

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,

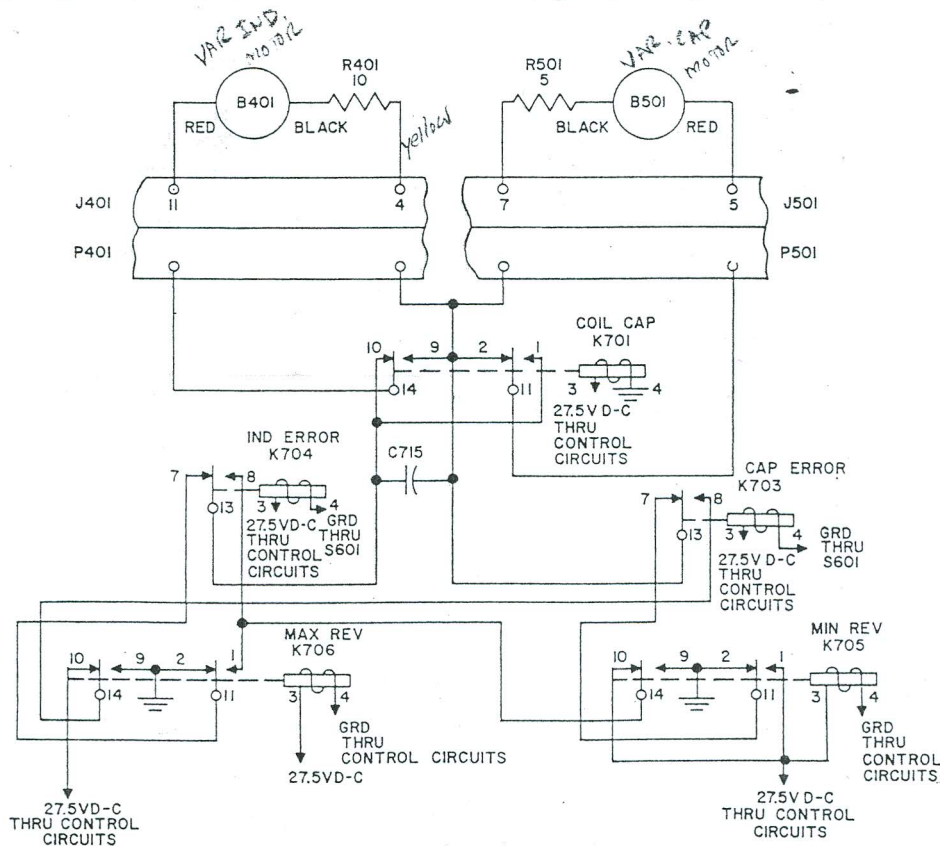


Figure 4-16. Motor Control Circuits, Simplified Schematic Diagram

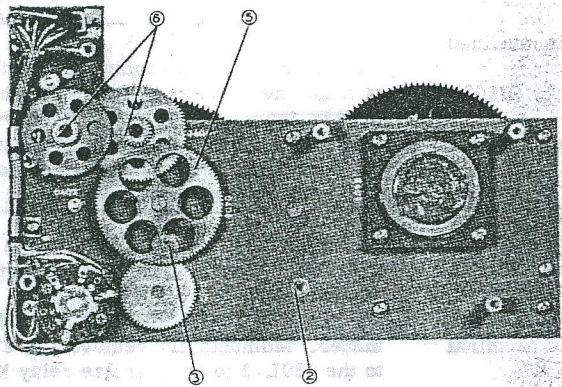


Figure 5-2. Variable Inductor Subassembly,  
Bottom View, Lubrication Points

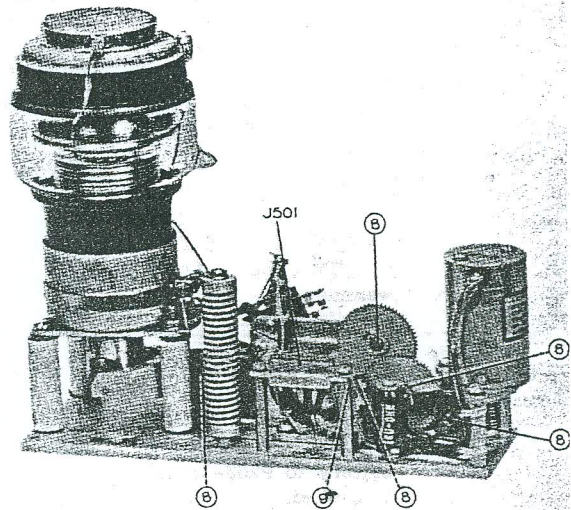


Figure 5-4. Variable Capacitor Subassembly,  
Rear View, Lubrication Points

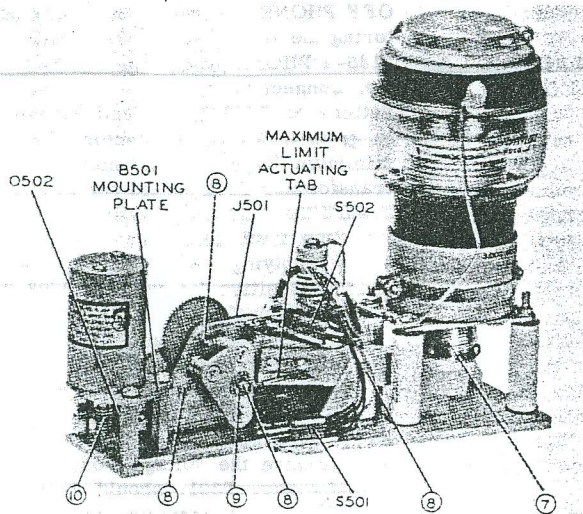


Figure 5-3. Variable Capacitor Subassembly,  
Front View, Lubrication Points

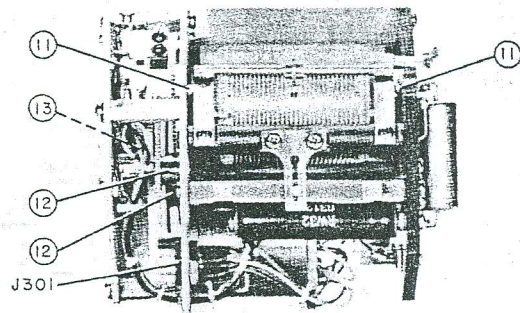


Figure 5-5. R-F Autotransformer Subassembly,  
Side View, Lubrication Points

SECTION V  
Maintenance

TABLE 5-6. VARIABLE INDUCTOR SUBASSEMBLY, TROUBLE ISOLATION (Cont)

SYMPTOM	PROBABLE CAUSE	REMEDY
4. 180L-2 circuits do not function correctly as determined by mechanical cycle tests, paragraph 5.2.2.1.	1. Connector P401/J401 defective.	Replace or repair as necessary.
	2. Switch S401A, S401B, S402A, or S402B defective.	Replace or adjust defective switch.
	3. Mechanical linkage between B401 and switches defective.	Repair as necessary.
	4. Motor B401 defective.	Replace B401.

TABLE 5-7. VARIABLE CAPACITOR SUBASSEMBLY, TROUBLE ISOLATION

SYMPTOM	PROBABLE CAUSE	REMEDY
1. 180L-2 tunes continuously until relay K711 opens.	1. Variable capacitor C501 defective.	Replace C501.
	2. R-f line within variable capacitor subassembly open.	Repair as necessary.
2. Motor B501 fails to run.	1. Connector P501/J501 defective.	Replace or repair as necessary.
	2. Resistor R501 defective.	Replace R501.
	3. Motor B501 defective.	Replace B501.
	4. Switch S501 or S502 defective.	Replace or adjust defective switch.
3. 180L-2 circuits do not function correctly as determined by mechanical cycle tests, paragraph 5.2.2.1.	1. Connector P501/J501 defective.	Replace or repair as necessary.
	2. Resistor R501 defective.	Replace R501.
	3. Motor B501 defective.	Replace B501.
	4. Switch S501 or S502 defective.	Replace or adjust defective switch.
	5. Internal wiring of variable capacitor subassembly defective.	Repair as necessary.

5.3.3.2 RESISTANCE MEASUREMENTS. Table 5-8 lists typical resistance measurements for tubes V601, V602, and V603 and chopper G601. These resistance values are intended for trouble-shooting procedures and are not intended to be absolutely correct in

measurement. Variations from the given values may occur with the equipment still in good operating condition. When making the resistance measurements, the equipment should be disconnected, and the main chassis dust cover and servo-amplifier cover removed. The

