APPENDIX B - MOUNT SPECIFIC DATA
For
Sat-LiteTechnologies
Model 1243 Antenna

This appendix describes RC3000 functions unique for this Sat-LiteTech mount.

Revision History. Date: 24 May 2010 - Software Version: 1.60

1.1 Manual Organization

This appendix is provided as a supplement to the baseline RC3000 manual. Differences between this version and the operation described in the baseline RC3000 manual are noted on a paragraph by paragraph basis.

1.2 RC3000 Features

All RC3000 features described in the baseline manual are present with this version. The unique features of this version of the RC3000 are:

1) Final elevation stow position will be determined by monitoring elevation drive current.

2) Polarization pulses and a synchronization switch are implemented for precise position sensing.

Hardware Configuration. This mount version will be mechanized using the RC3000**A** hardware configuration.

Software Configuration.

DESIGNATION	MODEL
JE	1243 (1.2 m.)

1.3.2 System Interface Requirements

The following unique interface requirements are present for the JE version:

1) Polarization pulse input

2) Polarization synchronization switch input

1.3.3 Operational Overview

Operations of the JE version is almost identical to that described in the baseline manual. Differences will be noted in the appropriate paragraphs.

1.3.7 Drive System

Polarization Movement. Higher resolution polarization position sensing will be accomplished by monitoring pulses from the polarization motor.

2.0 INSTALLATION

2.1.4 Electronic Clinometer

The inclinometer should be rigged with the backstructure vertical.

2.2 Electrical Connections.

The JE interface follows the baseline RC3000 interface with a few modifications.   The following paragraphs highlight differences between the JE interface and the RC3000 electrical connections described in the baseline manual.

2.2.3 Drive Sense

In addition to the polarization potentiometer, pulses from the polarization motor and a synchronization switch are sensed.

The three pins normally allocated for a polarization stow switch on the J3 connector are used for a polarization synch switch per the following schedule.

SIGNAL	PIN	SWITCH CABLE COLOR
12 VDC	J3 - 2	Brown
Input	J3 - 1	Black
Return	J3 - 4	Blue

The recommended inductive proximity switch is an Omron EZE-X1R5F1 PNP Normally Open Type.

Polarization pulse sensor signals are wired to the J12 connector per the following schedule:

SIGNAL	PIN
5 VDC	J12 - 10
Input A	J12 - 2
Input B	J12 - 4
Return	J12 - 1
Shield (open at pulse sensor)	J12 - 9

2.3 Calibration

Calibration steps defined in the RC3000 baseline manual should all be performed.

Additional unique calibration steps for the JE mounts are defined in the following paragraphs.

2.3.2 Elevation Calibration

Elevation Reference Voltage

A correctly set elevation reference voltage should result in a displayed elevation angle of 17.0 degrees when the face of the reflector is plumb.

Define Elevation STOW current limit

In MANUAL mode drive elevation down through the STOW switch and incrementally increase the STW_AMP value until the desired amount of elevation pre-load is achieved.

CAUTION: be extremely careful while incrementing the STW_AMP value. Too high of a value will allow the elevation drive to pre-load the dish with potentially damaging force.

2.3.4 Polarization Calibration

During the first automatic movement of polarization following an ACU power up, the ACU will perform a "resynchronization" of the polarization pulse counting mechanism. This "resynchronization" will consist of initially moving the pol to approximately the -40 degree position (based on pol potentiometer feedback). Next the pol will be moved CW in slow speed until it encounters the edge of the synchronization switch (approximately -25 degrees). At this point the polarization pulse count is reset.

Polarization Reference Voltage

It is important that the polarization potentiometer be centered when the pol axis is physically at the 0.0 angle. This will allow the resynchronization process described above to proceed correctly.

Polarization Offset

NOTE: To calibrate the polarization axis the entire mount must be setting level.

To initially determine polarization offset, set the polarization offset value to 0.0 via the Polarization Offset screen (3.3.1.2.4).

Power the ACU off and on so that a polarization resynchronization will be armed. Perform a polarization MOVETO (3.3.2.8 in baseline manual) with the pol target set to 0.0. At the end of the movement the top of the LNB should be close to level. The amount of degrees that the LNB is from level should be now entered into the polarization offset value (3.3.1.2.4).

With the polarization offset now entered, initiate another polarization MOVETO movement (power ACU off/on first) with the target at 0.0. If the polarity of the offset was entered correctly, the LNB should finish in an almost perfectly level position.

3.0 Detailed Operation

3.2.1 Manual Mode.

As an aid in calibration, the state of the polarization synch switch is displayed next to the polarization limit field. When the synch switch is not activated "POL." appears instead of the normal "POL:".

```
AZIM:    0.0 STOW    CH4: 50          MANUAL
ELEV: -42.5 DOWN    SAT:TELSTAR 402
 POL.  30.0 V       SPD:FAST             CST
<0-9>JOG ANTENNA <MODE>MENU      14:25:47
```

CH4:

The JE version allows for a fourth signal channel to be monitored. The Scroll/Dn key will allow the user to scroll through RF/SS1/SS2/CH4. CH4 is the channel that will be used to monitor elevation drive current. NOTE: below the DOWN limit, the display will be forced to CH4 to ensure that the appropriate signal is being monitored at the STOW limit.

When the elevation stow switch is first encountered, the limit display will indicate "stow" vs. "STOW". The display will change to "STOW" when either the stow current limit has been reached or the stow timeout value (15 seconds) has expired.

NOTE: after reaching STOW, elevation must be driven above the stow switch to reinitialize the stow timeout.

3.2.2 Menu Mode

3.2.2.2 Stow

After sensing the elevation stow switch, monitoring of the elevation drive current will begin. When the elevation drive current reaches the value specified by the STW_AMP configuration item (3.3.1.3.10), the stow operation will stop. This current monitoring is intended to allow the antenna to be "loaded" firmly into the elevation stow pads.

The stow operation will also cease if a timeout value is reached after the stow switch is sensed but before the current limit is sensed. This timeout condition is provided as a backup to the current sensing mechanism.

3.3.1.2.4 Polarization Calibration

```
REF_V:2.50 OFF:  0.0          CONFIG-POL
  CCW: 90.0 CW: 90.0 SF:13.20
TYPE:2 REF:1 H: -45.0 V:  45.0 AUTO: 1
SCALE FACTOR <1.00 - 180.00 pulse/deg>
```

SF: SCALE FACTOR <1.00 - 180.00 pulse/deg>

This value specifies the scale factor applicable to the pulse-based polarization feedback.

3.3.1.3.10 Stow & Deploy Postions

STW_AMP: ELEV STOW CURRENT LIMIT <0.0-9.9 AMPS>

For the JE version, the amount of elevation drive current used to "preload" the antenna into its stow pads may be specified.

This configuration replaces the EL_TIME item normally shown in this screen.

3.3.1.2 Reset Defaults

The following table supplies the default configuration item values for this mount model.

Space has also been provided to record installation specific changes to the configuration items. Note: recording of installation specific changes to defaults may prove valuable when trying to restore system configuration.

CONFIGURATION ITEM	JE					INSTALL VALUE
SYSTEM DEFINITION						
Antenna_size_cm	120					
GPS	1					
COMP	2					
MODE	2					
WAVE	0					
ELEVATION CALIBRATION						
Zero Voltage	1.69					
Elev_offset	0.0					
Up_elev_limit	90					
Down_elev_limit	5					
Elevation_Scale_Factor	50.00					
Elevation_look_configuration	1					
AZIMUTH CALIBRATION						
Reference_voltage	2.50					
Azim_Scale_Factor	77.1					
Fluxgate_offset	0.0					
ccw_azim_limit	180					
Cw_azim_limit	180					
POLARIZATION CAL						
Zero Voltage	2.50					
Polarization_Offset	0.0					
CW Polarization Limit	90.0					
CCW Polarization Limit	90.0					
Pol_Scale_Factor	13.20					
Polarization_type	2					
H/V_Reference	0					
Default Horizontal Position	0.0					
Default Vertical Position	90.0					
Pol_Automove_Enable	1					
SIGNAL PARAMETERS						
RF_Lock	0					
RF_Time	0.1					
Channel 1 Polarity	1					
Channel 1 Threshold	100					
Channel 1 Delay	0.1					
Channel 1 Lock Type	0					
Channel 2 Polarity	1					
Channel 2 Threshold	100					
Channel 2 Delay	0.1					
Channel 2 Lock Type	0					

CONFIGURATION ITEM	JE					INSTALL VALUE
AUTOPEAK						
Autopeak Enabled	0					
Signal Source	1					
RF Band	1					
Spiral Search AZ Limit	3					
Spiral Search EL Limit	3					
Spiral Signal Threshold	200					
Scan Range Limit	8					
Scan Signal Threshold	200					
Tilt	0					
AZIMUTH POT DRIVE						
Fast/Slow Threshold	2.5					
Maximum Position Error	0.3					
Coast Threshold	0.2					
Maximum Retry Count	2					
AZIMUTH PULSE DRIVE						
Pulse Scale Factor	2493					
CW Pulse Limit	64000					
CCW Pulse Limit	1000					
Fast/Slow Threshold	50					
Maximum Position Error	2					
Coast Threshold	1					
Maximum Retry Count	2					
AZIM DRIVE MONITORING						
Jam Slop	1					
Runaway Slop	400					
Fast Deadband	1000					
Slow Deadband	500					
ELEV POT DRIVE						
Fast/Slow Threshold	2.5					
Maximum Position Error	0.1					
Coast Threshold	0.3					
Maximum Retry Count	2					
ELEV PULSE DRIVE						
Pulse Scale Factor	3615					
UP Pulse Limit	64000					
Down Pulse Limit	1000					
Fast/Slow Threshold	200					
Maximum Position Error	4					
Coast Threshold	5					
Maximum Retry Count	2					
ELEV DRIVE MONITORING						
Jam Slop	1					
Runaway Slop	200					
Fast Deadband	1000					
Slow Deadband	500					

CONFIGURATION ITEM	JE							INSTALL VALUE
POL POT DRIVE								
Fast/Slow Threshold	2.0							
Maximum Position Error	0.1							
Coast Threshold	0.2							
Maximum Retry Count	3							
POL DRIVE MONITORING								
Jam Slop	1							
Runaway Slop	200							
Fast Deadband	1000							
Slow Deadband	500							
TRACK								
Search Enable	0							
Max Track Error	3							
Search Width	4							
Peakup Holdoff Time	120							
Track Signal Source	2							
Signal Sample Time	2							
Log	0							
Mode	0							
AZDP	1.0							
REMOTE CONTROL								
Remote Enabled	1							
Bus Address	50							
Baud Rate	6							
Jog	20							
STOW / DEPLOY								
AZ STOW	0.0							
EL STOW	-67.5							
PL STOW	0.0							
AZ DEPLOY	0.0							
EL DEPLOY	17.0							
PL DEPLOY	0.0							
PL ENABLED	0							
STW_AMP	1.0							