

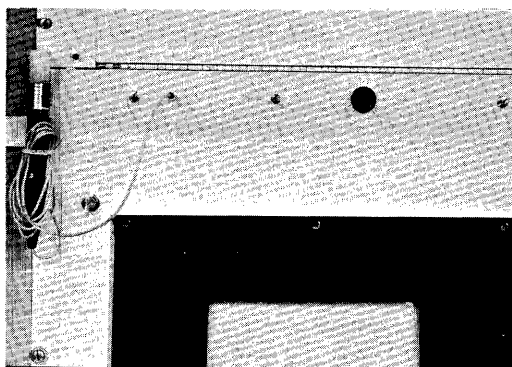
LITE PEN

The LITE PEN is a light sensitive device that looks somewhat like a pen. When "CONNECTED", it raises FLAG 55 whenever it "sees the light", presumably from the scope display (SEQUENCE NUMBER 60).

OPERATIONS

IOS ₅₅ 30000	CONNECT	Allows unit to raise FLAG 55
IOS ₅₅ 20000	DISCONNECT	Prevents raise flag signals from unit.
TSD T _j	NOT USED	Same as for non-in-out SEQUENCE NUMBER (i.e., automatic dropout and cycle left T _j).

MANUAL CONTROLS:



The pen itself contains a preamplifier with fixed gain or sensitivity. The sensitivity dial controls the gain of the main amplifier. The proper setting depends on the scope intensity and is usually set by trial and error. The toggle should be thrown toward the dial.

NOTE: The light pen is sensitive only during the intensification period of Scope #60. It will not work properly with the second display scope (#56).

SCOPE DISPLAY

The "scope" is a cartesian coordinate, high speed (20 to 80 usec) display with 10 bit precision in (x, y), controllable intensity (4 levels), and a phosphor persistency of about 2 seconds. Each point must be specified separately and the display must be repeated endlessly if it is to be viewed rather than photographed. A camera mount, several cameras, and a film index instruction are provided. The usable display area is 7 by 7 inches.

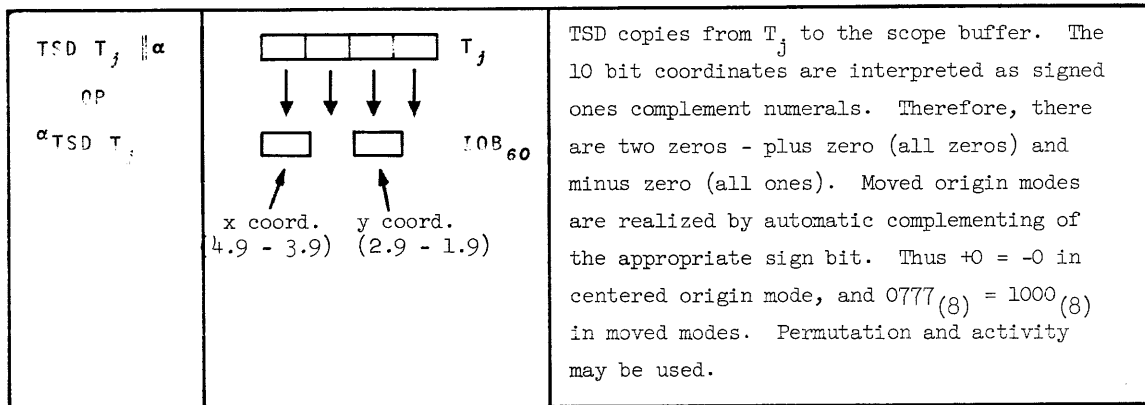
OPERATIONS

IOS ₆₀ 30000	SELECT SCOPE (CONNECT)	If the scope is <u>unselected</u> , FLAG 60 is raised. This instruction gives lowest intensity and a centered origin. See other IOS ₆₀ 30000 type operations below.
IOS ₆₀ 30000 IOS ₆₀ 30010 IOS ₆₀ 30020 IOS ₆₀ 30030	SELECT SCOPE and set INTENSITY	The scope "intensity" is controlled by the <u>duration</u> of the spot rather than beam intensity. 30000 - Low - 10 μsec. 30010 - Med. Low - 20 μsec. 30020 - Med. High - 40 μsec. 30030 - High - 80 μsec.
IOS ₆₀ 30000 IOS ₆₀ 30100 IOS ₆₀ 30200 IOS ₆₀ 30300	SELECT SCOPE and set ORIGIN LOCATION	The origin can be at the center, at the left or bottom edge, or at the lower left corner. 30000 - Center - <input type="checkbox"/> 30100 - Bottom Center - <input type="checkbox"/> 30200 - Left Center - <input type="checkbox"/> 30300 - Lower Left Corner - <input type="checkbox"/>
IOS ₆₀ 30004	INDEX FILM	The IOB is busy until the return signal comes back from the camera. The return signal also raises FLAG 60.

NOTE: The IOS₆₀ 30004 (Index Film) instruction causes an "EIA" (Equipment Inability Alarm) when the film supply in the camera magazine is low. This raises flag 41 if unit 41 is connected, lights the "End of Film" light, and rings a buzzer. (See next page.) It does not stop the computer. The scope and camera can still be used until the film runs out completely. When there is no film at all, the return signal that frees the buffer is not generated, TSD operations find the buffer "busy", and "Dismiss and Wait" occurs.

30400 = external spec.

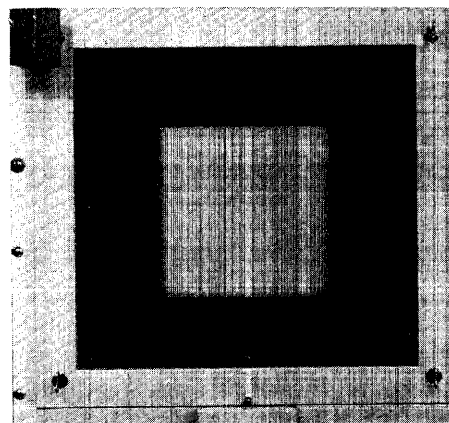
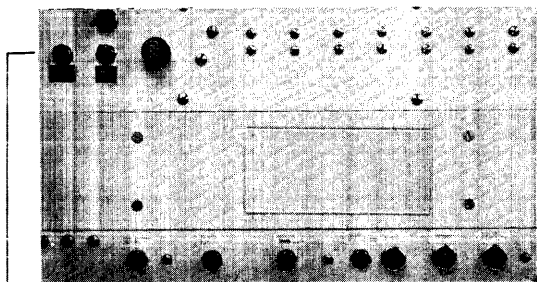
SCOPE DISPLAY



NOTES

1. In most cases it is easier to use 9 bit arithmetic. In 18 bit arithmetic, one can use "Fractions" and sense end carry by the SKM instruction, or one can use "integers" and sense overflow the same way. In the latter case, one must cycle or scale to the left so that the 10 bits will be in the buffer position.

MANUAL CONTROLS



On-Off Pushbuttons - Display power comes on after a 65 second delay. It is best for it to be brought on while the computer is stopped, for it often causes a spurious raise flag signal.

For best resolution, it is necessary to wait about 20 minutes for the circuits to reach thermal equilibrium.

Camera Inversion Switch - "Toward the wire" is "Normal". "Away", gives a vertically inverted display to compensate for the mirror inversion in the camera mount.

End of Film Light

End of Film Acknowledgement Pushbutton
 This button will stop the alarm buzzer, but does not clear the EIA flip-flop. (See In-Out #41)

Manual Film Index - Moves the film one frame.