

APPENDIX B - MOUNT SPECIFIC DATA

For SweDish Radar Finder

This appendix describes RC3000 operations unique for the SweDish “Radar Finder” mount. Differences between this version and the operation described in the “baseline” RC3000 manual are noted on a paragraph by paragraph basis.

1.1 Manual Organization

This appendix is provided as a supplement to the baseline RC3000 manual.

1.2 RC3000 Features – Configuration

A RC3000A version of hardware is required for this mount. The mount model will be designated as **S6**.

Software will be designated as RC3K-S6-xxx

The abbreviation **HMSL** will be used throughout the appendix and software for “Height above Mean Sea Level”. The software requires that the mount’s and the radar target’s HMSL (altitude) be entered in meters.

1.3.3 Operational Overview

The operation of the S6 version is almost identical to that described in the baseline manual. Instead of calculating a pointing solution to a geostationary satellite, this version calculates a pointing solution to a target (radar location) on the Earth.

Differences will be noted in the appropriate paragraphs.

2.0 Installation

The antenna controller should be calibrated in the same manner as performed for the satellite locator version.

2.3.1 Reset Defaults

The table at the end of the document supplies the default configuration item values for this mount.

3.0 Detailed Operation

3.1.4 Data Entry

Degree/Minute/Second Latitude/Longitude Entry (TRUCK LAT:38° 56'27N)

In order to obtain the position resolution required for pointing at terrestrial targets, latitude and longitude needs to be entered in degrees/minutes/seconds vs. just degrees and minutes for a satellite locator. When entering degrees/minutes/seconds, the first decimal point will delimit between degrees and minutes and the second decimal point will delimit between minutes and seconds.

Following the degree and second signs, only values from 00 to 59 are valid since they represent minutes or seconds. After entering the numeric value of latitude or longitude, the user is prompted to supply W(est) or E(ast) for longitude or N(orth) or S(outh) for latitude as in the baseline RC3000.

3.2 Operating Group

SAVED MOUNT POSITION - This screen will show the mount's saved latitude and longitude in degrees/minutes/seconds format and will also show the mount's saved altitude.

3.2.1 Manual Mode.

No satellite name (SAT:) field will appear in Manual mode.

3.2.2 Menu

No STORE, RECALL or DELETE modes are provided via the MENU screen.

3.2.2.1 Deploy

3.2.2.2 Stow

DEPLOY and STOW modes function the same as for the satellite locator.

3.2.2.3 Locate

The LOCATE mode functions in a nearly identical fashion as for the satellite locator. The main difference is that latitude and longitude data is presented in a degrees/minutes/seconds format and antenna altitude (HMSL - height above mean sea level) is presented.

Automatic acquisition of the mount's position will take slightly longer than before. The sequence of obtaining latitude, longitude, universal coordinated time, magnetic variation and heading will be the same as before. Additionally the mount's HMSL (ALT:) will be obtained from a second sentence from the GPS receiver. After obtaining the altitude information the target azimuth and elevation angles will be displayed. These target angles will of course be to the target radar location selected.

3.2.2.3.1 Radar Target Selection

Rather than selecting a satellite to point to, this version requires that a radar location be described as the target. A name, latitude, longitude and HMSL for the target must be provided. This information may be entered manually or selected from a preset list.

3.2.2.4 Store

3.2.2.5 Recall

3.2.2.6 Delete

These modes are not provided with the radar locator version.

3.2.2.7 Position

Mount latitude and longitude is again presented in degrees/minutes/seconds format. Mount altitude (HMSL in meters) is also displayed.

3.2.2.7.1 Lat/Lon

3.2.2.7.3 Altitude

Mount altitude information (in meters) may be manually entered.

3.3.1.1.2 Preset Locations

Since a much higher resolution of position information is required, no preset mount locations are selectable by the user.

3.3.1.1.3 Preset Targets

The user may program a list of 20 preset target locations. The target's name, longitude, latitude and altitude are to be supplied for each target.

CONFIGURATION ITEM	S6							INSTALL VALUE
SYSTEM DEFINITION								
Antenna_size_cm	140							
GPS	1							
COMP	2							
MODE	2							
WAVE	0							
FAIRING	1							
STW DLY	1							
AZIMUTH CALIBRATION								
Reference Voltage	2.50							
Fluxgate_offset	0.0							
ccw_azim_limit	180							
Cw_azim_limit	180							
Scale Factor	73.65							
ELEVATION CALIBRATION								
Reference Voltage	1.69							
Elev_offset	0.0							
Up_elev_limit	60							
Down_elev_limit	0							
Elevation_Scale_Factor	50.00							
Elevation_look_configuration	1							
POLARIZATION CAL								
Reference Voltage	2.50							
Polarization_Offset	0.0							
CW Polarization Limit	98.0							
CCW Polarization Limit	98.0							
Pol_Scale_Factor	42.80							
Polarization_type	1							
H/V_Reference	1							
SIGNAL PARAMETERS								
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							
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							

CONFIGURATION ITEM	S6							INSTALL VALUE
AZIMUTH POT DRIVE								
Fast/Slow Threshold	2.5							
Maximum Position Error	0.20							
Coast Threshold	0.1							
Maximum Retry Count	3							
AZIMUTH PULSE DRIVE								
Pulse Scale Factor	10431							
CW Pulse Limit	64000							
CCW Pulse Limit	100							
Fast/Slow Threshold	50							
Maximum Position Error	0							
Coast Threshold	3							
Maximum Retry Count	3							
AZIM DRIVE MONITORING								
Jam Slop	1							
Runaway Slop	200							
Fast Deadband	1000							
Slow Deadband	500							
ELEV POT DRIVE								
Fast/Slow Threshold	3.0							
Maximum Position Error	0.2							
Coast Threshold	0.4							
Maximum Retry Count	3							
ELEV PULSE DRIVE								
Pulse Scale Factor	10431							
UP Pulse Limit	64000							
Down Pulse Limit	100							
Fast/Slow Threshold	50							
Maximum Position Error	0							
Coast Threshold	3							
Maximum Retry Count	3							
ELEV DRIVE MONITORING								
Jam Slop	1							
Runaway Slop	200							
Fast Deadband	1000							
Slow Deadband	500							
POL POT DRIVE								
Fast/Slow Threshold	2.0							
Maximum Position Error	0.5							
Coast Threshold	0.3							
Maximum Retry Count	3							
POL DRIVE MONITORING								
Jam Slop	1							
Runaway Slop	200							
Fast Deadband	1000							
Slow Deadband	500							

