

WFMOS PROJECT

80.20.10.03_REF

Version: 4

Subaru Telescope Subcomponent Identification and Naming Convention

Reference Document

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Contents

1.	Acronyms, Abbreviations, and Glossary.....	4
2.	Introduction	4
3.	Figure 1 references	4
3.1	Prime Focus.....	4
3.2	Prime Focus Hub.....	4
3.3	Spider	4
3.4	Top Ring Structure	5
3.5	Nasmyth Focus (Optical)	5
3.6	Nasmyth Focus (Infrared)	5
3.7	Tertiary Mirror Cell.....	5
3.8	Primary Mirror Cell.....	5
3.9	Altitude Cable Wrap (IR).....	5
3.10	Mount Structure	5
4.	Figure 3 references	7
4.1	Face Spline Ring	7
4.2	Hub Inner Utility Flange	7
4.3	Hub Clamp Edge – PFU.....	7
4.4	Hub Clamp Edge – Secondary Mirror Unit	7
5.	Figure 4 references	8
5.1	Top Ring Cable Rack	8
5.2	Spider Upper Cable Rack +Y	8
5.3	Spider Facility Rack +Y.....	9
5.4	Spider Cable Rack +Y Inner Terminal Panels.....	9
5.5	PFU External Facility Interconnect Assemblies	9
6.	Figure 5 references	9
6.1	PFU Panel A.....	10
6.2	PFU Panel B	10
6.3	Electrical Terminal Enclosures (+X/+Y, +X/-Y, -X/+Y, -X/-Y)	10

1. Acronyms, Abbreviations, and Glossary

See document 80.50.11.00_REF.

2. Introduction

This document identifies the common usage names of components and sub-components on the NAOJ Subaru Telescope on Mauna Kea on the island of Hawaii. The list primarily identifies items which are relevant to the WFMOS project. These are the telescope prime focus, top ring, truss structure, altitude bearing, mount and nasmyth platforms. Locations are referenced to the appropriate coordinate system with the telescope in the parked position. Document 80.20.10.04_REF discusses Subaru Facility names and document 80.20.10.05_REF describes Subaru PFU nomenclature.

3. Figure 1 references

3.1 Prime Focus

The Prime Focus refers to the nominal focus of the primary mirror. Its location is indicated relative to the Telescope Tube Structure coordinate system axes, Xt, Yt, Zt, as outlined in Reference Document 80.20.10.01_REF.

3.2 Prime Focus Hub

The Prime Focus Hub supports prime focus instruments and the secondary mirror units. It is machined from a single piece of material and is attached at opposite sides of its perimeter to the telescope top end Spider arms. Further description is covered in document 10.55.00.00_50.10.00.00_ICD.

3.3 Spider

The prime focus Spider consists of 4 arms extending from the Top Ring Structure to the centrally located Prime Focus Hub. Cable racks are integrated into two of the arms and allow cable assemblies to reach opposite sides of the top ring. The arms are identified with respect to the telescope parked position as -X(North), +Y(East), +X(South), and -Y(West). The two arms that support cable racks are the +Y(East), and +X(South) arms (see also sections 5.2 and 5.3).

3.4 Top Ring Structure

A hollow welded steel assembly that supports the Spider and Prime Focus Hub. A cable tray is attached on the +Zt side of the ring. The ring is supported by the telescope upper truss structure at four points.

3.5 Nasmyth Focus (Optical)

The reference location adjacent to the altitude bearing in +Xt axes with the telescope at parked position. Also the optical focus at this location.

3.6 Nasmyth Focus (Infrared)

The reference location adjacent to the altitude bearing in -Xt axes with the telescope at parked position. Also the infrared focus at this location.

3.7 Tertiary Mirror Cell

3.8 Primary Mirror Cell

3.9 Altitude Cable Wrap (IR)

Cable wrap assembly located at the Nasmyth IR platform to transfer facility and cabling from the telescope tube structure onto the stationary IR Nasmyth platform.

3.10 Mount Structure

The Azimuth support structure of the telescope above the azimuth bearing and including the structure beneath the altitude bearings.

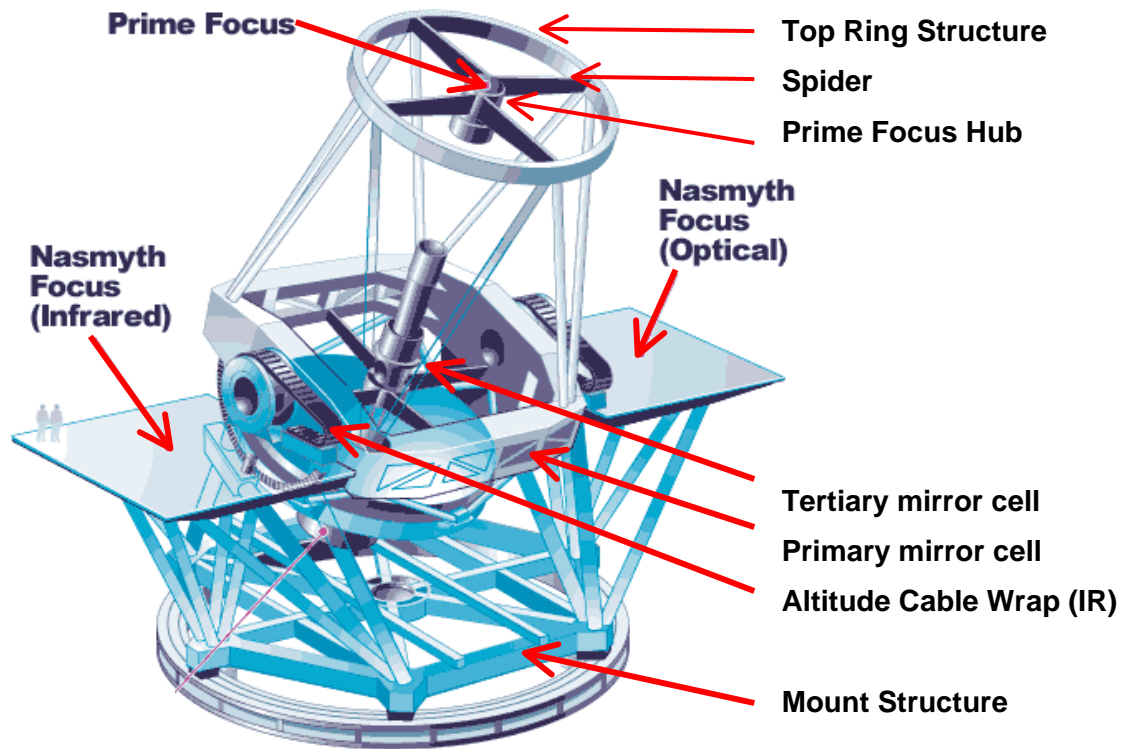


Figure 1: Reference Nomenclature for Subaru Telescope Structure.

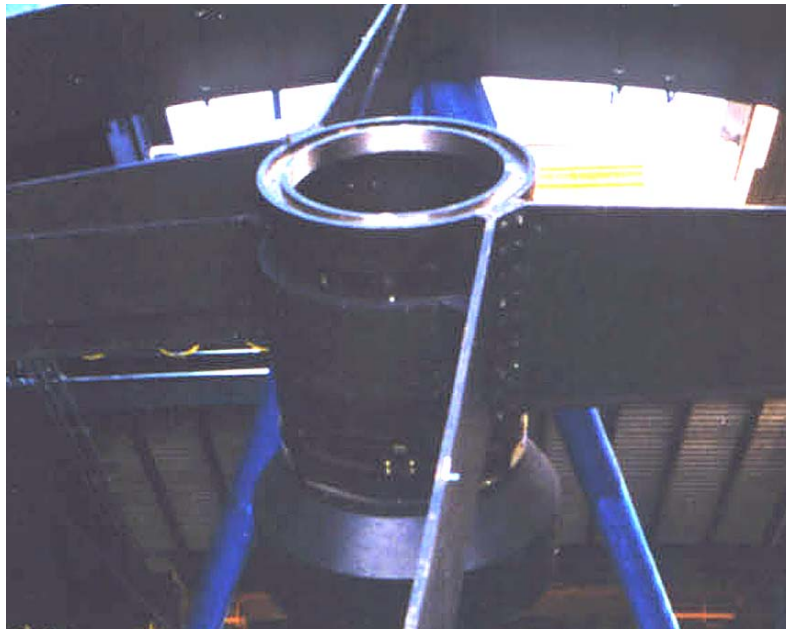


Figure 2: Prime Focus Hub top edge without Face Spline Ring.

4. Figure 3 references

4.1 Face Spline Ring

A precision mechanical positioning interface between the Prime Focus Hub and mating instruments or the secondary units.

4.2 Hub Inner Utility Flange

Mounting point inside the Prime Focus Hub for location of instrument utility quick disconnects that mate to installed instruments.

4.3 Hub Clamp Edge – PFU

Inner clamp edge of the Prime Focus Hub for retaining instruments on the upper end of the Hub.

4.4 Hub Clamp Edge – Secondary Mirror Unit

Inner clamp edge of the Prime Focus Hub for retaining instruments or the secondary mirror units on the lower end of the Hub.

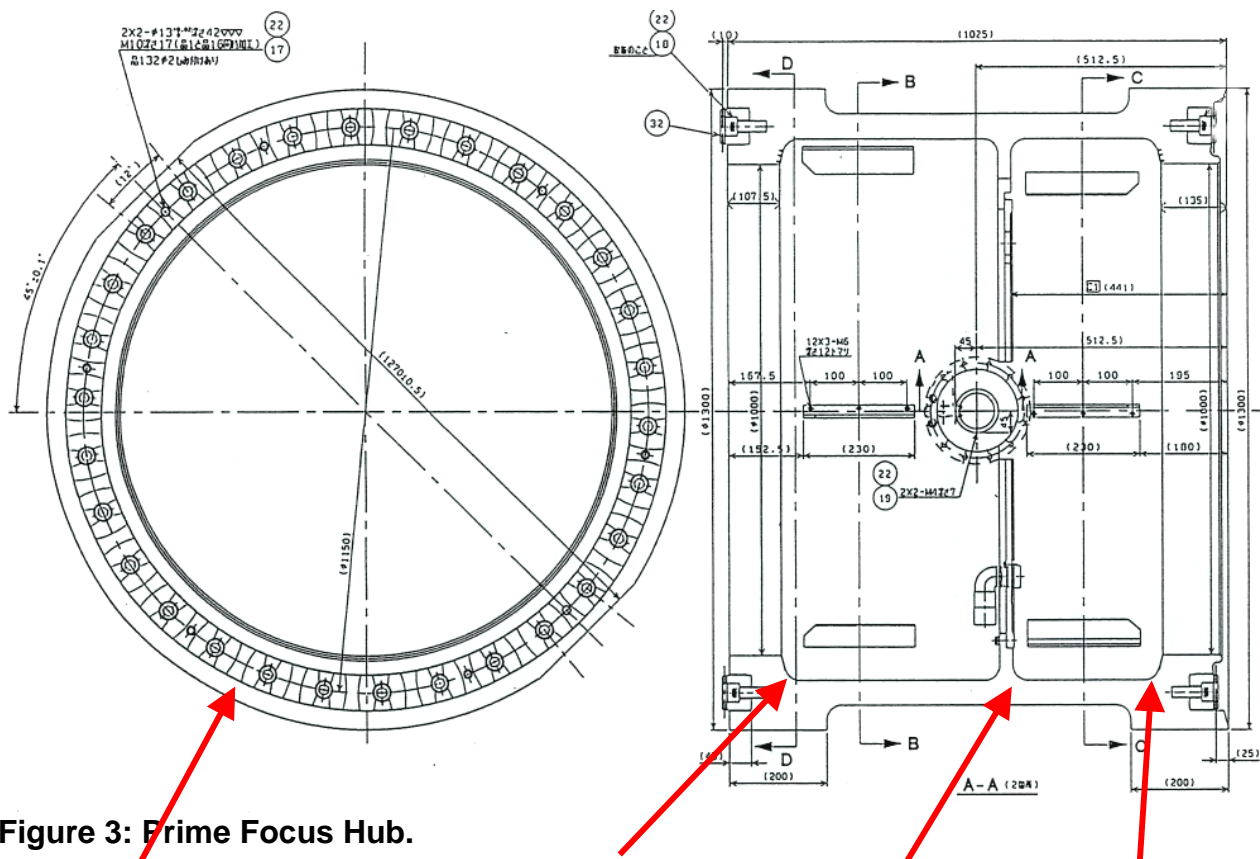


Figure 3: Prime Focus Hub.

Face Spline Ring

Hub Clamp Edge - PFU

Hub Inner Utility Flange

Hub Clamp Edge -
Secondary Mirror
Unit

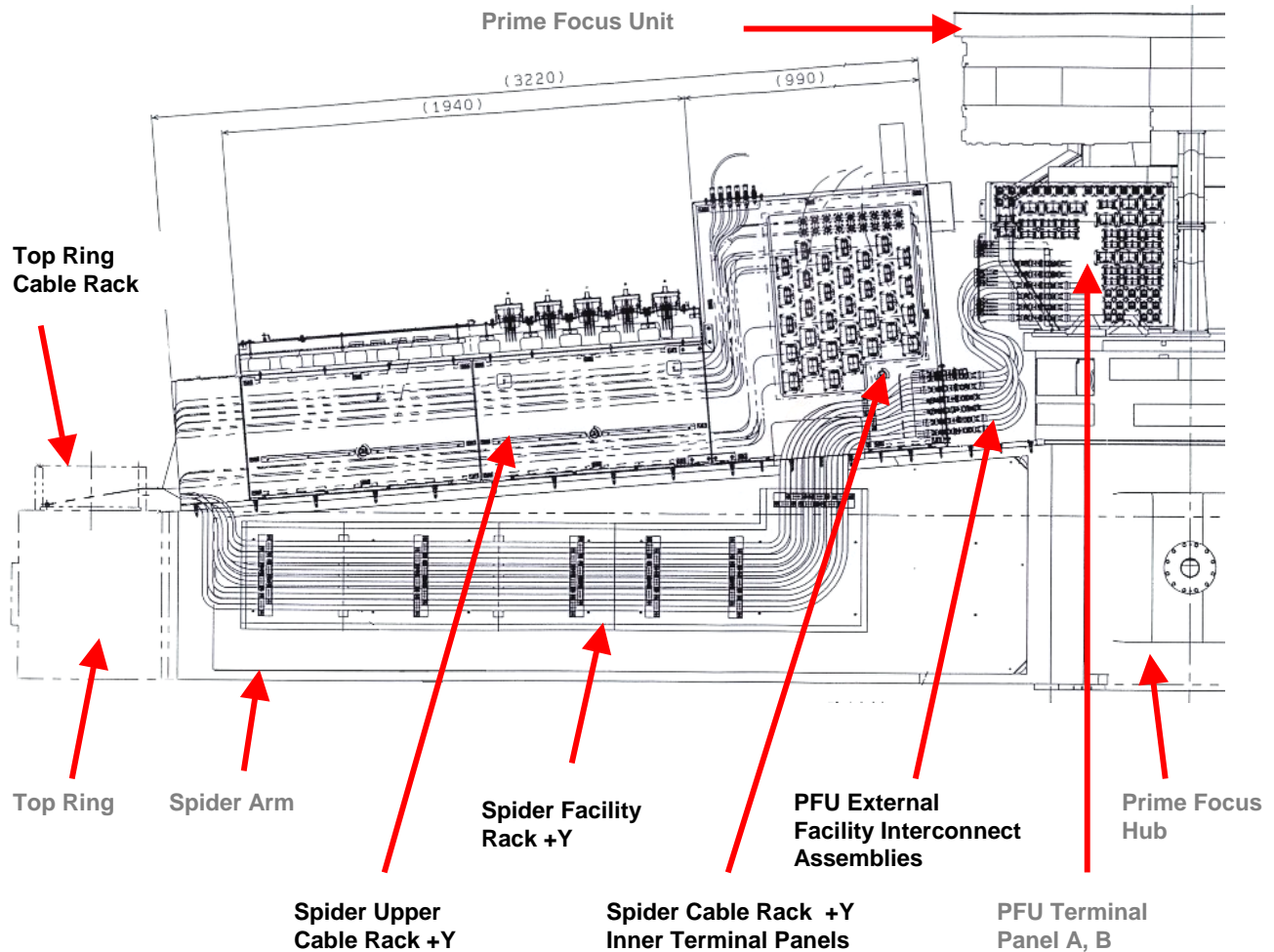


Figure 4: Reference Nomenclature for Subaru Telescope Structure

5. Figure 4 references

5.1 Top Ring Cable Rack

Cable routing enclosure on +Zr side of the Top Ring Structure extending the entire perimeter of the Top Ring .

5.2 Spider Upper Cable Rack +Y

Cable routing enclosure mounted on the top edge of the +Y(East) Spider arm.

5.3 Spider Facility Rack +Y

Routing enclosure mounted on the side edge of the +Y(East) Spider arm to house refrigeration circuit helium lines and coolant lines

5.4 Spider Cable Rack +Y Inner Terminal Panels

Cable routing enclosure termination panels and facilities panel for the cable racks of the +Y Spider arm

5.5 PFU External Facility Interconnect Assemblies

Facility interconnect between the PFU and the Spider Arm Cable Rack facility panel for refrigeration circuit helium lines and coolant lines.

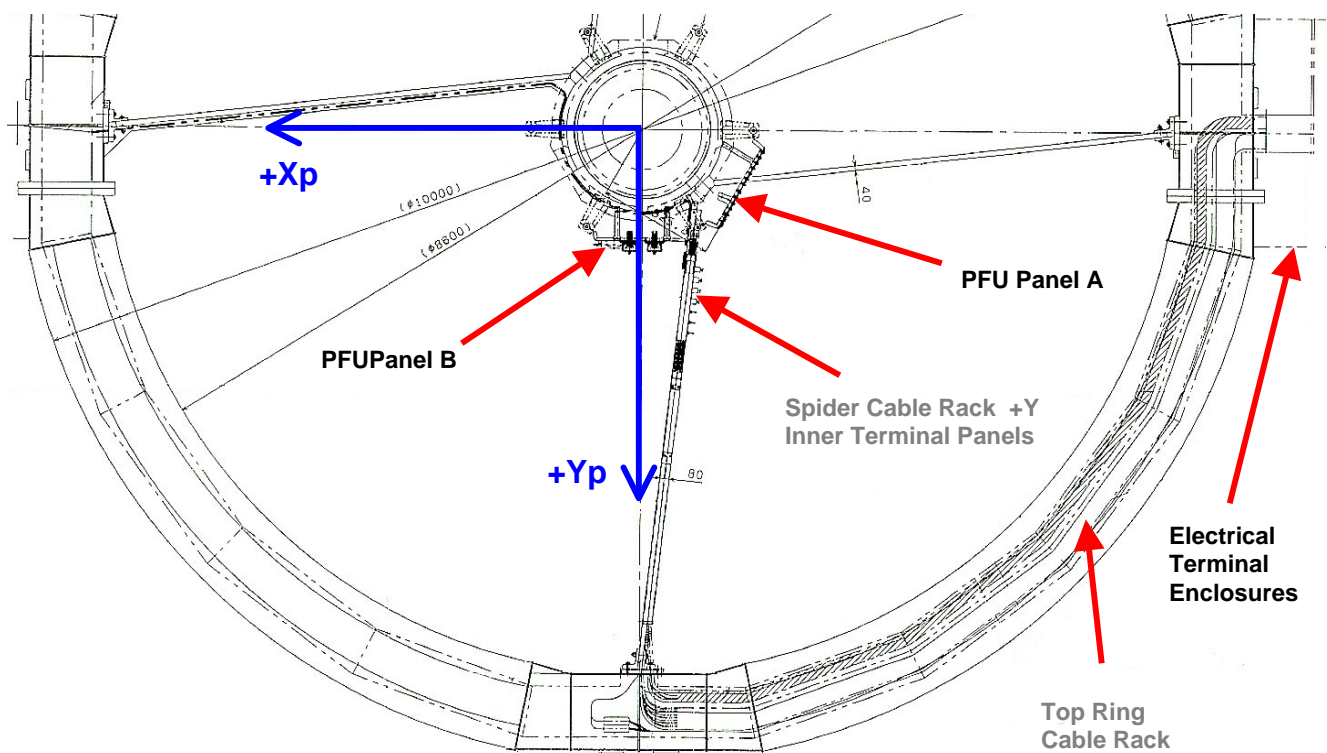


Figure 5: Top Ring, Spider and Central Hub Structure with PFU in place.

6. Figure 5 references

6.1 PFU Panel A

Discussed in document 80.20.10.05_REF.

6.2 PFU Panel B

Discussed in document 80.20.10.05_REF.

6.3 Electrical Terminal Enclosures (+X/+Y, +X/-Y, -X/+Y, -X/-Y)

Electrical termination cabinets that are mounted on the Top Ring at locations +Xr and -Xr. The cable racks on the Top Ring terminate at these cabinets. Also shown in Figure 6.

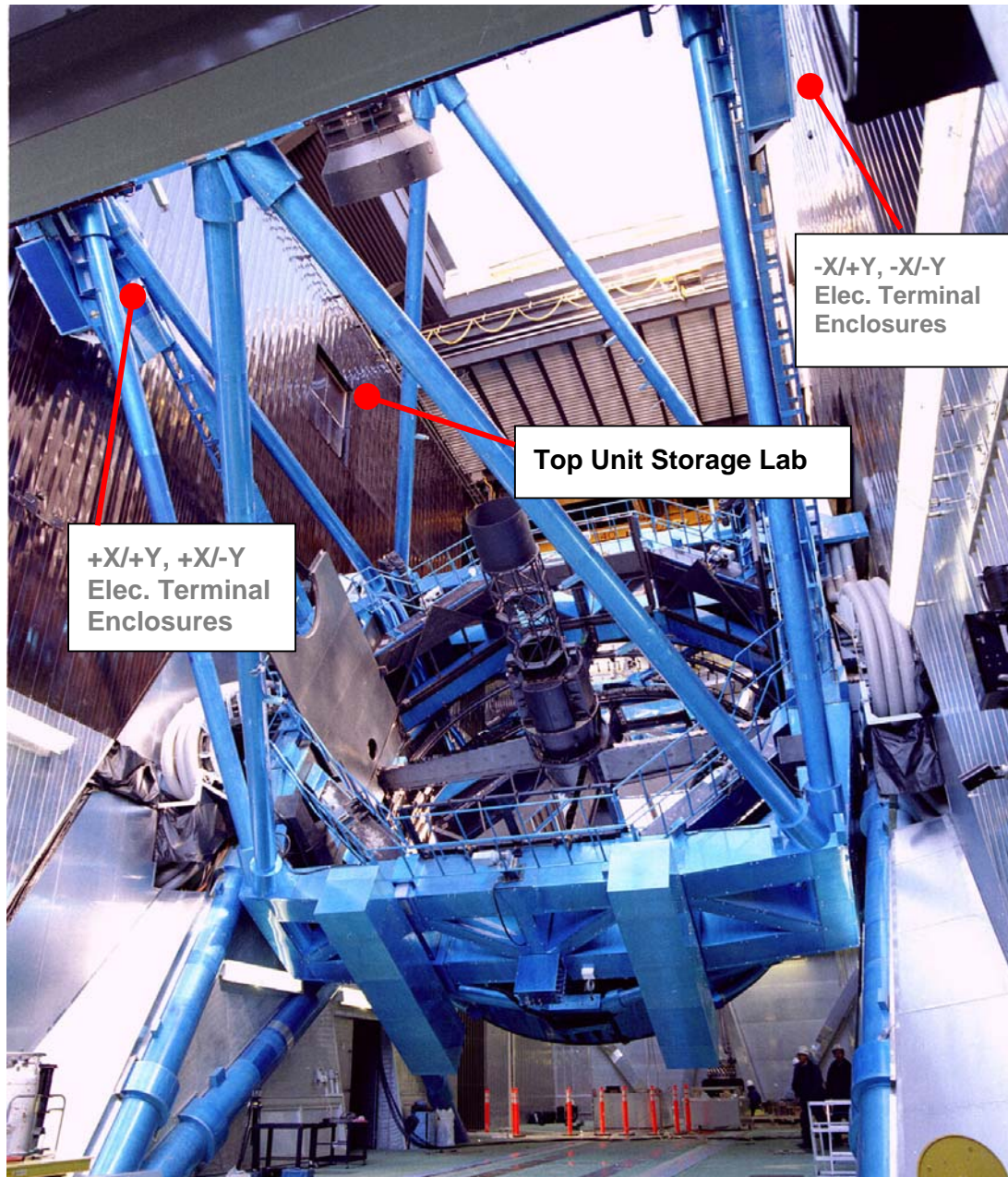


Figure 6: Telescope truss and mirror cell. Secondary and Top Ring visible at top.