Copy sent to
[redacted]
7/2/25X1

D R A F T
2 July 1971

1. If a ~~vertical~~ force of two pounds is applied in the vertical plane to the horizontal surface at the front of the optical pod mount, vertical displacement shall not exceed 0.005 inches.

2. With the electrical carriage look engaged, and the table in a horizontal position, movement in x or y shall not exceed 0.010 inches with the application of 2 lbs. force. With the application of 4 lbs. force, the movement in x or y shall not exceed 0.020 inches. The force shall be applied in the same direction as the movement to be measured.

The method of measurement is as follows:

(a) Specified force applied in plus direction

(b) Deflection gage zeroed WITH FORCE APPLIED

(c) Specified force applied in minus direction.

(d) Deflection read with minus force applied

3. The carriage, in manual mode and fully stopped in a horizontal position, shall ~~be disturbed~~ move with an applied force on the optics mount parallel to the x or y direction of not less than 1 pound and not more than 2 pounds. This specification ~~application~~ applies to all optics mount positions not less than 1 inch from the mechanical limits of travel. The mount shall be carrying any of the specified optical systems.

4. The motorized carriage with the speed control at minimum shall move at a rate not to exceed 0.015 inches per second in either x or y

direction. This speed shall be attained within 0.5 seconds of actuation of the direction control and without resetting of the speed control.

5. The motorized carriage with the speed control at maximum, shall move at a rate of at least 0.250 inches per second. This speed shall be attained within 0.5 seconds of actuation of the direction control and without resetting the speed control.

6. Control of carriage speed by the speed control shall be linear between the maximum and minimum positions.

7. When the direction control is released, motion of the carriage shall cease in not more than 0.5 seconds.

8. With the carriage in motion at any speed, and with no resetting of the speed control, acceleration of the carriage shall not exceed 0.001 inches per seond per ~~second~~ second.

9. ~~A~~ Mechanical controls capable of selectively moving the optics mount in x and/or ~~and~~ y direction shall be incorporated. This control shall be capable of moving the carriage in increments of not more than 0.001 inch. Dead motion of this control shall not exceed 30° if rotational or 0.250 inches if linear. This control to be usable only when electrical carriage locks are engaged.

25X1 In rebuttal to [redacted] letter dated 22 April 1971, subject: Rejection of

25X1 U. S. Government position that [redacted] model 1540 light tables fail to meet

specifications, the following information is submitted:

25X1 1. The [redacted] Dual Power Measuring Macroscope is a mensuration instrument. Inclusion of the macroscope in the specification as one of the instruments the light table must accomodate implicitly indicates mensuration will be a function performed on the light table.

25X1 In late June 1970 [redacted] engineer, visited DI-8 to discuss a DI-8 requirement for additional positive electrical locking the overhead

25X1 carriage of the [redacted] light table, a necessity for accurate mensuration. At that time the entire DI-8 mensuration system utilizing the macroscope any standard overhead carriage light tables with electrical locks was macroscopes. A DI-3 desire to have a separate optics carrier attached to the overhead carriage to provide more efficient utilization of stereomicroscopes and macroscope was passed

25X1 on to [redacted]

As a result of this meeting/mensuration demonstration, [redacted] decided to 25X1 furnish at no cost DI-8 a protractor and pointing arrow attached to the optical carrier on each 1540 light table. This protractor is an integral part of the DI-8 mensuration system.

25X1 Also as a result of this meeting, [redacted] sent separate quotations to provide a positive electrical locking system for the overhead carriage and an additional optics carrier for the macroscope.

From June to November 1970 DI-8 furnished [redacted] with a dual power macroscope 25X1 and macroscope fact sheet explaining the mensuration capabilities of the instrument. In light of the above, it is difficult to understand the [redacted] contention 25X1 that it was unaware that the table would be used for mensuration purposes.

1a. The positive locking system requested by DIA has yet to be demonstrated

25X1 by [redacted] During the aforementioned visit by [redacted] the question of what was 25X1 the DI-8 requirement relative carriage locking was voiced. As an expeditious

25X1 method of demonstration [redacted] was shown a [redacted] MIM-4 light table 25X1 with electrically lockable carriage and told that DI-8 required a similar system

25X1 on the [redacted] 1540 light table. He examined the [redacted] system carefully and 25X1

to manufacture positive locking system was received.

The proposal was to provide an additional "X" direction locking system as [redacted] fully intended at that time that all tables would have a "X" direction lock. In August and October [redacted] of DI-8 voiced concern over the lack of contractual mention of a positive "X" lock and was told by [redacted] then [redacted] 1540 Project Manager, that such a lock was an integral part of the table. In October [redacted] furnished [redacted] with a copy of an [redacted] internal 1540 program requirement indicating the bridge was to be locked in both "X" & "Y" directions. It was not until early November that [redacted] eliminated the electrical horizontal "Y" lock as a standard feature of the [redacted] 1540 light table.

Several tested tables furnished DI-8 to date have a positive "X" lock, [redacted] better than that found on the [redacted] MIM-4 light table. But no [redacted] table incorporates a positive "Y" direction lock. The [redacted] "Y" direction lock allows over twice the range of movement when locked as opposed to the [redacted] model 1540 "X" direction lock and the [redacted] "Y" direction lock. And to achieve this unacceptable range of "locked" carriage movement [redacted] had to tighten the carriage drive system so to require a force of over [redacted] pounds to produce manual carriage movement. Specifications stated a maximum tolerable manual force of 4 pounds to produce movement and DI-8 has voiced a need for a force of approximately 1.5 pounds.

1b. & 1c. Although "no quantitative requirements" were published the example light table locking system shown [redacted] as a basis for [redacted] development did not contain subject imperfections.

To state "operation of item 1b is consistent with already accepted units" is an invalid conclusion. No units incorporating the DI-8 "X-Y" locking system have been accepted. The inclusion of this locking system, of which the carriage lock release button and "X-Y" lock release are integral parts, requires a new acceptance procedure for this component part of the light table.

With regard to using the motorized drive for final positioning on target, various [redacted] officials, including [redacted] have attempted this procedure and found it to be exceedingly difficult if not down right impossible.

Paragraph 1b & 1c. of your letter suggests DIA operate in such a manner. But the final sentence of this paragraph indicated an [redacted] cognizance that DI-8 25X1 had already attempted such an operation without success.

1d. DI-8 must reiterate that the motorized fine carriage feed incorporated 25X1 on the [redacted] model 150 light table does not perform as indicated by the specifications. It definitely does not provide a "smooth low speed operation" as contended by the manufacturer.

1e. The rigidity of the microstereoscope mount was tested on several model 1540-4 light tables and found to differ from table to table. DI-8 quantalized the requirement for a rigid mount, as requested by [redacted], and stated that a maximum 25X1 allowable downward deflection of .0045" could be tolerated when two pounds pressure was applied to the top front of the optics mount. Several of the [redacted] tables now 25X1 fall within this range.

25X1 2. DI-8 is in agreement with [redacted] corrections.

3. DI-8 maintains the switches should remain as on light table model 1540-4, serial 1, one round switch and one paddle switch with rounded corners. The switches found on the model 1540-4 are not as easily differentiated from one another.

4. Further comment concerning the lack of quality control is unnecessary and 25X1 apparently inflammatory to [redacted] The DI-8 position remains as previously stated.

25X1 5. It has been demonstrated to [redacted] personnel that the film guides on some of the light tables delivered to DI-8 were not correctly positioned.