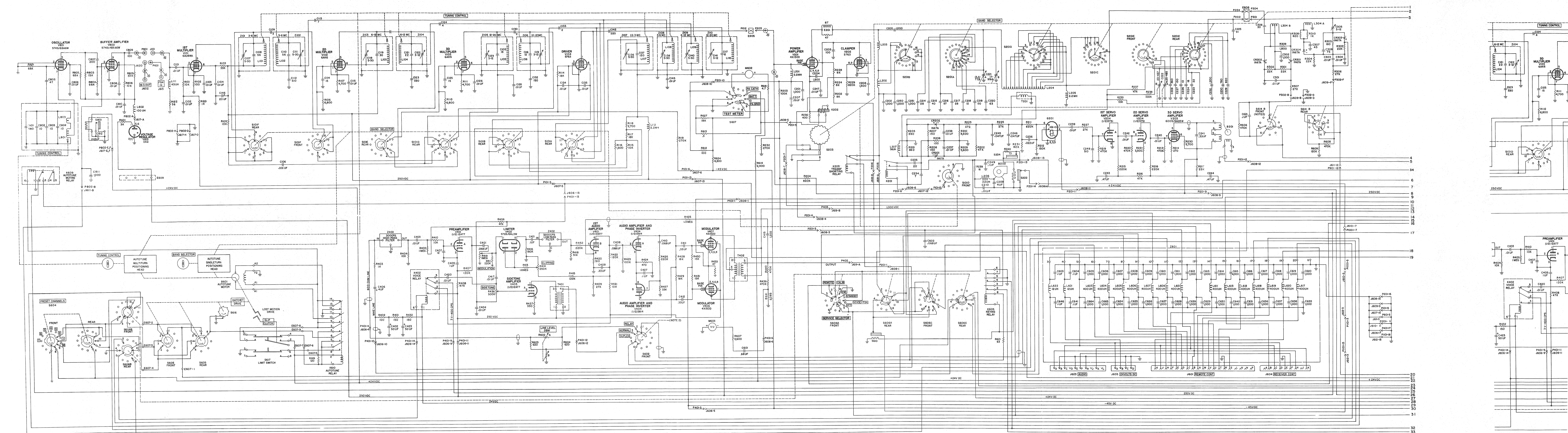


TM-806 T-195 Transmitter

Figures List

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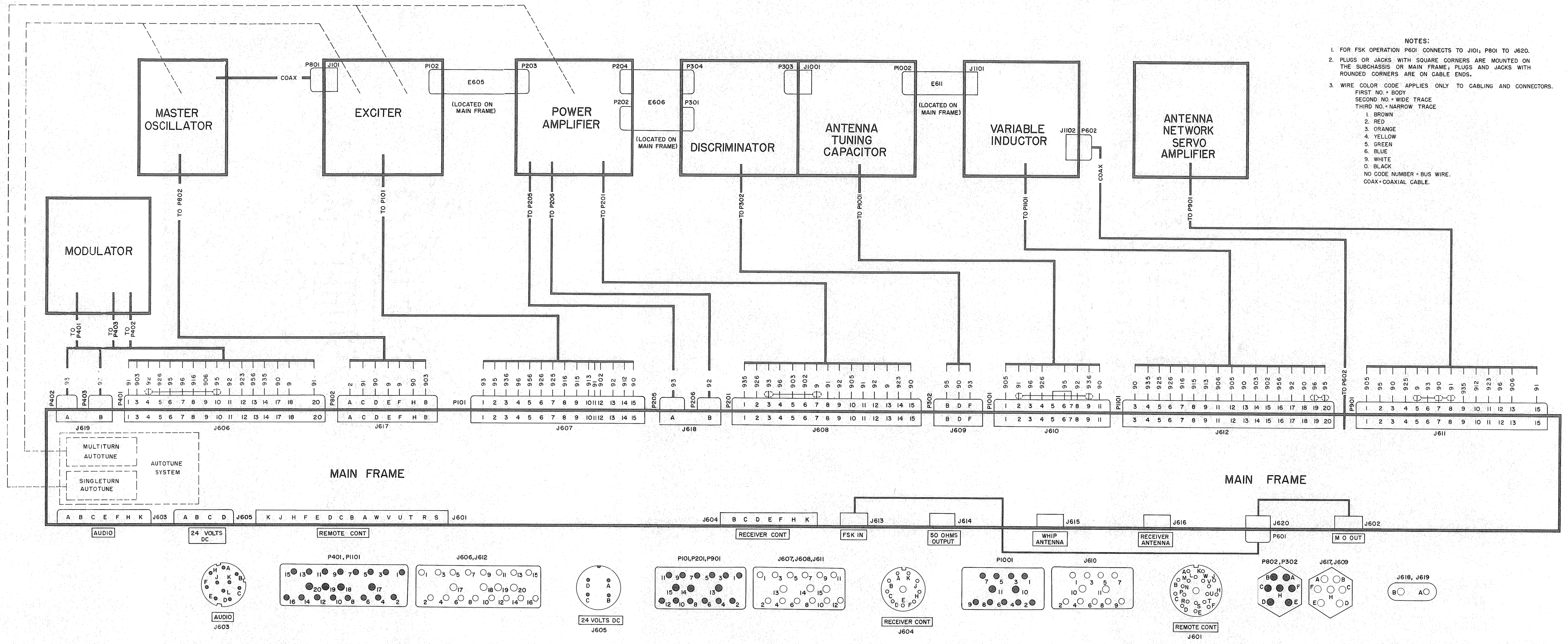


RADIO TRANSMITTER T-195/GRC-19, SCHEMATIC DIAGRAM (SHEET 1 OF 2).

Figure 139. Radio Transmitter T-195/GRC-19, schematic diagram.

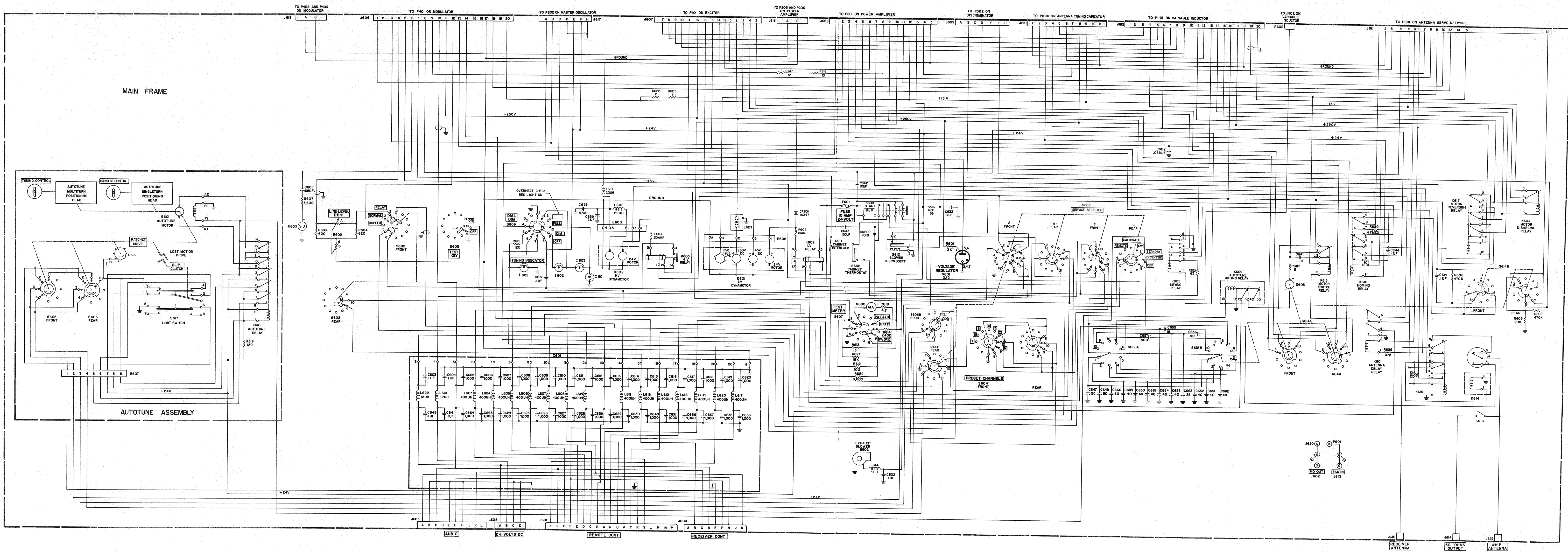
SCHEMATIC DIAGRAM (SHEET 1 OF 2).

390412 O-56 (In pocket) No. 23

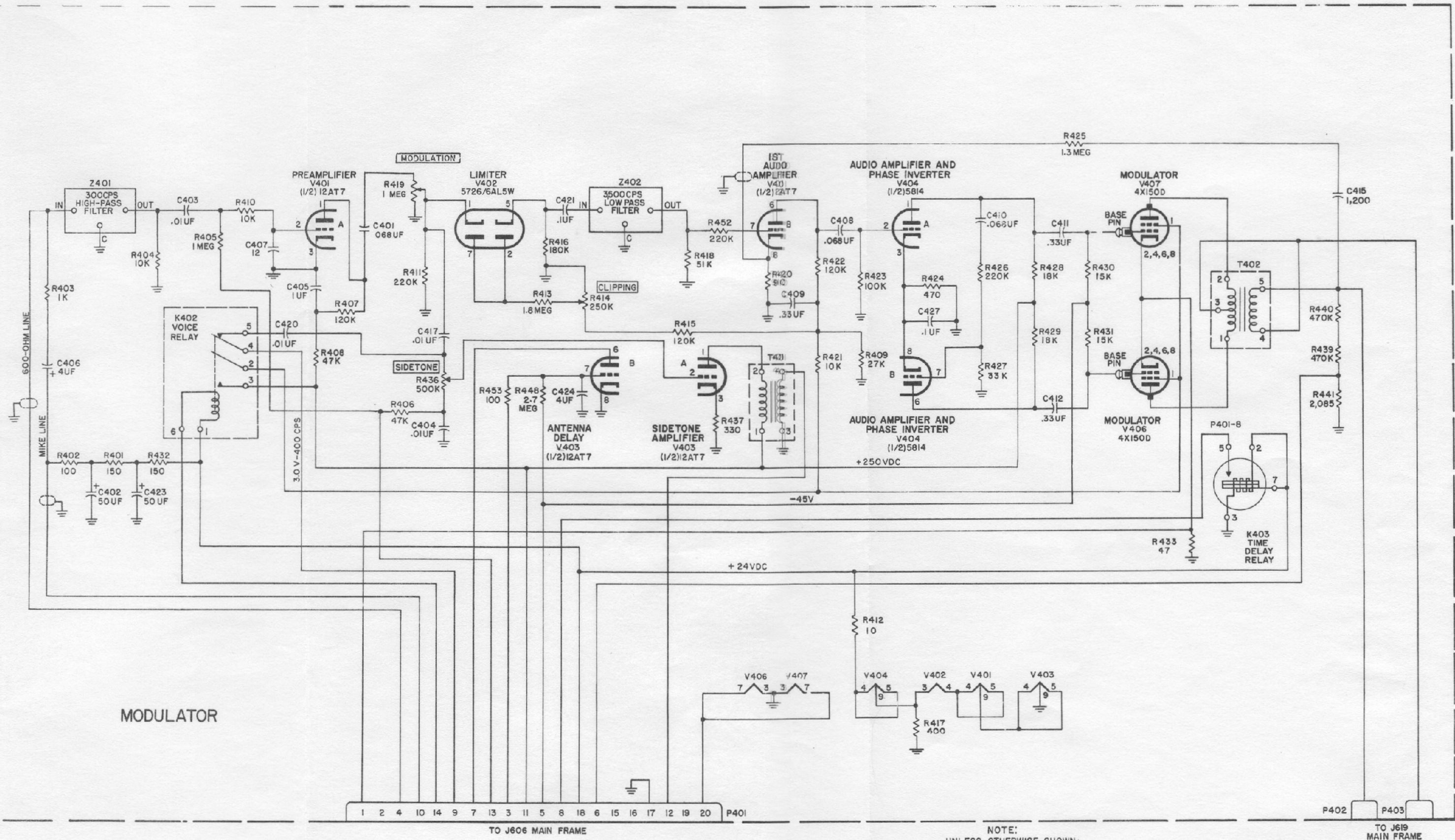


- NOTES:**
- FOR FSK OPERATION P601 CONNECTS TO J101; P801 TO J620.
 - PLUGS OR JACKS WITH SQUARE CORNERS ARE MOUNTED ON THE SUBCHASSIS OR MAIN FRAME; PLUGS AND JACKS WITH ROUNDED CORNERS ARE ON CABLE ENDS.
 - WIRE COLOR CODE APPLIES ONLY TO CABLING AND CONNECTORS.
 FIRST NO. = BODY
 SECOND NO. = WIDE TRACE
 THIRD NO. = NARROW TRACE
 1. BROWN
 2. RED
 3. ORANGE
 4. YELLOW
 5. GREEN
 6. BLUE
 9. WHITE
 0. BLACK
 NO CODE NUMBER = BUS WIRE.
 COAX = COAXIAL CABLE.

Figure 138. Subchassis interconnection cabling diagram.

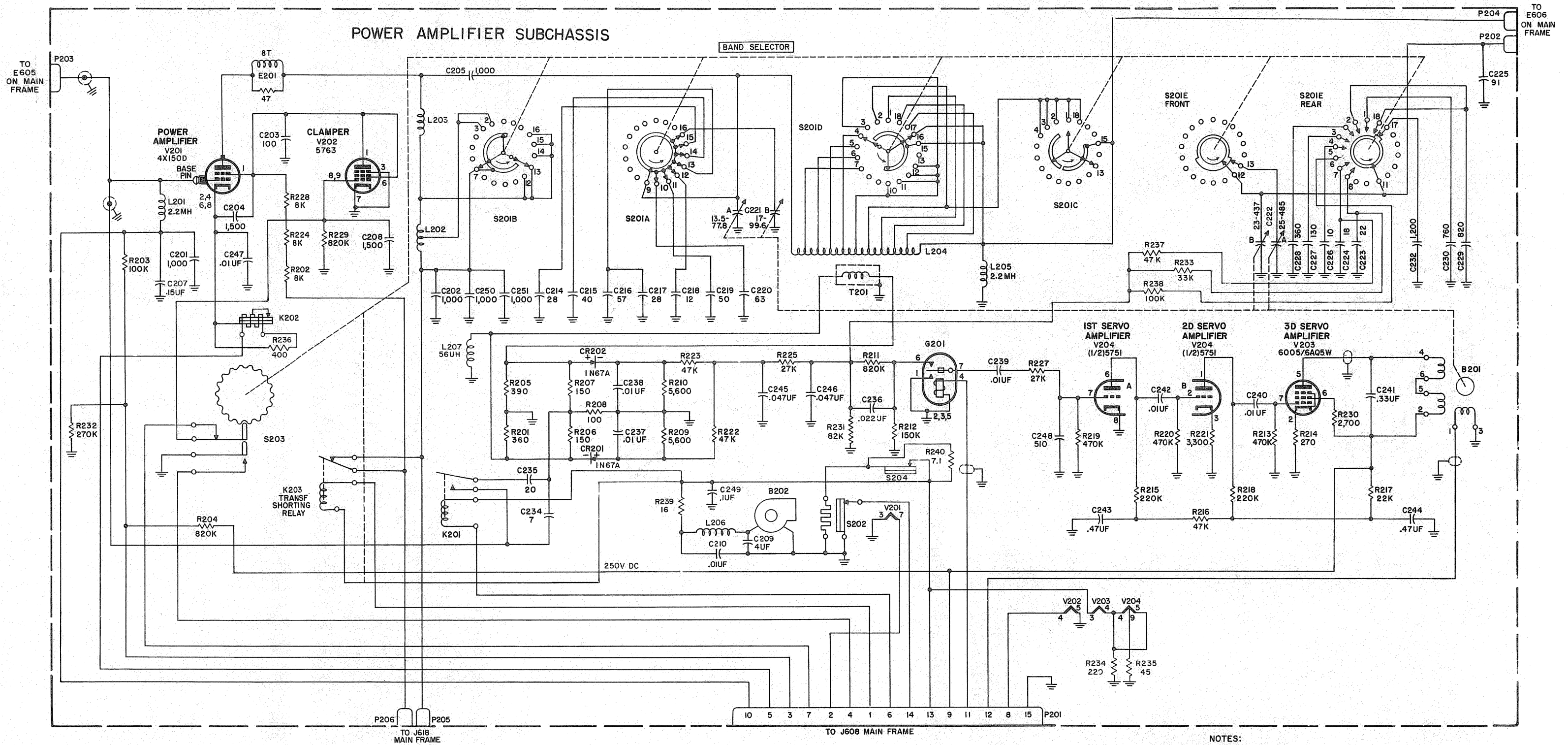


- NOTES:
1. UNLESS OTHERWISE SHOWN, RESISTORS ARE IN OHMS.
 2. ALL SWITCHES ARE IN OHMS.
 3. SWITCHES ARE SHOWN IN THEIR FULL COUNTERCLOCKWISE POSITIONS, OR POSITIONED FOR THE 1.5 TO 1.7 MC RANGE.
 4. RELAYS ARE SHOWN IN THEIR NORMAL POSITIONS WITH POWER REMOVED.



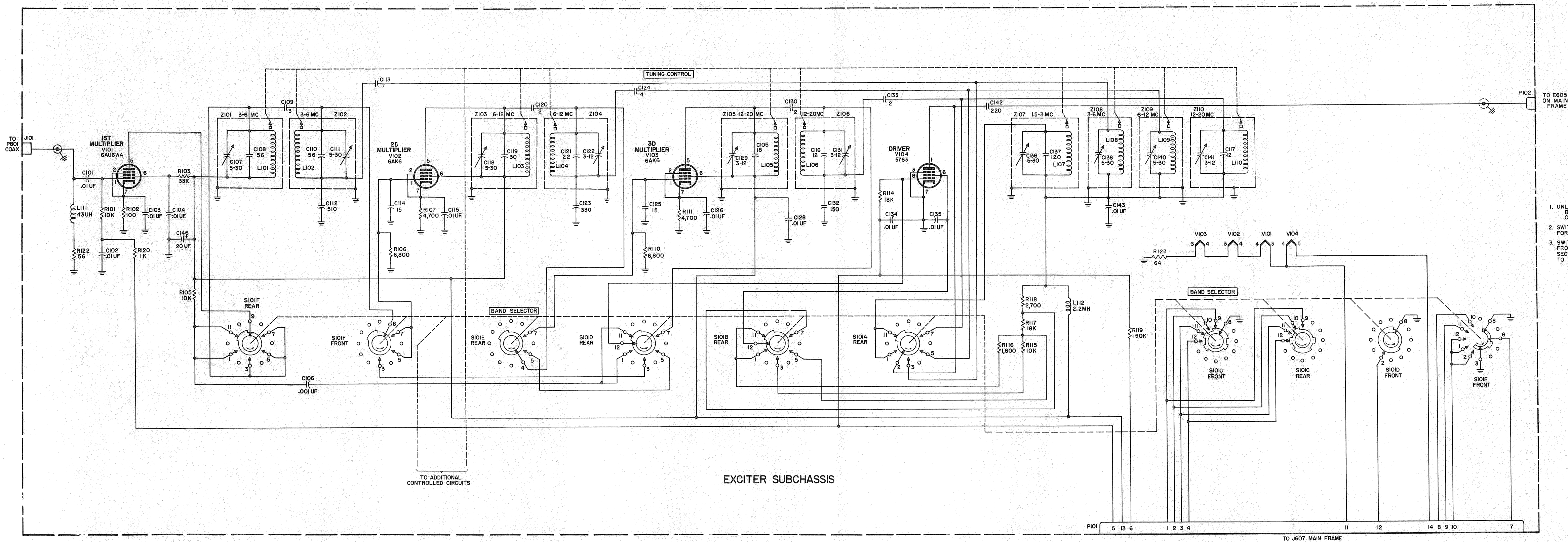
NOTE:
UNLESS OTHERWISE SHOWN:
RESISTORS ARE IN OHMS,
CAPACITORS ARE IN UUF

Figure 132. Modulator subchassis, schematic diagram.



NOTES:
 1. UNLESS OTHERWISE SHOWN:
 RESISTORS ARE IN OHMS,
 CAPACITORS ARE IN UUF.
 2. S201 IS SHOWN AS VIEWED FROM
 REAR OF EQUIPMENT AND POSITIONED
 FOR THE 1.5 TO 1.7 MC RANGE

Figure 131. Power amplifier subchassis, schematic diagram.



- NOTES:
- UNLESS OTHERWISE SHOWN: RESISTORS ARE IN OHMS CAPACITORS ARE IN UUF
 - SWITCHES ARE SHOWN POSITIONED FOR THE 1.5 TO 1.7 MC RANGE
 - SWITCHES ARE SHOWN AS VIEWED FROM THE REAR OF THE EQUIPMENT. SECTIONS DESIGNATED A ARE CLOSEST TO THE FRONT PANEL.

EXCITER SUBCHASSIS

Figure 130. Exciter subchassis, schematic diagram.

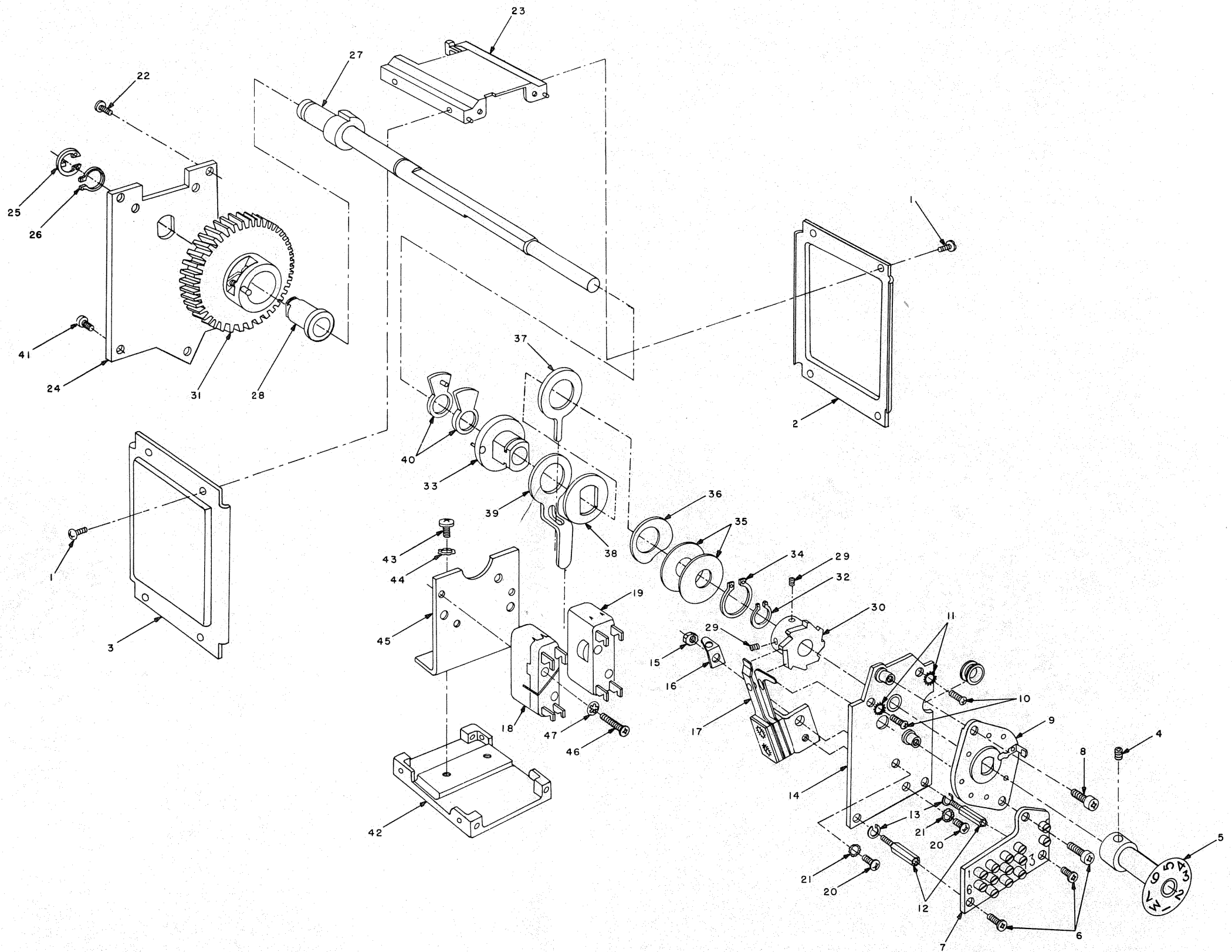


Figure 115. Disassembly of Autotune control head.

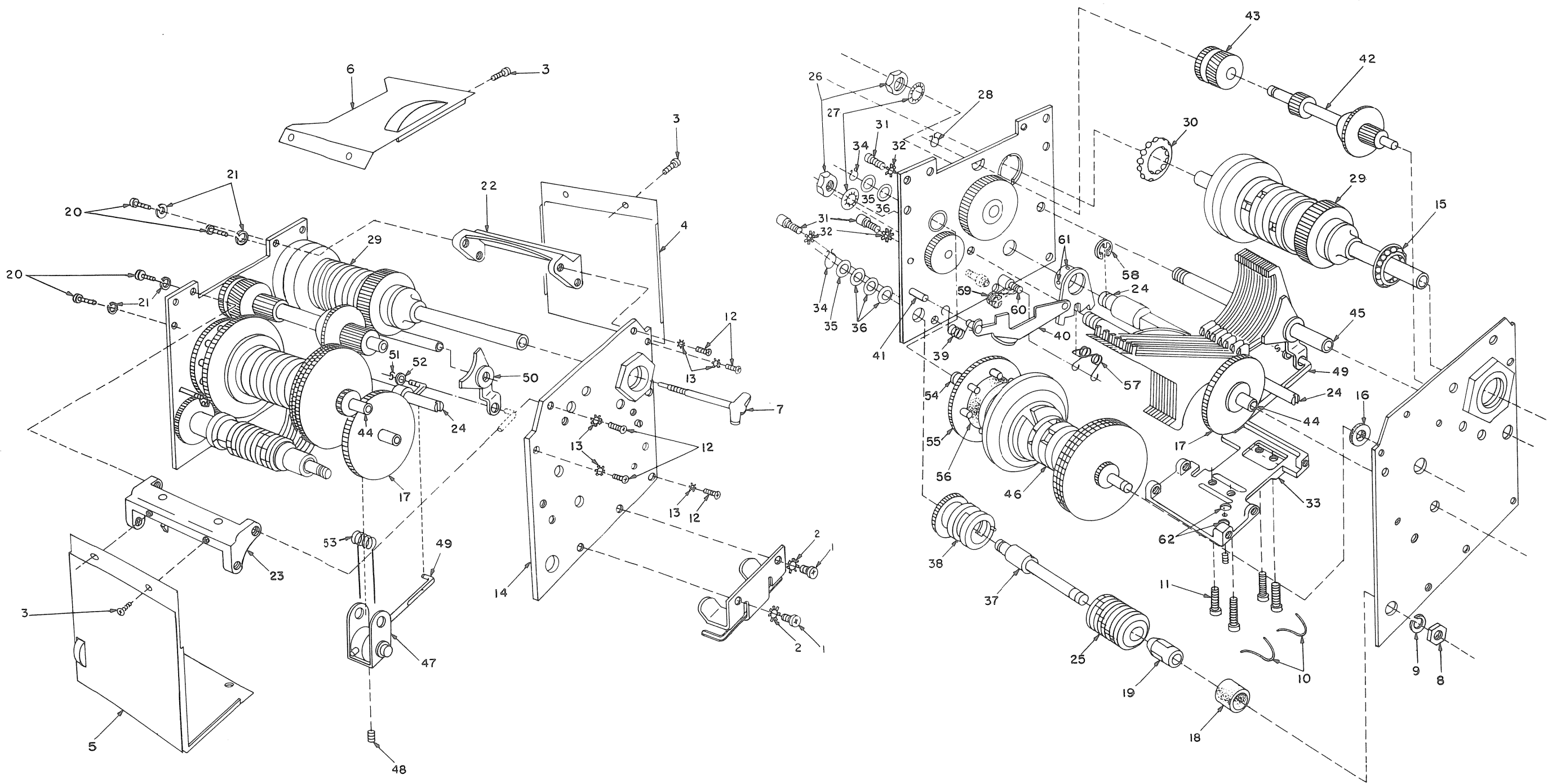


Figure 114. Disassembly of Autotune multiturn head.

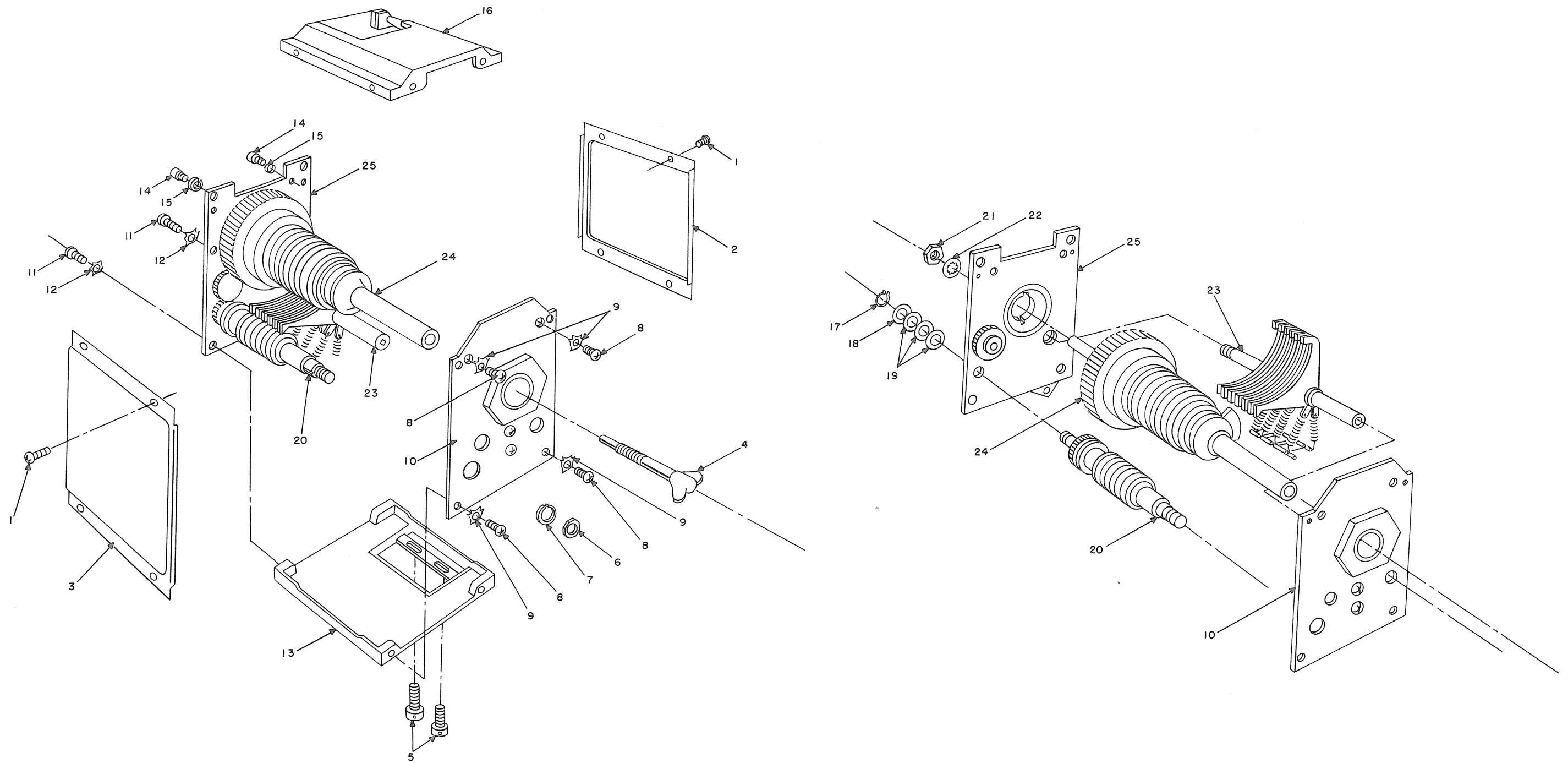
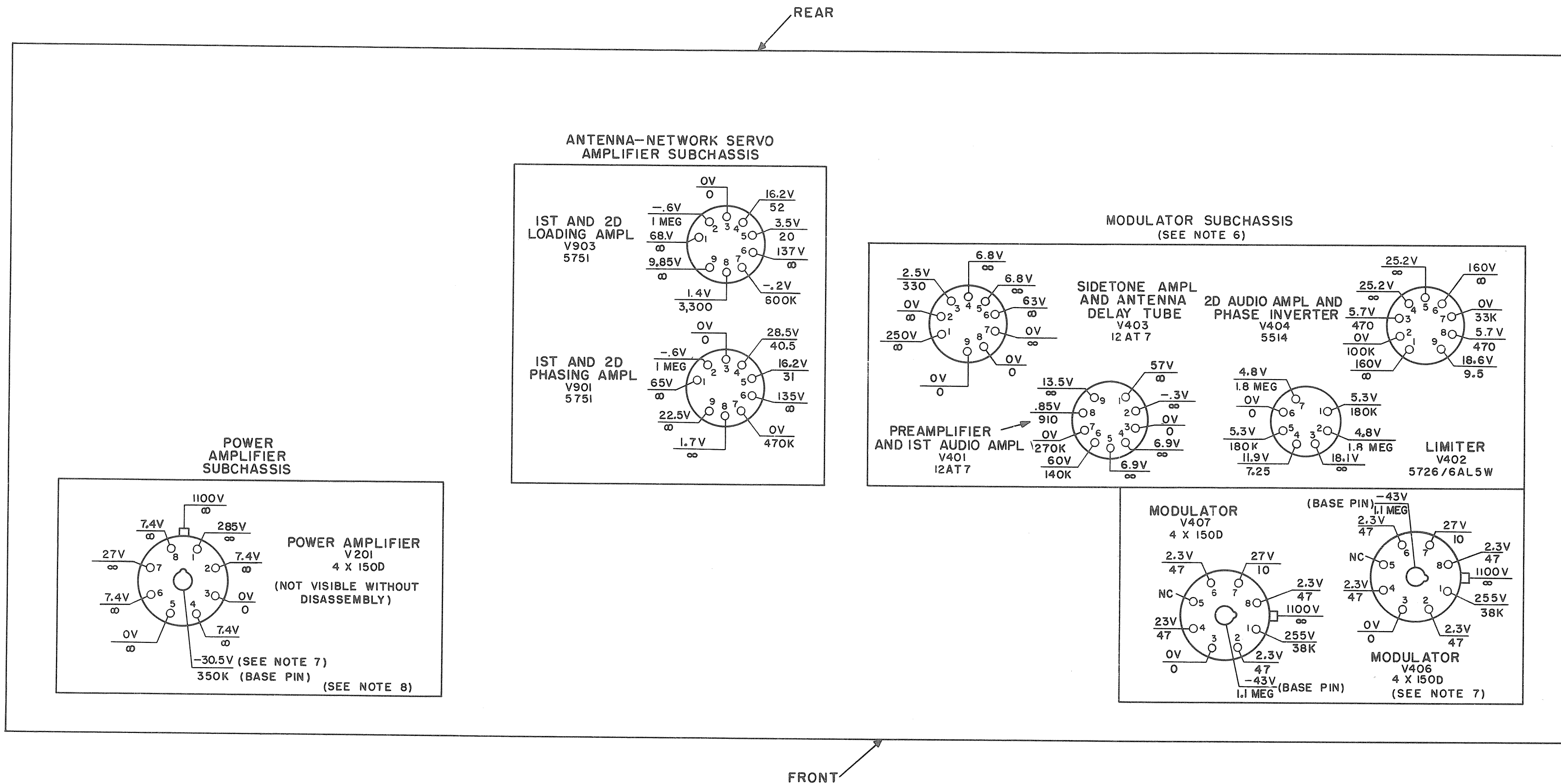


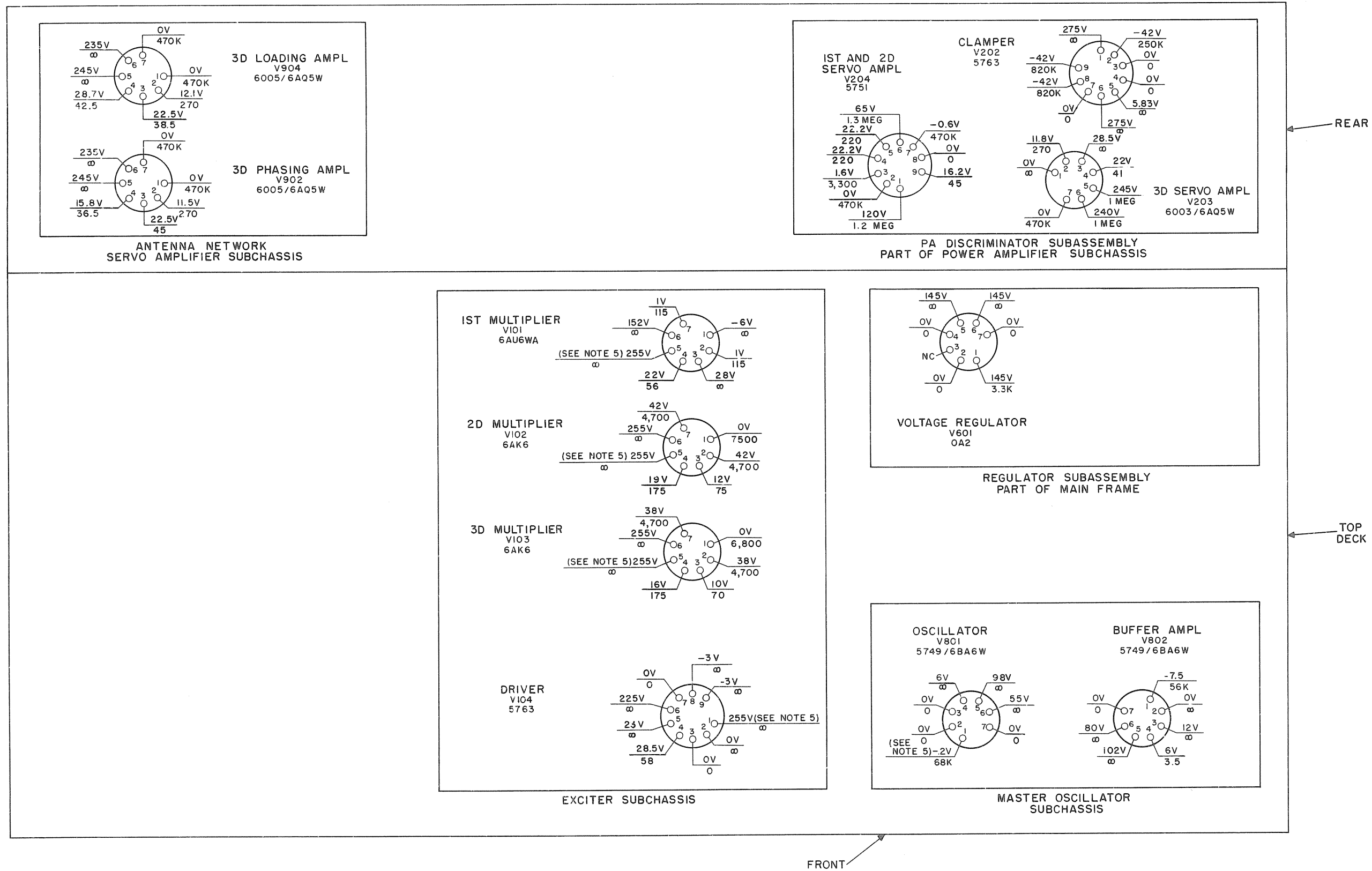
Figure 113. Disassembly of Autotune singleturn head.



NOTES:

1. UNLESS OTHERWISE SHOWN, RESISTANCES ARE IN OHMS AND ARE MEASURED FROM SOCKET PIN TO GROUND WITH A 20,000-OHMS-PER-VOLT METER, AND WITH THE SUBCHASSIS PLUGS DISCONNECTED FROM THE MAIN FRAME. VOLTAGES ARE DC AND ARE MEASURED FROM SOCKET PIN TO GROUND WITH A VTVM AND WITH THE SUBCHASSIS CONNECTED TO MAIN FRAME, USING THE REQUIRED BENCH-TEST CABLE.
2. NC INDICATES NO CONNECTION.
3. ∞ INDICATES INFINITY.
4. UNLESS OTHERWISE NOTED, ALL RESISTANCE MEASUREMENTS ARE TAKEN WITH THE **SERVICE SELECTOR** AT **OFF**, AND THE **BAND SELECTOR** AND **TUNING CONTROL** SET FOR 18.000 MC AS SHOWN ON THE FREQUENCY INDICATOR. ALL VOLTAGE MEASUREMENTS ARE TAKEN AT 18 MC WITH THE CONTROLS SET AS FOLLOWS: **DIAL DIM** AT **FULL**, **TEST KEY** AT **ON**, **LINE LEVEL** AT **-34**, **RELAY-NORMAL-DUPLEX** AT **NORMAL**, AND **SERVICE SELECTOR** AT **CW**.
5. THIS MEASUREMENT TAKEN WITH **TEST KEY** AT **OFF**.
6. VOLTAGE MEASUREMENT FOR THE MODULATOR SUBCHASSIS ARE MADE WITH **SERVICE SELECTOR** AT **VOICE** AND NO MODULATION INPUT TO THE TRANSMITTER.
7. THE MEASUREMENTS FOR THE PLATES OF V406 AND V407 ARE TAKEN AT TERMINALS 2 AND 1 RESPECTIVELY OF T402.
8. MEASUREMENTS FOR SOCKET PINS 2,5,7 AND BASE PIN OF V201 ARE TAKEN AT TERMINALS E205, E207, E206, AND E208 RESPECTIVELY LOCATED ON SHIELD NEAR SOCKET XV201.
9. ALL TUBES IN EACH SUBCHASSIS REMOVED.

Figure 105. Radio Transmitter T-195/GRC-19, bottom deck, tube voltage and resistance diagram.



- NOTES:
- UNLESS OTHERWISE SHOWN, RESISTANCES ARE IN OHMS AND ARE MEASURED FROM SOCKET PIN TO GROUND WITH A 20,000-OHMS-PER-VOLT METER AND WITH THE SUBCHASSIS PLUGS DISCONNECTED FROM THE MAIN FRAME. VOLTAGES ARE DC AND ARE MEASURED FROM SOCKET PIN TO GROUND WITH A VTVM AND WITH SUBCHASSIS CONNECTED TO MAIN FRAME, USING THE REQUIRED BENCH-TEST CABLE.
 - NC INDICATES NO CONNECTION.
 - ∞ INDICATES INFINITY.
 - UNLESS OTHERWISE NOTED, ALL RESISTANCE MEASUREMENTS ARE TAKEN WITH THE SERVICE SELECTOR AT OFF, AND THE BAND SELECTOR AND TUNING CONTROL SET FOR 18000 MC AS SHOWN ON THE FREQUENCY INDICATOR. ALL VOLTAGE MEASUREMENTS ARE TAKEN AT 18 MC WITH THE CONTROL SET AS FOLLOWS: DIAL DIM AT FULL, TEST KEY AT ON, LINE LEVEL AT -34, RELAY-NORMAL-DUPLEX AT NORMAL, AND SERVICE SELECTOR AT CW.
 - THIS MEASUREMENT TAKEN WITH TEST KEY AT OFF.
 - ALL TUBES IN EACH SUBCHASSIS REMOVED.

Figure 104. Radio Transmitter T-195/GRC-19, top deck, tube voltage and resistance diagram.

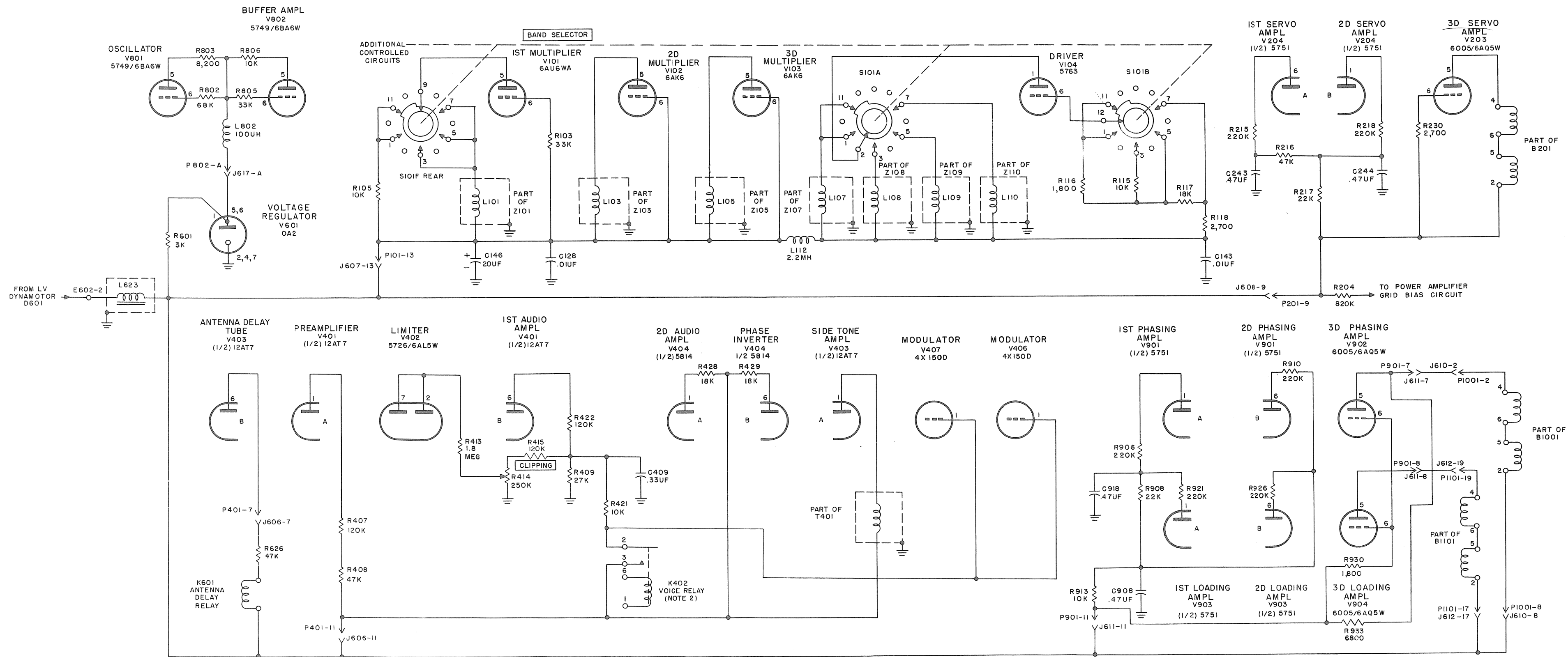


Figure 63. +250-volt distribution, function diagram.

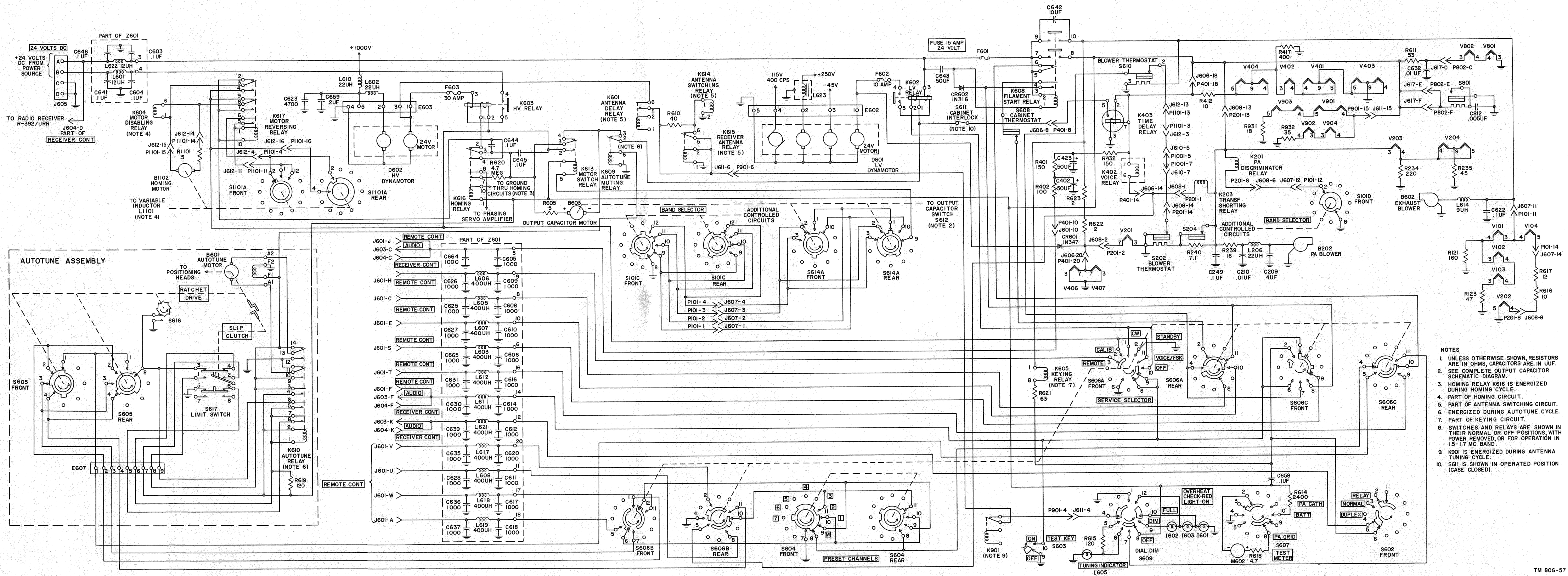


Figure 61. +24-volt distribution, functional diagram.

- NOTES
- UNLESS OTHERWISE SHOWN, RESISTORS ARE IN OHMS, CAPACITORS ARE IN UUF.
 - SEE COMPLETE OUTPUT CAPACITOR SCHEMATIC DIAGRAM.
 - HOMING RELAY K616 IS ENERGIZED DURING HOMING CYCLE.
 - PART OF HOMING CIRCUIT.
 - PART OF ANTENNA SWITCHING CIRCUIT.
 - ENERGIZED DURING AUTOTUNE CYCLE.
 - PART OF KEYING CIRCUIT.
 - SWITCHES AND RELAYS ARE SHOWN IN THEIR NORMAL OR OFF POSITIONS, WITH POWER REMOVED, OR FOR OPERATION IN 1.5-1.7 MC BAND.
 - K901 IS ENERGIZED DURING ANTENNA TUNING CYCLE.
 - S611 IS SHOWN IN OPERATED POSITION (CASE CLOSED).

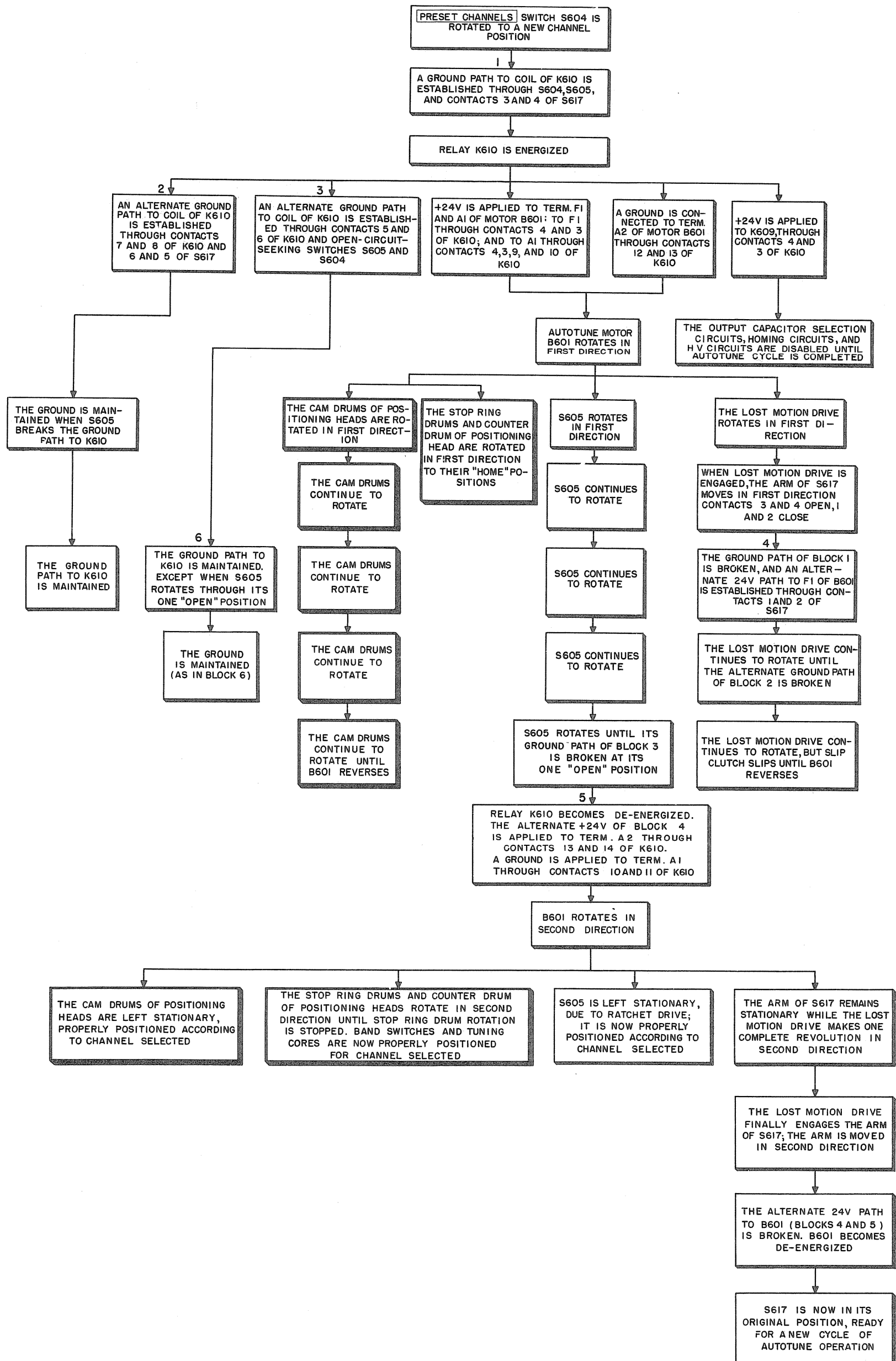
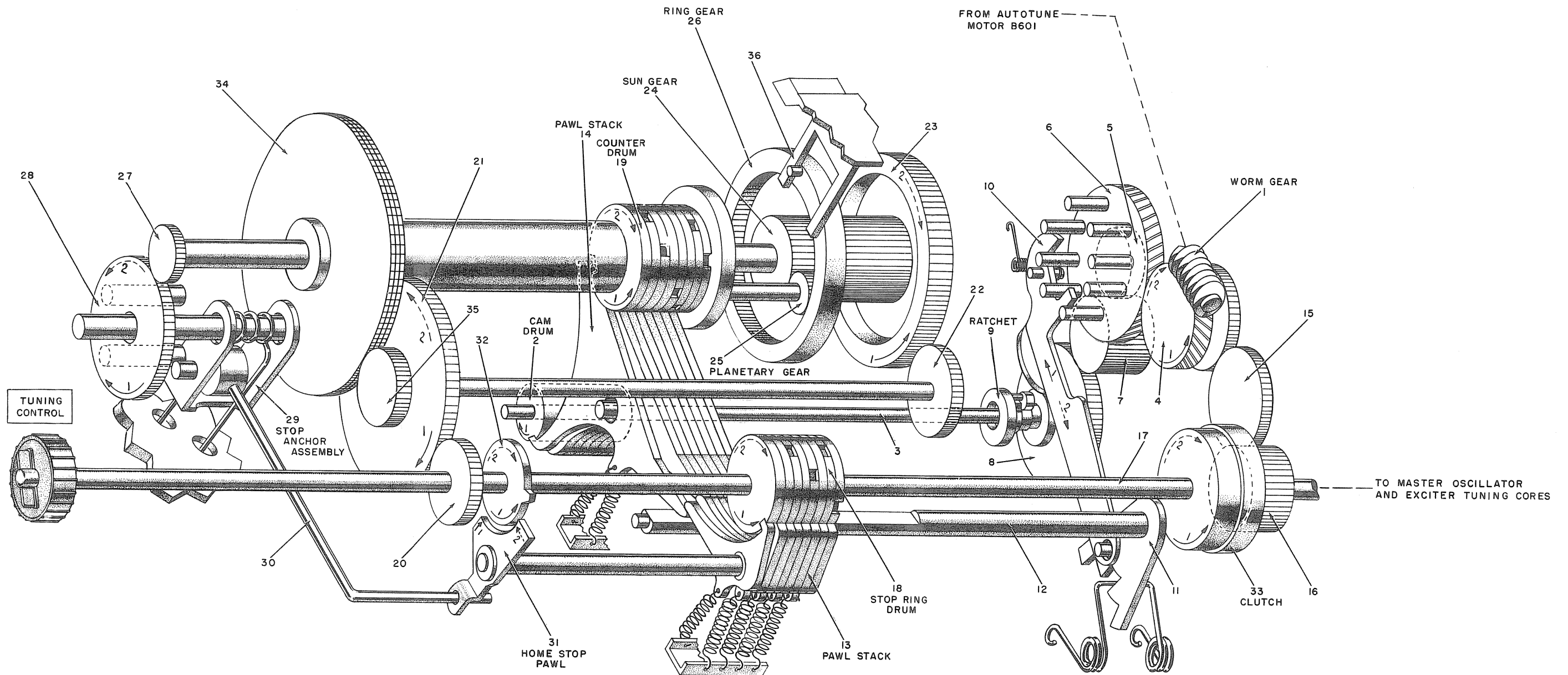
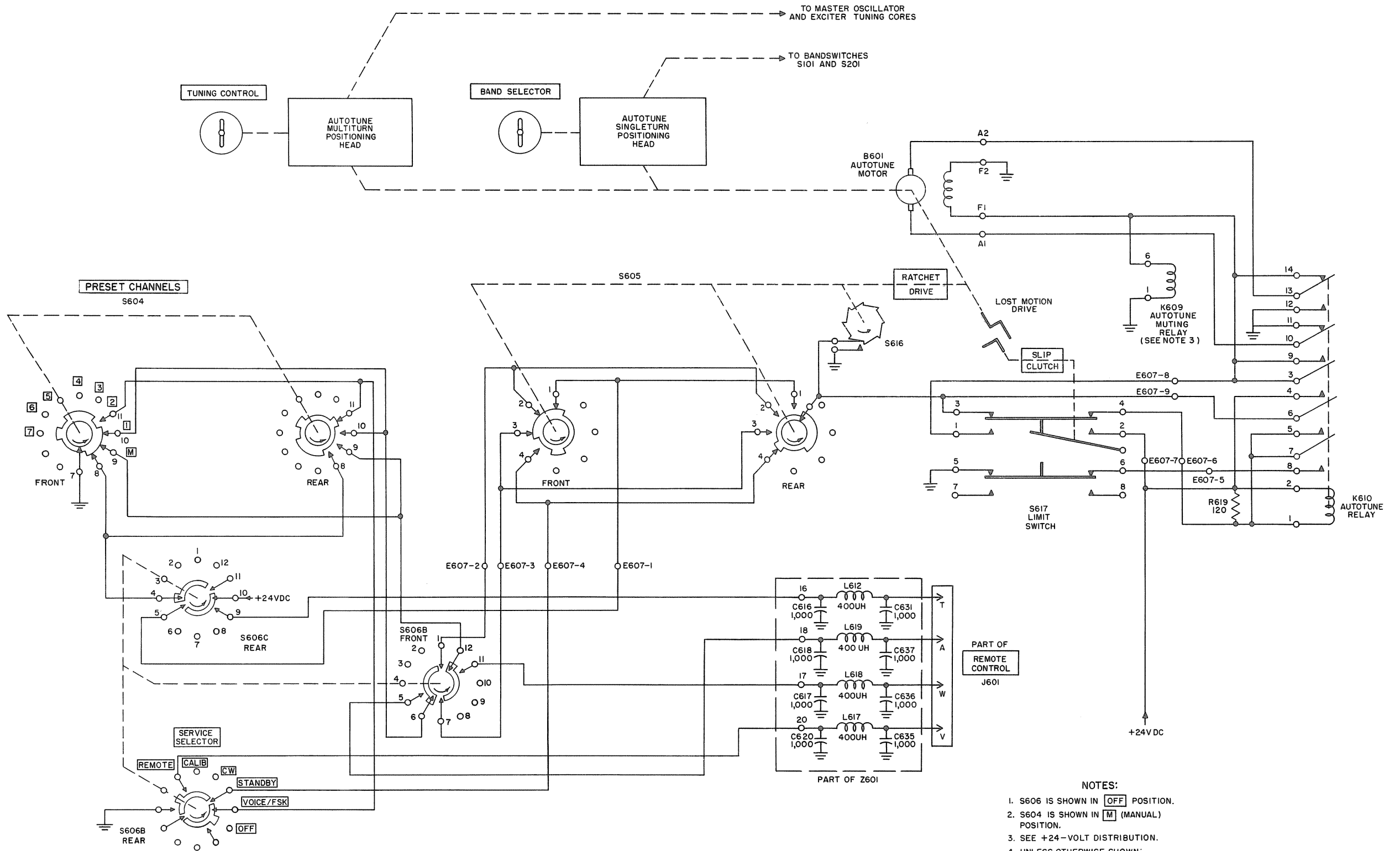


Figure 58. Autotune circuits, flow chart.



NOTE:
 THIS IS A REPRESENTATIVE DRAWING.
 PARTS ARE NOT NECESSARILY DRAWN
 TO SCALE.

Figure 57. Multiturn positioning head, representative drawing.



- NOTES:
1. S606 IS SHOWN IN **OFF** POSITION.
 2. S604 IS SHOWN IN **M** (MANUAL) POSITION.
 3. SEE +24-VOLT DISTRIBUTION.
 4. UNLESS OTHERWISE SHOWN: CAPACITORS ARE IN UUF.

Figure 55. Autotune control circuits, functional diagram.

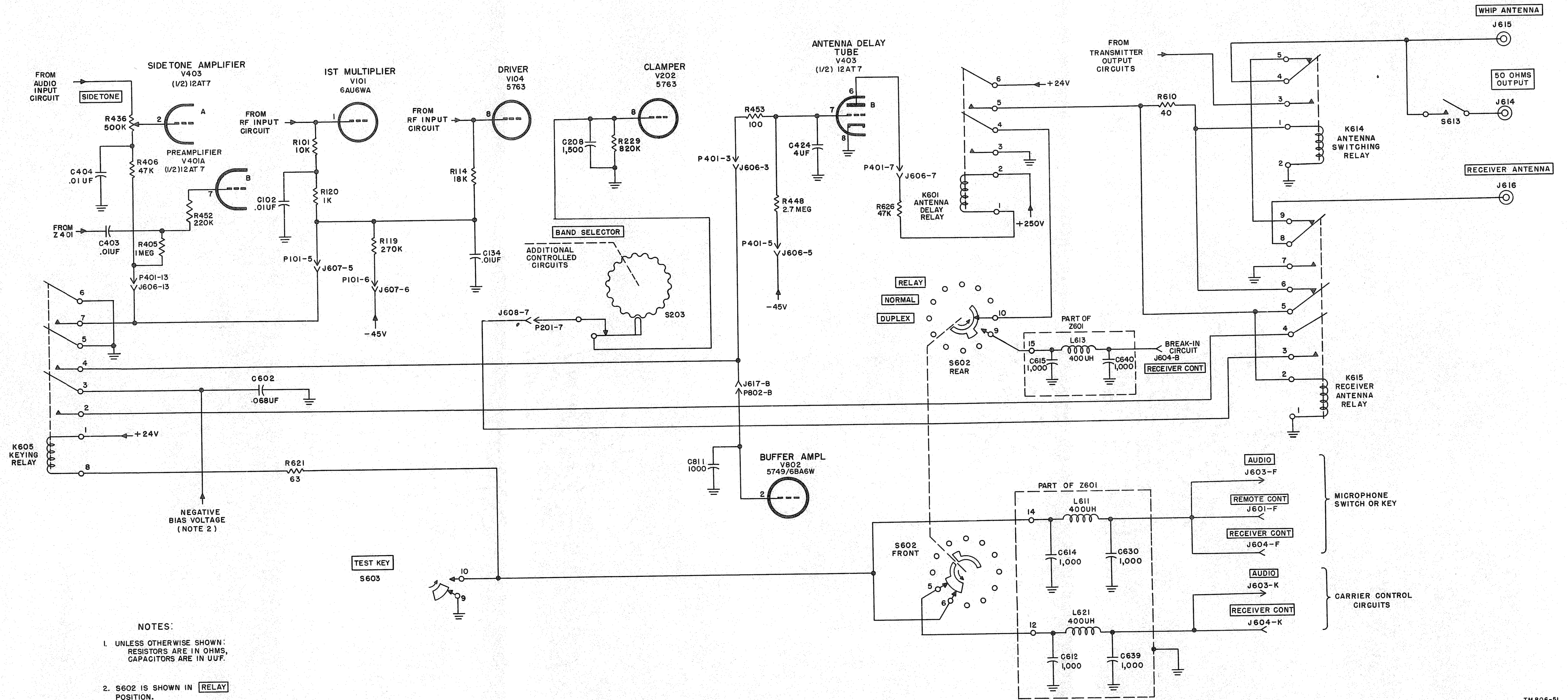
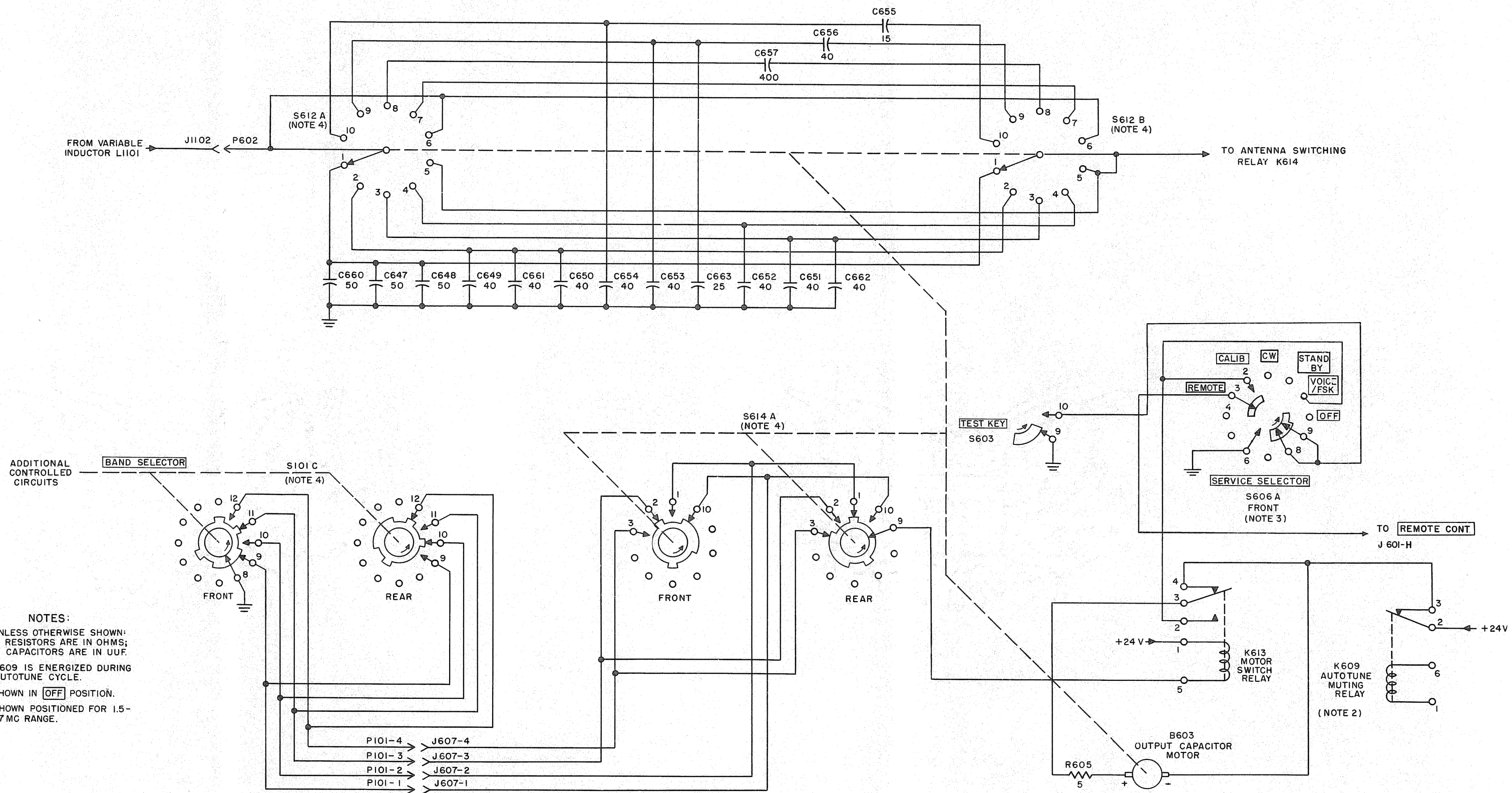
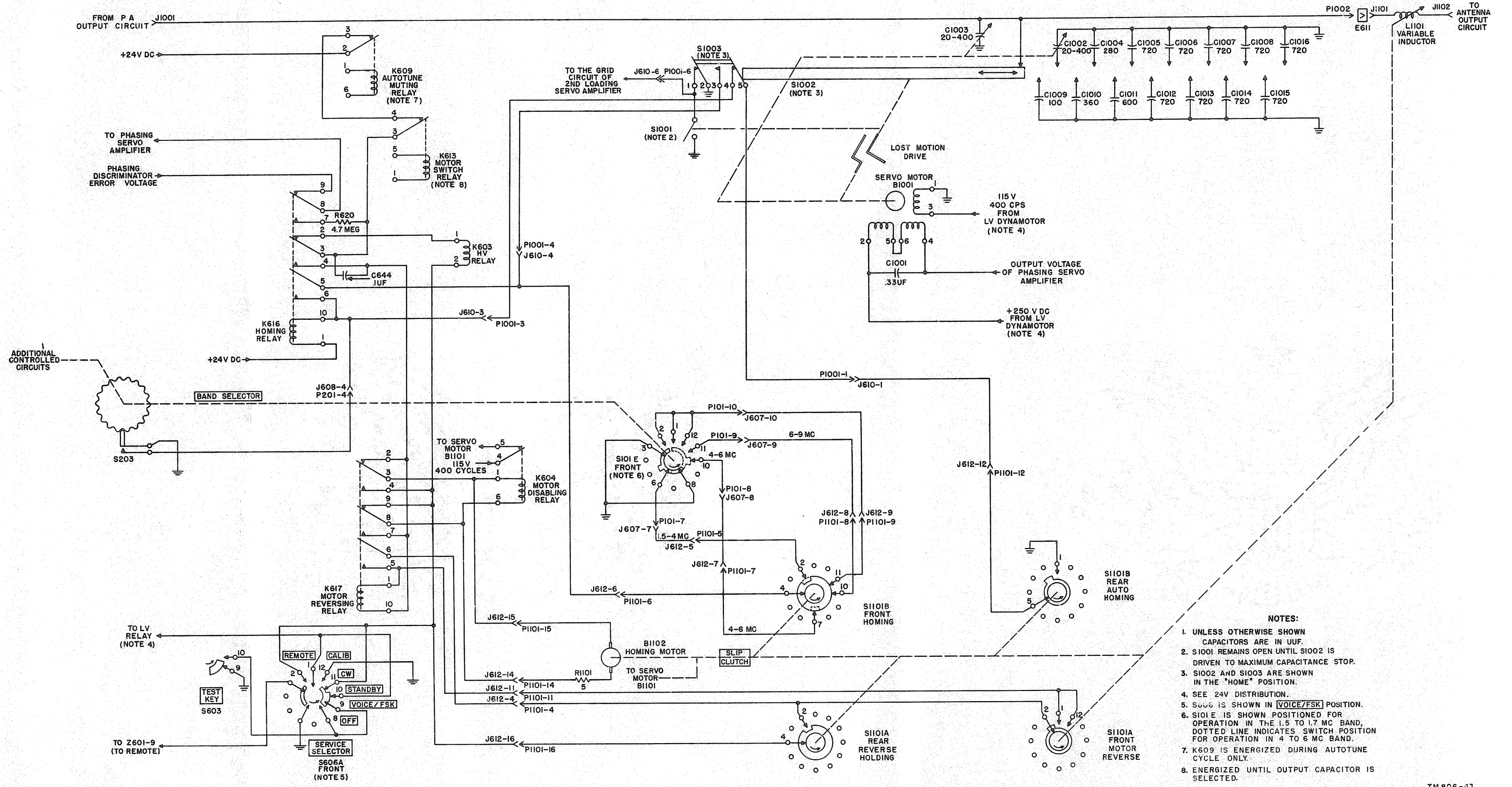


Figure 54. Antenna switch and keying circuits, functional diagram.



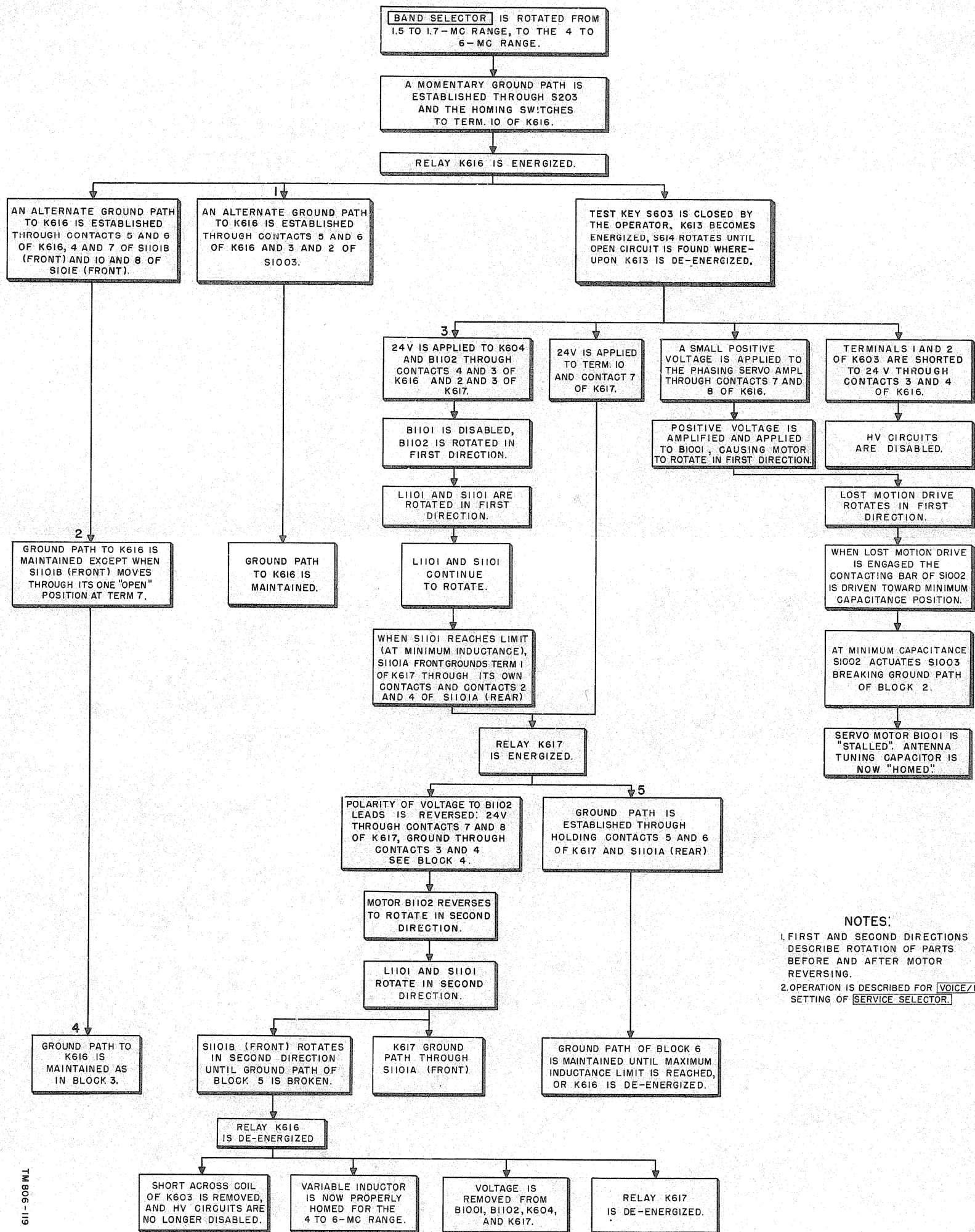
- NOTES:
1. UNLESS OTHERWISE SHOWN: RESISTORS ARE IN OHMS; CAPACITORS ARE IN UUF.
 2. K609 IS ENERGIZED DURING AUTOTUNE CYCLE.
 3. SHOWN IN OFF POSITION.
 4. SHOWN POSITIONED FOR 1.5-1.7 MC RANGE.

Figure 52. Output capacitor, functional diagram.



- NOTES:**
- UNLESS OTHERWISE SHOWN CAPACITORS ARE IN UUF.
 - S1001 REMAINS OPEN UNTIL S1002 IS DRIVEN TO MAXIMUM CAPACITANCE STOP.
 - S1002 AND S1003 ARE SHOWN IN THE "HOME" POSITION.
 - SEE 24V DISTRIBUTION.
 - S606 IS SHOWN IN [VOICE/FSK] POSITION.
 - S101E IS SHOWN POSITIONED FOR OPERATION IN THE 1.5 TO 1.7 MC BAND. DOTTED LINE INDICATES SWITCH POSITION FOR OPERATION IN 4 TO 6 MC BAND.
 - K609 IS ENERGIZED DURING AUTOTUNE CYCLE ONLY.
 - ENERGIZED UNTIL OUTPUT CAPACITOR IS SELECTED.

Figure 45. Homing circuits, functional diagram.



NOTES:
 1. FIRST AND SECOND DIRECTIONS DESCRIBE ROTATION OF PARTS BEFORE AND AFTER MOTOR REVERSING.
 2. OPERATION IS DESCRIBED FOR VOICE/FSK SETTING OF SERVICE SELECTOR.

Figure 44. Homing cycle flow chart.

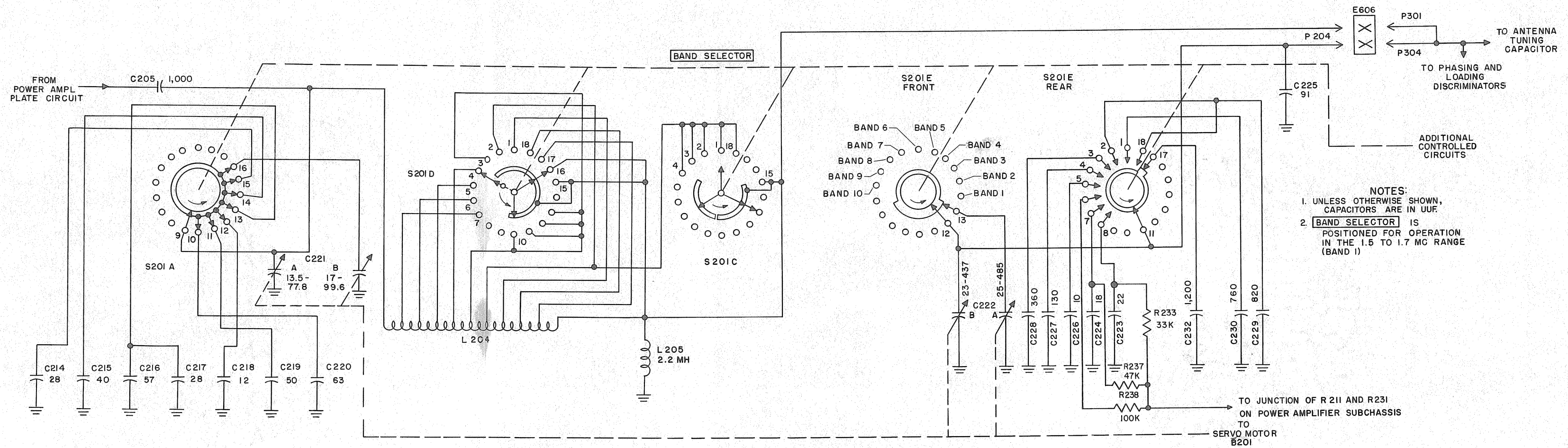
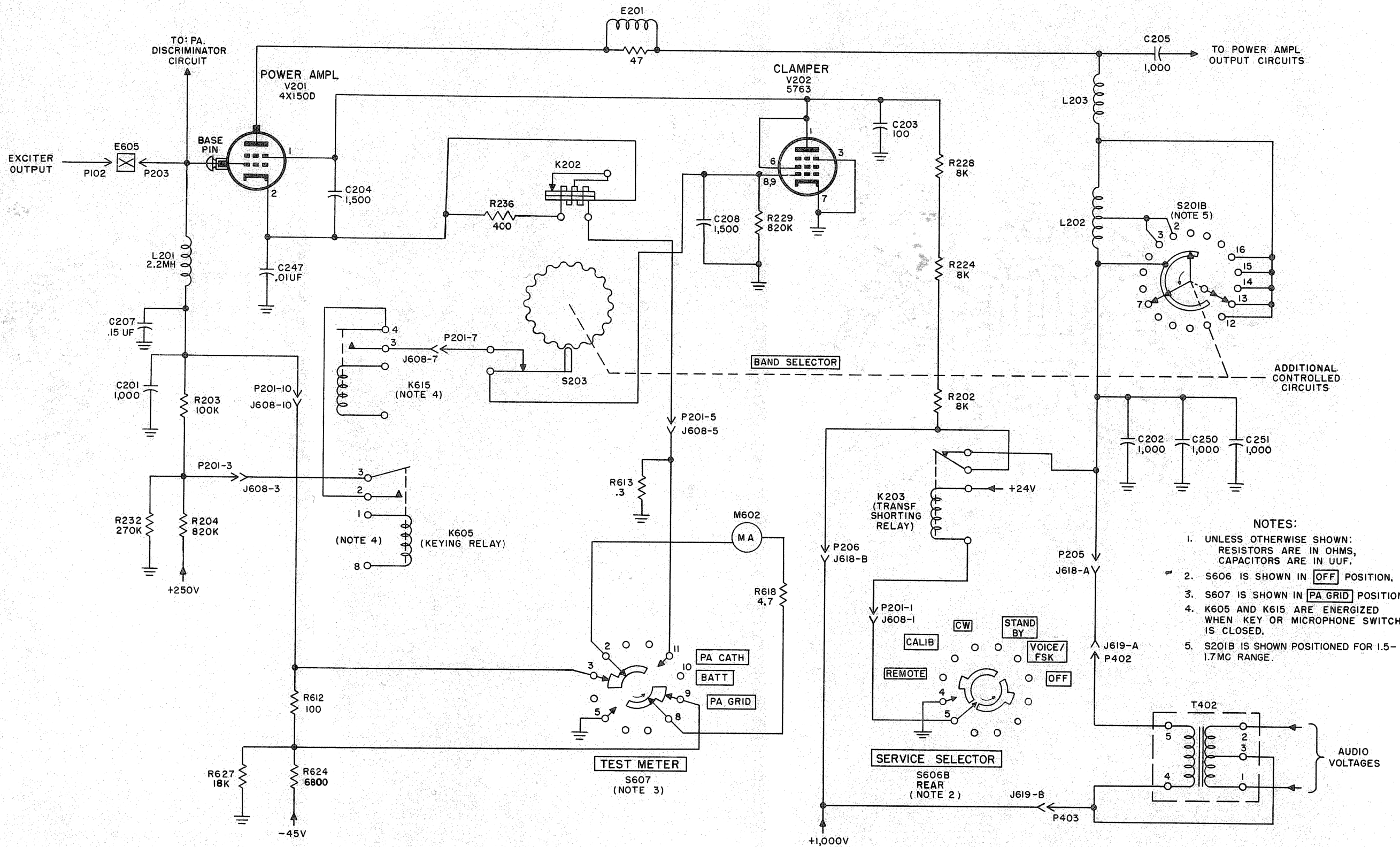


Figure 31. Power-amplifier plate circuit, functional diagram.



- NOTES:**
1. UNLESS OTHERWISE SHOWN: RESISTORS ARE IN OHMS, CAPACITORS ARE IN UUF.
 2. S606 IS SHOWN IN **OFF** POSITION.
 3. S607 IS SHOWN IN **PA GRID** POSITION.
 4. K605 AND K615 ARE ENERGIZED WHEN KEY OR MICROPHONE SWITCH IS CLOSED.
 5. S201B IS SHOWN POSITIONED FOR 1.5-1.7MC RANGE.

Figure 30. Power-amplifier and clamber stages, functional diagram.

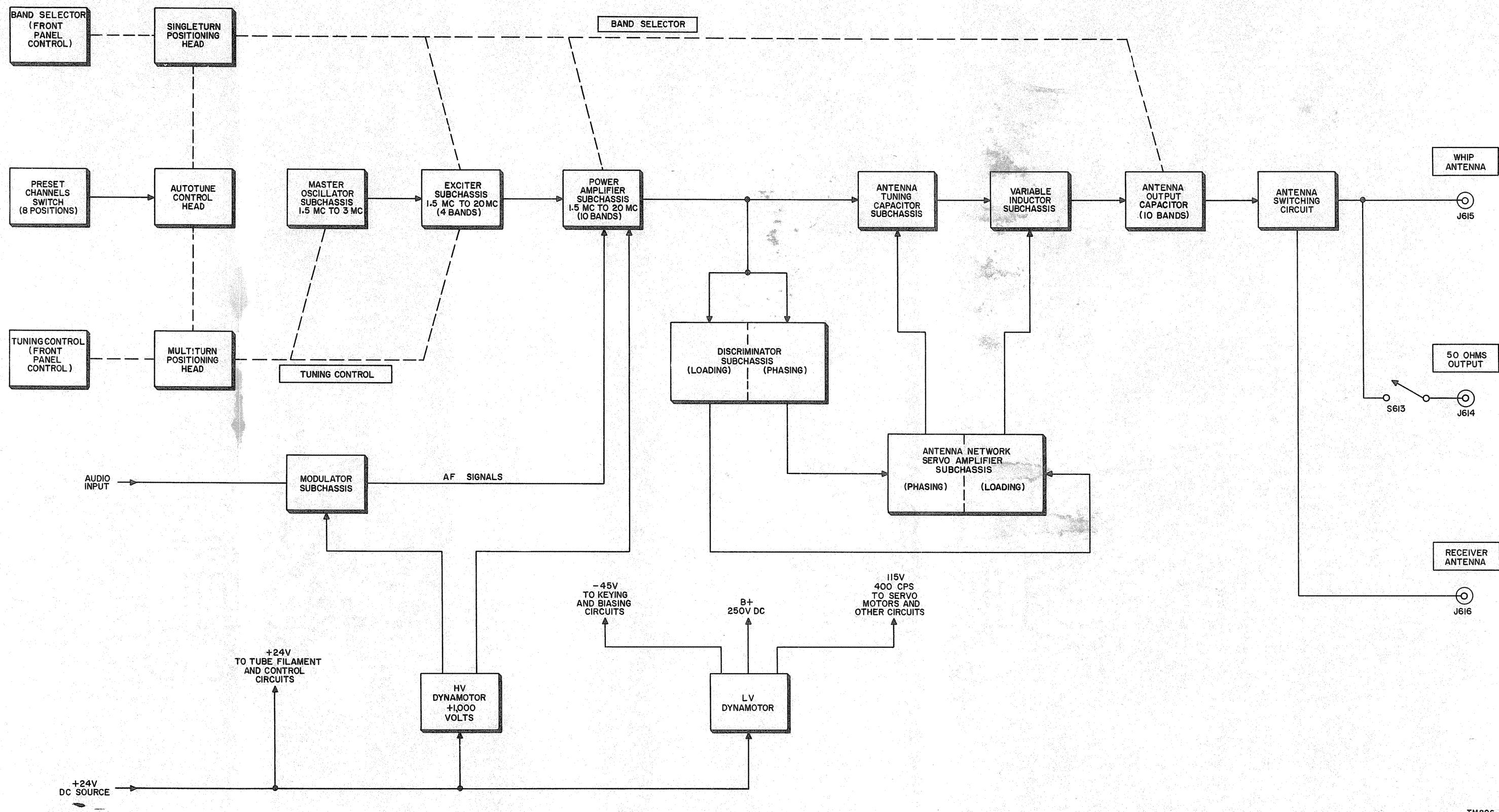
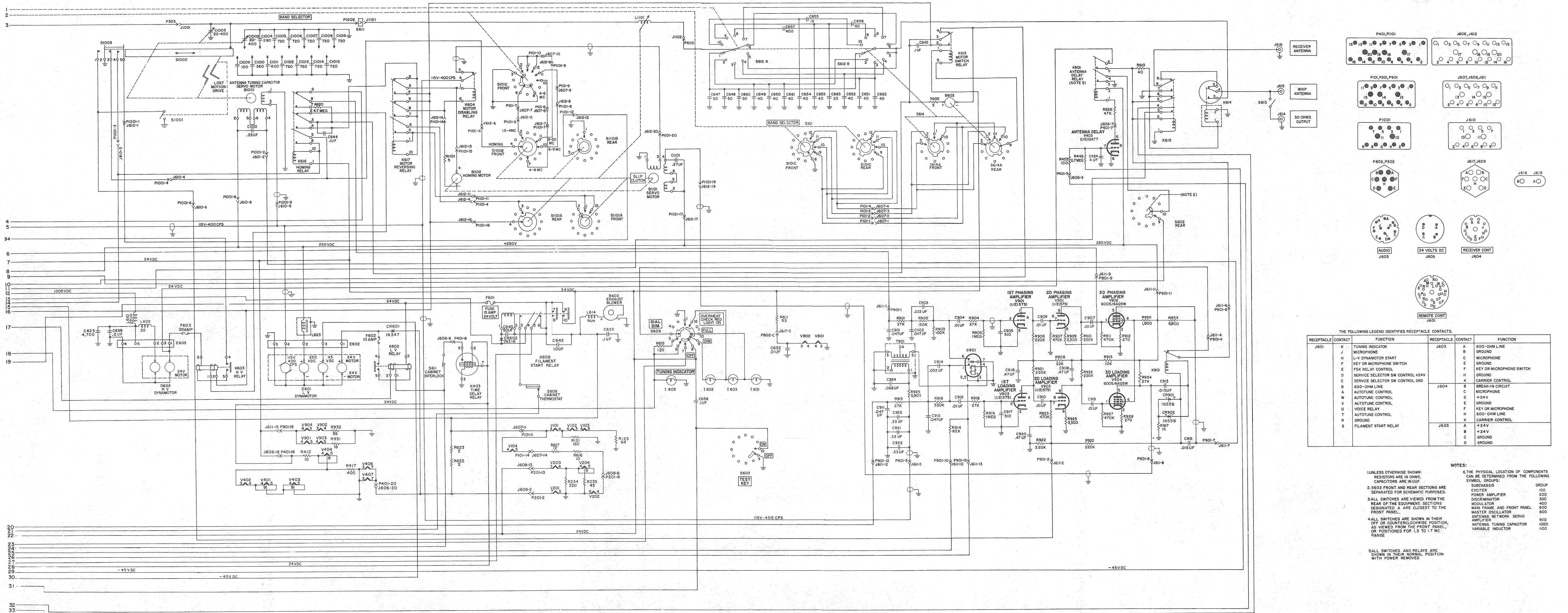


Figure 20. Radio Transmitter T-195/GRC-19, composite block diagram.



THE FOLLOWING LEGEND IDENTIFIES RECEPTACLE CONTACTS:

RECEPTACLE	CONTACT	FUNCTION	RECEPTACLE	CONTACT	FUNCTION	
J601	K	TUNING INDICATOR	J603	A	600-OHM LINE	
	J	MICROPHONE		B	GROUND	
	H	L-V DYNAMOTOR START		C	MICROPHONE	
	F	KEY OR MICROPHONE SWITCH		E	GROUND	
	E	FSK RELAY CONTROL		F	KEY OR MICROPHONE SWITCH	
	D	SERVICE SELECTOR SW CONTROL +24V		H	GROUND	
	C	SERVICE SELECTOR SW CONTROL GND		K	CARRIER CONTROL	
	B	600-OHM LINE		J604	B	BREAK-IN CIRCUIT
	A	AUTOTUNE CONTROL			C	MICROPHONE
	W	AUTOTUNE CONTROL			D	+24V
V	AUTOTUNE CONTROL	E	GROUND			
U	VOICE RELAY	F	KEY OR MICROPHONE			
T	AUTOTUNE CONTROL	H	600-OHM LINE			
R	GROUND	K	CARRIER CONTROL			
S	FILAMENT START RELAY	J605	A	+24V		
			B	+24V		
			C	GROUND		
			D	GROUND		

- NOTES:
- UNLESS OTHERWISE SHOWN: RESISTORS ARE IN OHMS; CAPACITORS ARE IN UF.
 - S602 FRONT AND REAR SECTIONS ARE SEPARATED FOR SCHEMATIC PURPOSES.
 - ALL SWITCHES ARE VIEWED FROM THE REAR OF THE EQUIPMENT. SECTIONS DESIGNATED 'A' ARE CLOSEST TO THE FRONT PANEL.
 - ALL SWITCHES ARE SHOWN IN THEIR OFF OR COUNTERCLOCKWISE POSITION, AS VIEWED FROM THE FRONT PANEL, OR POSITIONED FOR 1.5 TO 1.7 MC RANGE.
 - ALL SWITCHES AND RELAYS ARE SHOWN IN THEIR NORMAL POSITION WITH POWER REMOVED.
 - THE PHYSICAL LOCATION OF COMPONENTS CAN BE DETERMINED FROM THE FOLLOWING SYMBOL GROUPS:

SUBCHASSIS	GROUP
EXCITER	100
POWER AMPLIFIER	200
DISCRIMINATOR	300
MODULATOR	400
MAIN FRAME AND FRONT PANEL	600
MASTER OSCILLATOR	800
ANTENNA NETWORK SERVO	900
ANTENNA NETWORK SERVO AMPLIFIER	1000
VARIABLE INDUCTOR	1100

Figure 139. Radio Transmitter T-195/GRC-19, schematic diagram—Continued.