

control and protection circuits are traced first. Thereafter, the circuits are traced in the sequence used to discuss their general theory. Simplified schematic diagrams are provided and referenced throughout the following paragraphs. In addition, reference should be made to the main schematics in section VII and to the definitions and relay and switch function tables in paragraph 4.3.1.

4.4.1 MOTOR CONTROL CIRCUITS.

The motor control circuits cause motors B401 and B501 to operate in one of two directions, driving variable inductor L401 and variable capacitor C501 toward either maximum or minimum, depending upon the positions of control circuit relays. Steps a through e outline the sequence of operation of motors B401 and B501 and the control circuit relays involved. Refer to figure 4-16 throughout the following discussion.

NOTE

The discussion in steps a through d assumes that terminal 2 and 9 of relays K705 and K706 are grounded directly. Actually, these terminals are grounded through contacts of limit switches S401A, S501, and S502.

a. Assume a capacitive error is seen by the phasing discriminator. Relay K703 is energized through contacts of switch S601, and relays K701, K704, K705, and K706 are de-energized. The black B401 lead is connected to 27.5 volts d-c through J401-4, P401-4, K703-13, K703-8, K706-14, and K706-10. The red B401 lead is connected to ground through J401-11, P401-11, K701-14, K701-10, K704-13, K704-7, K706-11, and K706-2. When connected in this manner, motor B401 drives variable inductor L401 toward maximum.

b. Assume an inductive error is seen by the phasing discriminator. Relay K704 is energized through contacts of switch S601, and relays K701, K703, K705, and K706 are de-energized. The red B401 lead is connected to 27.5 volts d-c through J401-11, P401-11, K701-14, K701-10, K704-13, K704-8, K705-14, and K705-10. The black B401 lead is connected to ground through J401-4, P401-4, K703-13, K703-7, K705-11, and K705-2. When connected in this manner, motor B401 drives variable inductor L401 toward minimum.

c. Assume the series tuning elements reach minimum. Relay K705 is energized and relays K701, K703, K704, and K706 are de-energized. The black B401 lead is connected to 27.5 volts d-c through J401-4, P401-4, K703-13, K703-7, K705-11, and K705-1. The red B401 lead is connected to ground through J401-11, P401-11, K701-14, K701-10,

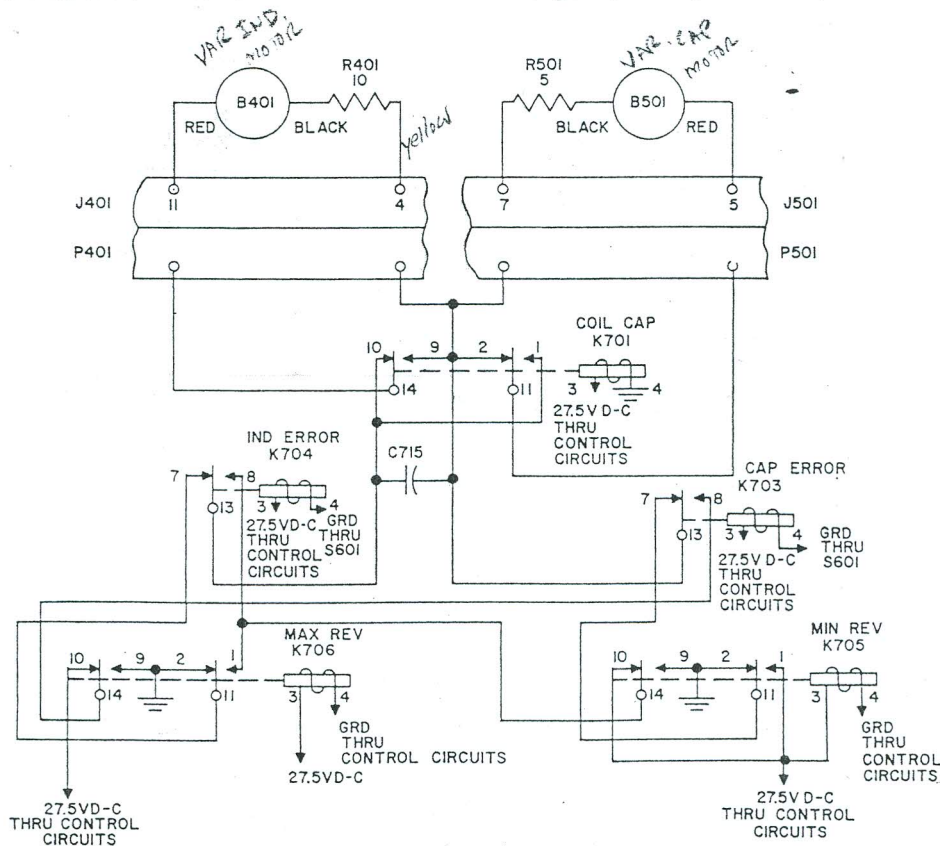


Figure 4-16. Motor Control Circuits, Simplified Schematic Diagram

