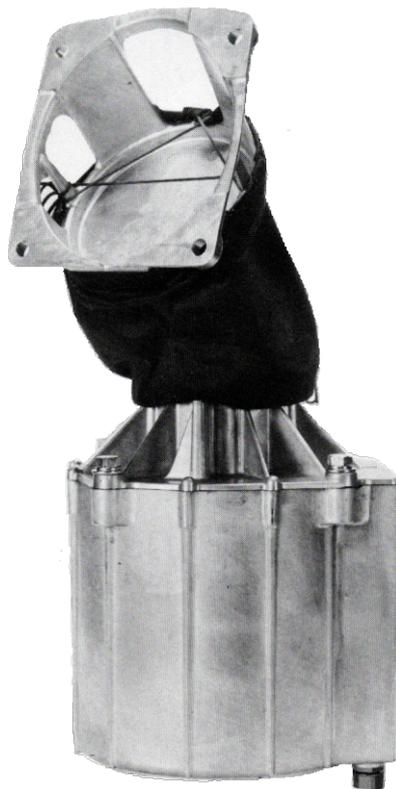


NITEC

OPERATION MANUAL

Robot Positioner

EPR-203



SAFETY INSTRUCTIONS

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



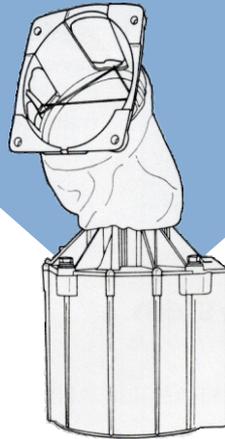
The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

SAFETY INSTRUCTIONS

PLEASE READ ALL THESE INSTRUCTIONS AND RETAIN FOR FUTURE REFERENCES. FOLLOW ALL WARNINGS AND INSTRUCTIONS MARKED ON THE UNIT.

1. **Read Instructions**
All the safety and operating instructions should be read before the appliance is operated.
2. **Retain Instructions**
The safety and operating instructions should be retained for future reference.
3. **Heed Warnings**
All warnings on the appliance and in the operating instructions should be adhered to.
4. **Follow Instructions**
All operating and use instructions should be followed.
5. **Attachments**
Do not use attachments not recommended by the manufacturer as they may cause hazards.
6. **Accessories**
Any mounting of the appliance should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
7. **External Cables**
Connect the cables with VW-1 rated jacket to the product. Cables consisted of wires suitable for the rating of the intended load should be used. Otherwise, use the cables specified by the manufacturer.
8. **External Cables Protection**
Do not walk or place anything on the cable for this would put unnecessary pressure on the cable. Set all circuits in one place.
9. **Power Lines**
An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing and outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal.
10. **Object and Liquid Entry**
Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
11. **Servicing**
Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
12. **Damage requiring Service**
If the following situations occur, unplug Satellite Selector Power-Cord from the outlet, turn off power, and call qualified service personnel for repair.
 - (a) If the External Cables had been damaged.
 - (b) If liquid has been spilled, or objects have fallen into the product.
 - (c) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
 - (d) If the product has been dropped or the cabinet has been damaged.
 - (e) When the product exhibits a distinct change in performance - this indicates a need for service.
13. **Replacement Parts**
When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
14. **Safety Check**
Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating conditions.

Robot Positioner EPR-203



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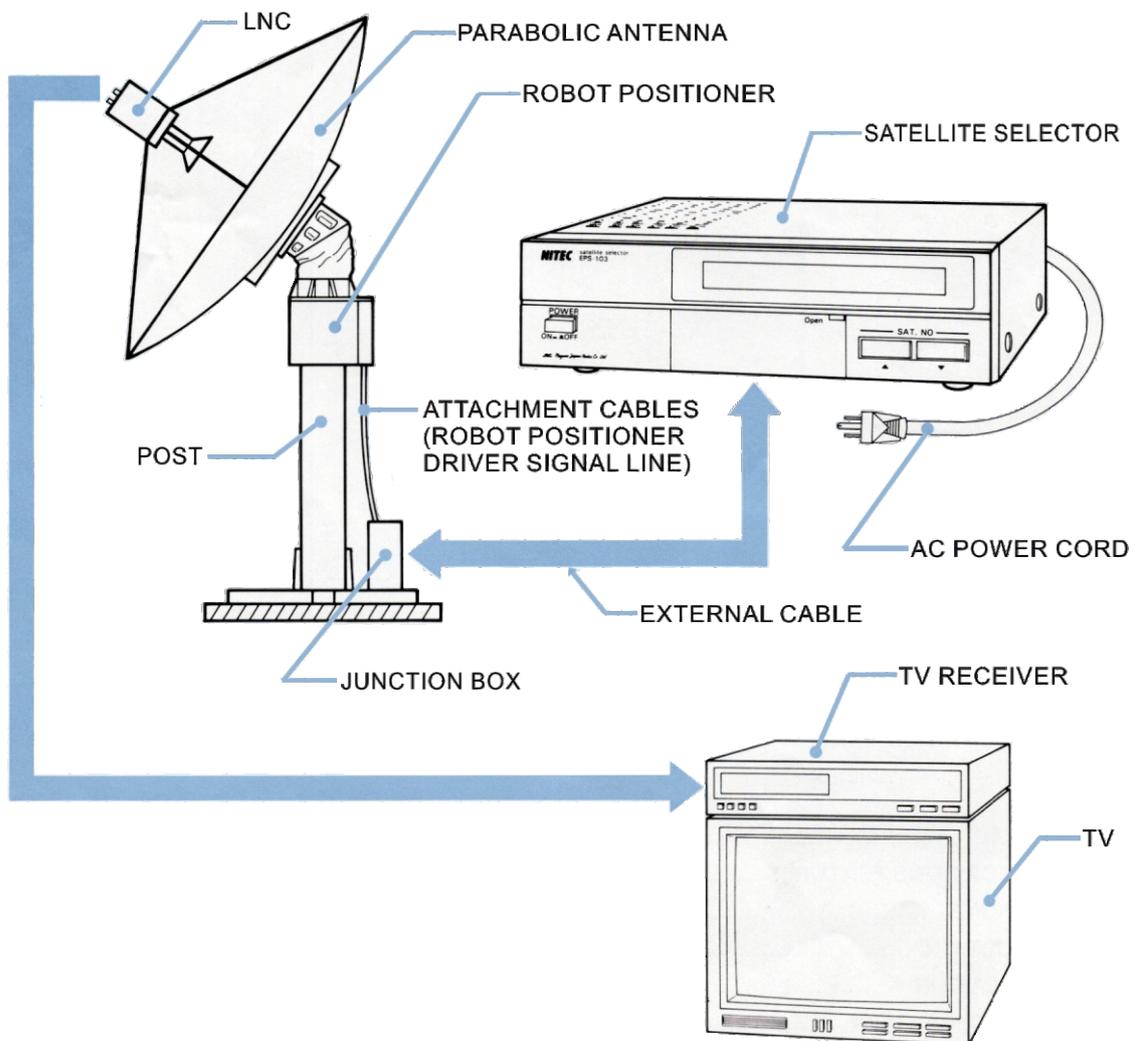
1 GENERAL

This device is called Robot Positioner (EPR-203). By installing Parabola antenna for TVRO and controlling Satellite Selector, it automatically directs the Parabola antenna to the designated satellite. This is done by automatically moving the appropriate Azimuth (AZ) and Elevation (EL).

refer to "Satellite Selector Operation Manual". We hope that you gain more knowledge on this device to take a full advantage of its features and to take proper maintenance care. We are certain that you will be satisfied with this device when used correctly.

This manual only contains instructions for mechanical parts, and we recommend you also

● Configuration of NITEC System



2 SPECIFICATIONS-FEATURES

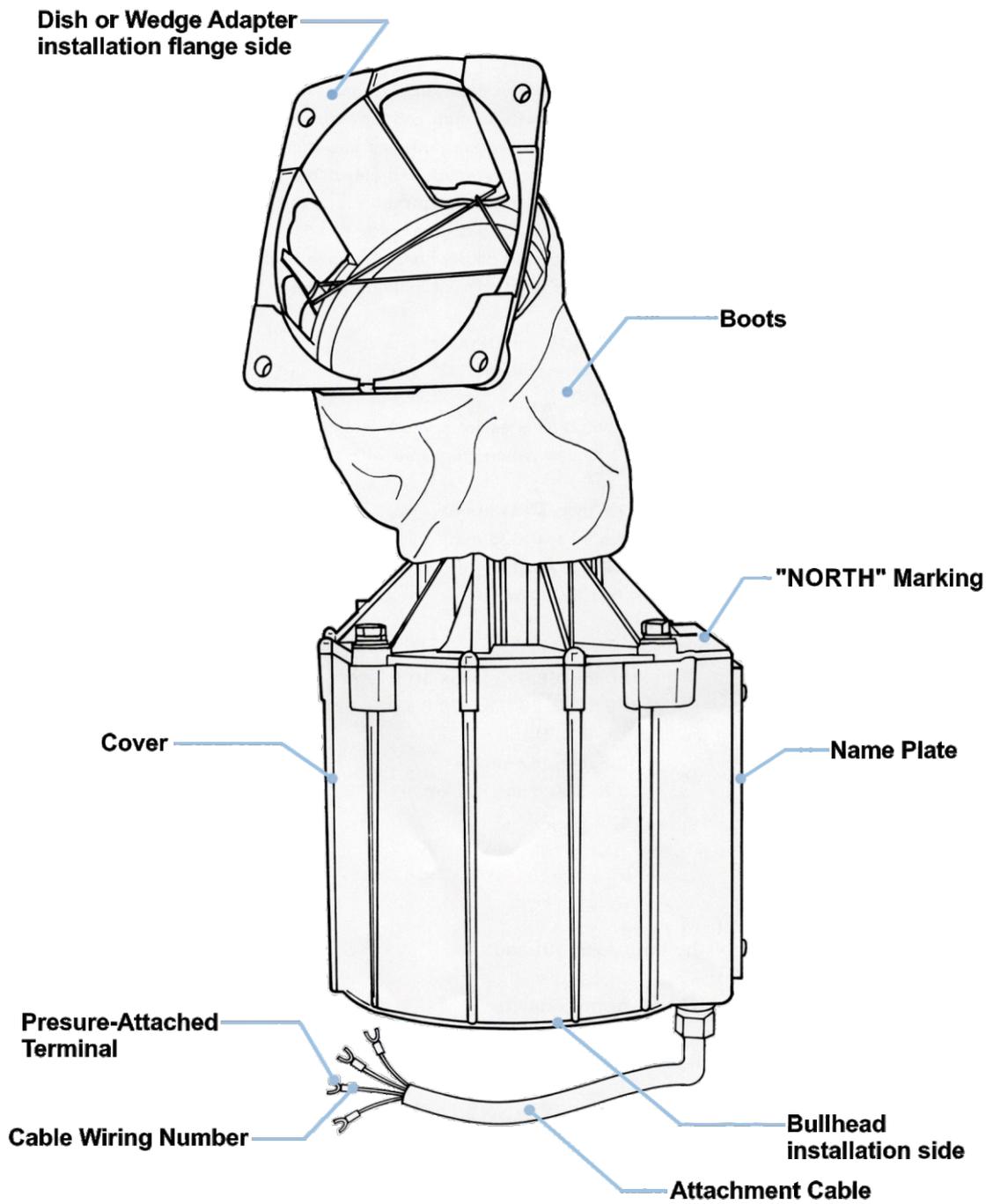
■ SPECIFICATIONS

Model Name	: EPR-203
Motor Power Supply	: 24 VDC (both azimuth and Elevation Motors)
Motor Rating	: 18 Watts (both azimuth and Elevation Motors)
Control Shaft	: 2-shaft control for azimuth and Elevation
Motor Rated Rotation Speed	: 3000 rpm (both azimuth and Elevation)
Internal Resolution	: Azimuth 0.01 degree/pulse Elevation 0.0025 degree/pulse
Maximum Azimuth Range	: 180 degree (90 degree to 270 degree west longitude)
Maximum Elevation Range	: 40 degree (Upwards inclination 10 degree to 50 degree from the horizontal)
Pulse Encoder :	
- Output Pulse	: 2-phase (A and B) pulse
- Output Pulse Rate	: 6 pulse/revolution
- Input Power Supply	: 24 VDC
ORG (Original) Detection	: 2-switch (One ea for azimuth and Elevation)
Repeatability	: 0,2 degree (when combined with the Satellite Selector)
Dimension :	
- Outside Diameter	: 12.5 inches (318 mm)
- High	: 24.5 inches (625 mm)
Weight	: 60 lbs (27 Kg)
Driver Signal Line (Attachment Cable)	: 4.6 ft (1.5 m)
Parabola Antenna Applied (Dish) :	
Weight Load	: 150 lbs (68.5 Kg) max 10 ft Dish or less 175 lbs to 290 lbs (79.6 Kg ~ 131.8 Kg) if counterbalanced
Wind Load (After installing the 150 lbs, 8 ft, Dish) :	
Functional	: 38.5 mph (62 km/hr)
Survival	: 80 to 100 mph (129 km/hr ~ 161 km/hr)

■ FEATURES

- (1) Operates on controls by both Azimuth and Elevation.
- (2) All controls can be made from Satellite Selector.
- (3) Waterproof to allow the use in the rain.

3 FUNCTIONS



4 INSTRUCTION

Once the Robot Positioner is installed, there is no need for readjustment mechanically or electrically.

Please note the following at the time of installation.

1. Do not install the Robot Positioner up-side down. Bullhead installation side should be at the bottom.
2. Set "North" so that the arrow points to the direction of North.
3. Use bolts that match four 1/2" -13UNC screws on Bullhead installation side.
4. Use four 14 mm holes on Dish or Wedge Adapter installation flange side for installation of Dish or Wedge Adapter.
5. Two persons should carry the Robot Positioner which weighs 60 lbs. (27 kg)
6. A spare fuse (4 A-250 VAC) is included in the carton. Do not damage or lose this fuse.

5 INSTRUCTION

5-1 Installation of Robot Positioner

To maintain its accuracy and to utilize its functions to their maximum, the Robot Positioner needs to be installed on a flat and sturdy base. Therefore, when installing directly on the ground, install on concrete with foundation bolts. If installing on the rooftop of a building or similar position, install on the foundation similar to that. Make sure that a big vibration from the surrounding area does not reach the Robot Positioner.

The installation procedure is that first, place installation legs on concrete foundation, position foundation bolts through four holes on installation legs, and fix the legs firmly with nuts. Next, place the bottom of post on the legs and fix them with four bolts. Then, cover the post with Bullhead. Put them together with bolts around the Bullhead pipe. These bolts are 3/8" -16UNC bolts.

The next step is to fix the Robot Positioner into Bullhead. We recommend you use a lift for installation. After you put the Robot Positioner on Bullhead flange side, use 4-1/2" - 13UNC bolts underneath the case to secure Positioner and Bullhead in their place. (When a lift is not available, work with two persons or more). Then, turn Bullhead around to match the "North" make and fix it with bolts on Bullhead.

All this series of work should be done using gauge and other instruments to carefully maintain its horizontal and vertical position. At last, connect the extension cable from Robot Positioner to Junction Box and this completes the installation work.

5-2 Installation of Dish

Follow the instructions by Dish manufacturer. Piece the Dish assemble installation side correctly to the Dish or Wedge Adapter flange side on Robot Positioner. If dish assemble installation

side does not match the Robot Positioner installation side, place an installation metal instrument between both sides and fix the Dish in its place.

5-3 Connecting the Attachment Cable

Robot Positioner has a 4.6 ft (1.5 m) Attachment Cable with 18 numbered wires at the end, and each wire is connected to an U-shaped pressure-attached terminal. This terminal connects to the terminal block of Junction Box, and then to the terminal block of Rear Panel of Satellite Selector via External Cables. The connection to terminal block of Junction Box is done with matching the wiring number of External Cables connected to

the Rear Panel of Satellite Selector with the wiring number of Attachment Cable. This means matching the wiring numbers indicated on Attachment Cable of Robot Positioner and the numbers indicated on the terminal block on Rear Panel of Satellite Selector by using the External Cables and connecting to the terminal block of Junction Box.

• Note

Make sure not to mistake the numbers "6" and "9" on the cable. The underline indicates the bottom of the number.

6 BEFORE OPERATION

When installation and cleaning of the device are completed, you are ready to operate the machine. Check if Attachment Cable from the Robot Positioner is connected to the Satellite Selector.
Also, make sure all nuts and bolts are securely

tightened. When you have checked that all parts are correctly attached, you may turn on the power switch to the Satellite Selector. For the operation of Satellite Selector, refer to "Satellite Selector Operation Manual"

7 DAILY MAINTENANCE

To maintain the device's accuracy and to fully utilize its functions, the following inspections should be practiced regularly. In case you find

any trouble, switch off Satellite Selector and call the qualified service personnel for repair.

[daily maintenance]

- 1) Do you see any impurities or dirt on the device ?
- 2) Does the operation noise sound normal ?
- 3) Is there any generation of heat ?
- 4) Are nuts and bolts tightened and in place ?
- 5) Is there any strange vibration while operation ?
- 6) Are there any other abnormal conducts ?
- 7) Are there any environmental factors that affect the operation of the device ? (tree branches, buildings, natural phenomenon, etc.)
- 8) Others

8 OPERATION CONDITION AND WARNING

The following conditions should be strictly observed for operation of the device.

1) Dish diameter	10 ft. or less
2) Dish depth	2 ft. or less
3) Dish weight	150 lbs. or less (for 175 lbs. ~ 290 lbs. use counterbalance)
4) Dish shape	parabola
5) Dish centeroid	20 inches or less from Dish or Wedge Adapter installation flange side
6) Windload	Operation wind pressure 17 m/sec. or less Survival wind pressure 35 m/sec. or less
7) Temperature, Humidity	Operation temperature -20°C ~ +65°C humidity 90% or less Survival temperature -30°C ~ +65°C humidity 90% or less

WARNING

When a hurricane or a tornado with wind velocity of 45 m/sec. or more is expected, detach the Dish beforehand or use chains or wires to securely attach the Dish to buildings and such. We are not responsible for accidents due to your negligence.

