

HUNTERPROON®
SWITCHER

OPERATION / MAINTENANCE

MODEL HSR 410

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HUNTRON® SWITCHER

LIMITED WARRANTY

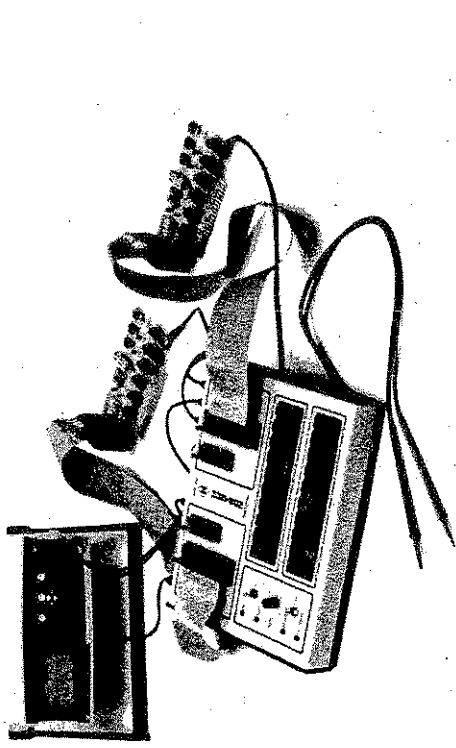
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INTRODUCTION

The HUNTRON® SWITCHER has been designed as a compatible interface for the HUNTRON® TRACKER®, and together these units create an effective test system for component troubleshooting. The Switcher allows faster comparison tests of components in or out of circuit, by the use of I.C. Clips or I.C. Sockets rather than point to point probing.

(See fig. 1)

1. Power Jack
2. Clock Jack
3. Tracker® Connection
4. External Connection
5. Probe Jack for Reference Device
6. Common Probe Jack
7. Probe Jack for Device Under Test
- 8A. Reference Section for Reference Device
- 8B. Test Section for Reference Device
- 9A. Common Jumper Pin Select Terminal
- 9B. (Same as 9A)
- 10A. 40 Pin Zero Insertion Force Socket for Cable Connection or Component Insertion
- 10B. (Same as 10A)
- 11A. 20 Pin Zero Insertion Force Socket for Cable Connection or Component Insertion
- 11B. (Same as 11A)
12. Ref/Alt/Test Select Switch
13. Rate Control
14. Power On-Off / Test Instrument Select Switch (Tracker® off External)
15. I.C. Pin Select Switches 21-40
16. I.C. Pin Select Switches 1-20



Huntron® Switcher connected to Huntron® Tracker®.

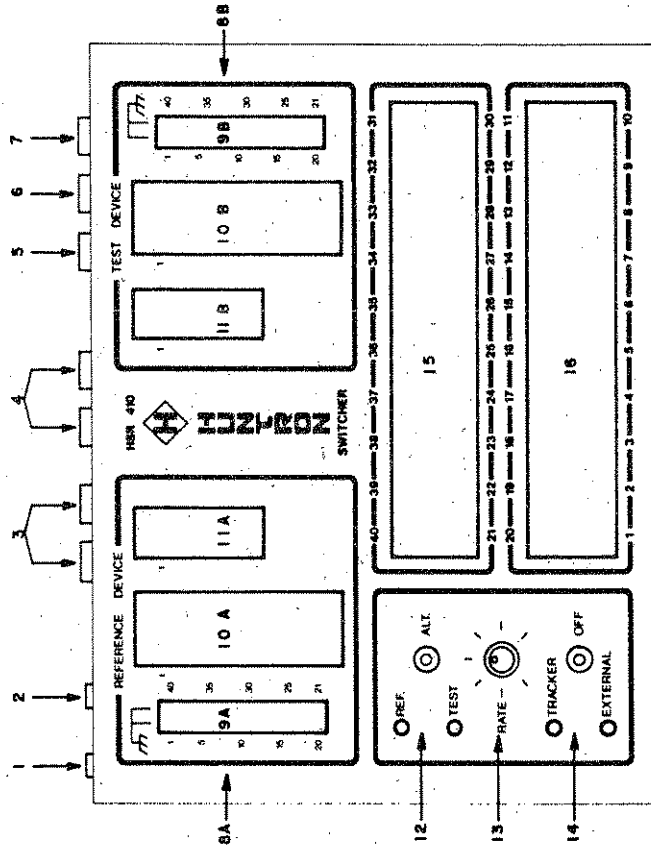


Fig. 1

II OPERATION

1. Insert the power adapter plug into the power supply jack at the rear of the Switcher, and plug the adapter into 117VAC. Alternately, connect the power jack to the output power jack on Tracker® (if so equipped) using the power cable assembly (10-1073) or connect power jack and clock jack to the power/clock output on the Model 2000 using power/clock cable (10-1079).
2. Connect the dual banana cable from the Huntron® Tracker® to the Huntron® Switcher at jacks marked TRACKER®. Note: On Model HTR1005B-1S, use the top two jacks, with the channel select in the up position. On Model 2000, use Common and Channel A banana jacks and push Channel A Button. When using the power/clock cable, set the CH. A LOCK switch to "ON" (Model 2000 — Back Panel).
3. The jacks marked EXTERNAL can be connected to a multimeter or other test instrument.
4. Set the TEST INSTRUMENT SELECT SWITCH to TRACKER® or EXTERNAL.
5. Set the REF/ALT/TEST switch to ALT (Alternate). This switch is used to stop at one point or the other when a longer viewing time is needed. Adjust the RATE CONTROL to desired switching rate. When using Tracker® Model 2000 with the power/clock cable, push the ALT button and use the RATE CONTROL on the Model 2000 to control the alternating rate of the Switcher. The RATE CONTROL on the Switcher is disabled in this mode.
6. Test probe jacks are provided for Huntron® Microprobes™ at the rear of the Switcher. This will allow point to point testing without disconnecting the Switcher from the Tracker®.

7. **NOTE:** All points with the common point symbol designate the reference point. **(THIS IS NOT EARTH GROUND).** This allows the user to establish a reference for testing (VCC, GND, BUSS, etc.)
8. Common jumper pin select terminals allow selection of common points for I.C. testing.
9. I.C. sockets are provided for test cable connection or component insertion. These sockets are a zero insertion force type for easy insertion and removal.
10. I.C. Pin Select Switches determine which pin is being tested.

III SPECIFICATIONS

1. Switching Rate: Adjustable from .5Hz to 10Hz.
2. Dimensions: Length - 10 inches, Width - 7.5 inches, Height - 2 inches
3. Weight: 2 lb. 4 oz.
Shipping weight: 5 lb. 0 oz.
4. Operating Temperature: 0° to 55° C
5. Storage Temperature: -50° to 60° C
6. Power Consumption: 300ma @ 8 to 12 VDC
7. Adapter Input Voltage: 117V, 50/60Hz
8. Maximum Voltage (to be measured): 24V (DC or peak AC)
9. Maximum Current (to be measured): 300 mA

IV GENERAL USE

A. COMPARISON TESTING — SET REF/ALT/TEST switch to ALT. Two identical printed circuit boards are needed, one as a reference board and the other as the board under test.

1. Connect desired cable to proper socket for both the reference device and the device under test. Observe the same polarity on both cables.
2. Attach I.C. clips to the components to be tested.
3. Select common point. Jumper the common point to the desired pin of the common jumper pin select terminals. Use the short jumper wires to connect these points. (see fig. 2)
4. Each pin may be compared to the common point by depressing and holding the appropriate I.C. pin select switch. Note that a maximum of 40 pins may be selected. Switch 1 selects pin 1 of the I.C. when depressed, and pin 1 will be tested with respect to the common point. Example: Jumper the common pin to pin 7 of the common jumper pin select terminals. Every pin tested will be with respect to pin 7 (I.C. pins 1 to 7, 2 to 7, 3 to 7, etc. See fig. 2)

5. When testing 20 and 40 pin I.C.'s refer to the Switcher graphics. For 6 and 8 pin, 14 and 16 pin, or 24 and 28 pin I.C.'s use the appropriate graphic overlay supplied. Place the overlay on top of the Switcher.

The Switcher will alternate between the reference device and the device under test and the signatures will be displayed on the Tracker® CRT.

The HUNTRON® Microprobes™ can be used at any time for point to point testing.

B. NON-COMPARISON TESTING — Set REF/ALT/TEST switch to desired channel (REF or TEST). Follow procedures 1-5 in section A.

C. OUT OF CIRCUIT TESTING — Remove test cables from I.C. sockets on Switcher, note polarity of I.C. and insert into proper sockets, follow procedures 3-5 in section A.

D. POWERED CIRCUITS TESTING — Care should be taken that the test instrument select switch on the switcher is in the EXTERNAL position. By following the procedures outlined in section A, I.C. pins may be examined or compared as to voltage, signal level, state, etc., depending on the test instrument used.

REFERENCE TEST

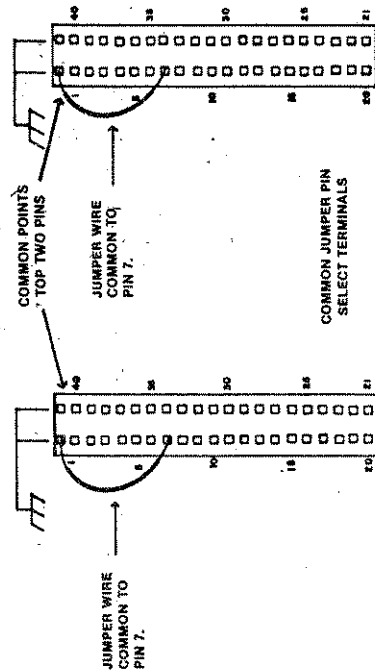
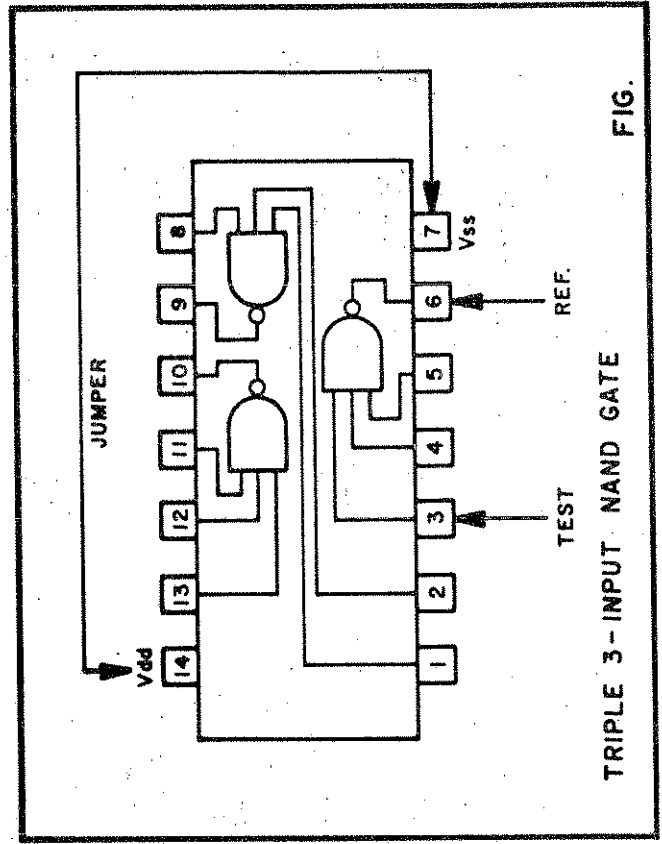


FIG. 2

NOTES:

V PRECAUTIONS & NOTES

- A. When the Switcher is used with the Huntron® Tracker®, the devices under test **MUST NOT BE POWERED**. Remove all power from the circuit.
- B. Devices and circuits being compared should be as nearly identical as possible, otherwise differences may be present which could give misleading signatures. Drastically modified circuits may also pose this problem. Components that are identical are usually close enough in tolerance that signatures will permit identification of opens, shorts or severe leakage.
- C. When testing CMOS devices in or out of circuit with the Huntron® Tracker®, it may be advantageous to short Vss to Vdd using the shorting jumper wires. Use one jumper between the appropriate pins on the common jumper pin select terminals. In this configuration do not use Vss or Vdd as the common point (see fig. 3).



TRIPLE 3-INPUT NAND GATE

FIG.

HUNTRON® INSTRUMENTS, INC.

Huntron® Switcher

Model HSR410

PARTS LIST

All Resistors are 1/4 Watt 5%

Reference Designation	Description	Huntron® Part Number	Reference Designation	Description	Huntron® Part Number
R1	Resistor, 220 OHM	02-2158	J1	Jack, Power	01-1070
R2	Resistor, 220 OHM	02-2158	J2	Jack, Clock	01-1078
R3	Resistor, 47 K	02-2143	J3	Jack, Red Banana	01-1030
R4	Pot, 1 meg, Linear	02-2163	J4	Jack, Black Banana	01-1031
R5	Resistor, 3 K	02-2126	J5	Jack, Red Banana	01-1030
R6	Resistor, 220 OHM	02-2158	J6	Jack, Black Banana	01-1031
R7	Resistor, 3 K	02-2126	J7	Jack, Red Banana	01-1030
R8	Resistor, 220 OHM	02-2158	J8	Jack, Black Banana	01-1031
R9	Resistor, 10 K	02-2137	J9	Jack, Yellow Banana	01-1032
R10	Resistor, 10 K	02-2137	J10, J11	42 pin Reference Terminal	07-7281
C1	Capacitor, 1000 MF, 16V Electrolytic	03-3047	J12, J13	ZIP Assembly, 20 Pin	07-7204
C2	Capacitor, 0.1MF, 50V Ceramic	03-3020	J14, J15	ZIP Assembly, 40 Pin	07-7205
C3	Capacitor, 2.2MF, 50V, Electrolytic	03-3046	SW1 thru		
D1	Diode, 1 Amp	04-4006	SW40	Switch, DPDT Momentary	07-7159
D2	LED, Diffused Red, T-1 3/4	04-4013	SW41	Switch, DPDT, On-Off-On	07-7166
D3	LED, Diffused Green, T-1 3/4	04-4014	SW42	Switch, SPDT, On-Off-On	07-7165
D4	Diode, 1 Amp	04-4006	MP1	Front Panel	01-3002
D5	Diode, 1 Amp	04-4006	MP2	Case, Bottom	01-3003
D6	LED, Diffused Green, T-1 3/4	04-4014	MP3	Rubber Feet	01-1071
D7	LED, Diffused Red, T-1 3/4	04-4013	MP4	Button, Switch	07-7077
D8	Diode, 1 Amp	04-4006	MP5	Knob, Rate Adjust	01-1060
D9	Diode, 1 Amp	04-4006	MP6	Power Plug	10-1020
U1	Transistor	05-5013			
U2	Transistor	05-5013			
IC1	Regulator, +5V	05-5017			
IC2	I.C., (74C14)	05-5018			
K1	Relay, DPDT, 5V	07-7905			
K2	Relay, SPDT, 5V	07-7904			
			AC1	Dual Banana Plug	10-1074
			AC2	I.C. Clip Assembly, 16 Pin	10-1070
			AC3	I.C. Clip Assembly, 40 Pin	10-1071
			AC4	Jumper Wires, AWG24, 3 inch	07-7167
			AC5	Power Cable Assembly	10-1073
			AC6	Overlay, 6 and 8 Pin	01-2010
			AC7	Overlay, 14 and 16 Pin	01-2011
			AC8	Overlay, 24 and 28 Pin	01-2012
			AC9	Power Adapter (8V @ 300ma)	06-6041
			AC10	Power/Clock Cable Assembly	10-1079

Accessories:

Also Available: