

NPIC/TSG/RED/SDB-053-70
20 November 1970

MEMORANDUM FOR THE RECORD

SUBJECT: Status Report on the Production of 1540 Light
Tables

1. At present, this project is in the phase of pre-acceptance testing of the first article production light table. Two visits have been made to for the purpose of preacceptance testing. The first visit took place from 28 October to 2 November 1970; the second, 11-13 November 1970.

2. On 5-8 October 1970 was visited to review progress of the project. At that time tangible progress was limited to layouts and drawings, quantities of hardware received from suppliers, and wiring harness subassemblies. Delivery of the tables was scheduled to begin the last week in October, and was queried as to when they would be ready for preacceptance testing. was also advised that they should have completed their own acceptance test procedure (ATP) and be satisfied with the results before inviting government personnel to review and test the first article.

3. Several contacts were made with personnel in October, during which they were asked when the table would be ready for government ATP and again prompting that should perform their own ATP before a government visit. Finally,

AT [] advised that they were ready for a visit on 28 October and had performed their own ATP. Representatives of IEG, IAS, DIAAP-9, ESD, and RED travelled to [] on 28 October. After arrival, the ATP was successively put off a few hours on the 29th, until the next day on the 30th, and finally until the afternoon of the 31st. The immediate question on arrival that afternoon at [] was, "Is the table ready?" Answer: "Yes." Question: "Did you perform a complete ATP satisfactorily?" Answer: "Well--partially." It was subsequently discovered that [] had finished assembling the table only an hour before our arrival, a very minimum of testing had been performed, and [] and the government was going through the ATP together for the first time. [] admitted they had taken a calculated risk in inviting our presence--and lost.

SUBJECT: Status Report on the [] Production of 1540 Light Tables

4. The ATP performed on 31 October uncovered major faults in the optics carriage motion and drive, excessive noise in the elevating and tilt mechanisms, and improper tracking of 70mm film. Several minor faults were discovered such as improper and inconvenient operation of cover locks, inconvenient optics mount lock screws, and glass viewing surfaces not paral^lled. That evening the list of problems was

reviewed and discussed. Again, [] was advised to complete the table and perform their own ATP satisfactorily before inviting the return of government personnel. ST

5. ~~In~~ the interim between ~~this and the following~~ visit~~s~~, several contacts were made with [] to ^{determine} ~~query as to~~ progress and ^{their} readiness for a second visit. [] was advised that the contract monitor was to precede any other government personnel so as to predetermine readiness for testing. Again, [] was advised to complete their own ATP. ST

6. The contract monitor was advised of readiness for a second visit on 11 November. On that date the table substantially met the requirements of the ATP, but in certain major subjective aspects it was marginal or unsatisfactory. Freedom of movement of the optics carriage in the Y direction and excessive lost motion and looseness in the motorized drive for the carriage Y direction were unsatisfactory. Several of the minor faults discovered during the previous visit had been uncorrected. The discrepancies were discussed with [] personnel, and [] requested that the PI's be brought out so that they could discuss some of the more subjective aspects with them. ST

7. On 12-13 November the table was subjected to a careful and thorough ATP and operational evaluation. It was confirmed that the optics carriage Y-drive and motion was unsatisfactory. Furthermore, the optics mount tended to drift downward from an original position after a weight had been placed

on the mount, and the optics mount would not translate low enough so as to allow focus by the Measuring Macroscope. The Y direction carriage motion had too much backlash or lost motion when locked up and supposedly immobilized; the backlash tended to increase with use. Also, it was determined that the translation speed of the optics mount was different in the X and Y directions. All faults discovered, both major and minor, were discussed with

SUBJECT: Status Report on the Production of 1540 Light Tables

8. Problems with parts and component suppliers were surfaced that indicated a real problem with the delivery schedule. These problems seemed to indicate a slippage in delivery even though was still saying they would be on schedule or very close to it. As of 13 November, only seven tables were in varying stages of assembly and waiting for the delivery of necessary parts. However, many stands were assembled and many subassemblies ready.

Specifically, a supplier of film drive castings and idler bracket die castings in Eugene, Oregon is not producing according to expectations or promises. Forty of the film drive castings are expected to be completed by 16 November with shipment on 25 November. This is sufficient for ten tables only, and it is ^{expected} ~~expected~~ to be a critical item. De-

AT

fault here will force to resort to sand castings, which can be produced rather quickly, but at extra cost.

As another example, the supplier of the optics ring mount, a machined part, produced some 450 of these items. Of these, about 37 were acceptable and 413 unacceptable. The supplier cancelled out because he was losing too much money.

AT

must now resort to their second source of supply. Production rate of these parts could be something like 150 per week beginning in two or three weeks. Thirty-seven of these parts supply a like number of tables. If these parts are not supplied in quantity by 1 December, a very serious problem results and the schedule of 145 tables by early January 1971 cannot be met.

In addition to these two citations, there were at least four other supplier problems of similar or less seriousness.

9. With respect to the contractual requirement of 145 tables by early January, the following conjectural delivery schedules should be considered:

	November			December		
Week Beginning	22	29	6	13	20	27
Tables Delivered	5	21	29	30	30	30
		5	20	33	43	43

SUBJECT: Status Report on the Production of 1540 Light
Tables

It is apparent that unless sufficient quantities of all parts are delivered before the week beginning 29 November, delivery of the required number of tables becomes very questionable. Indeed, producing 43 or 44 tables per week is very questionable. However, when suppliers start producing as promised, assembly and production of the tables will probably proceed at a surprising rate.

10. On 17 November a telephone conversation with indicated that several of the minor faults had been corrected with most other corrections to be completed by 21 November. Three major problems exist: (a) the downward drift of the focus mechanism, (b) the difference between the optics carriage X and Y motion speeds, and (c) the backlash or lost motion in the optics carriage Y drive. With respect to (a), is looking at the ^{spring}~~spring~~ clutch that is supposed to lock the focus mount in position. Replacing this clutch may cause a supply problem. The second problem, (b) above, is considered to be a change-in-scope. feels that the present motions are in spec. To make X and Y speeds equal will require re-design so as to provide separate feedback systems for both X and Y. Design cost for this modification is estimated to

Cost to include the modification in the tables is

AT [] estimated to be \$100 per table. With respect to (c) above, [] feels that this is a clutch problem in that the clutch was initially out of backlash tolerance and loosens up with use. The manufacturer of the clutches has been contacted and believes they have a fix. However, delivery and installation of a new clutch is expected to take at least a week and probably more. This also will probably affect the delivery schedule.

[]
Project Monitor

Distribution:

- Original - Route & File
- 1 - Contract File
- 1 - SDB/RED/TSG/NPIC

28 Oct 70

Travelled AM

Called - told I could come over but really not enough to see - had run into unforeseen problems - i.e., motor brackets and housing returned to vendor for painting correct color.

29 Oct 70

Viewed uncompleted table - having interface problems - all subassemblies had been tested and had been satisfactory. Fairly confident that assembly would proceed without major difficulties and would be completed by 30 or 31 Oct. Requested to return the following morning for preacceptance.

30 Oct 70

Postponed to 3 pm, and then until morning of 31 Oct.

31 Oct 70

Yes. "Have you performed your own
ATP" — Well... to a certain extent.
ATP unsatisfactory — will talk Mon. am

1 Nov.

Day off

2 Nov

Somewhat unsatisfactory review.
No return until ready!!
Earliest 7-8 Nov.
Guess 13/16

~~DESIRE~~
DESIRE

Flat

Z	Y	Mode
locked 10 #	locked 10 #	Motor off @ any speed setting
2-4 lbs lock w/ friction	2-4 lbs lock w/ friction	Manual

lift

Z	Y	Mode
locked 10 #	locked 10 #	motor off @ any speed setting
2-4 # lock w/ friction	locked 10 # w/override	manual

Add one switch to do this

Manual
Position
Lock

Motor
Drive

on
> 10#

Driving
> 10#

X

Y

off
2-4#

Disengaged
2-4#

X

Y

State
locked
> 10#

N/A

Y