# RCA VICTOR


# PROGRAM AMPLIFIER

## SERVICE DATA

## 75 WATT TRANSISTOR

## TYPE 94-0115

### SPECIFICATIONS

| | |
|---|---|
| Power Output | 75 watts RMS at less than 5% THD. |
| | 112 watts music power |
| | 150 watts peak power |
| Outputs | |
| Speaker (Screw Terminals) | 8 ohms unbalanced |
| Constant Voltage (Screw Terminals) | 70.7 v & 25 v balanced |
| Frequency Response | 20—20,000 cps, ± 3 db |
| Harmonic Distortion | less than 5% at 75 watts RMS |
| Hum and Noise | —60 db below 75 watts |
| Inputs | |
| Program (Screw Terminals) | Unbalanced 15,000 ohms |
| Line (with 94-0117) | Balanced 10,000 ohms bridging |
| | Balanced 600 ohms matching |
| Front Panel Controls | Program gain |
| | Power on-off |
| Power Required | 120 VAC, 60 cps |
| Semi-Conductors | 1 — SE4001, 1 — 2N3053, |
| | 4 — 2N3442, 1 — DTG1011, 2 — IN1693, 2 — IN3604 |
| Dimensions | 16" W, 7" H, 8-3/4" D |
| Shipping Weight | 26 lbs. |
| Finish | Shadow Blue with Black Apron; Knobs |
| Stock Identification | #94-0115 |
| CSA and UL Approved | |

### DESCRIPTION

The RCA Type 94-0115 program amplifier is a high power 75 watt transistorized amplifier designed for use in commercial type sound installations. The unit has a self-contained solid-state power supply and is shipped from the factory for 120 volt AC operation.

For convenience, the controls required for power on-off and program gain are located on the front panel of the amplifier.

Input connectors for a Program source, a 15K Ohm Bridging and a Line In are mounted on the rear apron of the amplifier chassis.

When microphone inputs are required at a remote location, use of the 4 microphone input RCA Victor type 94-0116 Mixer Preamplifier is recommended with the 94-0115 Amplifier. A standard 15K IN (unbalanced) program channel is incorporated on the rear apron for use with low and medium impedance input sources. Provisions for bridging or matching a balanced line are furnished at the screw type LINE IN terminals on the amplifier rear apron. For this type of operation, the optional plug-in LINE matching transformer, 94-0117 must be inserted in the socket provided on top of the amplifier chassis.

Balanced 70.7 v and 25 v speaker outputs and an 8 ohm unbalanced speaker output are provided at screw type terminals on the chassis rear apron. Adequate protection for the output transistors is provided by an externally mounted fuse and an overload indicator lamp and switching device to prevent amplifier damage during an overload condition. A special feedback network is included to prevent tran-

ISSUED BY
SERVICE DIVISION PUBLICATIONS
RCA VICTOR COMPANY, LTD.
MONTREAL, CANADA

1965 No. SS - 7
Printed in Canada.

sistor damage when the speaker load is accidentally removed or shorted.

## PROGRAM INPUTS

### 15K ohm Bridging Input

The 15,000 ohm input connection is made at the screw type terminals on rear of chassis marked 15K IN. This standard unbalanced bridging input is for connection of a low or medium impedance input. When used with a high impedance source, some loading effect will be present but generally of a negligible nature.

### Phonograph Input

The PROGRAM jack, J2, is used for connecting a ceramic or crystal phono input. When used for this application, the optional plug-in Phono Preamplifier, 94-0118 is required. The 94-0118 preamplifier is supplied by the factory prewired for this application and is simply inserted into the transformer socket, J1 Connect shielded cable from ceramic or crystal phono cartridge to PROGRAM jack J6.

For magnetic phono cartridge applications the 94-0118 preamplifier must be modified to accommodate this type of phono cartridge.

### Line Bridging Input

The Line Bridging Input is provided at the screw type terminals on chassis rear apron marked LINE IN. For this application, the optional plug-in transformer 94-0117 is required. The 94-0117 transformer is inserted into the transformer socket, J5, with no need of socket modification. The balanced 10,000 ohm impedance, which the 94-0117 transformer provides, enables many amplifiers to be connected to a single 600 ohm line without loading. A line terminating resistor (470 to 680 ohms) should be used to preserve good frequency response.

### Line Matching Input

The Line Matching Input is provided at the screw type terminals marked LINE IN. For this application, the optional plug-in transformer 94-0117 is required and the transformer socket J1 must be modified for balanced 600 ohm impedance. To modify the socket J1, remove wires connected to pins 5 and 6 and reconnect them to pins 1 and 4. Connect matching line to LINE IN terminals on rear of chassis.

## OUTPUTS

### 8 Ohm Output (unbalanced)

Two screw type terminals are provided for this output. These terminals are generally used where only a single speaker or a few speakers are required.

### 70.7 v and 25 v Outputs (balanced)

Screw type terminals designated 25 v and 70.7 v are provided on the rear apron of the amplifier chassis. These terminals provide constant voltage outputs for connection of speakers used in multiple systems. The individual speakers will require a 70.7 v or 25 v transformer when used in this type of system.

### Utility AC Outlet

A convenient AC outlet on the chassis rear apron, will handle loads up to 250 watts for connection of auxiliary equipment, soldering iron, etc. This AC outlet is not fused or controlled by the amplifier power switch, SW1.

## OPERATION

### Program Gain Control

The PROGRAM control, R27, is used for adjusting the input signal level applied to the base of transistor Q1.

### On-Off Switch

The ON-OFF switch, SW1, is a toggle type switch which controls all power to the unit except the utility AC outlet. A neon indicator lamp located along side of the power switch is illuminated when the switch is placed in the ON position.

## SPECIAL SERVICE CONSIDERATIONS

### Connections

The use of adequately shielded cable is recommended when connecting source equipment to the amplifier. Care should be taken to see that input connections are made properly and securely. Use spade lugs for connections to all screw type terminals.

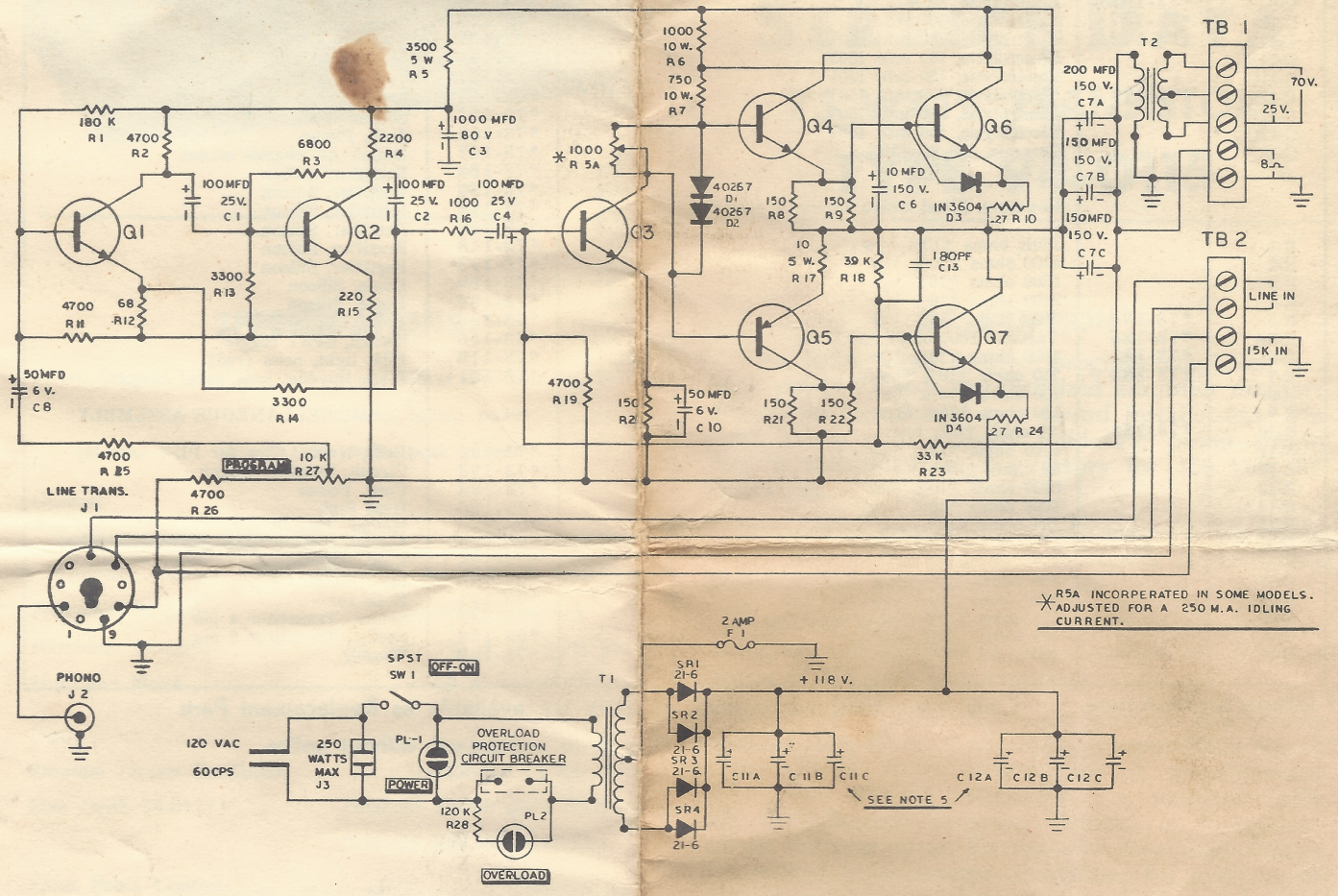
### Maintenance

Adequate ventilation should be provided for the amplifier. An externally mounted fuse, F1, on chassis rear apron and a circuit breaker are for protection against a continuous overload. The circuit breaker will open approximately 40 seconds after a constant overload is experienced. When this occurs, the overload visual lamp located on the front of the chassis becomes illuminated. The circuit breaker will remain open for approximately 90 seconds. After this 90 second interval, the circuit breaker will close to re-sample the load condition, to insure that the overload has been removed. If the overload has not been removed, the circuit breaker will continue to cycle in the same manner. When the overload is removed, the amplifier will function normally. Another possible cause for the circuit breaker to open is inaudible high frequency oscillation applied to amplifier inputs. Check the speaker output with an oscilloscope as oscillation may originate in the input source. The speaker and program wires should NOT be installed within the same conduit.

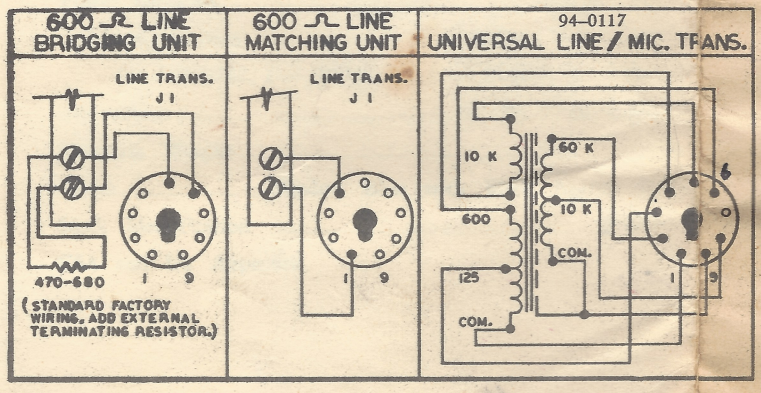
The maximum power output may be checked with a sine wave signal at any frequency. A sustained tone above approximately 5000 cps should not be applied for more than a few minutes as excessive transistor heating will occur and cause the circuit breaker to open. High frequencies at a lower power output will have no adverse effect.

Damage to transistors may result if any wiring is shorted while servicing or circuit tracing. Do not remove transistors from their sockets while power is on. If replacement of either power transistor, is required, coat both sides of the mica insulator with Silicon Gel.

## 94-0115 — Amplifier — Schematic Diagram




*R5A INCORPERATED IN SOME MODELS. ADJUSTED FOR A 250 M.A. IDLING CURRENT.




94-0117 in MT4

NOTES:

1. ALL RESISTORS ½ WATT ±10% UNLESS OTHERWISE SPEC.
2. ALL CAPACITORS OVER ONE MFD ARE ELECTROLYTIC, POLARITY SHOWN. OTHER CAPACITORS ARE MMFD.
3. COMPONET VALUES IN EQUIPMENT MAY DIFFER FROM DIAGRAM. THEREFORE, NEW SCHEMATICS ARE ISSUED WHEN MAJOR CHANGES OCCUR.
4. [ ] SHOWN AS FRONT PANEL FUNCTION.
5. C11A, C11B, C11C. C12A, C12B, C12C. ABOVE CAPACITORS TO BE COMBINATION MFD'S TOTALING 500 MFD MINIMUM, AT 150 V.
6. IF A 4 PIN TRANSISTOR IS USED PIN 4 (CASE) IS GROUNDED.

# REPLACEMENT PARTS LIST

**Insist on Genuine Factory Tested Parts, which are readily identified and may be purchased from Authorized Dealers**

| SYMBOL | STOCK NO. | DESCRIPTION |
|---|---|---|
| | | Capacitors, Fixed |
| C-1 | *73-143 | Electrolytic, 100 mfd 25V |
| C-2 | *73-143 | Electrolytic, 100 mfd 25V |
| C-3 | *73-111 | Electrolytic, 1000 mfd 80V |
| C-4 | *73-143 | Electrolytic, 100 mfd 25V |
| C-6 | *73-178 | Electrolytic, 10 mfd 150V |
| C-7A, | *73-179 | Electrolytic, 200 mfd 150V |
| C-7B, | | Electrolytic, 150 mfd 150V |
| C-7C | | Electrolytic, 150 mfd 150V |
| C-8 | *73-107 | Electrolytic, 50 mfd 6V |
| C-10 | *73-107 | Electrolytic, 50 mfd 6V |
| C-11A, | *73-179 | Electrolytic, 200 mfd 150V |
| C-11B, | | Electrolytic, 150 mfd 150V |
| C-11C | | Electrolytic, 150 mfd 150V |
| C-12A, | *73-179 | Electrolytic, 200 mfd 150V |
| C-12B, | | Electrolytic, 150 mfd 150V |
| C-12C | | Electrolytic, 150 mfd 150V |
| C-13 | | Ceramic, 180 pf ±10% |
| | | Resistors, Fixed unless otherwise specified |
| R-1 | | 180K ohms ±10% ½w |
| R-2 | | 4700 ohms ±10% ½w |
| R-3 | | 6800 ohms ±10% ½w |
| R-4 | | 2200 ohms ±10% ½w |
| R-5 | *73-180 | 3500 ohms ±10% ½w |
| R-5A | *73-185 | Variable 1000 ohms ±10% 2w |
| R-6 | *73-181 | 1000 ohms ±10% ½w |
| R-7 | *73-182 | 750 ohms ±10% ½w |
| R-8 | | 150 ohms ±10% ½w |
| R-9 | | 150 ohms ±10% ½w |
| R-10 | *73-183 | .27 ohms ±5% 10w |
| R-11 | | 4700 ohms ±10% ½w |
| R-12 | | 68 ohms ±10% ½w |
| R-13 | | 3300 ohms ±10% ½w |
| R-14 | | 3300 ohms ±10% ½w |
| R-15 | | 220 ohms ±10% ½w |
| R-16 | | 1000 ohms ±10% ½w |
| R-17 | | 10 ohms ±10% 5w |
| R-18 | | 39K ohms ±10% ½w |
| R-19 | | 4700 ohms ±10% ½w |
| R-20 | | 150 ohms ±10% ½w |
| R-21 | | 150 ohms ±10% ½w |
| R-22 | | 150 ohms ±10% ½w |
| R-23 | | 33K ohms ±10% ½w |
| R-24 | *73-183 | .27 ohms ±5% 10w |
| R-25 | | 4700 ohms ±10% ½w |
| R-26 | | 4700 ohms ±10% ½w |
| R-27 | *73-184 | Variable 10K ohms ±30% ¼w |
| R-28 | | 120K ohms ±10% ½w |
| T-1 | *73-186 | Transformer, Power |
| T-2 | *73-187 | Transformer, Output |
| Q-1 | *73-170 | Transistor, Type SE4001 |
| Q-2 | *73-176 | Transistor, Type 2N3053 |
| Q-3 | *73-177 | Transistor, Type 2N3442 |
| Q-4 | *73-177 | Transistor, Type 2N3442 |
| Q-5 | *73-175 | Transistor, Type MC2292 |
| Q-6 | *73-177 | Transistor, Type 2N3442 |
| Q-7 | *73-177 | Transistor, Type 2N3442 |
| J-1 | *73-123 | Socket, 9 pin |
| J-2 | *73-153 | Jack, Phono |
| J-3 | *73-122 | Outlet, AC chassis mount |
| SR-1 | *73-188 | Rectifier, Silicon |
| SR-2 | *73-188 | Rectifier, Silicon |
| SR-3 | *73-188 | Rectifier, Silicon |
| SR-4 | *73-188 | Rectifier, Silicon |
| D-1 | *73-118 | Rectifier, Silicon |
| D-2 | *73-118 | Rectifier, Silicon |
| D-3 | *73-189 | Diode, Silicon |
| D-4 | *73-189 | Diode, Silicon |
| F-1 | *73-190 | Fuse, 3AG, slo-blo |
| SW-1 | *73-156 | Switch, SPST toggle |
| PL-1 | *73-116 | Pilot light, neon (red) |
| PL-2 | *73-191 | Pilot, Bayonet base panel mount |
| | | MISCELLANEOUS ASSEMBLY |
| | *73-192 | Bulb, Neon 1/25w for PL-2 assembly |
| | *73-193 | Circuit Breaker, 1 amp |
| | *73-194 | Cord, Power |
| | *73-195 | Heat Sink |
| | *73-130 | Holder, Fuse Post |
| | *73-129 | Insulator Mica, transistor mount |
| | *73-135 | Knob, Skirted |
| | *73-196 | Lock Shaft |
| | *73-197 | Reflector |
| | *73-133 | Socket, Transistor 4 pin |
| | *73-134 | Socket, Transistor 3 pin |
| | *73-198 | Washer |

* Indicates New Stock Items.

**Only items listed under stock numbers are available as Replacement Parts**

**All parts subject to change or withdrawal without notice.**



1800.1117