



NOLTR 74-220

FIG. 6 PRESSURE TRANSDUCER SYSTEM SCHEMATIC

(PIB) and the 838 Decade Counters and also prevents them from being triggered. The LOW state also disables the gated oscillator and 1809 OR gate G10 preventing their operation. Disabling OR gate G10 prevents unscheduled firing of the shutter and flashlamp high voltage firing circuits. When the output of G2 is caused to go HIGH by either switching action described above, it enables the circuits mentioned and triggers multivibrator No. 1 on the positive going transition. Eventually, at the end of a cycle of the system, the output of G2 is taken back to logic LOW by the switch returning to its initial state. The circuits in question are reset and disabled and the cycle is ended.

Multivibrators

Two 8601 Retriggerable Multivibrators (MV) are used in generating the voltage calibration step shown in Figure 2 and Figure 5. Adjusting the time constant on MV1 will position the calibration step where desired in the oscilloscope display. MV2 is used to adjust the pulse width of the calibration step. Present requirements call for the calibration step to appear approximately 7 milliseconds into the display and last for 1 millisecond when the oscilloscope is operated at a sweep rate of 1 millisecond per centimeter, as shown in Figure 2.

Connected to be positive-edge triggered, MV1 responds when gate G2 goes from LOW to HIGH and produces output pulses on pins 6 and 8. The negative-going pulse on pin 6 is differentiated by a .05 μ F capacitor, 4.7 k Ω resistor network that sends a narrow negative pulse through 857 NAND gate G6 to turn on temporarily the gated oscillator formed by two 832 NAND gates. This action serves to turn on the oscillator for about 0.2 ms just to trigger the oscilloscope sweep circuits and is illustrated in the gated oscillator trace in Figure 5.

At the end of the time constant determined by the R-C network connected to pins 11 and 13, the output pulses of MV1 are terminated. As the pulse on pin 8 of MV1 reverts from HIGH to LOW, it triggers MV2 which has been wired to accept a negative-edge trigger.

When MV2 is triggered, the positive pulse output on pin 8 energizes the calibration step relay, via the 2N1613 transistor, and the calibration reference voltage signal is impressed on the Kistler Charge Amplifier. The charge amplifier in response generates the voltage step that is sent to the oscilloscope displays and to the voltage comparator circuits. Since the calibration voltage amplitude is usually set at or near the expected maximum pressure signal, it will have sufficient amplitude to operate both the low level and high level comparator circuits. Because the comparators drive other circuits which are scheduled