

Table 4. 410 Test Procedure

STEP	ACTION	VERIFICATION
1	Remove the 410 from its mounting position; insert the 415 Card Extender in its place. Insert the 410 into the 415.	
2	Set the multimeter for resistance measurement. Place one lead of the multimeter on pin 14 of the 415 and the other lead on pin 16.	The multimeter should read infinite ohms, indicating that relay A is not energized.
3	Energize relay A.	The multimeter should read zero ohms, indicating that relay A has operated.
4	Deenergize relay A.	The multimeter should read infinite ohms, indicating that relay A has been released.
5	Transfer the multimeter connections to pins 32 and 34 of the 415 Card Extender.	The multimeter should read infinite ohms, indicating that relay B is not energized.
6	Energize relay B.	The multimeter should read zero ohms, indicating that relay B has operated.
7	Deenergize relay B.	The multimeter should read infinite ohms, indicating that relay B has released.
8	Transfer the multimeter connections to pins 41 and 44 of the 415 Card Extender.	The multimeter should read infinite ohms, indicating that relay C is not energized.
9	Energize relay C.	The multimeter should read zero ohms, indicating that relay C has operated.
10	Deenergize relay C.	The multimeter should read infinite ohms, indicating that relay C has released.
11	This completes the 410 Test Procedure. Remove all test connections and restore all equipment to normal operation.	

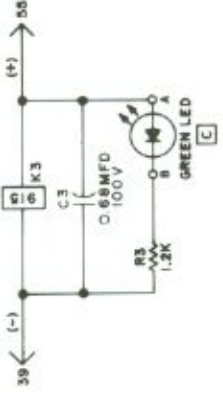
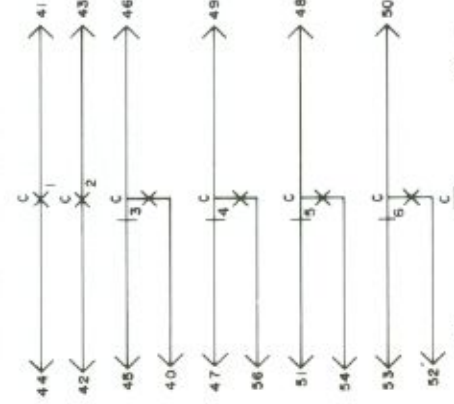
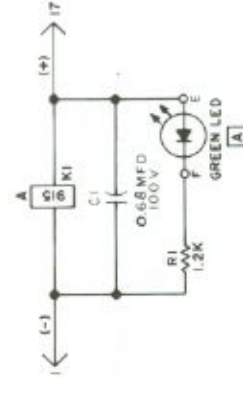
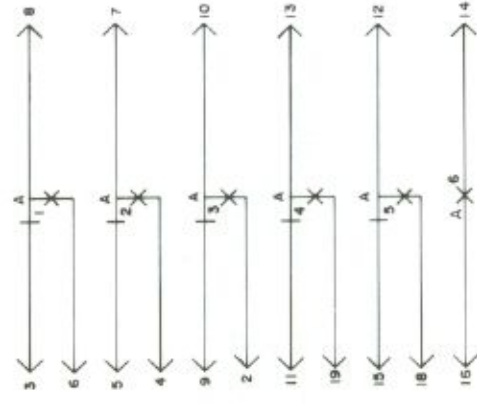
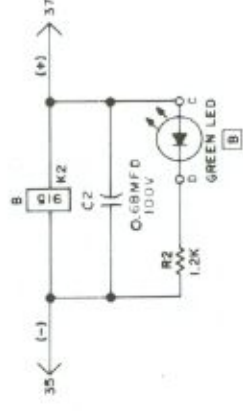
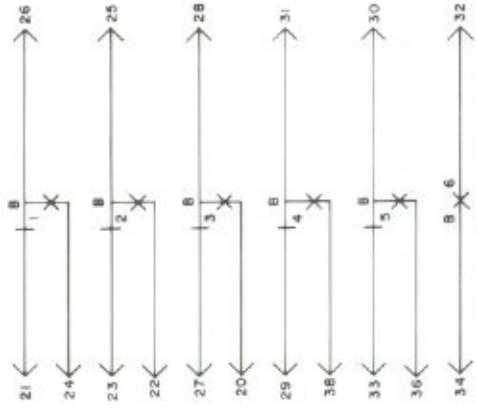
per installation and regular maintenance. Wescom's obligations under this warranty are limited to correction and replacement, at Wescom's production facility, of any defective items received by Wescom, transportation prepaid, for a period of five years from the date of original shipment. Warranty and remedies on products not manufactured by Wescom are in accordance with the warranty of the respective manufacturer. WESCOM MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED; AND ALL IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEEDS

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8.02 Field repairs involving the replacement of components within a unit are not recommended. If an item is found to be defective, contact Wescom, Inc., by telephone or TWX, for instructions regarding replacement or repair.

8.03 If a replacement unit is required, it will be shipped in the fastest manner consistent with the urgency of the situation. Upon receipt of a replacement unit, return the defective unit

Section 041-0XX-202  
Section 041-021-201

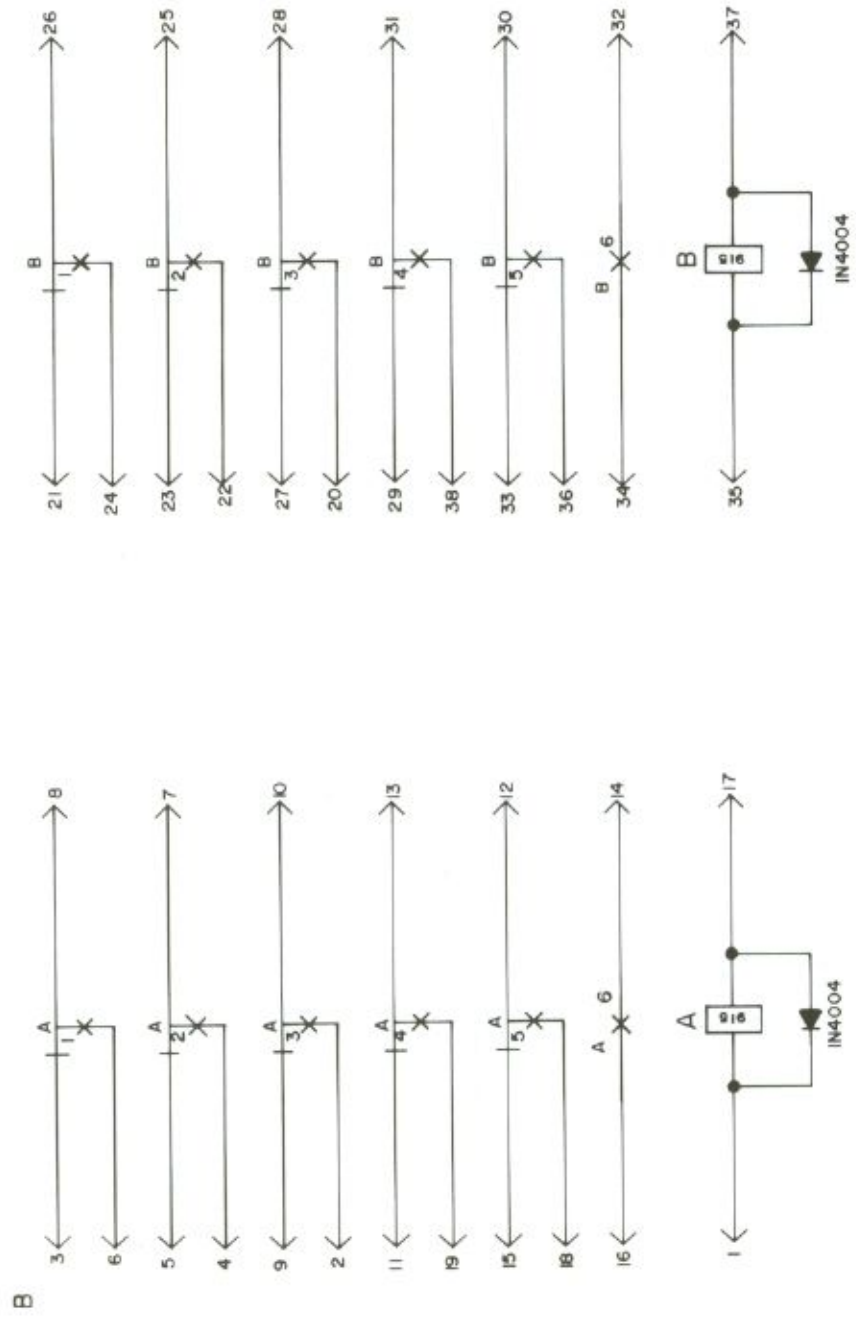


- NOTES:
1. ← PC BOARD CONNECTOR.
  2. — N.O., N.C. RELAY CONTACTS
  3. RESISTORS ARE IN OHMS, 15%, 1/2 WATT.
  4. XXX FRONT PANEL MARKING.

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Figure 6. 410-21 Transfer Relay Module (Issue 2) Schematic Diagram

Section 041-0XX-202  
Section 041-021-201



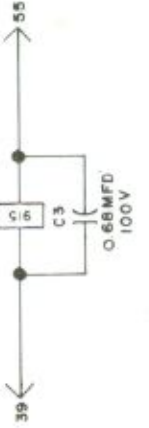
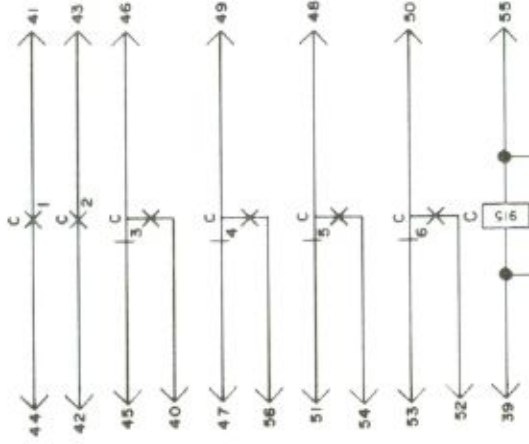
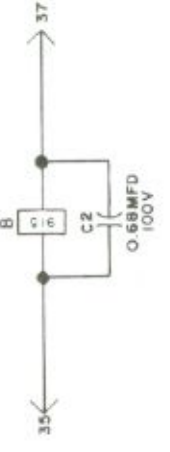
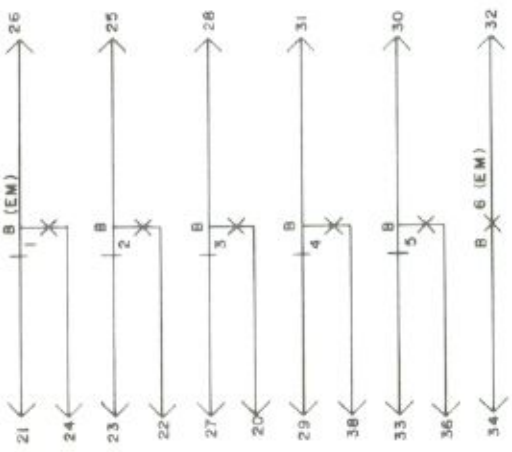
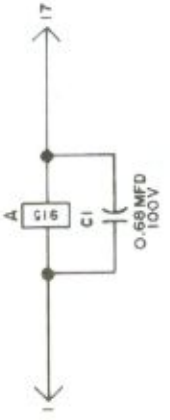
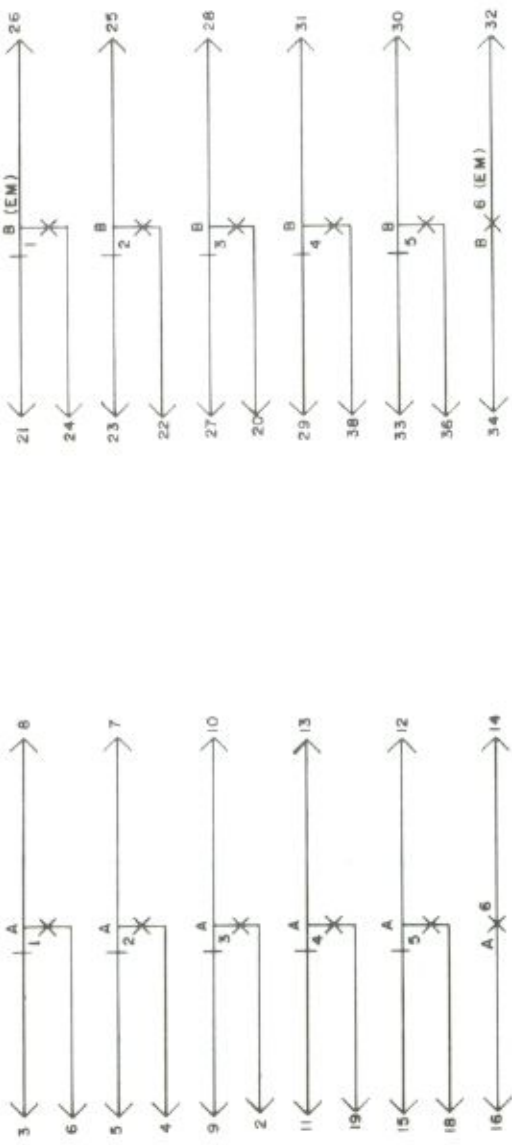
NOTES :

1. ← P.C. BOARD CONNECTOR.
2. ✕, —+— NO., N.C. RELAY CONTACTS

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Figure 5. 410-15 Transfer Relay Module (Issue 2) Schematic Diagram

E



- NOTES
1. ← PC BOARD CONNECTOR.
  2. ✕, — N.O., N.C. RELAY CONTACTS.
  3. (EM) EARLY-MAKE, FORM "D" CONTACT.

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Figure 3. 410-02 Transfer Relay Module (Issue 2) Schematic Diagram

fer, and loop-back circuit. Generally, the 410 can be used any time a relay contact is required.

2.02 The use of the different 410 versions is highly dependent on application. For instance, if two sets of relay contacts were to be used in a flip-flop configuration, one of the contacts would have to be an early-make (Form D) contact. If it was required to connect a circuit to a system after disconnecting a different circuit from the system, a transfer (Form C) relay contact would be required. To connect one circuit to another, a Form A relay contact is required.

### 3. CIRCUIT DESCRIPTION

3.01 Each version of the 410 provides three completely independent relays. Each relay can be energized by application of 24Vdc to the relay coil. The best circuit design provides -24V battery on the coil at all times with ground as the switched potential. The relays in each version can be composed of Form A, Form C, or Form D relay contacts. Each relay contains six sets of relay contacts. The differences in the versions are described in the paragraphs that follow, and summarized in Table 2.

3.02 Each relay coil in the 410-00, 410-02, and 410-03 is bypassed by a nonpolarized, mylar capacitor. The capacitor provides transient suppression and permits each relay to be operated from a dc supply, regardless of polarity. The relay coils in the 410-15 and 410-21 are shunted by diodes. Since the diodes also provide transient suppression, the relays will have a faster release time than when shunted by a capacitor. However, the dc supply polarity is critical when the coil is shunted by a diode. To operate the relays, -24Vdc must be applied to the anodes of the diodes. No other polarity will operate the relays.

3.03 Refer to Figure 2, the 410-00 Transfer Relay Module Schematic Diagram, while reading this paragraph. Relays A and B in the 410-00 are composed of five sets of Form C contacts and one set of Form A contacts. Relay C is composed of four sets of Form C contacts and two sets of Form A contacts.

Table 2. 410 Relay Contact Forms

410 VERSION	RELAY A TYPE AND NUMBER	RELAY B TYPE AND NUMBER	RELAY C TYPE AND NUMBER
410-00*	5 Form C 1 Form A	5 Form C 1 Form A	4 Form C 2 Form A
410-02*	5 Form C 1 Form A	4 Form C 1 Form A 1 Form D	4 Form C 2 Form A
410-03*	4 Form C 2 Form D	4 Form C 1 Form A 1 Form D	3 Form C 1 Form D 2 Form A
410-15**	5 Form C 1 Form A	5 Form C 1 Form A	4 Form C 2 Form A
410-21***	5 Form C 1 Form A	5 Form C 1 Form A	4 Form C 2 Form A

\*Coil (winding) in parallel with 0.68uF, 100V capacitor.  
\*\*Coil (winding) in parallel with 400PIV diode.  
\*\*\*Coil (winding) in parallel with a 0.68uF 100V capacitor and front-panel-mounted Light Emitting Diode (LED).

#### 410-02

3.04 Refer to Figure 3, the 410-02 Transfer Relay Module Schematic Diagram, while reading this paragraph. Relay A of the 410-02 provides five sets of Form C contacts and one set of Form A contacts. Relay B provides four sets of Form C contacts, one set of Form D contacts, and a set of early-make Form A contacts. Relay C provides four sets of Form C contacts and two sets of Form A contacts.

#### 410-03

3.05 Refer to Figure 4, the 410-03 Transfer Relay Module Schematic Diagram, while reading this paragraph. Relays A and B of the 410-03 are composed of four sets of Form C contacts, one set of Form D contacts, and one set of early-make Form A contacts. Relay C is composed of three sets of Form C contacts, one set of Form D contacts, and two sets of Form A contacts, one of which is an early-make contact.

#### 410-15

3.06 Refer to Figure 5, the 410-15 Transfer Relay Module Schematic Diagram, while reading this paragraph. The relays and their contacts in the 410-15 are identical to those of the