Regulator cable (R1 with R2)

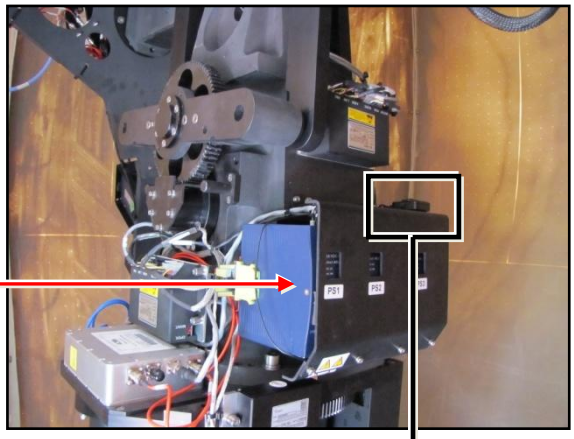
4.1.1 Removing Shunt Regulator cable (R1).

Step 1

Disconnect the wire connector from the SHUNT VOLTAGE REGULATOR.

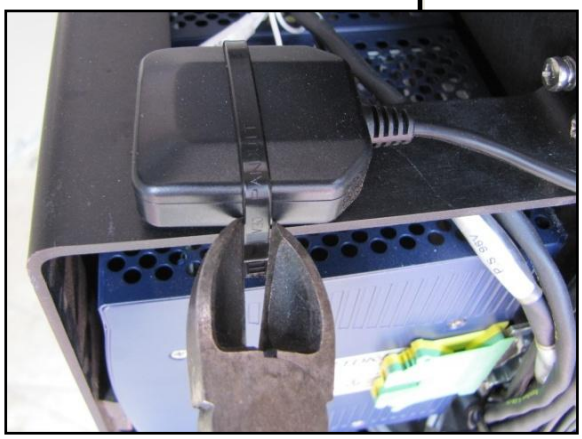
Step 2

Locate the POWER SUPPLIES module.



Step 3

Cut tie wrap securing GPS MODULE.



Step 4

Remove GPS MODULE.

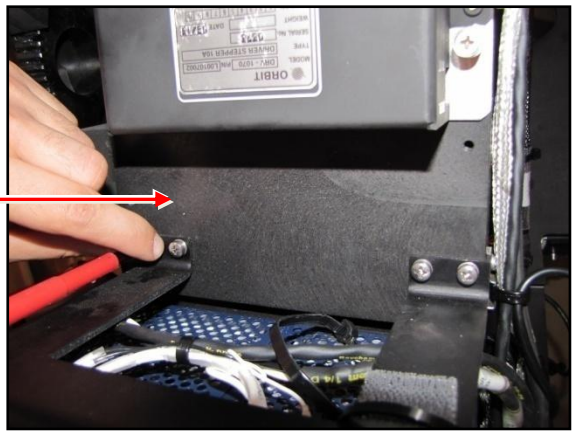
Attention: Scotch securing GPS MODULE to its place.

Step 5

Remove the screws securing the POWER SUPPLY cover to the PEDESTAL using a Phillips screwdriver.

Four screws at the lower part of the cover.

Four screws at the upper part of the cover.

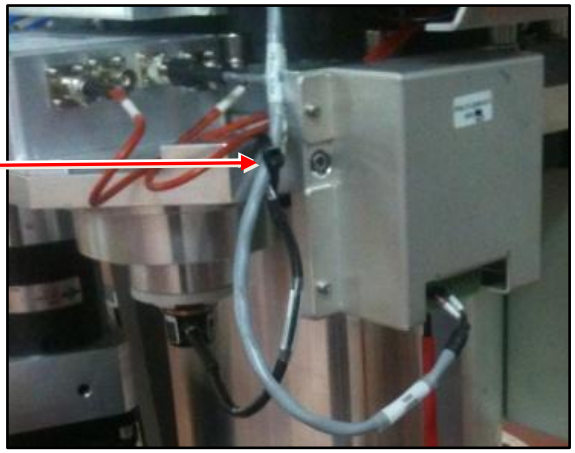


Step 6

Remove the POWER SUPPLIES cover.

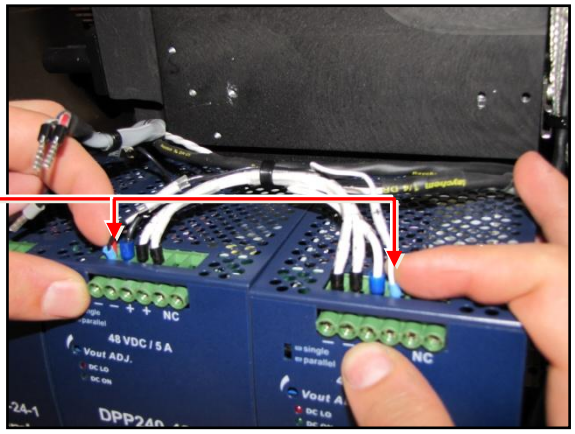
Step 7

Cut tie wrap securing SHUNT REGULATOR'S (R1) cable.



Step 8

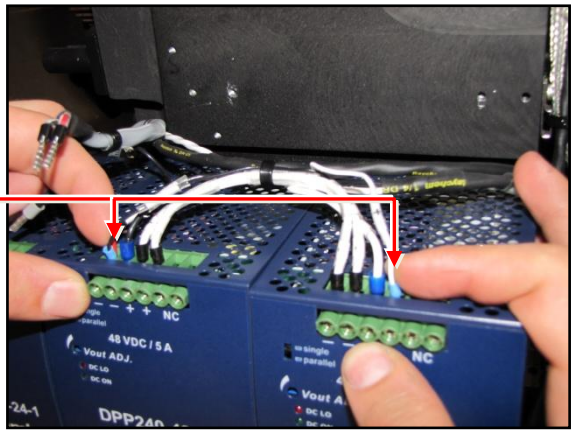
Use a screwdriver to disconnect the SHUNT REGULATOR'S (R1) wires connected to the POWER SUPPLY unit and remove the cable.



4.1.2 Installing Shunt Regulator cable (R2).

Step 1

Insert the new SHUNT REGULATOR'S (R2) wires to their proper marked position on the POWER SUPPLY unit and tighten them using a screwdriver.



Extreme hazard warning:

Make sure you fasten each wire to the proper position. Note the markings and colors!

Step 2

Use tie wraps to secure SHUNT REGULATOR'S (R2) cable.

Step 3

Relocate the POWER SUPPLY cover.

Step 4

Hand tight the four upper Philips screws of the POWER SUPPLY's cover.

Hand tight the four lower Philips screws of the POWER SUPPLY's cover.

Use a Phillips screwdriver to fasten all eight screws securing the POWER SUPPLY's cover. to the PEDESTAL.

Step 5

Relocate the GPS MODULE.

Attention: Scotch securing GPS MODULE to its place.

Step 6

Use a tie wrap to secure the GPS MODULE.