

6.3 Meter Cassegrain Antenna

Antenna Technologies



Overview

The CPI Antenna Technologies' 6.3 meter antenna delivers exceptional performance for transmit/receive and receive only applications for C through Ka-Band frequencies. This antenna offers a deep dish reflector that incorporates precision-formed panels, contoured radials and hub assembly. It features an innovative feed and subreflector design which results in high gain, low noise temperature, high antenna efficiency and excellent rejection of noise and microwave interference.

The aluminum reflector is supported by a galvanized pedestal that provides the required stiffness for pointing and tracking accuracy. The pedestals are designed for full orbital arc coverage and are readily adaptable to ground or rooftop installations. The electrical performance is compliant with ITU and FCC sidelobe specifications. Type approved configurations are available for Intelsat (F1, E2), Eutelsat (L), Asiasat, Hispasat, EuropeStar or Singapore Telecom. All configurations meet CPI Antenna Technologies own type-approved quality assurance and performance guarantee.

FEATURES:

- Bolt-together
- 3.4 to 31 GHz operation, meeting ITU and FCC
- Aluminum reflector, galvanized pedestal
- 125 mph (200 km/h) wind survival

OPTIONS:

- C, X, Ku, DBS and Ka-Band feed configurations
- C/Ku receive-only feed systems
- Specialized feed systems (e.g., extended, multi-band)
- Improved feed cross-pol performance
- CP/LP manual or remote switchable feeds
- Antenna control system with tracking
- Reflector and feed deicing systems
- Environmental hub configurations
- Integrated transmit cross-axis kits
- Integrated LNA or LNB systems
- HPAs, converters and M&C systems
- Load frame mounts
- Packing for sea and air transport
- Turnkey installation and testing

UPGRADES:

- X-band low PIM reflector/feed configurations
- Larger Hub Size (Mega)
- High wind configuration
- Low operating temperatures
- High power configurations

BENEFITS:

- High antenna efficiency
- Excellent rejection of noise and microwave interference

APPLICATIONS:

- Communications, Data Transfer, Broadcast

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Specifications

ELECTRICAL ⁽¹⁾	C-Band 4 Port Circular Polarized		C-Band 4 Port Linear Polarized ⁽⁵⁾		X-Band 2 Port Circular Polarized		Ku-Band 4 Port Linear Polarized ⁽⁵⁾		Ka-Band 4 Port Circular Polarized	
	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	3.400- 4.200	5.725 - 6.725	3.400- 4.200	5.725 - 6.725	7.250 - 7.750	7.900 - 8.400	10.700 - 12.750	13.750 - 14.800	17.700 - 22.000	27.000 - 31.000
Antenna Gain, Midband dBi ⁽²⁾	46.30	50.20	46.20	50.10	52.00	52.60	55.60	57.60	59.60	62.50
VSWR	1.30:1	1.30:1	1.30:1	1.30:1	1.25:1	1.25:1	1.30:1	1.30:1	1.30:1	1.30:1
Pattern Beamwidth ⁽²⁾ -3 dB, at midband	0.81°	0.52°	0.82°	0.52°	0.41°	0.38°	0.26°	0.21°	0.15°	0.11°
Antenna Noise Temperature (K) 5° Elevation 10° Elevation 20° Elevation 40° Elevation	66 K 57 K 52 K 50 K		58 K 49 K 44 K 41 K		63 K 53 K 46 K 43 K		92 K 79 K 71 K 66 K		228 K 186 K 152 K 125 K	
Typical G/T (dB/K) ⁽³⁾	26.9 (4.000 GHz, 35 K LNA)		27.2 (4.000 GHz, 35 K LNA)		32.4 (7.500 GHz, 45 K LNA)		34.4 (11.725 GHz, 60 K LNA)		35.3 (19.850 GHz, 120 K LNA)	
Axial Ratio (dB)	0.51 dB	0.51 dB			1.50 dB	1.50 dB			0.50 dB	0.50 dB
Power Handling (total)	2 kW CW		5 kW CW		5 kW CW		5 kW CW		500 watts	
Cross Polarization Isolation (dB) On Axis Within a 1.0 dB Beamwidth	30.8 dB 30.8 dB	30.8 dB 30.8 dB	35.0 dB 30.0 dB	35.0 dB 30.0 dB	21.3 dB 21.3 dB	21.3 dB 21.3 dB	35.0 dB 35.0 dB	35.0 dB 35.0 dB	30.8 dB 30.8 dB	30.8 dB 30.8 dB
Port-to-Port Isolation (dB) Rx/Tx (Rx frequency) Tx/Rx (Tx frequency)	0 dB -85 dB	-85 dB 0 dB	0 dB -85 dB	-85 dB 0 dB	0 dB -110 dB	-110 dB 0 dB	0 dB -85 dB	-70 dB 0 dB	0 dB -85 dB	-85 dB 0 dB
Sidelobe Performance	Meets ITU-RS-580, FCC ⁽⁴⁾				Meets ITU-RS-580		Meets ITU-RS-580, FCC			
RF Specification	975-5034		975-4806		975-2342		975-4819		975-5096	

⁽¹⁾ All values are at rear feed flange. ⁽²⁾ C-Band Rx values are at 4 GHz. ⁽³⁾ Typical G/T at 20° elevation with clear horizon using single bolt-on LNA feed.

⁽⁴⁾ Meets FCC 25.209 beyond the first sidelobe in C-Band. ⁽⁵⁾ Also available in extended frequency bands.

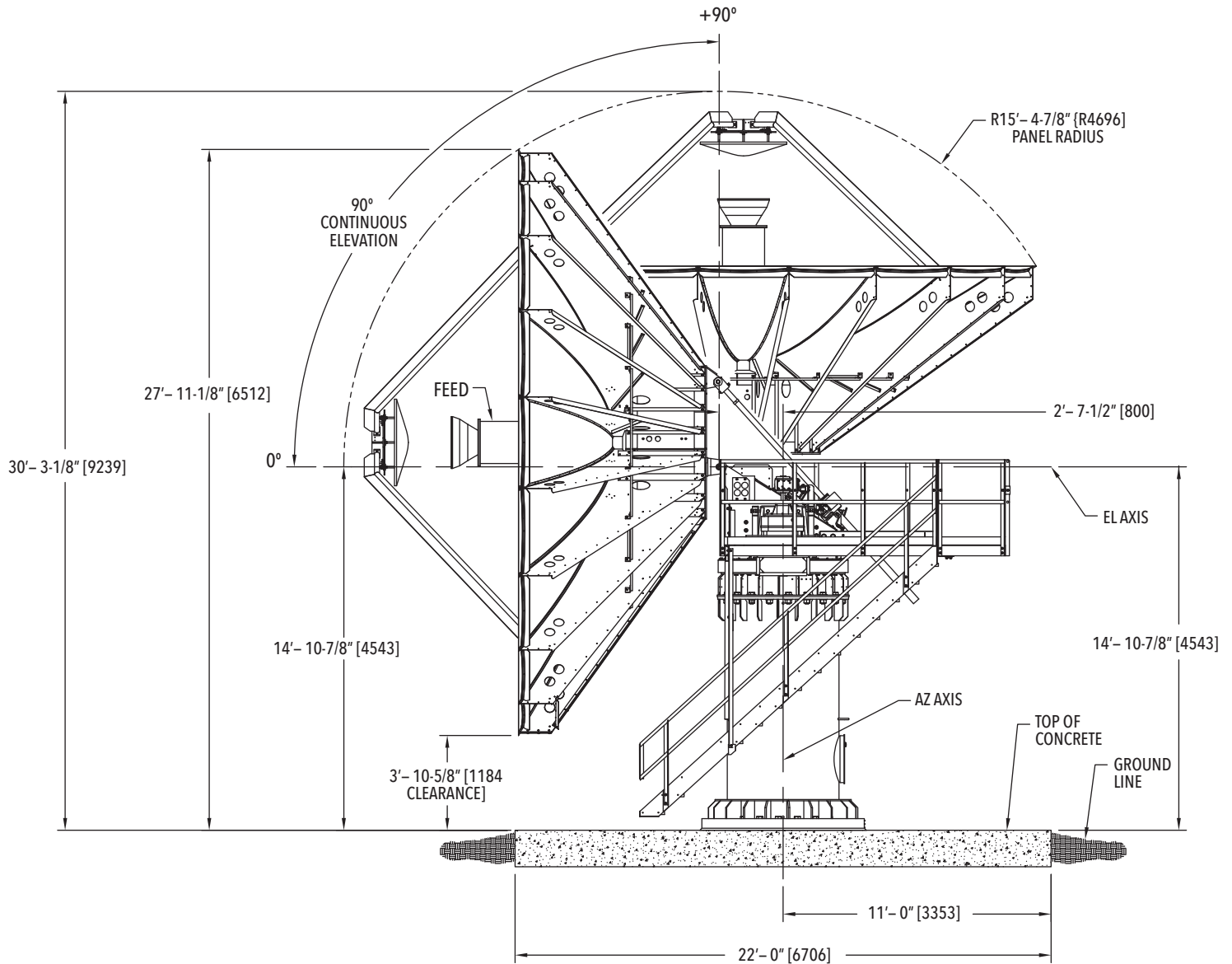
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Specifications

MECHANICAL/ENVIRONMENTAL ⁽⁶⁾		Turning Head Bullgear Pedestal	KX200 Pedestal	KXKA Pedestal
Antenna Diameter		6.3 meters (20.83 feet)		
Antenna Type		Compact Cassegrain design		
Reflector Construction		20 precision-formed aluminum panels with heat-diffusing white paint Cleaned and brightened aluminum back-up structure		
Hub Dimensions		Std: 60 in (152 cm) OD, 36 in (91 cm) depth	Mega:100 in OD, 50 in depth. 227.4 cubic feet volume. (240% larger)	
Mount Configuration		Elevation over azimuth pedestal, constructed of galvanized steel		
Drive Type Azimuth Travel Elevation Travel Polarization Travel		Jack screw Elevation,Dual Gear Drive 240° continuous 0 to 90° continuous +/- 90°	Manual jack screw 200° (2 segments @ 120°) 0 to 90° continuous +/- 90°	Manual jack screws 200° (2 segments @ 120°) 0 to 90° continuous +/- 90°
Foundation (L x W x D) Concrete Reinforcing Steel		22 x 22 x 1.5 ft (6.7 x 6.7 x 0.46 m) 27 yds³ (20.6 m³) 2,966 lbs. (1,345 kg) Subbase 2000 PSF	17 x 17 x 1.5 ft (5.2 x 5.2 x 0.46 m) 16.1 yds³ (12.7 m³) 2,785 lbs. (1,263 kg)	16.5 x 16.5 x 2.5 ft (5.0 x 5.0 x 0.61 m) 20.2 yds³ (15.5 m³) 1,980 lbs. (900 kg)
Shipping Containers		Two 40' HC Containers	One 40' HC container and One 20' STD container	
Wind Loading Operational Survival (any Position) Survival (at Zenith)		45 mph (72 km/h) gusting to 60 mph (97 km/h) 125 mph (200 km/h) @ 58° F (15° C) N/A		
Temperature Operational Survival		+5° to +122°F (-15° to +50° C) -22° to +140°F (-30° to +60° C), low temperature options available		
Rain		Up to 4 in/h (10 cm/h)		
Relative Humidity		0 to 100% with condensation		
Solar Radiation		360 BTU/h/ft² (1,000 Kcal/h/m²)		
Ice Survival		1 in (2.5 cm) on all surfaces or 1/2 in (1.3 cm) on all surfaces with 80 mph (130 km/h) wind gusts		
Atmospheric Conditions		As encountered in coastal regions and/or heavily industrialized areas		
Shock and Vibration		As encountered during shipment by airplane, ship or truck		

⁽⁶⁾ Some specifications may vary based on the combination of equipment, options and/or upgrades ordered.

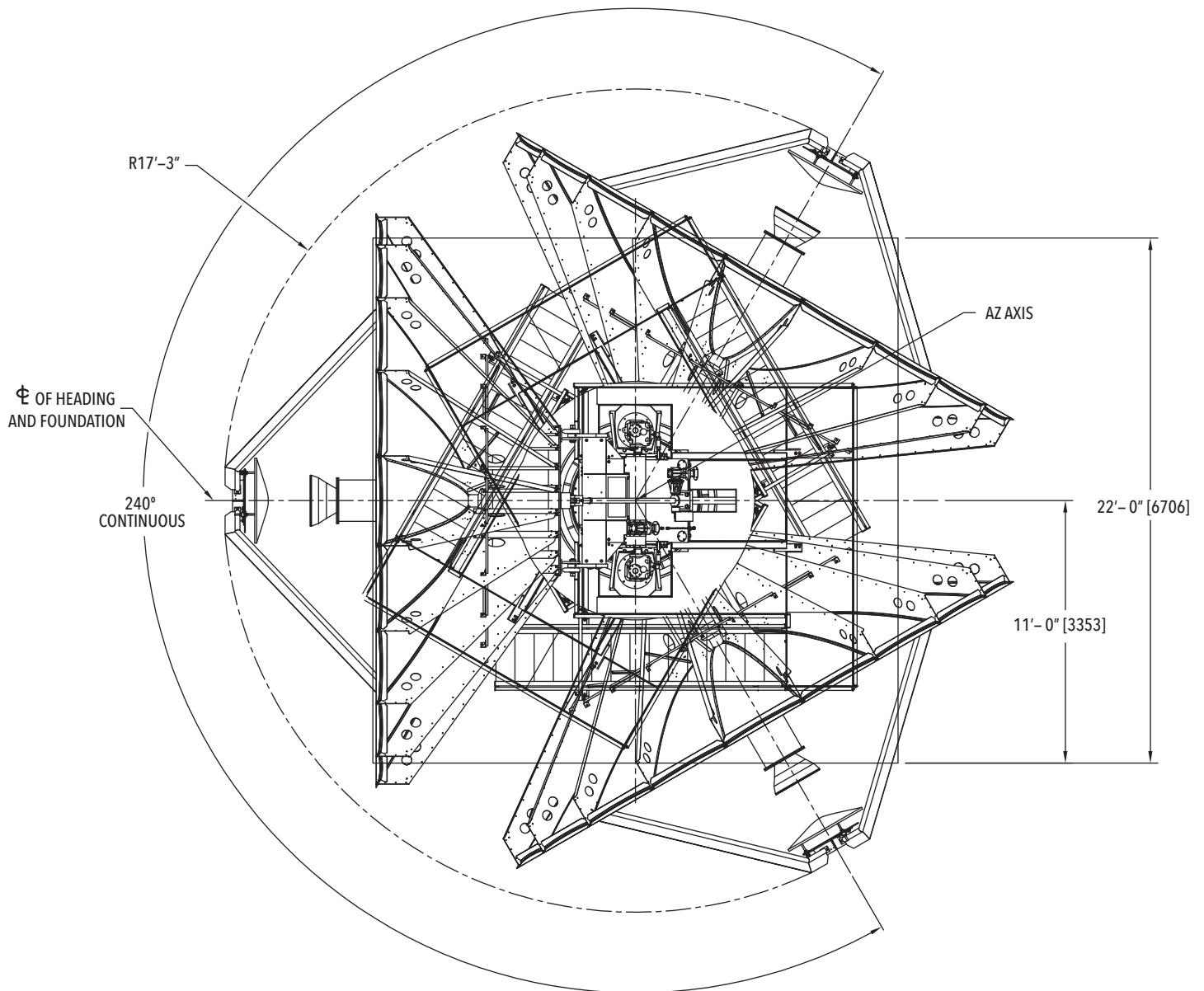
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SIDE ELEVATION

GEOMETRY 6.3M TH 240° AZ & 0°-90° EL

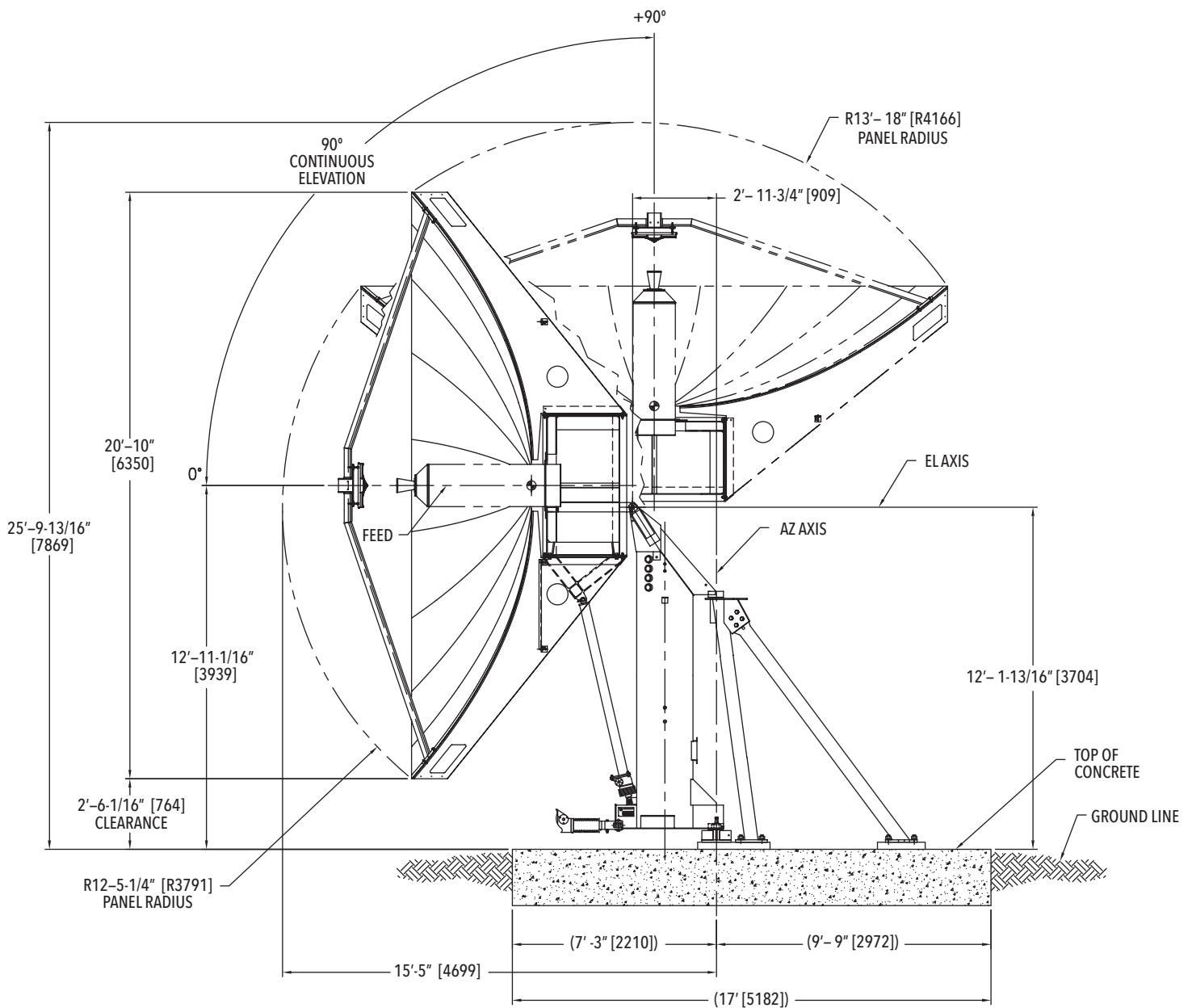
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PLAN VIEW – 240° TRAVEL

GEOMETRY 6.3M TH

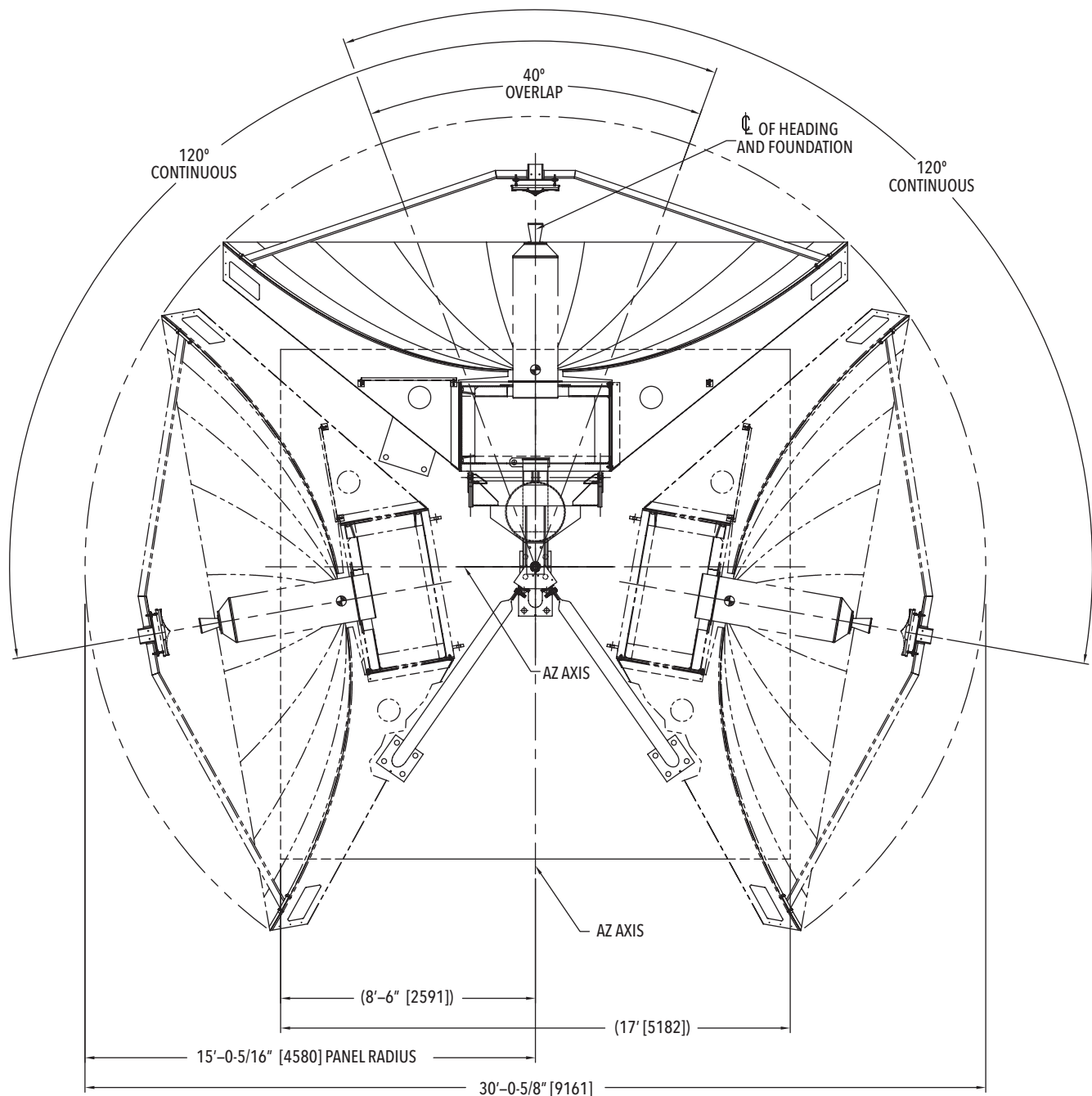
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SIDE ELEVATION

GEOMETRY DRAWING 6.3M KX
200° AZ & 90° EL

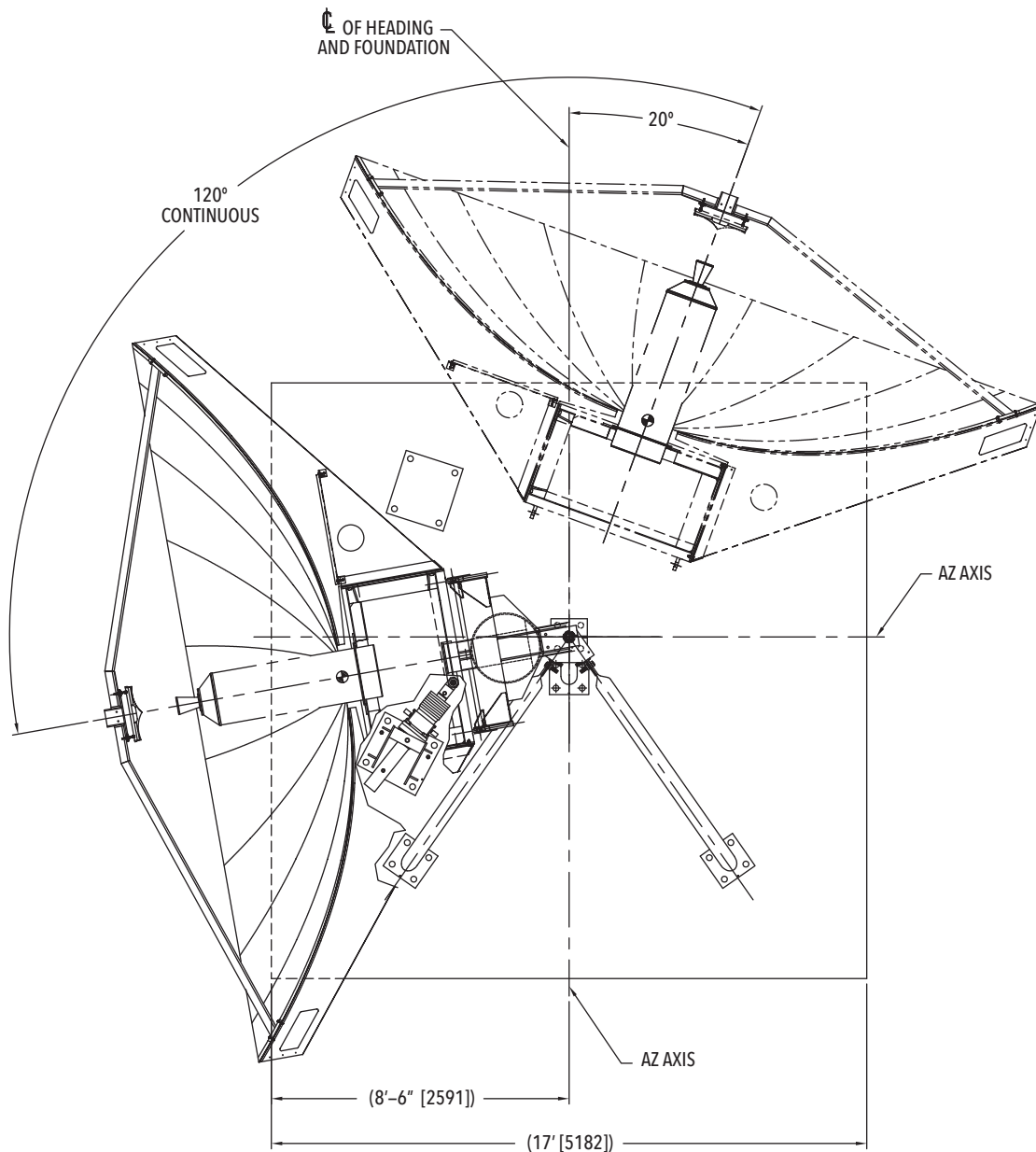
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PLAN VIEW

GEOMETRY DRAWING 6.3M KX
200° AZ & 90° EL

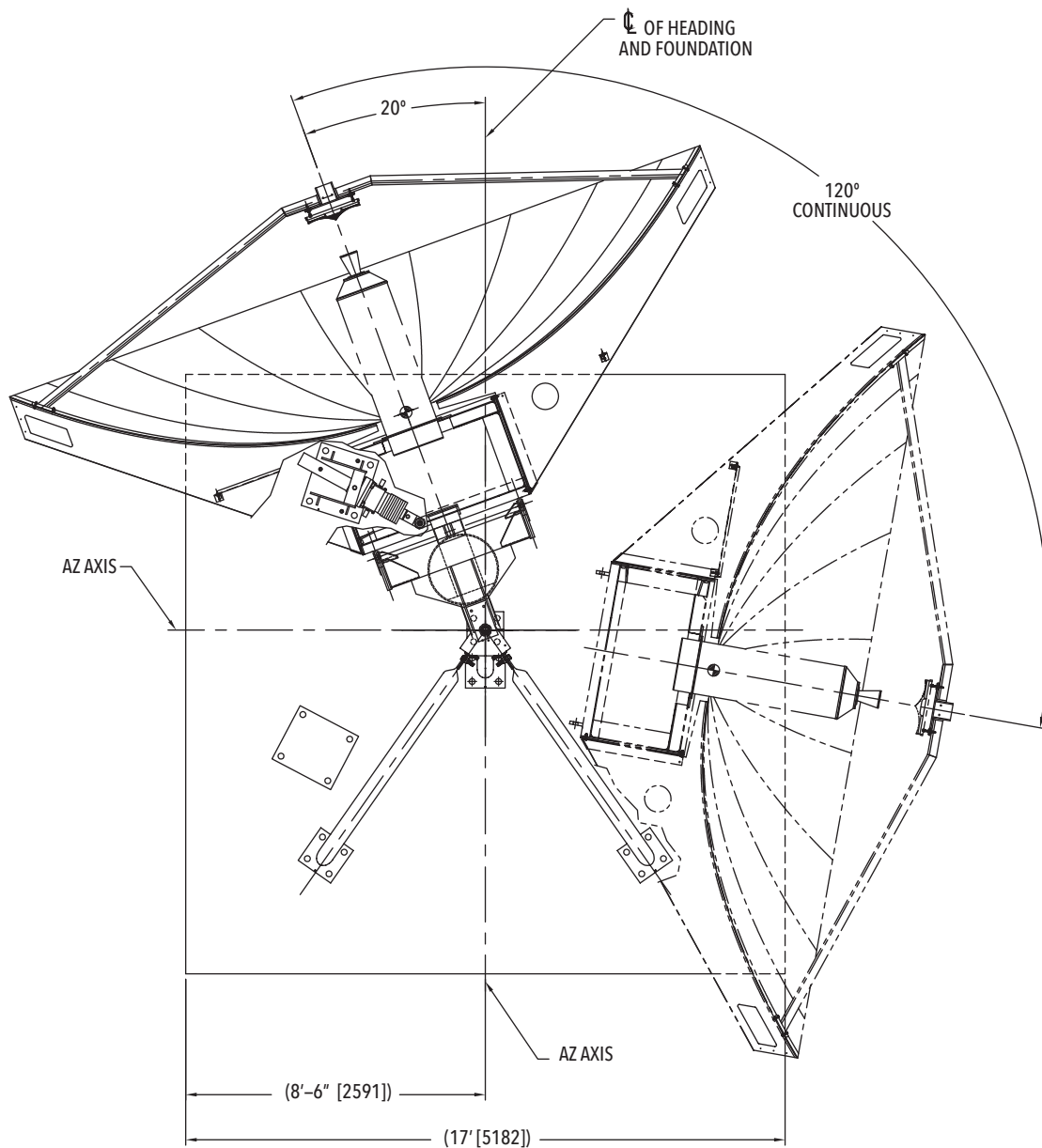
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PLAN VIEW – 1ST POSITION JACK

6.3M KX
200° AZ & 90° EL

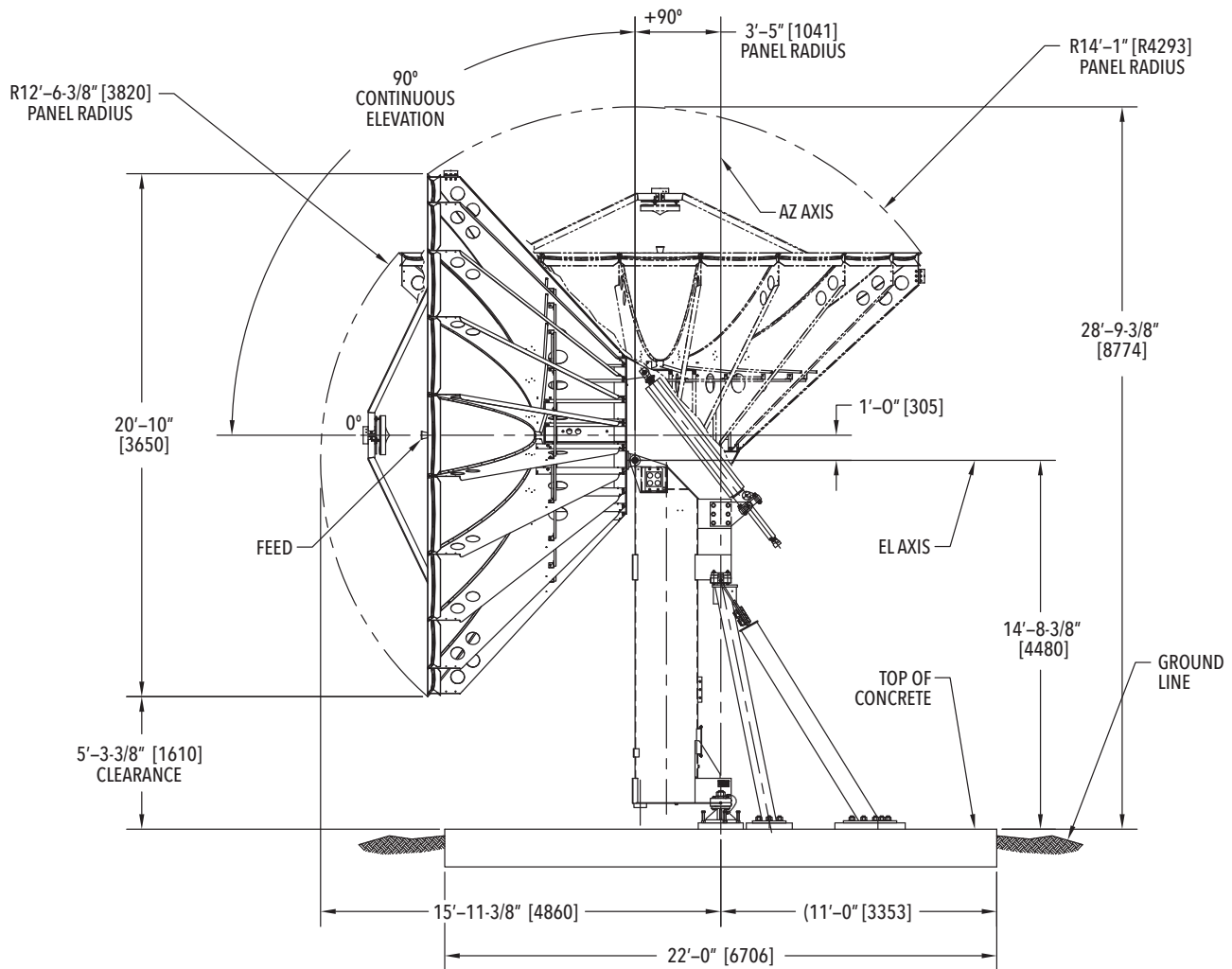
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PLAN VIEW – 2ND POSITION JACK

6.3M KX
200° AZ & 90° EL

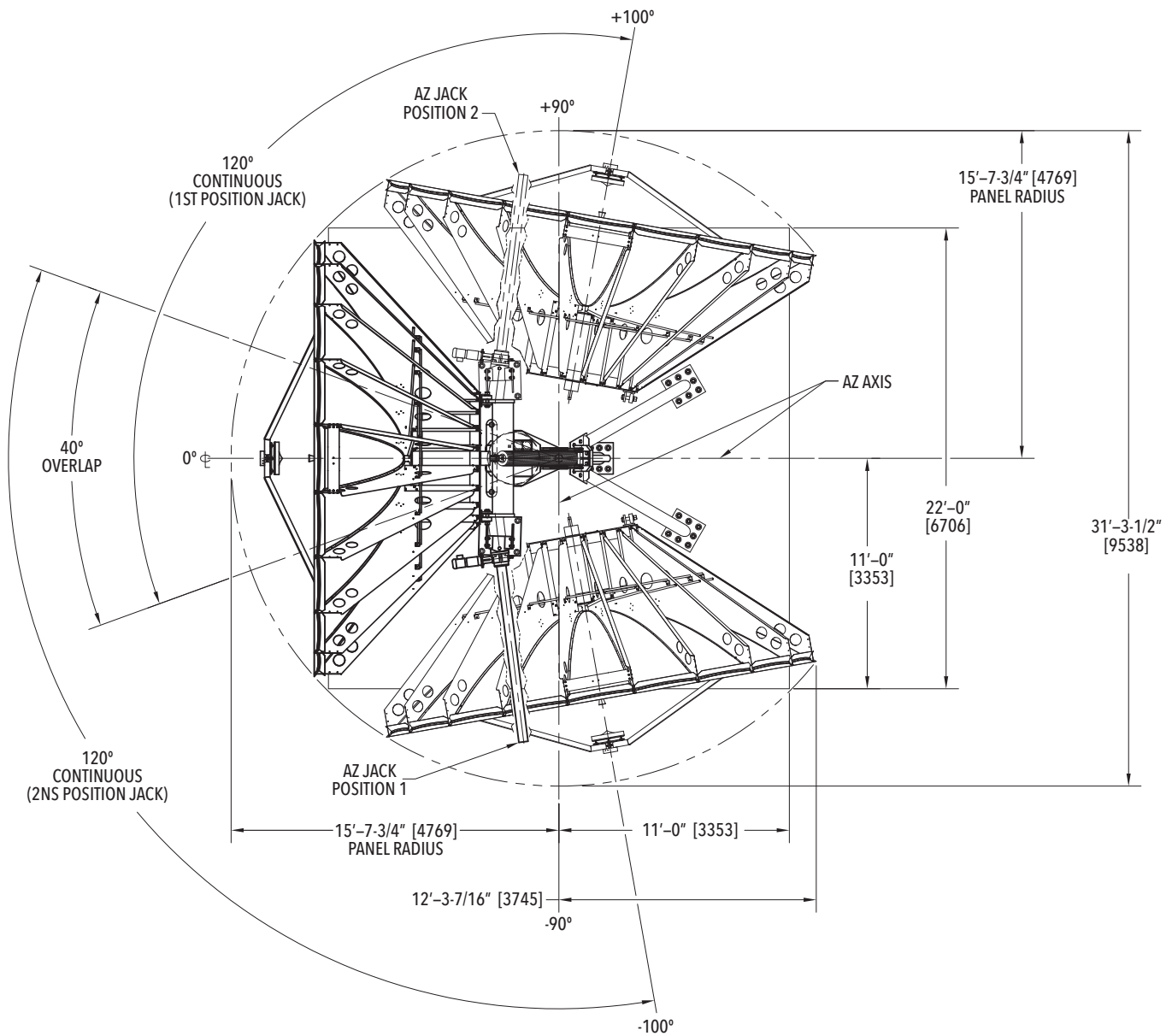
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SIDE ELEVATION

6.3M KX KA
200° AZ (2 POS) 0° & 90°

6.3 Meter Cassegrain Antenna



PLAN VIEW

6.3M KX KA
200° AZ (2 POS) 0° & 90°

