

FEED SUPPORT SYSTEM BALANCING REQUIREMENTS AND USE LIMITATIONS

1— WITH EQUAL TIE DOWN TENSIONS AT EACH APEX, THE PLATFORM SHALL BE LEVEL WITH THE GREGORIAN AT 10 DEGREES APPROXIMATELY AND CARRIAGE HOUSE 1 AT 13 DEGREES APPROXIMATELY.

2- FEED ARM COUNTERWEIGHT GROSS WEIGHT SHALL NOT EXCEED 54 KIPS. FINAL COUNTERWEIGHT LOAD WILL DEPEND UPON THE FINAL WEIGHT OF THE GREGORIAN AND THE WEIGHT AND POSITION OF THE FAN COIL UNITS, PUMPS AND ARTICULATED ARM ON THE FEED ARM.

3- CARRIAGE HOUSE 1 MAY BE LOADED TO A GROSS WEIGHT OF 40 KIPS MAXIMUM. THE GROSS WEIGHT OF THE GREGORIAN SHALL NOT EXCEED 180 KIPS.

4- EXCEPT AS OTHERWISE PERMITTED BY NOTES 5 AND 6 BELOW, THE GREGORIAN AND CARRIAGE HOUSE 1 SHALL BE OPERATED IN SLAVE POSITIONS. THIS REQUIREMENT IS MANDATORY FOR STRUCTURAL SAFETY WHEN THE GREGORIAN IS BETWEEN ITS STOW POSITION (7.3 DECREES) AND 20 DEGREES.

5- WHEN THE GREGORIAN IS STOWED, CARRIAGE HOUSE 1 MAY BE OPERATED OVER ITS NORMAL RANGE BETWEEN MINUS 2 DEGREES (SLIGHTLY ON THE GREGORIAN SIDE) AND 20 DEGREES.

6- WHEN CARRIAGE HOUSE 1 IS STOWED, MOVEMENT OF THE GREGORIAN SHALL BE RESTRICTED BETWEEN THE ZENITH AND ITS STOW POSITION.

7- DURING ACTIVE CONTROL WITH THE TIE DOWN CABLES, THE MAXIMUM TENSION IN ANY TIE DOWN SHALL NOT EXCEED 59 KIPS, BROKEN DOWN AS FOLLOWS PER CABLE:

PRESTRESS AT 90 DEGREES F - 24 KIPS
ACTIVE PULL DOWN DUE TO 30 DEGREE TEMP DROP - 16 KIPS
ACTIVE PULL DOWN DUE TO UNBALANCED MOMENT - 19 KIPS

8— THE AGGREGATE TENSION IN ALL SIX TIE DOWNS SHALL NOT EXCEED 240 KIPS.

9- Under Stow conditions, the tension in each tie down cable shall be reduced to 2.5 kips.

FEED SUPPORT SYSTEM WEIGHT INCREASE	(KIPS)
1.1 MAINTRUSS REINFORCEMENT, AUXILIARY CABLE	(KIP3)
TRUSSES AND CONNECTIONS	70.0
1.2 NEW TIE DOWN CABLE SYSTEM	48.0
1.3 NEW TIE DOWN CABLE PRESTRESS: OPERATIONAL	144.0
SURVIVAL	15.0
CPERATIONAL	262.0
SURVIVAL	148.0
2.0 AZIMUTH FEED TRACK	
2.1 ADDITIONAL AZIMUTH TROLLEYS INCL. DRIVES	53.0
2.2 NEW HANGERS (NET INCREASE)	3.3
2.3 LINK TRUSSES	22.0
	78.3
3.0 FEED ARM 3.1 REINFORCEMENT	62.0
3.2 OUTRIGGERS	48.0
3.3 ELEVATION RAIL AND RACK GEAR	40.0
SHIM BLOCKS (NET INCREASE)	5.0
3.4 ELEVATION RAIL CUIDE ANGLES	4.0
3.5 BALLAST PLATFORM AND BALLAST	54.0
3.6 TRANSMITTER EQUIPMENT INCLUD. HEAT EXCHANGERS	
PUMPS, ARTICULATED ARM, PIPING, CONDUIT,	
WATER, ETC. (NET INCREASE)	15.0
3.7 CATWALKS AND PLATFORMS (NET INCREASE)	.5
3.8 CARRIAGE HOUSE NO. 2 REMOVED	-33.0
	155.5
O EXISTING TIEDOWN CABLES REMOVED	-50.0
5.0 GREGORIAN	
5.1 ALUMINUM DOME INCLUD. BOTT. CAP AND ROOF	42.0
5.2 SECONADRY RELECTOR INCLUD. BACKUP TRUSSES	25.0
5.3 TERTIARY REFLECTOR	2.0
5.4 GREGORIAN TROLLEYS	11.0
5.5 ELEVATION DRIVE SYSTEM INCLUD. HYDRAULICS	18.0
5.6 SUPERSTRUCTURE INCLUD. LONGITUDINAL TRUSSES,	
TRANSVERSE BEAMS, COLLAR TRUSS,	
DRAG LINK BEAMS, GUIDE ROLLERS	37.0
5.7 FEED MODULE INCLUD. FRAMING, WALLS, ROTATING	
FEED FLOOR, KLYSTRON FLOOR, SERVICE PLATFORM	
STAIRS AND CATWALKS	12.0
5.8 FEEDS	6.0
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5.9 TRANSMITTER EQUIPMENT INCLUD. KLYSTRONS,	8 9
ELECTRONICS, SWITCH GEAR, CONSOLES,	
ELECTRONICS, SWITCH GEAR, CONSOLES, PIPING AND WATER	15.0
ELECTRONICS, SWITCH GEAR, CONSOLES,	2.0
ELECTRONICS, SWITCH GEAR, CONSOLES, PIPING AND WATER	
ELECTRONICS, SWITCH GEAR, CONSOLES, PIPING AND WATER	2.0

NOTE: CONTRACTOR SHALL PROVIDE OWNER WITH A FINALIZED FEED SUPPORT SYSTEM WEIGHT INVENTORY TO INCLUDE ALL ITEMS ADDED AND ALL ITEMS REMOVED FROM FEED SUPPORT SYSTEM.

NATIONAL ASTRONOMY AND IONOSPHERE CENTER
CORNELL UNIVERSITY
ARECIBO RADIO OBSERVATORY
CREGORIAN UPGRADING

GENERAL II

AMMANN & WHITNEY, CONSULTING ENGINEERS NEW YORK, NEW YORK

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DATE: 10-12-92
SCALE: AS NOTED