

Quality Uncompromised

**ROTEL**

# Technical Manual

## STEREO MAIN AMPLIFIER RB-870

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### Specifications

|                                  |                                                                                                                                                                                       |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Continuous Power Output . . .    | 60 watts* per channel, min.<br>RMS both channels driven<br>into 8 ohms from 20 to 20,000<br>Hz with no more than 0.03%<br>total harmonic distortion.                                  |
| DIN Output . . . . .             | 118 watts per channel (1 kHz,<br>4 ohms, 1% THD)                                                                                                                                      |
| Power Output (BTL) . . . . .     | 120 watts (mono) min. RMS<br>driven into 8 ohms from 20 to<br>20,000 Hz with no more than<br>0.03% total harmonic distortion                                                          |
| Total Harmonic Distortion . . .  | No more than 0.03% (continuous<br>rated power output)<br>No more than 0.03% (continuous<br>1/2 rated power output)<br>No more than 0.05% (1 watt per<br>channel power output, 8 ohms) |
| Intermodulation Distortion . . . | No more than 0.05% (continuous<br>rated power output)<br>No more than 0.05% (continuous<br>1/2 rated power output)<br>No more than 0.05% (1 watt per<br>channel power output, 8 ohms) |

|                                                     |                                                                                                               |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Output: Speaker . . . . .                           | 8-16 ohms                                                                                                     |
| Damping Factor . . . . .                            | 280 (20 to 20,000 Hz, 8 ohms)                                                                                 |
| Input Sensitivity/Impedance . .                     | 1.0 V/25 kohms                                                                                                |
| Frequency Response . . . . .                        | 15 to 120,000 Hz, +0 dB, -1.0 dB                                                                              |
| Signal-to-Noise Ratio<br>(IHF, A network) . . . . . | 116 dB                                                                                                        |
| Power Requirement . . . . .                         | 120V/60 Hz, 220V/50 Hz, 240V/50 Hz,<br>or 120, 220, 240V/50-60 Hz (switchable)<br>(depending on destinations) |
| Power Consumption . . . . .                         | 500 watts                                                                                                     |
| Dimensions (overall) . . . . .                      | 430 (W) x 91 (H) x 315 (D) mm<br>16-15/16" x 3-9/16" x 12-13/32"                                              |
| Weight (net) . . . . .                              | 9.4 kg/20.68 lbs.                                                                                             |

- Specifications and design subject to possible modification without notice.
- \*Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Claims for Amplifiers (applicable to the U.S.A. only).

**Serial No.  
Beginning**

**THE ROTEL CO., LTD.  
ROTEL ELECTRONICS CO., LTD.**

1-36-8 OHOKAYAMA, MEGURO-KU, TOKYO 152, JAPAN  
3RD FLOOR, ROTEL BLDG., NO. 35 FUSHING, NORTH  
ROAD, TAIPEI, TAIWAN, REPUBLIC OF CHINA

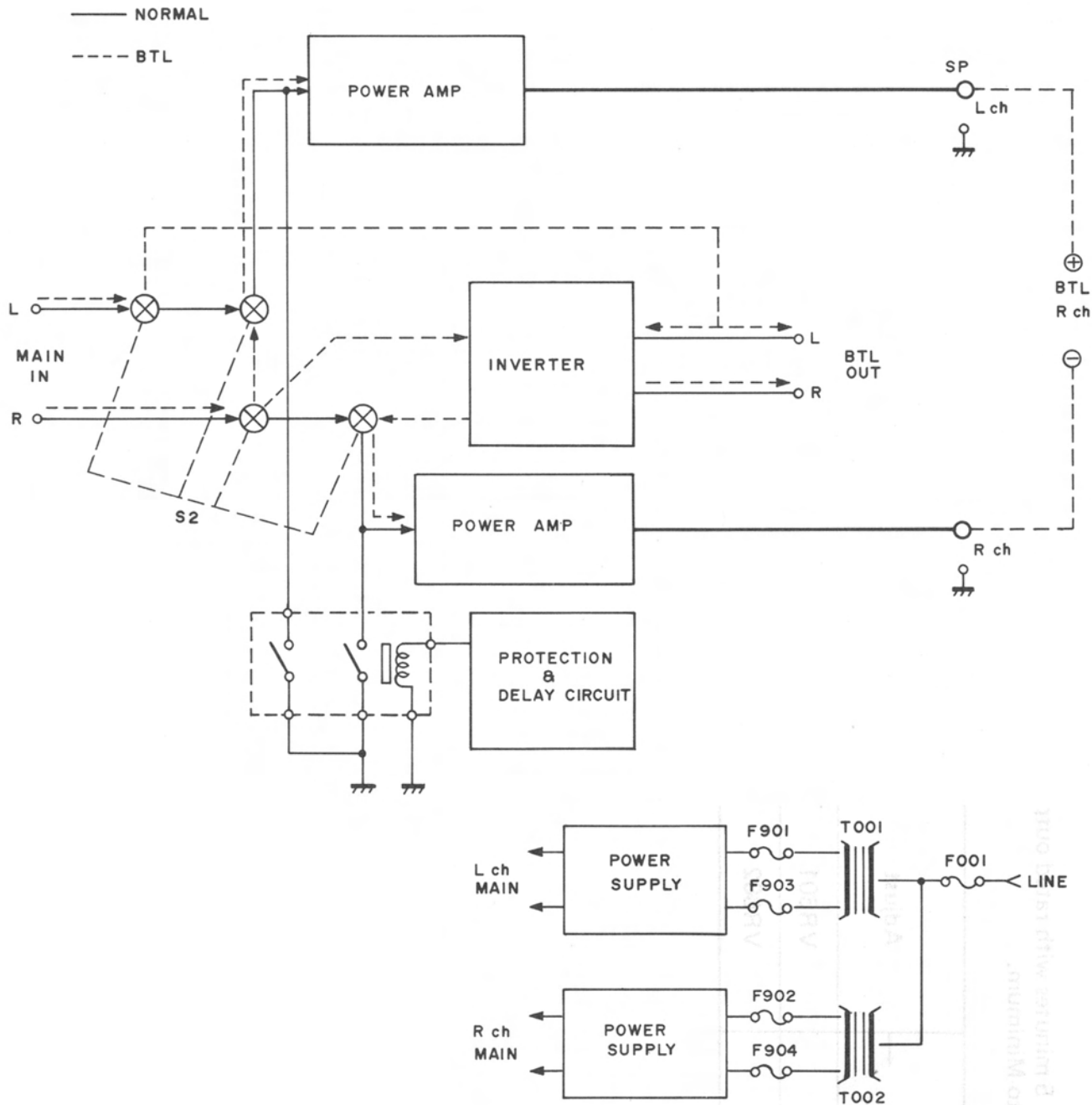
# Power Amplifier Bias Adjustment

instruments: DC milli-voltmeter

Notes: Prior to Bias Adjustment, run about 5 minutes with rated output (8 ohm) and warm up Power Transistor and Heat Sink. Set volume Control to Minimum.

| Step | Coupling  |            | Adjust | Adjust for                    |
|------|-----------|------------|--------|-------------------------------|
|      | Plus Lead | Minus Lead |        |                               |
| 1    | TP1       | TP3        | VR601  | DC milli-voltmeter reads 5mV. |
| 2    | TP2       | TP4        | VR602  |                               |

## Block Diagram



# Parts List

| Schematic Location | Computer No. | Description |
|--------------------|--------------|-------------|
|--------------------|--------------|-------------|

## TRANSISTORS, DIODES AND IC'S

|      |                |                  |
|------|----------------|------------------|
| Q601 | 0322SA1016-FG  | Differential AMP |
| Q602 | 0322SA1016-FG  | Differential AMP |
| Q603 | 0322SA1016-FG  | Constant Current |
| Q604 | 0322SA1016-FG  | Constant Current |
| Q605 | 0322SA1016-FG  | Differential AMP |
| Q606 | 0322SA1016-FG  | Differential AMP |
| Q607 | 0322SC1941-KL  | Pre-Driver       |
| Q608 | 0322SC1941-KL  | Pre-Driver       |
| Q609 | 0322SB605-KL   | Main AMP Bias    |
| Q610 | 0322SB605-KL   | Main AMP Bias    |
| Q611 | 0322SB631K-EF  | Main AMP Bias    |
| Q612 | 0332SB631K-EF  | Main AMP Bias    |
| Q613 | 0332SD600K-EF  | Idling Driver    |
| Q614 | 0332SD600K-EF  | Idling Driver    |
| Q615 | 0332SD600K-EF  | Driver           |
| Q616 | 0332SD600K-EF  | Driver           |
| Q617 | 0332SB631K-EF  | Driver           |
| Q618 | 0332SB631K-EF  | Driver           |
| Q619 | 0332SD1047-DE  | Power Driver     |
| Q620 | 0332SD1047-DE  | Power Driver     |
| Q621 | 0332SB817-DE   | Power Driver     |
| Q622 | 0332SB817-DE   | Power Driver     |
| Q623 | 0332SD1047-DE  | Power Driver     |
| Q624 | 0332SD1047-DE  | Power Driver     |
| Q625 | 0332SB817-DE   | Power Driver     |
| Q626 | 0332SB817-DE   | Power Driver     |
| Q801 | 0322SC536SP-F  | Protection       |
| Q802 | 0322SC536SP-FG | Protection       |
| Q803 | 0322SC536-FG   | Protection       |
| Q902 | 0322SD600K-EF  | Stabilizer       |
| Q904 | 0322SB631K-EF  | Stabilizer       |
| Q905 | 0322SD600K-EF  | Stabilizer       |

| Schematic Location | Computer No. | Description |
|--------------------|--------------|-------------|
|--------------------|--------------|-------------|

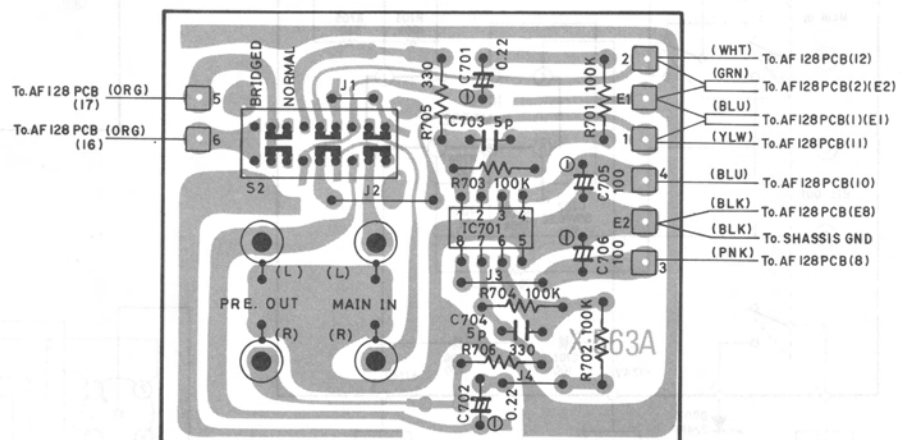
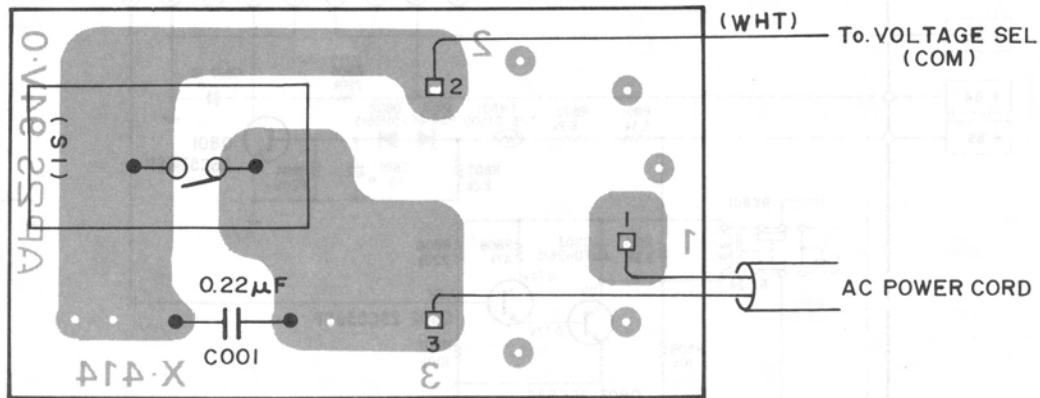
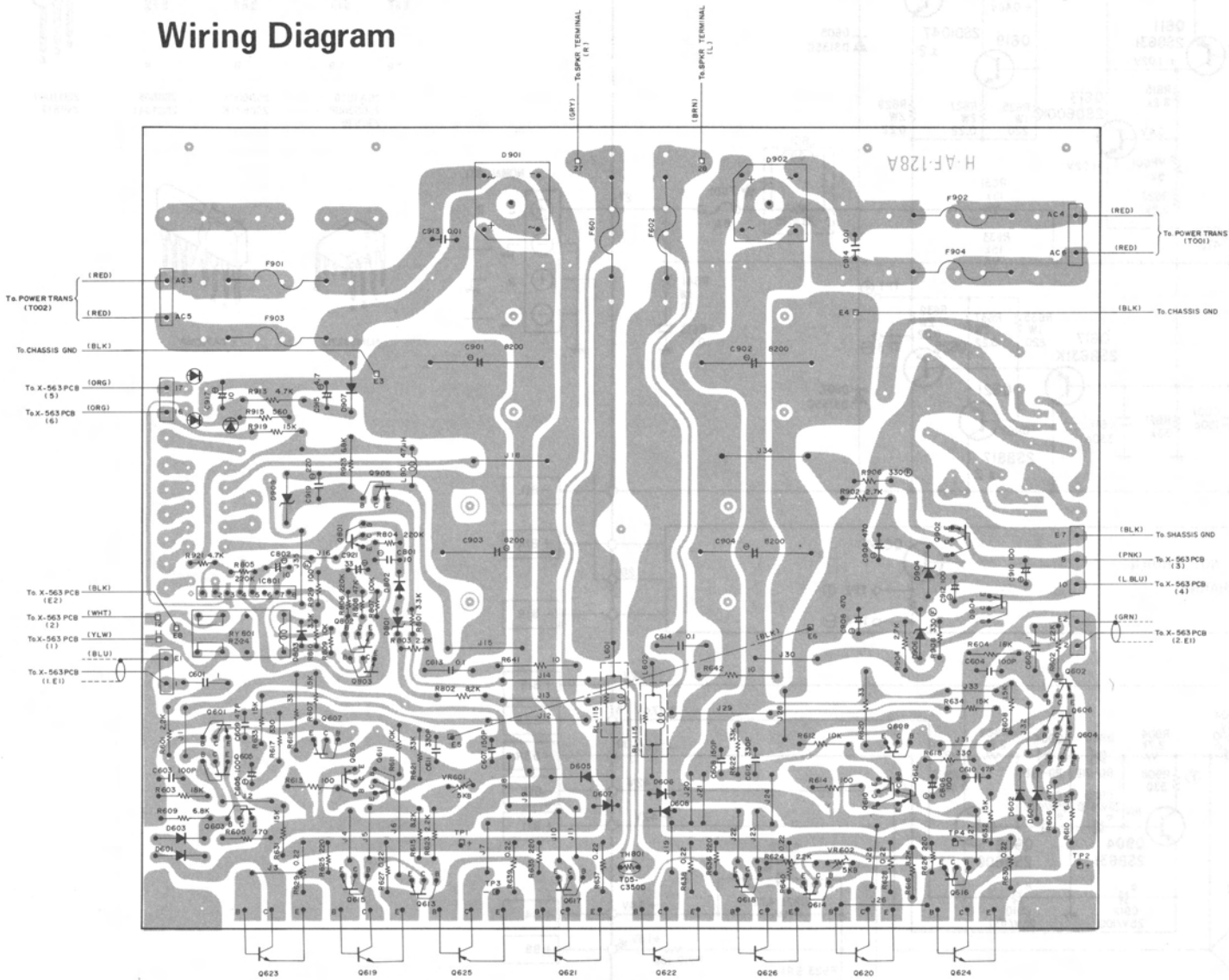
|      |            |                  |
|------|------------|------------------|
| D601 | 034FDH9615 | Bias Compensator |
| D602 | 034FDH9615 | Bias Compensator |
| D603 | 034FDH9615 | Bias Compensator |
| D604 | 034FDH9615 | Bias Compensator |
| D605 | 034DS135C  | Compensator      |
| D606 | 034DS135C  | Compensator      |
| D607 | 034DS135C  | Compensator      |
| D608 | 034DS135C  | Compensator      |
| D801 | 034RD5.6EB | Zener Reg.       |
| D802 | 034FDH9615 | Compensator      |
| D803 | 034FDH9615 | Compensator      |
| D901 | 034KBPC102 | Rectifier        |
| D902 | 034KBPC102 | Rectifier        |
| D904 | 034RD18EB  | Zener Reg.       |
| D906 | 034RD18EB  | Zener Reg.       |
| D907 | 034DS135C  | Rectifier        |
| D909 | 034RD24EB  | Zener Reg.       |
| D001 | 034LN224RP | Power Ind.       |
| D002 | 034LN224RP | BTL Ind.         |
| D003 | 034LN224RP | Protection Ind.  |

|       |             |            |
|-------|-------------|------------|
| IC701 | 031NJM5532N | BTL        |
| IC801 | 031TA7324P  | Protection |

## SWITCHES AND OTHERS

|       |                |                            |
|-------|----------------|----------------------------|
| S1    | 061C-3600B     | Power SW: SDL-1P           |
| S2    | 061C-4107      | BTL SW: SSA062             |
| T001  | 022T-180G      | Power Transformer          |
| T002  | 022T-180G      | Power Transformer          |
| C001  | 044NSK135      | Safety Capacitors (STD)    |
|       | 044PME265MB522 | Safety Capacitors (Europe) |
| RY801 | 063RZ24W       | Protection Relay           |
| TH801 | 034TD5C35OD    | Temperature Compensator    |
| VR601 | 051EVNJOA5K    | Bias Adj.                  |
| VR602 | 051EVNJOA5K    | Bias Adj.                  |
| R906  | 054ERD2FCG331  | Fusible Resistors          |
| R908  | 054ERD2FCG331  | Fusible Resistors          |
| R929  | 054ERD2FCG101  | Fusible Resistors          |

# Wiring Diagram



# Schematic Diagram

