120 Inch Telescope
Coude' Support Frame Adjustment

INSTALLATION OF SOUTH SUPPORT - COUDE ROOM

In November 78 a new support for the south corner of the coude' frame was installed. The support was designed by "Crandall Engs." (408) 686-3841, eng. no. 14-C-14, and was built in our shop. The idea behind the design is to allow the coude' frame to pivot on a spherical bearing (south) while the west support got new hardened plates so it can slide in an E-W direction.

Dr. G. Herbig, R. Laub, N. Jean & F. Mueller were present at the installation.
We first made a target on the top of the I-beam south corner, and centered a plumb bob on it. We removed the bottom collimator and its housing and the lift motor on the echelle-crossdispenser.
We placed jacks and came alongs at various places the south corner approx. 3 1/2" to clear the studs that are imbedded in the pier.

We dismantled the weldment that carried the support wheel, clamped bars to it and jacked beneath. Then we slid the weldment onto the steps of the coude' rm where it found a permanent resting place.
Neal welded up a support frame which was fastened to the I beam of the coude' frame by beam clamps (to take the load in case a jack slipped)
Then the nuts came off the base plate and that too was removed.

The new support was installed in reverse order, the base plate was sprayed with a thintbron film to facilitate moving (for fine adjusting the frame) and to prevent the steel from rusting.
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INSTALLATION OF SOUTH SUPPT. - COUDE’ RM.

PLUMB BOB TO REDISTRIBUTE FRAME ON TARGET

THRUH CABLE, TIED TO ‘A’ FRAME FOR ADDED SUPPT TO HYDRAULIC JACK

HYDRAULIC NOZZLE JACK, KEEPS FRAME FROM TURNING DOWN

SUPPORT LEGS HOLD UP FRAME WHILE BASE PLATE IS REMOVED
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COUDE FRAME ALIGNMENT

AFTER THE INSTALLATION OF THE NEW SOUTH SUPPORT IN
NOV. 78, DR. GEORGE HERBIG & GENE HABEAN TRIED
TO REALIGN THE OPTICS AND FOUND THE FRAME TO BE
OFF.

THEY MEASURED THE OPTICAL AXIS AT THE 6½” COLLIMATOR
AND FOUND IT TO BE APPROX. 1½” OFF TO THE RIGHT.

GEORGE HERBIG, THE MOUNTAIN GUM AND I TRIED TO MOVE
THE FRAME WEST (BY MEANS OF THE ADJUSTMENT SCREWS
AT THE SOUTH SUPPORT) BUT THAT MOVED THE whole
FRAME OVER AN EQUAL AMOUNT TOP (SLIT PLATE)
AND BOTTOM (SOUTH SUPPORT)

THE CHAIN, FROM WHICH THE FRAME IS SUSPENDED DID
NOT ACT AS A PILOT POINT, IT MERELY MOVED FROM
SIDE TO SIDE.

WE THEN BROUGHT THE FRAME BACK TO ITS ORIGINAL POSIT
AND STARTED LOWERING THE CAM FOLLOWER AT THE SOUTH
WEST CORNER OF THE FRAME. APPROX. 0.25” CORRECT
THE MISALIGNMENT AT THE 6½” COLLIMATOR BY ABOUT ½”
WE COULD NOT LOWER THE CAM FOLLOWER ANYMORE, BECAU
SE: IT WAS AT THE END OF ITS TRAVEL.

b) THE LIFT MOTOR OF THE 60” CAMERA CAME TO WITH
½” CLEARANCE OF THE CEILING.

WE LEFT THE FRAME IN THIS POSITION FOR THE TIME BE
CAUSE I WENT BACK TO THE MOUNTAIN TO SEE IF WE COULD
MOVE THE FRAME NORTH, USING THE CAM FOLLOWER
AT THE SOUTH-WEST CORNER AS A PILOT POINT.

THERE IS 2” MOVEMENT LEFT IN THE PUSH SCREWS AT THE
SOUTH SUPPORT (THAT IS ½” ALONG THE POLAR AXIS)

HOWEVER THERE IS ONLY ABOUT ½” CLEARANCE BETWEEN
THE NO. VII GRATING AND THE WALL OF THE COUDE’
½” CLEARANCE BETWEEN THE STRUCTURE OF THE SLIT
AND THE PERISCOPE, ABOUT 1” CLEAR. BETWEEN THE
RIGHT SIDE OF THE SLIT PLATE AND THE SLIT ROOM WALL
(THE DIRECT, IN WHICH THE PLATE WOULD MOVE)
THAT MEANS IF WE MOVE THE FRAME THE REQUIRED AMOUNT NORTH - WE WOULD HAVE TO MOVE THE PERISCOPE, CHISEL OUT THE WALL FOR THE NO VIII GRATING, REALIGN THE METAL TUBE FOR THE COMPARISON LIGHTS AND TAKE A GOOD LOOK AT THE CHAIN FROM WHICH THE FRAME HANGS.

Dr. Herbig suggested to take a look at the collimators and see if they could be moved. I found that the 6½” collimator could be moved east by 0.75” and the 9½” collimator can be moved by more than 2”.

I would suggest to move the frame enough to get the slit on the rotational axis of the telescope (it should be really close at present according to Gene Harlans measurements) and then move the collimators to center of the polar axis.
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Coude’ WEST SUPP’T
BEARING BASE

1 - REQ’D

MAT’L.: TOOL STEEL Ni-Ca8Ni-Che.

FINISH: AIR HARDEN 5B-60 ROCK.
120 Inch Telescope
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Guide - New Frame Support

Material Costs

Western Steel & Cutting "LARRY" 286-4532

1 PIECE 30 x 30 x ½" THICK, 2½" CUT & CLEANUP GRD, B.S.

# 135.56

1 PIECE 15 x 6 x 3" CUT # 37.62

1 PIECE 16 x 16 x ½" CUT # 42.24

1 PIECE 12 x 6 x 4" CUT # 37.95

2 GUSSETS 4 x 4 @ 45° x 1' CUT 4.10 EACH

# 395.41 TOTAL

45.72

By:

Skul for work 40.00

Features 125.00

120 hr. Shop time @ 25.00 606.13

7½ hr. Installation @ 14.00 105.00

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