

INTERVAL TIMER

The INTERVAL TIMER is essentially a counter that passes every n^{th} pulse of a pulse oscillator (the "End Carry Pulse"). The basic counting rate, timed interval, start time, and stop time are controllable. The output, a string of accurately spaced pulses, can be used to raise FLAG 54, and (or) to trigger an external device (such as the DATRAC for example). Control is partly manual, partly by program.

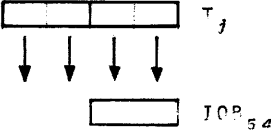
OPERATIONS

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| IOS ₅₄ 30000 | STOP COUNTER (and Connect)* | STOPS the counter and hence the output string. The count for the interval will now be reset repeatedly from the buffer (at the counting rate). (Counting rate is selected manually.) |
| IOS ₅₄ 30100 | START COUNTER (and Connect)* | STARTS the counter. The pulse string will start after one counted interval and will continue until it is stopped. In this mode, the string is available only at the "EC OUTPUT" jack on the console. |
| IOS ₅₄ 30200 | SET TO RAISE FLAG 54 (and Connect)* | CONNECTS output string to raise FLAG 54 at the end of each timed interval. This mode is used when the interval timer is to be started by hand or by an external trigger. |
| IOS ₅₄ 30300 | START and RAISE FLAG (and Connect)* | This is a combination of the two operations just above. The first output pulse and raising of FLAG 54 come after one interval as specified by the Buffer. (The buffer can be set manually from toggles, or by a TSD in the program.) |

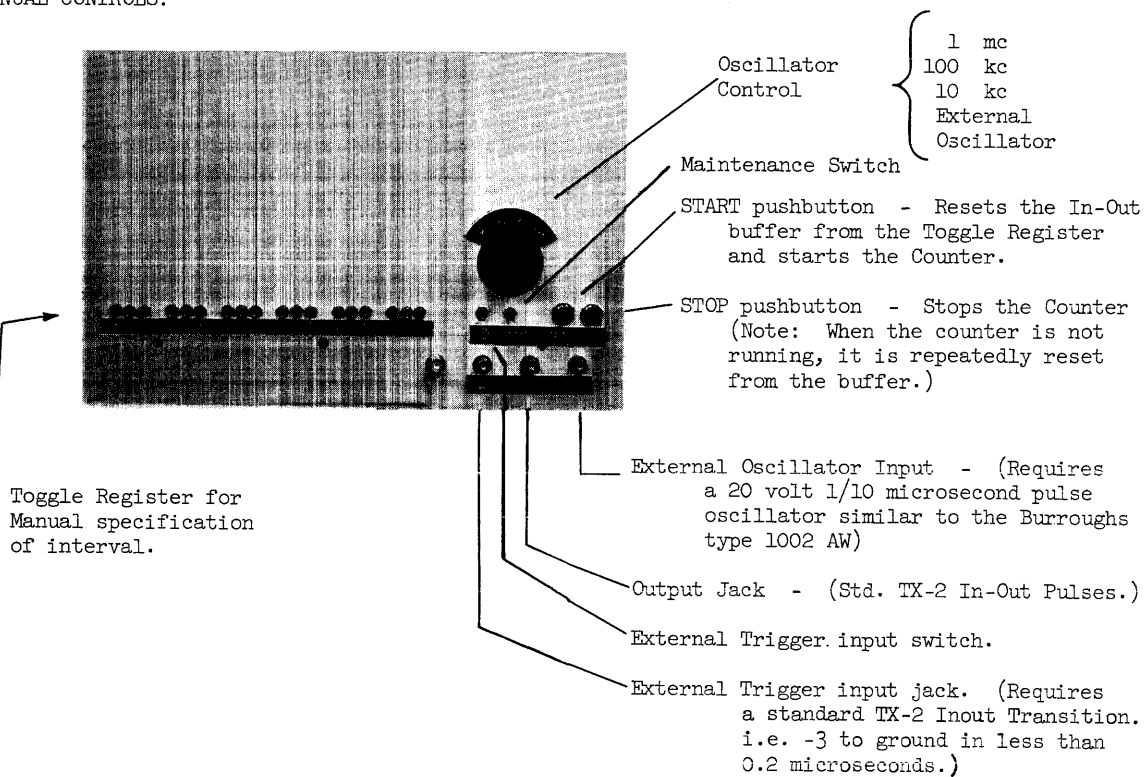
* All IOS₅₄ 30000 instructions "connect" the unit if it is not already connected.

- Notes:
1. The buffer is "busy" during "end carry time" - i.e. when it is in use. For 10 kc., 100 kc., and "Ext. Osc." this is equivalent to the basic counting interval. For 1 mc., the buffer is "busy" during the last 16 counts. If the reset value is less than 16, the counter must be stopped before the buffer can be changed.
 2. Any change in the buffer becomes effective only at the end of the current interval unless the change is made with the counter stopped.
 3. Manual control overrides program control.

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| $IOS_{54} 20000$ | DISCONNECT | This instruction stops the RAISE FLAG signals but NOT the <u>Interval Timer itself</u> . |
| $TSD T_j \alpha$ OR $\alpha TSD T_j$ |  | TSD copies an 18 bit numeral from T_j to the IOB (In-Out Buffer). This is used as an <u>18 bit positive integer</u> . It specifies the number of "counts" per timed interval. (The basic counting rate is manually selected.) Permutation and/or activity may be used. Any inactive portion of IOB is set to +0. |

MANUAL CONTROLS:



Note: The Standard TX-2 Inout pulse has a duration of about 0.4 microseconds and a rise-fall time less than 0.2 microseconds.