

SV 360 ★

TracStar
SYSTEMS



In-motion Satellite Technical Support Manual

**TracStar Systems Inc.
1984 W. New Hampshire St.
Orlando, Fl. 32804
tel: (407) 650-9054
fax: (407)650-9086**

Contents

1. Block Diagram	Page
A. SV-360 Single HD0 without 110 Adapter	4
B. SV-360 Single HD1 w/110 Adapter	4
C. SV-360 Dual HD0 without 110 Adapter	5
D. SV-360 Dual HD1 w/one 110 Adapter	5
E. SV-360 Dual HD2 w/two 110 Adapters	6
2. In Door Display (IDD) Button Functions	7
3. SV-360 major component listing	
A. Diagram of Parts	8
B. Parts listing	9
4. System Faults (as seen on the TracStar Display)	
A. Power Up-Please Wait/Ant Comm Error	10
B. EL Fault (Elevation Fault)	11
C. AZ Fault (Azimuth Fault)	12
D. Scan Error	13
E. Lock Verify	14
F. Power Trip/Display Blinks Repeatedly	15
G. Stays in Loading/Load Error	15
H. Won't Lock on to Satellite	16
I. Stays in Scan Align (won't go to wide scan)	16
J. Missing even, odd or no Transponders	17
K. Low Signal Strength	18
L. Locks on to the Satellite Then Loses Signal	19
M. Missing Channels (Programming)	20
N. Antenna does not switch satellites when set to 101/110 or 101/119 (DirecTV customers with software version 3.06 or higher).	21
5. System Test	
A. Option 21 reset	22
B. "O" Recalibrate	22
C. Show Motion	23
D. Mechanical Calibration	23
E. Magnetic Calibration	24
F. Temperature Calibration	25

6. Antenna Removal and Installation Recommendations

A. Removal	25
B. Installation	26
C. Returning your used TracStar antenna	26

7. Component Replacement

	Page
A. Motor Replacement	27
B. Electronics Replacement	28
C. Single to Dual Upgrade	30

6. Upgrade Software

31

7. Figures (Drawings)

33-36

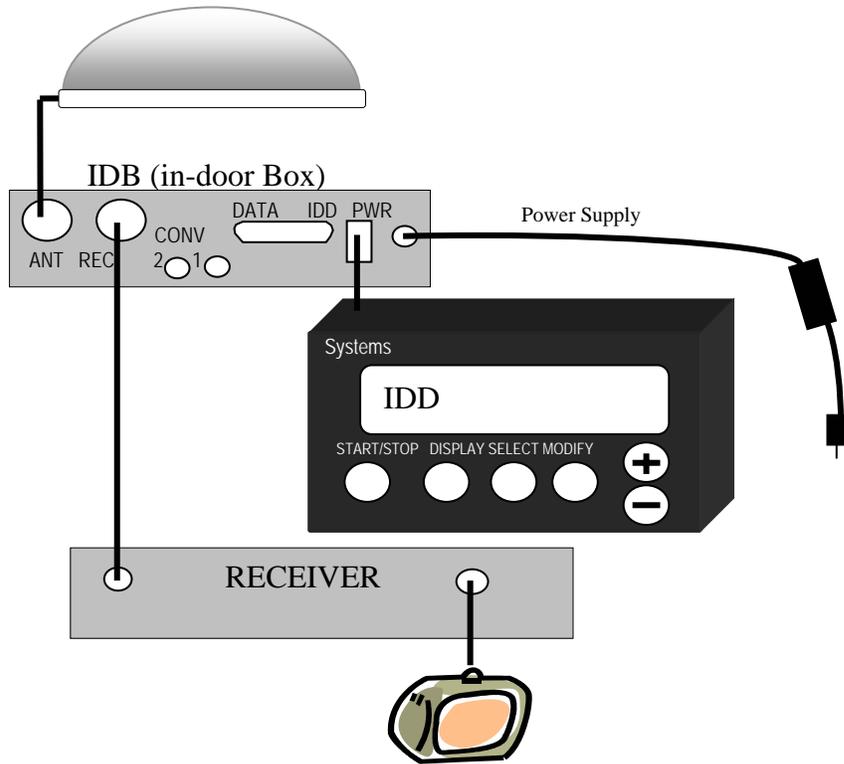
8. Helpful hints/general knowledge

37

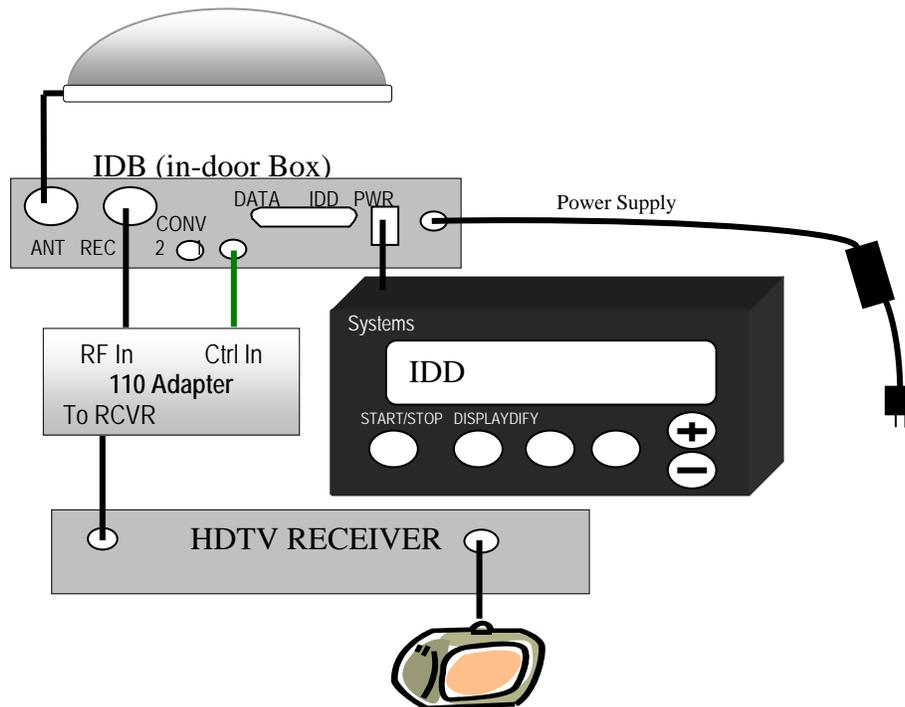
9. Glossary of Terms

38

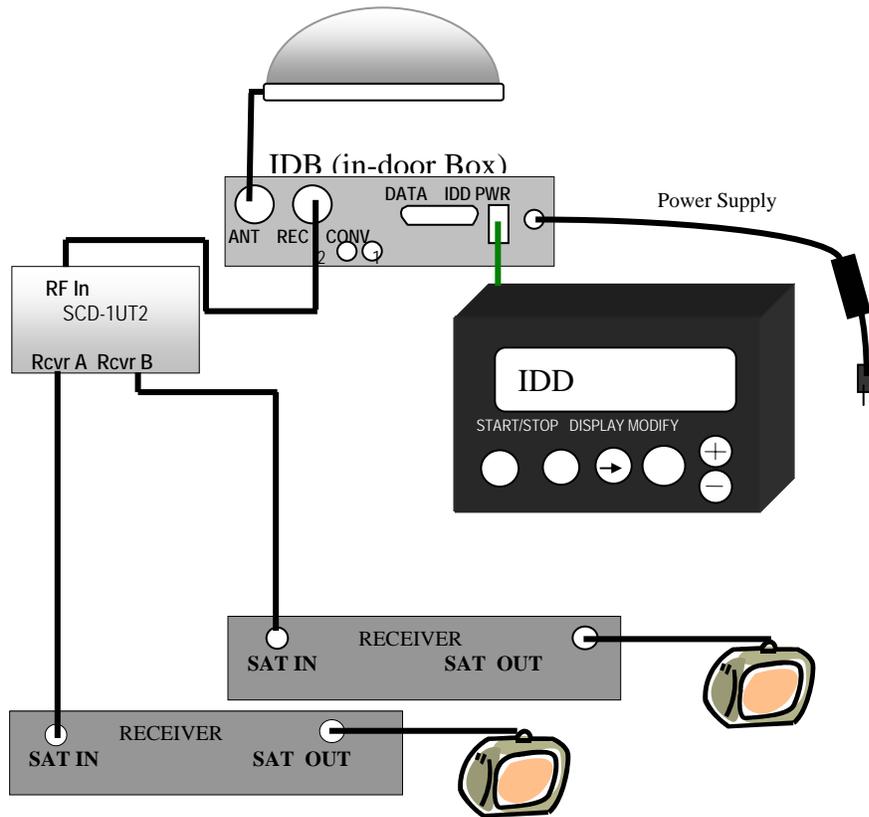
SV-360 SINGLE HD0 WITHOUT 110 ADAPTER



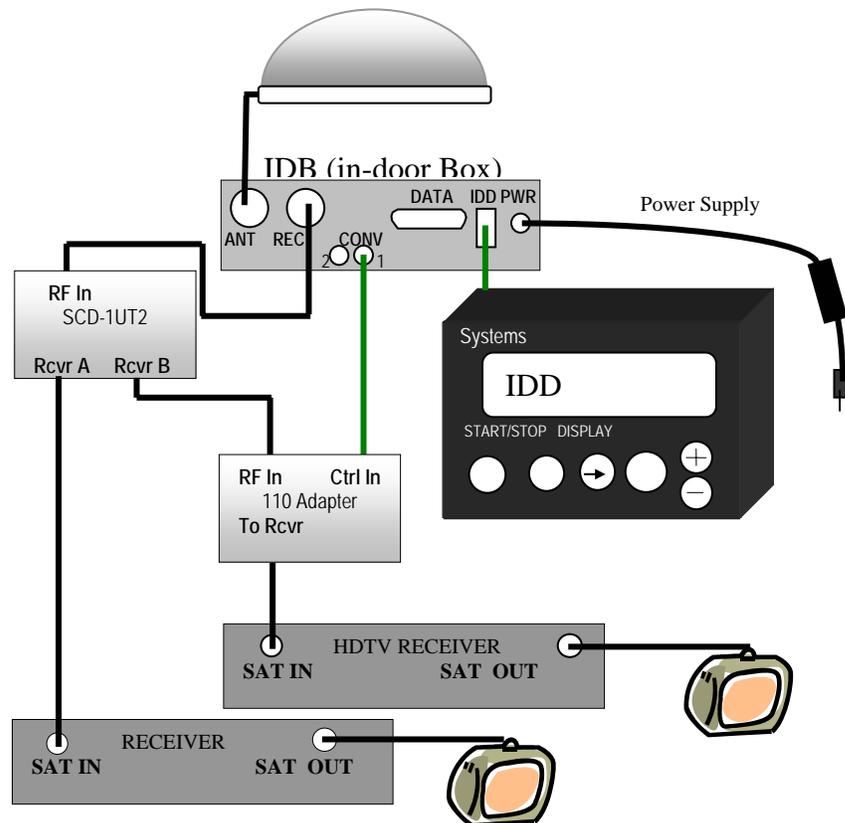
SV-360 SINGLE HD1A WITH SINGLE 110 ADAPTER



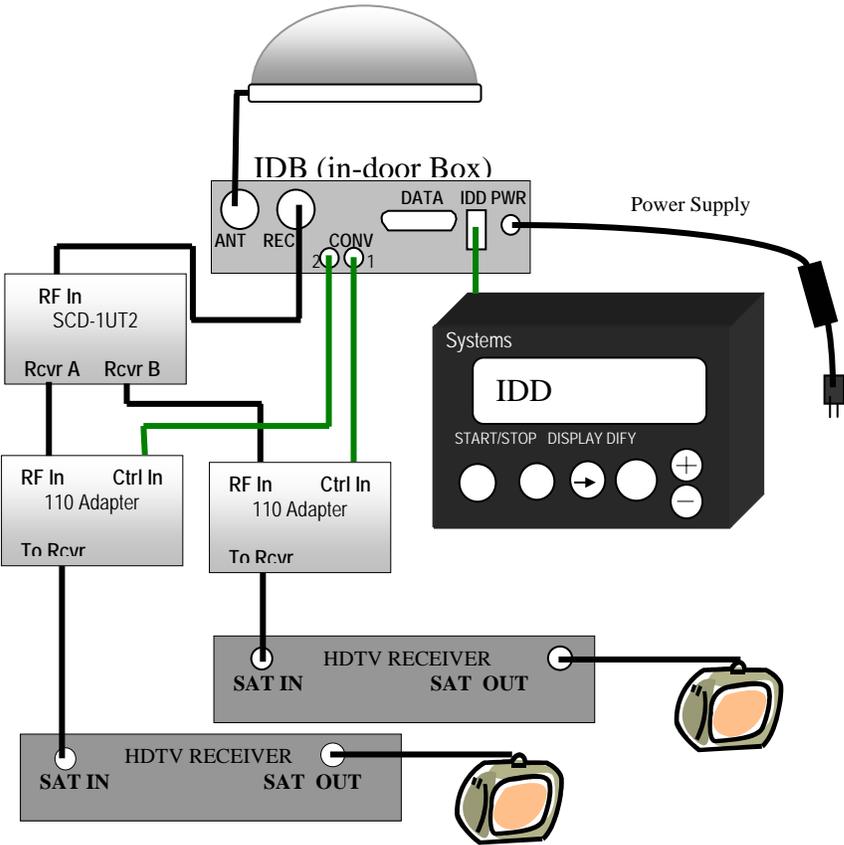
SV-360 DUAL HD0 WITHOUT 110 ADAPTER

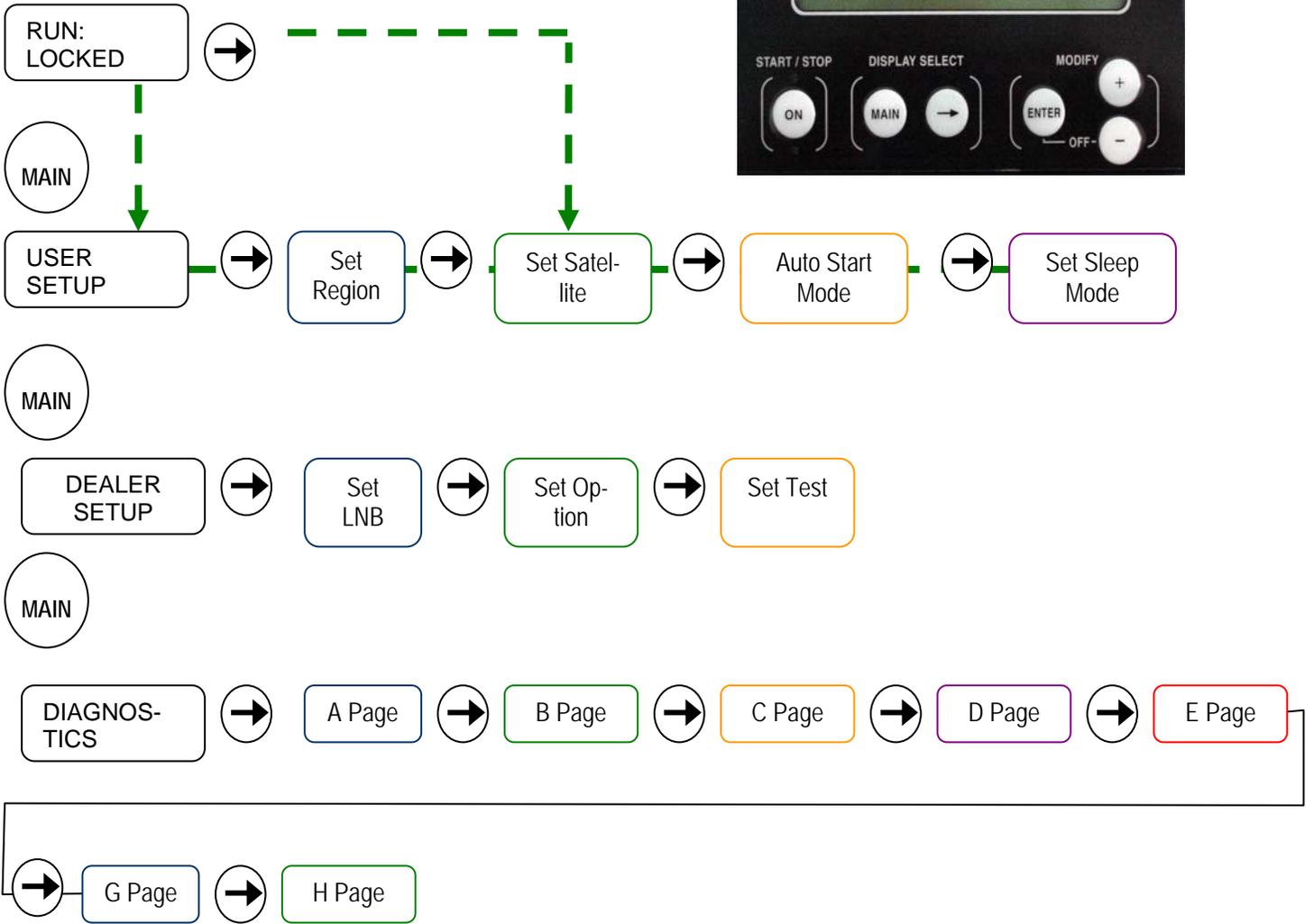


SV-360 DUAL HD1A WITH SINGLE 110 ADAPTER



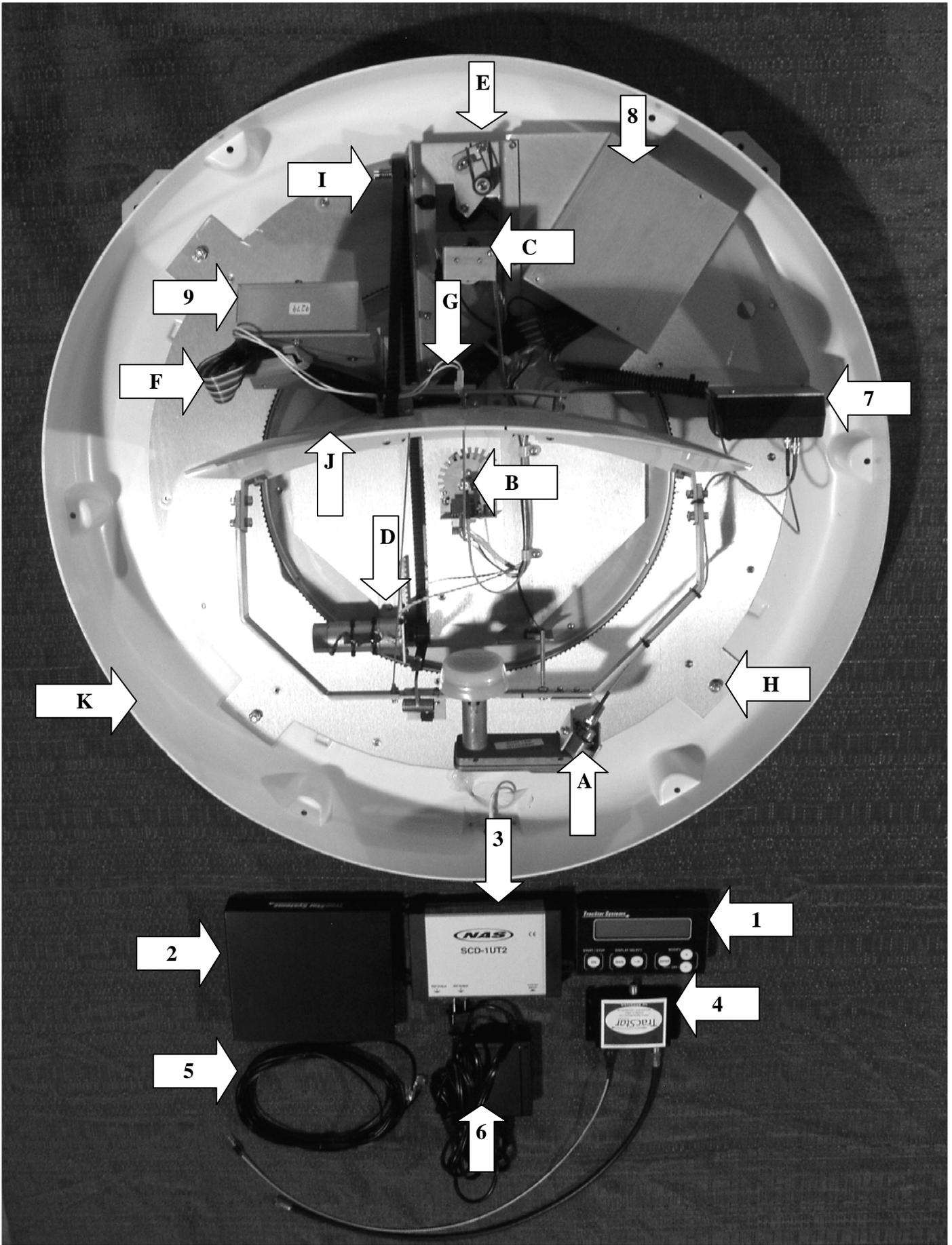
SV-360 DUAL HD2A WITH DUAL 110 ADAPTERS





In-Door Display (IDD) Diagnostic Section

- A page Shows azimuth and elevation angle of the antenna while stationary or moving (AA azimuth reading E elevation reading on the top line).
- B page Shows azimuth and elevation gyro bias (BA XXXX E XXXX). Should be between + and - 6000. Also shows temperature under dome (T XXXa on bottom line).
- C Page Tuner data-Used by TracStar technical support.
- D Page Used to verify reception of the satellite signal to the Antenna. Will read all zeros in scan align, when the antenna goes to "wide scan" the zeros should disappear and the satellites azimuth, elevation and signal strength will appear.
- E Page Used by TracStar technical support.
- G Page Used by TracStar technical support.
- H Page Used to verify compass reading and if a magnetic calibration was performed (MS XXXX is the compass reading followed by a comma (,) X. If there is a number after the comma then a mag cal has been performed.



Major parts list from previous page (8)

1	In Door Display (IDD)
2	In Door Box (IDB)
3	Down Converter (Dual Box)
4	110 Adapter (HD)
5	Phone Cord
6	Power Supply
7	RF Box
8	CPU (bottom) and Motor Board (top)
9	Gyro
A	LNB (Dual-stacked LNB shown)
B	Rotary Joint with Upper Rotary Cable attached
C	Azimuth Motor
D	Elevation Motor
E	Azimuth Belt Tension Spring and Pulley
F	Gyro Ribbon Cable
G	Compass Cable
H	Mounting Feet Bolt w/Nut
I	Elevation Pulley
J	Reflector Dish
K	Antenna (Upper Unit)

Power Up-Please Wait/Ant Comm Error

Fault Description:

A “Power Up-Please Wait” or “Antenna Comm Error” occurs when the 24VDC operating voltage generated from the power supply (plugged into a standard 120 volt AC wall outlet) does not reach the CPU board located in the Antenna (upper unit).

Possible Cause:

1. A power spike causing the antenna to lock up.
2. If serial number is between 10,000 to 12,000 then check to see what color the insulation is on the barrel connector sticking out of the base of the antenna. If it is blue in color then replace that first.
3. 24Volts DC operating voltage not getting to the CPU board in the antenna.
 - a. Bad IDB.
 - b. Bad coax cable from IDB to Antenna (cable that goes through roof of coach).
 - c. Bad rotary joint or rotary cable in antenna.
 - d. Bad RF box
 - e. Bad CPU/Gyro

Troubleshooting:

1. Reset the 24VDC power supply by unplugging it from the wall outlet. If you cannot get to the power supply then you can turn off a circuit breaker so that the TracStar display goes blank. Reapply the 24VDC power and check the display reading.
2. Check for 24VDC coming out of the coax cable that is connected to the outside of the antenna. When doing this you want to turn the power off on the antenna, disconnect the coax cable from the outside of the antenna, then turn the power back on. If not present then the fault lies with the IDB (In-Door Box) or the coax cable going from the IDB “Ant” jack to the antenna on the roof of the coach. You can check for 24VDC coming out of the “Ant” jack on the IDB (a paper clip may be required to get in the small hole on the “Ant” jack). **Replace the IDB or run a temporary cable from the IDB to the antenna to isolate the fault.**
3. If you have 24VDC at the coax connected to the antenna then the fault lies inside the antenna. Remove the antenna dome (4 or 6 dome bolts). Check for 24 VDC coming out of the coax cable screwed into the top connector on the RF box. You can also try to bypass the rotary joint system by running the outside ant cable directly to the top connector of the RF box (small black box) and then powering the antenna on. You **must power off the antenna immediately** if it does power up and the display goes into “scan align” so that the coax cable does not get pulled on or wrap around the antenna. If this works then something is bad in the rotary system. If you still have a “power up-please wait or antenna comm error” then the fault lies with the RF box, RF box ribbon cable or the CPU/Gyro.

El fault (Elevation Fault)

Fault Description:

An “EL Fault” will occur when the elevation or up and down movement of the antenna is not moving properly or the elevation bias voltage is too high.

Possible Cause:

1. Defective EL motor.
2. Defective CPU/Gyro.
3. Seized EL pulley (behind the white reflector).
4. EL movement hindered (mechanical).
5. Bad Gyro ribbon cable.

Troubleshooting:

1. Reset the antenna by pressing the **on** button on the TracStar display (IDD).
2. Once the IDD reads “scan align” press the **on** button again and the IDD will read “idle hold”.
3. Put the antenna in “Show Motion” (**see page 23**). Check for proper range of motion (up and down movement). If not moving properly take the dome off the antenna and check the following:
 - a. Give the white reflector dish (**see page 8 item J**) a light push (while in show motion) up or down to see if the antenna starts moving on its own. If it does then you usually have a bad EL motor or a seized pulley (**see page 8 item D or I**).
 - b. If the antenna stays all the way up or all the way down and bounces against the limit switch you may have high El bias (see number 5 below), a bad Cpu/Gyro, a bad spider cable or Gyro cable. Call TracStar for technical assistance.
4. Turn the antenna off and check the following:
 - a. Move the white dish manually up and down. There should be very little resistance and the dish should make contact with the upper and lower limit switch.
 - b. Check the black or brown pulley located behind the white reflector dish that the elevation belt rides on (**see page 8 item I**). Make sure it is not seized up.
 - c. Look for anything that could be preventing the dish from moving up or down (mechanical problem).
5. Turn the antenna on. Quickly check the elevation bias by performing the following:
 - a. On the TracStar IDD press the **main** button 3 times, the display will read “diagnostics”.
 - b. Press the **arrow** button 2 times, the display will read on the top line “BA XXX (some numbers) E XX (some numbers)”.

- c. The numbers directly to the right of the E should be between +/-6000. If the numbers are too high then the EL fault may be caused by a bad CPU/Gyro or bad Gyro cable (see **page 8 item F**). Perform a “Temp Cal” (see **page 25**).
6. Perform a “0” Recalibrate (see **page 22**).

AZ fault (Azimuth Fault)

Fault Description:

An “AZ Fault” will occur when the azimuth or circular movement of the antenna is not moving properly or the azimuth bias voltage is too high.

Possible Cause:

1. Defective AZ motor.
2. Defective CPU/Gyro.
3. AZ movement is hindered.
4. Bad Gyro ribbon cable.

Troubleshooting:

1. Perform a “0” recalibrate (see **page 22**).
2. Reset the antenna by pressing the **on** button on the TracStar display (IDD).
4. Once the IDD reads “scan align” press the **on** button again and the IDD will read “idle hold”.
5. Put the antenna in “show motion” (see **page 23**). Check for proper range of motion (circular movement). If not moving properly take the dome off the antenna and check the following:
 - a. Give the white reflector dish (**pg 8 item j**) a light push (while in show motion) in a circular motion to see if the antenna starts moving on its own. If it starts moving then you usually have a bad AZ motor or something is dragging as the dish moves in a circle.
6. Turn the antenna off and check for the following:
 - a. Manually rotate the white dish slowly in a complete circle in both directions. There should be very little resistance.
 - b. Look for anything that would prevent the dish from moving in a circular movement such as lose bearings, rub marks on the bottom azimuth plate and any binding (mechanical problem).
7. Turn the antenna on. Quickly check the AZ bias by performing the following:
 - a. On the TracStar IDD press the **main** button 3 times, the display will read “diagnostics”.
 - b. Press the **arrow** button 2 times, the display will read on the top line “BA XXX (some numbers) E XXX (some numbers)”.

- c. The number directly to the right of the BA should be between +/-6000. If the numbers are too high then the AZ fault may be caused by a bad CPU/Gyro or Gyro ribbon cable (see page 8 item F). Perform a “temp cal” (see page 25). Call TracStar for assistance.

Scan error

Fault description:

A “scan error” will occur if the antenna fails to receive and lock onto the satellite signal.

Possible Cause:

1. Blockage from trees, buildings, power lines, crank-up antennas, etc...
2. Bad weather conditions.
3. Outside the reception area (Canada or Mexico for DirecTV and dish network customers).
4. Bad LNB or misaligned (not pointing at the center of the white reflector dish).
5. Bad RF box.
6. Bad small coax cable from LNB to RF box.
7. Bad Up converter (older SV-360 models serial number 6359 or lower).
8. Bad CPU/Gyro.
9. Bad IDB
10. TracStar antenna model improperly set (single or dual configuration).

Troubleshooting:

1. Make sure that nothing is blocking your satellite signal such as trees, power lines, buildings or a crank-up antenna. Your southern view should be unobstructed.
2. Perform a “0” recalibrate (see page 22).
3. Verify that the antenna model setting matches the configuration of the antenna. This setting can be found in the “dealer setup” menu under “LNB type” (single or dual).
4. Try locking on to a different satellite (101, 110 or 119). If the antenna locks on to another satellite then you probably have a signal blockage in the direction of your original satellite.
5. Turn the antenna off then back on. When the IDD reads “wide scan” quickly press the **main** button 3 times, the IDD will read “diagnostics”. Press the **arrow** button 4 times, the display may read “D” and a bunch of zeros. Wait a few minutes to see if numbers appear to the right of the “D”. If you see numbers and the antenna will not lock on then you probably have a bad LNB, CPU/Gyro, or IDB. If you don’t see numbers then you could have a bad LNB, RF box, coax cable from LNB to RF box, CPU/Gyro or IDB.

6. With the antenna in “idle hold” check for approximately 13 volts dc to 18 volts dc coming out of the coax cable connected to the LNB. If not present then you probably have a bad coax cable or RF box. If you have the correct DC voltage, then you probably have a bad LNB (the RF box may be bad also).
7. If you have an older SV-360 dual model antenna serial number 6358 or lower, the fault may be the Up-converter installed in the antenna.
8. For further assistance please call TracStar.

Lock Verify

Fault Description:

A “Lock Verify” usually occurs when the antenna is locked on to the wrong satellite or there is a partial blockage of the satellite signal.

Possible Cause:

1. Blockage of the satellite signal.
2. Rain, dew, or very low signal strength.
3. Old software version.
4. Bad IDB.
5. Bad LNB.
6. Bad CPU/Gyro.

Troubleshooting:

1. Verify that there are no obstructions blocking the satellite signal (to your south).
2. Perform a “0-recalibrate” (see pg 22).
3. Reset power to the TracStar antenna.
4. If this is an SV260 the software version should be 7.15 or higher. If not then call TracStar for assistance.
5. Check your azimuth and elevation Gyro bias.
 - a. On the TracStar IDD press the **main** button 3 times, the display will read “diagnostics”.
 - b. Press the **arrow** button 2 times, the display will read on the top line “BA XXX (some numbers) E XXX (some numbers)”.
 - c. The number directly to the right of the BA should be between +/-6000. If the numbers are too high then the AZ fault may be caused by a bad CPU/Gyro or Gyro ribbon cable (see page 8 item F). Perform a “temp cal” (see page 25). Call TracStar for assistance.
6. Replace the IDB.
7. Replace the LNB.
8. Replace the CPU/Gyro.

Power Trip/Display Blinks Repeatedly

Fault Description:

When turned on the TracStar Display (IDD) reads “Power Trip” or blinks continuously.

Possible Cause:

1. Short, bad connection or water in the coax cable that connects from the IDB antenna jack to the outside of the antenna (the cable that goes through the roof of the coach).
2. Bad IDB
3. Bad IDD.
4. Bad Phone cord that connects to the IDD.
5. Short in DC Voltage path inside the antenna.

Troubleshooting:

1. Reset power to the antenna.
2. Check the main coax cable that connects to the outside of the antenna for continuity (center pin on cable should not be shorted to the outside of the connector). Check connectors on both ends of the cable for tightness. Run a temporary cable if needed.
3. Turn off power to the antenna. Remove the coax cable from the outside of the antenna. Turn the power to the antenna back on.
 - a. If the IDD still blinks you have a problem with the cable or the components inside the coach.
 - b. If the IDD stops blinking then the problem is in the antenna on top of the coach.
4. Replace the IDD.
5. Replace the IDB.
6. Replace the Phone cord.
7. Call TracStar for assistance.

Stays in Loading/Load Error

Fault Description:

When the antenna is initially turned on or the parameters are changed in the dealer set-up menu the antenna goes through a loading sequence. A “load error” may occur if the information from the IDD (display) doesn’t reach the CPU/Gyro board in the antenna during this loading sequence.

Possible Cause:

1. Water, moisture, or bad coax cable connection on roof of coach.
2. Bad IDB.
3. Bad RF Box.
4. Bad CPU/Gyro.
5. Ribbon cable from RF box to CPU board.

Troubleshooting:

1. Reset power to antenna.
2. Perform an “option 21” (see page 22).
3. Check main coax cable from IDB ant jack to antenna. Run a temporary cable if needed.
4. Replace IDB.
5. Replace RF box.
6. Replace CPU/Gyro.
7. Replace ribbon cable from RF box to CPU board.

Won't Lock On to Satellite

Fault Description:

If the antenna won't lock onto the satellite, refer to the “Scan error” section for help (see page 13).

Stays in Scan Align (won't go to wide scan)

Fault Description:

Shortly after turning on the antenna the display will read “scan align” which is the circular movement of the antenna. Within a couple of minutes the display should read “wide scan” which indicates the antenna is moving in a circle and elevating up and down while searching for the satellite signal. If the display stays in “scan align” and never goes to “wide scan” then the antenna will never lock on to the satellite signal.

Possible Cause:

1. Bad compass in antenna.
2. High AZ (azimuth bias).
3. Bad CPU/Gyro.

Troubleshooting:

1. Perform a “0-recalibrate” (see page 22).

2. Check the AZ (azimuth) bias by going to the “Diagnostic” menu. Once on the diagnostic menu press the “**arrow**” button 2 times. The IDD will read “BA XXX (some numbers) E XXX (some numbers). The numbers next to the BA is the azimuth bias; this number should be between +/-6000. If it is too high then perform a “Temperature Calibration” (see page 25).
3. Check the Compass reading by going to the “Diagnostic” menu. Once in the diagnostic menu press the **arrow** button 7 times (“H” page). The bottom line will read “MS- XXX (some numbers). If there are no numbers next to the MS then you have a bad compass or CPU/Gyro.

Missing even, odd or no transponders

Fault Description:

Transponders are signals sent from the satellite in the sky to your antenna. These transponders carry your programming to your satellite receiver and allow you to watch different programs. When you are missing transponders as indicated on your satellite receiver transponder menu, you may have difficulty downloading your guide or you may have missing channels or programs that you normally would get.

Possible Cause

1. Bad LNB (**this is the most frequent cause of missing even transponders**).
2. Missing the Down Converter from a dual model antenna or Down Converter installed when running a single model antenna.
3. Poor coax connection from the IDB (ant jack) to the antenna on the roof of the coach.
4. Bad coax cable from the IDB (REC jack) to the satellite in jack on your satellite receiver (**Single model antenna only**).
5. Bad coax cable from the IDB (REC jack) to the input jack on the down converter (**Dual model antenna only**).
6. Bad coax cable from the output jack on the down converter to the satellite in jack on the receiver.
7. Bad down converter (**Dual model antenna only**).
8. Bad Up converter (SV360 dual model antennas serial number 6358 or lower).
9. Bad receiver.
10. Bad IDB.
11. Bad Cpu/Gyro.
12. Locked onto the wrong satellite.
13. Dish network customers have an improper check switch setting on their receiver.

Troubleshooting:

1. Replace the LNB.

2. Make sure you are on the correct satellite and the IDD reads “Locked S ## (some numbers).
3. Perform a 0-recalibrate (**see page 22**).
4. Verify if a dual model antenna that the down converter is installed properly. It must go between the IDB and receiver(s).
5. Dish Network customers only; perform a check switch on your satellite receiver (see your receiver manual to perform a check switch).
6. Check or replace all of the coax cables from the IDB (REC jack) to the satellite in jack on the satellite receiver.
7. Replace the Down Converter (only replace a 2 output down converter with another 2 output down converter) or (only replace a 4 output down converter with another 4 output down converter) **2 AND 4 OUTPUT DOWN CONVERTERS ARE NOT INTERCHANGEABLE.**
8. Replace the IDB.
9. Replace the satellite receiver (if the coach has 2 satellite receivers verify the problem on both receivers). If the problem only occurs on 1 receiver then you may still have a bad LNB, bad cable to your receiver or a defective receiver.
10. Replace the CPU/Gyro.

Low Signal Strength

Fault Description:

Low signal strength as indicated on the TracStar display, the receiver’s transponder menu, or pixilation of programming on your TV. Low signal strength may prevent the antenna from locking onto the satellite signal or cause programming to come in and out (pixilate).

Possible Cause:

1. Dew, rain, or moisture accumulated on the dome of the antenna.
2. Partial blockage of the satellite signal (trees, power lines, buildings, etc...).
3. Customer’s location (different locations in the U.S. and Canada have lower signal strengths).
4. Bad or misaligned LNB in antenna.
5. Bad up converter (antenna serial number 6358 or lower) in antenna or down converter in coach.
6. Poor coax cable connection from IDB to antenna.
7. Bad receiver.

Troubleshooting:

1. Make sure the coach is in a location where there are no obstructions to the south.
2. Keep the dome on the antenna clean.

3. Dome painted with metallic paint (Do not use a metallic paint to paint the dome).
4. Verify signal strength on IDD “RUN LOCKED S XX”. Depending on your location your signal strength will vary. If the signal strength is good on the display then the problem lies within a component in the coach.
 - a. Down converter.
 - b. Satellite receiver.
 - c. Coax cables.
5. If the signal strength is low on the IDD then the problem lies within the antenna.
 - a. Moisture, rain, or dew on the antenna dome. Clean the dome.
 - b. Partial blockage of the satellite signal. Move the coach.
 - c. Bad or misaligned LNB (the LNB should be pointing at the exact center of the white reflector dish in the antenna).
 - d. Possible bad up-converter if the antenna is older than serial number 6358. Convert to a stacked LNB with a 2 output down converter (**see page 30**).
 - e. Bad IDB in the coach.

Locks onto the Satellite Signal then loses signal

Fault Description:

The IDD will read “RUN LOCKED S XX” then the signal will drop and the antenna may go back into scan align.

Possible Cause:

1. Blockage of the satellite signal.
2. Rain, moisture, or dew on the dome.
3. The antenna model is set improperly on the IDD (single or dual).
4. Poor coax connection from the IDB (ANT jack) to the antenna. **(the coax cable from the IDB (ANT jack) to the upper unit (Ant) must be one continuous cable. Do not connect two cables together using a barrel connector. Use RG-6 cable only).**
5. Poor motor functions. The motors are going bad.
6. Bad IDB (tuner).
7. Bad LNB.
8. Bad or dirty rotary joint to upper rotary cable connection.
9. High azimuth or elevation bias (bad CPU/Gyro).

Troubleshooting:

1. Verify no blockage of the satellite signal. Move coach to unobstructed area.

2. Verify proper antenna model configuration (single or dual) by going to the dealer setup menu then pressing the **arrow** button 1 time.
3. Perform a “0-recalibrate” (**see page 22**).
4. Check the bias reading on the diagnostic menu B page. The top line should read BA XXX (some numbers) E XXX (some numbers). If the numbers are higher than 6000 then perform a temp calibration (**see page 25**). If after performing a temp cal the numbers are still over 6000 then you may have a bad CPU/Gyro.
5. Put the antenna in “show motion” and verify proper movement of the antenna (**see page 23**). If the movement as indicated on the diagnostic section “A” page is not normal you may have a bad motor or mechanical problem in the antenna.
6. Replace the IDB in the coach.
7. Replace the Up-converter if serial number 6358 or lower (dual model antenna).
8. Replace the LNB.
9. Clean or replace the rotary joint to upper rotary cable connection.
10. Replace the CPU/Gyro.

Missing Channels (Programming)

Fault Description:

Some or all of the channels that you normally view are not appearing on the TV.

Possible Cause:

1. Missing transponders on your satellite receiver.
2. Not locked on a satellite or locked onto the wrong satellite.
3. If a dish network customer, improper check switch setting on the receiver.
4. Low signal strength, blockage, or rain fade.
5. Bad coax cable from the IDB (REC) jack to the satellite receiver or down converter.
6. Bad coax cable from down converter to the “sat in jack” on the receiver.
7. bad coax cable from the IDB (Ant) jack to the upper unit (Ant).
8. Bad or missing down converter (dual model antenna).
9. Bad IDB.
10. Bad LNB.
11. Bad up-converter older antennas serial number 6358 or older.
12. Bad CPU/Gyro.
13. Bad receiver.

Troubleshooting:

1. Make sure the antenna is locked on a satellite, you are on the correct satellite, and you have good signal strength as indicated on the IDD.
2. Verify transponder strength on the satellite receiver. Check all of the transponders for a signal (some of the transponders are spot beams and may not be present in

your area). See your receiver manual for checking transponders. If missing transponders check:

- a. If missing all even numbered transponders you may be missing the down converter (Dual model antenna only) or have a bad LNB.
 - b. Check coax cables from the IDB (REC jack) to the satellite receiver.
 - c. Proper “check switch” setting on the receiver for dish network customers.
 - d. Down converter installed on a single model antenna (Down converter must not be used on single model antenna).
 - e. Bad up-converter, older dual antennas serial number 6358 or older.
 - f. Bad IDB
 - g. Bad receiver. Unplug power and reset.
3. If you have good transponder strength at your receiver check the following:
- a. Bad receiver. Unplug power and reset.
 - b. Switch settings on TV, receiver or AV switch box (if used).
 - c. Bad cable from receiver to the TV or AV switch box.

Antenna does not switch satellites when set to 101/110 or 101/119 (software version 3.06 or above-DirecTV only)

Fault Description:

The antenna doesn't switch satellites when changing channels on your receiver.

Possible Cause:

1. The IDD is not set to 101/110 or 101/119.
2. The IDD is set to “idle hold”.
3. The receiver is not set to oval dish 3 LNB.
4. If using 2 receivers and one of the receivers is on a channel that is on satellite 110 or 119 even if the receivers is turned off the antenna won't switch satellites.

Troubleshooting:

1. Take the IDD off “idle hold”.
2. Make sure the IDD is set to 101/110 or 101/119.
3. See receiver manual for dish type setting. Must be on oval dish 3 LNB.
4. If you have multiple receivers, satellites 110 and 119 will override satellite 101. If one of the receivers is set to a channel that is located on satellite 110 or 119 then the antenna will not switch off that satellite. Basically if you are trying to watch a program that is on satellite 101 and your unused receiver is on a channel that is on satellite 110 or 119 the antenna won't switch to 101 (even if the unused receiver is turned off). Change the unused receiver to a channel that is on satellite 101.

Option 21 Reset

The Option 21 reset is used for resetting certain parameters that were originally installed in the antenna at the factory.

Procedures:

1. Turn the TracStar system on.
2. Press the **start/stop** button and the display will read “idle hold”.
3. Press the **main** button 2 times, the display will read “dealer setup”.
4. Press the + button 13 times, the display will read “dealer setup code 13” then press **enter**.
5. Press the **arrow** button 2 times, the display will read “set option”.
6. Press the + button 21 times, the display will read “set option-option 21”.
7. Press the **enter** button.
8. The display will read loading for about 10 seconds then go back to “set option-option 0”.
9. Unplug the black phone cord from the left side of the display (IDD) or unplug the power supply from your 120VAC wall outlet.
10. Wait 5 seconds and reconnect the phone cord or power supply. The antenna should resume the scan process.

“0” Recalibrate

The “0” recalibrate is used to reinitiate the scan process when the antenna has difficulty finding the satellite signal.

Procedures:

1. Turn the TracStar system on.
2. Press the **start/stop** button and the display will read “idle hold”.
3. Press the **main** button 1 time, the display will read “user setup”.
4. Press the **arrow** button 1 time, the display will read “set region”.
5. Press the + button until “0-recalibrate” appears on the display.
6. Press the **enter** button, the display will read “idle hold”.
7. Press the **start/stop** button, the antenna should resume the scan process.

Show Motion

The Show motion function is used when it is necessary to verify the antenna's range of motion and speed in azimuth (circle) and elevation (up-down).

Procedures:

1. Turn the TracStar system on.
2. Press the **start/stop** button and the display will read "idle hold".
3. Press the **main button** 2 times, the display will read "dealer setup-code 0".
4. Press the + button 13 times, the display will read "dealer setup code 13" then press **enter**.
5. Press the **arrow** button 3 times, the display will read "set test".
6. Press the + button 3 times, the display will read "show motion".
7. Press the **enter button**, the display will read "cancel" on top.
8. Press the + button, the display will read "run now".
9. Press the **enter** button, the display will read "idle hold" (the antenna is now moving).

Now you can check the movement of the antenna by doing one of the following:

1. Take the dome off of the antenna. The antenna should be rotating in a circle and moving up and down.

Or

2. Press the **main** button 3 times, the display will read "diagnostics".
3. Press the **arrow** button 1 time, the display will read on the top line:

AA (0-360) E (20-60)

4. The numbers to the right of the A is the azimuth. This number should be moving rapidly from 0-360 degrees in a continuous circle.
5. The number to the right of the E is the elevation. This number should be moving rapidly from approximately 20-60 degrees up and down.

Mechanical Calibration

The Mechanical Calibration is performed at the factory to set the lower and upper elevation parameters. This calibration is rarely needed by the customer.

Procedures:

1. Turn the TracStar system on.
2. Press the **start/stop** button and the display will read “idle hold”.
3. Press the **main** button 2 times, the display will read “dealer setup”.
4. Press the + button 13 times, the display will read “dealer setup code 13” then press **enter**.
5. Press the **arrow** button 3 times, the display will read “set test”.
6. Press the + button 5 times, the display will read “mech cal”.
7. Press the **enter** button, the display will read “cancel”.
8. Press the + button, the display will read “run now”.
9. Press the **enter** button, the display will read “mech cal”.

This calibration takes about 20 minutes to complete. The coach should be as level as possible and has to be stationary during the 20 minute calibration process. When finished simply turn the TracStar system off then back on.

Magnetic Calibration

This calibration is used for helping the antenna’s compass compensate for magnetic interferences caused by the different metals built into the coach (RV). Basically this calibration may help the antenna acquire the satellite signal faster.

Procedures:

The Magnetic Calibration requires the coach to be driven in a complete circle. The circle must be big enough so that at idle speed it will take you 1 ½ minutes to complete the circle.

1. Get your coach in position to drive in a complete circle and put the coach in park.
2. Turn the TracStar system on.
3. Press the **start/stop** button and the display will read “idle hold”.
4. Press the **main** button 2 times, the display will read “dealer setup”.
5. Press the + button 13 times, the display will read dealer setup code 13”, and then press **enter**.
6. Press the **arrow** button 3 times, the display will read “set test”.
7. Press the + button 2 times, the display will read “mag cal”.
8. Press the **enter** button, the display will read “cancel”.
9. Press the + button, the display will read “run now”.
10. Press the **enter** button, the display will say “mag cal wait”.

Don’t start driving in a circle until the display tells you to drive, this may take a minute. When told to do so drive at idle speed (it needs to take you about 1 to 2 minutes to complete the circle). **If you get back to the start of the circle before the display says “mag cal done”, keep driving.** Once the display says “mag cal done” the magnetic calibration is complete. Simply turn the TracStar system off then back on.

If the Magnetic Calibration fails on the display, start from the beginning and try again.

Temperature Calibration

The Temperature Calibration is used when the antenna has difficulty locking on to the satellite due to high bias readings in the diagnostic section of the TracStar display.

Procedures:

1. Turn on your TracStar system.
2. Press the **start/stop** button and the display will read “idle hold”.
3. Press the **main** button 2 times, the display will read “dealer setup”.
4. Press the + button 13 times, the display will read “dealer setup code 13” then press **enter**.
5. Press the **arrow** button 3 times, the display will read “set test”.
6. Press the - button 2 times, the display will read “temp cal”.
7. Press the **enter** button, the display will read “cancel”.
8. Press the + button, the display will read “run now”.
9. Press the **enter** button, the display will read “temp cal”.

The Temperature Calibration will last approximately 2-4 hours before “operation complete” shows up on the display (IDD). **It is very important that the coach remain stationary during the Temp Cal.**

When finished simply turn the TracStar system off then back on.

Antenna Removal and Installation Recommendations

Required Tools: 7/16 in wrench
3/8 in wrench
Cross Tip (Philips) Screwdriver

Supplied Parts: SV360 Antenna (upper unit)
SCD1UT2 Down Converter (Dual Model Antenna)
Return Label
Gel Filled Boot

Removing your Installed Antenna

1. Turn the TracStar antenna off by either pressing the **enter** and **minus (-)** buttons at the same time for 2 seconds on the display (IDD) or by removing the black phone cord located on the left side of the display (IDD).

2. Remove the (4) or (6) dome bolts depending on the date of manufacturer using your cross tip screwdriver and 3/8 in wrench. Lift up on the dome and set aside (you should have access to the inside of the antenna at this time)
3. Unscrew the coax cable from the outside bottom of the antenna base using your 7/16 in wrench (**if a gel filled protective boot is over the cable connection, remove, and set aside**).
4. Located on the inside bottom of the antenna around the outer edge you will see 4 bolts (**see page 8 item H**) with a nut on each one. Using your 7/16 in wrench, remove the nut and washer from the 4 bolts.
5. Lift up on the base (a gentle rocking action may be required). The antenna base should lift up and off the 4 bolts. Set antenna base aside.

Installing your replacement antenna

1. Remove the new antenna from the box.
2. Using your cross tip screwdriver and 3/8 in wrench remove the 6 dome bolts. Lift up on the antenna dome and set aside.
3. **You must remove the 2 shipping screws** located on the bottom of the antenna base using your cross tip screwdriver. If left in damage may occur upon powering up.
4. Repeat step 4 from above and remove the antenna mounting feet and set aside.
5. Check the antenna mounting feet that are currently attached to the top of your coach. If they **don't** have a black rubber washer on the 4 bolts then remove the rubber washers from the mounting feet previously removed from the new antenna and place 1 black rubber washer on each bolt.
6. Place the new antenna over the mounting feet in the same manner as the old antenna was removed.
7. Place the steel washer and nut on each of the 4 bolts and tighten using your 7/16 in wrench. **Do not over tighten the nuts causing the rubber washer on the feet to flatten out. The washers should maintain their original shape.**
8. Connect the coax cable to the outside of the antenna base using your 7/16 in wrench. Install the protective gel filled boot supplied with your new antenna over the cable connection.
9. Reinstall the dome by aligning the 6 dome bolts with the 6 holes on the antenna base. Insert the 6 bolts through the holes and fasten with the small rubber washer, metal washer and acorn nut (**do not over tighten**).
10. Turn your TracStar antenna on by pressing the **start/stop** button or reinserting the phone cable on the left side of the display (IDD). You are now finished with the SV360 antenna install.

Returning your used TracStar antenna

1. Install the shipping screws from the new antenna in your used antenna if possible using your cross tip screwdriver (**make sure the shipping screws are installed through the bottom of the antenna and are inserted into the black elevation and**

- azimuth retaining nuts**). Failure to do so will cause the inside antenna components to move during shipment and cause further damage.
2. Reinstall the unused dome and secure properly.
 3. Place the antenna in the shipping box and insert the 4 cardboard corners.
 4. Place the supplied shipping label over the original shipping label on the outside of the box and ship to:

TracStar Systems
1984 W. New Hampshire St.
Orlando, Fl. 32804

Replacing the Azimuth Motor (figure 1)

Required parts: AZ motor
 Long black tie strap
 Philips head screwdriver
 3/8-inch wrench
 3/32-inch hex wrench (supplied)
 .050-inch hex wrench (supplied)

1. Make sure the antenna is turned off.
2. Using a Philips head screwdriver and a 3/8-inch wrench remove the dome from the antenna base.
3. Release the belt tension spring by pushing and lifting upward on the top end of the spring (**fig1-1**).
4. Remove the two .050 hex screws (**fig1-2**) and set the two screws, the two white nylon spacers, and the aluminum bracket aside. They will be re-installed on the new motor later. ***Important: be sure not to lose the two nylon spacers.**
5. Remove the two 3/32 hex screws and set aside (**fig1-3**).
6. Cut the black tie strap from around the motor.
7. Disconnect the red connector on the motor from the wire harness by pushing down on the red tab located on the connector and pull apart (**fig1-4**).
8. Set the bad motor aside.
9. Insert the new AZ motor making sure the belt is around the motor gear and the tension pulley. The AZ belt should form the shape of the letter “S” around the motor pulley and the tension pulley. (**refer to figure 1**).
10. Insert the two 3/32-inch screws and tighten.
11. Reattach the red motor connection to the wire harness and secure the connection to the motor using the black tie strap.
12. Reattach the aluminum bracket on the top of the motor using the two .050 hex screws and the two white nylon spacers (**be careful not to over tighten**). ***Important: make sure the two nylon spacers are sandwiched between the top of the motor and the**

bracket that goes on top of the motor. If the spacers are not installed, the antenna will go into an AZ fault and damage to the new motors will occur.

13. Reattach the tension spring on the tension pulley assembly.
14. Make sure the antenna rotates in a complete circle.
15. Power up the antenna and make sure the antenna locks on and you have a picture on your TV.
16. Install the dome on the base of the antenna. Return the bad AZ motor along with the .050 and 3/32-inch hex wrench to TracStar.

Replacing the Elevation Motor (figure 2)

Required parts: El motor
 Short black tie strap
 Long black tie strap
 Philips head screwdriver
 3/8-inch wrench
 5/64-inch hex wrench (supplied)

1. Make sure the antenna is turned off.
2. Using a Philips head screwdriver and a 3/8-inch wrench remove the dome from the antenna base.
3. Release the tension of the elevation belt (**fig 2-1**). This can be done by pushing down on the elevation tension spring located toward the front of the antenna.
4. Cut the black tie strap from around the motor.
5. Disconnect the red connector on the motor from the wire harness by pushing down on the red tab located on the connector and pull the connector apart (**fig 2-2**).
6. Remove the two 5/64-inch hex screws and set aside (**fig 2-3**). Set the bad motor aside.
7. Insert the new el motor and tighten using the two 5/64 inch hex screws (**fig 2-3**).
8. Reattach the red motor connection to the wire harness and secure the connection to the motor using the long black tie strap (**fig 2-2**).
9. Secure the white harness cable to the motor bracket using the short black tie strap.
10. Pushing down on the front el tension spring slip the el belt over the el motor pulley.
11. Make sure the antenna moves up and down with no obstruction.
12. Power up the antenna and make sure the antenna locks on and you have a picture on your TV.
13. Install the dome on the base of the antenna. Return the bad el motor along with the 5/64-inch hex wrench to TracStar.

Replacing the electronics (sensor box, CPU, and motor control board figure 3-14)

*****All components received must be replaced together for proper antenna operation. Turn the power off on the antenna before installing electronics to avoid damage.*****

Required tools: 3/32 hex key (included)
1/16 hex key (included)
Philips screwdriver
3/8 wrench
Wire cutters

Parts list: CPU/Motor board box (motor board may be optional)
Gyro box
Black tie strap
White tie strap (If needed)

Step A: (removal of CPU, Sensor Box, and Motor Cont. Board)

1. Make sure the antenna is turned off.
2. Using your Philips screwdriver and 3/8 wrench, remove the screws that secure the antenna dome to the antenna base and set the dome aside (**fig 3**).
3. Using your 3/32 hex key, remove the (2) button head screws from the Gyro box mounting bracket. Cut the black tie strap that secures the white compass cable (**do not cut the white cables**) and unplug the compass cable from the green compass (**fig 4**).
4. By gently pulling outward (there may be a gray cable clip that needs to be removed), remove the ribbon cable from the Gyro box connector. Depending on the antenna serial number cut the white tie strap or unclasp the gray cable clip attached to the back of the sensor box and set the sensor box aside (**fig 5**).
5. Using the 1/16 hex key or a cross tip screw driver, remove the (2) screws that secure the CPU lid. Open the CPU lid and gently, by pulling outward, remove all of the ribbon cables from the connectors on the CPU board and motor control board (only if replacing motor board).
6. Using the 1/16 hex key or cross tip screw driver remove the 4 screws in the corner of the CPU board and motor board (if replacing). Remove the board(s).

Step B: (installing the new CPU and Motor Cont. Board).

7. Re-install the new CPU board and optional motor board by placing the boards back in the CPU box and re-inserting the screws in each corner of the boards.
8. Insert the 4 wire ribbon cable into the connector as shown (**fig 8**).
9. Insert the 5 wire ribbon cable into the connector as shown (**fig 9**).
10. Insert the 14 wire ribbon cable into the connector as shown (**fig 10**).
11. Insert the 16 wire ribbon cable into the connector as shown (**fig 11**).
12. Insert the gray cable into the connector as shown (**fig 12**).
13. Insert the other end of the gray cable into the connector on the motor control board as shown (**fig 13**).
14. Insert the 14 wire ribbon cable into the connector on the motor control board as shown (**fig 14**).

15. Close the lid on the CPU box being careful not to pinch any of the cables coming out of the back of the box. Secure the lid on the box using the 1/16 hex key or cross tip screw driver with the screws previously removed (**fig 6**).

Step C: (installing the new Gyro box).

16. Mount the Gyro box by re-installing the (2) 3/32 button head screws provided through the Gyro box-mounting bracket and tighten firmly. Re-attach the white compass cable to the green compass connector and secure the compass cable using the provided black tie strap (**fig 4**).

17. Re-attach the Gyro box ribbon cable by firmly inserting the cable into the Gyro box connector. Secure the ribbon cable to the backside of the sensor box by inserting the ribbon cable into the gray clip and snap close (**fig 5**). (NOTE: Antennas with serial number 6914 or earlier used a white tie strap instead of the gray clip to secure the sensor box ribbon cable to the back of the sensor box). **It is very important to secure the sensor box ribbon cable to prevent the connector from coming loose due to vibration.**

18. Re-install the antenna dome on the base using screws as discussed in step 1 (**fig 3**).

19. Power up the TracStar antenna. Refer to the user manual for proper satellite selection and region.

*****All electronics (CPU/Gyro) are set as “Dual” from the factory. If you have a single model antenna the LNB setting must be changed to “single” (see next step).*****

20. Turn the antenna on

21. Press the **Main** button 2 times. The IDD will read “dealer setup code 0”.

22. Press the + button 13 times. The IDD will read “code 13”. Press **enter**.

23. Press the **arrow** button 1 time. The IDD will read “set LNB type-dual”.

24. Press the – button 2 times. The IDD will read “0 USA single”. Press **enter**.

25. Press the **arrow** button 1 time. The IDD will read “set option-0”.

26. Press the + button until the IDD reads “option 21”. Press **enter**. The IDD will read “loading” for about 15 seconds.

27. When the IDD is finished “loading” reset the power to the antenna and your done.

Send the used components along with the 3/32 and 1/16 hex key to TracStar.

SV360 SINGLE TO DUAL UPGRADE

***NOTE: All steps may not be required or may be slightly different depending on model and/or configuration of your antenna and the dual kit provided.**

REQUIRED PARTS: One (1) DUAL LNB with built-in up converter
One (1) DUAL output down converter (NAS)

- One (1) LNB bracket
- One (1) LNB mounting bolt
- One (2) RG-6 coax cables (not supplied)

1. Turn TracStar system off.
2. Remove the dome from the antenna base.
3. Remove all cables from the mounted LNB (**page 8, fig A**).
4. Remove the two LNB bracket mounting bolts and save for the new bracket installation.
5. Install the new LNB with bracket attached using the old bracket mounting bolts to secure in place. (**note: use the other 2 holes next to the original holes in the cradle when mounting so that the LNB sits in the V groove mounting plate**)
6. Connect the cable with the black end to the LNB output connector. **Note:** If there were two cables connected to the old LNB, use the one without the small silver barrel extension to connect to the LNB and the other end of that same cable **must** be connected to the bottom connector on the black RF box.
7. Re-install the dome on the antenna base and tighten all dome bolts.
8. Remove the RF cable from the receiver's satellite input jack and connect to the input connector on the DUAL down converter box (NAS).
10. Connect an RG-6 Coax cable (not supplied) to one of the dual down converter output jacks and connect the other end of the cable to the receiver's satellite input jack. If using two receivers run another coax cable from the other output on the down converter to the other receiver.
11. Turn the TracStar system on.
12. When the antenna display (IDD) is done loading and starts scanning, push the "**main**" button two times until "DEALER SETUP CODE 0" is displayed.
13. Push the "+" button until "CODE 13" is displayed, then press "**enter**".
14. Press the "**arrow**" button one time. The display will read "SET LNB TYPE". Push the "+" button until the display reads "1-USA DUAL", then press "ENTER".
15. Press the "**arrow**" button one time. The display will read "SET OPTION". Press the "+" button until the display reads "OPTION 21", then press "**enter**".
16. After loading is complete (about 20 seconds) remove the cord (looks like a phone cord) that is plugged into the side of the display (IDD). Wait 10 seconds and plug the cord back into the display. The Dual Upgrade is now complete.

TracStar (IDB) Software Update Instructions

SV360 Software Update Kit Includes:

1. Instructions to update software.
2. Software update box (to be returned to TracStar).
3. Power supply with cord (to be returned to TracStar).

Important: Please read instructions before beginning.

Updating software through your In Door systems box:

1. Turn “on” your TracStar Antenna and put in “idle mode” by pressing your “start/stop” button.
2. Connect the software update box 9 pin serial connector to the back of the TracStar systems box data port connector.
3. Plug the power supply into a standard 120-volt ac outlet and plug the other end of the power supply into the software up-grade box (PWR connector).
4. The green LED on the software up-grade box should blink repeatedly 9 times with a short pause in between each set of blinks. The TracStar “In Door Display” should read “loading”.
5. The software download will take approximately 10 minutes to complete (you will notice this when the TracStar display no longer says “loading”).
6. Turn the TracStar antenna “off”.
7. Disconnect the software up-grade box from the TracStar systems box.
8. Turn the TracStar antenna “on”. The software up-grade is complete.
- 9. Return the upgrade box and power supply within 10 days of install.**

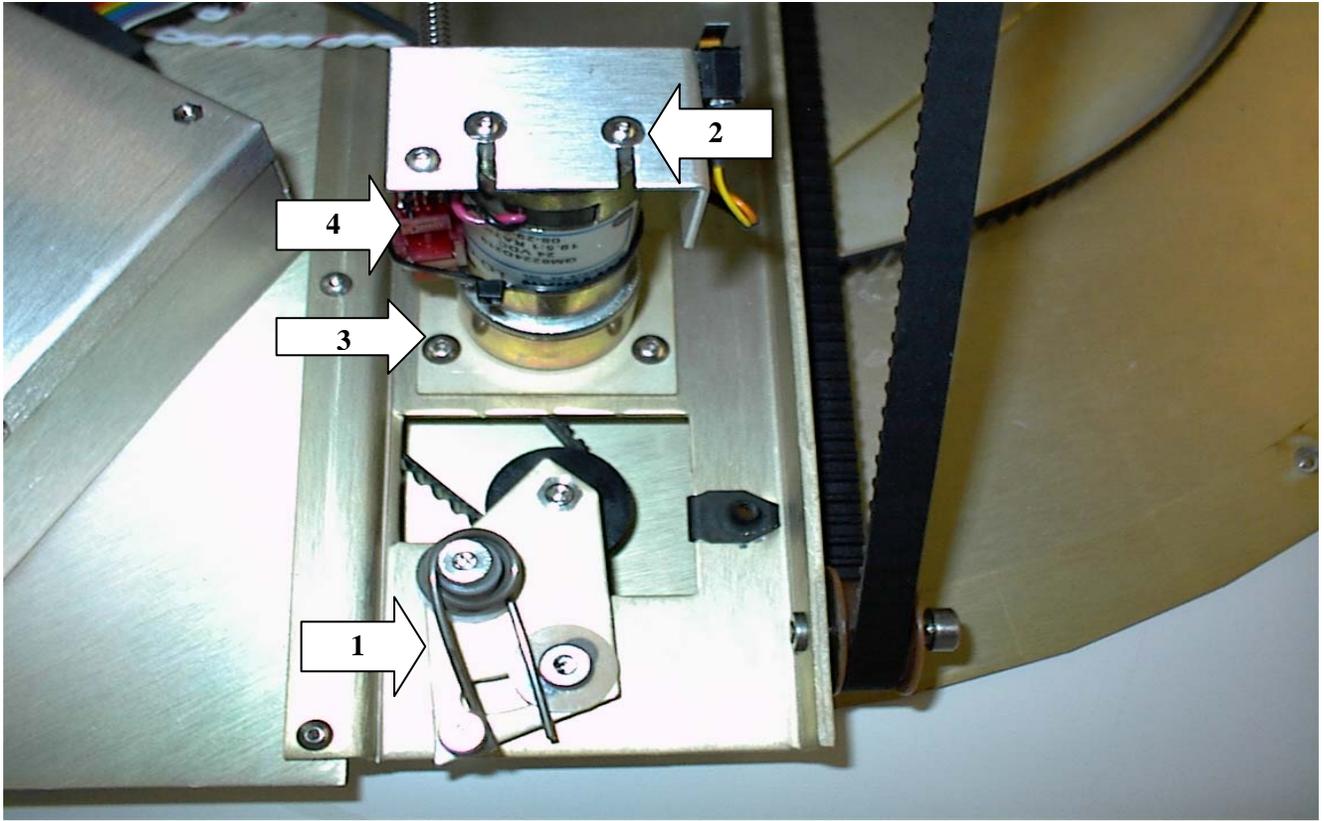


FIGURE 1

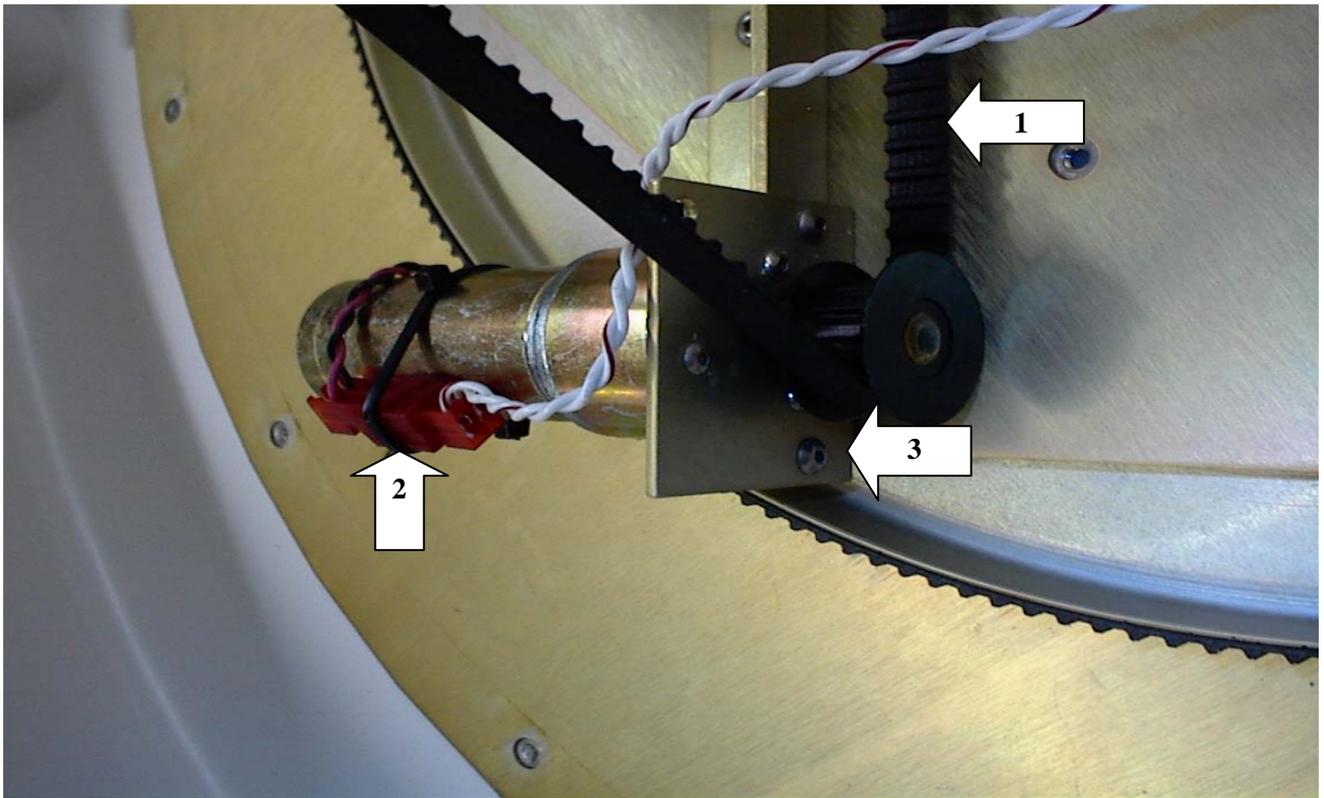


FIGURE 2



FIG. 3

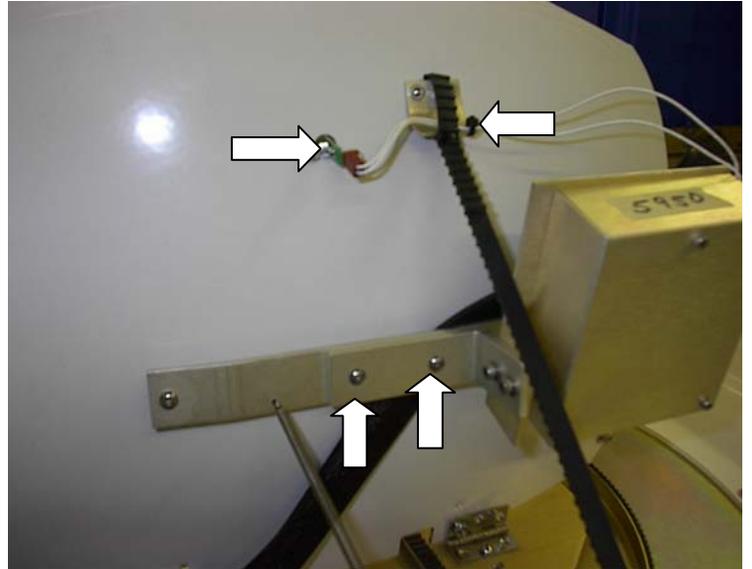


FIG. 4

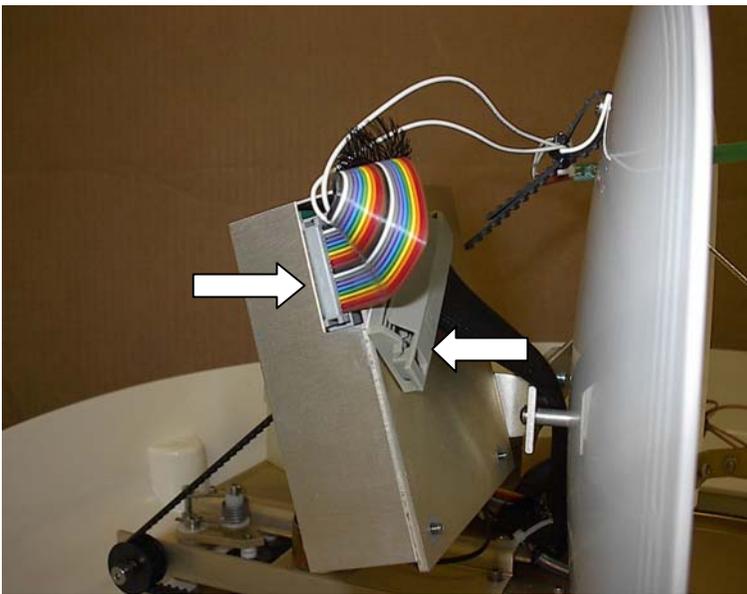


FIG. 5

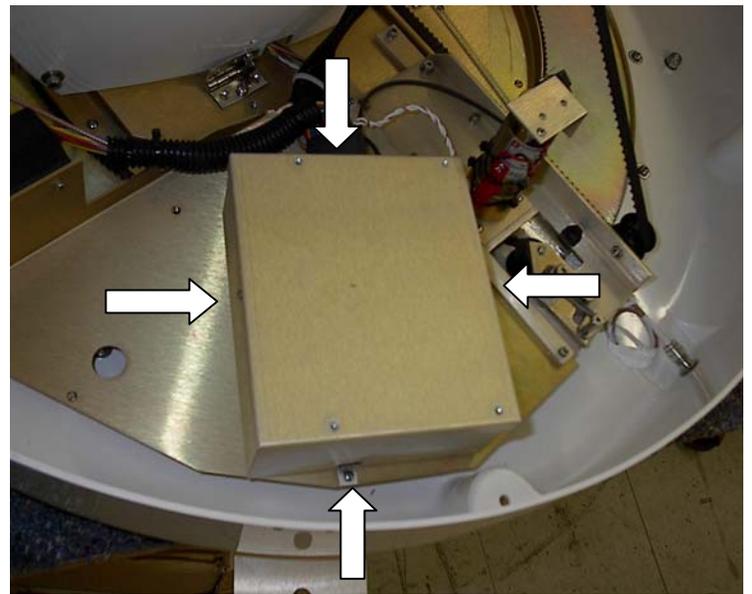


FIG. 6



FIG. 7



FIG. 8



FIG. 9

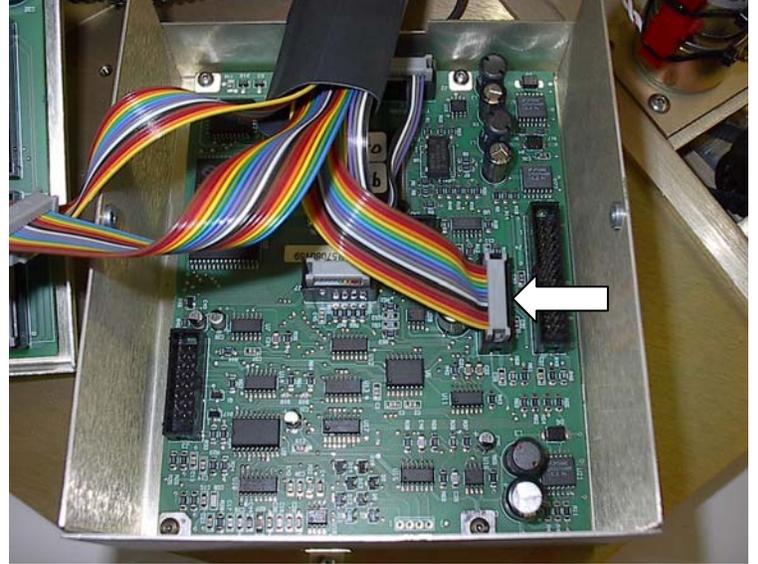


FIG. 10



FIG. 11

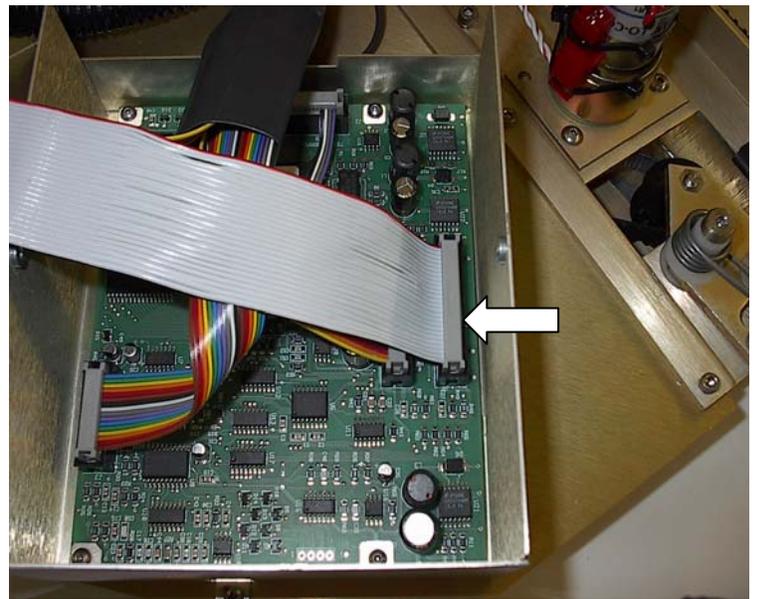


FIG. 12

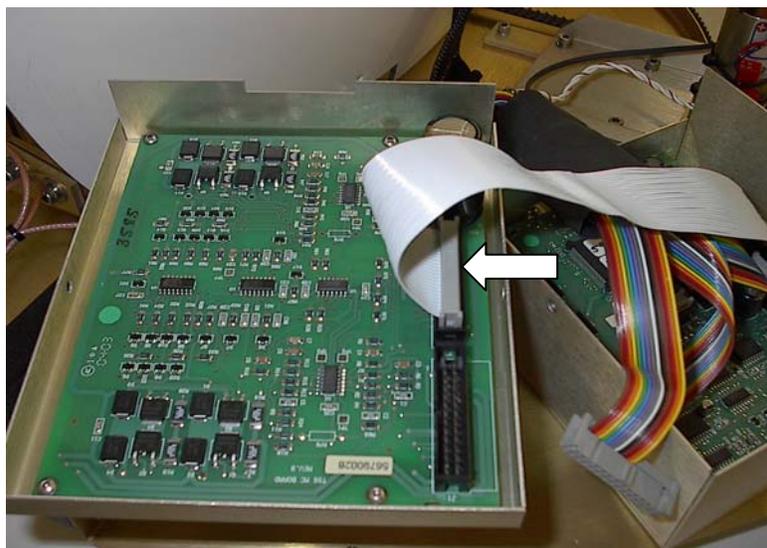


FIG. 13

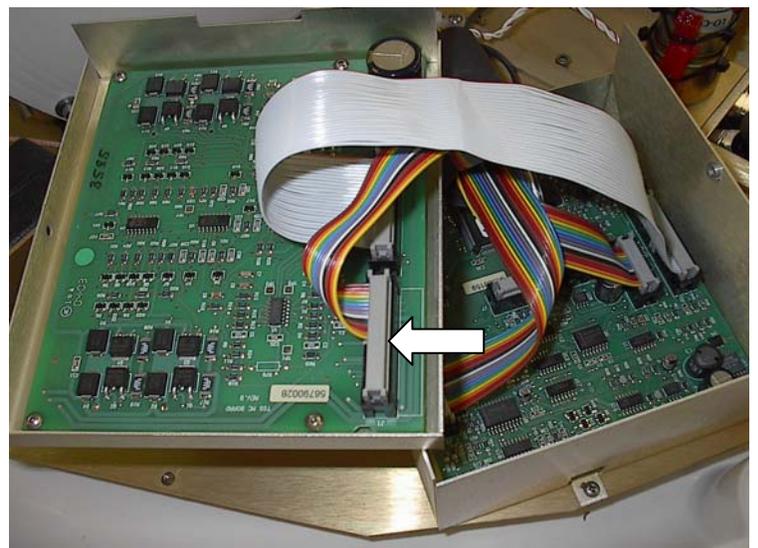


FIG. 14

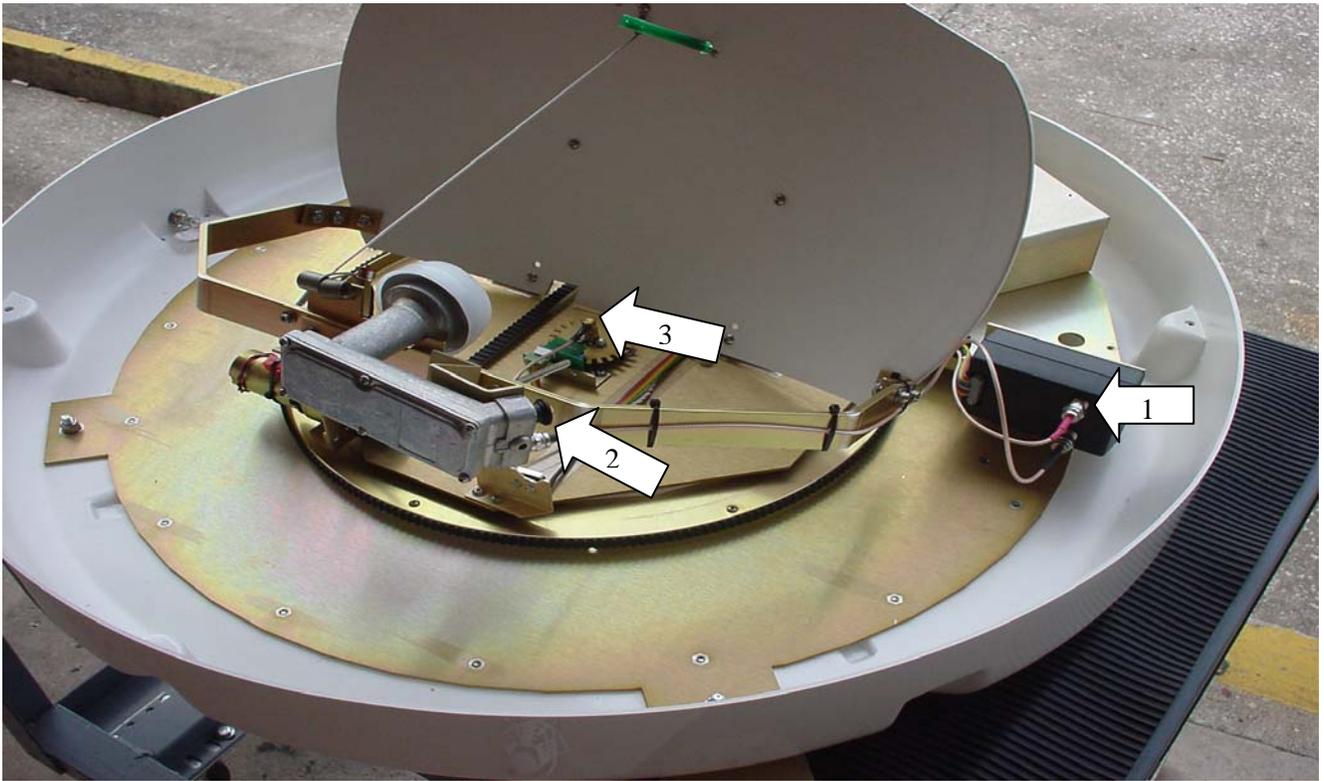


Figure 15

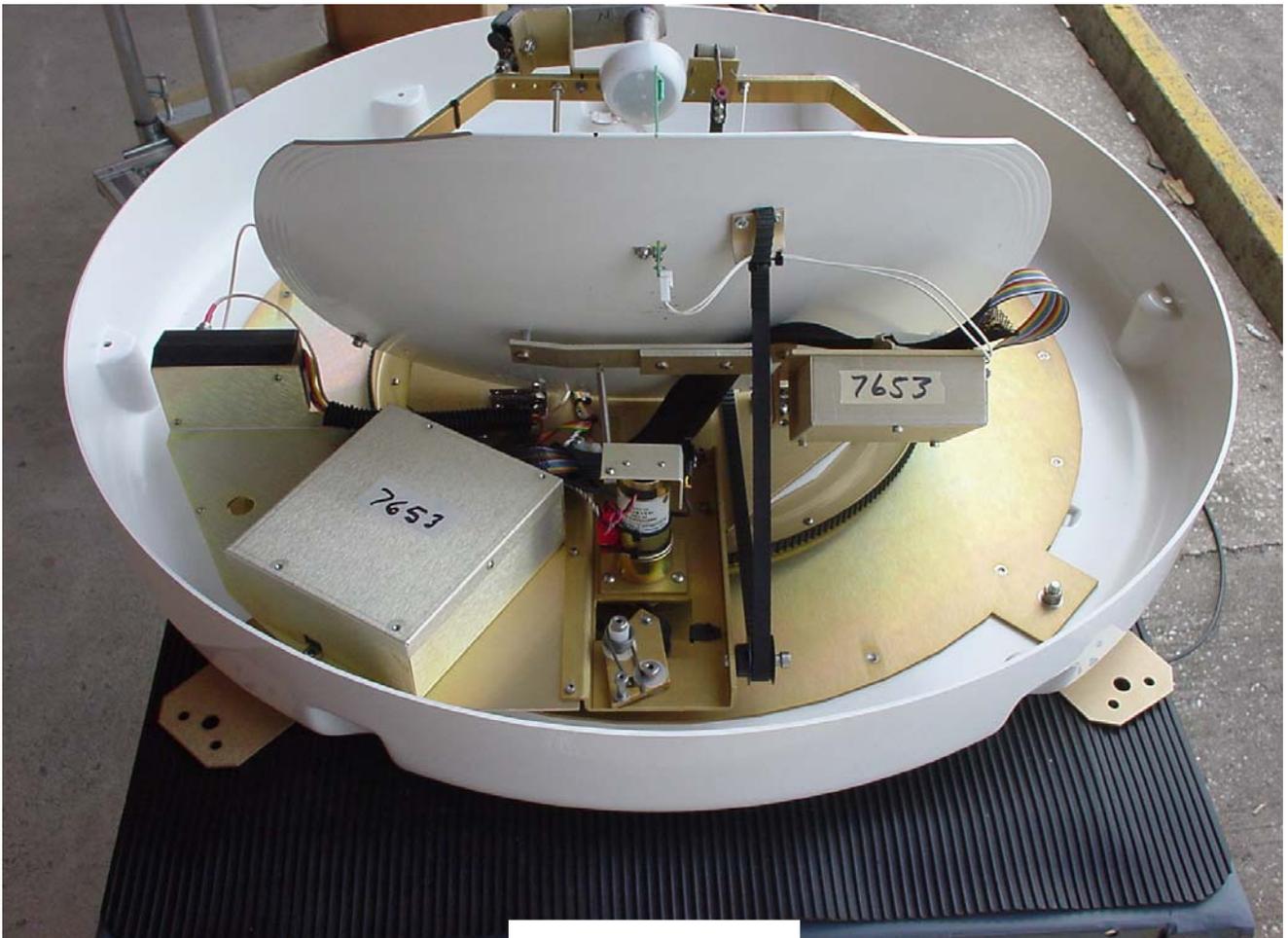


Figure 16

Helpful Hints and General Knowledge

1. RG-6 coax cable is the only authorized cable to be used with the TracStar antenna.
2. The supplied Gel boot must be used to prevent water or moisture from getting into the coax cable connection at the antenna.
3. There are 2 models of SV-360 **dual** antennas. One has a single LNB, up-converter and a 4 output down converter (for 4 receivers). The other dual (serial number 6359 or greater) has a stacked LNB and a 2 output down converter (for 2 receivers). **These components are not interchangeable.**
4. If you have a SV-360 Dual model antenna and are only using 1 receiver the Dual Down converter **must** still be used for proper operation.
5. Prior to driving your coach under a metal overhang (getting fuel) or putting the coach in storage, the antenna should be turned off or put into "Idle/Hold" to prevent problems with the compass in the antenna. If not turned off the antenna may not find the satellite signal afterwards.
6. When replacing the SV-360 electronics (CPU/Gyro), both the new CPU and Gyro must be installed together as a matched set. The new CPU and Gyro are calibrated together and won't work properly if mixed with the old CPU or Gyro.
7. For DirecTV customers you can pick up all of the high definition programming on satellite 101 and 119. To get the programming on satellite 110 you need a 110 adapter purchased through TracStar.
8. A magnetic calibration may need to be performed on a new TracStar install (**see page 24**).
9. As of early 2007, Directv launched two new satellites (99 and 103). These two new satellites offer many more HD (High Definition) programs for Directv customers. Unfortunately due to the frequency band these HD programs cannot be received and Viewed with the TracStar In-motion satellite System. As of 15 Nov 2007 you can still get the HD programming on satellite 101, 110 and 119 from Directv (optional components may be required).

INDOOR BOX (IDB)	REMARKS	3.03-3.04-3.05-3.06a	3.06c	3.16b	3.16c	3.17a	7.15	7.20	7.25	7.26
OLD IDB (NO HD)	OLD TUNNER	•		•				•	•	•
OLD IDB (HD READY)	OLD TUNER-HD READY	•		•				•	•	•
OLD IDB (HD READY-REV E1)	OLD TUNER-HD READY	•		•				•	•	•
IDBII (VER 1.4)	NEW TUNER- NO SW 21	•	•	•	•			•	•	•
IDBII (VER 2.0)	NEW TUNER FEATHERLITE					•				
IDBII (VER 3.1)	NEW TUNER-SW 21		•	•	•			?	•	•
IDB SOFTWARE	CPU SOFTWARE SV360	CPU SOFTWARE SV260								
1.4 NEW TUNER	3.03D	7.15								
1.4 REV E1	3.04A	7.20 IDU TO IDB								
2.0 FEATHERLITE	3.05B	7.25 OLD GYRO MTL CASE								
3.1 SWITCH 21	3.06A	7.26 NEW GYRO MTL CASE								
	3.06C OLD GYROS-SWITCH 21									
	3.16B NEW GYROS									
	3.16C NEW GYROS-SWITCH 21									
	3.17A FEATHERLITE									

• COMPATIBLE

Glossary of Terms

<u>TERM</u>	<u>DESCRIPTION</u>
ANT	Antenna
AZ	Azimuth (circular)
EL	Elevation (up and down)
HD	High Definition
IDB	In Door Box (located inside coach)
IDD	In Door Display (located inside coach)
LNB	Low Noise Block Converter (located inside antenna)
MAG CAL	Magnetic Calibration
MECH Cal	Mechanical Calibration
RCVR	Satellite Receiver
REC	Receiver Jack
SAT IN	Satellite In
SAT OUT	Satellite Out
TEMP CAL	Temperature Calibration
VDC	Volts DC