

Chart 2-8 (Cont'd)

Step	Procedure
------	-----------

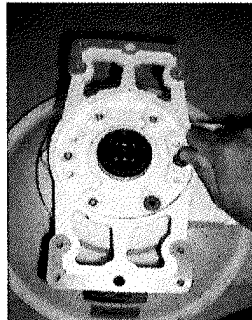
CHANGE OF POLARIZATION

TRP DIRECT MOUNTING TYPE ANTENNA
(Example (ANDREW) 2/2)

Note: The details are referred to the installation manual which is attached to the antenna. The installation or removal of the antenna requires qualified experienced personnel.

Note: The antenna is set to V-polarization when shipped from the factory.

1. Keep the antenna stand horizontally,
2. Loosen six screws with Allen wrench until transition can rotate freely,



Note: Do not remove the screw complete from the screw hole.

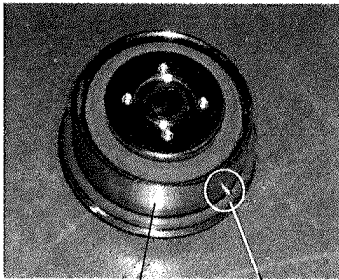
Note: Because of the screwtight is applied, the strength to loosen screw is necessary.

3. Rotate the transition hub 90 degrees until timing pin locates in timing concavity,

Chart 2-8 (Cont'd)

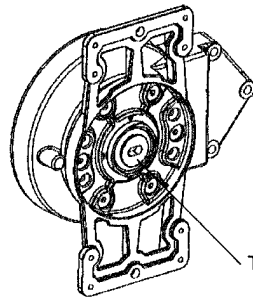
Step

Procedure

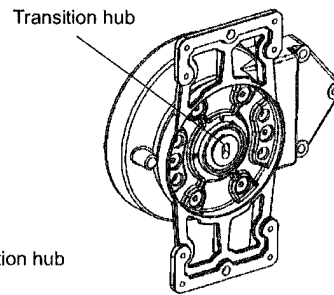


Transition Hub

Timing Pin



Vertical Polarized Application



Horizontally Polarized Application

Tighten six screws when transition hub is located. (Tightening torque is 5.0 N·m ± 10%.)

Chart 2-8 (Cont'd)

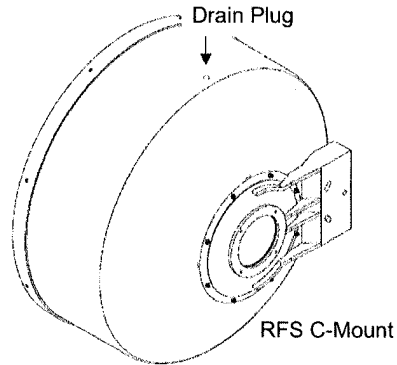
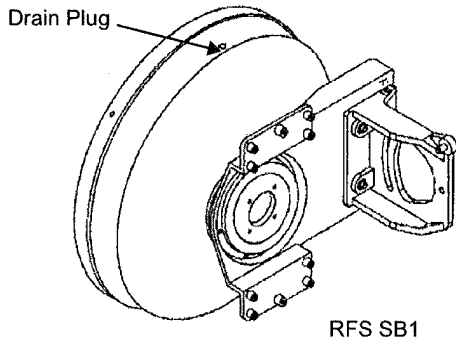
Step	Procedure
------	-----------

CHANGE OF POLARIZATION

TRP DIRECT MOUNTING TYPE ANTENNA
(Example (RFS))

Note: The details are referred to the installation manual which is attached to the antenna. The installation or removal of the antenna requires qualified experienced personnel.

Note: The antenna is set to V-polarization when shipped from the factory.



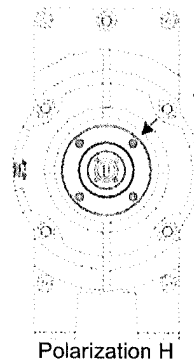
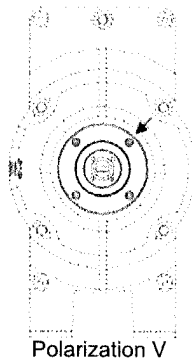
1. Unscrew the 4 screws M3 at the refined steel ring,
2. Hold the feed tightly at the waveguide,
3. Rotate carefully the feed 90 degrees,
4. Mount the feed to the refined steel ring and lock the 4 screws M3.

1. Loosen the 4 screws M3,
2. Hold the feed tightly at the waveguide,
3. Rotate the casting plate carefully the feed 90 degrees,
4. Lock the 4 screws M3.

Antenna TOP

Vertical

Horizontal



4 screws (M3)

Chart 2-8 (Cont'd)

Step	Procedure
------	-----------

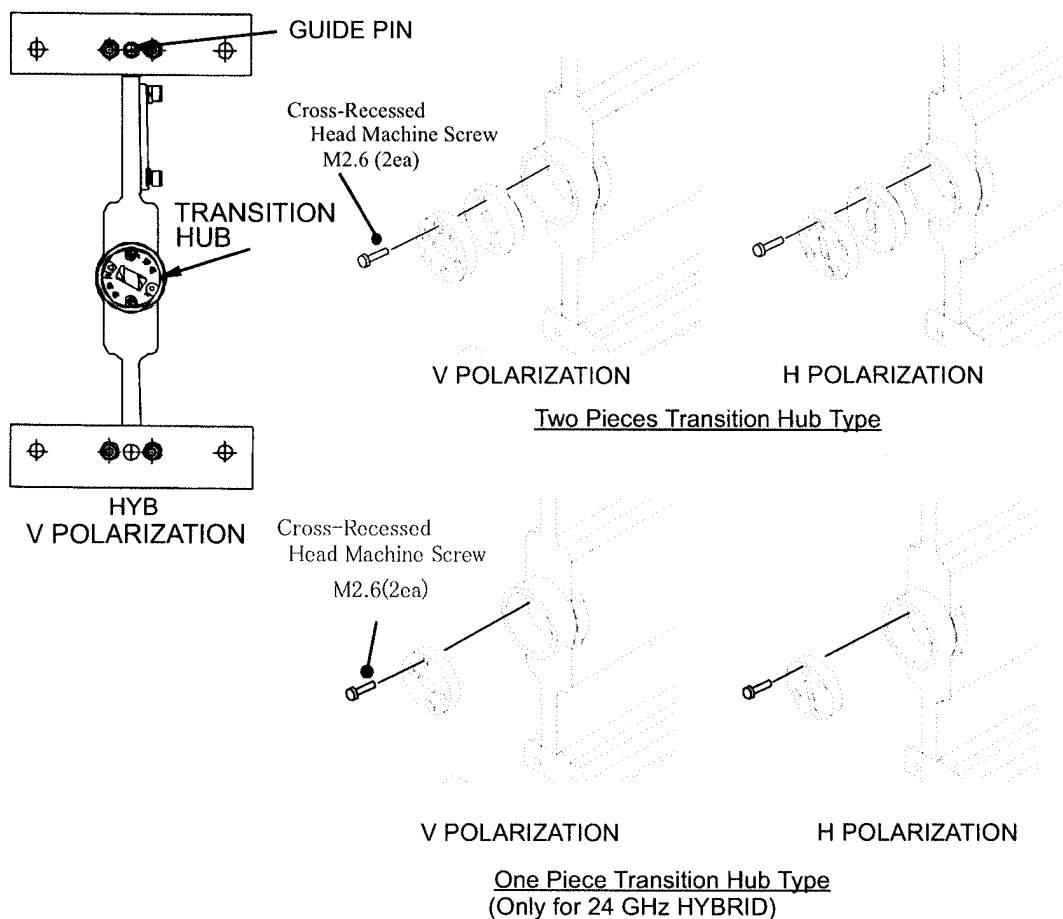
CHANGE OF POLARIZATION OF THE HYB

NEC HYBRID

Note: The hybrid is set to V-polarization when shipped from the factory.

- 1 If you change the polarization from V to H, loosen two screws, rotate the transition hub and put it to the HYB.

Note: There are two types NEC HYBRID. One uses two pieces transition hubs and another uses one piece.



- 2 Then fix it with the two screws that were loosened in step 1.

Chart 2-8 (Cont'd)

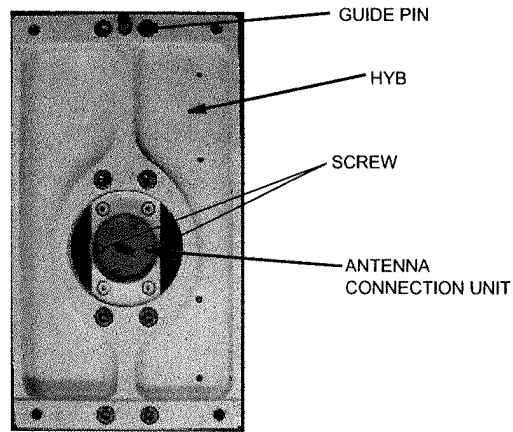
Step	Procedure
------	-----------

Quasar HYBRID

Note: The hybrid is set to V-polarization when shipped from the factory.

- 1 If you change to H polarization, loosen two screws, rotate the antenna connection unit and put the HYB horizontally.

Quasar HYB



V POLARIZAION

- 2 Check that the aperture of the connection unit is rotated as shown below, then fix it with the two screws that were loosened in step 1.

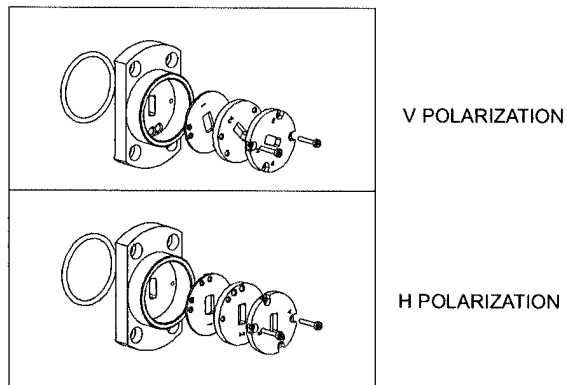
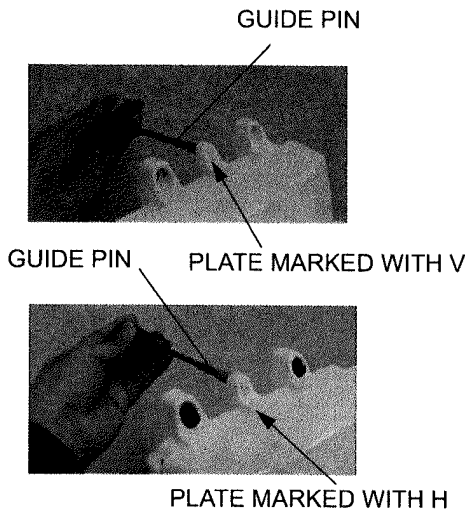


Chart 2-8 (Cont'd)

Step	Procedure
------	-----------

CHANGE OF POLARIZATION OF THE TRP

Antenna Mounting TRP (10.5/11/24 GHz Band)



1. When vertical polarization is required, rotate the TRP so as to go up the plate marked V,
2. When horizontal polarization is required, remove the guide pin fixed on the plate marked with V,
3. Screw in the guide pin removed in step 2 to the screw hole of the plate marked H,
4. Rotate the TRP so as to go up the plate marked H,

Note: When the TRP is mounted on to the NEC HYB, only V polarization is applied.

Note: When the Waveguide or coaxial cable is connected between the TRP and antenna, the TRP in V polarization for up position is recommended for installation.

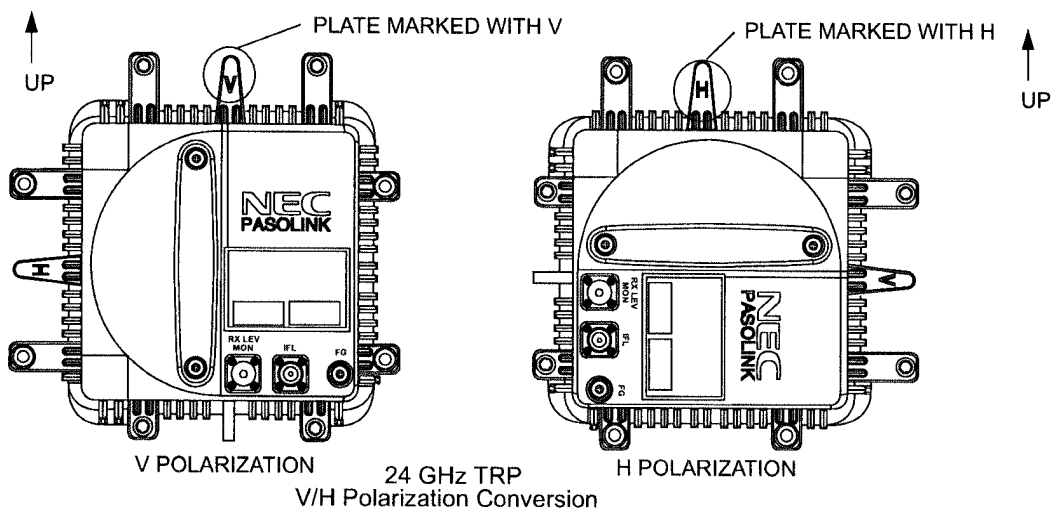
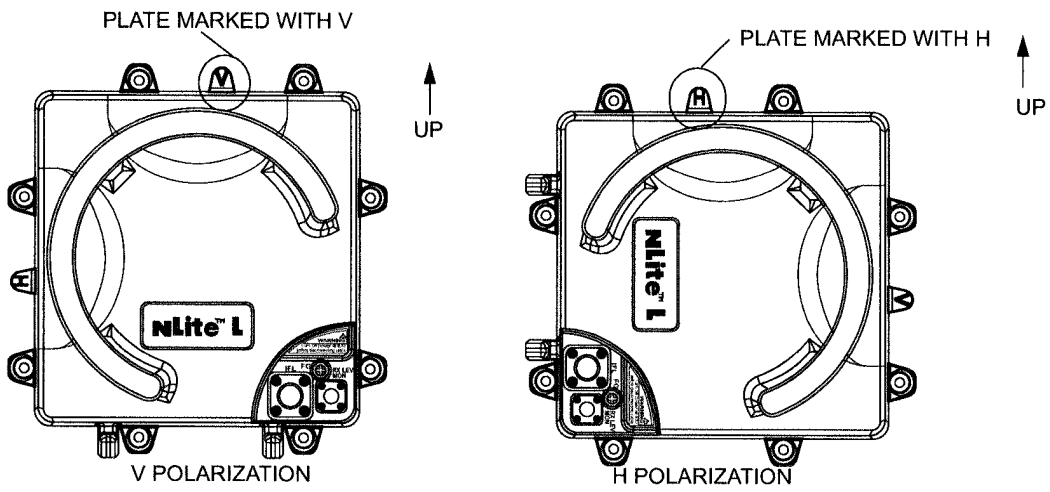


Chart 2-8 (Cont'd)

Step	Procedure
------	-----------



10.5/11 GHz TRP

Chart 2-9 TRP Antenna Direct Mounting (10.5/11/24 GHz)

Step	Procedure
------	-----------

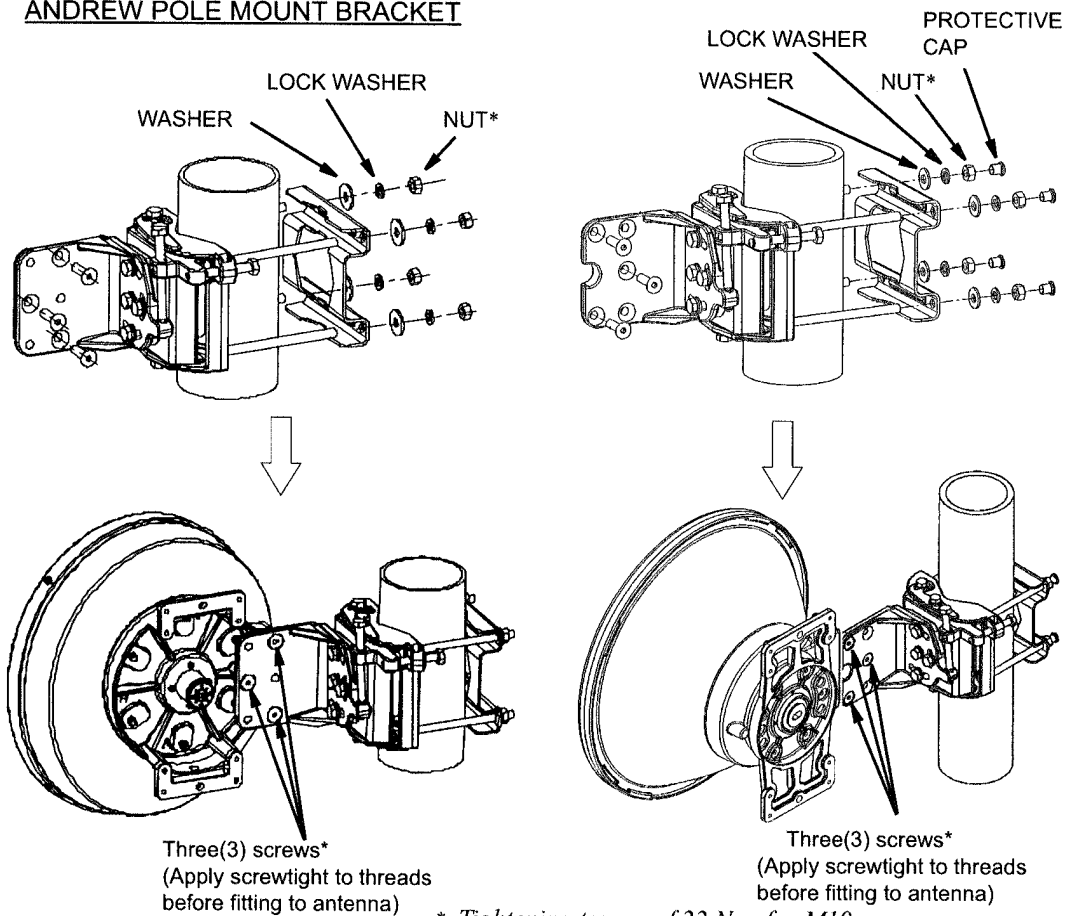
ANTENNA DIRECT MOUNTING (10.5/11/24 GHz Band TRP)

Note: The details are referred to the installation manual which is attached to the antenna.

INSTALLATION OF BRACKET

- 1 Install the bracket to the antenna pole,
- 2 Mount antenna to the bracket,

ANDREW POLE MOUNT BRACKET



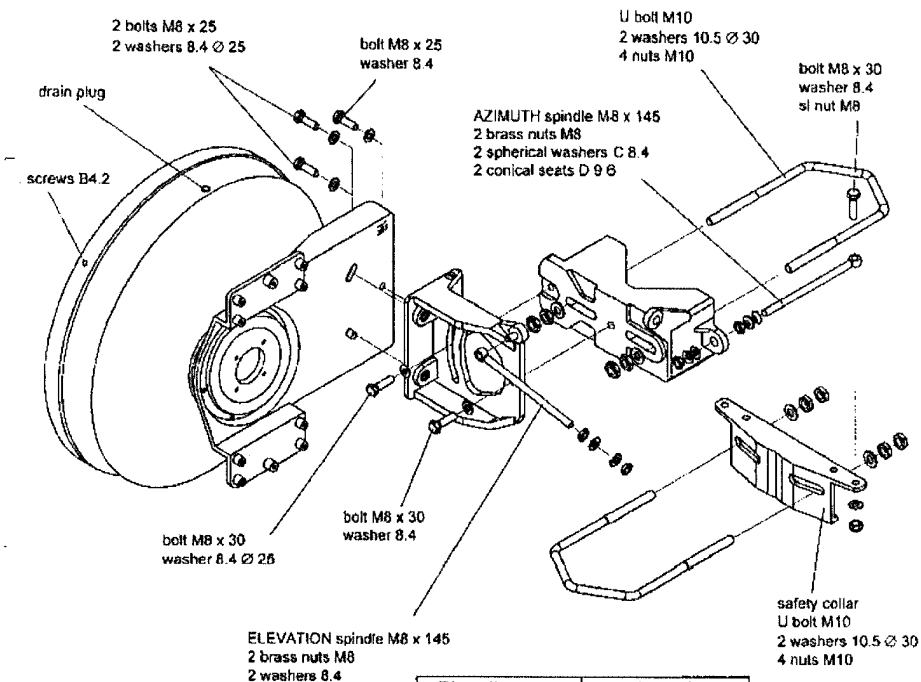
* Tightening torque of 22 N·m for M10.

Chart 2-9 (Cont'd)

Step

Procedure

ANTENNA DIRECT MOUNTING (10.5/11/24 GHz Band TRP)



RFS SB1 TYPE BRACKET

Pipe diameter [mm]	U-Bolt size [mm]
51 - 89	89
90 - 115	115

Chart 2-9 (Cont'd)

Step Procedure

Note: The values in the following table are valid for screws and bolts which have been greased according to the installation instructions.

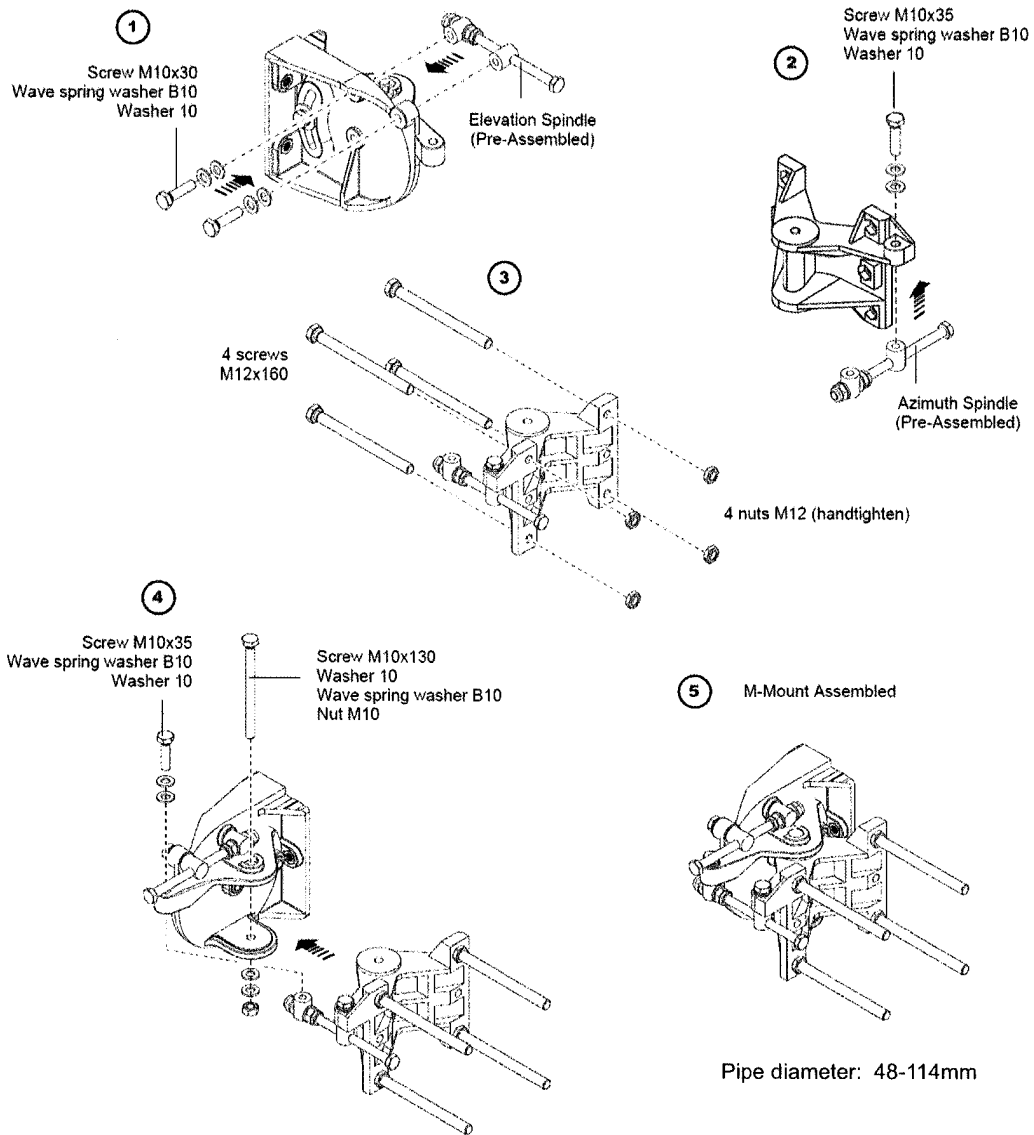
Torques for RFS			
Bolt	M5	5	Nm
	M6	8	Nm
	M8	17	Nm
	M10	35	Nm
	M12	50	Nm
U-Bolt, V-Bolt (Pipe mount & safety collar)	M10	20	Nm
Hexagonal brass nut of fine adjustment (Azimuth, Elevation)	M8	5	Nm
	M10	10	Nm
	M12	17	Nm
Hexagonal socket stainless steel screws (Feed systems install on aluminium mounting plate)	M3	0.2	Nm
	M4	0.4	Nm
Exceptions			
Fixing screw of the azimuth fine adjustment spindle	M8 x 30	8	Nm
	M12 x 55	17	Nm
Special application: NOT greased			
Fixing screw of the plastic radome	B4.2	3	Nm

Chart 2-9 (Cont'd)

Step	Procedure
------	-----------

ANTENNA DIRECT MOUNTING (10.5/11/24 GHz Band TRP)

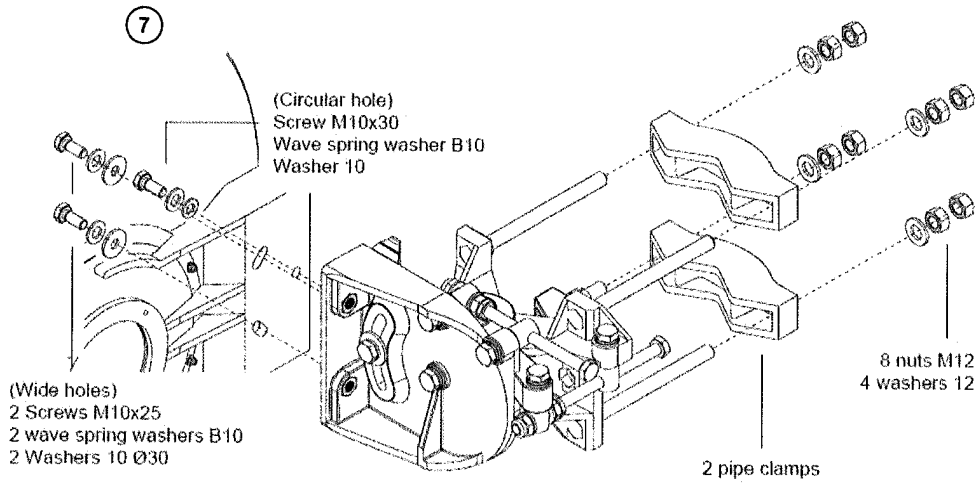
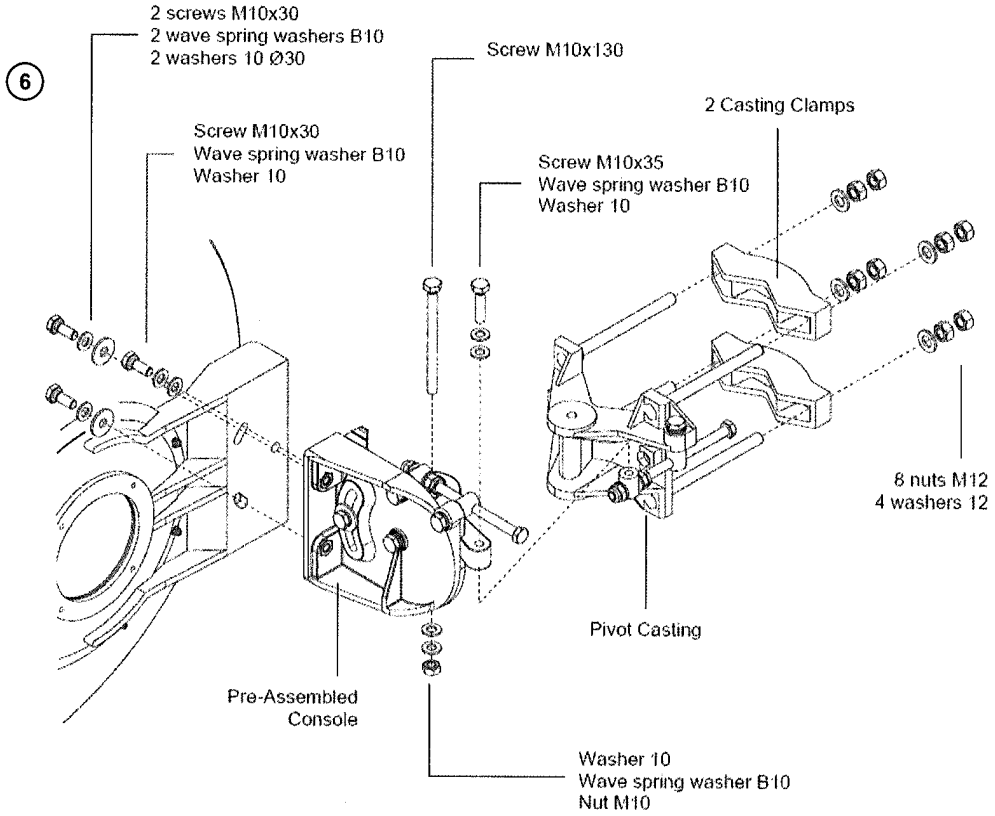
MOUNT ASSEMBLY (RFS C-Mount Type)



RFS C-Mount TYPE BRACKET

INSTALLATION

ROI-S06302



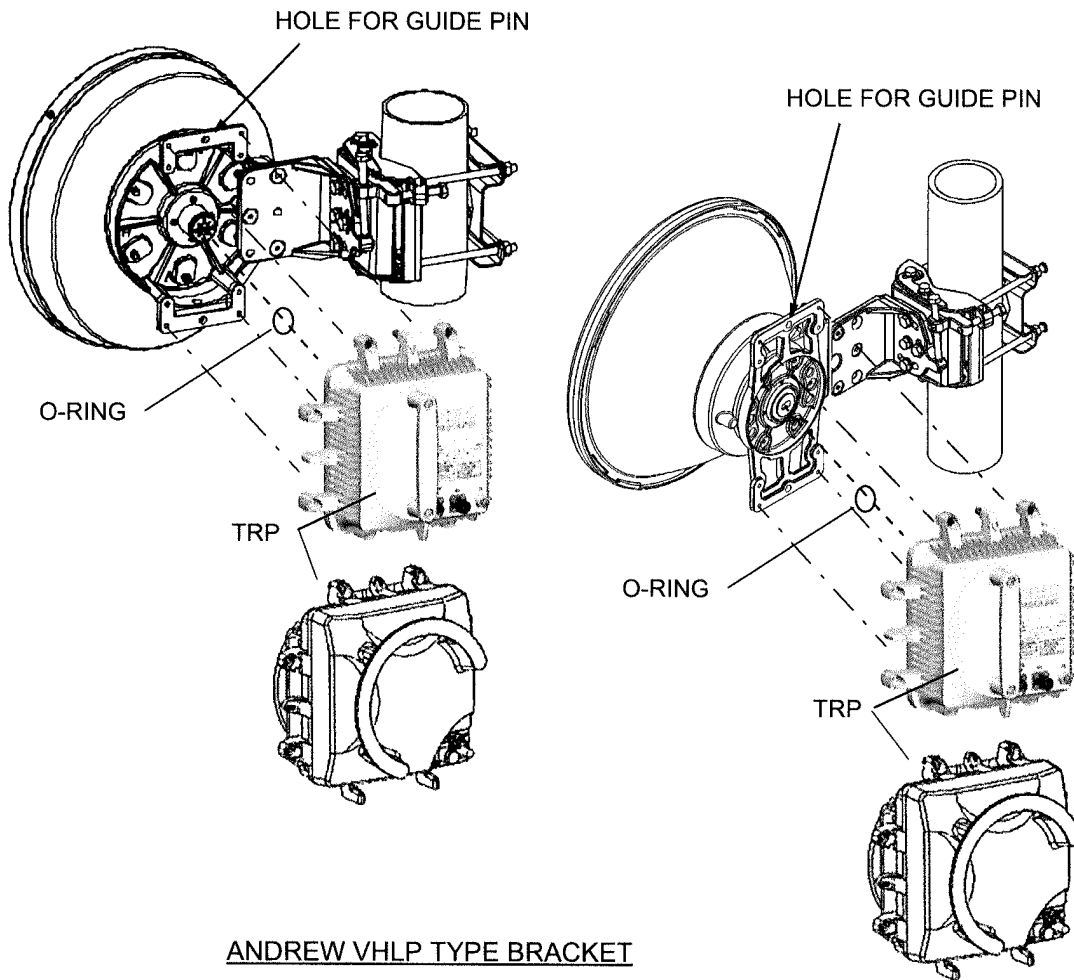
RFS C-Mount TYPE BRACKET

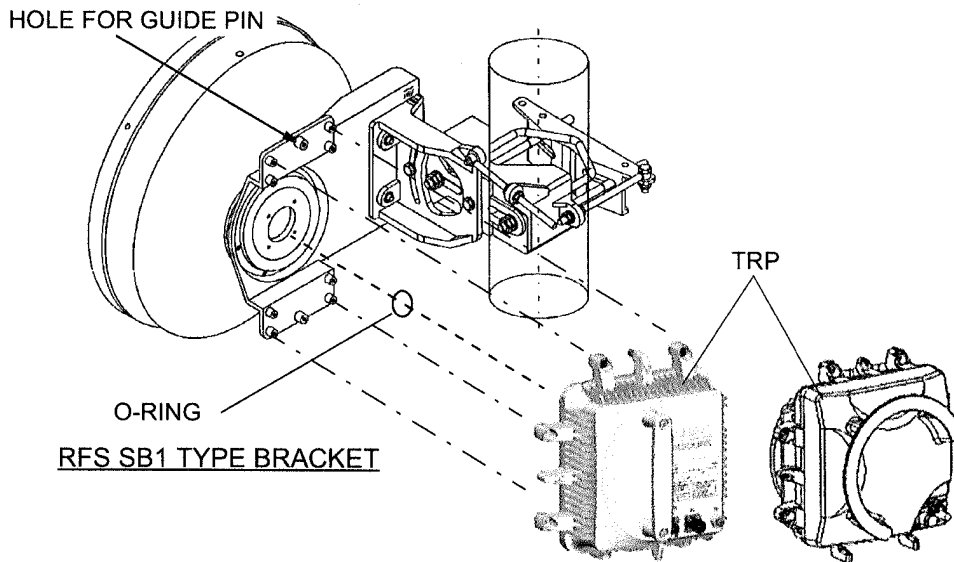
Chart 2-9 (Cont'd)

Step	Procedure
------	-----------

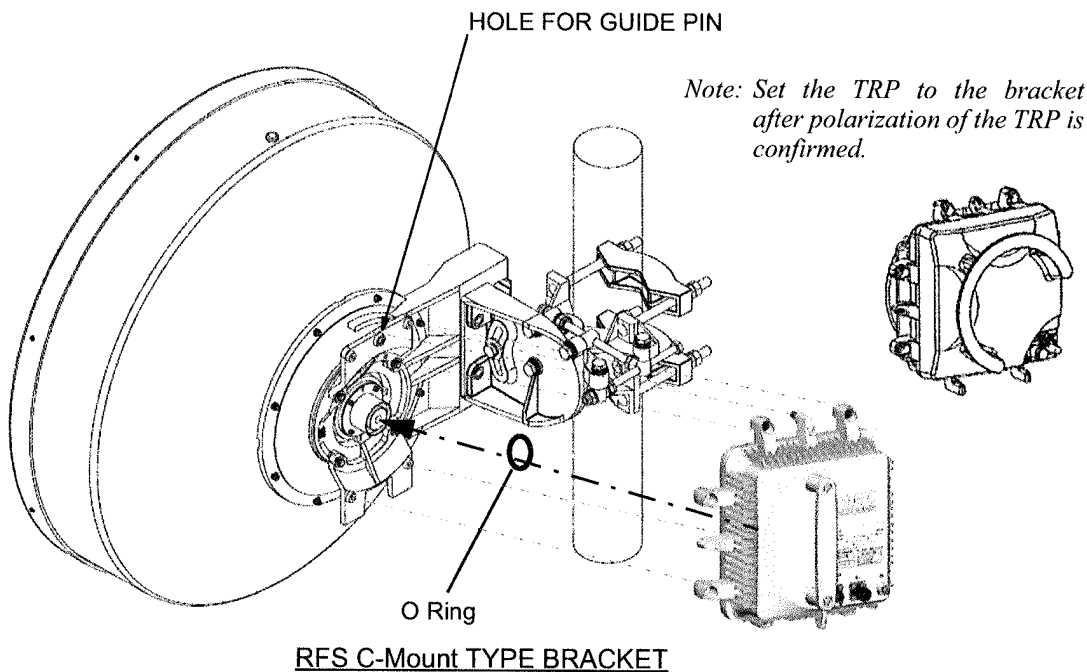
- | | |
|---|--|
| 3 | Fix the TRP to the bracket by tightening the M6 screws (four locations), |
|---|--|

Notes: 1. Figure shows V polarization.
 2. Be careful not to damage the O-ring (Antenna).
 3. The tightening torque is 4.0 N·m ± 10%.





- Notes: 1. Figure shows V polarization.
 2. Be careful not to damage the O-ring (Antenna).
 3. The tightening torque is $4.0 \text{ N}\cdot\text{m} \pm 10\%$.

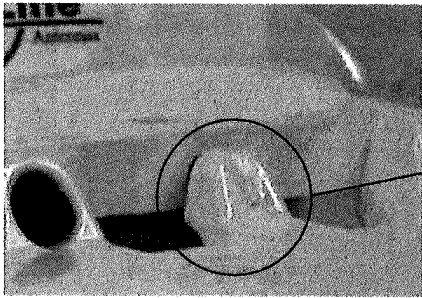


Note: Set the TRP to the bracket after polarization of the TRP is confirmed.

- Notes: 1. Figure shows V polarization.
 2. Be careful not to damage the O-ring (Antenna).
 3. The tightening torque is $4.0 \text{ N}\cdot\text{m} \pm 10\%$.

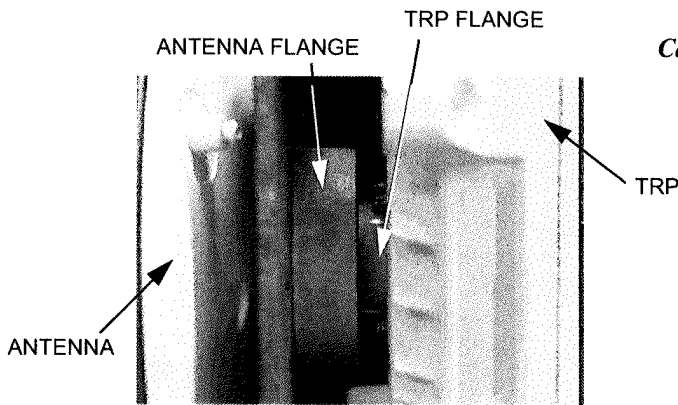
Chart 2-9 (Cont'd)

Step	Procedure
------	-----------

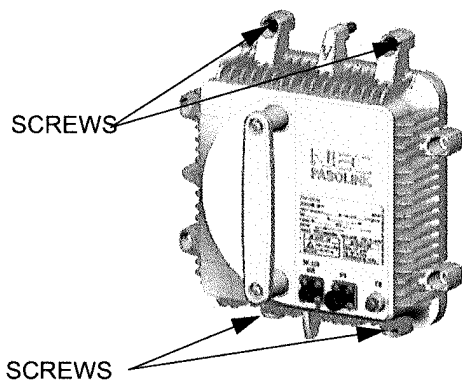


GUIDE PIN

4. Insert guide pin on the hole of bracket to set the position of screws,



Caution: Align flanges on antenna and TRP correctly, and fix the TRP with four screws.



5. Fix the TRP to the bracket with four screws.

Note: Torque: 4.0 N·m ± 10%

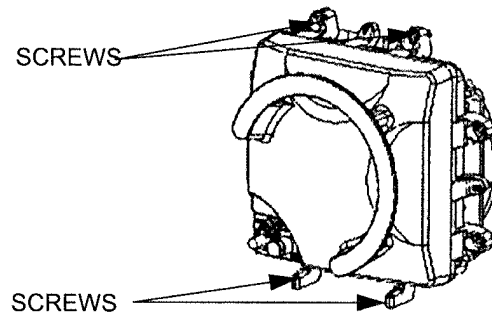
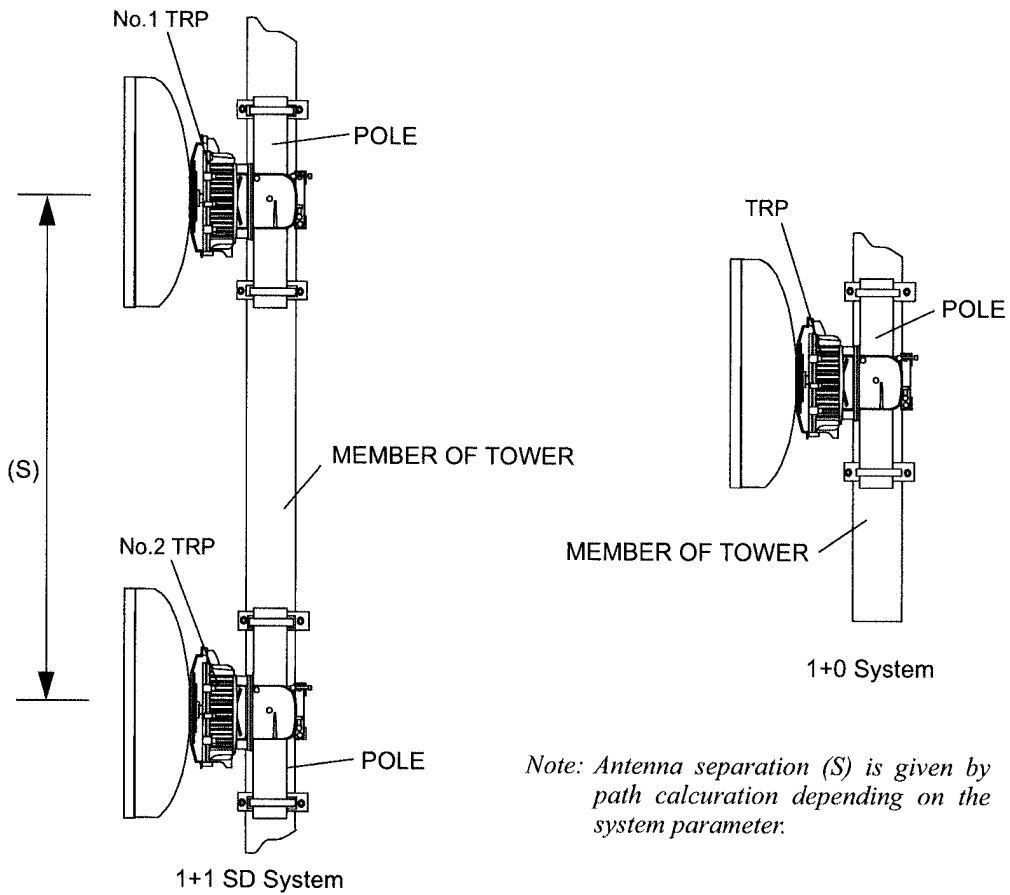


Chart 2-9 (Cont'd)

Step	Procedure
------	-----------



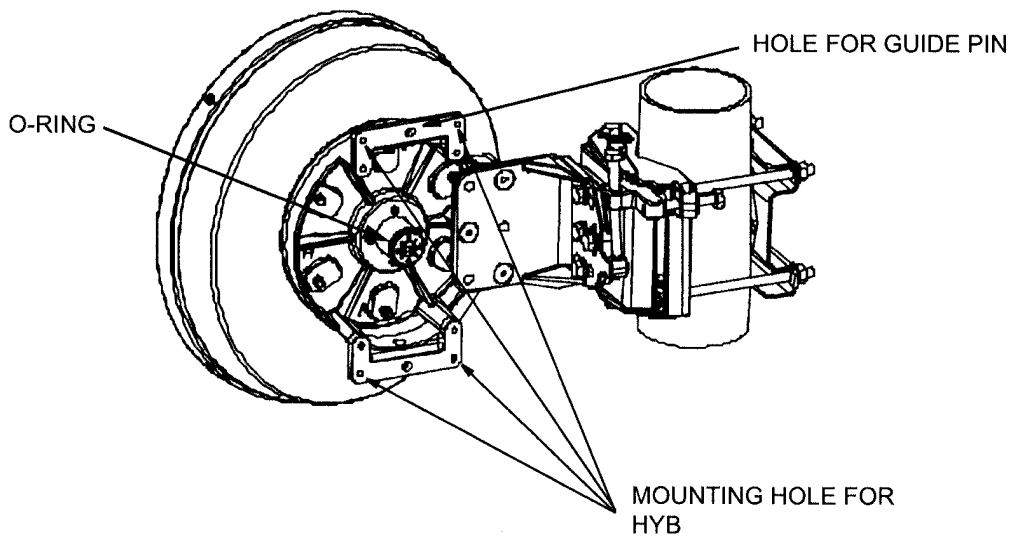
Note: Antenna separation (S) is given by path calculation depending on the system parameter.

Chart 2-10 Antenna Direct Mounting Using HYB

Step	Procedure
------	-----------

MOUNTING

Note: The details are referred to the installation manual which is attached to the antenna.

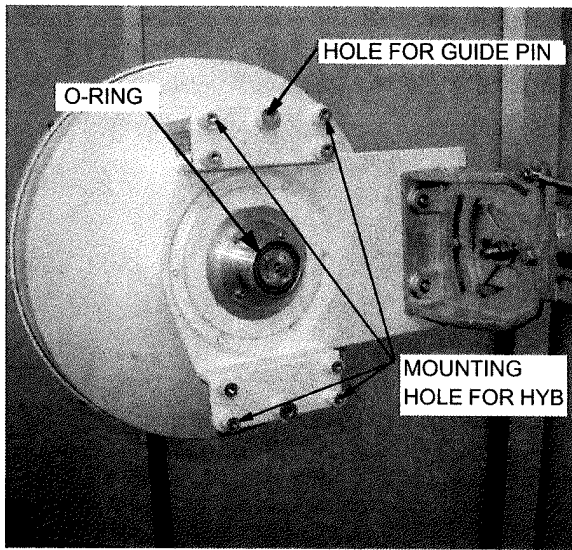


*The tightening torque is 4.0 N·m ± 10%.
Be careful not to damage the O-ring(Antenna).*

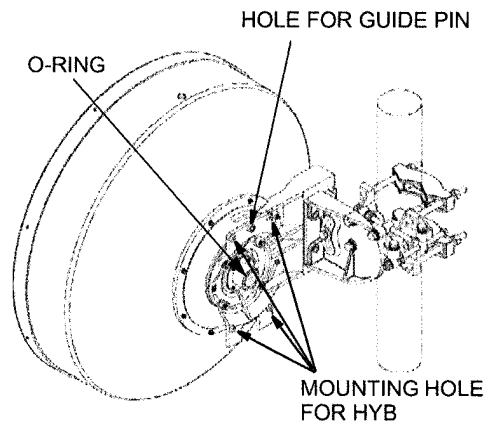
ANDREW VHLP TYPE BRACKET

Chart 2-10 (Cont'd)

Step	Procedure
------	-----------



RFS SB1 TYPE BRACKET



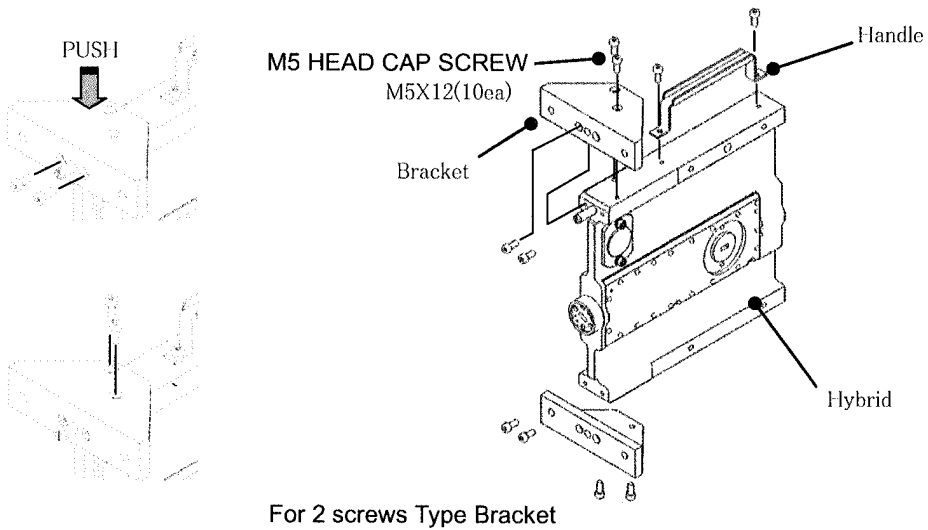
RFS C-Mount TYPE BRACKET

*Note: The tightening torque is $4.0\text{ N}\cdot\text{m} \pm 10\%$.
Be careful not to damage the O-ring (Antenna).*

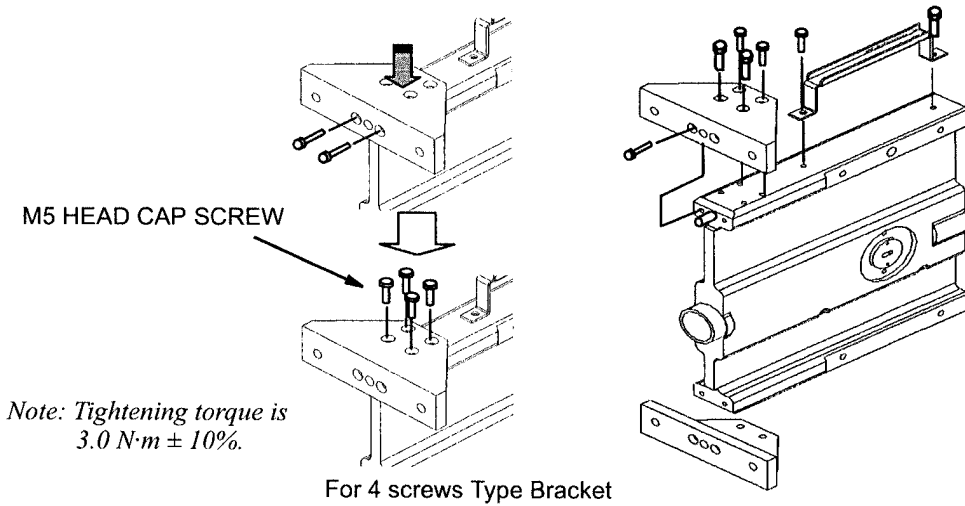
Chart 2-10 (Cont'd)

Step	Procedure
------	-----------

- 1 Fix the bracket and handle to the HYB used for 11/24 GHz TRP.



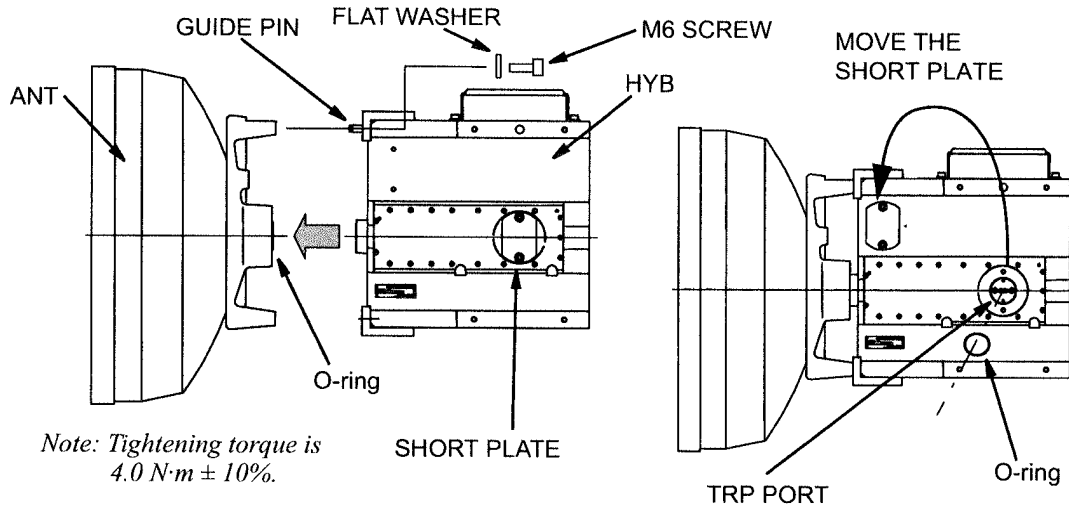
Note: Tightening torque is $3.0\text{ N}\cdot\text{m} \pm 10\%$.



- 2 Check the polarization and install the HYB to the antenna by tightening the M6 screws (four locations).

Chart 2-10 (Cont'd)

Step	Procedure
------	-----------



- 3 Insert the O-rings to the two TRP ports of the HYB.
- 4 Install the two TRPs with hex screws (four locations) using the Allen key wrench.

Note: Be careful not to damage the O-rings (Hybrid).

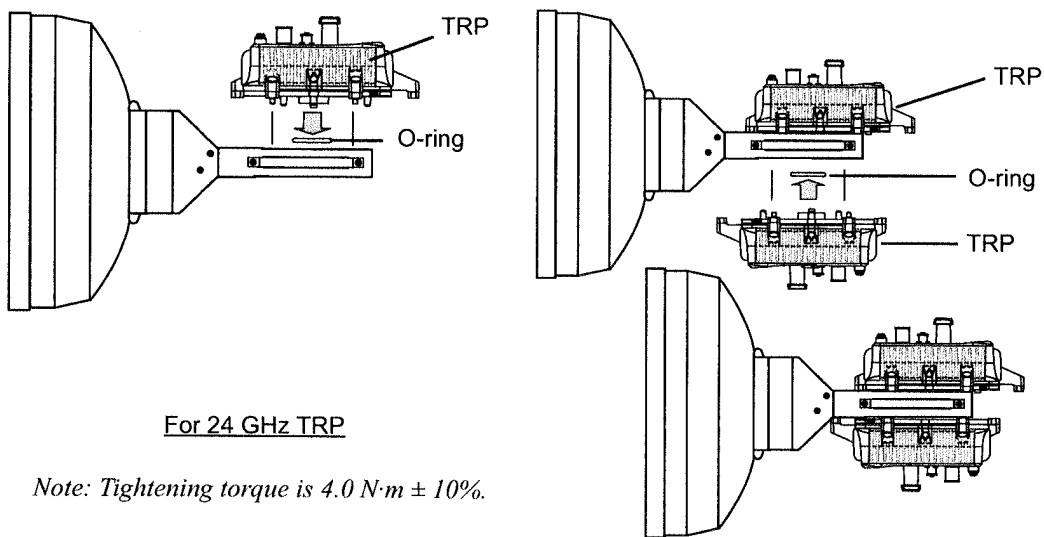
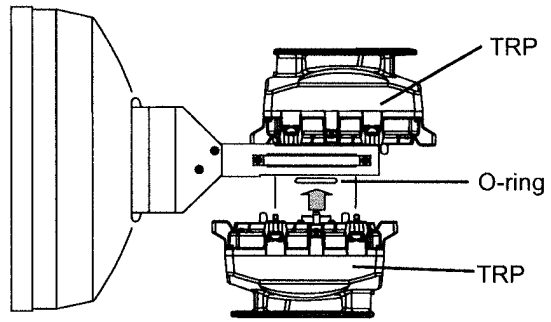
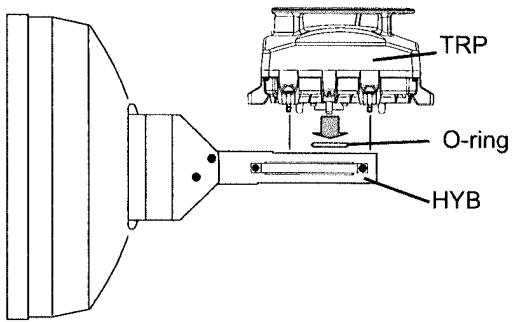


Chart 2-10 (Cont'd)

Step	Procedure
------	-----------



For 10.5/11 GHz TRP

Note: Tightening torque is 4.0 N·m ± 10%.

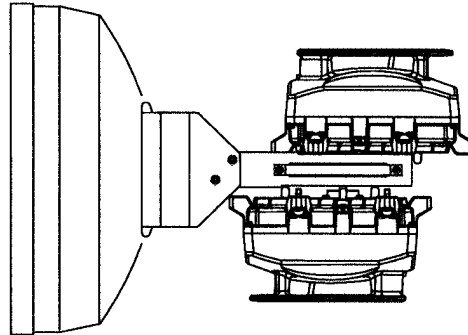


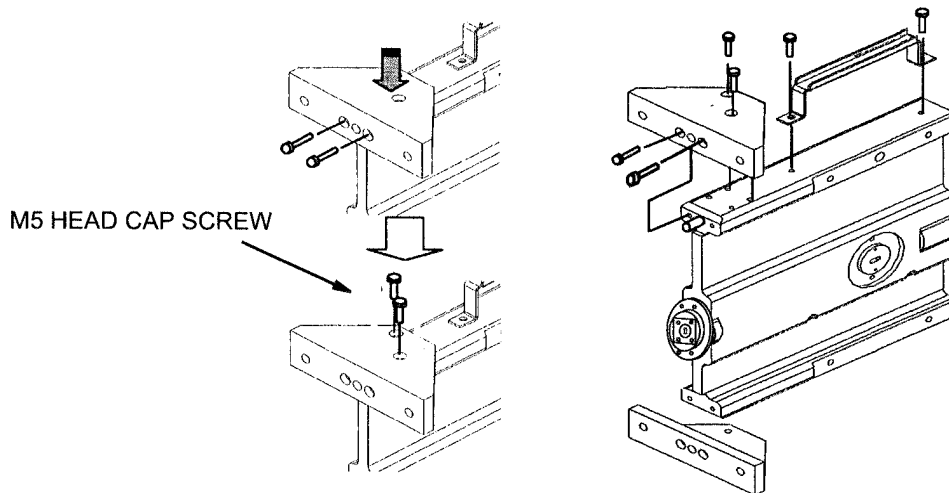
Chart 2-11 10.5/11/24 GHz Band TRP Mounting with HYB (Waveguide Connection)

Step	Procedure
------	-----------

No.	Parts Name	Q'ty
1	Hybrid (Waveguide Flange Interface Type)	1
2	Bracket	2
3	Handle	1
4	O-ring (for TRP)	2
5	O-ring (for Waveguide)	1
6	M5 × 12 Hexagon Socket Head Cap Screw (SS)	10(14)*
7	M3 × 10 Hexagon Head Screw with Washer (×4) (SS)	4

*Notr: *For 4 screws Type Bracket*

1 Assemble the bracket and handle to the HYB.



Note: Tightening torque is 3.0 N·m ± 10%.

Chart 2-11 (Cont'd)

Step	Procedure
------	-----------

- Assemble parts of the pole mounting bracket used to mount the HYB,

No.	Parts Name	Q'ty
1	Mount Arm	2
2	Mount Holder	2
3	Truss	1
4	M12 × 200 Hexagon Head Screw with Nut (×2), Flat Washer (×2)(ST)	4
5	M6 ×25 Hexagon Head Screw with Nut (x1), Flat Washer (×2), Spring Washer (SS)	4
6	M6 × 35 Hexagon Head Screw with Nut (×2), Flat Washer (×2)(SS)	4

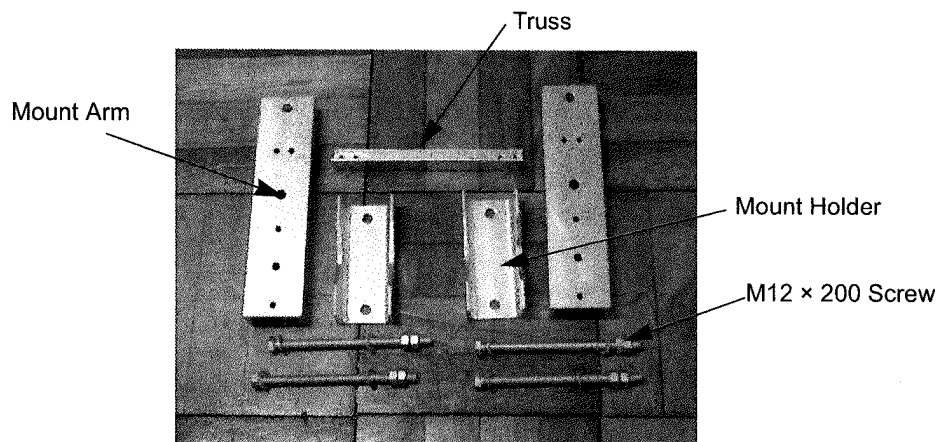


Chart 2-11 (Cont'd)

Step	Procedure
------	-----------

- Screw the Mount Arm and the Truss with the M6 × 25 Screw, Flat Washer (×2), Spring Washer (1), Nut, at four positions,

Tightening Torque	
M6	4.0 N·m ± 10%
M12	47 N·m ± 10%

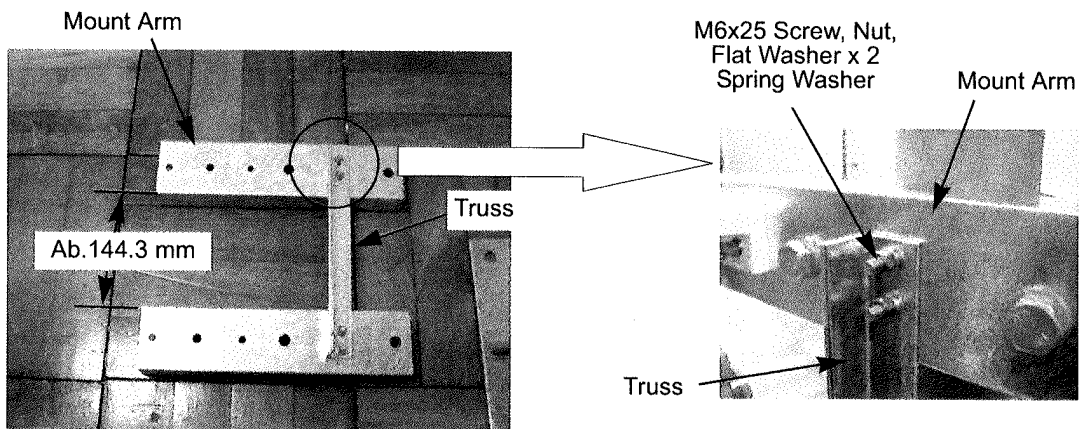
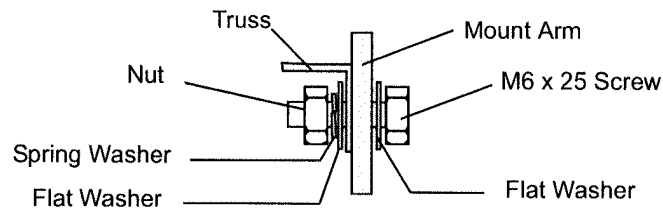
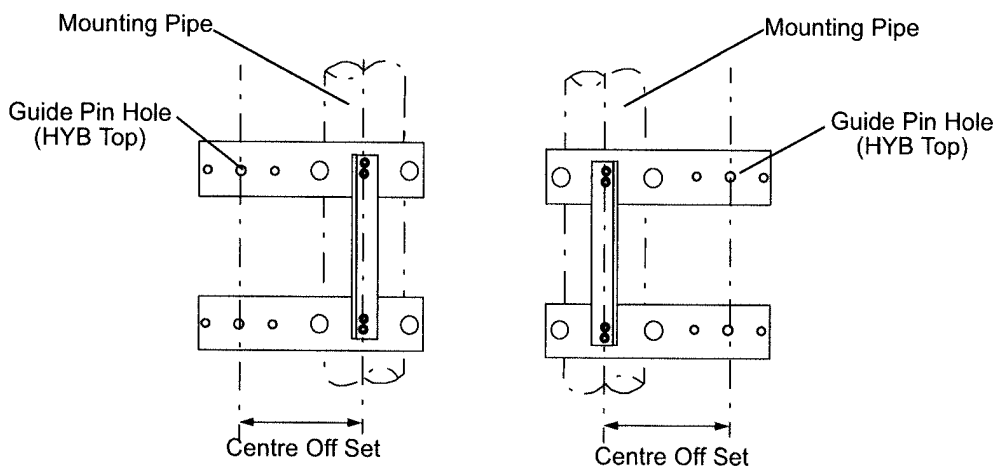


Chart 2-11 (Cont'd)

Step	Procedure
------	-----------

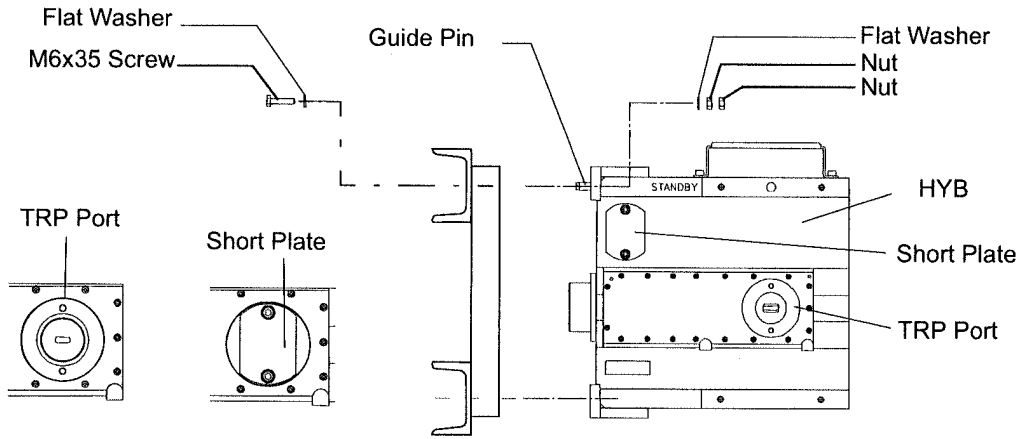
4	Determine centre off set,
---	---------------------------



- | | |
|---|---|
| 5 | Fit the guide pin of the HYB to the Guide Pin Hole of the Mount Arm, |
| 6 | Install the HYB onto the bracket with the M6 × 35 Screw, Flat Washer (×2), Nut (×2), at four positions, |

Chart 2-11 (Cont'd)

Step	Procedure
------	-----------



Note: When either Main or Standby TRP is removed, attach the short plate over the TRP port. Tightening torque is 3.0 N·m ± 10%.

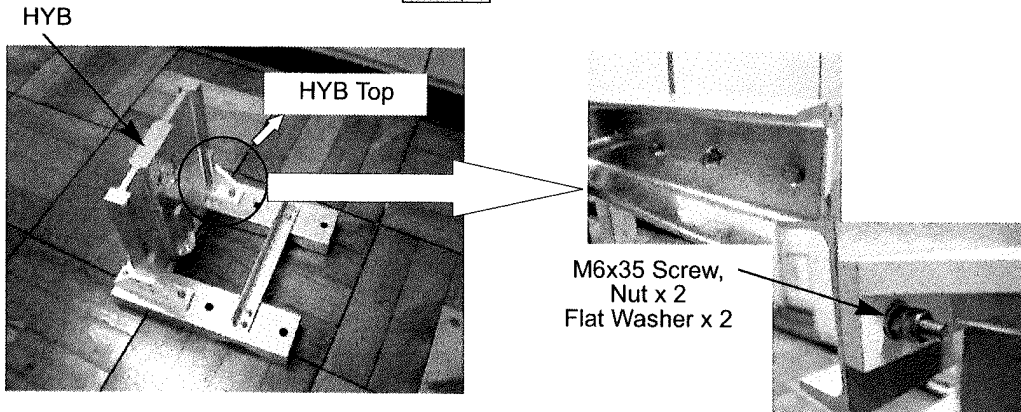
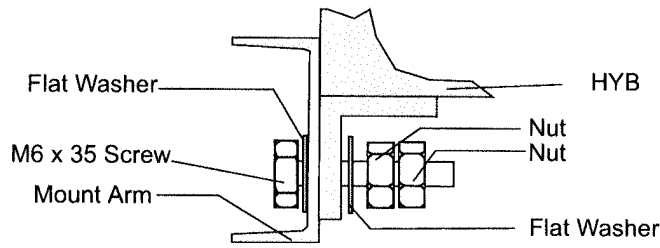


Chart 2-11 (Cont'd)

Step	Procedure
------	-----------

7 Install the HYB to the mounting pole using the M12 × 200 Screw, Flat Washer, Nut,

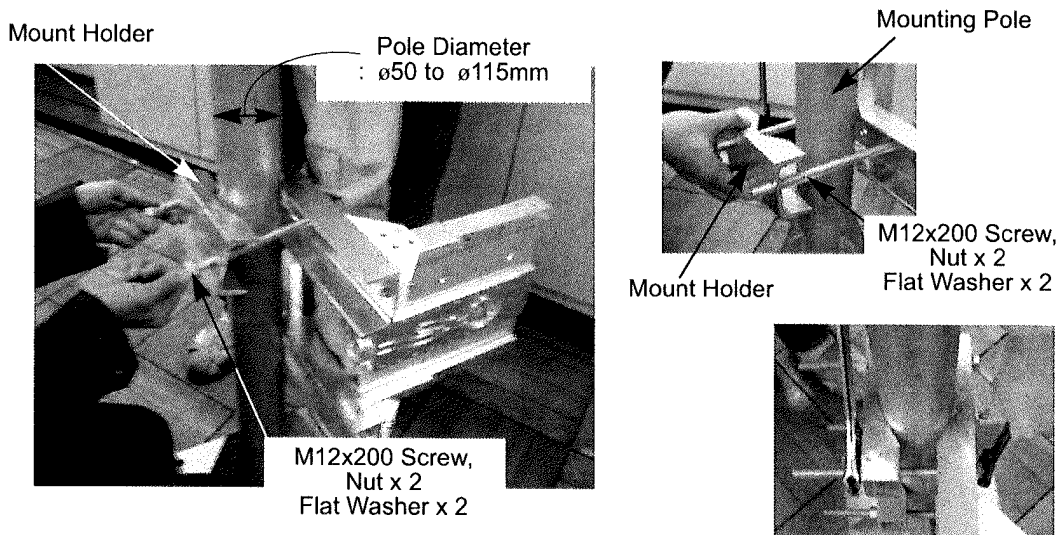
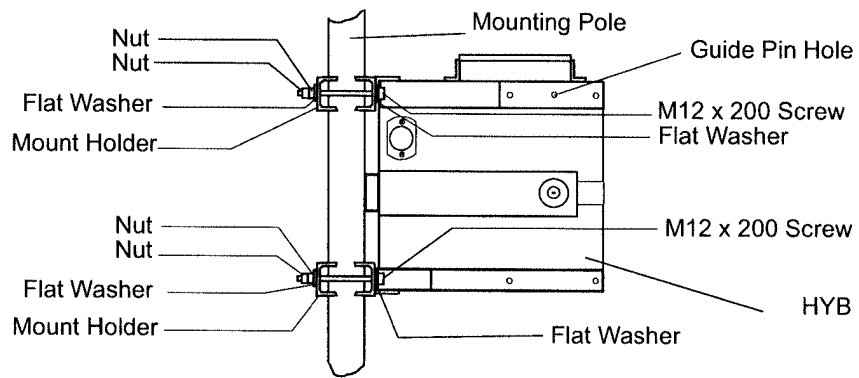
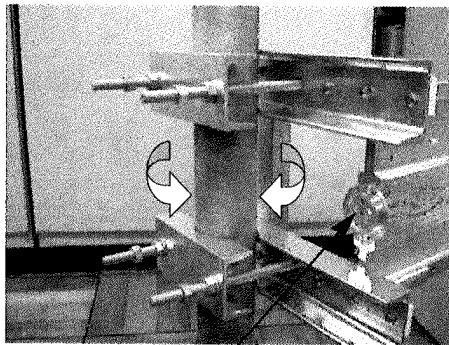


Chart 2-11 (Cont'd)

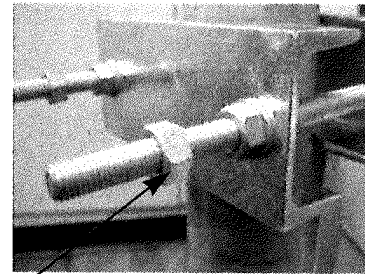
Step	Procedure
------	-----------

- 8 Adjust direction of the Bracket for Waveguide Port of the HYB orientation,

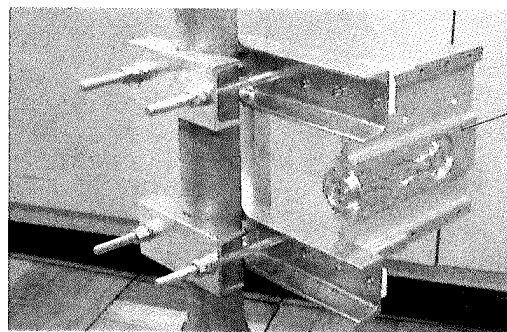
Double Nut tightening
Determination of the attachment direction.



Waveguide Port



Tighten double nut after orientation for waveguide connection has been decided.



HYB

- 9 Confirm the TRP Type, which is Master or Slave,
- 10 Install the TRP onto the HYB as described in Chart 2-8,

Caution: The same type must be installed onto the HYB.

Chart 2-11 (Cont'd)

Step	Procedure
11	Connect the flexible waveguide (WG) to the TRP and fix the waveguide to the TRP with four (4) bolts. <i>Note: Before connecting the WG to the antenna, confirm which polarization is applied to the Master and Slave TRP.</i>

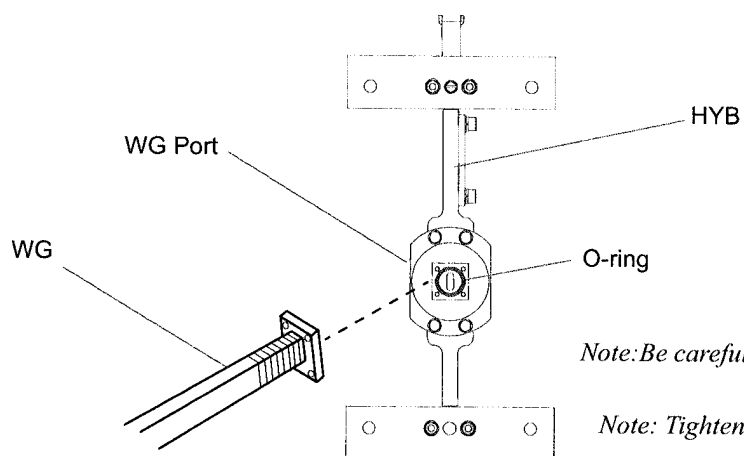
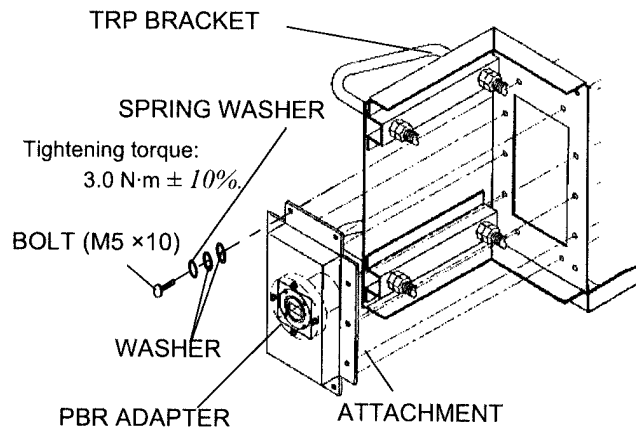


Chart 2-12 Wave Guide Connection

Step	Procedure
------	-----------

The connection method of the waveguide type TRP is described in following procedure.

- 1 Mount the attachment with adapter to the TRP bracket using ten bolts,



Note: Color of adapter is white.

- 2 Loosen eight nuts and remove the two U-bolts from the TRP bracket,

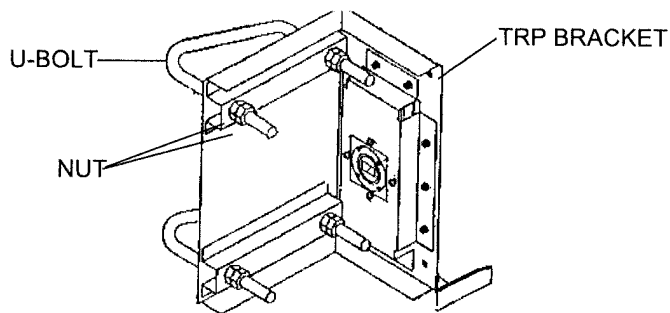
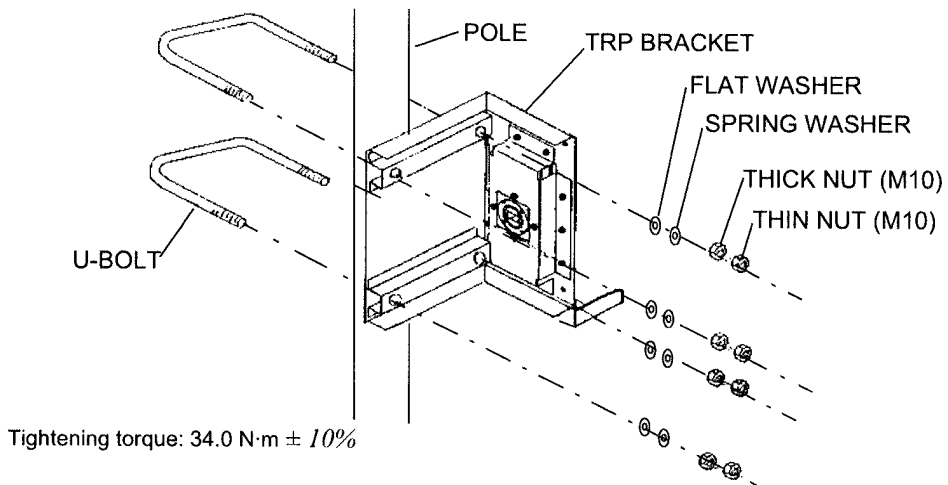


Chart 2-12 (Cont'd)

Step	Procedure
------	-----------

3 Mount the TRP bracket to the pole with two U-bolts,

Note: The diameter of the pole is from 48.5 to 114.5 millimeters.



4 Mount the TRP to the TRP bracket with attached four bolts (Align the guide pins on the TRP and the guide holes on the bracket),

Note: Be careful not to damage the O-ring.

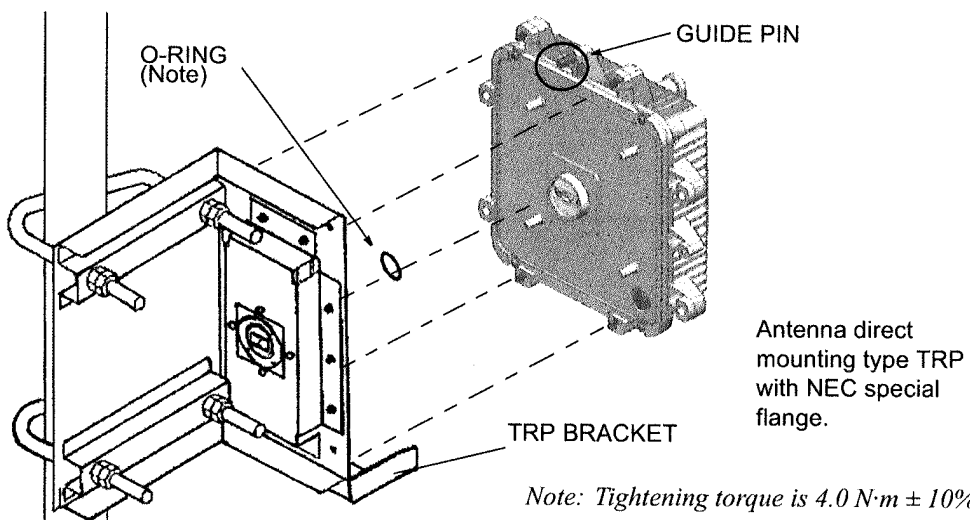
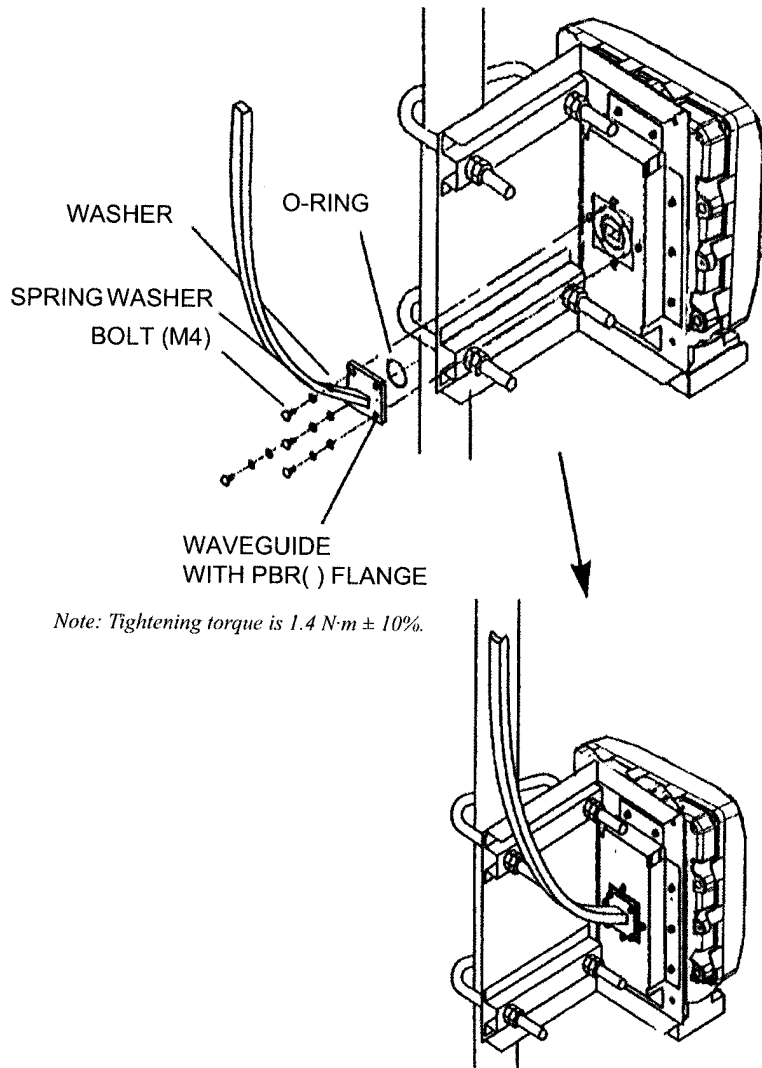
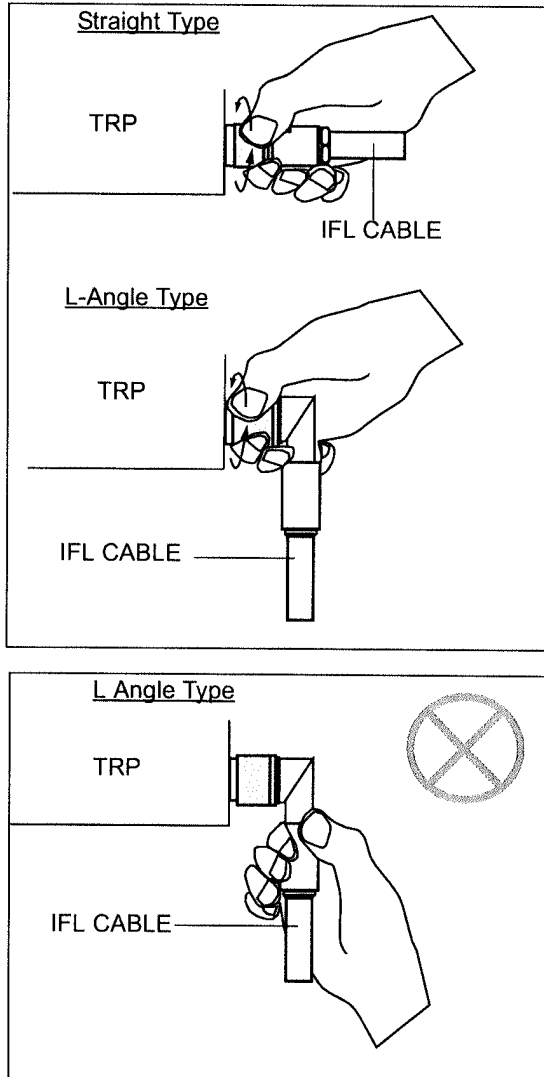


Chart 2-12 (Cont'd)

Step	Procedure
5.	Make sure that the TRP and the TRP bracket are fixed at specified values.
6.	Mount the waveguide to the TRP with four bolts.

Note: Be careful not to damage the O-ring attached to the PBR adapter.





Caution

When connecting the IFL cable to the TRP, tighten the N-male connector with engage connector nut only using fingers and holding the cable with another hand.

Tighten the engage connector nut only for the L-angle connector also.

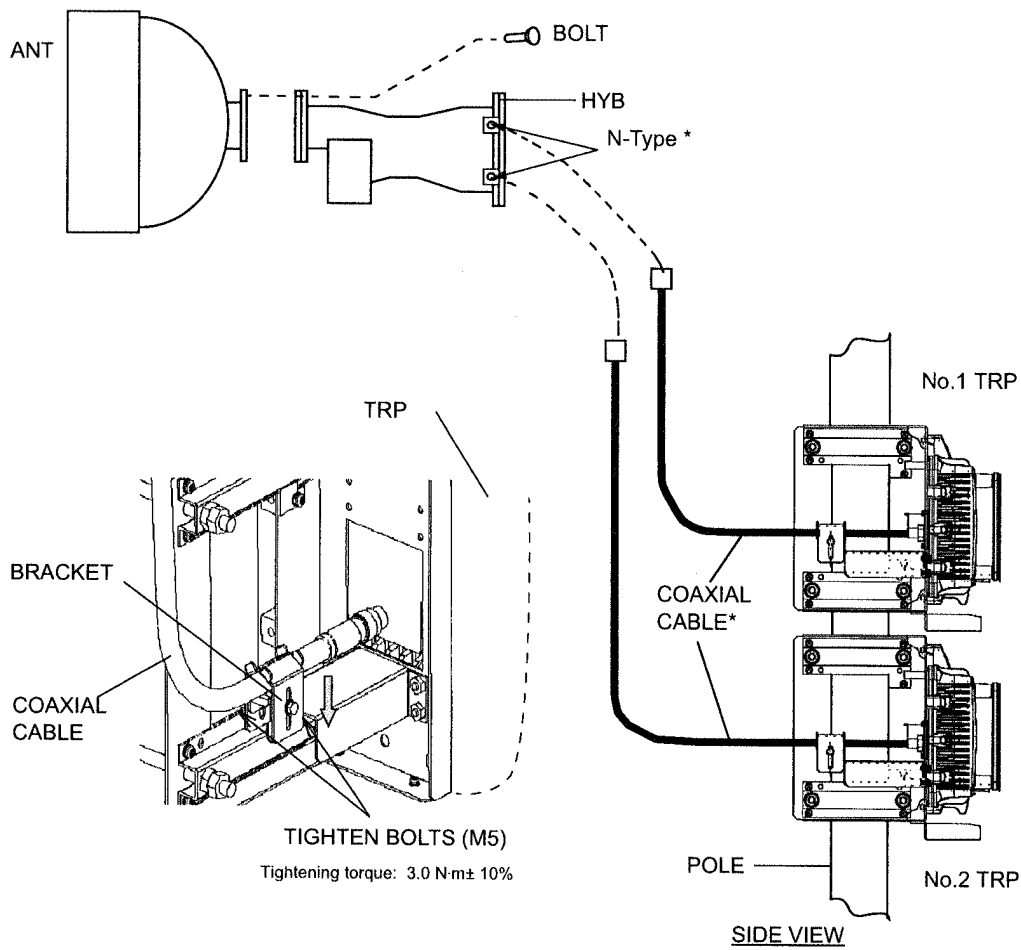
*(Tightening Torque : 0.7 to 1.2 N·m
(7 to 12 kg·cm))*

If rotate other parts of the L-angle connector as illustrated left, it can cause connector damage.

Chart 2-12 (Cont'd)

Step	Procedure
------	-----------

5.8/6 GHz TRP MOUNTING (Connecting Coaxial Cable)



Note: * When coaxial cable with SMA connector is used, the connectors are supplied by NEC.

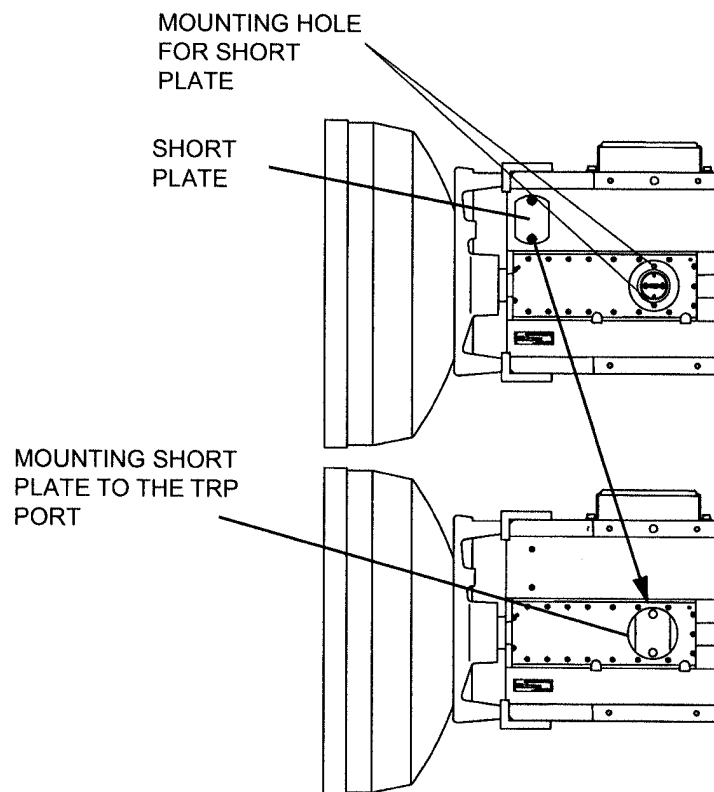
Caution: Wrap the coaxial cable connection points with a self-bonding tape for waterproof.

USING HYB FOR 1+1 SYSTEM

2.4.4 TRP Demounting (Split Type)

- 1 Remove the four fixed bolts from the TRP.
- 2 Then demount the TRP.

Note: When demounting the TRP from HYB, mount the attached SHORT PLATE to the demounted port of the HYB to avoid RF power leaking from the hybrid and for waterproofing.



Note: Tightening torque is 3.0 N·m ± 10%.

2.5 TRP Mounting/Demounting (All Indoor e/w FAN Type)

Install the equipment in the place where it is not restricted access location regulated with UL60950-1.

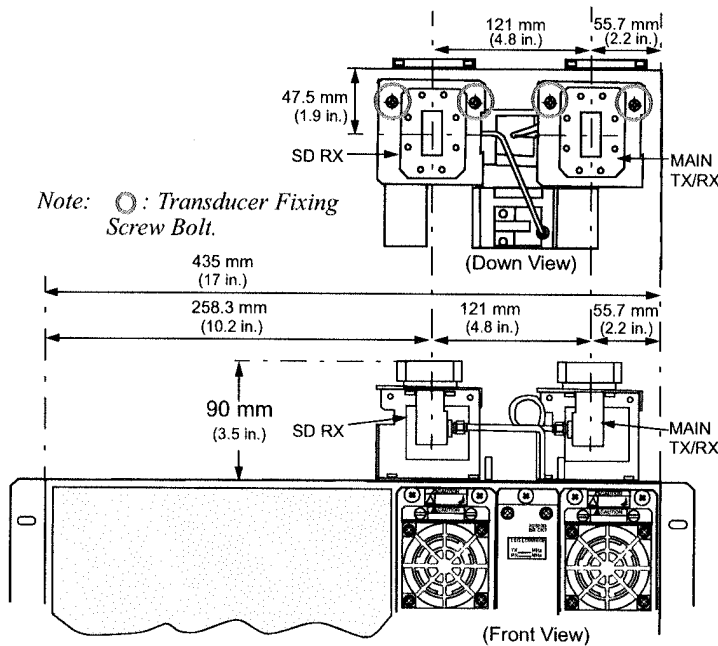
The installation procedure for TRP is shown in Chart 2-13. The TRP should be installed in the radio station indoor.

Chart 2-13 Mounting Method for TRP (All Indoor e/w FAN)

Step	Procedure
1	Be careful and mount TRP onto the rack using two persons.
<i>Note: When the change of the connecting direction of the transducer for the waveguide is necessary, that is possible using the same SJ cables. Refer to the following procedure.</i>	
2	When the waveguide will be connected from the left side of the equipment, different SJ cables. provide for the transducer connection.

Chart 2-13 (Cont'd)

Step	Procedure
------	-----------



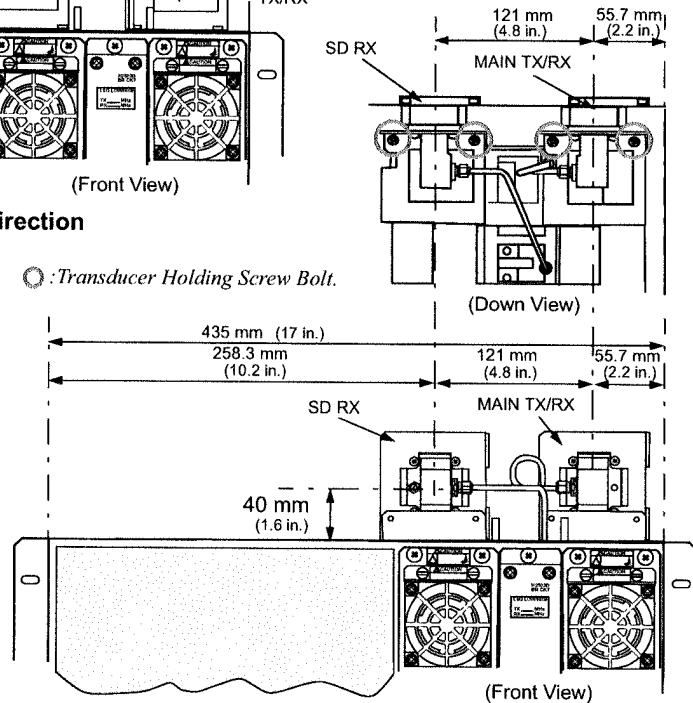
Waveguide Connection in Up Direction

Note: ○ : Transducer Holding Screw Bolt.

- (5) Tighten two screw bolts to fix the transducer to the shelf,
- (6) Connect the SJ cable to the transducer and tighten the SJ cable connectors with the torque wrench,

Note: Being careful, tighten alternately and gradually either end connectors of the SJ cable.

Tightening torque: 0.6 N·m.



Waveguide Connection in Rear Direction

- (1) Using torque wrench, loosen connectors of the SJ cable(s) connected between the BR CKT and transducer.

(The same SJ-cable(s) are reused.)

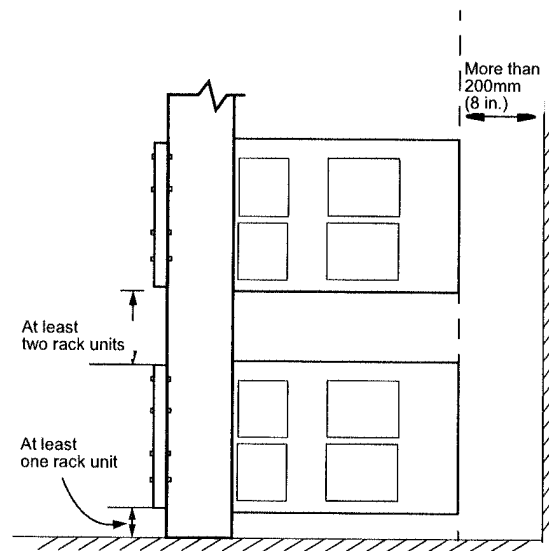
- (2) Disconnect the SJ cable from transducer side only.
- (3) Loosen two screw bolts holding the transducer and remove the transducer.
- (4) Turn the transducer and fit the through-hole to the holding screw hole.

Chart 2-13 (Cont'd)

Step	Procedure
------	-----------

- 3 Align the TRP to the mounting position on the 19-inch rack.

Note: To mount the TRP in a 19-inch rack above other equipment, leave space for two rack units at the bottom to allow heat from the NLite L to radiate.

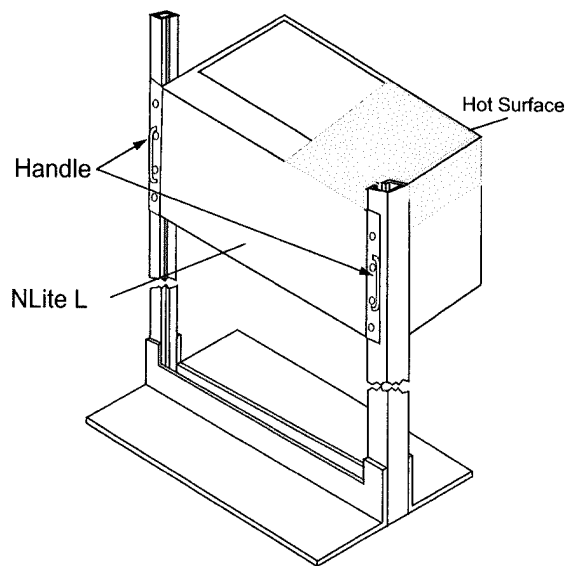
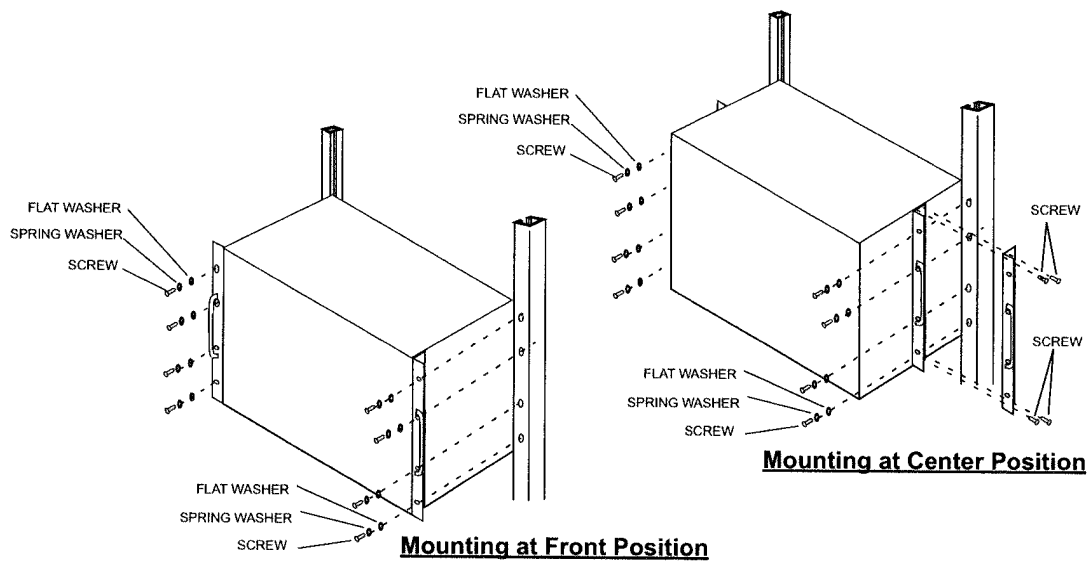


- 4 Holding both handles and bottom of the TRP using two persons, mount it into the rack,
- 5 Using a screw driver, tighten four screw bolts to fix the TRP at left and right sides,

Chart 2-13 (Cont'd)

Step	Procedure
------	-----------

- | | |
|---|--|
| 6 | When the TRP is close to the wall (within 200 mm (8 in.)), move two fixture brackets to center position on both sides of the equipment. (four screws are used for each side) |
|---|--|



Caution: Install the equipment in the place that is a restricted access location in compliance with UL60950-1.

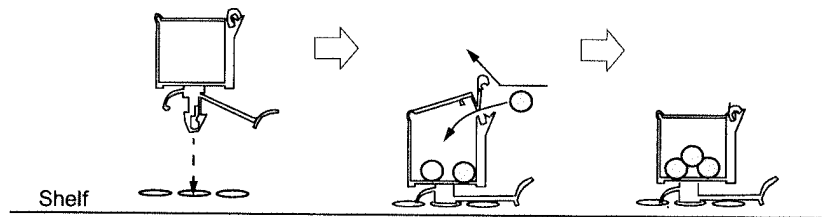
When the TRP is installed in a place of unrestricted access, open space above TRP is more than two rack unit (approximately 90 mm). Also, keep the environment temperature lower than +104°F (+40°C).

Chart 2-13 (Cont'd)

Step	Procedure
7	Connect the frame ground cable (*) to the "FG" terminals on the TR UNIT and the MDP,
8	Connect to between the RF SW CTRL connectors on the I/O BOARD (TRP) and the CTRL UNIT (MDP) using an exclusive cable,
9	Connect to between the CLUSTER ALM/AUX connectors on the I/O BOARD (TRP) and the CTRL UNIT (MDP) using an exclusive cable,
10	Connect an IFL cable to between IFL connectors on the TR UNIT and MD UNIT,
11	Connect signal cables to the appropriate connector on the I/O BOARD and the CTRL UNIT using,
12	Connect the power supply cable to the DC IN connector on the TR UNIT.
13	Connect the power supply cable to the SEL V connector on the MD UNIT,
14	Install the cable holders to the equipment shelf as shown below,

Insert the cable holder into a hole on the shelf. Open the cable holder and hold the cables. Close the cable holder.

Install



Uninstall

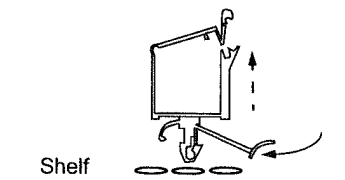
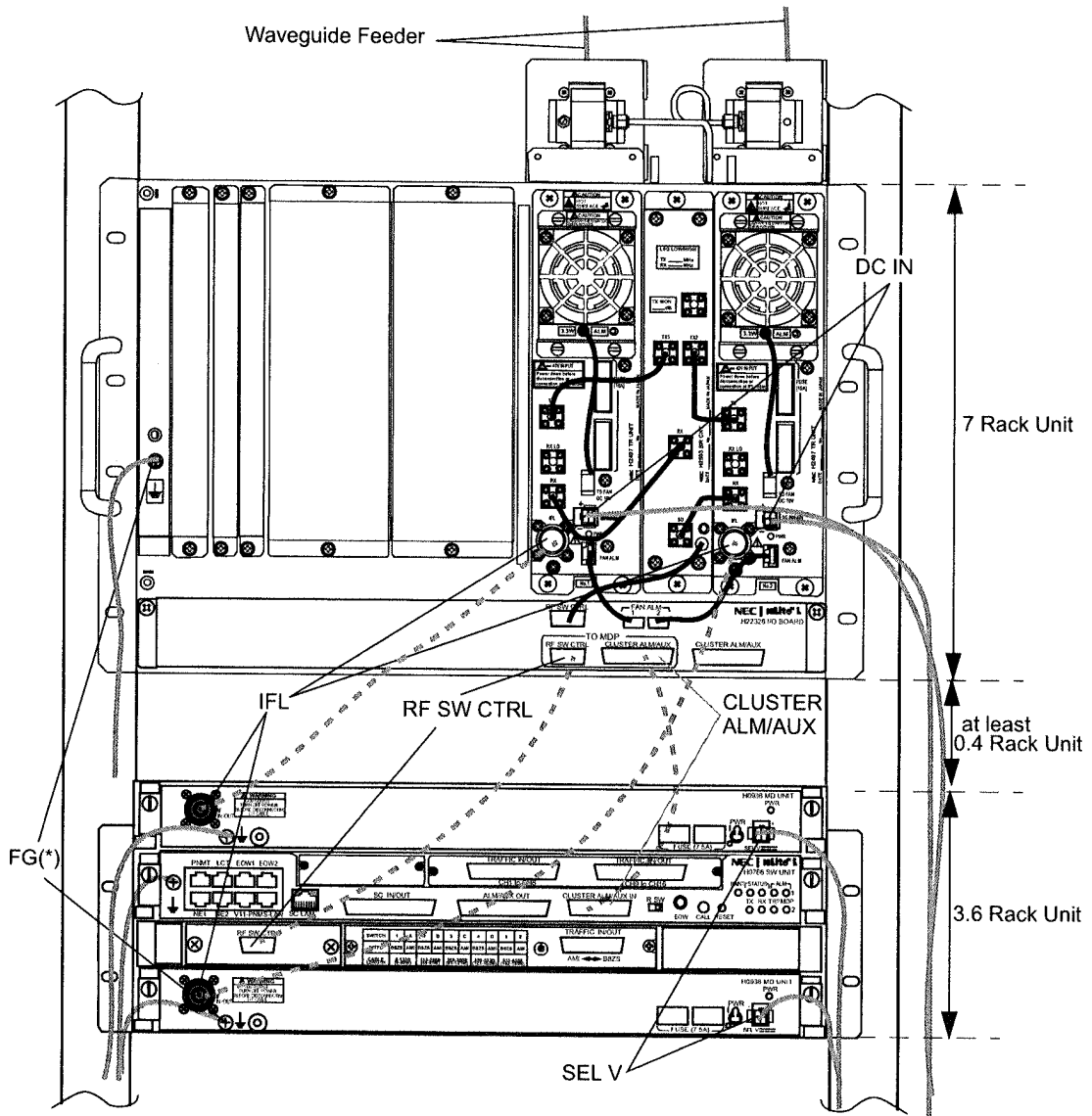


Chart 2-13 (Cont'd)

Step	Procedure
------	-----------



Note: (*)5 mm square cable (more than 2.5 mm diameter cable) (AWG#10 cable) is recommended for frame ground. The proper press fix terminal tool shall be used.