RC3KD TriKit
RC3000D to ANDREW Trifold® Interface Kit

Installation Manual

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1.0 RC3KD TriKit Installation

The RC3KD TriKit provides all the hardware necessary to interface a RC3000D mobile antenna controller with an Andrew 3.7/4.5m Trifold antenna system.

Chapter 1 of this document describes how to install the components of RC3K TriKit onto an Andrew Trifold antenna system. Chapter 2 details calibrating the RC3000D antenna controller with the Trifold system. Chapter 3 provides drawings and schematics associated with the interface kit.

1.1 Mount Requirements

The RC3KD TriKit requires that the following Andrew antenna components are present:
1) Andrew positioner (mount) mechanism. Andrew supplies the combined reflector (3.7m. or 4.5m. Trifold) and mount as their model AP (Antenna and Positioner).
2) Andrew MKAPVS1 motorization kit. This option provides the azimuth, elevation and polarization motors along with the VS-1 antenna interface unit (AIU) and VS-2 handheld control.
3) Andrew REMKAP-VS1-100 2 pole resolver kit. This option provides the azimuth, elevation and polarization resolvers, brackets and cabling to the VS-1 AIU. **Note: Make sure to have the 2 pole vs. 4 pole resolver kit.**

Prior to installation of the kit, manual control of the mount via the Andrew VS-2 local controller should be established to ensure proper operation of the MKAPVS1 motorization kit. This manual assumes that a RC3000D antenna controller is present. The model RC3000D is specifically configured to interface to the Andrew VS-1 AIU.

1.2 Interface Kit Components

The following block diagram shows the four components of the interface kit.

![Interface Kit Components Diagram]

The following provides a description of the RC3K TriKit components:

- #1 Inclinometer Assembly. This assembly contains:
  - electronic inclinometer used by the RC3000D for sensing true reflector elevation
  - weatherproof housing for the inclinometer (the inclinometer will be mounted inside at the correct orientation)
  - plates and bolts to attach the inclinometer housing to the appropriate place on the trifold mount
  - cable to connect to the RC3000D
The inclinometer assembly is shown in the following picture attached to a 3”x3” metal tube.

![Inclinometer Assembly](image.jpg)

#2 Drive Cable. This cable connects between the VS-1’s APC Command connector and the RC3000D’s Motor Drive connector.

#3 Resolver Cable. This cable connects between the VS-1’s APC Resolver connector and the RC3000D’s azimuth/elevation/polarization resolver connectors.
1.3 TriKit Installation

The following instructions require that the mount be initially placed in a specific position. It will be easiest to obtain this position by leveling the mount’s platform as much as possible.

Place the mount in the following position using the VS-2 hand controller:

1) position the azimuth axis at its center of travel. This position may be recognized by noting if the mount is symmetrically seated when in the stowed position

2) position the polarization axis in its center of travel. This position should place the waveguide(s) in a horizontal or vertical orientation.

3) move the elevation axis to the position where the structural member attached to the elevation pivot point is horizontal. This position is shown in the following picture. Use a level to obtain an exact horizontal position of the member.
1.3.1 Mounting the Inclinometer Assembly

The inclinometer housing will be clamped to the mount so that it will rotate as the antenna rotates in elevation. The housing should be positioned on the 3 inch x 3 inch member of mount as shown in the picture in section 1.3. The current picture in 1.3 shows an unhoused inclinometer but it is placed in the general location where the inclinometer assembly should be attached.

NOTE: Be sure to place the housing with the side marked “UP” facing up. From this position the cable coming from the housing should point toward the elevation pivot point.

The inclinometer will be correctly oriented for the Trifold mount (15 degrees from vertical, shown below) when shipped. There should be no need to adjust the orientation of the inclinometer inside the housing.

Clamp the housing firmly (until the lock washers flatten) using the plates and bolts provided. The nuts may be tightened using 1/2” and 9/16” (or alternately 2 adjustable) wrenches.

The cable from the inclinometer housing should be routed along the mount structure to the area where the VS-1 AIU is attached to the mount. The inclinometer cable is 25 feet longer than the drive and resolver cables. This additional 25 feet should be plenty to safely route and attach the cable along the mount to the VS-1 area. Routing the inclinometer cable to the VS-1 area will allow it to be bundled together with the resolver and drive cables to the RC3000D antenna controller.

WARNING: Near the elevation pivot point, the cable should be provided enough slack to allow the elevation axis to completely rotate without straining the cable. Also confirm that the cable has been routed such that no azimuth movement will pinch the cable.
1.3.2 Resolver Cable

The 6-headed resolver cable will connect between the three antenna-mounted resolvers with Amphenol 97-series connectors and the RC3000D’s Back Panel-mounted J16 AZ, J17 EL, and J18 POL resolver connections. There will be no connection made to the resolver connectors on the VS-1.

1.3.3 Drive Cable

The drive cable will connect between the VS-1’s J2 (APC Command) connector and the RC3000D’s J7 (Motor Drive) connector.
2.0 RC3000D CALIBRATION

After installing the components of the RC3KD TriKit, the RC3000D controller may now be calibrated to optimize performance with the Trifold mount.

Note that the calibration steps described here parallel the steps contained in section 2 (INSTALLATION) of the RC300 User’s Manual. The steps described here are condensed from that in the User’s Manual and are specific to this situation (Trifold mount with RC3KD TriKit). The installer should reference the RC3000’s User’s Manual and the RC3000D’s appendix to the User’s Manual for more details of specific calibration steps.

2.1 Equipment Mounting

2.1.1 RC3000D
Place the RC3000D in its rack as described in the User’s Manual.

2.1.2 GPS Receiver
Install the GPS receiver anywhere close to the mount as errors in latitude and longitude as large as a 100 meters will not significantly affect the calculated pointing angle to a satellite. The main criteria is that the GPS receiver have an unobstructed view of the sky. If additional cable length is needed to reach the RC3000D, a simple DB-9 to DB-9 extension cable may be used.

2.1.3 Fluxgate Compass
The fluxgate compass should be positioned so that is oriented in a direction parallel to the centerline of azimuth travel (the azimuth 0.0 degree position). If additional cable length is needed to reach the RC3000D, a simple DB-9 to DB-9 extension cable may be used.

2.1.4 Inclinometer
The inclinometer will be correctly oriented in the weatherproof housing when shipped. If the housing was installed correctly in step 1.3.1, the inclinometer will operate in its linear range throughout the range of mount elevation movement.
2.2 Electrical Connections

2.2.1 Power Entry

All RC3000D controllers after serial number 2000 is configured to accept 115 or 230 VAC. Ensure that the voltage selector in the power entry module is blank.

2.2.2 Motor Drive

The correct motor drive connections will be achieved via the drive cable installed in 1.3.3. The RC3000D will send drive control signals to the VS-1 AIU. Actual drive voltage will be generated by the VS-1.

2.2.3 Drive Sense

The inclinometer cable installed in step 1.3.1 satisfies the connections to J1 of the RC3000D.

Note: There is no azimuth or polarization potentiometers from the Trifold antenna.

2.2.4 Limit Switches

No limit switch signals come from the VS-1 AIU to the RC3000D. The RC3000D has been internally configured to ignore the J3 signals.

NOTE: When the Trifold mount encounters one of its limit switches, motor drive to the appropriate axis is disabled within the VS-1 AIU. The RC3000D allows for setting of “software limits” which are described in the azimuth, elevation and polarization calibration procedures later. The software limits should be set slightly “inside” of the hardware limits. If hardware limits are encountered, the VS-1 will stop physical movement, but the RC3000D will continue to send a drive command until it declares a jammed condition.

2.2.5 Signal Strength

Connections to J2 should be made as described in section 2.2.5 of the User’s Manual.

2.2.6 Navigation Sensors

Connections to the fluxgate compass and the GPS receiver should be made using the supplied cables. As noted in 2.1.2 and 2.1.3, additional length for these connections may be achieved via straight-through DB-9 to DB-9 extension cables.

2.2.7 Accessories

The HPA disable signal may be mechanized as described in 2.2.7 of the User’s Manual.
2.2.8 RF Autopeak

The RF Autopeak signal may be mechanized as described in 2.2.8 of the User’s Manual.

2.2.9 Hand Held Remote

It is assumed that the optional RC3000 Hand Held Remote will not be required since the mount may be moved via the Andrew VS-2 local controller.

2.2.10 Pulse Sensors

There are no pulse sensors on the Trifold mount.

2.2.11 PC Remote Control

If the PC remote control option is purchased, J5 would be configured as described in 2.2.11 of the User’s Manual. All RC3000D’s normally include the PC Remote Control option.

2.2.12 Waveguide Switch

The waveguide switch option is not available with the RC3000D.
2.3 Initial Configuration

2.3.1 Initialization

All RC3000D controllers after serial number 2000 is configured to accept 115 or 230 VAC. Ensure that the voltage selector in the power entry module is blank.

2.3.2 Elevation Calibration

NOTE: When the trifold mount is moved in the UP direction (RF pointing angle increases), the mount itself looks like it is moving down (towards the stowed position). Keep this in mind to avoid confusion.

Before starting calibration of the elevation axis, make sure that the initial position of the mount referenced in section 1.3 is established. The level of the 3”x3” mount structure should be confirmed before proceeding.

1) Go to the VOLTS maintenance screen and record the elevation voltage. This voltage should be around 2.7 +/- 0.2 volts.

   Recorded Elevation Reference Voltage ______________________ V.

2) Go to the Elevation Calibration screen (UM 3.3.1.2.2) and enter the recorded voltage as the REF_V value. This establishes the reference voltage for the inclinometer. After entering the reference voltage, go to the MANUAL mode screen and verify that an elevation of 60.0 is shown.

3) Go back to the VOLTS maintenance screen and observe the value of the elevation resolver angle. The resolver angle should be about 180.0 degrees (center of resolver movement) to ensure that the elevation resolver will not “wrap around” when the elevation axis approaches its end of travel.

   If the elevation resolver angle (observed from the VOLTS screen) is not approximately 180.0, the resolver should be rotated until this is achieved.

   Recorded Elevation Resolver Angle _____________________ Degrees

4) Go to the Elevation Calibration screen. Enter the required offset to make the resolver-based elevation angle equal 60.0.

   Example: If the recorded elevation resolver angle is 181.4, enter an elevation offset of –121.4
   (60 – 181.4).

5) From the MANUAL mode screen, move the elevation axis down. The indicated angle should decrease. Press the SCROLL UP key to show elevation resolver counts. Again move the elevation axis down and verify that the resolver count decreases.

6) Move the elevation axis down until it reaches its limit of motion. Motion should stop via the VS-1.

   Move the elevation slightly up from the limit. Record the elevation resolver count and enter as the down limit on the ELEVATION PULSE DRIVE configuration screen. This count will trigger the RC3000D’s DOWN limit indication.

7) Move the elevation axis up until the angled piece of the structure almost touches the pivoting stops (shown below). Don’t drive the elevation axis all the way onto the pivoting stops. From this position, when the elevation stow clamps are engaged they should pull the structure onto the pivoting stops and provide effective clamping action.
Record the elevation resolver count and enter as the up_limit on the ELEVATION PULSE DRIVE configuration screen. This count will trigger the RC3000D’s STOW limit indication. This is the position the mount will stop at when the RC3000D STOW operation is performed.

8) Return the elevation axis to the reference position. Perform the Elevation Scale Factor Calibration step described in section 2.3.2 of the User’s Manual to characterize the output signal of the inclinometer.

2.3.3 Azimuth Calibration

Before starting calibration of the azimuth axis, make sure that the initial position of the mount referenced in section 1.3 is established. The azimuth center position may be determined by verifying that the structure sits symmetrically on the pivoting elevation stops.

1) Go to the VOLTS maintenance screen and observe the value of the azimuth resolver angle. The resolver angle should be about 180.0 degrees (center of resolver movement) to ensure that the azimuth resolver will not “wrap around” when the azimuth axis approaches its end of travel.

If the azimuth resolver angle (observed from the VOLTS screen) is not approximately 180.0, the resolver should be rotated until this is achieved.

   \[\text{Recorded Azimuth Resolver Angle} \quad \text{_________________________ Degrees}\]

2) Go to the Azimuth Calibration screen. Enter the required offset to make the resolver-based azimuth angle equal 0.0.

Example: If the recorded azimuth resolver angle is 181.4, enter an elevation offset of –181.4 (0.0 – 181.4).

Verify that the azimuth angle displayed in the MANUAL mode is 0.0.

   \[\text{NOTE: When doing a STOW operation, the RC3000D will require the azimuth axis to at an angle of 0.0 +/- 1.0 degrees before allowing the elevation axis to go the stow position.}\]
3) From the MANUAL mode, drive the azimuth axis clockwise. The indicated angle should increase.

   Drive the azimuth axis until it reaches its clockwise limit. Drive the azimuth axis slightly counter-clockwise and stop. Note the azimuth resolver count.

   **Recorded Azimuth Clockwise Limit Resolver Count**

4) Enter the clockwise limit resolver count as the cw_pulse_limit in the AZIMUTH PULSE DRIVE configuration screen. This value will trigger the RC3000D's CW limit indication.

5) From the MANUAL mode, drive the azimuth axis counter-clockwise. The indicated angle should decrease.

   Drive the azimuth axis until it reaches its counter-clockwise limit. Drive the azimuth axis slightly clockwise and stop. Note the azimuth resolver count.

   **Recorded Azimuth Counter-Clockwise Limit Resolver Count**

6) Enter the counter-clockwise limit resolver count as the ccw_pulse_limit in the AZIMUTH PULSE DRIVE configuration screen. This value will trigger the RC3000D's CCW limit indication.

2.3.4 Polarization Calibration

Before starting calibration of the polarization axis, make sure that the initial position of the mount referenced in section 1.3 is established. The polarization center position may be determined by verifying that the waveguides are oriented with the local horizontal and vertical.

1) Go to the VOLTS maintenance screen and observe the value of the polarization resolver angle. The resolver angle should be about 180.0 degrees (center of resolver movement) to ensure that the polarization resolver will not “wrap around” when the polarization axis approaches its end of travel.

   If the polarization resolver angle (observed from the VOLTS screen) is not approximately 180.0, the resolver should be rotated until this is achieved.

   **Recorded Polarization Resolver Angle**

2) Go to the Polarization Calibration screen. Enter the required offset to make the resolver-based polarization angle equal to 0.0.

   Example: If the recorded polarization resolver angle is 181.4, enter an polarization offset of –181.4 (0.0 – 181.4).

   Verify that the polarization angle displayed in the MANUAL mode is 0.0.

3) From the MANUAL mode, drive the polarization axis clockwise. The indicated angle should increase.

   Drive the polarization axis until it reaches its clockwise limit. Drive the polarization axis slightly counter-clockwise and stop. Note the polarization resolver angle.

   **Recorded Polarization Clockwise Limit Resolver Angle**

4) Enter the clockwise limit resolver angle as the cw_limit in the POLARIZATION CALIBRATION configuration screen. This value will trigger the RC3000D’s CW limit indication.
5) From the MANUAL mode, drive the polarization axis counter-clockwise. The indicated angle should decrease.

Drive the polarization axis until it reaches its counter-clockwise limit. Drive the polarization axis slightly clockwise and stop. Note the polarization resolver angle.

Recorded Polarization Counter-Clockwise Limit Resolver Angle __________________________

6) Enter the counter-clockwise limit resolver angle as the ccw_limit in the POLARIZATION CALIBRATION configuration screen. This value will trigger the RC3000D’s CCW limit indication.

2.3.5 Fast/Slow Motor Speed

The RC3000D only sends a Fast/Slow command to the VS-1 AIU. The actual setting of the Fast/Slow speeds is accomplished at the VS-1 AIU.

2.3.6 Pulse Sensor Checkout

No pulse sensors are used on the Trifold mount. The RC3000D’s software uses resolver counts instead of pulse counts to perform several functions (such as inclined orbit tracking) that require very precise (high resolution) movements of the antenna.

Analogous steps to the ones described in 2.3.6 of the User’s Manual have already been performed in the azimuth, elevation and polarization calibration steps above.

2.3.7 Drive System Checkout

Perform the checkout as described in the User’s Manual.

2.3.8 Navigation Sensor Communication

Perform the checkout as described in the User’s Manual.
2.4 Final Calibration

All steps in 2.4 may be performed as described in the User’s Manual with the exception of 2.4.4 (Pulse Scale Factors). The calculation described in 2.4.4 is not required to be performed since the correct value for the resolver interface (10,431 counts per radian) is included as the default value.

2.5 Operational Presets

Perform as described in the User’s Manual.

2.6 Miscellaneous Adjustments

Perform as described in the User’s Manual.
3.0 DRAWINGS & SCHEMATICS

Inclinometer Box Assembly
Inclinometer Data Sheet, P/N Z-INCLIN, MEASUREMENT SPECIALITIES # 02111002-000
Inclinometer Cable
Resolver cable
Drive cable
AccuStar® Electronic Clinometer

Ratiometric Output

Features
- Low power consumption
- 3 wire operation

The Ratiometric clinometer is a signal conditioned sensor that has been designed to operate like a potentiometer. This is a three wire device: power; power ground; and signal. The signal is referenced to power ground. A regulated power supply is required since the output is supply dependent. The mid-scale output, zero degrees, is 1/2 the supply voltage while the scale factor is also supply dependent. With its low power consumption, 0.5 mA, this device is ideal for battery supplied applications. The Ratiometric clinometer was designed with EMI and ESD suppression circuitry on every line.

Ratiometric I/O Block Diagram

Ratiometric Electrical Specifications

Voltage
- Voltage Supply
  - Nominal ................. +9 VDC
  - Range (regulated) .... +5 to +15 VDC
- Current ..................... 0.5mA
- Scale Factor
  - Nominal (+9VDC) ...... 30mV/degree ±10%
  - Load Resistance (min.) ... 10 kΩ
  - Level Output (0°) .......... 1/2Vcc

Electrical Connections

<table>
<thead>
<tr>
<th>Wire</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>Power ground</td>
</tr>
<tr>
<td>Red</td>
<td>Reg, +5 to +15 VDC</td>
</tr>
<tr>
<td>Yellow</td>
<td>Signal output (reference to power ground)</td>
</tr>
</tbody>
</table>
BELDEN #9541 OR EQUIVALENT
24 AWG, 15 CONDUCTOR
(RCI P/N: CBL-15_24-SHL0)
CHROME PVC JACKET

SLOT ON A 3' PIECE OF HS-221_75 AND A 4' PIECE OF HS-221_75 ON EACH END BEFORE INSTALLING CONNECTORS.

REMOVE 3 EXTRA CONDUCTORS FROM CABLE.

OUTER JACKET OPENING FINISHING
SLIDE THE 3' PIECE OF HS-221_75 OVER THE OPENING AND SHRINK.
INSTALL THE REMAINING 4' PIECE OF HS-221_75 TO COVER THE PRECEDING PIECE AND SHRINK.
BUILD UP DIAMETER OF CABLE WITH INSULATING MATERIAL TO FILL SHELL OPENING.

P2-A [VS-1 CONTROLLER] | CABLE LABEL TEXT: RCMN P7-DRIVE | CABLE LABEL TEXT: RCMN P7-DRIVE | J7 TO RCMNBD
--|--------------------------|--------------------------|---
AZ + EAST | BLK | WH | A
AZ - EAST | B | MH | B
AZ - WEST | C | RED | C
AZ - FAST | D | GRY | D
AZ - SLOW | E | GRY | E
EL - DOWN | F | BLY | F
EL - UP | G | WH/BLK | G
EL - FAST | H | RED/BLK | H
EL - SLOW | I | GRY/BLK | I
POL - CW | J | GRY/BLK | J
POL - CCW | K | BLY/BLK | K
POL - CW | L | RED/WH | L
M | SLY | M
N | SLY | N

QTY 1 CN-97-418642
QTY 1 CN-9767-22-8
QTY 1 CN-9180-28
QTY 1 CN-97-31084A2
QTY 1 CN-9722-18P
QTY 1 CN-9767-22-18

LENGTH PER CUSTOMER ORDER

Title
RCMNBD TO VS-1 CONTROLLER
RCI P/N: FP-RC3K0V51-2
Size
Number
FP-RC3KOCSV
Rev
A
Date
18 MARCH 2020
Drawn by
Filename
acmeacsi001.pdf of 2
4.0 RC3KD TriKit DATA SHEET

Customer ____________________  PO#____________________________
Cable Length _________________

INCLINOMETER ASSEMBLY
Inclinometer S/N_______________  Scale Factor__________________
Date Assembled________________ Date Tested_________________
Initials________________________ Initials________________________

RESOLVER CABLE
Date Assembled________________ Date Tested_________________
Initials________________________ Initials________________________

DRIVE CABLE
Date Assembled________________ Date Tested_________________
Initials________________________ Initials________________________

VS-1 MODIFICATION
Date Assembled________________ Date Tested_________________
Date Assembled________________ Initials________________________
5.0 TriFold Installation Kit RCI Part Numbers and Cable Revision History

The RCI part number for the Andrew TriFold Installation kit is FP-RC3KDTRIKIT

Unfortunately, RCI p/n FP-RC3KDTRIKIT is not a unique part number. The components associated with this part number have changed over time. Because of this, order replacement cables based on the information presented in the following section …

RC3000D – Andrew TriFold Interface Cable Revision History

RCI p/n FP-RC3KDTRIKIT currently consists of the following …

RCI p/n FP-RC3KINCLAND – an inclinometer kit with attached interface cable, the inclinometer kit has not changed over time.
RCI p/n FP-RC3KDVS1-2 – RC3000D shielded VS-1 interface cable depicted on the RC3000CABLE4.PDF drawing.
RCI p/n FP-RC3KDRSLVR3 – RC3000D Resolver Interface Cable (depicted in RC3000CABLE3.PDF and RC3000CABLE4.PDF).

The following table describes previous revisions of RCI p/n FP-RC3KDTRIKIT.

<table>
<thead>
<tr>
<th>Description</th>
<th>Inclinometer P/N</th>
<th>VS-1 and Resolver Interface Cabling P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original configuration</td>
<td>RC3KINCLAND</td>
<td>FP-RC3KVS1CBL1 – consists of the components required to make FP-RC3KDVS1-1 and FP-RC3KDRSLVR1</td>
</tr>
<tr>
<td>Resolver cable modified to interface directly to each resolver rather than the resolver connectors on the VS-1.</td>
<td>RC3KINCLAND</td>
<td>FP-RC3KVS1CBL2 – consists of the components to make FP-RC3KDVS1-1 and FP-RC3KDRSLVR2</td>
</tr>
<tr>
<td>Resolver cable modified to work with late model RC3000D, s/n 2000 and up</td>
<td>RC3KINCLAND</td>
<td>FP-RC3KDCB2 – consists of the components to make FP-RC3KDVS1-1 and FP-RC3KDRSLVR3</td>
</tr>
</tbody>
</table>

Extension Cables

The standard cable length is 30 feet. Several p/n have been defined to support longer interface cables.

RCI p/n FP-RC3KDTRIXXX, contains FP-RC3KDCB2XXX and FP-RC3KINCLAND
RCI p/n FP-RC3KDCB2XXX, contains … RCI p/n FP-RC3KDCB2 with longer interface cables.
<table>
<thead>
<tr>
<th>Cable Function</th>
<th>RCI p/n</th>
<th>Drawing Name</th>
<th>Description</th>
<th>RC3000 S/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>VS-1 Command</td>
<td>FP-RC3KDVS1-1</td>
<td>RC3000CABLE.pdf (pg 2) or RC3000CABLE2.pdf (pg 2) or rc3000cable3.pdf (pg 2)</td>
<td>RC3000 to VS-1 command interface cable. Cable connectors … RC3000: Amphenol 97 series 3101A18, 19P insert VS-1: Amphenol 97 series 4106A20 Unshielded cable. This cable is usable with all RC3000D’s. Length: 30 feet.</td>
<td>Before S/N 3090</td>
</tr>
<tr>
<td>VS-1 Command</td>
<td>FP-RC3KDVS1-2</td>
<td>rc3000cable4.pdf (pg 2)</td>
<td>RC3000 to VS-1 command interface cable. Cable connectors … RC3000: Amphenol 97 series 3101A18, 19P insert VS-1: Amphenol 97 series 4106A20 Shielded version of FP-RC3KDVS1-1. This cable is usable with all RC3000D’s. To get the benefits of shielding with RC3000D’s prior to S/N 3091, inside the controller, tie J7 terminal N to chassis ground. Length: 30 feet.</td>
<td>S/N 3091 and later</td>
</tr>
<tr>
<td>VS-1 Resolver</td>
<td>FP-RC3KDRSLVR1</td>
<td>RC3000CABLE.pdf (pg 1)</td>
<td>Original resolver interface cable. Used with early model RC3000D ACU’s. Cable connectors … RC3000: (2x) D15 VS-1: Amphenol 97 series 4106A22 This cable was discontinued and replaced by FP-RC3KDRSLVR2. This cable should not be used as a spare, instead use the RC3KDRSLVR2 cable. Length: 30 feet.</td>
<td>Less than 2000</td>
</tr>
<tr>
<td>Resolver Interface</td>
<td>FP-RC3KDRSLVR2</td>
<td>RC3000CABLE2.pdf (pg 1)</td>
<td>Improved resolver interface cable. Used with early model RC3000D ACU’s. Cable connectors … RC3000: (2x) D15 Antenna: Amphenol 97 series 3101A18, 19S insert This cable interfaces directly to each resolver cable bypassing the VS-1. This cable was adopted to provide more noise immunity. Use this cable with RC3000D’s with S/N &lt; 2000. Length: 30 feet.</td>
<td>Less than 2000</td>
</tr>
<tr>
<td>Resolver Interface</td>
<td>FP-RC3KDRSLVR3</td>
<td>RC3000CABLE3.pdf (pg 1) or RC3000CABLE4.pdf (pg 1)</td>
<td>Resolver interface cable for use with late mode RC3000D’s (s/n &gt;= 2000) Cable connectors … RC3000: (3x) D9 Antenna: Amphenol 97 series 3101A18, 19S insert This is FP-RC3KDRSLVR2 adapted for use with S/N 2000 and greater. Use this cable with RC3000D’s with S/N &gt;= 2000. Length: 30 feet.</td>
<td>Greater than or equal to 2000</td>
</tr>
</tbody>
</table>
SILDE ON A 3" PIECE OF HS-221...75 AND A 4" PIECE OF HS-231...75 ON EACH END BEFORE INSTALLING CONNECTORS.

OUTER JACKET OPENING FINISHING
SLIDE THE 3" PIECE OF HS-221...75 OVER THE OPENING AND SHRINK.
INSTALL THE REMAINING 4" PIECE OF HS-231...75 TO COVER THE PREVIOUS PIECE AND SHRINK.
BUILD UP DIAMETER OF CABLE WITH INSULATING MATERIAL TO FILL SHELL OPENING.

RCI pin FP-RC3KDV01-1 extracted from rc3000cable3.pdf.
6.0 Revision History

20 March, 2008 – Add Revision History section, S Mikinski
The text of the RC3000D TriKit Installation Manual has not changed since the original version of the
RC3000D. There have been 4 different cable Resolver and VS1 Cable drawings. When each rev occurred
the interconnect cable drawings in the installation manual were replaced via Acrobat page
insertion/deletion.

Cable used for VS-1 Drive cable was changed to a shielded cable. Wire colors changed as well. The cable
drawing is RC3000CABLE4.pdf.

Here are the revisions to the TriKit_Install_050305ckj.doc document …

The block diagram of section 1.2 was revised to properly depict the resolver connections.
In section 1.2, item 4 was eliminated.
Section 1.3.2 was removed. Sections 1.3.3 and 1.3.4 in the original document were renamed 1.3.2 and
1.3.3 respectively.
Modify section 2.2.11 to note that all RC3000D’s normally include support for the PC Remote Control
option.
Modify section 2.2.12 to remove the reference to the Pol Resolver connection.
Modify section 2.3.1 to state that all RC3000D’s after S/N 2000 can accept either 115 or 230 VAC.
Section 3, include the inclinometer sensor p/n and data sheet.
Add a section on the RCI p/n for the TriFold Installation Kit and on the Interconnect Cable revision history.

25 May 2007 – Revision - Interconnect cables changed (RC3000CABLE3.SCH replaced
RC3000CABLE2.SCH). TriKit_Install_061407dpb.pdf – created via PDF page deletion/substitution

3 Amphenol connectors (Andrew AZ/EL/POL resolvers) to 3 DB9 connectors (RC3000—J16 AZ resolver,
J17 EL resolver, and J18 POL resolver).

7 December 2002 – Revision - TriKit_Install_050305ckj.doc, drawings added to word document,
Interconnect cables changed (RC3000CABLE2.SCH replaced RC3000CABLE.SCH)

3 Amphenol connectors (Andrew AZ/EL/POL resolvers) to 2 DB15 connectors (RC3000—J12 AZ/EL
resolvers and J4 POL resolver).

26 December 2000 – Initial Drawing: Source Document:RC3K TriKit.doc, date 2.6.01, written by C.
Jones, drawings not included, just references to PDF’s
PDF (with drawings): TriKit_Install.PDF, date 2.6.01
Antenna Interconnect Cabling: RC3000CABLE.SCH 1 single Amphenol connector (VS-1 P1-A [Resolver]
to 2 DB15 connectors (RC3000—J12 AZ/EL resolvers and J4 POL resolver).