AG/MIT 32 - 69

TO: T. M. Lawton

FROM: G. Reasor

DATE: 20 August 1969

SUBJECT: Necessity to zero optics to track the LM after CSI backup for Apollo 11.

Knowing that if the spacecraft is at the desired attitude the trunnion angle should be in the neighborhood of 22° to track.

It is possible to compare the difference between desired and actual CDU's with actual trunnion to see if the optical system was performing properly.

	Y-CDU difference	trun angle	total
125:27:40	12.25	8.86	21.11
125:28:10	13.73	8.44	22.17
125:30:20	19.93	2.52	22.45
125:31:50 to 125:33:50	R 60 maneuver		
125:34:10	7.34	2.42	9.76
125:35:20	1.00	8.87	9.87
After optics zero	0	22.	

Notice that the trunnion angle and Y-CDU difference are not only not 22 degrees, but that 11.25 degrees added to the total will give the expected total.

The enclosed plots of desired and actual CDU angles and shaft and trunnion angles on the same time scale indicate that everything looked all right prior to the maneuver.

For instance, the uplink activity light comes on when actual and desired Y-CDU angles are about 10° apart.

When TARG 1 flag is set the trunnion drives about the approximate difference in desired and actual Y-CDU angles.

George Reasor

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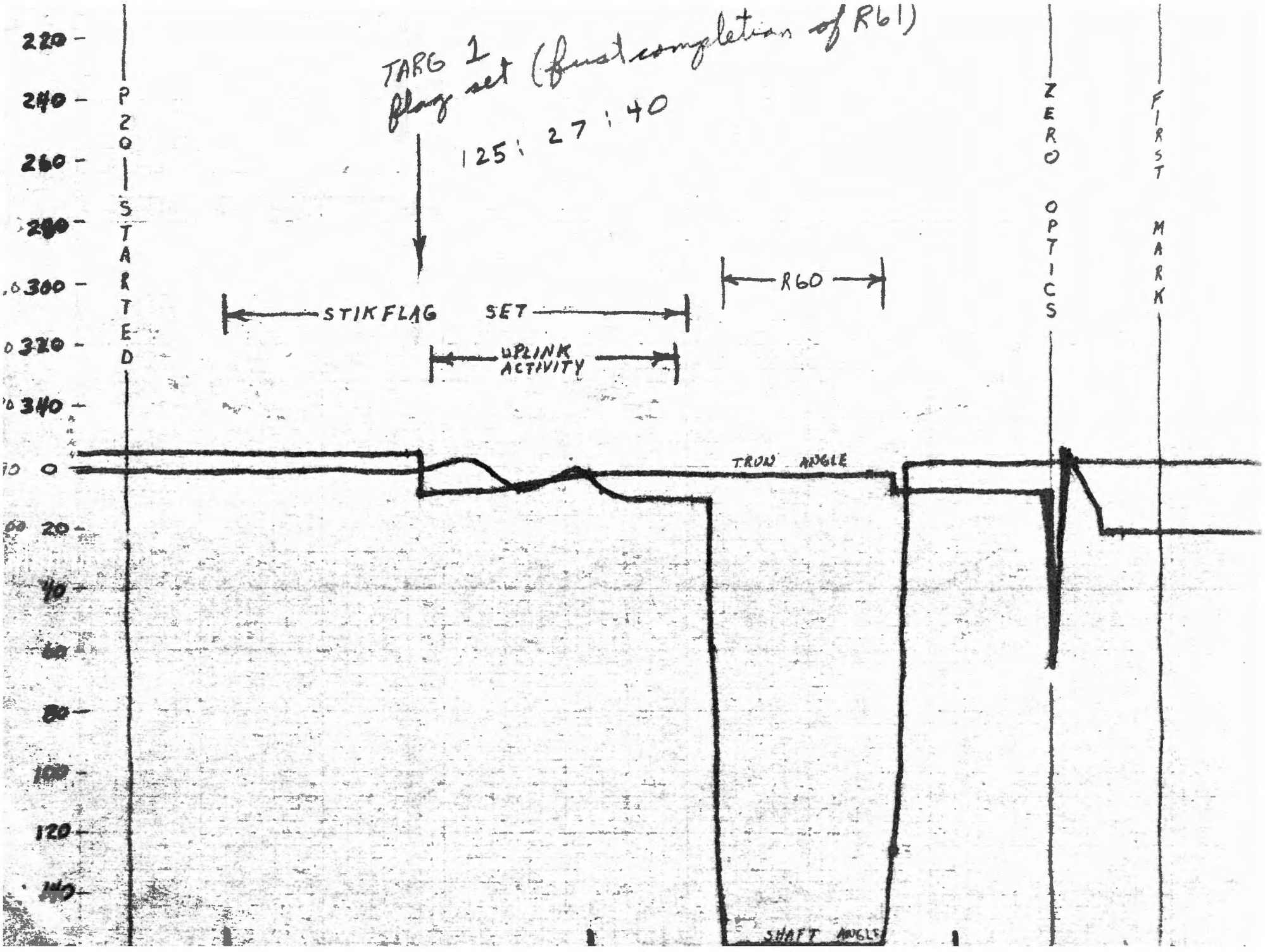
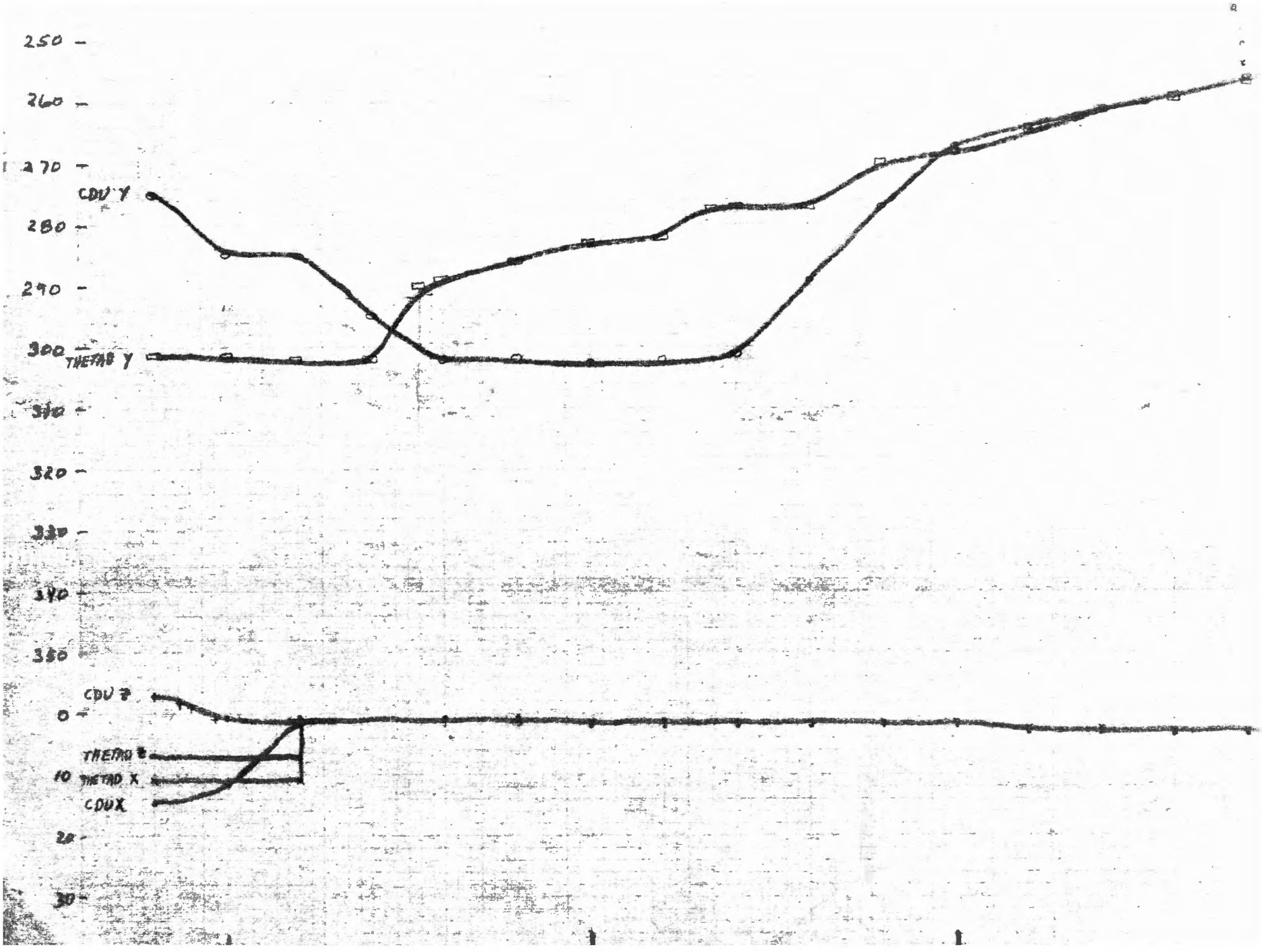
GR/mb


TARG 1 flag set (first completion of R61)
125:27:40
220
240
260
280
300
320
340
0
20
40
60
80
100
120
140
PO STARTED
STIKFLAG SET
R60
UPLINK ACTIVITY
ZERO OPTICS
FIRST MARK
TRUN ANGLE
SHAFT ANGLE


250
260
270
CDU Y
280
290
300
THETAD Y
310
320
330
340
350
CDU T
0
THETAD T
10
THETAD X
CDUX
20
30