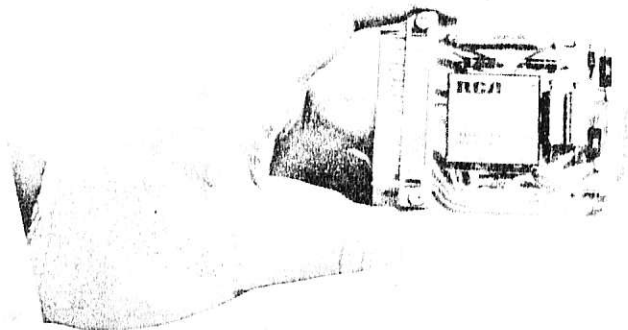


Operational Amplifier MI-141651



EQUIPMENT LOST OR DAMAGED IN TRANSIT

Unpack and thoroughly inspect equipment upon receipt. If shortages or damaged parts are found, immediately notify RCA and the carrier, and secure an inspection report from the carrier. Notification of equipment loss or damage must be made in writing to RCA, Communications Systems Division, Camden, New Jersey 08102 WITHIN 15 DAYS after receipt of material.

WARRANTY ITEMS

Parts or equipments covered by warranty may be replaced by contacting the local RCA Sales Office. Avoid delays by supplying complete information such as Original Invoice Number, MI-Number, Type Number, Model Number, Serial Number, Stock Number and Description.

REPLACEMENT PARTS

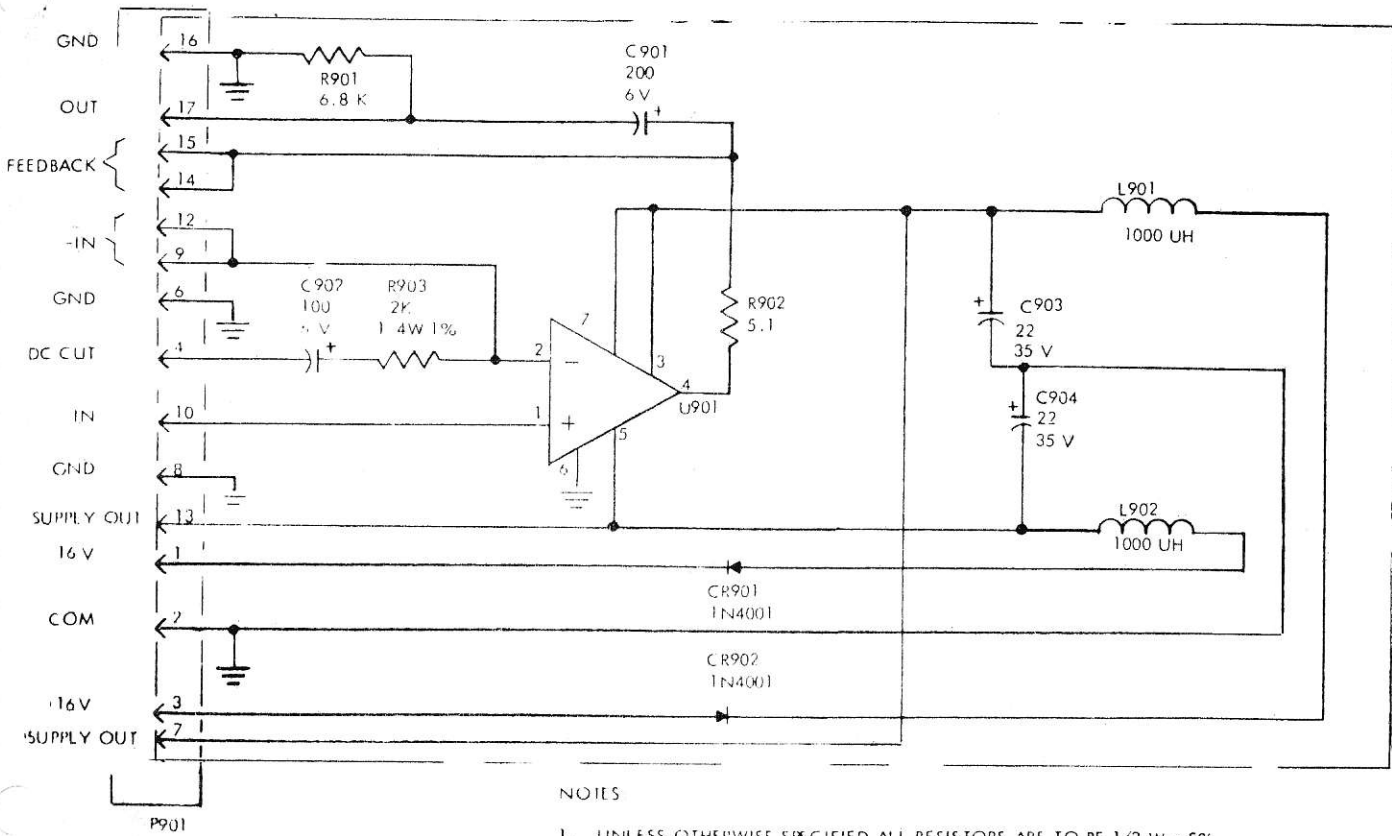
Replacement parts bearing a *Stock Number* should be ordered by Item Description and Stock Number from RCA Parts and Accessories, Deptford, New Jersey 08096. Parts listed under a *Master Item (MI-) Number* should be ordered from RCA, Communications Systems Division, Camden, New Jersey 08102. Parts bearing no number are not stocked by RCA.

DESCRIPTION

The Operational Amplifier Submodule, MI-141651, is common to the active modules in the BC-100 Series. The submodule simply plugs into a connector mounted in the module. Connections to the submodule determine the operating characteristics of the amplifier.

SPECIFICATIONS

Open Loop Voltage Gain	94 dB min
Frequency Response (Small Signal Gain-Bandwidth Product)	40 MHz min
Equivalent Input Noise (20-20,000 Hz)	0.7 uV max
Common Mode Input Voltage	±4 V max
Differential Input Impedance	200 kohms min
Open Loop Output Impedance	100 ohms max
Output Voltage and Current	±10 V, ±100 mA
Output Power	20 dBm @ 600 ohms
Power Requirements (quiescent)	±16 VDC, 12 mA typ
Dimensions	2-1/2" x 3-1/6" x 5/8"
Weight	2 oz
Shipping Dimensions	3" x 6" x 2" approx
Shipping Weight	6 oz approx



NOTES

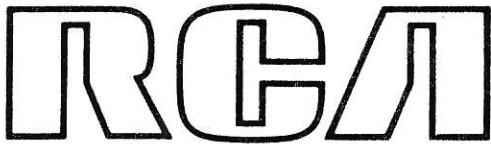
1. UNLESS OTHERWISE SPECIFIED ALL RESISTORS ARE TO BE 1/2 W ± 5%
2. ALL RESISTORS ARE TO BE IN OHMS
3. CAPACITORS ARE TO BE IN MICRO FARADS.

Operational Amplifier Schematic (RCA Dwg. 3730374)

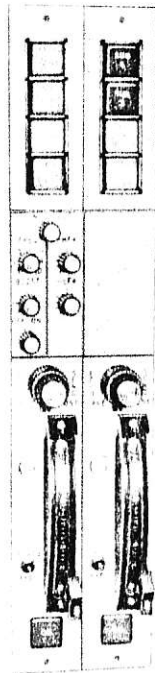
PARTS LIST

Symbol No.	Stock No.	RCA Dwg. No.	Description
C901	418341	3410170-118	200 mfd, 6 V, capacitor
C902	242033	3457537-4	100 mfd, 6 V, capacitor
C903, C904	258094	8524009-185	22 mfd, 35 V, capacitor
R901	502268	82283-179	6800 ohms, 5%, 1/2 W resistor
R902	269814	82283-568	5.1 ohms, 5%, 1/2 W resistor
R903	236185	990475-330	2 k, 1%, 1/4 W resistor
CR901, CR902	301605	3458443-1	Diode, 1N4001
L901, L902	240651	3410354-49	Choke, 1000 μH
P901	418340	3458431-101	Connector, PC mounting
U901	418342	3458394-501	Op Amp Assy

Note: Connector mates with Elco No. 7024-017-163-001 (RCA Stock No. 418330)



BMM-100 Mixer MI-141550



DESCRIPTION

The BMM-100 Mixer has switches which delegate its output to either submaster or master busses, and which provide feeds to an echo bus, cue bus and a foldback bus. Feeds to the echo and foldback busses may be selected from either a pre-fader or post-fader source. Feed to the cue bus is permanently wired from either a pre-fader or post-fader source.

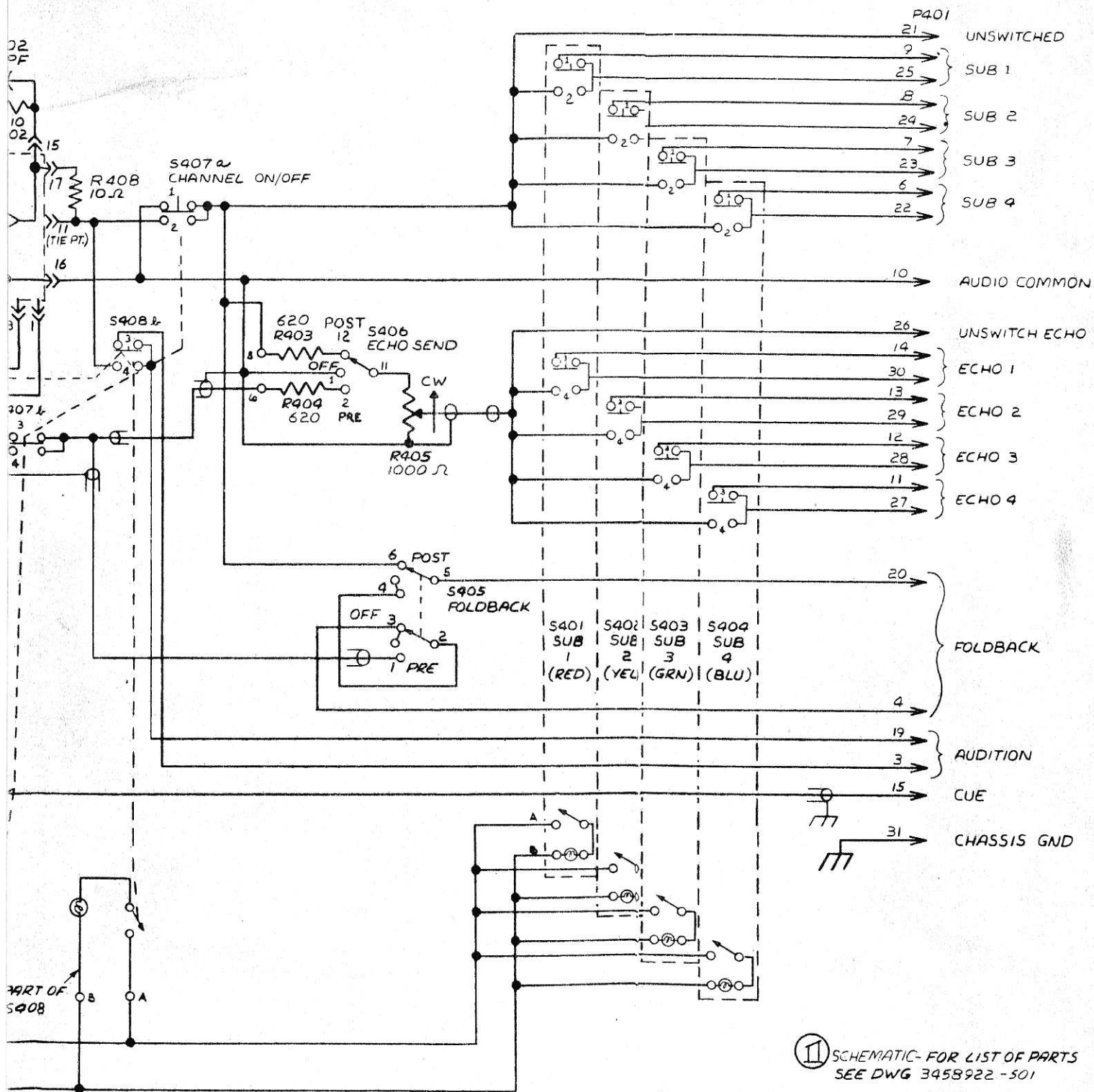
The BMM-100 is wired to accommodate an optional BE-100 Equalizer Submodule, which may be added at any time by a simple plug-in arrangement. To add the BE-100, remove jumper plug, J401. Mixer modules are readily interchangeable to offset air outage or to introduce equalization to a mixer position. Each requires one Operational Amplifier

EQUIPMENT LOST OR DAMAGED IN TRANSIT

Unpack and thoroughly inspect equipment upon receipt. If shortages or damaged parts are found, immediately notify RCA and the carrier, and secure an inspection

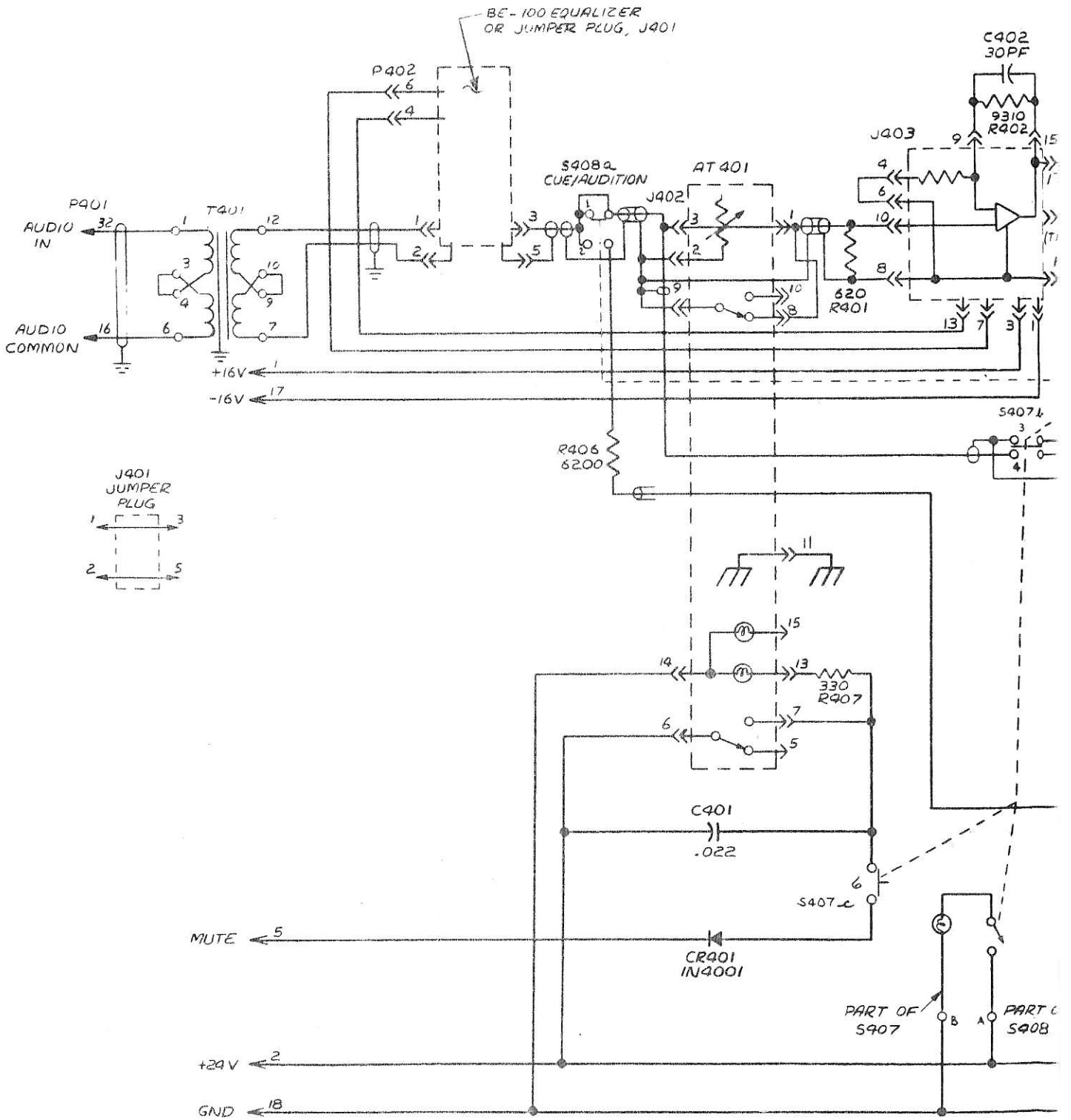
SPECIFICATIONS

Frequency Response (1 kHz ref, 20-20,000 Hz)	.....	+0, -0.5 dB
Distortion (30-20,000 Hz)	.....	0.25% max
Noise Level (unweighted 20-20,000 Hz)	.....	-113 dBm
Source Impedance	.....	600 ohms
Input Impedance	.....	600 ohms
Gain	.....	+13 dBm
Maximum Input Level	.....	+15 dBm
Attenuator Range	.....	0 to -60 dB
Output Impedance	.....	15 ohms
Output Level	.....	+20 dBm max
Power Requirements:		
Lamps	.....	24 VDC @ 200 mA
Active Circuitry	.....	+16 VDC @ 15-30 mA
Dimensions	.....	1-3/4" x 16-1/4" x 8-1/4"
Weight	.....	4-1/2lbs
Shipping Dimensions	.....	3" x 10" x 20" approx
Shipping Weight	.....	5.5 lbs



DWG 3472915 REV. 3

① SCHEMATIC- FOR LIST OF PARTS
SEE DWG 3458922-501



NOTE:
AT 401, S407, S408 SHOWN
IN OFF POSITION

report from the carrier. Notification of equipment loss or damage must be made in writing to RCA, Communications Systems Division, Camden, New Jersey 08102 WITHIN 15 DAYS after receipt of material.

WARRANTY ITEMS

Parts or equipments covered by warranty may be replaced by contacting the local RCA Sales Office. Avoid delays by supplying complete information such as Original Invoice Number, MI-Number, Type Number, Model Number, Serial Number, Stock Number and

Description.

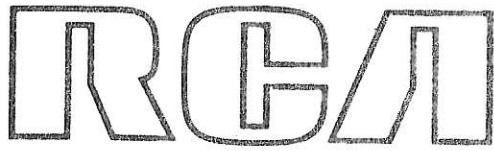
REPLACEMENT PARTS

Replacement parts bearing a *Stock Number* should be ordered by Item Description and Stock Number from RCA Parts and Accessories, Deptford, New Jersey 08096. Parts listed under a *Master Item (MI-) Number* should be ordered from RCA, Communications Systems Division, Camden, New Jersey 08102. Parts bearing no number are not stocked by RCA.

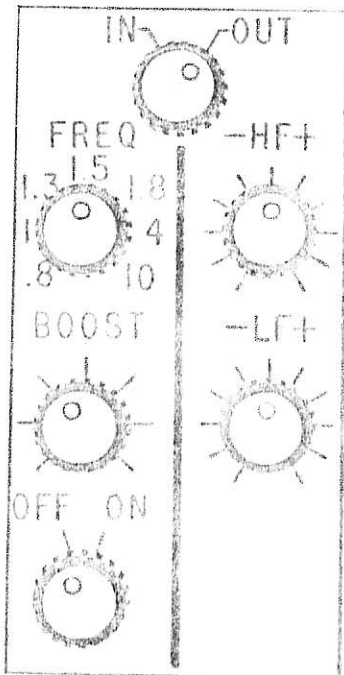
PARTS LIST

Symbol No.	Stock No.	RCA Part No.	Description
AT401	418623	3468645-1	600/600 Bridged-T Attenuator (incl. J402
J401*	418620	3458913-9	Connector (Housing only)
J402	424274		Connector for AT401
J403	418330	3458431-1	Connector for Op Amp
P401	269068	8414862-5	Connector, Main Module
P402	418621	3458913-10	Connector (Housing only)
37	246648	3458913-39	Pins for above (6 required)
R402	305976	990475-394	9310 ohm, $\pm 1\%$, 1/4 W metal film resistor
^401-S404		3468648-1	Switch Assembly, complete
.01-S404	418630		Switch only (for above)
	418631		Red Button, engraved "Sub 1"
	418632		Yellow Button, engraved "Sub 2"
	418633		Green Button, engraved "Sub 3"
	418634		Blue Button, engraved "Sub 4"
S405	418624	3458923-1	Foldback Switch
S406, R405		3730375-1	Echo Send Switch/Pot
S406	418625		3 position Switch, part of above
R405	418626		1000 ohm Audio Taper Pot, part of above
S407-S408	418627		Chan ON & Cue Switch (less button)
	418629		Red Button, engraved "On", for S407
	418628		White Button, engraved "Cue", for S408
T401	922355	3730351 1	Input Transformer
21	418640	3458924-2	Set of 2 Echo Send Knobs
23		3458920-1	Blank Formica Panel

*Not used when optional BE-100 Equalizer is installed.



BE-100 Equalizer MI-141560



DESCRIPTION

Type BE-100 Equalizer Submodule is a zero loss plug-in device for the BMM-100 Mixer. Separate low-frequency, high-frequency and peaking-frequency (presence) equalization is provided. Maximum equalization exceeds 18 dB boost or cut at 40 Hz, 15 dB boost or cut at 10 kHz, and 16 dB boost at any frequency between 800 and 10,000 Hz. An "IN/OUT" switch removes the BE-100 from the circuit. The "ON/OFF" switch defeats the peaking-frequency (presence) equalization.

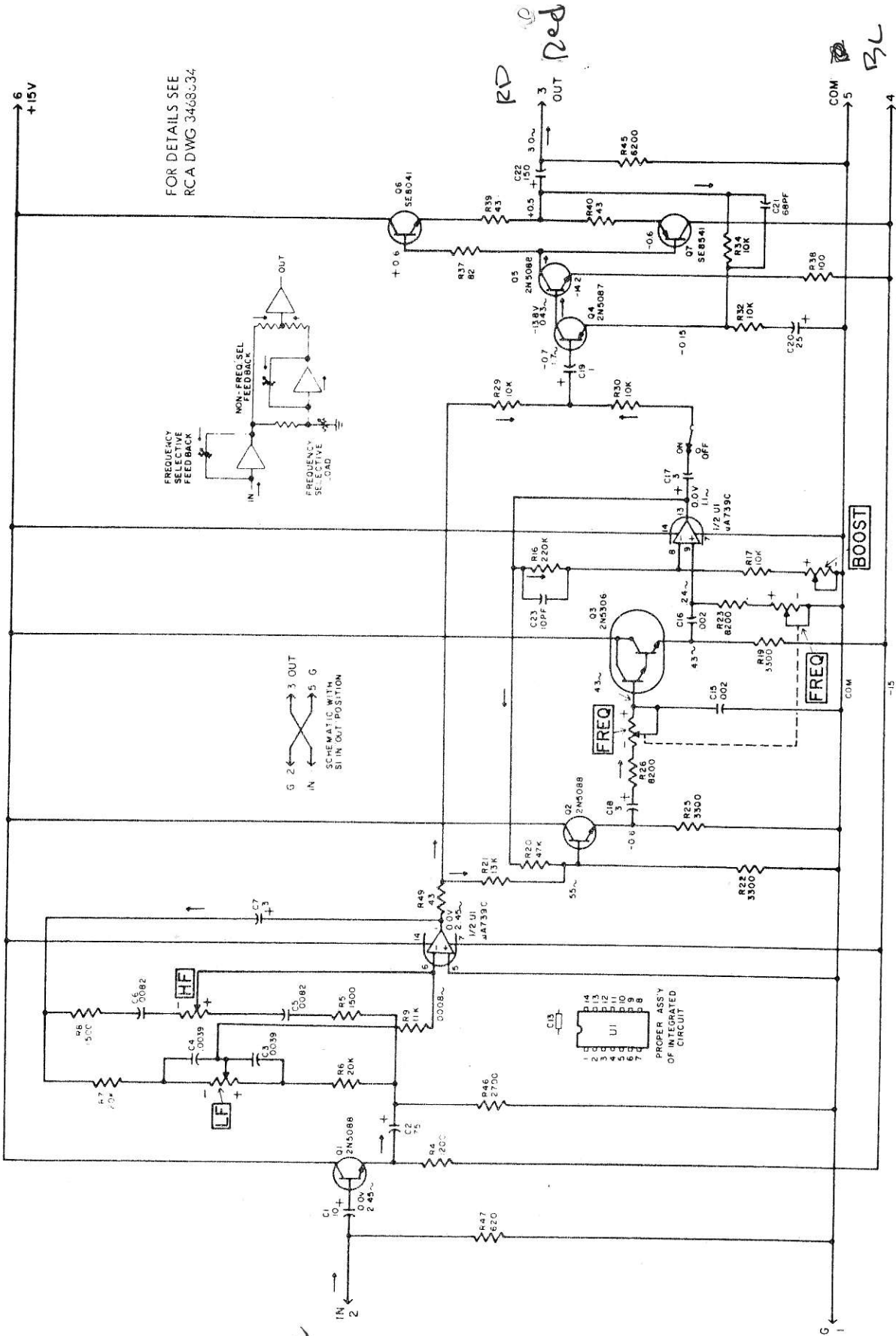
EQUIPMENT LOST OR DAMAGED IN TRANSIT

Unpack and thoroughly inspect equipment upon receipt. If shortages or damaged parts are found, immediately notify RCA and the carrier, and secure an inspection report from the carrier. Notification of equipment loss or damage must be made in writing to RCA, Communications Systems Division, Camden, New Jersey 08102 WITHIN 15 DAYS after receipt of material.

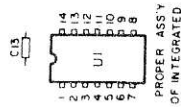
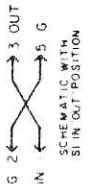
SPECIFICATIONS

Insertion Loss	0.75 dB max
Boost at 40 Hz	0 to 18 dB
Cut at 40 Hz	0 to 18 dB
Boost at 10 kHz	0 to 15 dB
Cut at 10 kHz	0 to 15 dB
Range, Presence Frequency	800-10,000 Hz
Boost, Presence Frequency	0 to 16 dB
Load Impedance	600 ohms
Power Requirements	\pm 16 VDC @ 35 mA
Dimensions	1-3/4" x 3-1/2" x 6-3/4"
Weight	18 oz
Shipping Dimensions	3" x 5" x 8" approx
Shipping Weight	32 oz

HIGH & LOW FREQ EQUALIZER — PRESENCE (MID FREQ) EQUALIZER — AMPLIFIER



FOR DETAILS SEE
RCA DWG 3468334



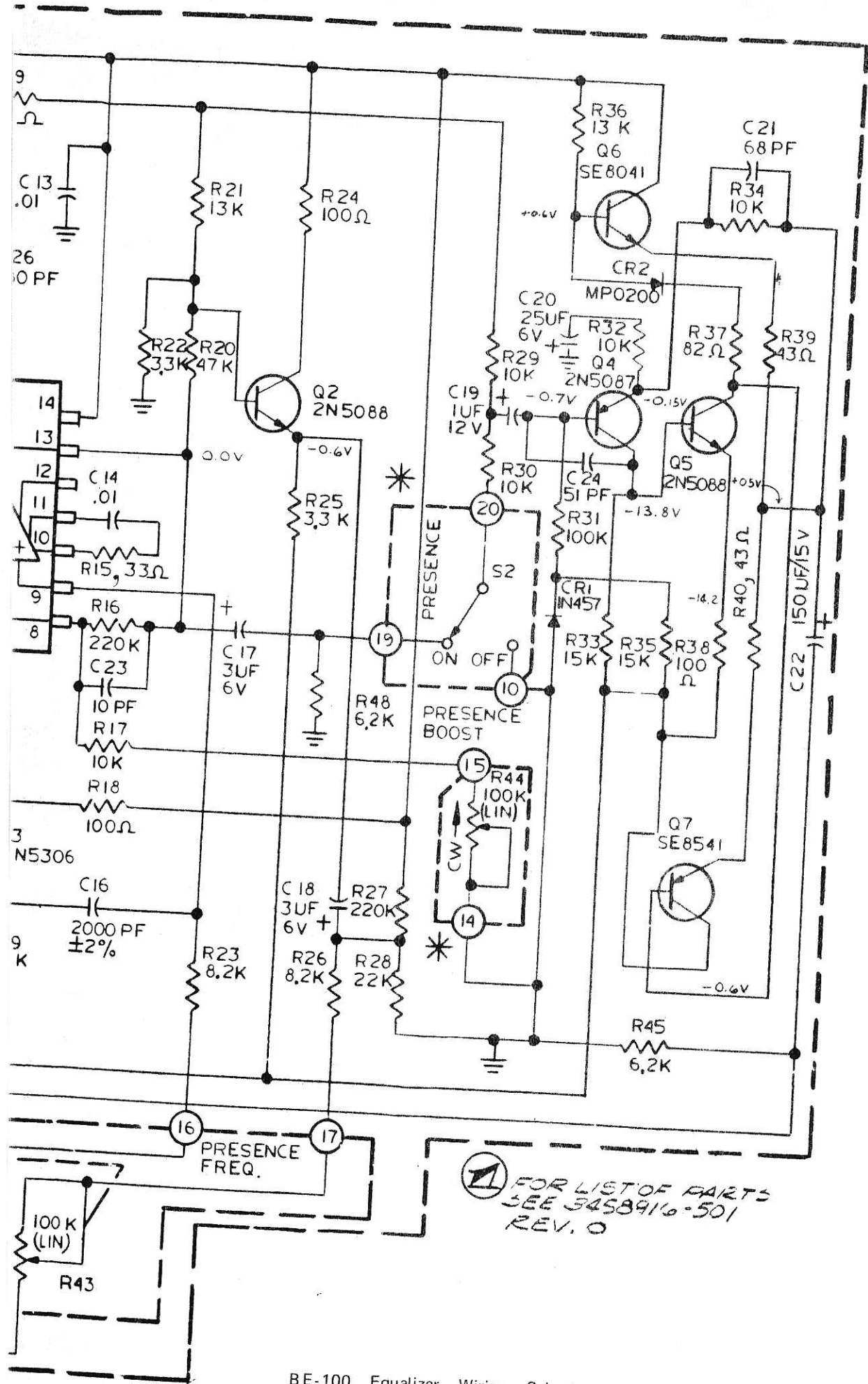
PROPER ASSY
OF INTEGRATED
CIRCUIT

INDICATES DIRECTION OF SIGNAL FLOW

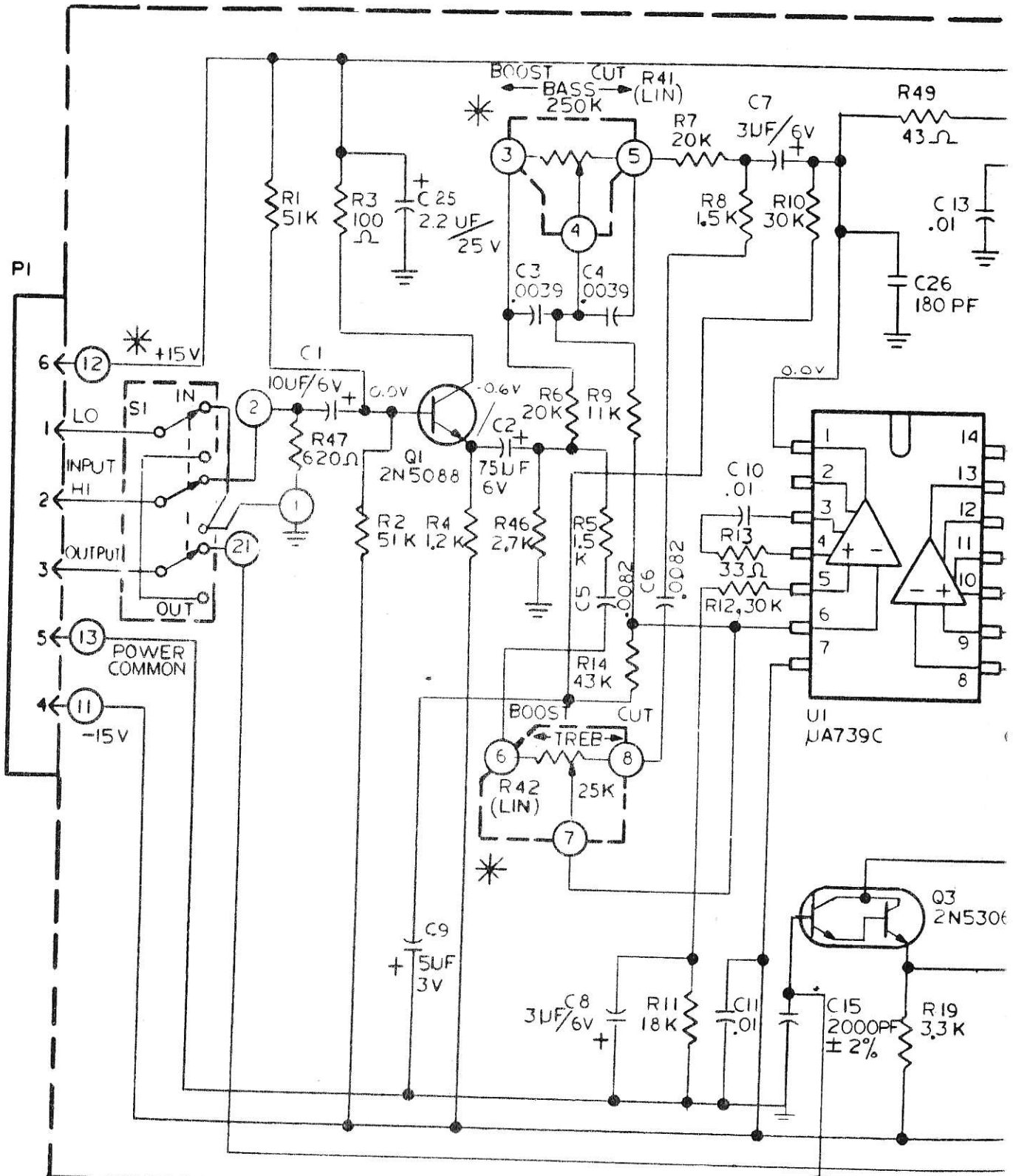
INDICATES DC MEASUREMENT WITH RESPECT TO DC COMMON

INDICATES T.M RMS MEASUREMENT AT 1 KHz WITH ALL CONTROLS IN CENTER POSITION

BE-100 Equalizer Overall Signal Schematic (RCA Dwg. 3468677)

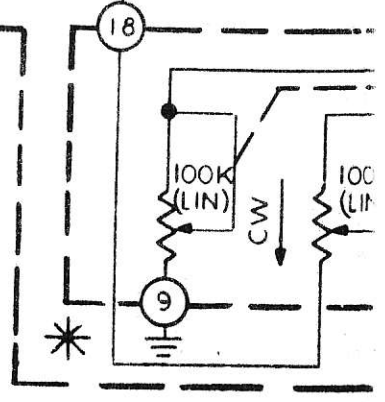
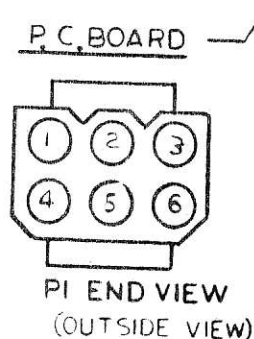


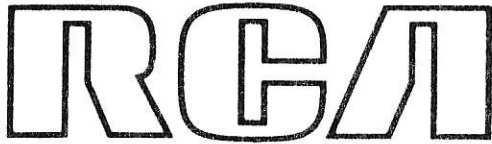
BE-100 Equalizer Wiring Schematic (RCA Dwg. 3468634)



* DENOTES COMPONENTS LOCATED OFF BOARD

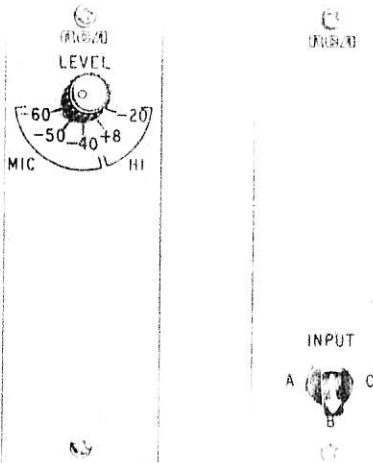
NOTES:
 ALL RESISTORS $\frac{1}{4}W \pm 5\%$
 UNLESS OTHERWISE SPECIFIED
 ALL D.C. VOLTAGES MEASURED WITH
 NO SIGNAL FROM POWER COMMON





BA-101, BA-103 Preamplifiers

MI-141501,
MI-141503



DESCRIPTION

Preamplifiers BA-101 and BA-103 are identical, except for the addition on the BA-103 of an input selector switch to allow preselection of any one of three microphones. The five position attenuator switch is to adjust input sensitivity to the program source. One Operational Amplifier is required with each Preamplifier.

EQUIPMENT LOST OR DAMAGED IN TRANSIT

Unpack and thoroughly inspect equipment upon receipt. If shortages or damaged parts are found, immediately notify RCA and the carrier, and secure an inspection report from the carrier. Notification of equipment loss or damage must be made in writing to RCA, Communications Systems Division, Camden, New Jersey 08102 WITHIN 15 DAYS after receipt of material.

WARRANTY ITEMS

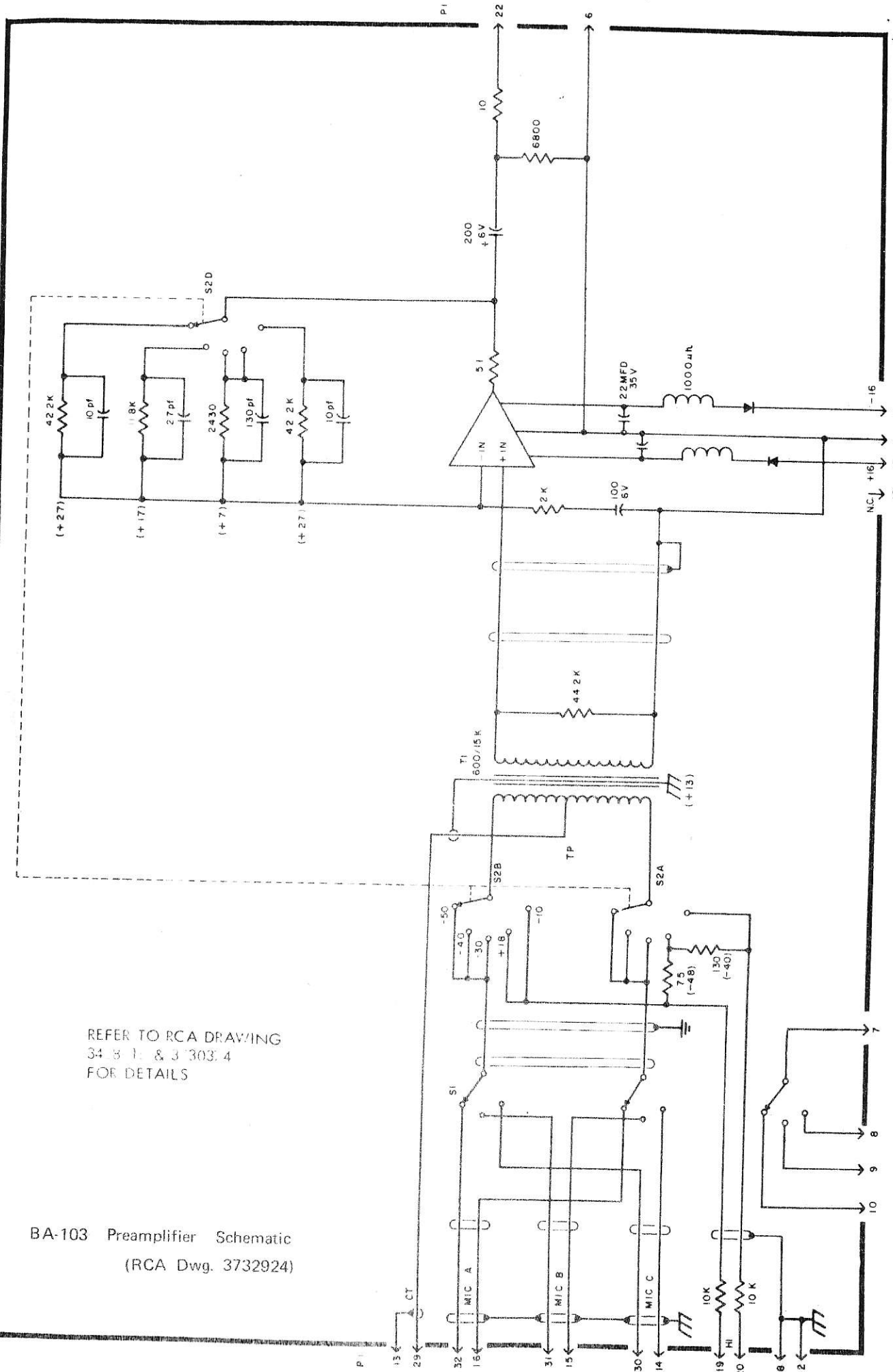
Parts or equipments covered by warranty may be replaced by contacting the local RCA Sales Office. Avoid delays by supplying complete information such as Original Invoice Number, MI-Number, Type Number, Model Number, Serial Number, Stock Number and Description.

REPLACEMENT PARTS

Replacement parts bearing a *Stock Number* should be ordered by Item Description and Stock Number from RCA Parts and Accessories, Deptford, New Jersey 08096. Parts listed under a *Master Item (MI-) Number* should be ordered from RCA, Communications Systems Division, Camden, New Jersey 08102. Parts bearing no number are not stocked by RCA.

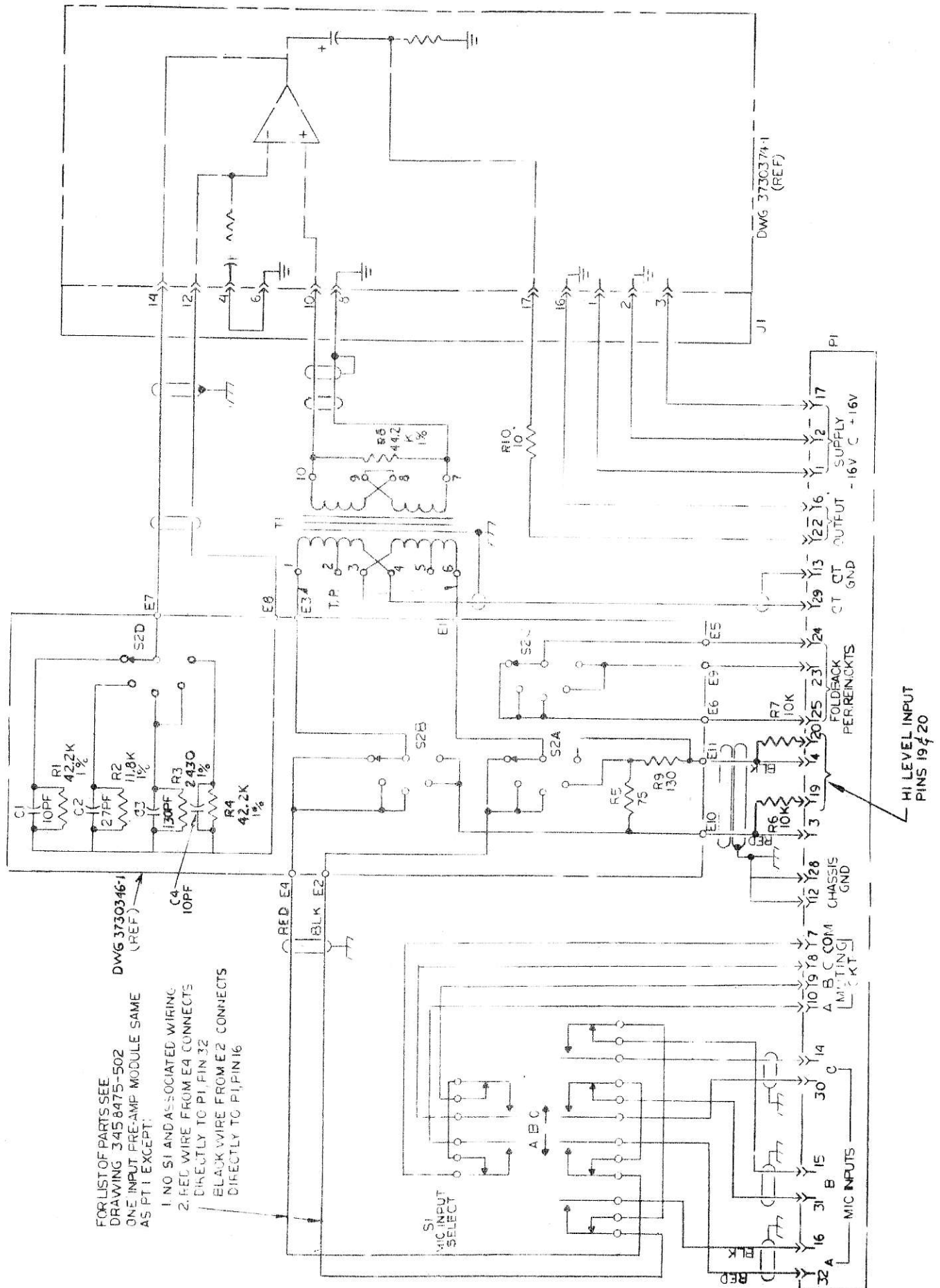
SPECIFICATIONS

Frequency Response (1 kHz ref, 20-20,000 Hz)	.....	+0, -0.5 dB
Distortion (30-20,000 Hz)	.....	0.25% max
Noise Level (unweighted, 20-20,000 Hz)	.....	-126 dBm
Source Impedance	.....	150 ohms low level; 600 ohms high level
Input Impedance	.....	1500 ohms low level; 20,000 ohms high level
Gain	.....	+40, +30, +20 dB unterminated, low level; 0 or -28 terminated, high level
Output Impedance	.....	15 ohms
Load Impedance	.....	600 ohms
Maximum Output Level	.....	+20 dBm
Power Requirements (quiescent)	.....	±16 VDC, 15 mA, 30 mA peak



REFER TO RCA DRAWING
34 B 1, & 3 303 4
FOR DETAILS

BA-103 Preamplifier Schematic
(RCA Dwg. 3732924)



FOR LIST OF PARTS SEE
DRAWING 345 8475-502
ONE INPUT PRE-AMP MODULE SAME
AS PT1 EXCEPT:

1. NO S1 AND ASSOCIATED WIRING
2. RED WIRE FROM E4 CONNECTS
DIRECTLY TO P1, PIN 32
- BLACK WIRE FROM E2 CONNECTS
DIRECTLY TO P1, PIN 16

DWG 3730346-1
(REF)

C4
10PF

DWG 3730374-1
(REF)

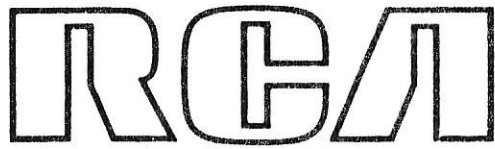
HI LEVEL INPUT
PINS 19 & 20

BA-101, BA-103 Preamplifier Schematic (RCA Dwg. 3468616)

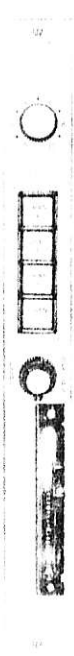
PARTS LIST

Symbol No.	Stock No.	RCA Dwg No.	Description
J1	418330	3458431-1	Connector, for Op Amp
P1	269068	8414862-5	Connector, Main
R1, R4	236522	990475-461	42.2 k, $\pm 1\%$, 1/4 W, metal film resistor
R2	233955	990475-408	11.k, $\pm 1\%$, 1/4 W, metal film resistor
R3	236137	990475-338	2430 ohms, $\pm 1\%$, 1/4 W, metal film resistor
R8	418331	990475-463	44.2 k, $\pm 1\%$, 1/4 W, metal film resistor
S1	418332	373047-1	Mic select switch and knob (BA-103 only)
R5	269898	99206132	75 ohms, 5%, 1/4 W resistor
R6, R7	218499	99206183	10 K, 5%, 1/4 W resistor
R9	233512	99206138	130 ohm, 5%, 1/4 W resistor
R10	502010	82283-111	10 ohms, 5%, 1/4 W resistor
C1, C4	418328	3458475-79	10 pF, 500 V, capacitor
C2	418329	345476-86	27 pF, 500 V, capacitor
C3	230238	3458476-103	130 pF, 500 V, capacitor
N/A	269069	8414862-55	Connector, mate for P1
S2	418333	3458471-1	Level select switch
T1	224741	3730351-2	Input transformer
49	418336	3458472-201	Gain select Knob
71	418335	3458497-1	Captive screw, module mounting
72	301794	483840-2	Retaining ring for item 71

Note: Refer to separate Instruction Book for Parts List of Operational Amplifier.



BMM-110 Submaster Mixer MI-141570



DESCRIPTION

Type BMM-110 Submaster Mixer accepts signals from the submaster bus, mixes them with the echo return bus, and delegates them to any or all of four output busses. An unwired potentiometer (R503) provides for auxiliary feeds as desired. The BMM-110 contains no amplifying elements.

EQUIPMENT LOST OR DAMAGED IN TRANSIT

Unpack and thoroughly inspect equipment upon receipt. If shortages or damaged parts are found, immediately notify RCA and the carrier, and secure an inspection report from the carrier. Notification of equipment loss or damage must be made in writing to RCA, Communications Systems Division, Camden, New Jersey 08102 WITHIN 15 DAYS after receipt of material.

WARRANTY ITEMS

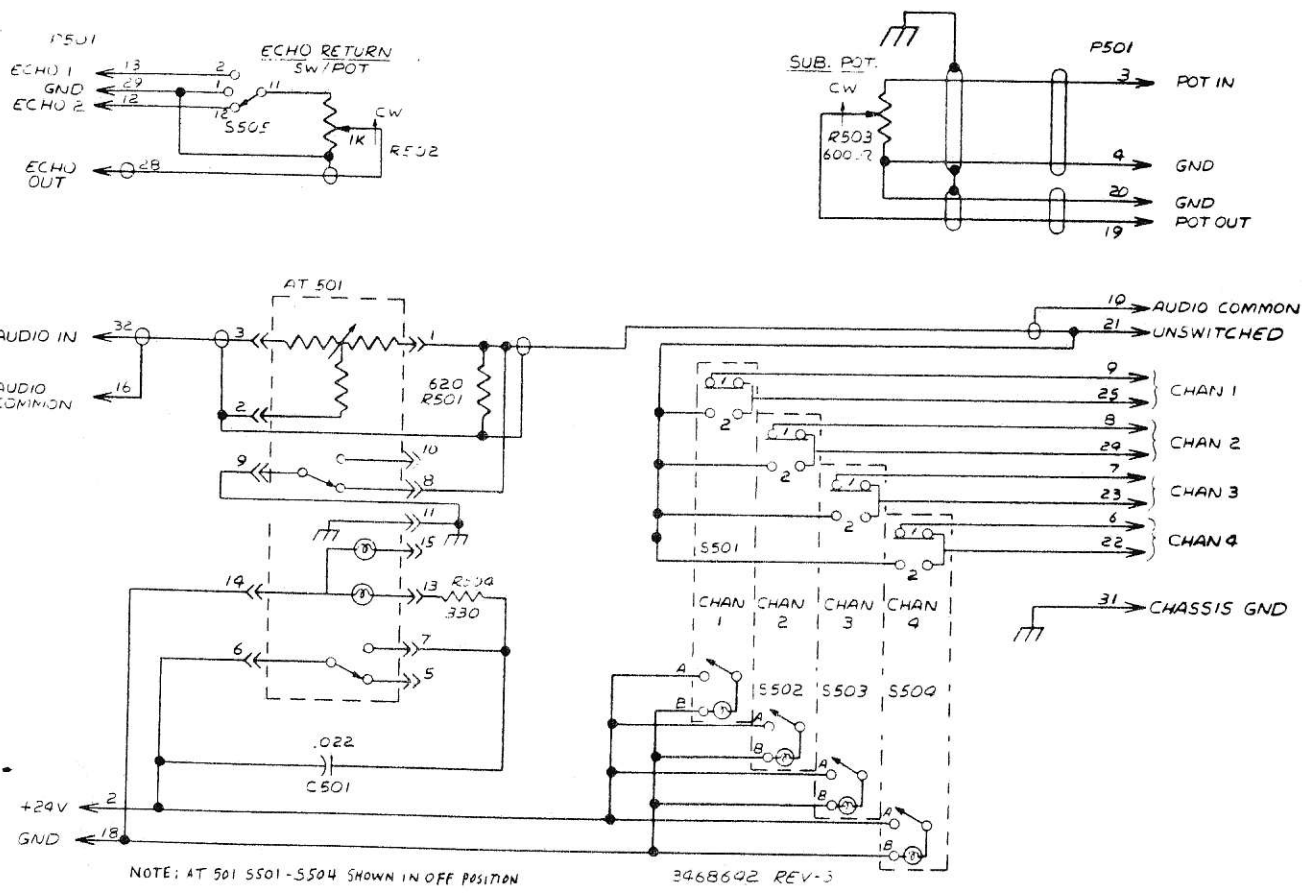
Parts or equipments covered by warranty may be replaced by contacting the local RCA Sales Office. Avoid delays by supplying complete information such as Original Invoice Number, MI-Number, Type Number, Model Number, Serial Number, Stock Number and Description.

REPLACEMENT PARTS

Replacement parts bearing a *Stock Number* should be ordered by Item Description and Stock Number from RCA Parts and Accessories, Deptford, New Jersey 08096. Parts listed under a *Master Item (MI-) Number* should be ordered from RCA, Communications Systems Division, Camden, New Jersey 08102. Parts bearing no number are not stocked by RCA.

SPECIFICATIONS

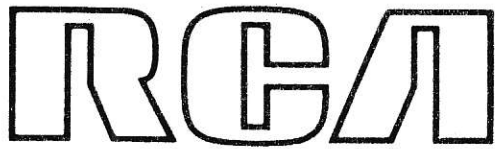
Input Impedance	600 ohms
Maximum Input Level	+30 dBm
Attenuator Range	0 to -60 dB
Output Impedance	300 ohms
Maximum Output Level	30 dBm
Power Requirements	24 VDC @ 160 mA (lamps)
Dimensions	1-3/4" x 16-1/4" x 8-1/4"
Weight	3 lbs, 12 oz
Shipping Dimensions	3" x 10" x 20" approx
Shipping Weight	4.5 lbs approx



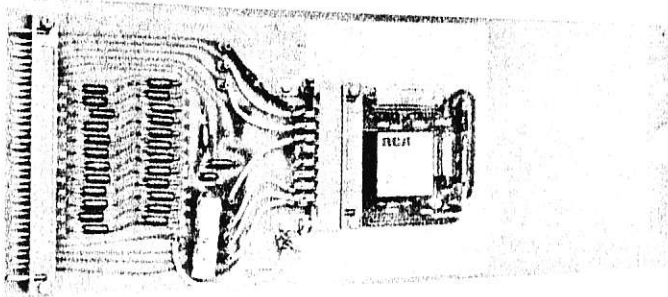
BMM-110 Submaster Mixer Schematic (RCA Dwg. 3468642)

PARTS LIST

Symbol No.	Stock No.	RCA Dwg. No.	Description
AT501	418623	3468645-1	600/600 Bridged T Attenuator
N/A	424274	N/A	Connector for above
P501	269068	8414862-5	Connector, Main Module
R503	418622	3470235-29	600 ohm Audio Taper Pot
S501-S504		3468648-2	4 Button Switch
S501-S504	418630		1 Section of above
	418635		White Button, engraved "Chan 1"
	418636		White Button, engraved "Chan 2"
	418638		White Button, engraved "Chan 4"
	418637		White Button, engraved "Chan 3"
S505		3730375-1	Echo Return Switch/Pot
R502	418625		Echo Return Switch
R502	418626		Echo Return Pot
21	418640	3458924-2	2 Echo Return Knobs
22	418619	3458472-207	Knob for R503
	300449		No. 327 Lamp for S501-S504
R501	502162	82283-154	620 ohms, 5%, 1/2 W resistor
R504	502133	82283-147	330 ohms, 5%, 1/2 W resistor
C501	234606	3462014-21	.022 mfd, 20%, 200 V capacitor
J501	269069	8414862-55	Connector, mate for P501



BIM-100 Isomix Amplifier MI-141520



DESCRIPTION

The BIM-100 Isomix Amplifier Submodule when used with the Operational Amplifier provides a high degree of isolation between inputs and a voltage gain of up to 25 dB. The gain factor is 0 dB on Terminal 30, and +15 dB on Terminal 31. Other levels may be obtained on Spare Terminal 32 after inserting arbitrary values for R_x and C_x . Two or more Submodules can be cascaded to increase input capacity. Use RCA MI-557800 Module Frame for rack mounting.

EQUIPMENT LOST OR DAMAGED IN TRANSIT

Unpack and thoroughly inspect equipment upon receipt. If shortages or damaged parts are found, immediately notify RCA and the carrier, and secure an inspection report from the carrier. Notification of equipment loss or damage must be made in writing to RCA, Communications Systems Division, Camden, New Jersey 08102 WITHIN 15 DAYS after receipt of material.

WARRANTY ITEMS

Parts or equipments covered by warranty may be replaced by contacting the local RCA Sales Office. Avoid delays by supplying complete information such as Original Invoice Number, MI-Number, Type Number, Model Number, Serial Number, Stock Number and Description.

REPLACEMENT PARTS

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SPECIFICATIONS

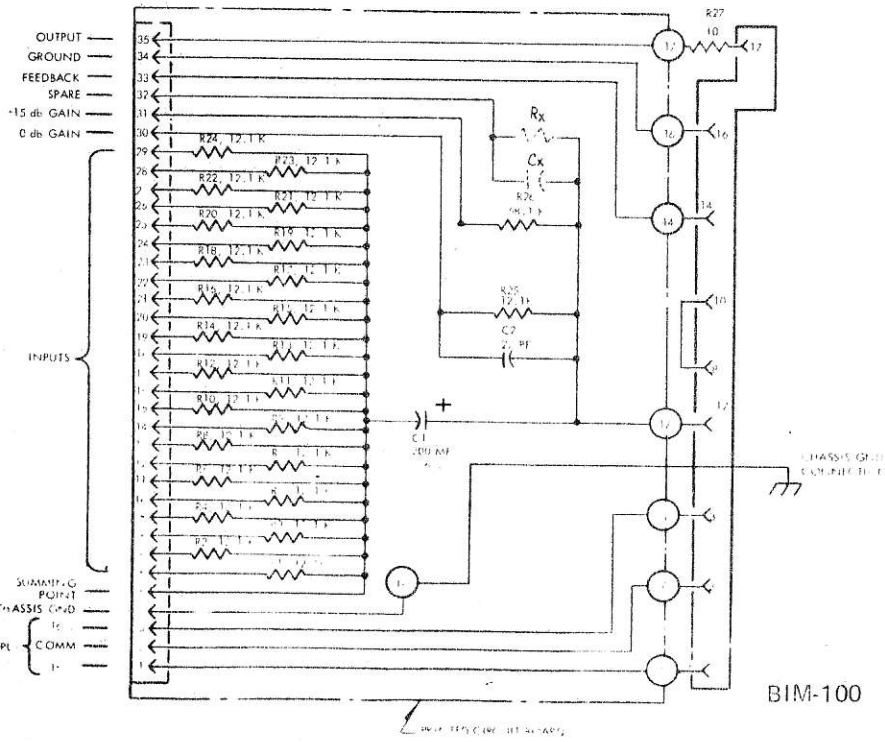
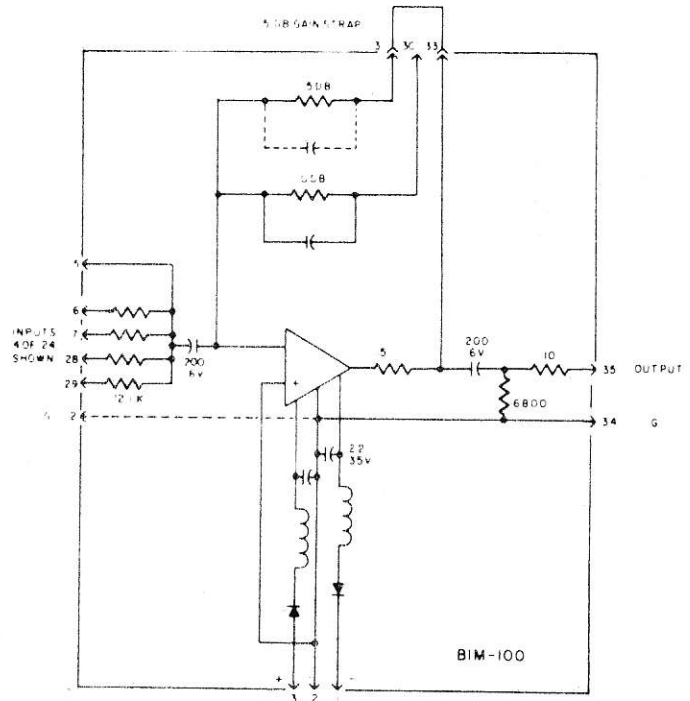
Frequency Response (1 kHz ref, 20-20,000 Hz)	+0, -0.5 dB
Distortion (20-20,000 Hz)	0.25% max
Noise Level (unweighted, 20-20,000 Hz)	.....	-100 dBm
Input Channels	.....	24
Isolation	.....	90 dB
Input Impedance (unbalanced)	.....	12 kohms
Gain	.....	0-25 dB, terminated
Maximum Output Level	.....	+20 dBm
Output Impedance	.....	15 ohms
Power Requirements	.....	\pm 16 VDC @ 15-30 mA
Dimensions	.....	7/8" x 4-5/8" x 12"
Weight	.....	20 oz
Shipping Dimensions	.....	3" x 5" x 15" approx
Shipping Weight	.....	32 oz approx

PARTS LIST

Symbol No.	Stock No.	RCA Dwg. No.	Description
J1	418330	3458431-1	Op Amp Connector
P1	418618	3458431-104	Main Connector
N/A	424248	3458431-201	Mate for P1, less pins
R1-R25	237364	990475-409	12.1 k \pm 1%, 1/4 W metal film resistor
R26	264834	990475-481	68.1 k \pm 1%, 1/4 W metal film resistor
R27	502010	82283-111	10 ohms, 5%, 1/2 W resistor
C1	418341	3410170-118	200 mfd, 6 V capacitor
C2	418329	348476-86	27 pF, mica capacitor

Refer to Operational Amplifier Instruction Book
for Operational Amplifier Parts List.

Overall Schematic – For details, see Isomix Amplifier
and Operational Amplifier schematics.



BIM-100 Isomix Amplifier Schematic
(RCA Dwg. 3730362)