12 METER ELEV. STRU (8-4-81)

(L KING)

THE RESULTS OF 12 METER ELEV. STRU "VERSION 9"

ARE SUMMERIZED AS FOLLOWS

WEIGHT

SURFACE (1.75 #/ft²)	2300 #
SUBREFL	100
RECEIVERS 4 × 800	3200
REFL STR.	16400
CTWT	21300
ELEV AXIS & CTWT STR	12600
TOTAL =	55900 #

INERTIA

I @ AZ AXIS (W/O YOKE STR)	103000 slug ft²
I @ ELEV. AXIS	112600 slug ft²

RMS   GRAVITATIONAL FORCES ONLY

RMS (ZEN)	42 μm
(HOR)	39 μm

RMS   THERMAL LOADING ONLY

3.5° C/HR CONST $\dot{T}$	5 μm
15 MIN AFTER 5°C "JUMP"	11 μm
30 MIN " " "	9 μm

CONCLUSION The above results are all acceptable and within the 12 meter design goal. The final design shall be published after the completion of detail drawings.

Comment & on Wt & I   We have adopted for 36' Wt & I as 44000# and 44000 slug-ft^2, resp. These figures have been confirmed to be reasonable for 12 meter telescope in mem.#39.

A significant departures in Is have been found in the preliminary calc. of W. Horne's design. And subsequent discussions with other members of the design group agree that the 44000 slug-ft^2 is too small for both 36' and 12 meter structures. Two calcs. and one measurement confirm this conclusion: (1) 36'   I (large feed legs) = 21250 slug-ft^2

I (counter wt)   = 21640   "

sub-total = 42890 slug-ft^2

(2) Any 12 meter design for Tucson

I (Essco surface) = 13400 slug-ft^2

I (feed str.)   = 7800   "

I (counter wt)   = 21640   "

sub-total = 42840 slug-ft^2

from WYW calculations

(3) J. Payne's measurements of 36' on 7/21 & 7/22/81

I (Azimuth) = 128000 slug-ft^2 (ZEN. PTD)

I (Elev) = 205000   "