

NND-1 BATTERY SWITCHER

Assembling And Operating Instructions

PURPOSE AND INTRODUCTION

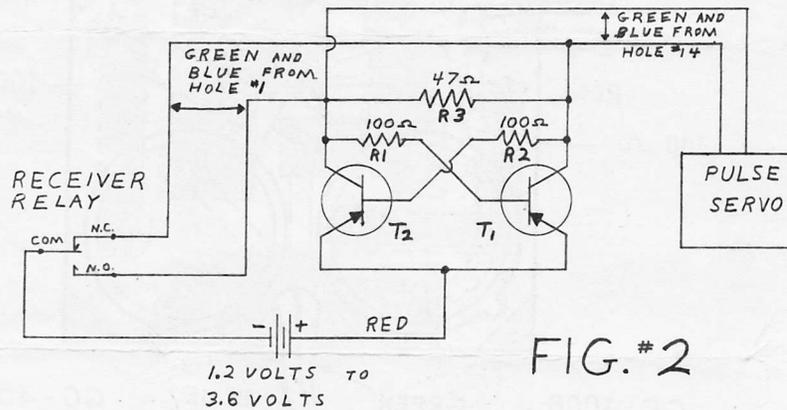
The NND-1 Battery Switcher has been designed to improve pulse flying. First, it cuts the servo battery requirement in half. Second, as the servo battery voltage drops, the neutral does not drift. This is because the same voltage is supplied to the servo motor to drive it in each direction.

CIRCUIT DESCRIPTION

The NND-1 is a modified bridge circuit using transistor T-1 and T-2 as the bottom half of the bridge and the normally open and normally closed contacts of the receiver relays as the other half of the bridge. When the relay is in the normally closed position, negative is applied to the base of transistor T-2, through resistor R-2, thus turning it on. When transistor T-2 is conducting, the base of transistor T-1 becomes positive through resistor R-1. The conducting path is thus through the normally closed contact of the relay, then through resistor R-3 and the motor and finally through transistor T-2. When the relay is operated, the normally open contact is closed, producing the same action as the normally closed contact except the conducting path is through the normally open contact, motor, resistor R-3 and transistor T-1.

HOOK-UP AND OPERATION

See Figure 2 for wiring hook-up. The servo action can be reversed by switching blue and green wires to motor. The NND-1 can be used with any pulse servo and any voltage from 1.2 volts to 3.6 volts.



ASSEMBLY

Before building the NND-1, inspect the printed circuit board. The copper side should be clean and free of oxidation.

Solder all parts as they are installed.

See Figure 1 for circuit board hole numbering and parts layout.

- () 1. Install one of the two GC-4008 transistors in holes 8 (collector), 9 (base) and 10 (emitter). Mount as close to the board as possible.
- () 2. Install the remaining GC-4008 in holes 11 (collector), 12 (base) and 13 (emitter). Mount transistor as close to the board as possible.
- () 3. Install a 100 ohm resistor (brown-black-brown) in holes 5 and 7.
- () 4. Install a 100 ohm resistor brown-black-brown in holes 6 and 4.
- () 5. Install the 47 ohm resistor (yellow-purple-black) in holes 2 and 3.
- () 6. Now prepare the five wires for installation. (There are two green, two blue and one red wire.) First, strip about $\frac{1}{4}$ inch of insulation from one end of each of the five wires.
- () 7. Now, tin these ends and cut the tinned part to about $\frac{1}{8}$ inch length.
- () 8. Solder the red wire to the copper land around hole 10. Thread wire through hole 1.
- () 9. Solder one blue wire to the copper land around hole 7. Thread through hole 1.
- () 10. Solder one of the green wires to the copper land around hole 2. Thread it through hole 1.
- () 11. Solder the remaining blue wire to the copper land around hole 11. Thread wire through hole 14.
- () 12. Solder the remaining green wire to the copper land around hole 6. Thread wire through hole 14.

This completes the assembly of the NND-1. At this point, go back and double-check your assembly. After you have double-checked the assembly the NND-1 is ready to use.

