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Please get in touch with me at archivist@vmarsmanuals.co.uk.

Richard Hankins, VMARS Archivist, Summer 2004

# STATION, RADIO, A510

## TECHNICAL HANDBOOK - TECHNICAL DESCRIPTION

**This Part 2 contains fault-finding and repair data in tabular and diagrammatic form. Part 1 of the EMER contains a general description of this equipment. Tels F 563 and F 564 deal with repairs.**

## INDEX TO TABLES



## INDEX TO FIGURES

## Table 2501 - Component schedule

| Circuit ref | Value (Ω) | Grid reference | | | |
|---|---|---|---|---|---|
| | | Fig 2503 | Fig 2504 | Fig 2506 | Fig 2507 |
| | | RESISTORS | | | |
| R1 | 470k | | D6 | | E1,2 |
| R2 | 10k | | E2 | | G3,4 |
| R4 | 470k | | GH6 | | E2,3 |
| R5 | 100k | | H6 | | E4 |
| R6 | 1.5k | | G2 | | G4 |
| R7 | 2.2M | | N8 | | G2 |
| R8 | 10k | | L2 | | B3,4 |
| R9 | 10k | | J2 | | A3,4 |
| R10 | 470k | | P2,3 | | F3,4 |
| R11 | 150k | | P1,2 | | FG3 |
| R12 | 47k | | MN4,5 | | H5 |
| R13 | 18k | | O2,3 | | GH3 |
| R14 | 2.2M | | O7 | | H5 |
| R15 | 6.8M | | O7 | | G2 |
| R17 | 47k | | O4,5 | | G1,2 |
| R18 | 6.8M | | Q3 | | H1,2 |
| R19 | 47k | | Q7 | | G2,3 |
| R20 | 10k | | M5 | | E2 |
| R21 | 10k | | P7 | | H3 |
| R101 | 220k | E4 | | B5 | |
| R103 | 470k | F5,6 | | | |
| R104 | 680 | F4 | | | |
| R105 | 3.9k | E2 | | B4,5 | |
| R106 | 47k | F4 | | | |
| R107 | 15k | J5 | | | |
| R108 | 100k | N4 | | | |
| R109 | 150k | B2 | | B3 | |
| R110 | 470k | B2 | | A2 | |
| R111 | 3.9k | J6 | | | |
| R112 | 470 | J7 | | | |
| R113 | 360k | G4 | | | |
| R114 | 5.6k | G6 | | | |
| R115 | 470k | CD7 | | | |
| R116 | 150 | K7 | | | |
| R117 | 220k | M1 | | D1 | |
| RV1 | 1M | | O5 | | |

Note: All fixed resistors are 1/2W, 10%, insulated, composition

Table 2501 - (cont)

| Circuit ref | Value (F) | Rating (V) | Type | Grid reference | | | |
|---|---|---|---|---|---|---|---|
| | | | | Fig 2503 | Fig 2504 | Fig 2506 | Fig 2507 |
| CAPACITORS - FIXED | | | | | | | |
| C3 | 0.4µ | 200 | Paper ins | | G7 | | G2 |
| C5 | 100p | | Ceramic ins | | D3,4 | | DE1 |
| C6 | 0.1µ | 200 | Paper ins | | E7 | | F3 |
| C10 | 0.1µ | 200 | Paper ins | | G7 | | G4 |
| C11 | 100p | | Ceramic ins | | G3 | | E2,3 |
| C12 | 0.1µ | 200 | Paper ins | | L7 | | G2 |
| C14 | 1800p | | | | L6 | | |
| C15 | 900p | | | | K6 | | |
| C16 | 12p | | Ceramic ins | | J6 | | D4 |
| C17 | 100p | | Ceramic ins | | H4 | | D4,5 |
| C18 | 150p | | Silver-mica | | H2 | | |
| C19 | 150p | | Silver-mica | | J2 | | |
| C22 | 0.1µ | 200 | Paper ins | | F2 | | F4 |
| C23 | 150p | | Silver-mica | | L2 | | |
| C24 | 150p | | Silver-mica | | MN2 | | |
| C25 | 470p | | Mica | | E3 | | G3,4 |
| C26 | 0.1µ | | Paper ins | | Q2 | | G3 |
| C27 | 470p | | Mica | | Q2 | | G1,2 |
| C28 | 5000p | | Paper ins | | O5 | | |
| C29 | 0.1µ | | Paper ins | | C6 | | G3 |
| C30 | 150p | | Silver-mica | | N2 | | |
| C31 | 150p | | Silver-mica | | O2 | | |
| C32 | 100p | | Ceramic ins | | O4 | | G2,3 |
| C33 | 100p | | Ceramic ins | | PQ4 | | |
| C34 | 220p | | Silver-mica | | P5 | | |
| C35 | 470p | | Silver-mica | | Q5 | | |
| C36 | 5p | | Ceramic | | B6 | | A2 |
| C37 | 0.1µ | 200 | Paper ins | | Q6 | | F3 |
| C38 | 470p | | Silver-mica | | O5 | | |
| C39 | 0.01µ | 200 | Paper ins | | B7 | | |
| C40 | 12p | | | | Q6 | | F2 |
| C41 | 12p | | | | P6 | | H2 |
| C42 | 4.7p | | Ceramic bead | | P6 | | J5 |
| C101 | 5000p | 200 | Paper ins | A6 | | BC5 | |
| C102 | 0.01µ | 200 | Paper ins | K2 | | | |
| C103 | 0.01µ | 200 | Paper ins | FG7 | | | |
| C104 | 1000p | 350 | Paper ins | F3 | | CD5 | |
| C105 | 5000p | 200 | Paper ins | H3 | | DE4 | |
| C107 | 33p | 200 | Silver-mica | E4 | | B5 | |
| C108 | 0.01µ | 200 | Paper ins | F2 | | EF5 | |
| C109 | 5000p | 200 | Paper ins | C2 | | | |
| C110 | 0.01µ | 200 | Paper ins | E7 | | | |
| C112 | 1000p | 350 | Paper | C5,6 | | A2 | |

Table 2501 - (cont)

| Circuit ref | Value (F) | Rating (V) | Type | Grid reference | | | |
|---|---|---|---|---|---|---|---|
| | | | | Fig 2503 | Fig 2504 | Fig 2506 | Fig 2507 |
| CAPACITORS FIXED - (cont) | | | | | | | |
| C113 | 5000p | 200 | Paper | E2 | | CD4,5 | |
| C114 | 15p | 500 | Mica | M5 | | E3 | |
| C115 | 22p | 500 | Mica | M5 | | E3 | |
| C116 | 33p | 500 | Mica | L5 | | E3 | |
| C117 | 57p | 500 | Mica | L5 | | DE3 | |
| C118 | 82p | 500 | Mica | KL5 | | D3 | |
| C119 | 150p | 500 | Mica | K5 | | D3 | |
| C120 | 800p | 500 | Mica | K2 | | E3 | |
| C121 | 470p | 500 | Mica | KL2 | | E3 | |
| C122 | 300p | 500 | Mica | L2 | | DE3 | |
| C123 | 180p | 500 | Mica | L2 | | D3 | |
| C124 | 100p | 500 | Mica | M2 | | D3 | |
| C125 | 68p | 500 | Mica | M2 | | D3 | |
| C126 | 0.01µ | 200 | Paper ins | J2 | | F2,3 | |
| C127 | 0.01µ | 200 | Paper ins | C3 | | | |
| C128 | 1000p | 200 | Paper ins | D7 | | | |
| C129 | 5000p | 200 | Paper ins | B6 | | BC5 | |
| CAPACITORS - VARIABLE | | | | | | | |
| C1 | 3-30p | | | | C5 | | BC1,2 |
| C2 | 3-30p | | | | C6 | | BC2 |
| C4 | 10-225p | | | | D6 | | |
| C7 | 10-225p | | | | E6 | | |
| C8 | 3-30p | | | | G6 | | BC3 |
| C9 | 3-30p | | | | G5 | | BC3,4 |
| C13 | 10-225p | | | | J6 | | |
| C20 | 3-30p | | | | KL4 | | BC5 |
| C21 | 3-30p | | | | K4 | | BC4 |
| C106 | 10-225p | | | H4 | | | |

Notes: (1) All variable capacitors have air dielectric.

(2) C4, C7 and C13 are sections of a 3-gang capacitor.

Table 2501 - (cont)

| Circuit ref | Function | Grid reference | | | |
|---|---|---|---|---|---|
| | | Fig 2503 | Fig 2504 | Fig 2506 | Fig 2507 |
| | **INDUCTORS** | | | | |
| L1 | Aerial tuning | | B5 | | B2 |
| L2 | Aerial coupling | | B5 | | B2 |
| L3 | Aerial tuning | | B6 | | B2 |
| L4 | R.F. anode tuning | | G5 | | B3 |
| L5 | R.F. anode tuning | | G5,6 | | B3 |
| L6 | Local oscillator anode coupling | | K5 | | B5 |
| L7 | Local oscillator grid tuning | | K5 | | B5 |
| L8 | Local oscillator anode coupling | | L5 | | B5 |
| L9 | Local oscillator grid tuning | | L5 | | B5 |
| L10 | Heterodyne oscillator tuning | | Q5 | | FG1 |
| L11 | P.A. tuning coil | H2 | | H3,4,5 | |
| L12 | R.F. choke | H2 | | J1-5 | |
| L13 | Filament choke | | F7 | | F2,3 |
| | **TRANSFORMERS** | | | | |
| TR1 | 1st i.f. transformer | | HJ1,2 | E5 | |
| TR2 | 2nd i.f. transformer | | LMN1,2 | H5 | |
| TR3 | 3rd i.f. transformer | | NO1,2 | H3 | |
| TR4 | Output transformer | | Q1,2 | | |
| TR5 | Microphone transformer | C6,7 | | | |
| | **SWITCHES** | | | | |
| SA1) | | ( | C5 | | C1,2 |
| SA2) | | ( | D5 | | D1,2 |
| SA3) | | ( | F5 | | D2,3 |
| SA4) | Frequency band switch | ( | F5 | | C2,3 |
| SA5) | | ( | JK3 | | C3,4 |
| SA6) | | ( | J4,5 | | D4,5 |
| SA7) | | ( | K4 | | C4,5 |
| SB | Dial lamp press switch | | CD7,8 | | |
| SC1Fa) | | (N2 | | ABC1 | |
| SC1Fb) | | (G5 | | ABC1 | |
| SC1Fc) | | (G7 | | ABC1 | |
| SC1Ba) | | (F7 | | ABC1 | |
| SC1Bc) | System switch(OFF-CW-R-VOICE.) | (K6 | | ABC1 | |
| SC2Fa) | | (J3 | | ABC2 | |
| SC2Fc) | | (L5 | | ABC2 | |
| SC2Ba) | | (D6,7 | | ABC2 | |
| SC2Bc) | | (M5 | | ABC2 | |
| SC3Fa) | | (D5 | | ABC3 | |
| SC3Fb) | | (F5 | | ABC3 | |
| SC3Fc) | | (C2 | | ABC3 | |
| SC3Ba) | | (A5 | | ABC3 | |
| SC3Bc) | | (F6 | | ABC3 | |

Table 2501 - (cont)

| Circuit ref | Function | Grid reference | | | |
|---|---|---|---|---|---|
| | | Fig 2503 | Fig 2504 | Fig 2506 | Fig 2507 |
| | SWITCHES - (cont) | | | | |
| SD1Fa) | A-B-NET switch | N3 | | ABC3 | |
| SD1Fb) | | MN4 | | ABC3 | |
| SD1Fc) | | J6 | | ABC3 | |
| SD1Ba) | | G6 | | ABC3 | |
| SD1Bb) | | JK4 | | ABC3 | |
| SD1Bc) | | D6 | | ABC3 | |
| SE1Ba) | CRYSTAL switch | D3 | | DEF2 | |
| SE1Bb | CRYSTAL switch | D2 | | DEF2 | |
| SF1F | Aerial MATCHING switch | L4 | | DEF2 | |
| SF1B | Aerial MATCHING switch | L3 | | DEF3 | |
| SG | Dial lamp press switch | MN7 | | | |

| Circuit ref | Type | Function | Grid reference | | | |
|---|---|---|---|---|---|---|
| | | | Fig 2503 | Fig 2504 | Fig 2506 | Fig 2507 |
| | | VALVES | | | | |
| V1 | CV785 | R.F. amplifier | | E3,4 | | EF1,2 |
| V2 | CV782 | Frequency changer | | H3,4 | | EF3,4 |
| V3 | CV785 | 1st i.f. amplifier | | LM3,4 | | G5 |
| V4 | CV785 | 2nd i.f. and reflex a.f. amplifier | | N3,4 | | HJ3,4 |
| V5 | CV784 | Heterodyne oscillator and diode detector | | P3,4 | | HJ1,2 |
| V6 | CV785 | Modulator and c.w. sidetone oscillator | B3,4 | | AB4,5 | |
| V7 | CV807 | Master oscillator | EF3,4 | | BC4,5 | |
| V8 | CV807 | Power amplifier | G3,4 | | D4,5 | |
| V9 | CV807 | Power amplifier | GH3,4 | | EF4,5 | |
| | | RECTIFIERS | | | | |
| MR1 | | Signal and noise limiter | F4 | P2 | | |
| MR5 | | P.A. bias control | | | | |
| MR6 | | Tuning indicator rectifier | J5 | | | |
| Note: All rectifiers are germanium, type CV448 | | | | | | |
| | | MASTER OSCILLATOR CRYSTALS | | | | |
| XL1 | | | C3 | | | |
| XL2 | | | D3 | | | |
| XL3 | | | D3 | | | |
| XL4 | | | E3 | | | |

Table 2501 - (cont)

| Circuit ref | Function | Grid reference | |
|---|---|---|---|
| | | Fig 2503 | Fig 2504 |
| **PLUGS AND SOCKETS** | | | |
| PL1 | Cable connector | P4-7 | |
| PL2 | L.T. battery plug | | C9 |
| PL3 | H.T. and bias battery plug | B8 | |
| SKT1 | Cable connector | | A4-7 |
| SKT2 | Head/handset socket | | DE8,9 |
| SKT3 | Keying socket | LM2 | |

| Circuit ref | Voltage (V) | Function | Grid reference | |
|---|---|---|---|---|
| | | | Fig 2503 | Fig 2504 |
| **LAMPS** | | | | |
| ILP1 | 1.5 | Dial lamp | | D7 |
| ILP2 | 1.5 | Dial lamp | N7 | |

| Circuit ref | F.S.D. | Function | Grid reference |
|---|---|---|---|
| | | | Fig 2503 |
| **METER** | | | |
| M1 | 500μA | Tuning indicator and l.t./h.t. voltage check | J7 |

Table 2502 - Current consumption

| Switch positions | | L.T. current (mA) | H.T. current (mA) |
|---|---|---|---|
| SC | SD | | |
| CW (key down) | A or B | 650 ±10% | 50 |
| R | Net | 200 ±10% | 16 |
| VOICE | A or B | 650 ±10% | 25 |

## Table 2503 - Receiver voltages and fault-finding

Conditions: (a) System switch at R.

(b) A-B-NET switch at A or B unless otherwise stated.

| Test point | D.C. range (V) | AVO 8 reading (V) | Possible fault | |
|---|---|---|---|---|
| | | | Low reading | High reading |
| TR2 pin 2 | 100 | 89 | H.T.+ low voltage<br>SC3Ba bad contact<br>Dry joint<br>Faulty connecting cable | |
| V1 pin 2 | 100 | 87 | TR2 pin 2 low voltage<br>V1 pin 3 high voltage<br>R6 high resistance<br>V1 faulty<br>C10 leaking<br>C7 shorting<br>C8,C9,L4,L5 earthing<br>SA3,SA4 bad contact | V1 pin 7 low voltage<br>V1 pin 3 low voltage<br>TR 3 pin 2 high voltage<br>R6 low resistance |
| V1 pin 3 | 100 | 61 | TR2 pin 2 low voltage<br>V1 or V3 pin 2 high voltage<br>V1 or V3 faulty<br>TR3 pin 2 +ve voltage<br>R2 high resistance<br>C6 leaking<br>C7 shorting | V1 or V3 faulty<br>R2 low resistance |
| V1 pin 7 | 10 | 1.45 | L.T.+ low voltage<br>SC1Fc bad contact<br>Faulty connecting cable<br>Dry joint | H.T.+ shorting to L.T.+ |
| V2 pin 2 | 100 | 61 | TR2 pin 2 low voltage<br>TR3 pin 2 incorrect voltage<br>V2 faulty<br>L6,L7,L8,L9 faulty<br>R8 or R9 high resistance<br>C14 or C15 shorting<br>C13 or C16 shorting<br>C17 low capacitance<br>SA5 bad contact<br>TR1 faulty | V2 pin 7 low voltage<br>V22faulty<br>L6, L7,8L8, L9 faulty<br>R8 or R9 low resistance<br>C20 or C21 leaking |
| V2 pin 3 | 100 | 62 | As for V2 pin 2 | As for V2 pin 2 |
| V2 pin 4 | 10 | -4.5 | As for V2 pin 2 | As for V2 pin 2 |

Table 2503 - (cont)

| Test point | D.C. range (V) | AVO 8 reading (V) | Possible fault | |
|---|---|---|---|---|
| | | | Low reading | High reading |
| V2 pin 7 | 10 | 1.4 | V2 and/or V3 faulty<br>L13 faulty<br>C3 leaking<br>V1 pin 7 low voltage | V2 and/or V3 faulty<br>H.T.+ leaking to L.T.+ |
| V3 pin 2 | 100 | 89 | TR2 pin 2 low voltage<br>TR2 faulty<br>V3 faulty | |
| V3 pin 3 | 100 | 64 | V1 or V3 faulty and as for V1 pins 2 and 3 and V3 pin 2 | V1 or V3 faulty and as for V1 pins 2 and 3 and V3 pin 2 |
| V3 pin 7 | 10 | 1.4 | As for V2 pin 7 | As for V2 pin 7 |
| V4 pin 2 | 100 | 86 | TR2 pin 2 low voltage<br>V4 faulty<br>TR3 or TR4 faulty<br>V4 leaking<br>R13 low resistance | |
| V4 pin 3 | 100 | 62 | TR2 pin 2 low voltage<br>V4 faulty<br>C29 leaking<br>R13 high resistance<br>TR3 pin 2 incorrect voltage | V4 faulty<br>R13 low resistance<br>TR3 pin 2 incorrect voltage |
| V4 pin 7 | 10 | 1.4 | As for V1 pin 7 | As for V1 pin 7 |
| V5 pin 4 or 5 | 100<br>100 | 29<br>59(NET) | V5 faulty<br>R18 low resistance<br>C33,C34,C37 leaking<br>L10 faulty<br>R19 high resistance<br>R117 (A or B only) high resistance<br>Faulty connecting cable<br>Faulty keying socket connections (A or B only)<br>SC3Bc bad contact | V5 faulty<br>R18 high resistance<br>R19 low resistance<br>R117 (A or B only) low resistance<br>V5 pin 7 low voltage |
| V5 pin 6 | 10<br>10 | 0.1<br>1.8(NET) | As for V5 pins 4 and 5 | As for V5 pins 4 and 5 |

Table 2503 - (cont)

| Test point | D.C. range (V) | AVO 8 reading (V) | Possible fault | |
|---|---|---|---|---|
| | | | Low reading | High reading |
| V5 pin 7 | 10 | 1.45 | As for V1 pin 7 | As for V1 pin 7 |
| TR3 pin 2 | 10<br>10 | -0.7<br>-3(NET) | As for V5 pins 4 and 5<br>C34 open circuited<br>TR1, TR3 faulty<br>C11,C12,C32,C38 leaking | As for V5 pins 4 and 5 |
| Junction of R14 & R15 | 10<br>10 | -0.03<br>-0.1(NET) | TR3 pin 2 incorrect voltage<br>TR2 faulty<br>V4 faulty<br>R15 high resistance<br>R14 low resistance<br>C25 leaking | TR3 pin 2 incorrect voltage<br>R15 low resistance<br>R14 high resistance<br>C28 leaking<br>TR2 faulty<br>V4 faulty |
| Junction of R10 & R11 | 100 | 68 | TR2 pin low voltage<br>MR1 faulty<br>R11 high resistance<br>R10 low resistance | MR1 faulty<br>R10 high resistance<br>R11 low resistance<br>C26 leaking |
| L2 pin 2 | 10 | -7.7(NET) | Faulty connecting cable<br>L2 faulty<br>C39 shorting | H.T.+ leaking to L2 pin 2 |

Table 2504 - Transmitter voltages

Conditions: System switch at CW, 2000Ω dummy load connected. A-B-NET switch at A, key down and transmitter tuned for maximum output at 2Mc/s

| Test point | D.C. range (V) | Avo 8 reading (V) |
|---|---|---|
| SC1Fa4<br>SD1Bc1 | 100<br>10 | 89<br>-7.7 |
| V6 pin 2<br>pin 3<br>pin 6<br>pin 7 | 100<br>100<br>10<br>10 | 45<br>26<br>-0.5<br>1.45 |
| V7 pin 2<br>pin 3<br>pin 4<br>pin 5 | 100<br>100<br>10<br>10 | 61<br>61<br>-4.1<br>1.45 |
| V8 pin 2 & pin 3 | 100 | 88 |
| V9 pin 4<br>pin 1 or 7 | 10<br>10 | -8.5<br>1.45 |

Table 2505 - Transmitter fault-finding

| Test point | Symptom | Possible fault |
|---|---|---|
| GENERAL CHECKS | | |
| SC1Fa4 | Low or no d.c. voltage | Faulty connecting flex. Dry joint. SC3Ba bad contact |
| SD1Bc1 | Low or no d.c. voltage | Faulty connecting flex. Dry joint |
| V6 pin 2 | No d.c. voltage | H.T. disconnected. R109 open-circuited. C112 shorted |
| | Low d.c. voltage | H.T. voltage low. R109 high resistance. C112, C127 leaking. |
| V6 pin 3 | No d.c. voltage | H.T. disconnected. R110 open-circuited. SC1Fa open-circuited. C108, C109, C129 shorted. |
| | Low d.c. voltage | H.T. voltage low. R110 high resistance. V6 faulty. C108, C109, C129 leaking. |
| V6 pin 7 | No d.c. voltage | L.T. disconnected. TR5 primary earthed. Faulty connecting cable. Dry joint. SC2Fc open-circuited. |
| | Low d.c. voltage | L.T. voltage low. Microphone shorted. TR5 primary partially earthed. |
| V7 pins 2, 3 & 6 | No d.c. voltage | H.T. disconnected. C108 shorted. SC1Fa open-circuited. R105 open-circuited. |
| | Low d.c. voltage | H.T. voltage low. C108 leaking. R105 high resistance. V7 faulty. Faulty key connection |
| | High d.c. voltage | R105 low resistance. V7 faulty V7 pin 5 no voltage |
| V7 pin 5 | No d.c. voltage | L.T. disconnected. SC2Bc open ciruited. Faulty connecting cable. ILP2 and SG shorted. |
| | Low d.c. voltage | L.T. voltage low. |
| | No oscillation | V7 faulty. Crystal faulty (ie incorrect fitting or low activity) (If crystal is inactive, check C113 for leakage before replacing crystal). SE open-circuited or bad contact. R101 open-circuited. C107 shorted. |

Table 2505 - (cont)

| Test point | Symptom | Possible fault |
|---|---|---|
| | Low output | V7 faulty. Cystal faulty. R101 incorrect resistance. C107 leaking. |
| V8 pin 2<br>V9 | No d.c. voltage | H.T. disconnected. L11 or L12 open-circuited. C108 shorted. Faultymkey connections (CW only). SC1Fa open-circuited. |
| | Low d.c. voltage | H.T. voltage low. SC1Fa bad contact: V8 or V9 faulty. C105 leaking or shorted. |
| V8 pin 3<br>V9 | No d.c. voltage | H.T. disconnected. C108 shorted. Faulty key connections (CW only). SC1Fa open-circuited. |
| | Low d.c. voltage | H.T. voltage low. V8 or V9 faulty. SC1Fa bad contact. |
| V8 pin 7<br>V9 | No d.c. voltage | L.T. disconnected. ILP2 and SG shorted. SC2Fc open-circuited |
| | Low d.c. voltage | L.T. voltage low. |
| Aerial | No r.f. output | V8 and V9 faulty. C106 and C114-C119 shorted. R108 shorted. SF1B, SC2Fa, SD1Fb open-circuited or bad contact. C102 C126 open-circuited. |
| | Low r.f. output | V8 or V9 faulty. R108 low resistance. C104 leaking (check voltage on V8 pin 4). |
| Meter | No r.f. indication | MR6 faulty. R107 open-circuited. R116 shorted. M1 open-circuited (check by reading battery voltage). |
| SIDETONE CHECKS | | |
| CW sidetone | No oscillation on CW with key down | V6 faulty. TR5 secondary open-circuited. C109, C128 leaking or shorted. C112, C127, C110 leaking or shorted. R115 shorted or open-circuited. |
| VOICE sidetone | No sidetone on VOICE | V6 faulty. MR6 faulty. SC1B open-circuited. R111 open-circuited. R112 shorted. TR5 faulty. Headset or handset faulty. |

Table 2505 - (cont)

| Test point | Symptom | Possible fault |
|---|---|---|
| MODULATION CHECKS | | |
| V8/V9 pin 4 (-2.1V on Avo 8) | Low d.c. voltage with system switch at OFF | Bias battery voltage low. R106, R103 high resistance. |
| (-8.5V on Avo 8) | Incorrect d.c. voltage with system switch at CW and key down | V7 faulty |
| (-14V on Avo 8) | Incorrect d.c. voltage with system switch at VOICE, no modulation | C104, C112 leaking. R103 open-circuited. MR5 shorted or open-circuited. |
| (-16.5V on Avo 8) | Incorrect d.c. voltage on VOICE with 100% modulation, between 300c/s and 3kc/s | V6 faulty. C112 shorted. |

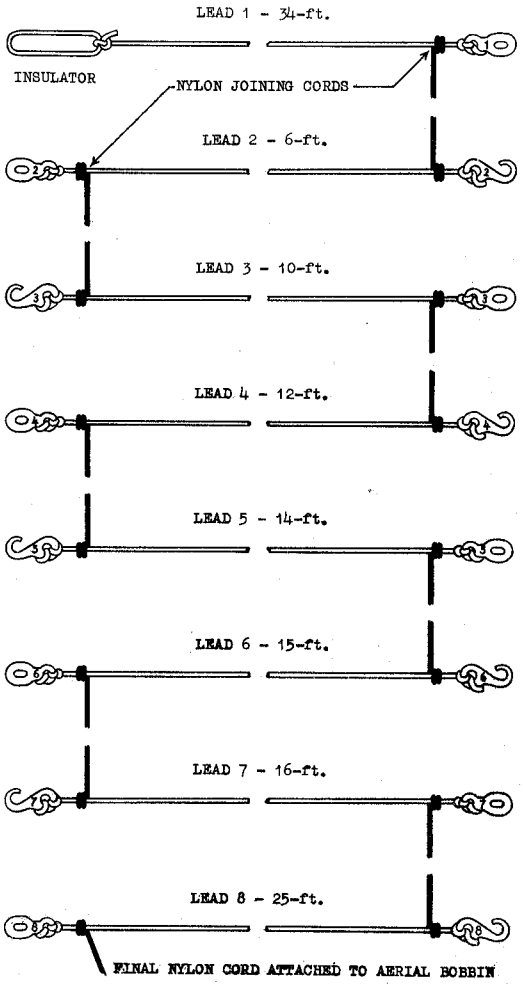
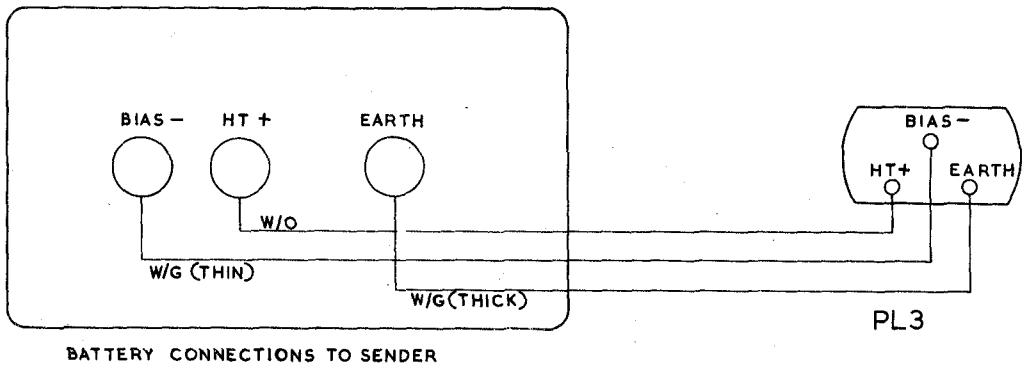
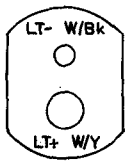
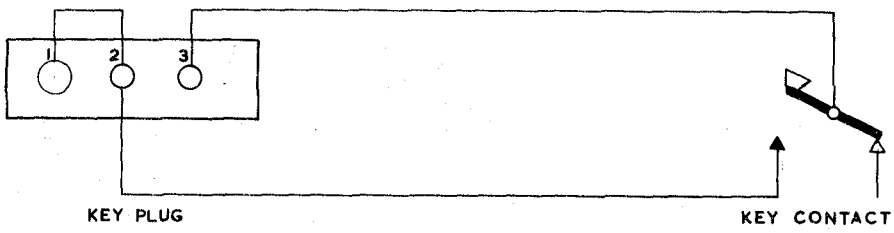


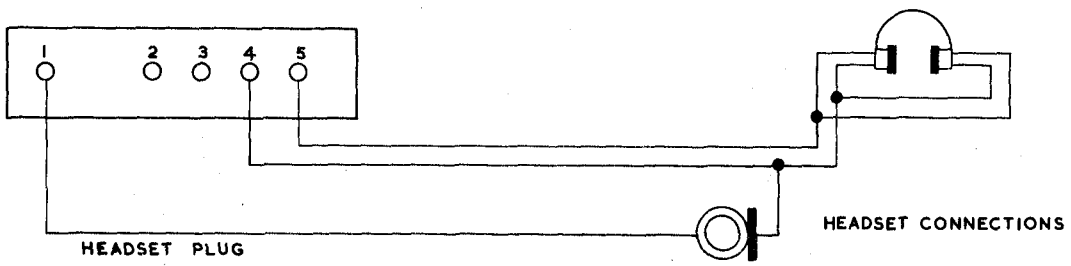

Fig 2501 - End-fed aerial sections

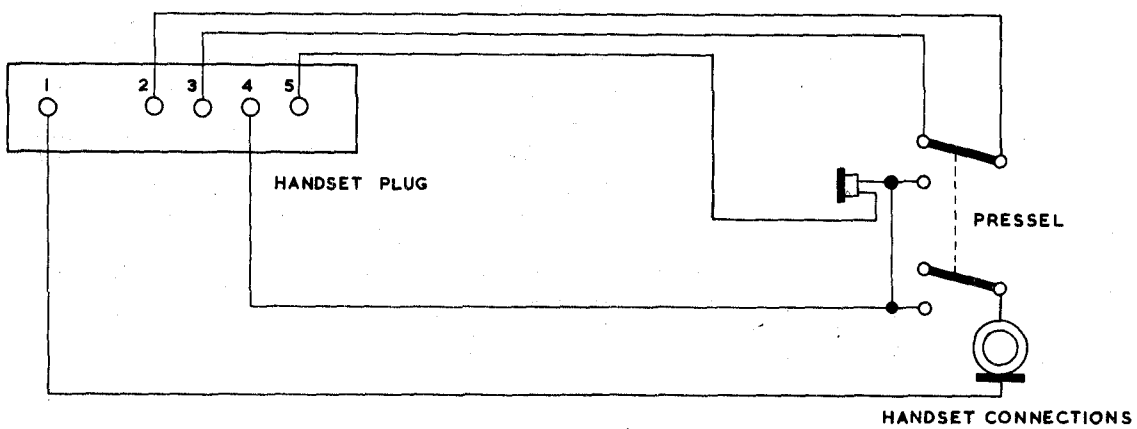



BATTERY CONNECTIONS TO SENDER



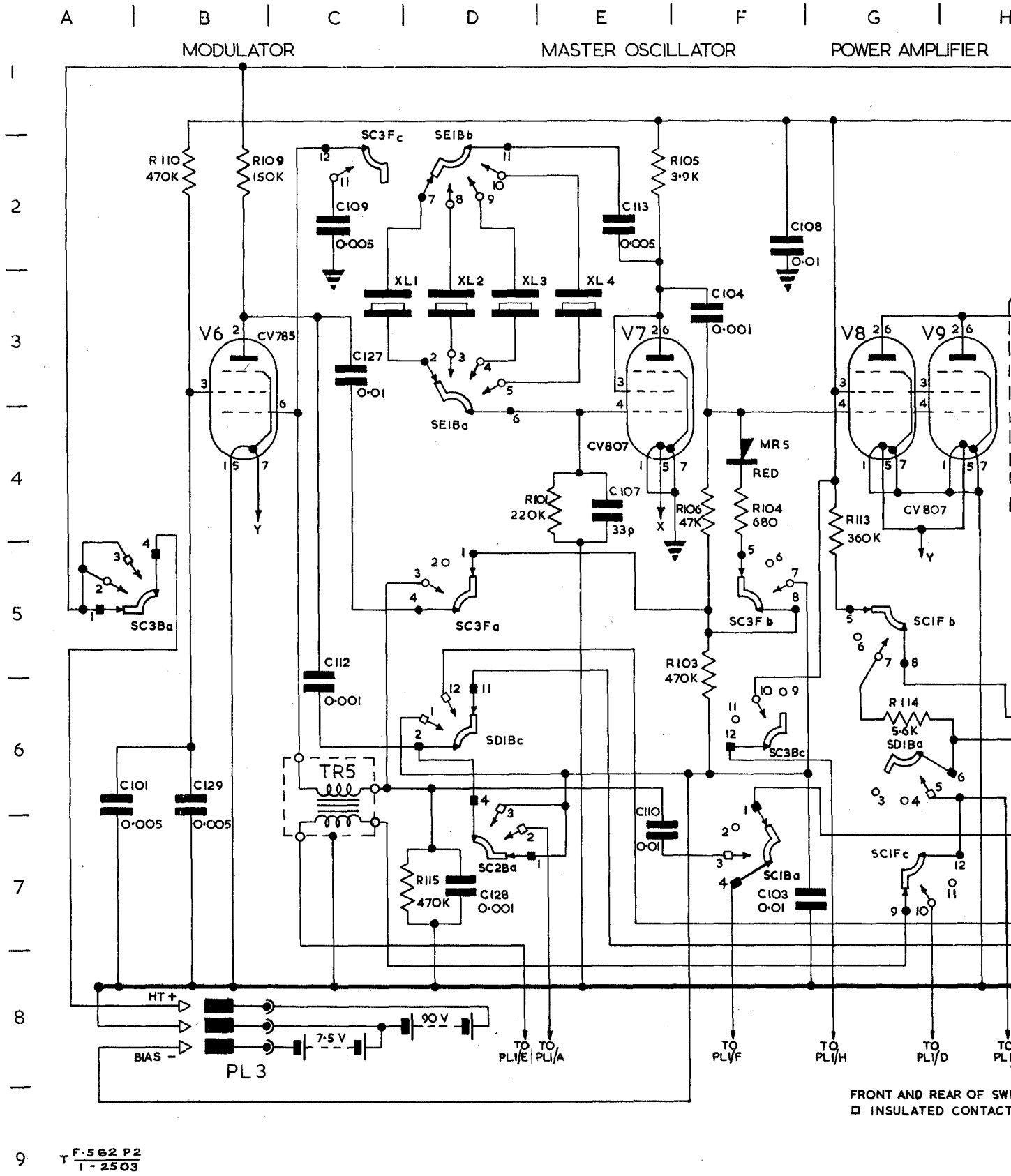




T F·562 P2 1-2502

NOTE:
ALL PLUGS VIEWED FROM PIN SIDE

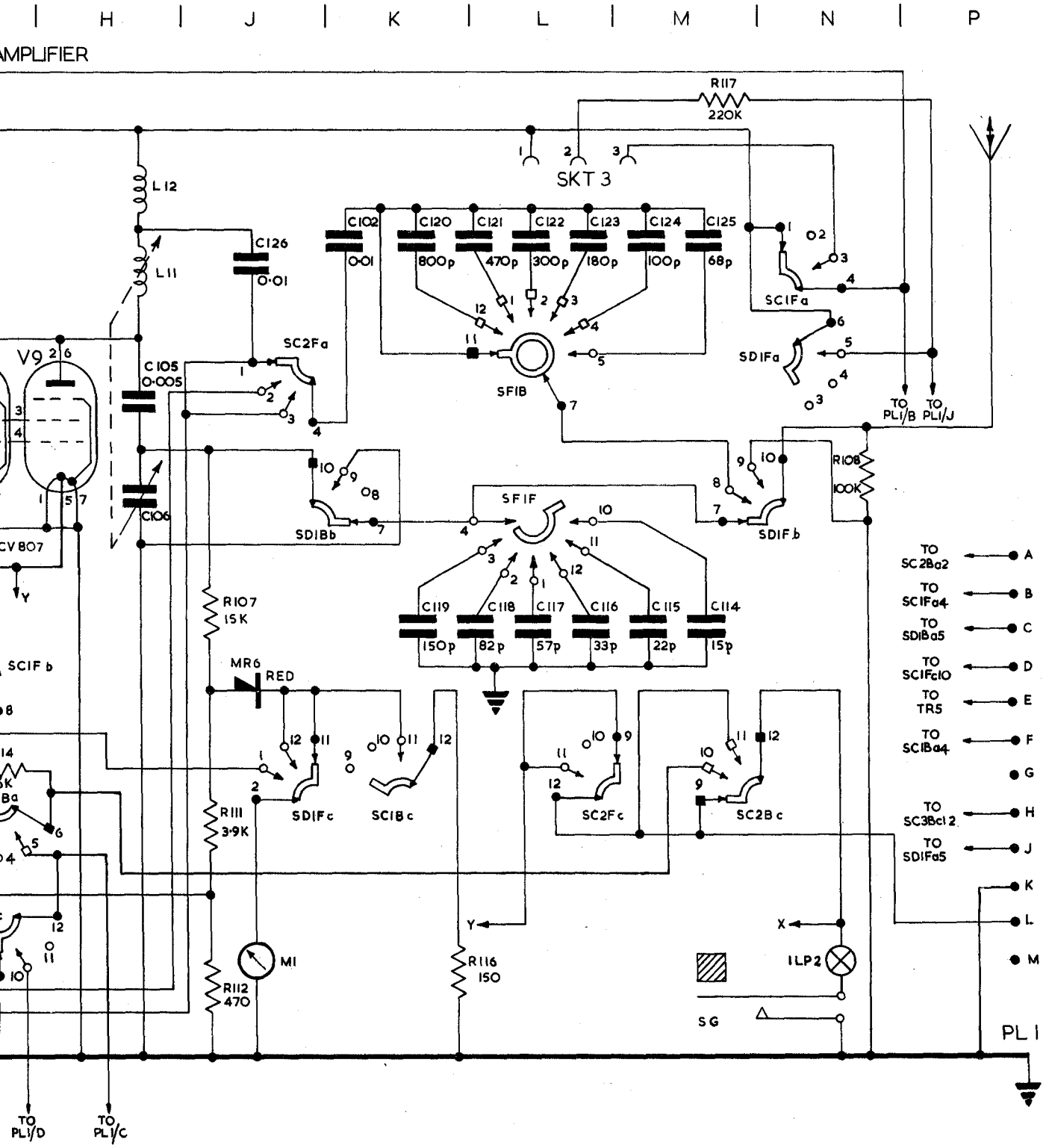
Fig 2502 - Plug connections




T F·562 P2 / 1-2503



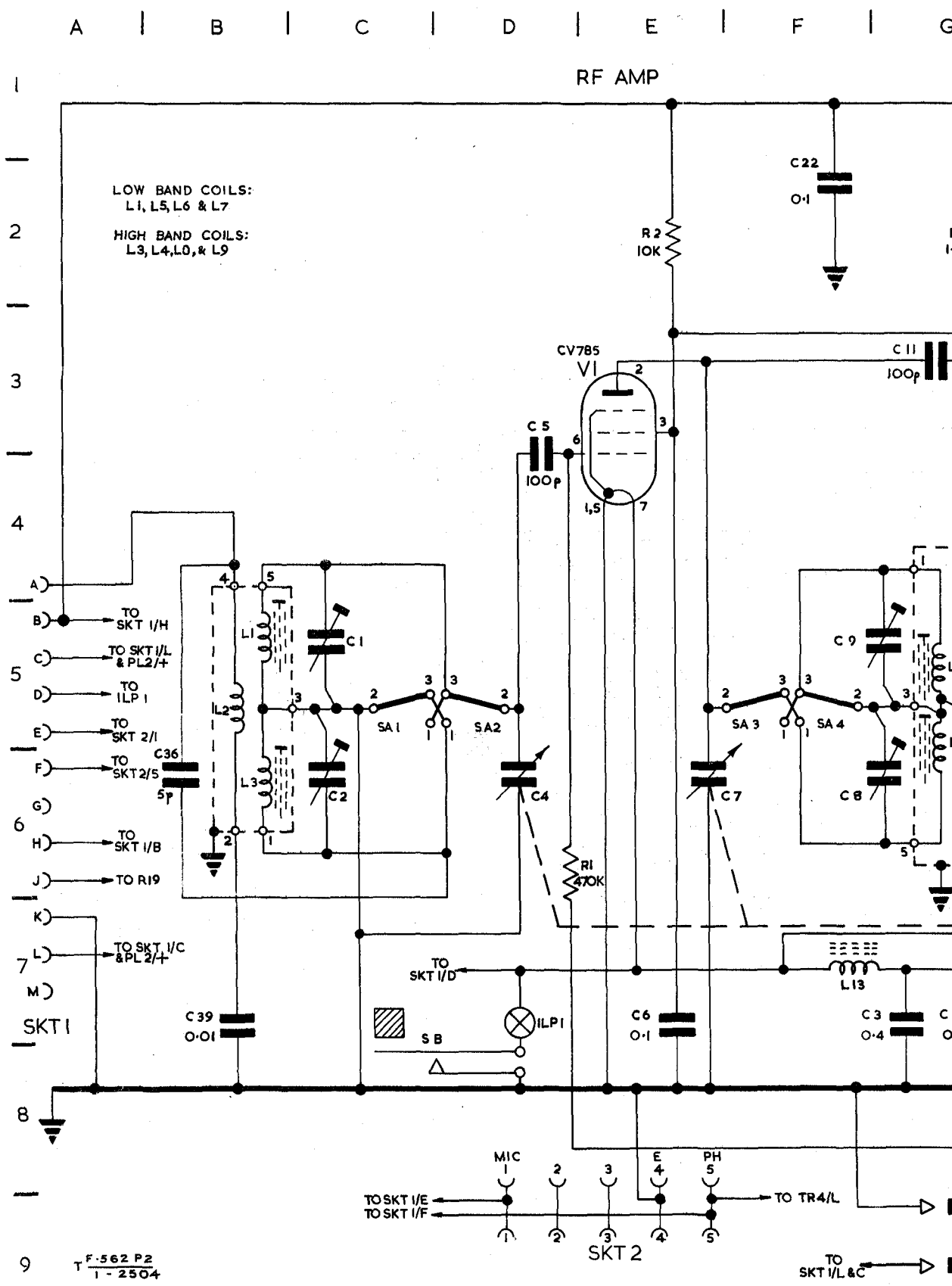
Fig 2503 - Transmitter c




ND REAR OF SWITCH SECTIONS VIEWED FROM FRONT PANEL
LATED CONTACTS SEE FIG 2505

SC OFF—CW—R—VOICE SHOWN IN 'VOICE' POSITION
SD A—B—NET SHOWN IN 'A' POSITION
SE CRYSTAL 1234 SHOWN IN '1' POSITION
SF AERIAL MATCHING SHOWN IN 'O' POSITION

nsmitter circuit diagram


A
B
C
D
E
F
G
1
2
3
4
5
6
7
8
9
RF AMP
LOW BAND COILS:
L1, L5, L6 & L7
HIGH BAND COILS:
L3, L4, L8, & L9
R2
10K
C22
0·1
CV785
V1
C11
100p
C5
100p
1,5
TO SKT 1/H
TO SKT 1/L & PL2/+
TO ILP 1
TO SKT 2/1
TO SKT 2/5
C36
5p
TO SKT 1/B
TO R19
TO SKT 1/C & PL2/+
SKT 1
L1
L2
L3
C1
C2
SA 1
SA 2
C4
R1
470K
C39
0·01
SB
ILP1
TO SKT 1/D
C6
0·1
SA 3
SA 4
C7
C8
C9
L13
C3
0·4
MIC
E
PH
TO SKT 1/E
TO SKT 1/F
TO TR4/L
SKT 2
TO SKT 1/L&C
T F·562 P2 / 1-2504

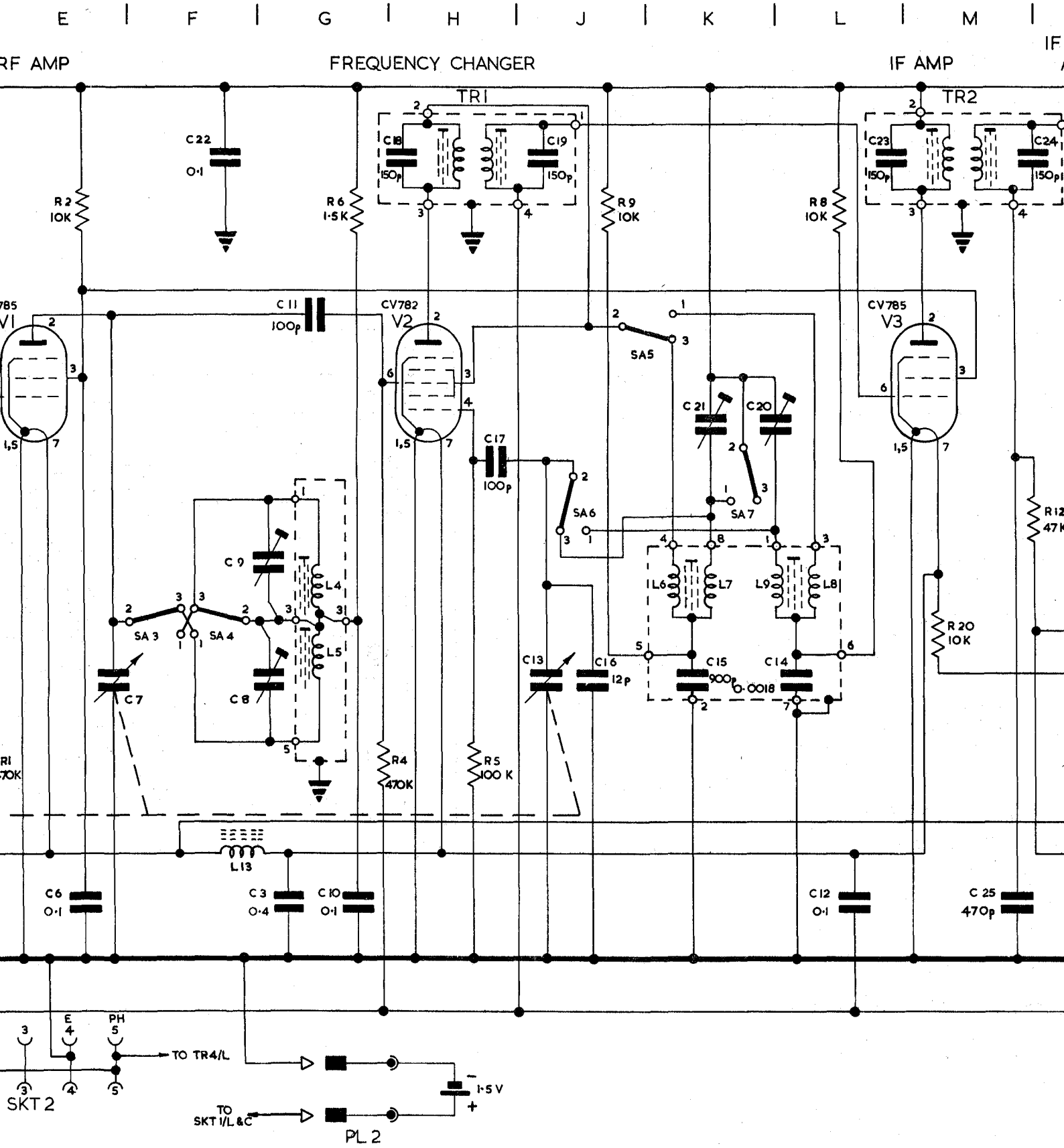
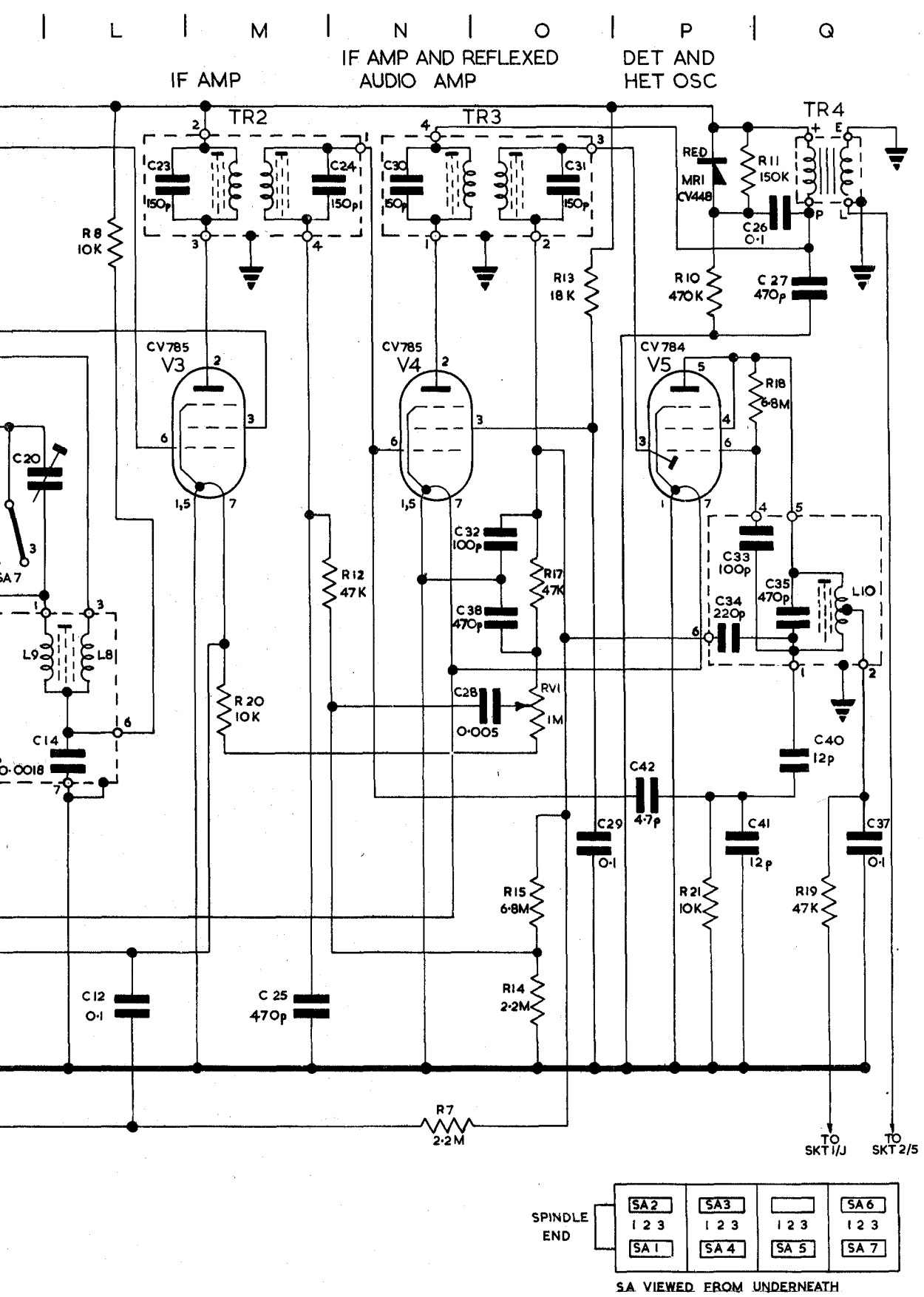



Fig 2504 – Receiver circuit diagram


L
M
N
O
P
Q
IF AMP
IF AMP AND REFLEXED AUDIO AMP
DET AND HET OSC
TR2
TR3
TR4
C23 150p
C24 150p
C30 150p
C31 150p
RED MR1 CV448
R11 150K
C26 0·1
R8 10K
R13 18K
R10 470K
C27 470p
CV785 V3
CV785 V4
CV784 V5
R18 6·8M
C20
C32 100p
C33 100p
C35 470p
L10
C34 220p
C38 470p
R17 47K
R12 47K
R20 10K
C28 0·005
RV1 1M
L9
L8
C14 0·0018
C40 12p
C42 4·7p
C29 0·1
C41 12p
C37 0·1
R15 6·8M
R21 10K
R19 47K
R14 2·2M
C12 0·1
C25 470p
R7 2·2M
TO SKT 1/J
TO SKT 2/5
SPINDLE END
SA2
SA3
SA6
SA1
SA4
SA5
SA7
1 2 3
SA VIEWED FROM UNDERNEATH

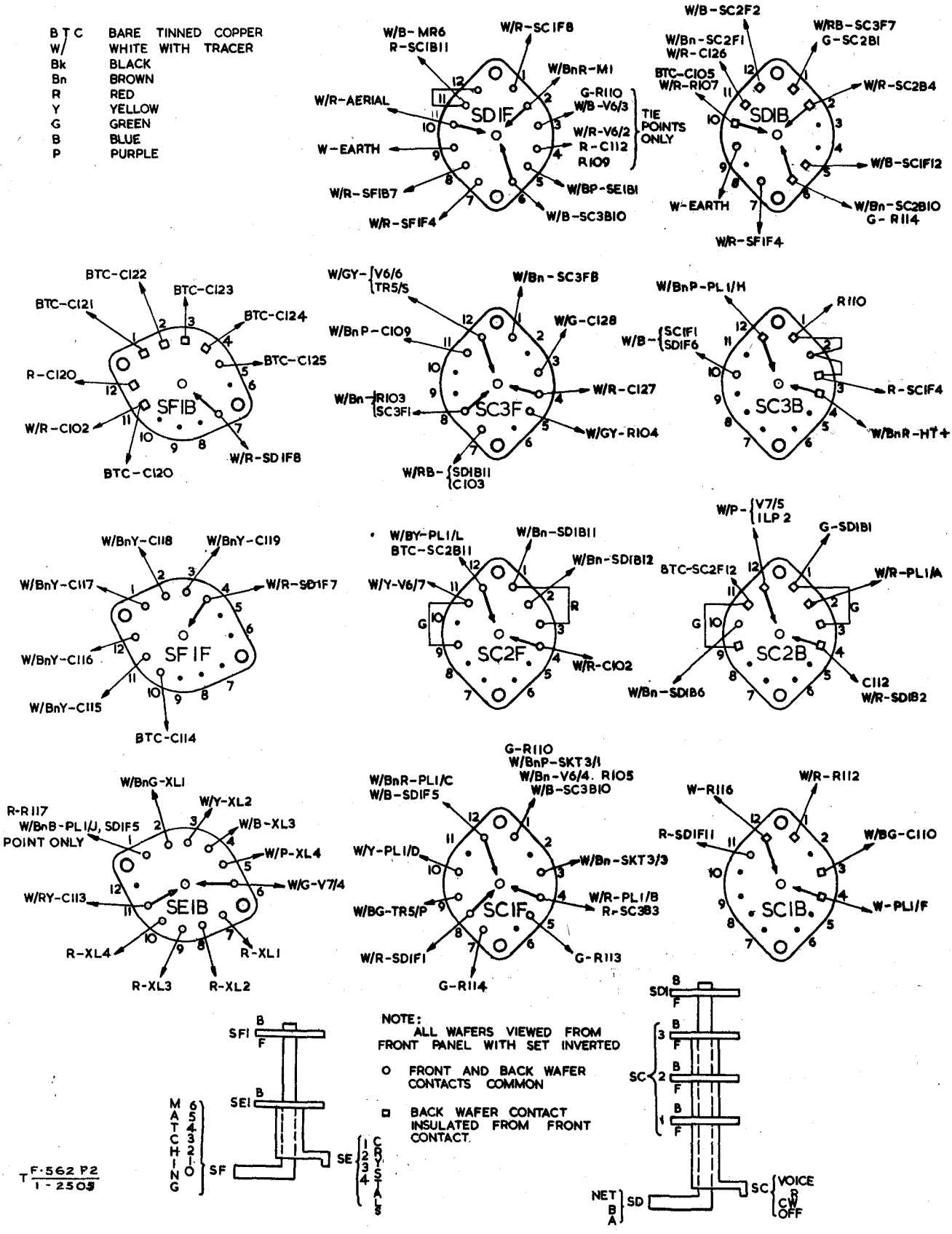



Fig 2505 - Rotary switch colour coding

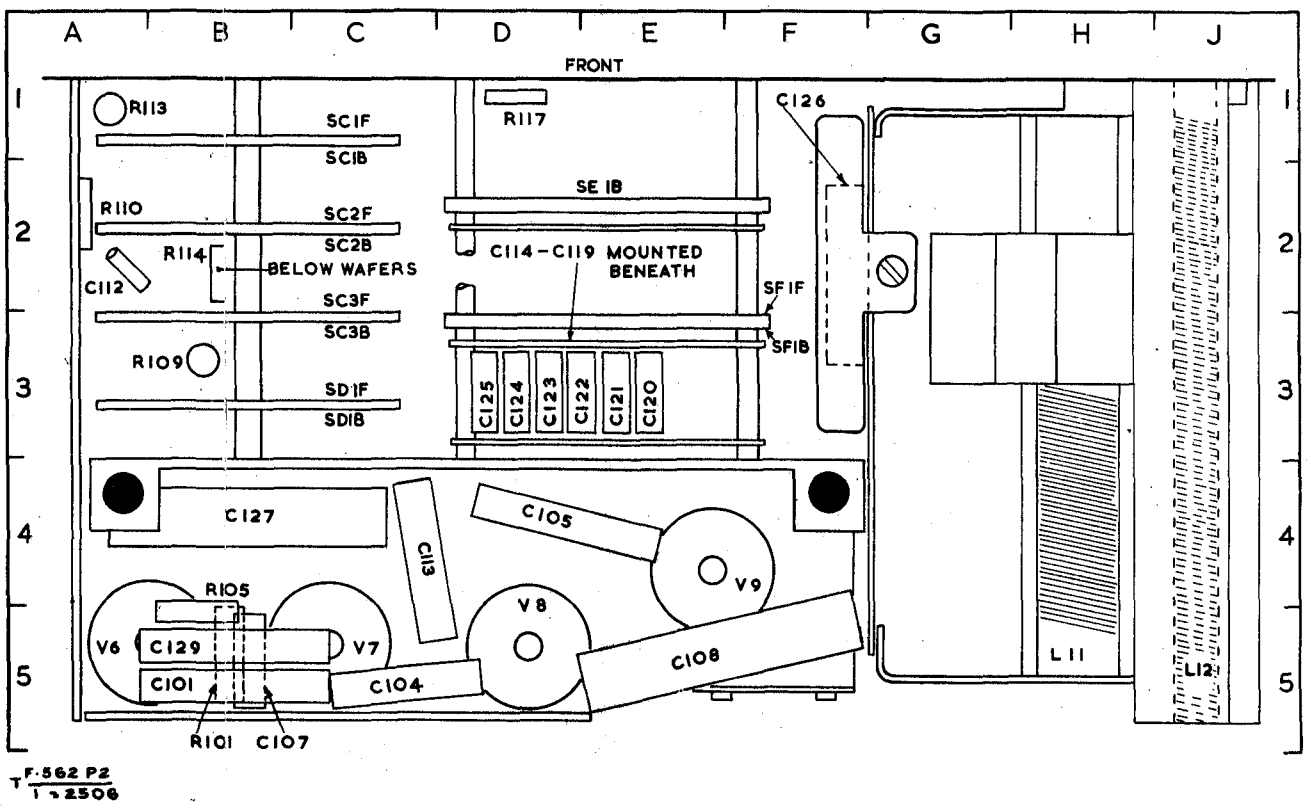



Fig 2506 - Transmitter chassis component layout - underside

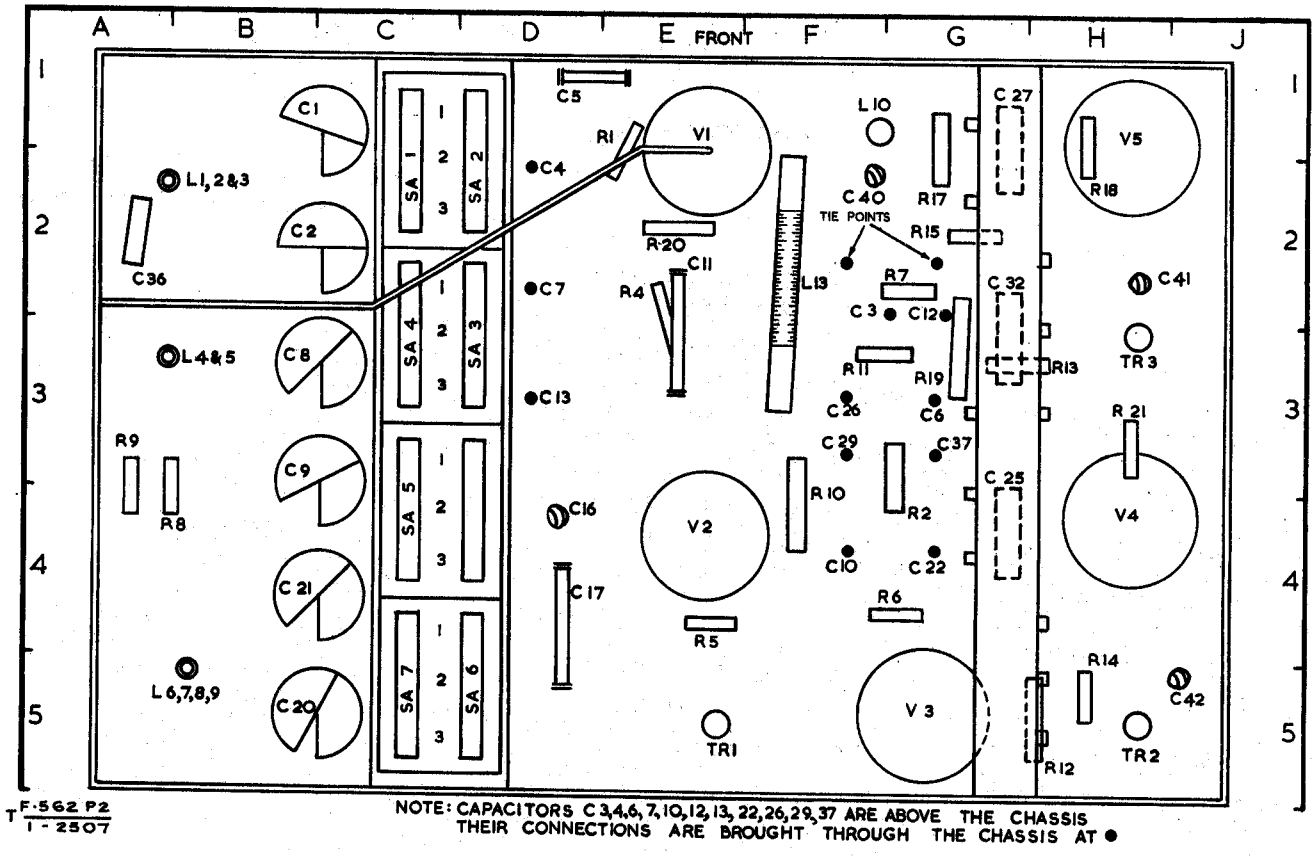



Fig 2507 - Receiver chassis component layout - underside

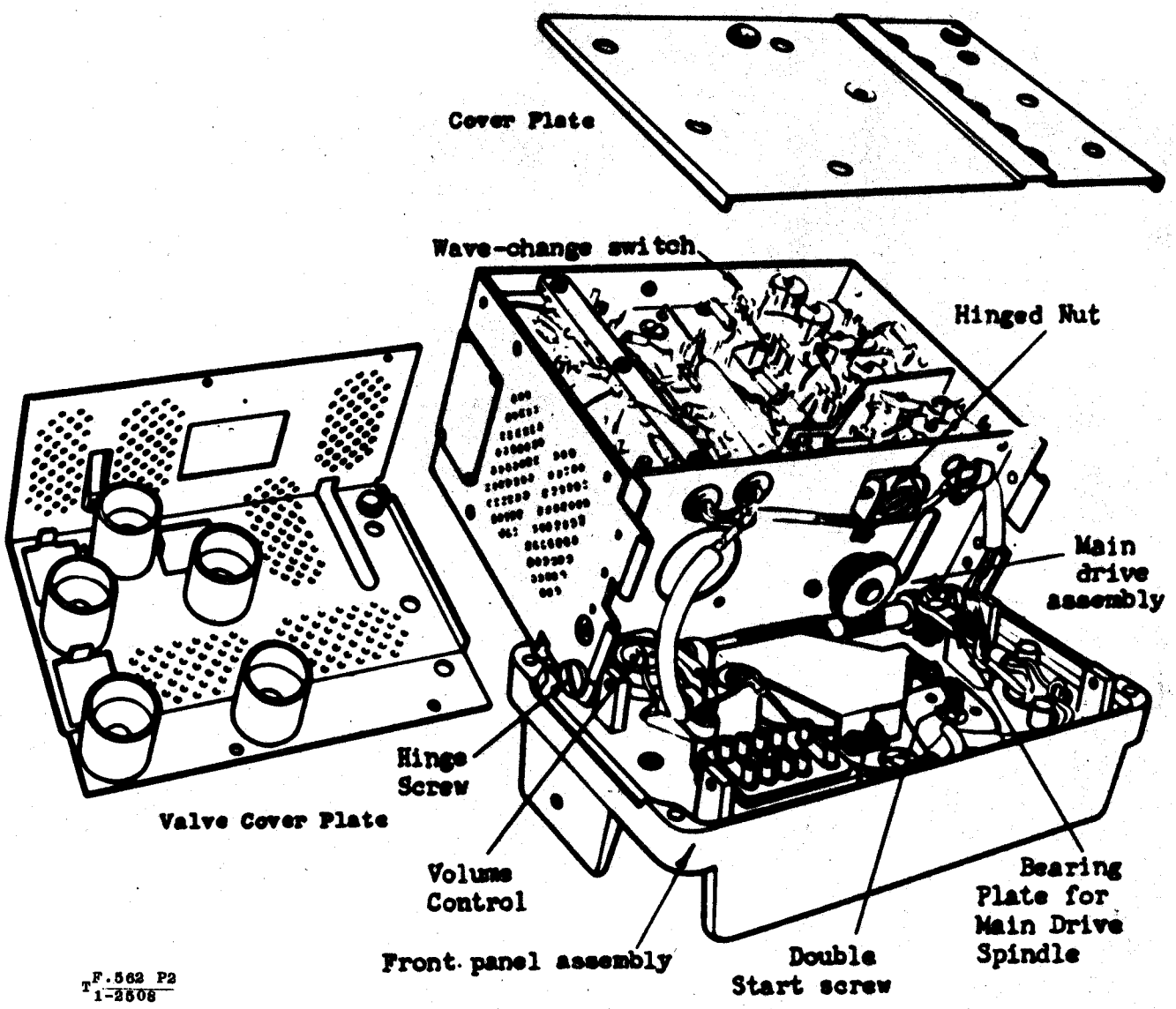



Fig 2508 - Receiver chassis and cover plates

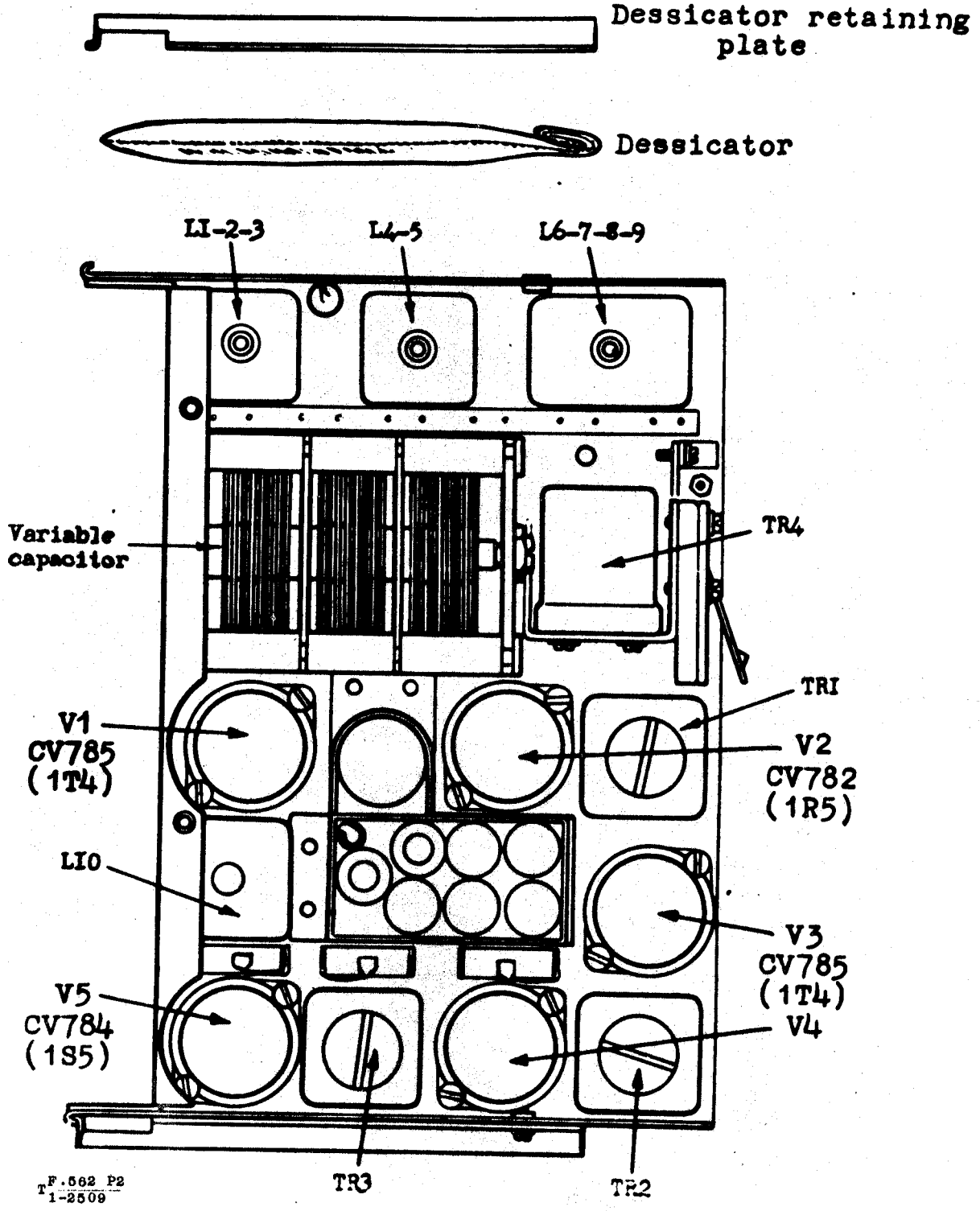



Fig 2509 - Receiver chassis layout

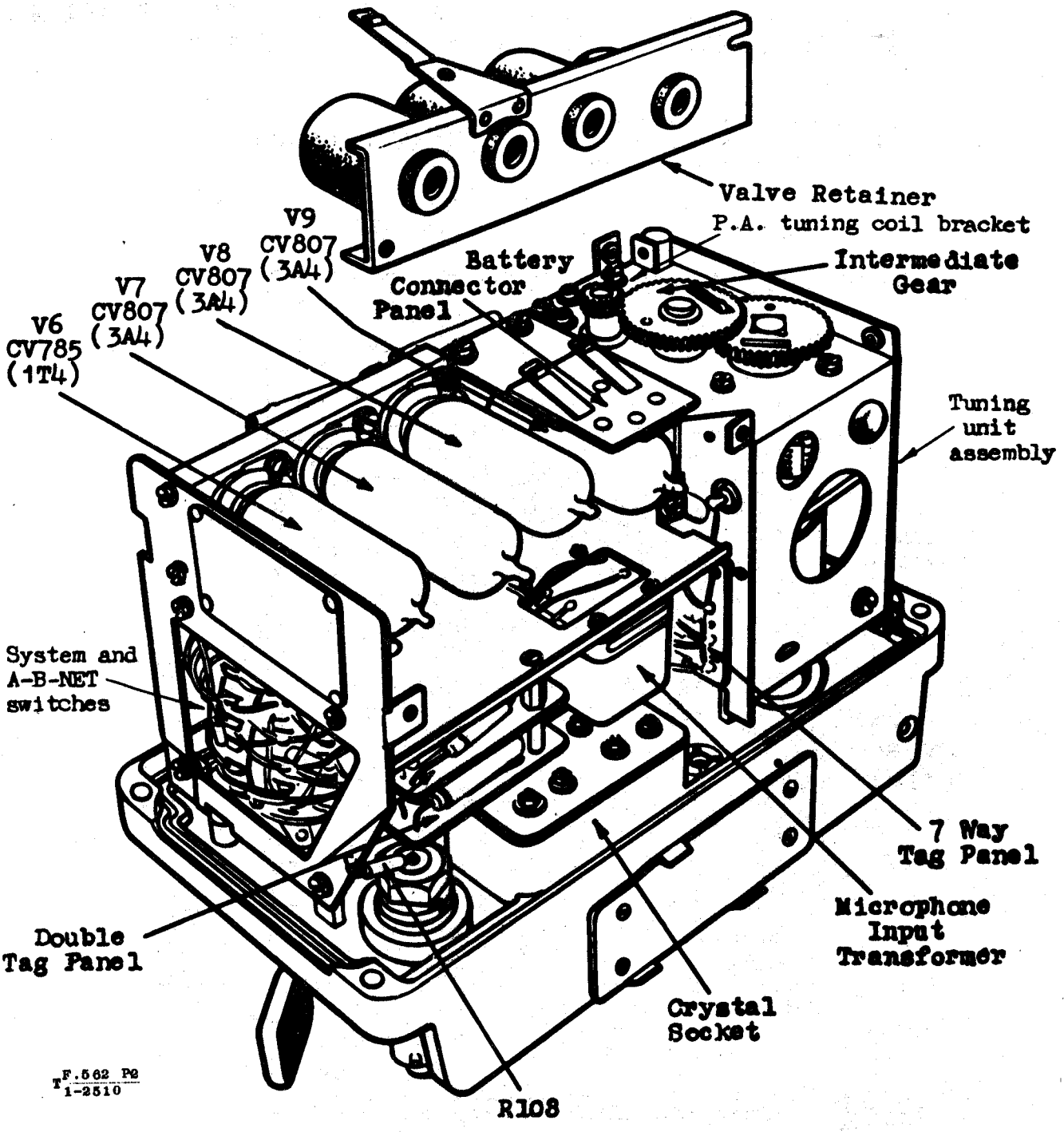



Fig 2510 - Transmitter chassis layout

EME8c/835

END

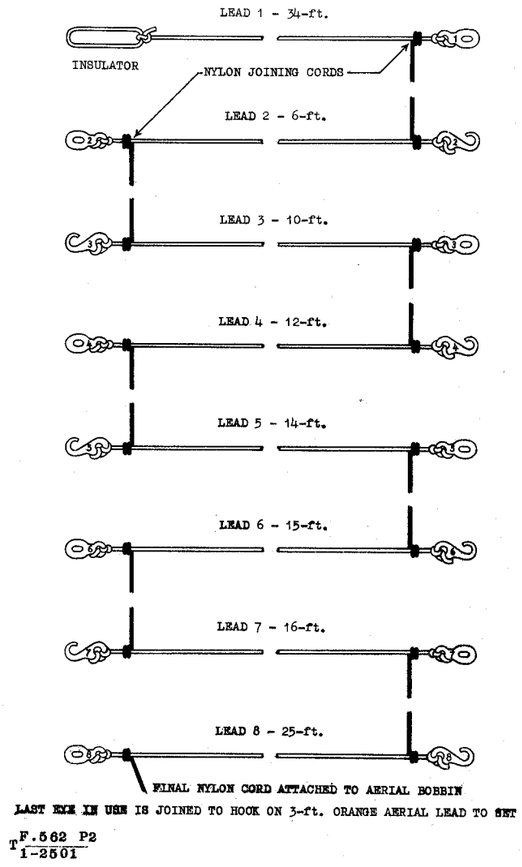



Fig 2501 - End-fed aerial sections

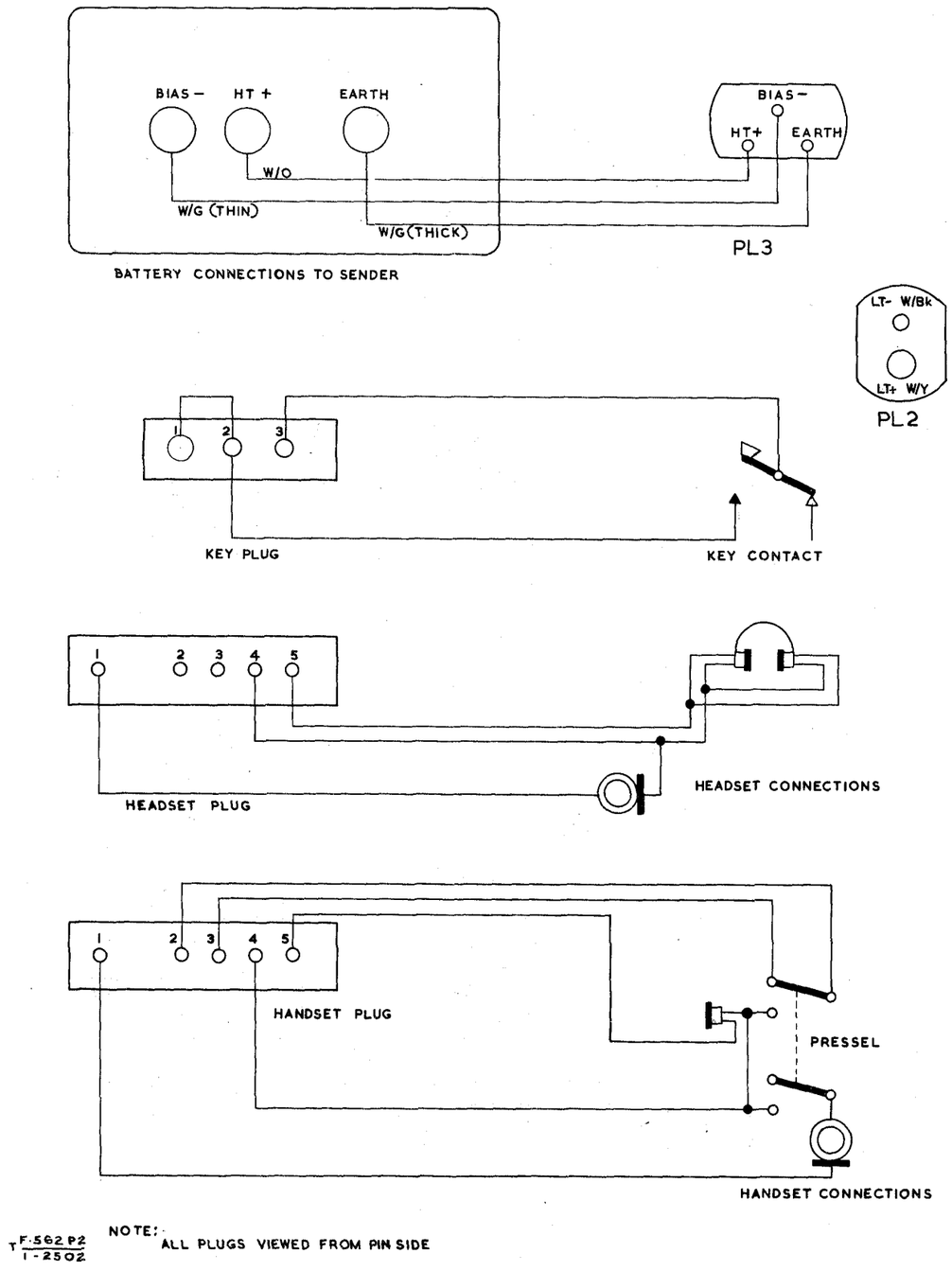
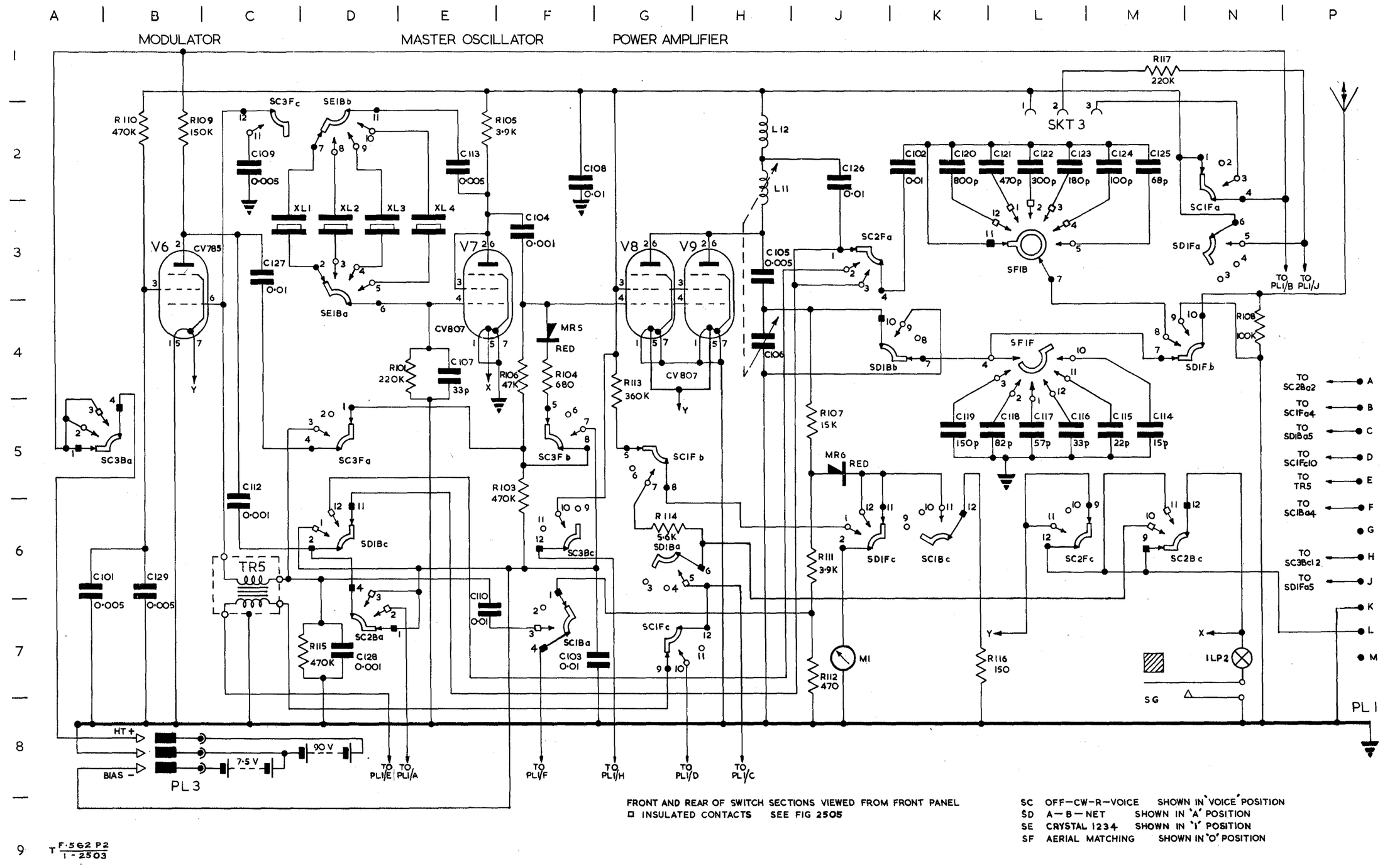



Fig 2502 - Plug connections




FRONT AND REAR OF SWITCH SECTIONS VIEWED FROM FRONT PANEL
□ INSULATED CONTACTS SEE FIG 2505

SC OFF—CW—R—VOICE SHOWN IN 'VOICE' POSITION
SD A—B—NET SHOWN IN 'A' POSITION
SE CRYSTAL 1234 SHOWN IN '1' POSITION
SF AERIAL MATCHING SHOWN IN '0' POSITION

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Fig 2503 - Transmitter circuit diagram

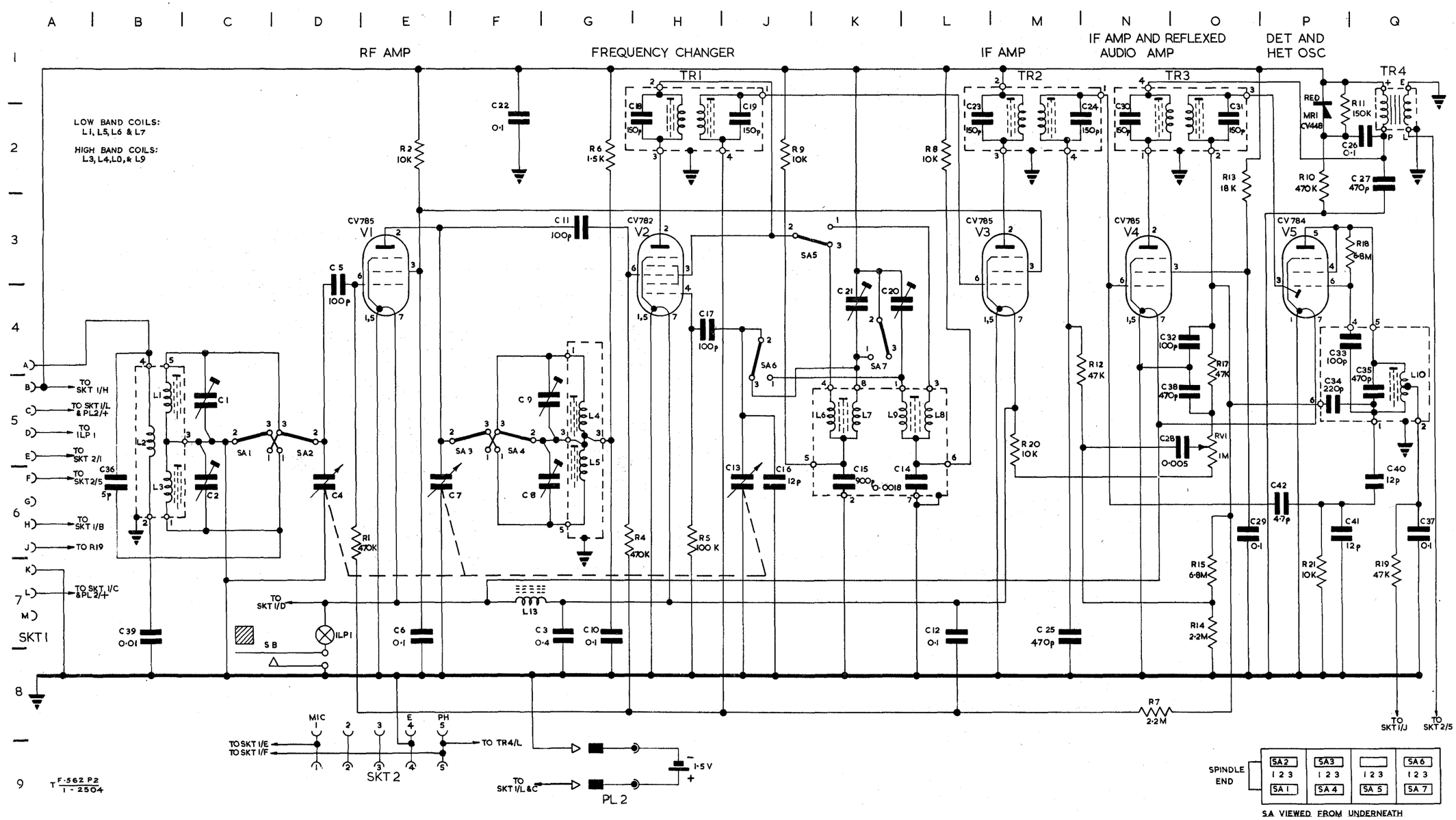


Fig 2504 - Receiver circuit diagram

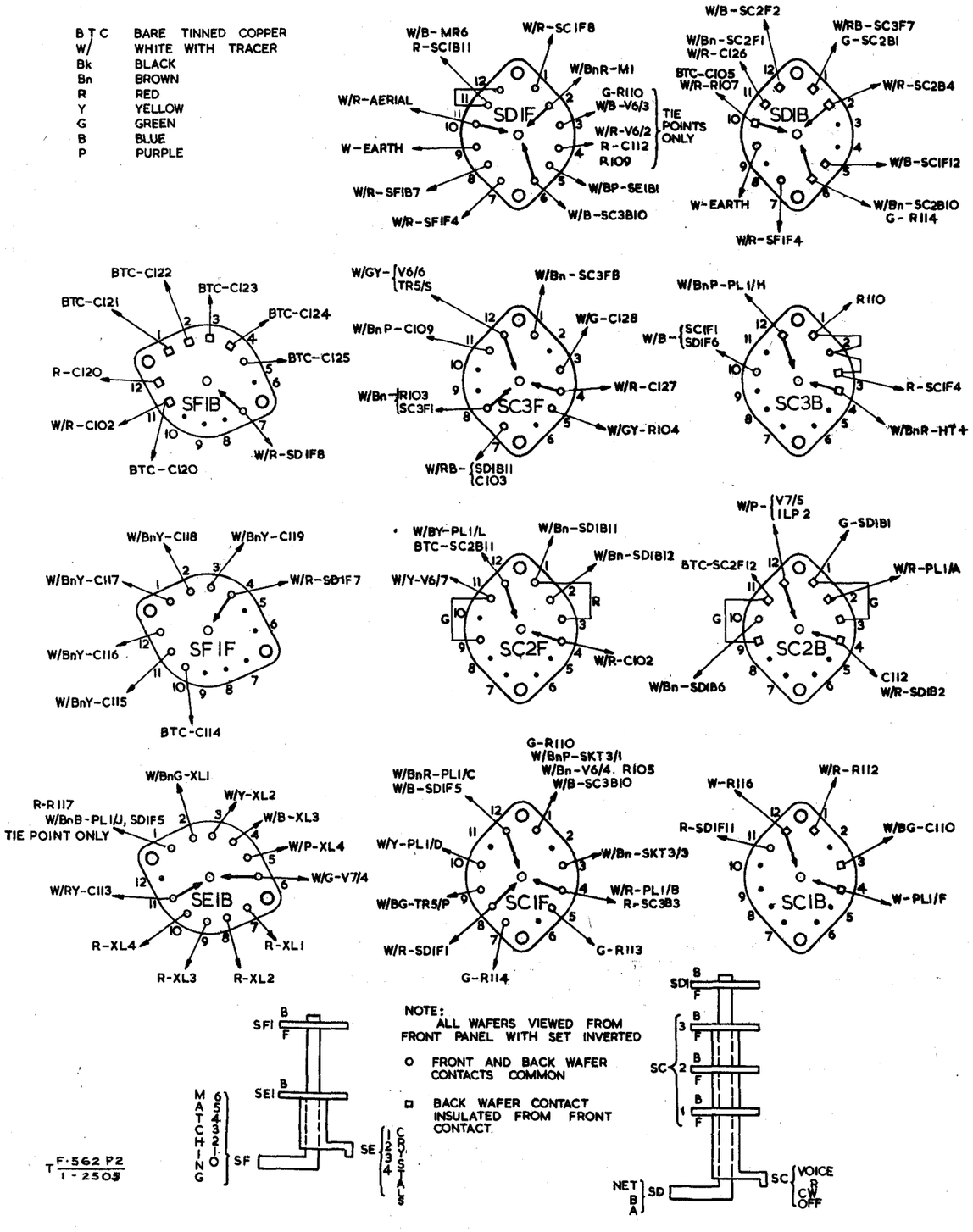


Fig 2505 - Rotary switch colour coding

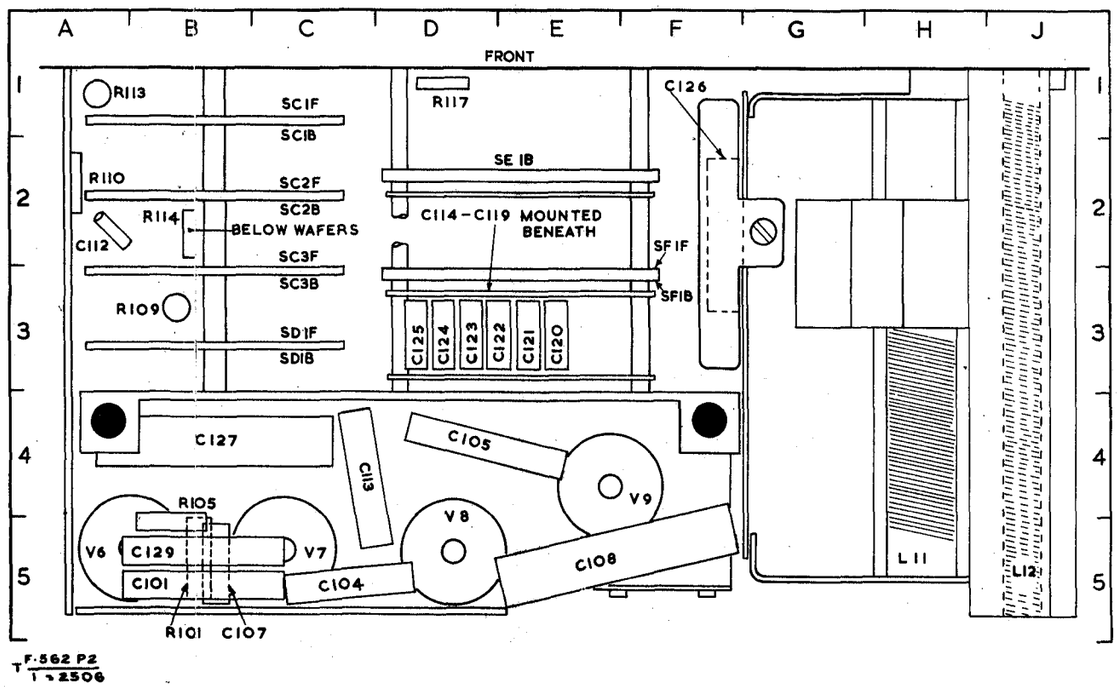


Fig 2506 - Transmitter chassis component layout - underside