

INSTALLATION OF THE NEW TRIG 1 AND TRIG 2 PULSE DISTRIBUTION SYSTEM FOR THE MI-60 GALLERY.

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Introduction

A new pulse distribution system for the Trig 1 and Trig 2 signals used to control all 18 stations at MI-60 has been installed during the three day shutdown from May 27-29. It uses a 25V 50 Ω line driver box (Drawing # 0437.01-EC-5450) along with 36 timing channel pulse transformers (Drawing # 0337.00-EC-5300) to distribute the Trig 1 and Trig 2 TTL signals to each station. This replaces the previous systems where repeater boxes had to be used to ensure that reflections occurring on the line would not accidentally trigger stations 3 and 4.

Installation

Installation of the new pulse distribution system required replacing the old RG-178 cables that were previously fed to the old Trig 1 and Trig 2 signals with newer RG-178 cables that were appropriately labeled to make identification easier. Clamps had to be installed in the G-10 board to hold the timing channel pulse transformers in place. Since the Heliac cable used for the Trig 1 and Trig 2 line was precisely cut, it was not a trivial task to install the timing channel pulse transformers without lifting up these cables, taking precaution not to kink the cables. Many thanks goes to Jeneen Irvin, John Holm, and Efrain Cortez for their help in making this project a success.

Conclusion

The new Trig 1 and Trig 2 system has been in use ever since the shutdown and no apparent problems have surfaced. There is, however, a 0.175 dB insertion loss for each of the timing channel pulse transformers, and with the 0.15 dB drop from the 350 ft line of Heliac from station 1 to station 18 accounts for a 3.3 dB drop in voltage from station 1 to station 18. However, this is not a problem as the voltage is still high enough to ensure a good TTL signal to station 18 (3.3V output from timing channel pulse transformer). The repeater boxes can be reclaimed since they are no longer needed. A mechanical drawing for placing the circuit board in a chassis with the properly placed cutouts for the input, outputs and the line filter for the rear panel is available from the author.