ORBIT

OceanTRx™

# OceanTRx7™

## Maritime Stabilized VSAT System

# Technical Note

# Polarization Skew Motor

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*COMMUNICATION WITHOUT BOUNDARIES*

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# Revision History and Control

## Revision History

| Rev # | Modified by | Date | Comments |
|---|---|---|---|
| . | Albert | September 24, 2013 | New Release |
| | | | |
| | | | |
| | | | |

# About this Manual

This manual is designed to guide you through the procedures required for maintaining the `POLARIZATION SKEW MOTOR` 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<br>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 both OrBand™ and OceanTRx7™ Maritime Satellite Communication Systems.

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

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# 1 Introduction

## 1.1 Purpose

The purpose of this Technical Note is to provide detailed instructions on how to replace and configure a POLARIZATION SKEW MOTOR.

## 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 Values**

| Screw Type | Torque |
|---|---|
| M4 | $2.5^{N}/_{m}$ |
| | |
| | |
| | |
| | |

## 1.3 Polarization Skew Motor Description

The Tx/Rx RF FEED mounted on the ANTENNA includes a polarization skew servo sub-system that consists of a polarization skew servo driver and POLARIZATION SKEW MOTOR that electrically switch the polarization of the RF FEED.

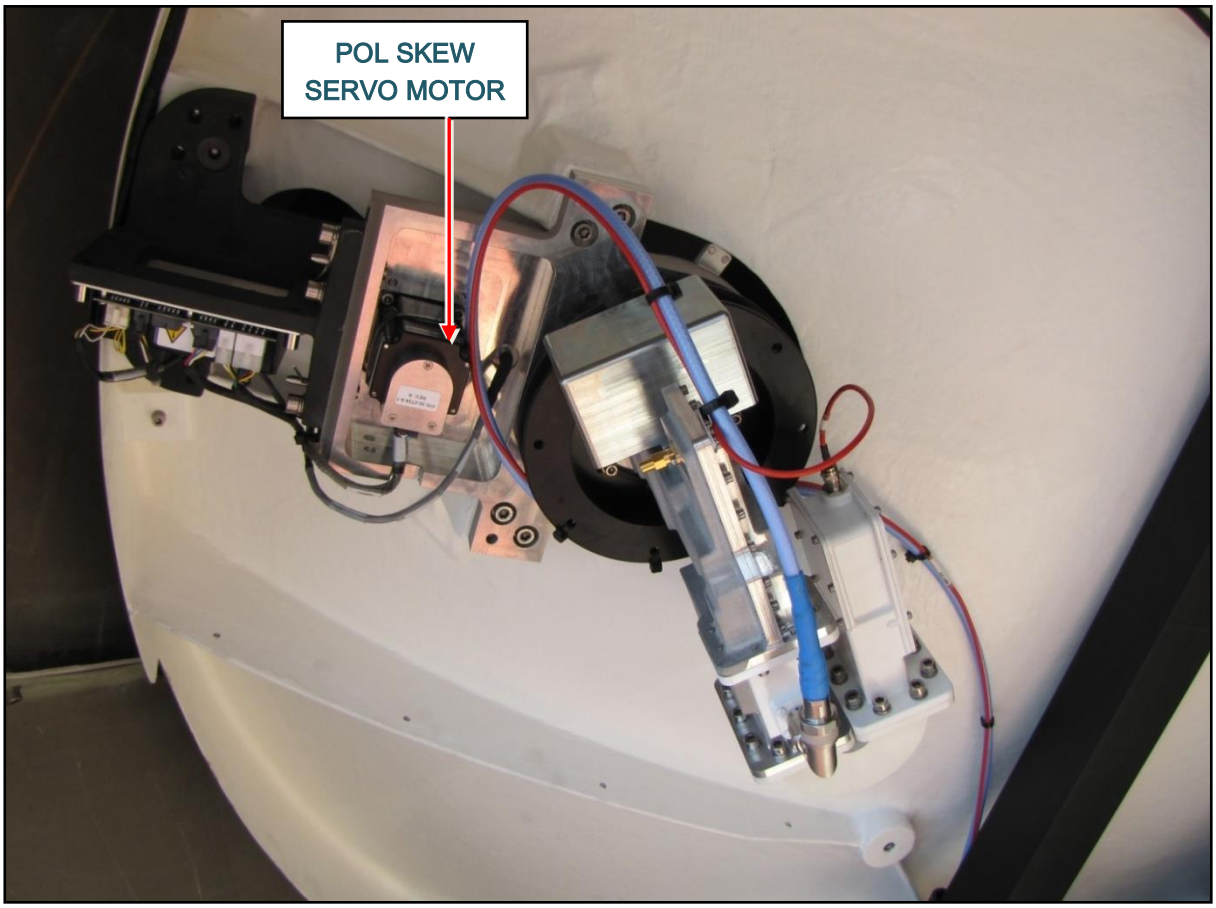



Figure 1-1: Polarization Skew Motor on RF Feed

## 1.4 Spare Kit Contents

The following table provides a list of the parts in the `POLARIZATION SKEW MOTOR` spare kit.

**Table 1-2: Spare Part Kit Contents**

| KIT32-1664-030-SP | | |
|---|---|---|
| **P/N** | **Description** | **Quantity** |
| 30-0724-9-1 | POL MOTOR and WIRING | 1 |
| H06015071402 | SCKT CAP SCR M5X14 ST.ST. | 4 |
| H07014070402 | SCKT SETSCR M4-0.7X4 ST.ST. | 2 |
| H28215091002 | HELIC SPR WASHER M5 ST.ST. | 4 |
| K01000055 | PKG BOX 299X213X200 | 1 |
| M04000002 | PULLEY GT2 3MM PITCH, ALUMINIUM, A6A53-020DF0908 | 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 |
|---|---|---|
| Tie cutter | |  |
| Cable ties | |  |
| 4mm Allen key | |  |

# 2 Preliminary Procedures

➢ **To Perform Preliminary Procedures:**

The following preliminary procedures must be performed before replacing the POLARIZATION SKEW MOTOR:

1. Open the RADOME hatch.
2. Switch off the ADE POWER BOX at the ANTENNA PEDESTAL base (located inside the RADOME).
3. Toggle the SERVO DRIVER MAINT/OPER switch on the servo driver to MAINT position to release the brake and allows smooth movement of the axis .
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.

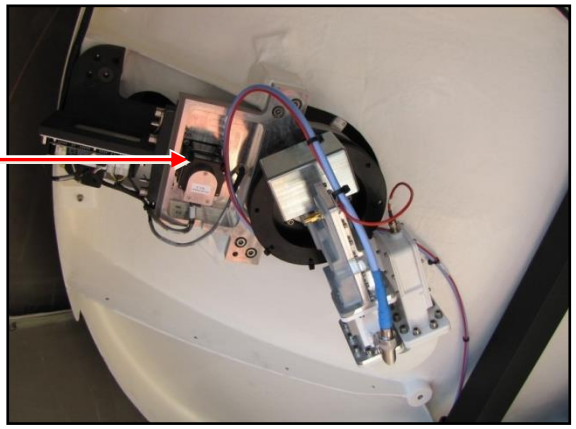
# 3 Replacing the Polarization Skew Motor

## 3.1 Removing a C-Band Polarization Skew Motor

➢ **To Remove a C-Band Polarization Skew Motor:**

**Step 1**

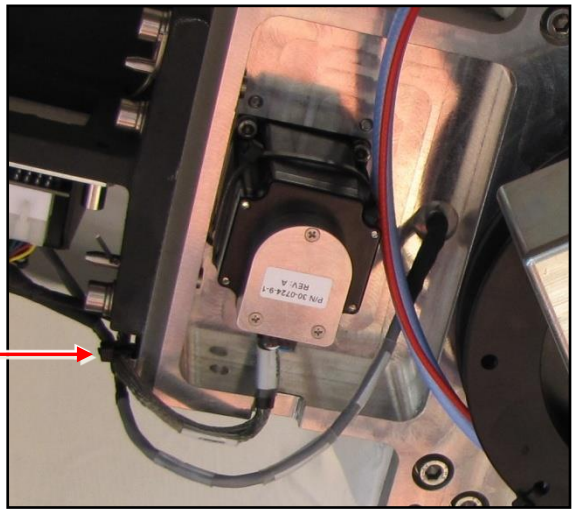
Locate the POLARIZATION SKEW MOTOR.



For demonstration purposes C-Band system was used.

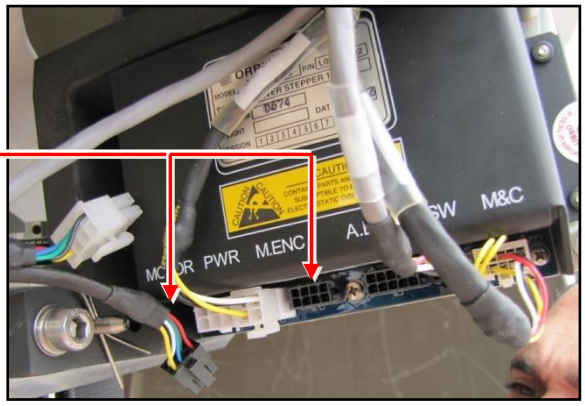
**Step 2**

Cut the tie wraps binding the SERVO DRIVER cables.



**Step 3**

Disconnect the MOTORS two cables from its SERVO DRIVER.




Gently unlock plugs before pulling.

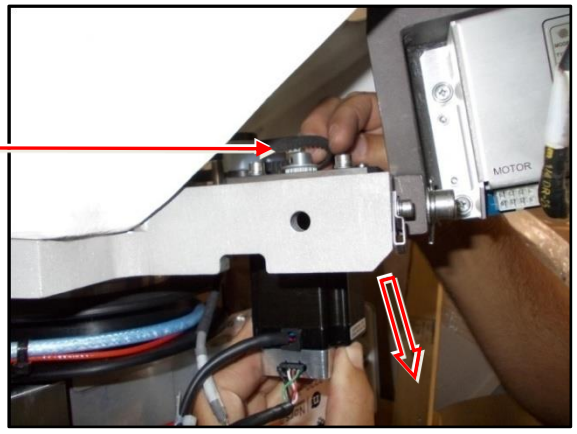
**Step 4**

Use a 4mm Allen key to remove the four screws securing the MOTOR to the RF ASSEMBLY.

Hold MOTOR with other hand.

**Step 5**

Carefully tilt the motor and release it from the MOTOR BELT.




## 3.2 Installing a Polarization Skew Motor

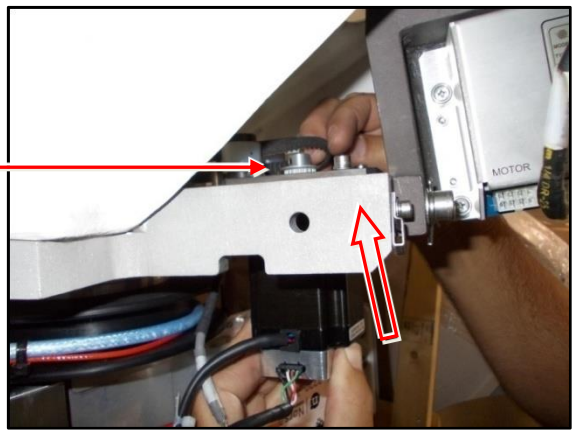
➢ **To Install a Polarization Skew Motor:**

**Step 1**

Install the PULLEY on the motor axis.

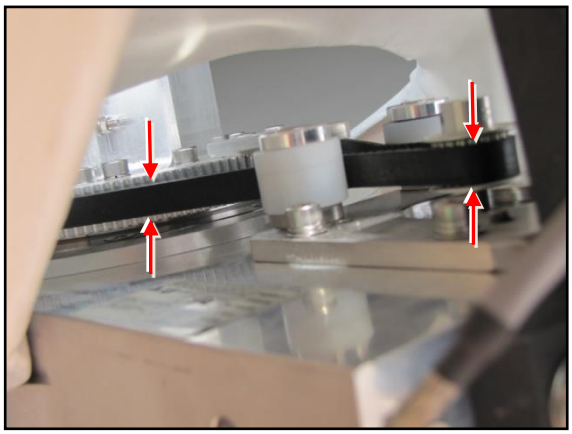
Mount the new motor in its place and hand tight its screws.

Insert the motor with a small angle as the arrow describes, to let it fit properly on its belt.



### Step 2

Stretch the MOTOR BELT into position.



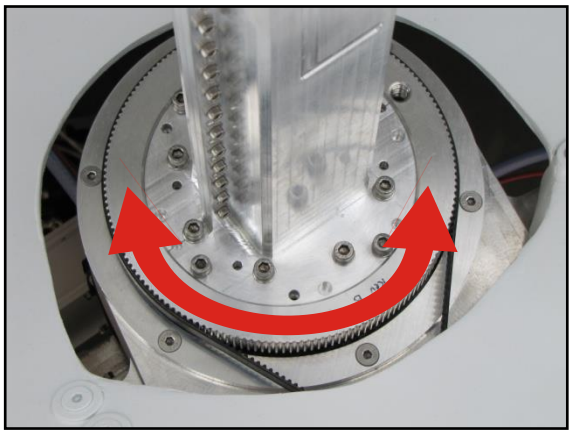
Verify the MOTORS BELT is centered on the POLARIZATION SKEW and the MOTOR's axes.

### Step 3

Use a 4mm Allen key and tighten four screws securing the MOTOR to the RF ASSEMBLY.

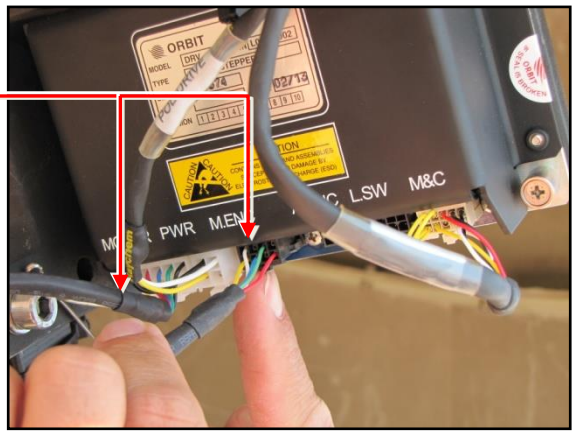
### Step 4

Gently, hand rotate the POLARIZATION SKEW to make sure it rotates freely



### Step 5

Connect the MOTORS two plugs to its SERVO DRIVER.

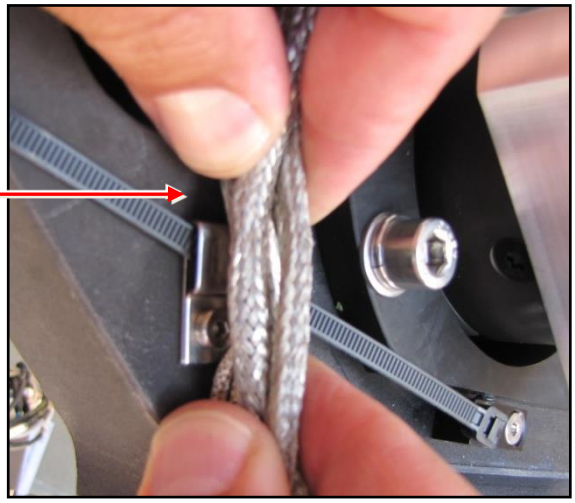



The cable wires are delicate – use caution.

Make sure the plugs lock.

### Step 6

Use tie wraps to secure the MOTORS cables.

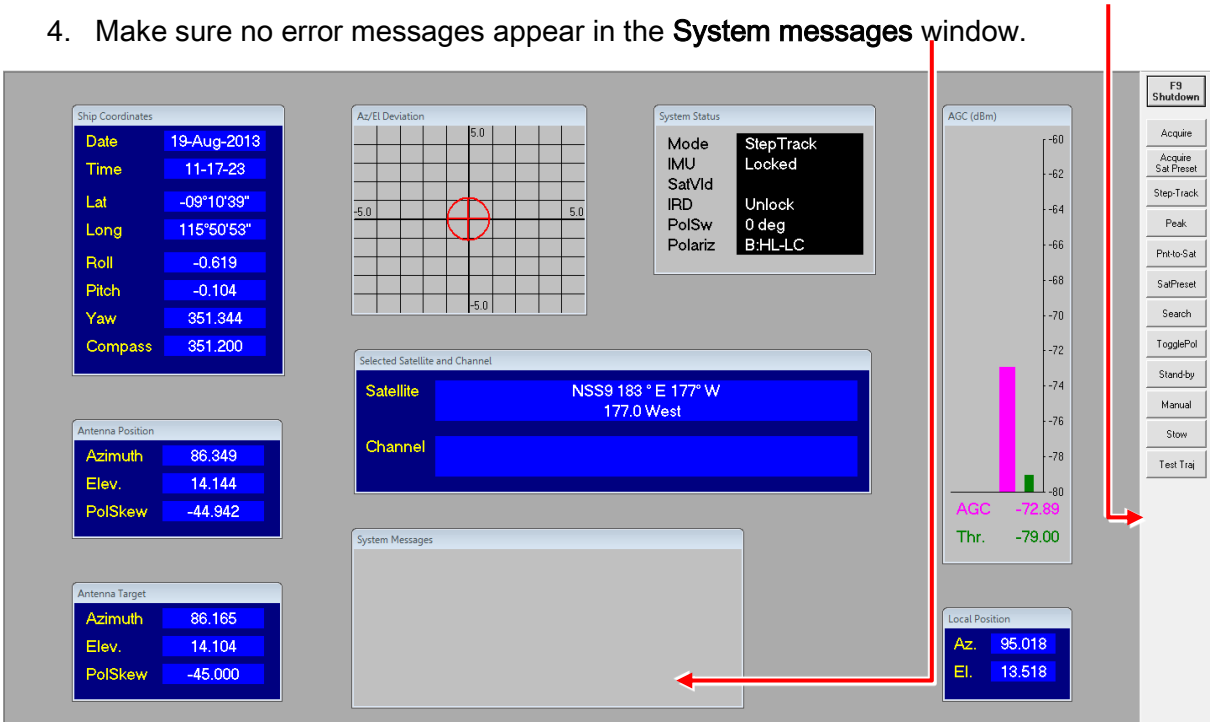


Ensure tight connectivity between cables shield and tie wrap holder.

# 4 Performing Verification Test

➢ **To Perform Verification Test:**

1. Manually move the feed's head and make sure it's belt tension is proper.
2. Start up the system (see the *OceanTRx7™ Installation and Operation Manual* for instructions).
3. To make sure the technical process completed successfully click on **Test Traj.**
4. Make sure no error messages appear in the **System messages** window.




5. Perform CPI test with satellite operator and verify link parameters