Operating and Service Manual

MODEL

10W1000M7

PART NUMBER

1003001-501

SERIAL NUMBER

10359

FORM 144 REV 1087

AMPLIFIER RESEARCH

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SECTION I

GENERAL INFORMATION

1.1 GENERAL DESCRIPTION

The Model 10W1000M7 Amplifier is a self-contained, broadband unit designed for laboratory applications where instantaneous bandwidth, high gain, and moderate power output are required. Solid state technology is used exclusively to offer significant advantages in reliability and cost. A Model 10W1000M7 used with a frequency swept signal source will provide 8 watts of linear swept power output from 100-1000 MHz. Typical applications include antenna and component6 testing, wattmeter calibration, EMI susceptibility testing, use as a driver for frequency multipliers and high power amplifiers and as an RF source for magnetic resonance imaging studies.

1.2 POWER SUPPLIES

This unit has a self-contained 120/240 VAC, 50/60 Hz, regulated power supply. The power consumption is a nominal 225 watts. Primary circuit fusing is provided.

1.3 SPECIFICATIONS

Refer to Amplifier Research Data Sheet on next page for detailed specifications.

SECTION II

OPERATING INSTRUCTIONS

2.1 GENERAL

Operation of the Model 10W1000M7 broadband amplifier is quite simple. The input signal, whether swept or fixed in frequency, is fed into the jack marked INPUT and the amplifier output signal is taken from the jack labeled OUTPUT. The unit is turned ON by activating the power switch. In the event of a unit malfunction, protection is provided by fusing located at the rear of the unit. A polarized, three (3) wire AC power cord is also included with the unit to provide cabinet and chassis grounding to the power mains.

CAUTION:

THE MODEL 10W1000M7 AMPLIFIER IS NOT CRITICAL IN REGARDS TO SOURCE AND LOAD VSWR AND WILL REMAIN UNCONDITIONALLY STABLE WITH ANY MAGNITUDE AND PHASE OF SOURCE AND LOAD VSWR. IT ALSO HAS BEEN DESIGNED TO WITHSTAND, WITHOUT DAMAGE, RF INPUT POWER UP TO TWENTY (20) TIMES ITS RATED INPUT OF 1mW: HOWEVER, SIGNAL LEVELS HIGHER THAN 20 mW OR TRANSIENTS WITH HIGH PEAK VOLTAGES CAN DAMAGE THE AMPLIFIER. ALSO, ACCIDENTAL CONNECTION OF THE 10W1000M7 OUTPUT TO THE INPUT CAUSES OSCILLATIONS WHICH WILL PERMANENTLY DAMAGE THE INPUT TRANSISTOR. INTERNAL CROWBAR PROTECTION IS DESIGNED INTO THE AMPLIFIER TO PROTECT AGAINST INPUT OVERDRIVE.

NOTE:

ALTHOUGH DESIGNED FOR OVERDRIVE AND LOAD TOLERANCE DESCRIBED ABOVE SUBJECTING THE AMPLIFIER TO THESE CONDITIONS SIMULTANEOUSLY CAN CAUSE FAILURE OF THE OUTPUT TRANSISTOR. REPEATED FAILURES OF THIS NATURE WILL NOT BE COVERED UNDER WARRANTY.

The Amplifier is protected by the fast acting Crowbar circuit. The Crowbar may be activated by an input signal greater than required for full output power. When the input signal reaches a level that may cause damage to the amplifier power stages, the 28 volt power supply is turned OFF and the red Overload light on the panel is activated. Typically, the input level required to activate the Crowbar is approximately +1 to +3 dBm.

To reset the Crowbar, reduce the input RF to 0 dBm or lower, and push the Reset switch (S3) located by the Overload light on the front panel.

2.2 AMPLIFIER OPERATION

Figure 2.1 shows the Model 10W1000M7 Amplifier in pictorial form.

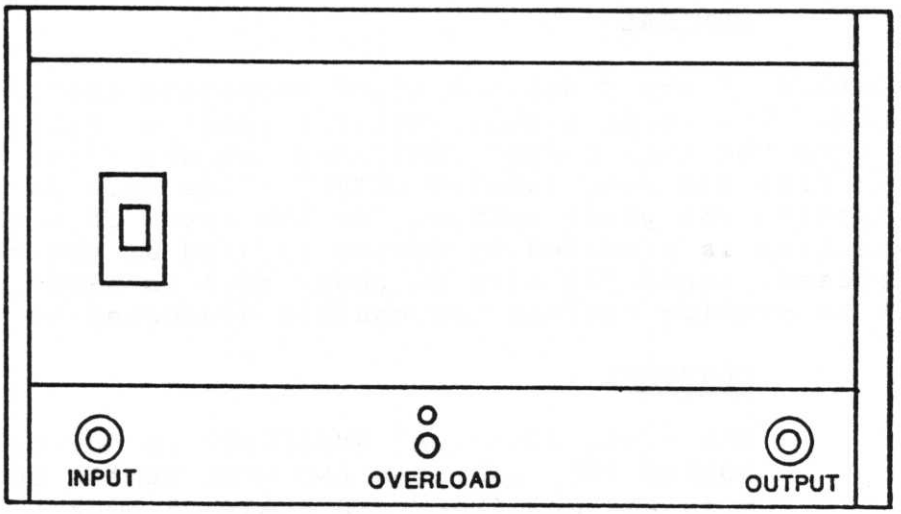


FIGURE 2.1
AMPLIFIER OPERATION

Turn On Sequence:

1. Connect input signal to INPUT connector.
2. Connect load to OUTPUT connector.
3. Select either 120/240 VAC operation by means of switch located on rear of unit.
4. Activate power switch to ON position. A red indicator light mounted within the switch will light when power is applied.

CAUTION:

DO NOT CONNECT UNIT TO 240 VAC MEASURED LINE TO LINE. TO DO SO WOULD RESULT IN ONE SIDE OF THE LINE NOT BEING FUSED, CREATING A HAZARDOUS SITUATION. THE 240 VAC FEATURE IS DESIGNED PRIMARILY FOR USE IN COUNTRIES HAVING 240 VAC MEASURED LINE TO NEUTRAL.

SECTION III

THEORY OF OPERATION

3.1 INTRODUCTION

The Model 10W1000M7 Amplifier consists essentially of five (5) cascaded stages of broadband transistor amplifiers and a push-pull stage which yields a total power gain greater than 8 dB. Input and output matching networks are utilized to provide optimum power transfer of the signal to and from the amplifier with a 50 ohm source and load impedance. Intra-stage feedback is also used to further flatten the frequency response and bias stabilization of the individual stages is provided.

The self-contained power supply employs a full wave rectifier, two (2) integrated circuit regulators to provide stable, low ripple, regulated output voltages.

3.2 AMPLIFIER OPERATION

Refer to Schematic Diagrams No. 1003010 and 1003009

The input signal to the amplifier is fed from the input connector through a signal limiter, directional coupler, and then to the base of the first transistor amplifier stage.

The first stage is connected in the common emitter mode with the emitter connected to ground through two resistors. This configuration allows the selection of the emitter resistors to achieve the desired stage gain. the collector voltage (+) is supplied to this stage from the transistor immediately above it. This allows the RF transistor to operate at a constant DC current and provides a high degree of protection since the transistor current is independent of overdrive and/or short circuits. Temperature dependence is also avoided. The required decoupling and bypassing of the positive supply is provided by ferrite beads and capacitors.

A coupling network is used to route the output of the first stage to the base of the second stage. the first five stages are coupled in substantially the same manner with the fifth stage matched to a 50 ohm output impedance.

The output of the fifth stage is applied through an input matching network to the final output push-pull amplifier. The output of the push-pull amplifier is matched through a ferrite transformer to the 50 ohm output. Q1 and Q3 are bias stages for Q2 and help Q2 to operate at a constant DC current.

3.3 POWER SUPPLY SECTION

Refer to Schematic Diagrams No. 1001100, 1001098, 101507 and 1001132.

Input AC power is fed through RFI filter FL1 before being switched by the main power switch, S1. The AC power indicator is an integral part of S1. S2 serves to select the primary tap configuration of T1 for operation on either 120 or 240 VAC.

CAUTION:

DO NOT CONNECT UNIT TO 240 VAC MEASURED LINE TO LINE. TO DO SO WOULD RESULT IN ONE SIDE OF THE LINE NOT BEING FUSED, CREATING A HAZARDOUS SITUATION. THE 240 VAC FEATURE IS DESIGNED PRIMARILY FOR USE IN COUNTRIES HAVE 240 VAC MEASURED LINE TO NEUTRAL.

The power supply utilizes a full wave rectifier on A1 and A3 assemblies. DC output from the rectifiers is filtered by C1. A1 supplies regulated +VDC to the low level amplifier and A3 supplies regulated +VDC to the Final Amplifier. The A3 supply uses a pre-regulator mounted over the fan to compensate NL/FL fluctuations. The A3 regulator also uses a parallel pass transistor mounted on a bracket above the fan. This pass transistor increases the current capability of the A3 regulator which is necessary to power the Final Amplifier. A1 supplies +VDC to the protection circuit assembly, A2.

3.3.1 Regulator MPLV

3.3.1.1 Regulator A3

Refer to Schematic Diagram No. 1001098.

The full wave rectifier consists of CR1 and CR2. Capacitors C1 and C2 are connected in parallel across the rectifiers to suppress transients caused by the reverse recovery of the diodes. The filtered DC output from the rectifiers pass through the pre-regulator and current boost transistor located external to regulator assembly and series regulator U1. U1 is a linear integrated circuit with adjustable output current and voltage. R2 adjusts the output current and R3 adjusts the output voltage. U1 also contains power limiting, thermal shutdown and input overvoltage protection.

The overload light DS2 is located on the front panel and will light when regulated VDC approaches zero. A crowbar will cause DS2 to light and must be reset to restore proper operation. To reset the crowbar, reduce the input to 0dBm or less and push the red switch (S3) located under the overload light on the front panel.

3.3.1.2 Regulator A1

Refer to Schematic Diagram No. 1001507.

The full wave rectifier consists of CR1 and CR2. Capacitors C1 and C2 are connected in parallel across the rectifiers to suppress transients caused by the reverse recovery of the diodes. The filtered DC output from the rectifiers pass through the pre-regulator (Q2) located external to regulator assembly and series regulator U1. U1 is a linear integrated circuit with adjustable output current and voltage. R2 adjusts the output current and R3 adjusts the output voltage. U1 also contains power limiting, thermal shutdown and input overvoltage protection.

R1 and VR1 output voltage goes to DS2 and protection circuit.

3.3.2 Protection Circuit

Refer to Schematic Diagram No. 1001132.

The Protection Circuit consists of a DC amplifier U1 with its bias circuit, an SCR crowbar Q2, and optical coupler U2. The input signal at E2 originates from a peak detector which detects the RF input level and delivers an equivalent DC potential to the DC amplifier. The input signal is amplified to the desired level. R15 adjusts the threshold setting which turns ON Q2. With Q2 turned ON, the +28VDC at E5 is pulled close to ground and the A1 regulator output is near zero thus removing the DC power to the driver amplifier. Holding current is supplied to E1 from the A1 regulator, through R8 and CR2 and Q2 anode. Thus when Q2 turns ON, it stays ON until the RF amplifier is reset. To reset, reduce the input RF to 0dBm or less and push the red switch (S3) located on the front panel.

The Optical Coupler U2 is used to sense when any Driver or Final regulator output voltage has decreased below a preset value. Should this happen, the output of the Optical Coupler (U2) will turn Q2 ON and cause the RF to the Driver and Final amplifiers to turn OFF, thus protecting the output circuits. The red overload light on the front panel will light. To reset, reduce the input to 0dBm or less and push S3 located on the front panel.

SECTION IV

MAINTENANCE

4.1 GENERAL MAINTENANCE INFORMATION

The Model 10W1000M7 should require very little maintenance since it is a relatively simple instrument. It is built with etched circuit wiring and solid state devices which should ensure long, trouble-free life. However, should trouble occur special care must be taken in servicing to avoid damage to the devices or the etched circuit board.

Since the components are soldered in place, substitution of components should not be resorted to unless there is some indication that they are faulty. In addition, take care when troubleshooting, not to short voltages across the amplifier. Small bias changes may ruin the amplifier due to excessive dissipation or transients.

Components within Amplifier Research instruments are conservatively operated to provide maximum instrument reliability. In spite of this, parts within an instrument may fail. Usually, the instrument must be immediately repaired with a minimum of "down time". A systematic approach can greatly simply and thereby speed up the repair.

However, due to the importance of the amplifier's alignment, it is recommended that when failure is caused by breakdown of any of the components in the signal circuits, the amplifier be returned to the factory for part replacement and amplifier realignment. Shipping instructions are as follows: Ship PREPAID via United Parcel Service to Amplifier Research Corporation, 160 School House Road, Souderton, PA 18964 USA.

4.2 COVER AND CIRCUIT BOARD REMOVAL

CAUTION:

REMOVE POWER CORD FROM RECEPTACLE BEFORE SERVICING.

4.2.1 Remove top cover by removing the six screws.

4.2.1 Remove circuit board and heatsink by removing the four flathead screws holding it in the housing; (two screws on each side cover).

4.3 TROUBLESHOOTING

The techniques used in troubleshooting solid state instruments are similar to those used in vacuum tube instruments. For instance, a good way to start troubleshooting is to check the supply voltage at the amplifier supply voltage terminal. If it is low or nonexistent, check the power supply components starting with the AC fuses.

The power supply output voltage should be nominally +28 volts. Incorrect voltage could result in over dissipation of the transistors or severe distortion and non-linearity of the amplifier. The power supply may be disconnected from the RF board to enable troubleshooting without danger of damaging the RF board. The amplifier board should be removed (Section 4.2) and the power supply output connected to the 25 ohm, 50 watt resistor to simulate the amplifier load.

Finally, determine if the individual amplifier stages are operational by injecting a signal into the transistor base and looking for an indication of output.

4.4 SERVICING ETCHED CIRCUIT BOARDS

When soldering leads, use a hot forty watt or smaller iron. Apply heat sparingly to the leads, not to the printed wiring on the board. Before installing new parts, clean holes to receive new part without forcing. Have new leads tinned to receive solder quickly with a minimum of heat and without residue.

SECTION V

REPLACEABLE PARTS

5.1 INTRODUCTION

This section contains information for ordering replacement parts. Information is provided for obtaining parts through Amplifier Research, and or from the manufacturer of the part. Included in this section are the following:

Ordering information
Nonlisted parts
Circuit designators
Manufacturers' abbreviation listing
Master list
Schematics and Bills of Material

5.2 ORDERING INFORMATION

To obtain replacement parts, address order to Amplifier Research, 160 School House Road, Souderton, PA 18964 USA. Identify and include instrument model and serial numbers.

TEL : 215-723-8181
TWX : 510-661-6094
FAX : 215-723-5688

5.3 NONLISTED PARTS

To obtain a part that is not listed, include:

a. Instrument model number
b. Instrument serial number
c. Description of the part
d. Function and location of the part

5.4 CIRCUIT DESIGNATORS

REF= reference document

A = assembly

B = fan

BT = battery

C = capacitor

CB = circuit breaker

CR = diode

DL = delay line

DS = lamp

E = terminal

F = fuse

FL = filter

J = connector, recept

K = relay

L = inductor

M = meter

P = connector, plug

Q = transistor, semiconductor

R = resistor, potentiometer

RT = temperature sensing element

S = switch

T = transformer

TB = terminal block

TP = test point

U = integrated circuit

V = vacuum tube, neon bulb, photocell, etc.

VR = zener diode

W = wire, cable

X = socket

Y = crystal unit

5.5 MANUFACTURERS' ABBREVIATION LISTING

This section contains a list of manufacturers' abbreviations. These abbreviations appear under the drawing number column on the bills of material. The three letters or symbols before the backward slash represent the name of the manufacturer. The number after the backward slash represents the manufacturer's part number. See appendix A for complete listing of manufacturers' abbreviations.

5.6 MASTER LIST

The master list provides the user with a quick view of the major assemblies of a unit. The assemblies are displayed in an indented format with the corresponding schematic shown in the right column.

5.7 SCHEMATICS and BILLS of MATERIAL

The schematics and bills of material are arranged in sequence according to the master list. The schematic which appears first on the master list also appears first in the schematic and bill of material section. Following each schematic are the appropriate bills of material relating to the schematic. This pattern will be repeated throughout this section.

The bills of material used in this manual are computer generated. Each computer part number appears only once on a bill of material along with the total quantity used, and all of the applicable circuit designators. The bills of material are designed to organize the parts in alphanumeric order of their circuit designators. Typical manufacturer part numbers can be found in the drawing number column. The manufacturer's abbreviation appears first, separated by a backward slash, which is followed by the part number.

Amplifier Research has assigned computer product numbers to all parts in inventory. The computer product numbers are located on the left side of the bill of material in the part number field. When referencing or ordering parts from Amplifier Research, it is best to use the computer product number. Parts may also be ordered directly from the manufacturer using the manufacturer's part number if desired.

AAV.....AAVID
ABB.....ABBEON
ACA.....ANTENNA CORPORATION OF AMERICA
ACO.....ARCO
ADA.....ADALET
AEC.....ARNOLD ENGINEERING COMPANY
AEP.....APPLIED ENGINEERING PRODUCTS
AER.....AEROQUIP
AHC.....AIRLINE HYDRAULICS CORPORATION
AIN.....AIN PLASTICS
AIR.....AIRPAX
AIT.....AERITALIA
ALC.....ALCO
ALE.....ALLIED ELECTRONICS
ALI.....ASTROLAB INCORPORATED
ALP.....ALPHA
AMA.....AMATOM
AMC.....AMPEX CORPORATION
AMH.....AMPHENOL
AMI.....AMPLIFONIX INCORPORATED
AMP.....AMP INCORPORATED
AMR.....AMREP
AMS.....AMERICAN STANDARD
APG.....AP-O-GEE INDUSTRIES
APN.....AMERICAN PRECISION
APO.....AMPROBE
APP.....A.P. PRODUCTS INCORPORATED
APR.....AMPERITE
APX.....AMPEREX
ARC.....AMPLIFIER RESEARCH CORPORATION
ARE.....ARROW ELECTRONICS
ARO.....AROMAT CORPORATION
ARP....APPLE RUBBER PRODUCTS INCORPORATED
ASB.....ASTRO-BUBBLES
ASC.....AMERICAN SWITCH CORPORATION
ASD.....AMERICAN STANDARD
ASP.....ASSOCIATED SPRING
ATL.....ATLEE
AVA.....AVA CORPORATION
AVF.....ALLENTOWN VALVE & FITTING COMPANY
AVX.....AVX CORPORATION
A-B.....ALLEN BRADLEY
A-M.....AEC MAGNETICS
A-S.....ALCOSWITCH
A-T.....AHAM-TOR

BBI.....BARON-BLAKESLEE INCORPORATED
BDX.....BENDIX
BEL.....BELDEN
BEY.....BEY ELECTRIC
BFI.....BUCKEYE FORGE INCORPORATED
BKM.....BECKMAN
BOK.....BOKER'S INCORPORATED
BOP.....BOPLA ENCLOSURES
BOR.....BOURNS
BUD.....BUD COMPANY
BUS.....BUSS
B-C.....BONCO CORPORATION
B-E.....BRIM ELECTRONICS
B-T.....BEAU-TECH
B-V.....BEAU/VERNITRON
CAD.....CADDOCK
CAM.....CAMBION
CAN.....CANNON
CAP.....CANPACK
CAR.....CARLING
CCI.....CRL COMPONENTS INCORPORATED
CDI.....COAXIAL DYNAMICS INCORPORATED
CEN.....CENTURY ELECTRONICS
CES.....COUNTY ELECTRIC SUPPLY COMPANY
CHE.....CHERRY
CHR.....CONNECTICUT HARD RUBBER
CIN.....CINCH
CJS.....CENTRAL JERSEY SCREW & BOLT
CKS.....C & K COMPONENTS INCORPORATED
CLA.....CLAROSTAT
CLC.....CHICAGO LOCK COMPANY
CMI.....CERAMIC MAGNETICS INCORPORATED
CMP.....COMMERCIAL PLASTICS
CNF.....CINCINNATI FAN
COE.....COMP ENTERPRISES
COL.....COLDER PRODUCTS
COM.....COMPUCON
CON.....CONCORD ELECTRONICS
COP.....COMPLETE PACKAGING
COR.....CORCOM
CPC.....C.P. CLARE
CPL.....COMPULITE
CPS.....COLOR PRINT SCREENING
CRC.....CRC CHEMICALS
CRL.....CENTRALAB

CTS.....CTS
CUS.....CUSTOM
C-D.....CORNELL-DUBILIER
C-E.....CORNING ELECTRONICS
C-P.....CAPLUG COMPANY
C-T.....CANADIAN THERMOSTATS
DAL.....DALE
DAY.....DAYTON
DEN.....DENNISON
DIA.....DIALIGHT
DIL.....DIELECTRIC LABS
DKK.....DOW KEY/KILOVAC
DSC.....DE-STA-CO
DTP.....DOYLESTOWN PRINTING
D-E.....DABURN ELECTRONICS
D-G.....DIMCO-GRAY
D-K.....DIGI-KEY CORPORATION
ECO.....EATON CORPORATION
EFG.....E.F. JOHNSON
EGL.....ELGAL
EIC.....ELECTRO INSULATION CORPORATION
EIM.....EIMAC
ELM.....ELMENCO
ELR.....ENGLER INSTRUMENT
EMC.....E.M.C. TECHNOLOGY
EMM.....ENGELMANN MICROWAVE
EOD.....ELECTRO-OPTIC DEV
ERI.....ERIE TECHNOLOGY PRODUCTS
ERM.....EREM CORPORATION
ESX.....ESSEX
ETA.....ETA
EVE.....EVEREST ELECTRONIC EQUIPMENT
EVR.....EVEREADY
EWS.....ELMWOOD SENSOR
E-C.....EMERSON AND CUMMING
FCH.....FAIRCHILD
FCI.....FILTER CONCEPTS INCORPORATED
FER.....FERRONICS
FEX.....FERROXCUBE
FLO...FLO TRAN PNEU-DRAULICS INCORPORATED
FOS.....FIBRE OPTIC COMMUNICATION SPECIALISTS
FRK.....FROST KING
FRM.....FREEDMAN/MALTA
FRP.....FAIR-RITE PRODUCTS
FWC.....FW CAPACITORS
F-S.....FASTENER SPECIALTY

GAL.....GALLAGER
GCE.....G.C. ELECTRONICS
GEM.....GEM
GOL.....GOLDKAMP
GRA.....GRAINGER
GRE.....GREYARC
GRS.....GENERAL RADIO SUPPLY
GSI.....GSI
GTL.....GILWAY TECHNICAL LAMP
G-E.....GENERAL ELECTRIC COMPANY
G-I.....GENERAL INSTRUMENT
HAD.....HARRY DAVIES
HAN.....HANSON
HAV.....HAVERHILL CABLE AND MANUFACTURING
HDB.....HOMER D. BRONSON
HEC.....HIGH ENERGY CORPORATION
HEI.....HEINEMANN
HEX.....HEXACON
HHS.....H.H. SMITH
HIM.....HITACHI MAGNETICS
HMF.....HILTON MANUFACTURING
HMN.....HENRY MANN
HOL.....HOLLINGSWORTH
HOW.....HONEYWELL
HPC.....H.P. CADWALLADER
HSI.....HUBER & SUHNER INCORPORATED
HUB.....HUBBEL
HUC.....HUDSON CAN COMPANY
HWK.....HAWKINS METAL FABRICATION
H-P.....HEWLETT/PACKARD
H-R.....HERBACH & RADEMAN
IBM.....IBM
ICI.....ILLINOIS CAPACITOR INCORPORATED
IDE.....IDEAL
IER.....IERC
ILS.....ILSCO
IMB.....IMB
IMC.....IMC
INC.....INTERNATIONAL CRYSTAL MFG COMPANY
INM.....INMET
IPI.....INSULFAB PLASTICS INCORPORATED
IRC...INTERNATIONAL RECTIFIER CORPORATION
IRM.....IR-CRYDOM
ITF.....INTERFAN
ITJ.....ITT-JENNINGS
ITT.....ITT CANNON
I-E.....IMPERIAL EASTMAN
I-G.....INDIANA GENERAL
I-S.....INSTRUMENT SPECIALTIES

JAR.....J.A. REINHARDT
JDE.....JOHANSON DIELECTRICS
JFD.....JFD
JOH.....JOHANSON
JON.....JONATHAN MANUFACTURING
JOR.....JORITA
KCC.....KEYSTONE CARBON COMPANY
KEY.....KEYSTONE ELECTRONICS
KIN.....KINGS
KLE.....KLEIN
KSD.....KESTER SOLDER DIVISION
KUL.....KULKA
K-D.....KD COMPONENTS
LAF.....LAFRANCE CORPORATION
LBA.....LAMBDA ELECTRONICS INCORPORATED
LEM....LIAISONS ELECTRONIQUES MECHANIQUES
LEV.....LEVITON MANUFACTURING COMPANY
LIF.....LITTLEFUSE
LOC.....LOCTITE CORPORATION
LOR.....LORD CORPORATION
MAL.....MALLORY
MCG.....McGILL
MCS.....McMASTER CARR SUPPLY COMPANY
MEP.....MEPCO-ELECTRA
MET.....METUCHEN CAPACITOR
MFG.....MANUFACTURER
MHW.....M.H. & W. COMPANY
MIC.....MICROMETALS IRON POWDER CORES
MIN.....MINI-CIRCUITS
MIP.....MICRO PLASTICS
MIR.....MINOR RUBBER COMPANY
MIS.....MICROSWITCH
MMI.....MAGNETIC METALS INCORPORATED
MMM.....MINNESOTA MINING MANUFACTURING
MOC.....MOCAP
MOD.....MODUTEC
MOL.....MOLEX
MON.....MONSANTO
MOS.....M/A-COM OMNI SPECTRA INCORPORATED
MOT.....MOTOROLA
MPC.....MULTI-PRODUCTS
MRS.....MARSH
MIT.....MULTITHERM CORPORATION
MUE.....MUELLER
MUR.....MURATA/ERIE

MWA.....MICROWAVE ASSOC
MWC.....MIDWEST COMPONENTS
MWM.....MIDWEST MICROWAVE
MWS.....MICROWAVE SEMI-CONDUCTORS
M-C.....M & C SPECIALTIES
M-E.....MASTER ELECTRICIAN
M-M.....MILI-MAX CORPORATION
NAB.....NORTH AMERICAN BRASS AND COPPER
NEB.....NEBS INCORPORATED
NET.....NETEK
NIE.....NIELSEN HARDWARE
NJS.....N.J. SEMI
NMB.....NMB TECHNOLOGIES INCORPORATED
NOB.....NOBLITT BROTHERS & COMPANY
NPP.....NORTH PENN POLISHING & PLATING
NSI...NATIONAL SEMI-CONDUCTOR CORPORATION
NVS....NORTHAMPTON VALLEY SERVICE COMPANY
N-M.....NATIONAL MOLDITE
N-P.....NEM-PACK
OHM.....OHMITE
OKI.....OK INDUSTRIES
OME.....OMEGA
OMR.....OMRON
OPT.....OPTIMAX
PAE.....PACIFIC ELECTRICORD
PAJ.....PHILLIPS AND JACOBS
PAM.....PAMOTOR
PAN.....PANASONIC
PAP.....PAPST
PBC.....POTTER & BRUMFIELD CORPORATION
PCI.....PENN CRAFT INDUSTRIES
PEC.....PENN CONTROLS
PEK.....PEAK
PEN.....PENN ENGINEERING
PFL.....POLYFLON
PFS.....POWER FILM SYSTEMS
PHI.....POWER HYBRID
PLM.....PLASTIC & METALS
PNT.....PANDUIT
POW.....POWEREX
PRC.....PRECISION RUBBER COMPANY
PSI.....POWER SEMI-CONDUCTOR INCORPORATED
PSP.....PROJECT SUPPORT INCORPORATED
PTC.....PRECISION TUBE COMPANY
P-B.....PENN-BASCO

QUI.....QUICKSET
RAF.....R.A.F. ELECTRONIC HARDWARE INC
RCA.....RCA
RCC.....RAYCHEM CORPORATION
RCL.....RCL
REL.....RELIANCE MICA COMPANY
REM.....REMTEK
RES.....ROSE ENCLOSURES SYSTEMS
RIC.....RICHCO
ROG.....ROGAN
RON.....RONCO CORPORATION
ROS.....ROSS ENGINEERING
ROT.....ROTRON
ROW.....ROWLAND
RPC.....REPUBLIC PACKAGING CORPORATION
RUS.....RUSSELL INDUSTRIES
R-N.....ROBINSON-NUGENT
R-S.....RADIO SHACK
SAG.....SAGE LABORATORIES
SAI.....SCIENTIFIC-ATLANTA INCORPORATED
SAM.....SAMTECH
SBC.....SCHROEDER BROTHERS CORPORATION
SCD.....SCHADOW
SCH.....SCHAUER
SCI.....SPECTRUM CONTROL INCORPORATED
SCO.....SCOTCH
SEM.....SEMIKRON
SEV...SEVENTY-THREE MANUFACTURING COMPANY
SGL.....SGL INDUSTRIES
SGS.....SGS
SIE.....SIEMENS
SIM.....SIMPSON
SLE.....SL ELECTRONICS
SOC.....SOUTHCO
SOE.....STANDARD OIL ENGINEERING
SOH.....SOHIO
SOL.....SOLDAPULLT
SOW.....SOLDER WICK
SPC.....SPC TECHNOLOGY
SPE.....SPECTROL
SPL.....SPRA-LUBE
SPR.....SPRAGUE
SPS.....SPRINGFIELD PAPER SPECIALISTS
SSM.....SOLID STATE MICROWAVE
SSS.....S & S TECH
SST.....SST

STA.....STANCOR
STB.....SEAL-TITE BAG COMPANY
STM.....SEASTROM MANUFACTURING COMPANY
STP.....STACKPOLE
STW.....STOCKWELL
SUS.....SUNSHINE SCIENTIFIC
SWC.....SWITCHCRAFT
S-B.....SPEED BEND
S-E.....STEMCO/ENGLER
S-F.....SYDNEY FRIEDRICH
S-L.....SWAGELOCK
S-M.....STRIP-MASTER
TAB.....THOMAS & BETTS
TAI.....TAI CORPORATION
TAN.....TANSISTOR
TCC.....THOMSON PASSIVE COMPONENTS CORP
TEL.....TELEFUNKEN
TEM.....TEMPIL
TET.....TECHNITOOL
TFI.....THRUWAY FASTENERS INCORPORATED
THM.....THERMALLOY
THS.....THREADED SCREW PRODUCTS COMPANY
TII.....TEXAS INSTRUMENTS INCORPORATED
TRD.....TRIAD
TRI.....TRI-COUNTY
TRS.....TRI-STATE
TRT.....TRAVERS TOOL COMPANY
TRW.....TRW
TXS.....TEXAS SPECTRUM
T-P.....THOMAS PRODUCTS
UEC.....UNITED ELECTRIC
ULI.....ULINE
UNC.....UNICORP
UNE.....UNELCO
USC.....USECO
UTI.....UTICA
VIC.....VICTOREEN
VIT.....VITRAMON
VOL.....VOLTRONICS CORPORATION
WAK.....WAKEFIELD
WAL.....WALDOM
WEC.....WESTERN ENTERPRISES COMPANY
WEI.....WEICO
WEL.....WELLER
WES.....WEINSTEIN
WGV.....WARREN G-V
WIL.....WILTRON

WIS.....WEBER INDUSTRIAL SUPPLY COMPANY
WIT.....WITTEK DIV. A MICRODOT COMPANY
WPI.....WIRE PRODUCTS INCORPORATED
WPS.....WORKPLACE SYSTEM
WSC.....WEST POINT SUPPLY COMPANY
W-E.....WELLS ELECTRONICS INCORPORATED
W-I.....WEIDMULLER INCORPORATED
XAC.....X-ACTO
XCE.....XCELITE
YNG.....YOUNGS
YPC.....YARDLEY PRODUCTS CORPORATION
ZER.....ZERO MANUFACTURING COMPANY
ZIE.....ZIERIC

ML1003001-501 MODEL 10W1000M7

DESCRIPTIVE INFORMATION	SUPPORT DOCUMENTS
FREQUENCY 100 - 1000 MHz	TEST DATA SHEET 1000892
POWER OUT 10 Watts CW	TEST PROCEDURE 1001339
PRIMARY POWER 120/240 VAC, 50/60 Hz	ENVELOPE DWG
COOLING INTERNAL FAN	SALES DATA SHEET INFORMAL PRINTED
PACKAGE 19.5"X6.5X8.0"	MANUAL CLASS I
OPTIONS INCLUDED	REMARKS TECH. J.A.V. JUL 26 1990

MATERIAL PULL INFORMATION											MANUAL INFO				
ASSY LEVEL						REF	DESCRIPTION	QTY	ASSEMBLY NUMBER	S	PL	AS	SC	SCHEMATIC	
1	2	3	4	5	6	DESIG								NUMBER	S
X							COVER KIT, 14" LAB	1	1002873-501		X				
X							P.S. & HOUSING ASSY	1	1002875-502		X		X	1001100	C
	X						HARNESS ASSY, P.S.	1	1002500-501		X			1001100	
		X					REGULATOR ASSY	1	1002823-509	B	X		X	1001507	B
		X					PROTECTION CIRT ASSY	1	1002465-501		X		X	1001132	B
			X				PWB, ASSY	1	1002824-501		X			1001132	
		X					REGULATOR ASSY	1	1002823-507	B	X		X	1001098	B
		X					REGULATOR ASSY	1	1002872-501	B	X		X	1001100	
	X						PLATE ASSY, BASE	1	1002868-501		X			1001100	
	X						PANEL ASSY CONTROL	1	1002869-501		X			1001100	
		X					DETECTOR ASSY	1	1001203-501	A	X		X	1002997	A
		X					SIGNAL LIMITER ASSY	1	1002142-501	A	X				
X							RF ASSY	1	1003002-501	C	X		X	1003010	D
	X						RF BOARD ASSY	1	1003006-501	D	X				
		X					PWB ASSY, RF	1	1003007-501		X				
		X					RF COMPONENT KIT	1	1003008-501		X				
	X						RF BOARD ASSY	1	1003003-501	C	X		X	1003009	C
		X					PWB ASSY, RF	1	1003004-501		X				
		X					RF COMPONENT KIT	1	1003005-501		X				
X							MANUAL, MODEL 10W1000M7	1	1003011-501						
X							SHIPPING KIT, 14 LAB	1	1002874-501		X				

FORM 109 REV0584

AMPLIFIER RESEARCH

DATE	R	DATE	R	DATE	R
6Oct87	-				

MASTER LIST

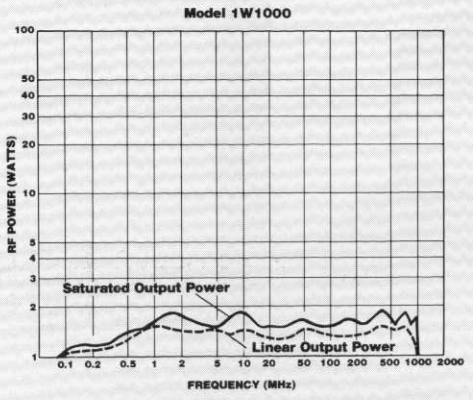
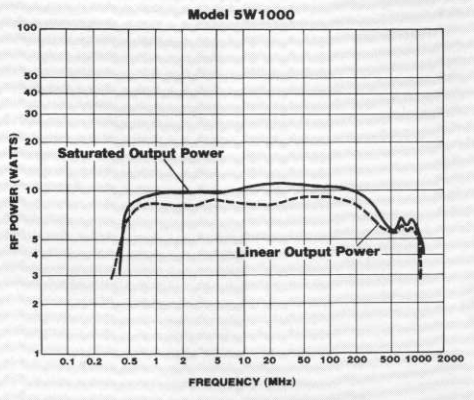
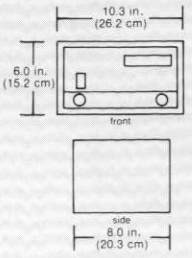
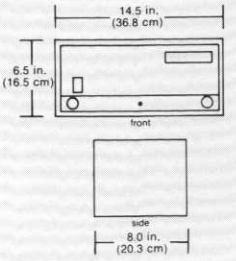
BILL NO: 1003001-501 REV: A U/M: EA DRAWING NO:
MODEL 10W1000M7,100MHZ-1000MHZ,10 WATTS

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0000	1002873-501	A	COVER KIT,14" LAB	EA	1.000		
0000	1002874-501		SHIPPING KIT,14" LAB	EA	1.000		
0000	1002875-502	A	POWER SUPPLY AND HOUSING	EA	1.000		
0000	1003002-501	D	RF ASSY	EA	1.000	ARC\1003002	
0000	1003011-501		MANUAL,MODEL 10W1000M7	EA	4.000		
0000	1004754-101-F6-M30	-	PLATE,MODEL INDENTIFICATION (MODEL 10W1000M7)	EA	1.000	ARC\1004754	
0000	11018		SCREW,MACH,PAN HD,CROSS-REC,ZN,6-32 X .38,TYPE SW	EA	14.000		
0000	11020		SCREW,MACH,PAN HD,CROSS-REC,S/S,6-32 X .50	EA	3.000		
0000	11064		SCREW,MACH,FLT HD,100 DEG,CROSS-REC,S/S,6-32X.38	EA	4.000		
0000	12001		WASHER,LOCK,INT TOOTH,S/S,#6	EA	3.000		
0000	12011		WASHER,FLAT,S/S,#6,.312 OD	EA	3.000		
0000	66147		POWER CORD,3 CONDUCTOR,18AWG,UNIVERSAL DETACHABLE	EA	1.000	PAE\C3120-008-BL	
1300	35028		FUSE,FAST ACTING,1.5A,250V	EA	1.000	LIF\31201.5	F1
1300	35033		FUSE,FAST ACTING,3A,250V	EA	1.000	LIF\312003	F1

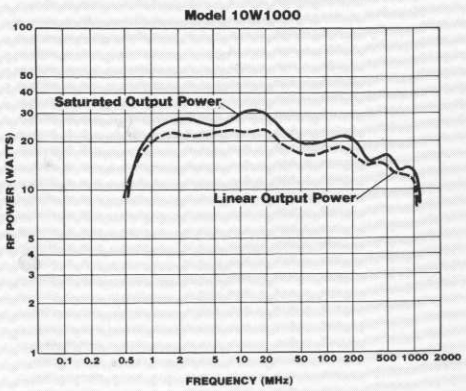
BILL NO: 1002873-501 REV: A U/M: EA DRAWING NO:
COVER KIT,14" LAB

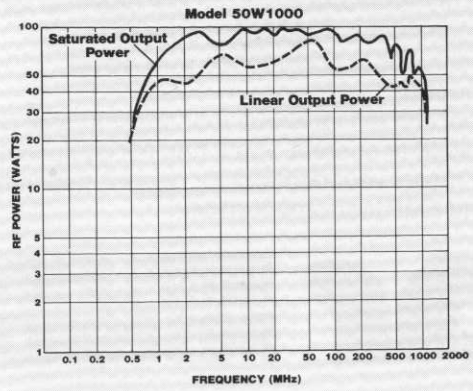
SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
5000	1002243-101-F2	E	COVER,TOP	EA	1.000	ARC\1002243	
5000	1002243-105-F2	E	GRILL,EXHAUST	EA	1.000	ARC\1002243	

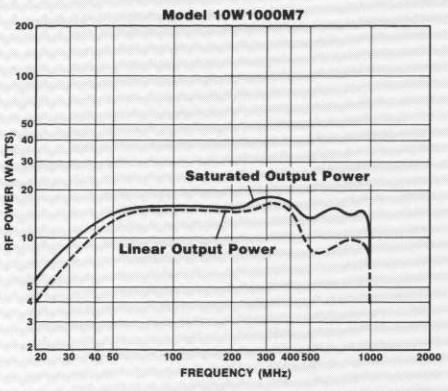
Specifications

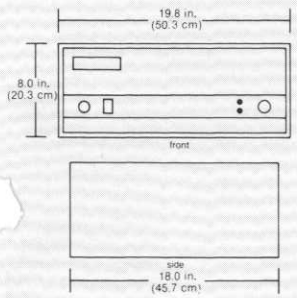
	1W1000	5W1000
Power output, cw up to minimum	2 watts 1 watt	9 watts 5 watts
Power output, cw linear (less than 1 dB compression into 50 ohms)	1 watt minimum	5 watts minimum
Flatness	±1.0 dB maximum; ±0.5 dB typical	±1.5 dB maximum; ±1.0 dB typical
Frequency response (instantaneous)	100 kHz to 1000 MHz	500 kHz to 1000 MHz
Input for rated output	1.0 milliwatt max.	1.0 milliwatt max.
Power gain	30 dB minimum	37 dB minimum
Input impedance	50 ohms; VSWR 2.0:1 max.	50 ohms; VSWR 2.0:1 max.
Output impedance	50 ohms; VSWR 2.5:1 max.	50 ohms nominal
Mismatch tolerance (ability to operate without damage, foldback, or oscillation with any magnitude and phase of source and load impedance)	100%	100%
Modulation capability (ability to reproduce faithfully AM, FM, or pulse modulation appearing on input signal)	100%	100%
Noise Figure	8 dB typical	10 dB typical
Harmonic distortion	Minus 20 dBc max. at 1 watt.	Minus 20 dBc max. at 5 watts.
Third-order intercept point	42 dBm typical	48 dBm typical
Primary power (select via internal taps)	100/110/120/200/208/220/ 240 Vac ±5%, 50/60 Hz, single-phase, 50 W max.	100/110/120/200/208/220/ 240 Vac ±5%, 50/60 Hz, single-phase, 110 W max.
RF Connectors	Type N female	Type N female
Cooling	Forced air (self-contained fans)	Forced air (self-contained fans)
Weight	4.1 kg (9.0 lb)	9.1 kg (20.0 lb)
Typical Power Curves		
Dimensions Models 1W1000 and 5W1000 are available as OEM rf circuit modules without power supply. Contact Amplifier Research for further information.		

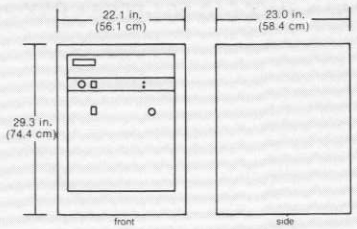
10W1000	50W1000	10W1000M7
22 watts 10 watts	100 watts 50 watts	15 watts 10 watts
10 watts minimum	40 watts minimum	8 watts minimum
±1.5 dB maximum; ±1.0 dB typical	±2.0 dB maximum; ±1.5 dB typical	±1.5 dB maximum; ±1.0 dB typical
1 to 1000 MHz	1 to 1000 MHz	100 to 1000 MHz
1.0 milliwatt max.	1.0 milliwatt max.	1.0 milliwatt max.
40 dB minimum	47 dB minimum	40 dB minimum
50 ohms; VSWR 2.0:1 max.	50 ohms; VSWR 2.0:1 max.	50 ohms; VSWR 2.0:1 max.
50 ohms nominal	50 ohms nominal	50 ohms nominal
100%	100%	100%
100%	100%	100%
noise floor data on request	noise floor data on request	noise floor data on request
Minus 20 dBc max. at 10 watts	Minus 20 dBc max. at 40 watts	Minus 20 dBc max. at 8 watts
50 dBm typical	58 dBm typical	49 dBm typical
100/110/120/200/208/220/ 240 Vac ±5%, 50/60 Hz, single-phase, 400 W max.	100/110/120/200/208/220/ 240 Vac ±5%, 50/60 Hz, single-phase, 1900 W max.	100/110/120/200/208/220/ 240 Vac ±5%, 50/60 Hz, single-phase, 150 W max.
Type N female	Type N female	Type N female
Forced air (self-contained fans)	Forced air (self-contained fans)	Forced air (self-contained fans)
28.4 kg (63.0 lb)	98.0 kg (215.0 lb)	9.1 kg (20 lb)

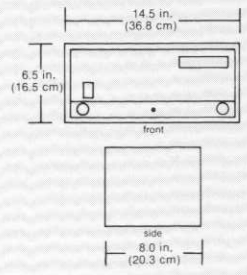


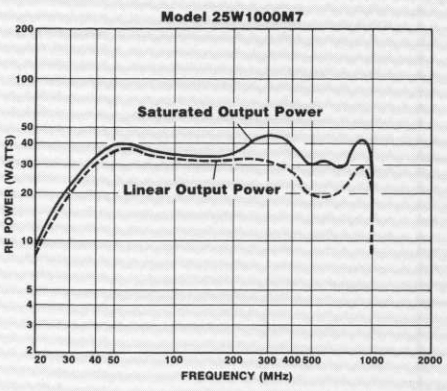
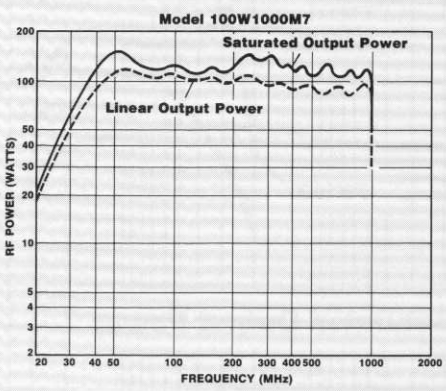
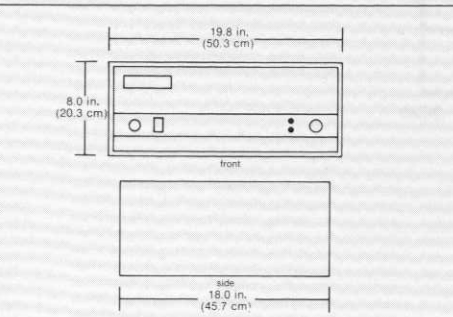
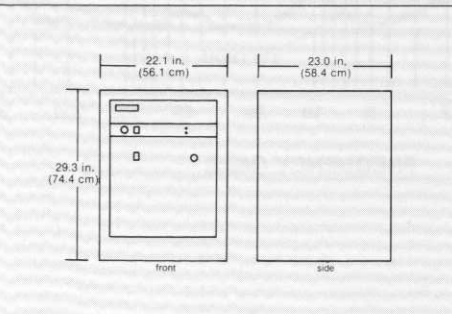










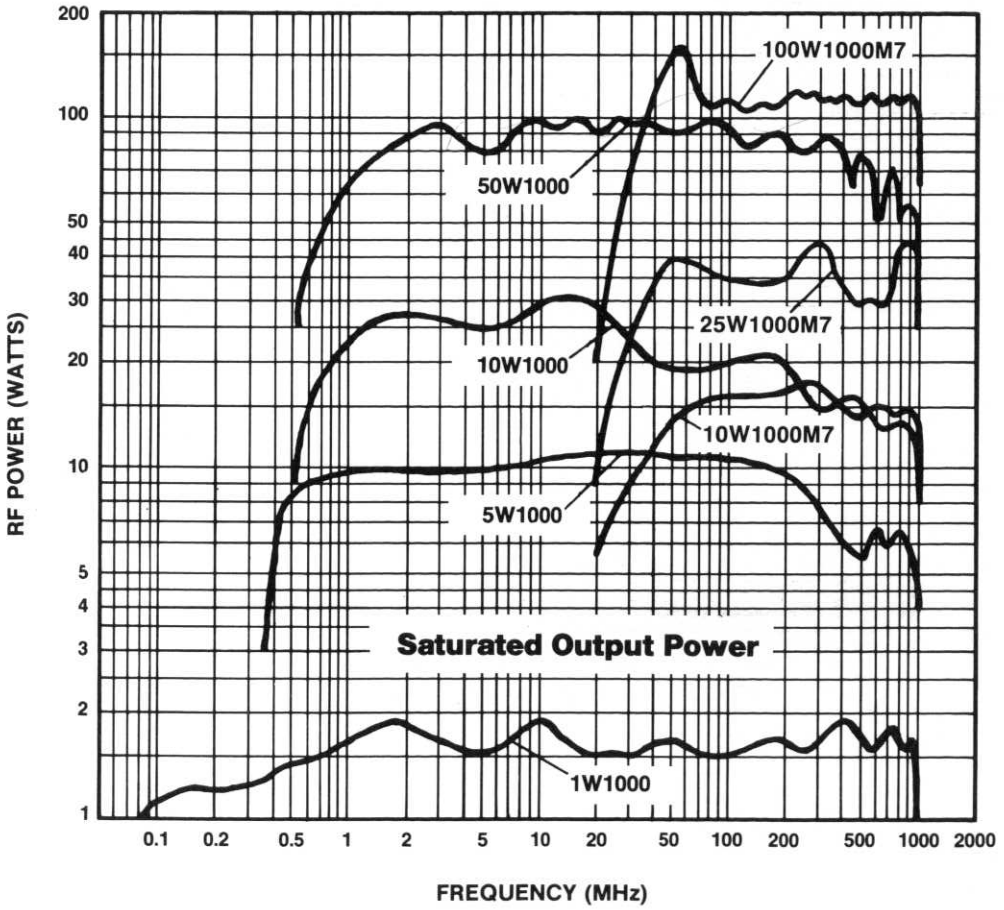
25W1000M7	100W1000M7	
40 watts 25 watts	180 watts 100 watts	**Power output, cw** up to minimum
20 watts minimum	70 watts minimum	**Power output, cw, linear** (less than 1 dB compression into 50 ohms)
±1.5 dB maximum; ±1.0 dB typical	±2.0 dB maximum; ±1.5 dB typical	**Flatness**
100 to 1000 MHz	100 to 1000 MHz	**Frequency response** (instantaneous)
1.0 milliwatt max.	1.0 milliwatt max.	**Input for rated output**
45 dB minimum	50 dB minimum	**Power gain**
50 ohms; VSWR 2.0:1 max.	50 ohms; VSWR 2.0:1 max.	**Input impedance**
50 ohms nominal	50 ohms nominal	**Output impedance**
100%	100%	**Mismatch tolerance** (ability to operate without damage, foldback, or oscillation with any magnitude and phase of source and load impedance)
100%	100%	**Modulation capability** (ability to reproduce faithfully AM, FM, or pulse modulation appearing on input signal)
noise floor data on request	noise floor data on request	**Noise Figure**
Minus 20 dBc max. at 20 watts	Minus 20 dBc max. at 70 watts	**Harmonic distortion**
52 dBm typical	60 dBm typical	**Third-order intercept point**
100/110/120/200/208/220/ 240 Vac ±5%, 50/60 Hz, single-phase, 750 W max.	100/110/120/200/208/220/ 240 Vac ±5%, 50/60 Hz, single-phase, 3000 W max.	**Primary power** (select via internal taps)
Type N female	Type N female	**RF Connectors**
Forced air (self-contained fans)	Forced air (self-contained fans)	**Cooling**
28.4 kg (63.0 lb)	98.0 kg (215.0 lb)	**Weight**
		**Typical Power Curves**
		**Dimensions** Models 1W1000 and 5W1000 are available as OEM rf circuit modules without power supply. Contact Amplifier Research for further information.

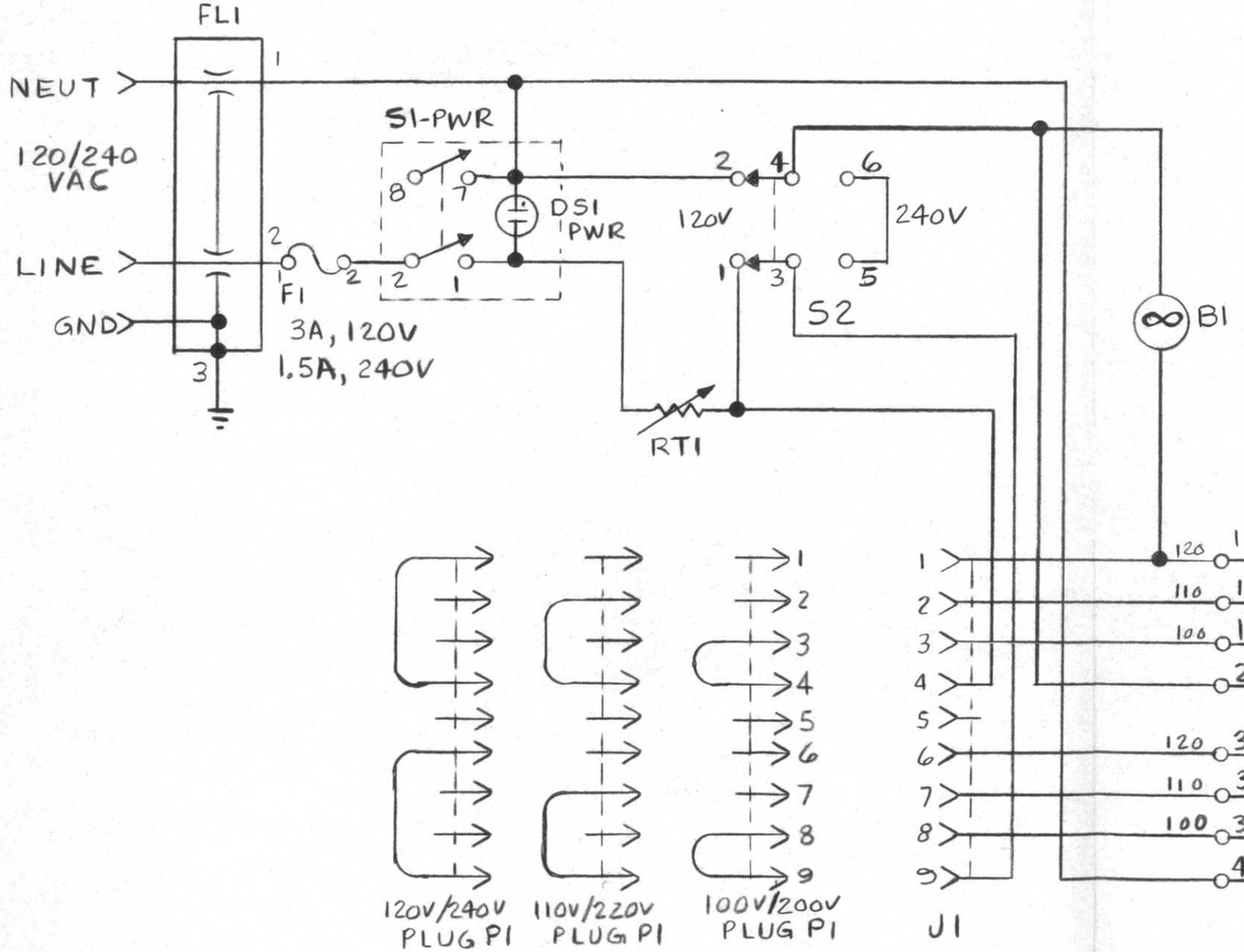
1 watt to 100 watts.
100 kHz to 1 GHz.

The Amplifier Research "W" Series constitutes a complete family of self-contained ultra-broadband solid-state amplifiers providing linear operation over the spectrum from 100 kHz to 1000 MHz. The amplifiers are conservatively rated at 1, 5, 10, 25, 50, and 100 watts, and feature instantaneous bandwidth, flat output, and immunity to even worstcase load mismatch including shorted or open cable without damage or system shutdown.

Applications

- ☐ Sweep, cw, and pulse rf and emi susceptibility testing without bandswitching or tuning
- ☐ Antenna and component testing, and equipment calibration
- ☐ General laboratory instrumentation

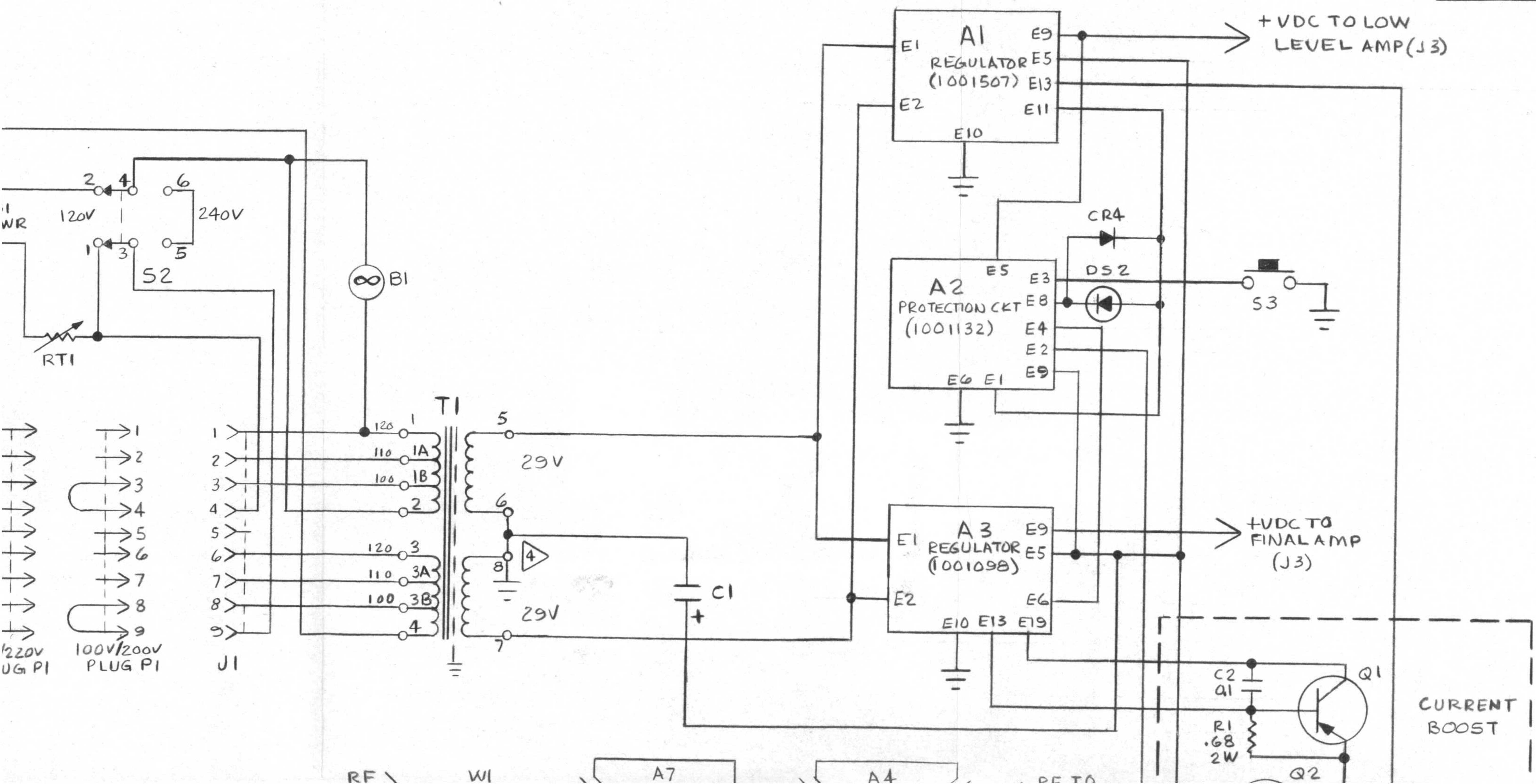


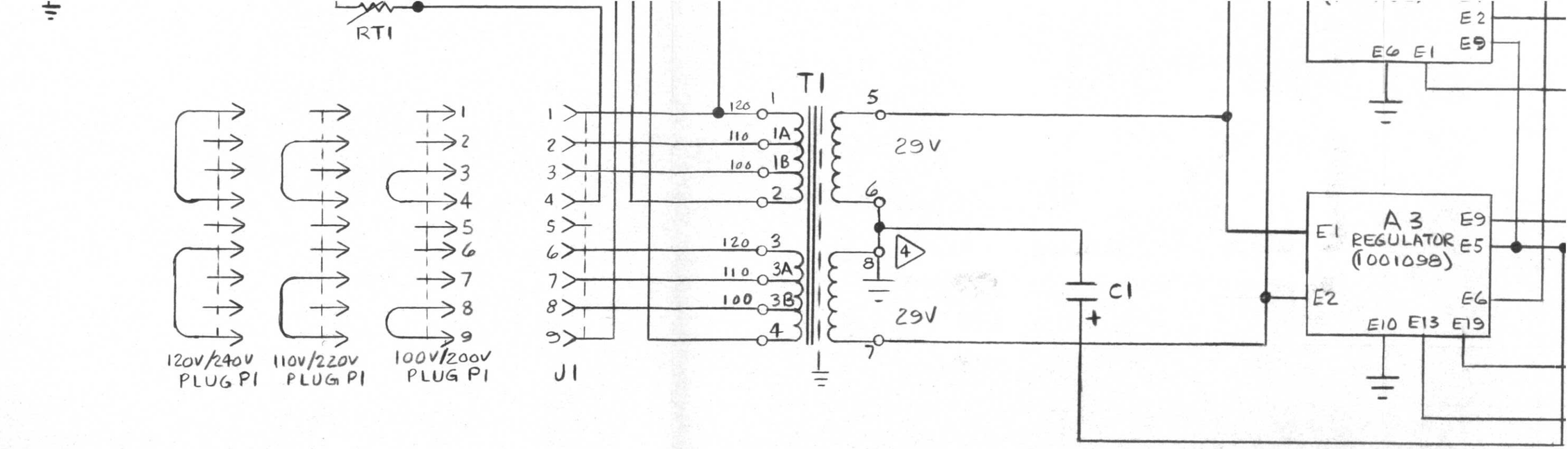

FL1
NEUT
120/240 VAC
LINE
GND
F1
3A, 120V
1.5A, 240V
S1-PWR
DS1 PWR
S2
120V
240V
RT1
B1
T1
29V
29V
C1
A1
REGULATOR
(1001507)
A2
PROTECTION CKT
(1001132)
A3
REGULATOR
(1001098)
120V/240V PLUG P1
110V/220V PLUG P1
100V/200V PLUG P1
J1

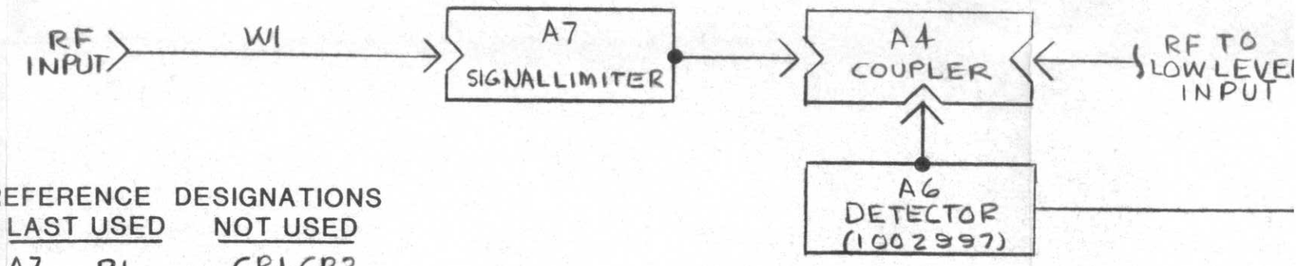
NOTES:

REDRAWN

ECN	DATE	REV
1657	17OCT88	T
5128	13FEB90	U







NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
RESISTOR VALUES ARE OHMS
RESISTOR RATINGS ARE 1/4 WATT
CAPACITOR VALUES ARE MICROFARADS

2.0 THIS SCHEMATIC MAY REPRESENT MULTIPLE ASSEMBLIES. SEE APPROPRIATE PARTS LIST FOR FINAL COMPONENT VALUES.

3.0 WHEN CHANGING PRIMARY TAPS ON T1, PLUG APPROPRIATE JUMPER (P1) INTO (J1).

4.0 RETURN WIRE FROM C1 NEGATIVE MUST BE WIRED INDIVIDUALLY TO CENTER TAP OF T1. CENTER TAP SHALL BE GROUNDED TO CHASSIS USING SHORTEST WIRE PRACTICABLE.

REFERENCE DESIGNATIONS

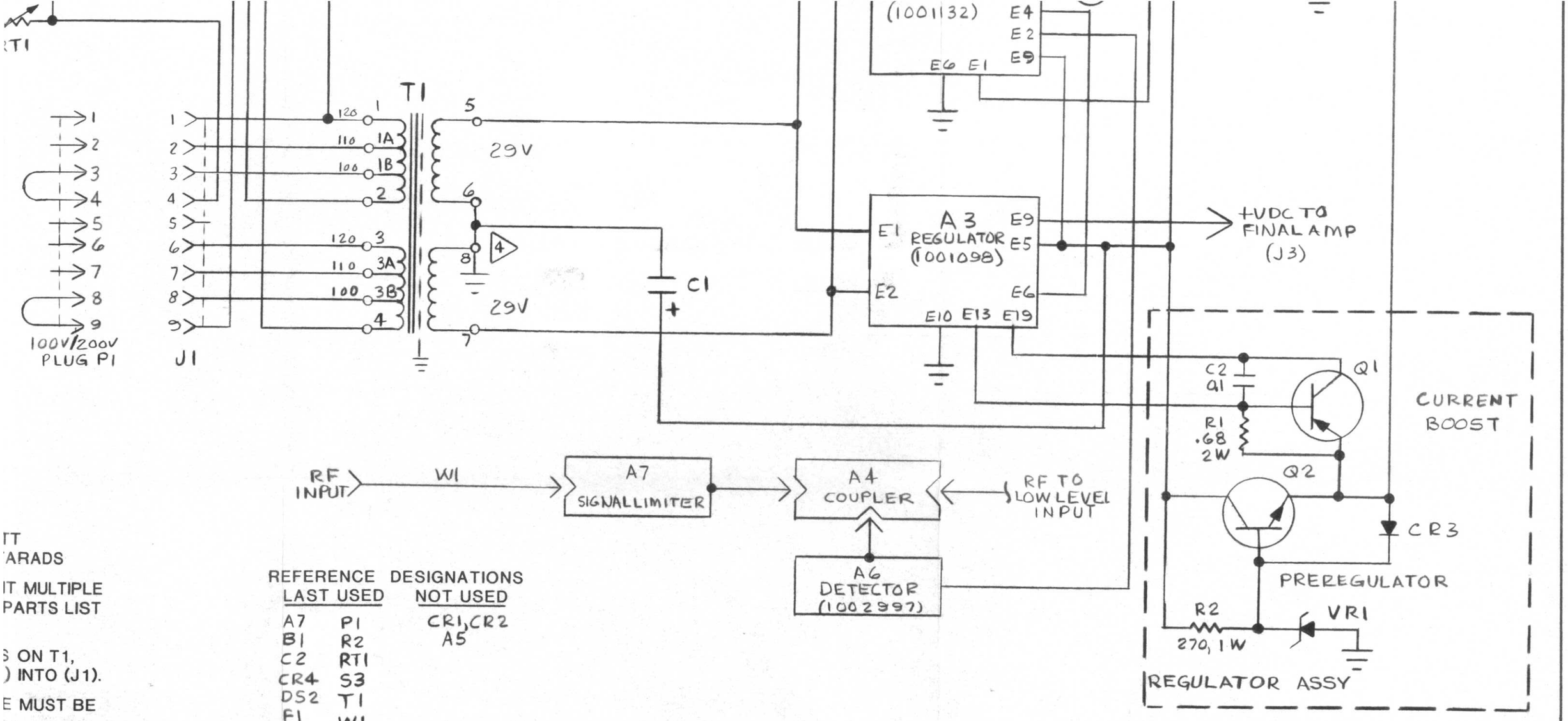
LAST USED	NOT USED
A7	P1
B1	R2
C2	RT1
CR4	S3
DS2	T1
F1	W1
FL1	Q2
J1	

CR1, CR2
A5

QTY. REQD.
10W1000M7
5W1000
USED ON MODEL

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING.
DIMENSIONS ARE IN INCHES AND INCLUD PLATING THICKNESS
ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
REMOVE ALL BURRS AND SHARP EDGES.
TOLERANCE: ±.010.

129970



IT
ARADS

IT MULTIPLE
PARTS LIST

S ON T1,
) INTO (J1).

E MUST BE
TAP OF T1.
ED TO CHASSIS
ABLE.

REFERENCE DESIGNATIONS

LAST USED		NOT USED
A7	P1	CR1, CR2
B1	R2	A5
C2	RT1	
CR4	S3	
DS2	T1	
F1	W1	
FL1	Q2	
J1		

QTY. REQD.	ITEM	PART NO.	DESCRIPTION	MARK	FIN	MATL
		PARTS LIST				

10W1000M7
5W1000
USED ON MODEL

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING.
DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS.
ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
REMOVE ALL BURRS AND SHARP EDGES.
TOLERANCE: ±.010.

DRAWN C.BICKELMAN DATE 17OCT88
CHKD DATE 20 OCT 88
MECH DATE 21 Oct 88
ELEC DATE 21 Oct '88

AMPLIFIER RESEARCH

SCHEMATIC DIAG.
POWER SUPPLY

DWG. SCALE: NONE
DWG. NO. 1001100
REV. U
SHEET 1 OF 1

BILL NO: 1002875-502 REV: A U/M: EA DRAWING NO:
POWER SUPPLY AND HOUSING

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1001100	U	SCHEMATIC DIAGRAM,POWER SUPPLY	EA	REF	ARC\1001100	
5000	1002243-104-F2	-	PLATE,L.S.	EA	1.000	ARC\1002243	1
5010	1002243-103-F2	-	PLATE,R.S.	EA	1.000	ARC\1002243	2
5020	69074		MOUNTING FOOT,RUBBER,5/8 OD,5/8 HT,5/16 DIA,7/16DP	EA	4.000	RUS\REC-2090S	
5030	1002500-501	C	HARNESS ASSY,POWER SUPPLY	EA	1.000		
5040	1002868-501	D	PLATE ASSY,BASE	EA	1.000		
5040	1002869-501	B	PANEL ASSY,CONTROL	EA	1.000		
5040	66009		WIRE,TEFLON,16 AWG,STRANDED,BLACK	IN	6.500		
5040	69100		LUG,SHAKEPROOF,BENT,41/64 L,#6 STUD,DUAL HOLE	EA	1.000	HHS\1416-6	
7100	11014		SCREW,MACH,PAN HD,CROSS-REC,S/S,6-32X.25	EA	1.000		
7100	11018		SCREW,MACH,PAN HD,CROSS-REC,ZN,6-32 X .38,TYPE SW	EA	14.000		
7100	11020		SCREW,MACH,PAN HD,CROSS-REC,S/S,6-32 X .50	EA	2.000		
7100	11064		SCREW,MACH,FLT HD,100 DEG,CROSS-REC,S/S,6-32X.38	EA	6.000		

AMPLIFIER RESEARCH

09:37:33 14 MAY 1990 * * * SINGLE LEVEL BILL OF MATERIAL LISTING * * * REPORT: E0056 PAGE: 1

BILL NO: 1002500-501 REV: C U/M: EA DRAWING NO:
HARNESS ASSY,POWER SUPPLY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1001100	U	SCHEMATIC DIAGRAM,POWER SUPPLY	EA	REF	ARC\1001100	
0010	1002870	-	WIRE LIST,P.S.	EA	REF	ARC\1002870	
0010	1002871-101		HARNESS BOARD,POWER SUPPLY	EA	REF	ARC\1002871	
0100	1002823-509	B	REGULATOR ASSY	EA	1.000	ARC\1001097	A1
0110	1002465-501	-	PROTECTION CIRCUIT ASSY	EA	1.000		A2
0120	1002823-507	C	REGULATOR ASSY	EA	1.000	ARC\1001097	A3
3100	57032		SWITCH,LIGHTED-ROCKER,W/O INDEP.LAMP CONTACT,DPST	EA	1.000	LTIGK50-IL-WH-RCA	S1
5000	41117		PIN,CONNECTOR	EA	3.000	CAM\460-3308-01-03	12
5010	69142		TERMINAL,RING,INSUL,#10 STUD,22-16 AWG	EA	2.000	TAB\RA-877	13
5020	69145		TERMINAL,RING,INSUL,#10 STUD,16-14 AWG	EA	1.000	TAB\RB-877	18
5030	66067		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STRAND,BLACK	IN	A/R		
5030	66068		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STRAND,BROWN	IN	A/R		
5030	66073		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STRAND,BLUE	IN	A/R		
5030	66074		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STRAND,VIOL.	IN	A/R		
5030	66075		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STRAND,GRAY	IN	A/R		
5030	66076		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STRAND,WHITE	IN	A/R		
5030	66077		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STR,WHT/BLK	IN	A/R		
5030	66079		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STR,WHT/RED	IN	A/R		
5030	66082		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STR,WHT/GRN.	IN	A/R		
5030	66084		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STR,WHT/BLUE	IN	A/R		
5030	66085	FT	WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STR,WHT/GRAY	IN	A/R		
5030	69162		CABLE TIES,7/8"MAX BUNDLE DIA,4"L	EA	75.000	DEN\08432	

BILL NO: 1002872-501 REV: D U/M: EA DRAWING NO: ARC\1002872
REGULATOR ASSY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1001100	U	SCHEMATIC DIAGRAM,POWER SUPPLY	EA REF		ARC\1001100	
0400	27198		CAP,CERAMIC,0.1MF,+80-20%,100V,CHAR.Z5U	EA	1.000	MPC\EF104Z	C2
0700	1N5061		DIODE,RECTIFIER,1.5AMP,600V	EA	1.000	TEL\1N5061	CR3
2500	54509		TRANSISTOR,SWITCHING,PNP,100V,10A,80W	EA	1.000	TII\TIP-34C	Q1
2510	54514		TRANSISTOR,SWITCHING,NPN,100V,10A,125W	EA	1.000	TII\TIP-142	Q2
2700	55715-R680J		RESISTOR,FXD,WW,0.68,5%,2W,TYPE BWH	EA	1.000		R1
2710	55514-2700J		RESISTOR,FXD,CARBON COMP,270,5%,1W	EA	1.000		R2
4000	1N4752A		DIODE,ZENER,33V,5%,1W	EA	1.000	MOT\1N4752A	VR1
5000	1002051-101	C	BRACKET,TRANSISTOR MOUNTING	EA	1.000	ARC\1002051	1
5010	53008		TERMINAL STRIP,7 TERMINAL	EA	1.000	SPC\LTS-207	2
5020	69091		INSULATOR,HD ANODIZED,TYPE TO-220,.950 L,.500 W	EA	2.000	THM\4778A	3
5030	77064		COMPOUND,THERMAL JOINT,TYPE 120	EA A/R		WAK\120-S	4
5040	69100		LUG,SHAKEPROOF,BENT,41/64 L,#6 STUD,DUAL HOLE	EA	2.000	HHS\1416-6	5
5050	11011		SCREW,MACH,PAN HD,CROSS-REC,S/S,4-40 X .38	EA	2.000		6
5060	11018		SCREW,MACH,PAN HD,CROSS-REC,ZN,6-32 X .38,TYPE SW	EA	2.000		7
5070	12010		WASHER,FLAT,S/S,#4,.250 OD X .125 ID X .028 THK	EA	2.000	\MS-15795-803	8
5080	12000		WASHER,LOCK,INT TOOTH,S/S,#4	EA	2.000		9
5090	12037		WASHER,SHLDR,N,.232 OD X .115 ID X .047 SHLD.THK.	EA	2.000	REL\NY-04-040	10
5100	66073		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STRAND,BLUE	IN A/R			11
5110	66076		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STRAND,WHITE	IN A/R			12
5120	66079		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STR,WHT/RED	IN A/R			13
5130	66084		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STR,WHT/BLUE	IN A/R			14
5140	66069		WIRE,IRRADIATED,PVC,TYPE IB,22 AWG,19 STRAND,RED	IN A/R			15
5150	66117		TUBING,SHRINKABLE,BLACK,.187 EXP,.093 REC	IN	6.000		16

BILL NO: 1002868-501 REV: D U/M: EA DRAWING NO:
PLATE ASSY,BASE

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1001100	U	SCHEMATIC DIAGRAM,POWER SUPPLY	EA	REF	ARC\1001100	
0200	37011		FAN,SHADED POLE,120V,50/60HZ,106CFM	EA	1.000	PAP\4600N	B1
1400	35019		FILTER,LINE,6 AMP	EA	1.000	COR\6EF1	FL1
1500	41105		TERMINAL,.093 DIA,CRIMP TYPE,FEMALE	EA	8.000	MOL\02-09-1118	J1
1500	41131		CONNECTOR,RECEPT,W/EARS & DETENT LOCK,9 CKT,MALE	EA	1.000	MOL\03-09-1092	J1
2200	1003909-501	A	CONNECTOR ASSY,VOLTAGE SELECT	EA	1.000	ARC\1003909	P1
3000	56075		RESISTOR,CURRENT LIMITER,2.5 OHM,25%,25 DEG C,8A	EA	1.000	KCC\CLS-30	RT1
3100	57044		SWITCH,SLIDE,DPDT,6A,125VAC	EA	1.000	SWC\46256LFE	S2
3200	1001066-101	F	XFMR,PWR,120/240,57 VAC,5.0 A	EA	1.000	ARC\1001066	T1
4500	73002		FUSEHOLDER,HKP	EA	1.000	LIF\342012	XF1
5000	1000033-101	C	SCREEN,AIR INTAKE	EA	1.000	ARC\1000033	
5000	1002243-111-F2	L	COVER,BOTTOM	EA	1.000	ARC\1002243	
5000	1002872-501	D	REGULATOR ASSY	EA	1.000	ARC\1002872	
5000	69119		RIVET,GRIP-TITE,A,1/8"DIA,1/8"MAT'L THICKNESS	EA	2.000	GRA\4X641	
5000	69120		RIVET,GRIP-TITE,A,1/8"DIA,1/8-1/4"MAT'L THICKNESS	EA	2.000	GRA\5X520	
5000	69157		TERMINAL,INSUL,STANDOFF,6-32 THD	EA	1.000	USC\1417-4-5	
7100	11014		SCREW,MACH,PAN HD,CROSS-REC,S/S,6-32X.25	EA	1.000		
7100	11021		SCREW,MACH,PAN HD,CROSS-REC,6-32 X .62	EA	6.000		
7100	11028		SCREW,MACH,PAN HD,CROSS-REC,S/S,8-32 X .38	EA	4.000		
7300	13004		NUT,HEX,S/S,6-32,.250AF	EA	7.000		
7300	13006		NUT,HEX,S/S,8-32,.343AF	EA	4.000		
7500	12001		WASHER,LOCK,INT TOOTH,S/S,#6	EA	8.000		
7500	12002		WASHER,LOCK,INT TOOTH,S/S,#8	EA	4.000		
7500	12011		WASHER,FLAT,S/S,#6,.312 OD	EA	7.000		

BILL NO: 1002868-501 REV: D U/M: EA DRAWING NO:
PLATE ASSY,BASE

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
7500	12012		WASHER,FLAT,S/S,#8,.375 OD	EA	4.000		

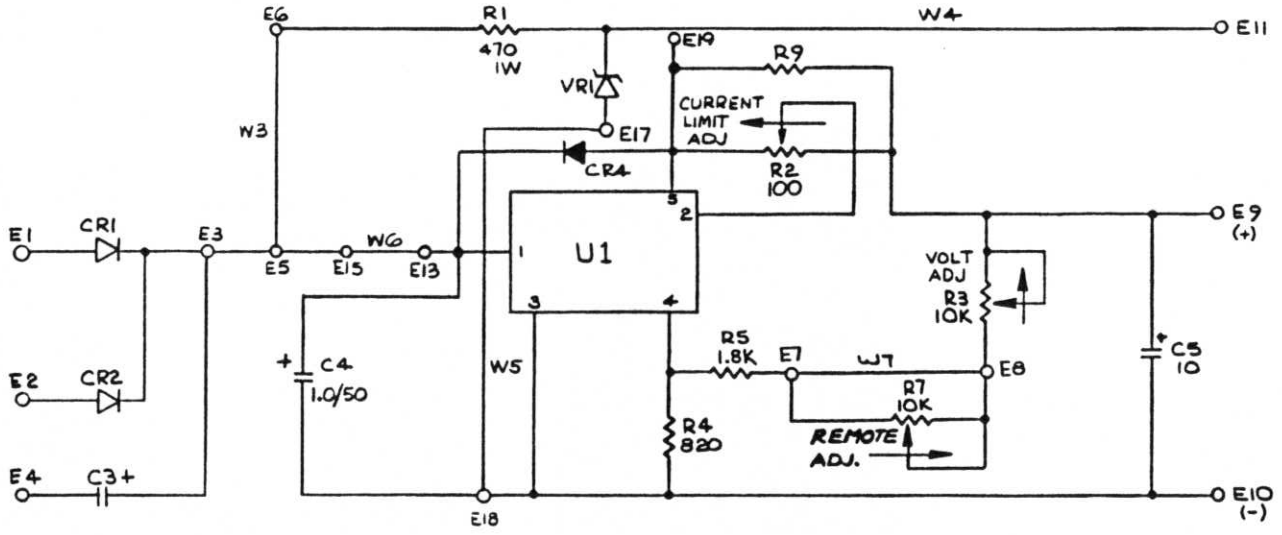
BILL NO: 1002869-501 REV: B U/M: EA DRAWING NO:
PANEL ASSY,CONTROL

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1001100	U	SCHEMATIC DIAGRAM,POWER SUPPLY	EA	REF	ARC\1001100	
0100	25022		COUPLER,DIRECTIONAL,1-1000MHZ,10DB	EA	1.000	EMM\DCK-1010B	A4
0110	1001203-501	C	DETECTOR ASSEMBLY	EA	1.000	ARC\1001203	A6
0120	1002142-501	A	SIGNAL LIMITER ASSY	EA	1.000	ARC\1002142	A7
0400	27095		CAP,ELECT,9000UF,40V	EA	1.000	MAL\CGS902U040R4C	C1
0700	1N5061		DIODE,RECTIFIER,1.5AMP,600V	EA	1.000	TEL\1N5061	CR4
1000	33003		LED,RED,T1 3/4(5mm)	EA	1.000	H-P\HLMP-3001-009	DS2
3110	57029		SWITCH,PB,MOMENTARY,SPST(N.O.)	EA	1.000	A-S\MSPS-103C-2	S3
5000	1000532-101-F1	D	PANEL,TRIM	EA	1.000	ARC\1000532	
5000	1002207-101	B	NAME PLATE,LOGO,DIE CAST	EA	1.000	ARC\1002207	
5000	1002243-106	G	PANEL,FRONT	EA	1.000	ARC\1002243	
5000	1002243-110-F2-M2	-	PANEL,CONN "N"	EA	1.000	ARC\1002243	
5000	14001		FASTENER,TINNERMAN,C12005-017-4	EA	2.000		
5000	20000	-	CABLE ASSY,COAX,RG-188A/U,BNC,N,12.0	EA	1.000	ARC\1002494	
5000	69071		CLIP,COMPONENT,1.00" L,1.375" DIA,1.439" HT	EA	2.000	STM\4511-137-1002C	
5000	69119		RIVET,GRIP-TITE,A,1/8"DIA,1/8"MAT'L THICKNESS	EA	4.000	GRA\4X641	
7100	11018		SCREW,MACH,PAN HD,CROSS-REC,ZN,6-32 X .38,TYPE SW	EA	7.000		
7100	11064		SCREW,MACH,FLT HD,100 DEG,CROSS-REC,S/S,6-32X.38	EA	2.000		
7100	11067		SCREW,MACH,FLT HD,100 DEG,CROSS-REC,S/S/,6-32X1.00	EA	2.000		
7300	13004		NUT,HEX,S/S,6-32,.250AF	EA	2.000		
7500	12001		WASHER,LOCK,INT TOOTH,S/S,#6	EA	2.000		

BILL NO: 1002142-501 REV: A U/M: EA DRAWING NO: ARC\1002142
SIGNAL LIMITER ASSY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0700	1N4448		DIODE,SIGNAL,75V PIV	EA	2.000	FCH\1N4448	CR1 ,CR2
1500	UG-625B/U		CONN,COAX,BULKHD RECEPT,TYPE BNC(F)	EA	1.000	AMH\UG-625B/U	J1
2200	41013		CONNECTOR,COAX,BNC,PLUG,RG-188A/U	EA	1.000	KIN\KC-59-152	P1
4200	66151		WIRE,IRRADIATED,PVC,26 AWG,SOLID,RED	IN	A/R		W1
4200	66152		WIRE,IRRADIATED,PVC,26 AWG,SOLID,BLACK	IN	A/R		W1
5000	1002464-101	-	CAN,MODIFIED	EA	1.000	ARC\1002464	1
5010	80002		COVER,HU5365 CAN	EA	1.000	HUC\HU5365CAST-HTD	2

ECN	DATE	REV
	16 Jun 81	—
	3 Feb 82	A
	19 Oct 82	B
	13 AUG 84	C
	15 Mar 85	D
	27 AUG 85	E
995	3 JUL 86	F
1706	21 NOV 88	G



NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
RESISTOR VALUES ARE OHMS
RESISTOR RATINGS ARE 1/4 WATT
CAPACITOR VALUES ARE MICROFARADS

2.0 THIS SCHEMATIC MAY REPRESENT MULTIPLE ASSEMBLIES. SEE APPROPRIATE PARTS LIST FOR FINAL COMPONENT VALUES.

REFERENCE DESIGNATIONS

LAST USED	NOT USED
C5 U1	R8, R6
CR4 VR1	W1, W2
E19 W7	CR3
R9	C1, C2

ITEM	QTY. REQD.	PART NO.	DESCRIPTION	MARK	FIN	MATL
		PARTS LIST				

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING.
DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS.
ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
REMOVE ALL BURRS AND SHARP EDGES.
TOLERANCE: ± .010.

GEN USE
USED ON MODEL

DRAWN J. VOGENBERG DATE 16 JUN 81
CHKD DATE 15 NOV 88
MECH DATE 15 NOV 88
ELEC DATE

AMPLIFIER RESEARCH

SCHEMATIC DIAG
REGULATOR MPLV

DWG. SCALE
DWG. NO. 1001507
REV. G
SHEET 1 OF 1

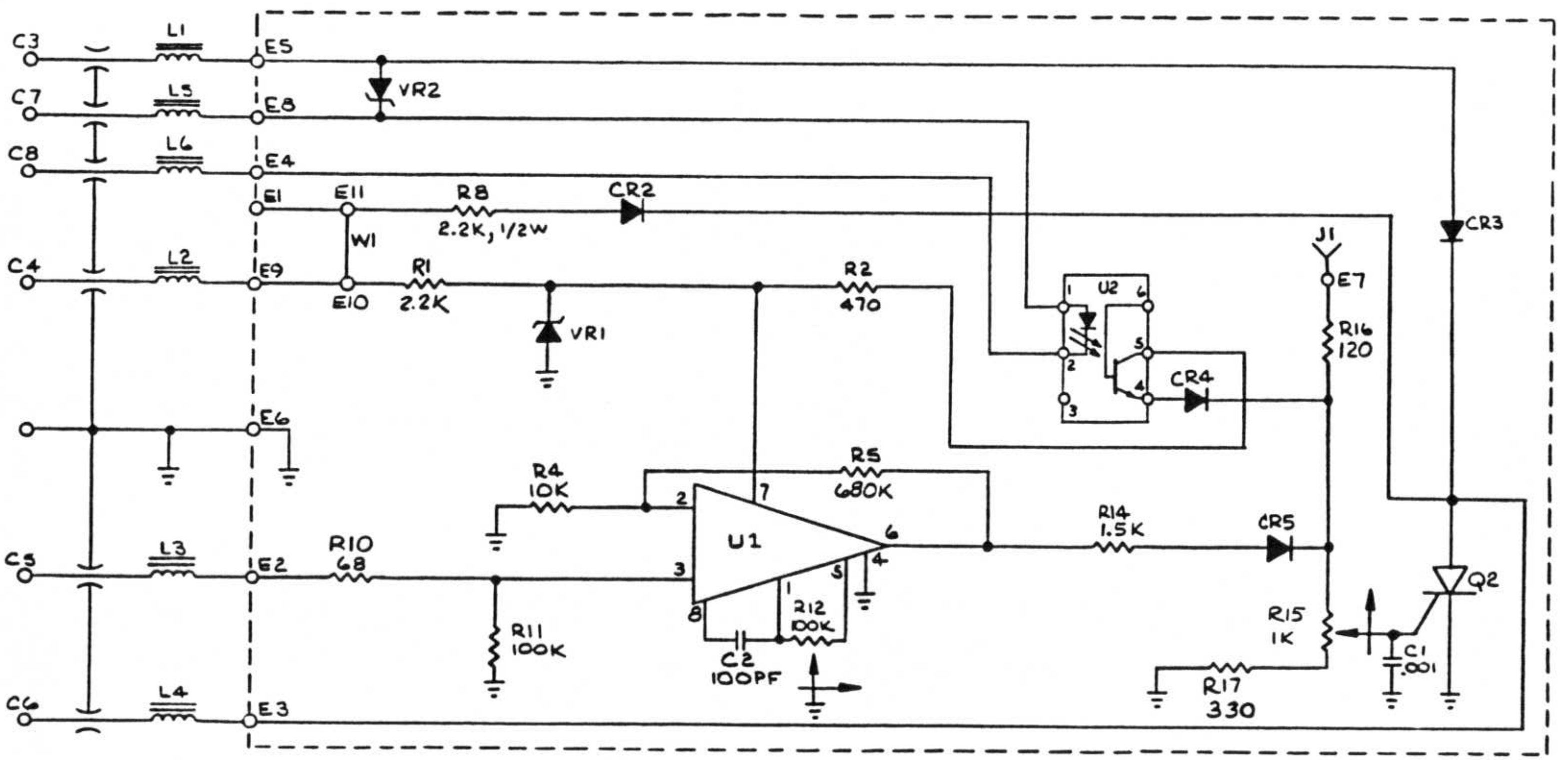
BILL NO: 1002823-509 REV: B U/M: EA DRAWING NO: ARC\1001097
REGULATOR ASSY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1001507	G	SCHEMATIC DIAGRAM,REGULATOR ASSY	EA	REF	ARC\1001507	
0410	27058		CAP,ELECT,1UF,50V,+/-20%,RADIAL	EA	1.000	PAN\ECEA1HU010	C4
0420	27063		CAP,ELECT,10UF,50V,+/-20%,AXIAL	EA	1.000	PAN\ECEB1HU100	C5
0700	1N5401		DIODE,3AMP,100V PIV	EA	2.000	SSM\1N5401	CR1 ,CR2
0710	1N5061		DIODE,RECTIFIER,1.5AMP,600V	EA	1.000	TEL\1N5061	CR4
2700	55514-4700J		RESISTOR,FXD,,CARBON COMP,470,5%,1W	EA	1.000	A-B\GB4715	R1
2710	55923		RES,VAR,CERMET,MULTITURN,SIDE ADJ,100,10%,1/2W	EA	1.000	BOR\3299Z-1-101	R2
2720	55930		RESISTOR,VARIABLE,COMP,10K,10%,1/4W	EA	1.000	CTS\U201R103B	R3
2730	55612-8200J		RESISTOR,FXD,METAL FILM,820,5%,1/4-1/2W	EA	1.000	TRW\GP55-8200+/-5%	R4
2740	55612-1801J		RESISTOR,FXD,METAL FILM,1.8K,5%,1/4-1/2W	EA	1.000	TRW\GP55-1801+/-5%	R5
2750	55715-R680J		RESISTOR,FXD,WW,0.68,5%,2W,TYPE BWH	EA	1.000		R9
3700	60033		INTEGRATED CIRCUIT,LINEAR,POS.,ADJ.VOLTAGE,2A	EA	1.000	SGS\L200CV	U1
4000	1N5363A		DIODE,ZENER,30V,10%,5W	EA	1.000	SSM\1N5363A	VR1
4200	66047		WIRE,BUSS,TINNED COPPER,22 AWG	IN	5.500	ALP\9022	W3 ,W4 W5 ,W7 W8 ,W9
4200	66139		TUBING,TEFLON,NAT'L COLR,20AWG,.034ID,.012WALL THK	IN	A/R	ALP\TFT200 20AWG	W3 ,W4 W5 ,W7 W8 ,W9
5000	1001096-101	M	PWB,REGULATOR	EA	1.000	ARC\1001096	
5010	1001099-101	B	BRACKET,MOUNTING,MPLV REGULATOR	EA	1.000	ARC\1001099	
5020	69175		MOUNTING TAB,NAT'L COLOR NYLON,21/32 O/A,3/8 W	EA	1.000	PLM\A-30-167	
5020	77064		COMPOUND,THERMAL JOINT,TYPE 120	EA	A/R	WAK\120-S	
7100	11011		SCREW,MACH,PAN HD,CROSS-REC,S/S,4-40 X .38	EA	1.000		
7100	11020		SCREW,MACH,PAN HD,CROSS-REC,S/S,6-32 X .50	EA	4.000		
7100	11064		SCREW,MACH,FLT HD,100 DEG,CROSS-REC,S/S,6-32X.38	EA	1.000		

BILL NO: 1002823-509 REV: B U/M: EA DRAWING NO: ARC\1001097
REGULATOR ASSY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
7300	13003		NUT,HEX,S/S,4-40,.187AF	EA	1.000		
7300	13004		NUT,HEX,S/S,6-32,.250AF	EA	5.000		
7500	12000		WASHER,LOCK,INT TOOTH,S/S,#4	EA	1.000		
7500	12001		WASHER,LOCK,INT TOOTH,S/S,#6	EA	5.000		
7500	12010		WASHER,FLAT,S/S,#4,.250 OD X .125 ID X .028 THK	EA	1.000	\MS-15795-803	
7500	12011		WASHER,FLAT,S/S,#6,.312 OD	EA	5.000		
7500	12024		WASHER,FLAT,B/ZN PLTG,.312 OD X .164 ID X .125 THK	EA	4.000	\S785-M01-F21-.164	

ECN	DATE	REV
RE-DRAWN	12Jun81	G
634	[illegible]	H
	3 AUG 84	J
	7 JAN 85	K
854	[illegible]	L
1412	[illegible]	M



NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
RESISTOR VALUES ARE OHMS
RESISTOR RATINGS ARE 1/4 WATT
CAPACITOR VALUES ARE MICROFARADS

2.0 THIS SCHEMATIC MAY REPRESENT MULTIPLE ASSEMBLIES. SEE APPROPRIATE PARTS LIST FOR FINAL COMPONENT VALUES.

REFERENCE DESIGNATIONS

LAST USED		NOT USED
C8	Q2	CR1
CR5	R17	Q1
E11	U2	R3, R6, R7,
J1	VR2	R13, R9
L6	W1	

ITEM	PART NO.	DESCRIPTION	MARK	FIN	MATL
QTY. REQD.	PARTS LIST				

USED ON MODEL: 100W1000M7, 80W1000M1, 5JW1000, 10W1000, 5W1000

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING.
DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS.
ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
REMOVE ALL BURRS AND SHARP EDGES.
TOLERANCE: ± .010.

DRAWN J. VOGENBERG DATE 17 JUN 81
CHKD G. Buchelm DATE 7 APR 88
MECH [illegible] DATE [illegible]
ELEC
DATE

AMPLIFIER RESEARCH

SCHEMATIC DIAG PROTECTION CKT

DWG. SCALE | DWG. NO. 1001132 | REV. M

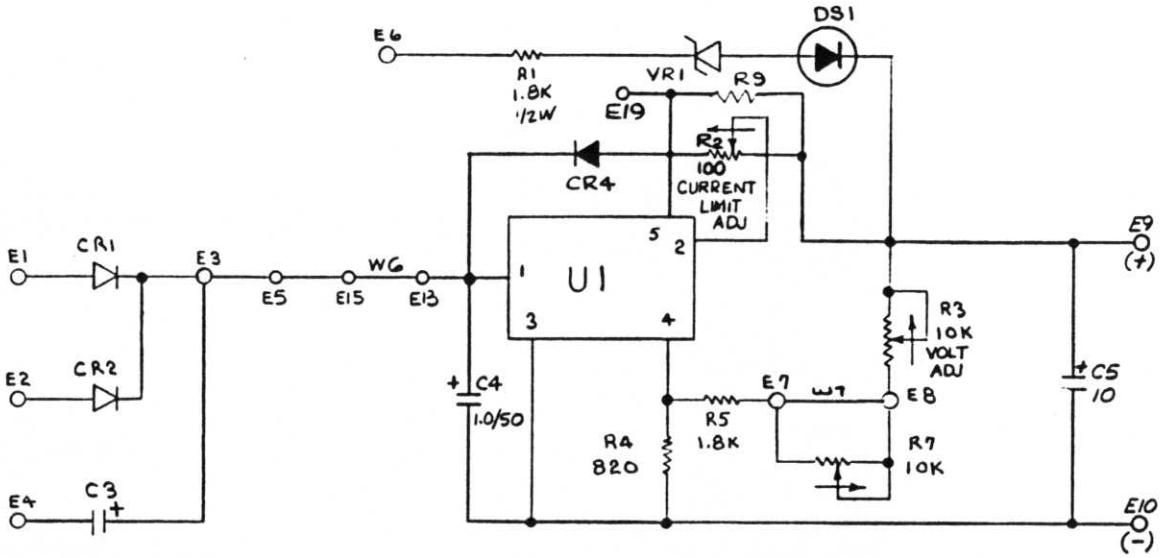
SHEET 1 OF 1

BILL NO: 1002465-501 REV: - U/M: EA DRAWING NO:
PROTECTION CIRCUIT ASSY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1001132	M	SCHEMATIC DIAGRAM,PROTECTION CIRCUIT	EA	REF	ARC\1001132	
5000	1001099-101	B	BRACKET,MOUNTING,MPLV REGULATOR	EA	1.000	ARC\1001099	
5000	1002824-501	E	PRINTED WIRING BOARD ASSY	EA	1.000	ARC\1001134	
5000	69175		MOUNTING TAB,MAT'L COLOR NYLON,21/32 O/A,3/8 W	EA	1.000	PLM\A-30-167	
7100	11020		SCREW,MACH,PAN HD,CROSS-REC,S/S,6-32 X .50	EA	4.000		
7110	11064		SCREW,MACH,FLT HD,100 DEG,CROSS-REC,S/S,6-32X.38	EA	1.000		
7300	13004		NUT,HEX,S/S,6-32,.250AF	EA	5.000		
7500	12001		WASHER,LOCK,INT TOOTH,S/S,#6	EA	5.000		
7500	12011		WASHER,FLAT,S/S,#6,.312 OD	EA	5.000		
7500	12024		WASHER,FLAT,B/ZN PLTG,.312 OD X .164 ID X .125 THK	EA	4.000	\S785-M01-F21-.164	

BILL NO: 1002824-501 REV: E U/M: EA DRAWING NO: ARC\1001134
PRINTED WIRING BOARD ASSY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1001132	M	SCHEMATIC DIAGRAM,PROTECTION CIRCUIT	EA	REF	ARC\1001132	
0400	27179		CAP,CERAMIC,1000PF,10%,600/1000V,CHAR.Z5F	EA	1.000	MPC\GB-102K	C1
0410	27181		CAP,CERAMIC,100PF,10%,600/1000V,CHAR.S3N	EA	1.000	MUE\GH101K	C2
0700	1N4448		DIODE,SIGNAL,75V PIV	EA	3.000	FCH\1N4448	CR2 ,CR4 CR5
0710	1N5061		DIODE,RECTIFIER,1.5AMP,600V	EA	1.000	TEL\1N5061	CR3
2500	54543		SCR,200V,4.0A	EA	1.000	POW\CR2AM8	Q2
2700	55612-2201J		RESISTOR,FXD,METAL FILM,2.2K,5%,1/4-1/2W	EA	2.000	TRW\GP55-2201+/-5%	R1 ,R8
2710	55612-4700J		RESISTOR,FXD,METAL FILM,470,5%,1/4-1/2W	EA	1.000	TRW\GP55-4700+/-5%	R2
2720	55612-1002J		RESISTOR,FXD,METAL FILM,10K,5%,1/4-1/2W	EA	1.000	TRW\GP55-1002+/-5%	R4
2730	55612-6803J		RESISTOR,FXD,METAL FILM,680K,5%,1/4-1/2W	EA	1.000	TRW\GP55-6803+/-5%	R5
2750	55612-68R0J		RESISTOR,FXD,METAL FILM,68,5%,1/4-1/2W	EA	1.000	TRW\GP55-68R0+/-5%	R10
2760	55612-1003J		RESISTOR,FXD,METAL FILM,100K,5%,1/4-1/2W	EA	1.000	TRW\GP55-1003+/-5%	R11
2770	55933		RESISTOR,VARIABLE,100K,10%,1/4W	EA	1.000	CTS\U201R104B	R12
2780	55612-1501J		RESISTOR,FXD,METAL FILM,1.5K,5%,1/4-1/2W	EA	1.000	TRW\GP55-1501+/-5%	R14
2790	55928		RESISTOR,VARIABLE,COMP,1K,10%,1/4W	EA	1.000	CTS\U201R102B	R15
2800	55612-3300J		RESISTOR,FXD,METAL FILM,330,5%,1/4-1/2W	EA	1.000	TRW\GP55-3300+/-5%	R17
2810	55612-1200J		RESISTOR,FXD,METAL FILM,120,5%,1/4-1/2W	EA	1.000	TRW\GP55-1200+/-5%	R16
3700	60008		INTEGRATED CIRCUIT,LINEAR,OP.AMP.	EA	1.000	RCA\CA3130T	U1
3710	60001		OPTOCOUPLER/ISOLATOR,TRANSISTOR OUTPUT STYLE 1	EA	1.000	MOT\4N27	U2
4000	1N5239B		DIODE,ZENER,9.1V,5%,500MW	EA	1.000	NJS\1N5239B	VR1
4010	1N5248B		DIODE,ZENER,18V,5%,500MW	EA	1.000	MOT\1N5248B	VR2
4500	73011		SOCKET,I.C.,8 PIN,ROUND	EA	1.000	CIN\8ICS	XU1
4510	73009		SOCKET,I.C.,6 PIN	EA	1.000	CAM\703-1306010410	XU2
5000	1001133-101	K	PWB,REGULATOR,MPLV	EA	1.000		1



ECN	DATE	REV
—	19Jun78	—
—	26Jun78	A
—	[illegible]	2
—	25-30	C
—	16-Nov01	D
—	24Mar81	E
—	AUG83	F
—	13AUG84	G
—	15Mar85	H
—	13Aug85	J
—	3Jul86	K
1706	21NOV88	L

NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
RESISTOR VALUES ARE OHMS
RESISTOR RATINGS ARE 1/4 WATT
CAPACITOR VALUES ARE MICROFARADS

2.0 THIS SCHEMATIC MAY REPRESENT MULTIPLE ASSEMBLIES. SEE APPROPRIATE PARTS LIST FOR FINAL COMPONENT VALUES.

REFERENCE DESIGNATIONS

LAST USED		NOT USED
C5	R9	R6,R8
CR4	U1	W1-W5
DS1	VR1	CR3
E19	W7	E12 THRU E18
		C1,C2

ITEM	PART NO.	DESCRIPTION	MARK	FIN	MATL
QTY. REQD.	PARTS LIST				

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING.
DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS.
ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
REMOVE ALL BURRS AND SHARP EDGES.
TOLERANCE: ± .010.

GEN USE
USED ON MODEL

DRAWN DWRoth DATE 19Jun78
CHKD DATE 15Nov88
MECH DATE 15Nov88
ELEC DATE

AMPLIFIER RESEARCH

SCHEMATIC DIAG REGULATOR MPLV

DWG. SCALE: NONE
DWG. NO. 1001098
REV. L
SHEET 1 OF 1

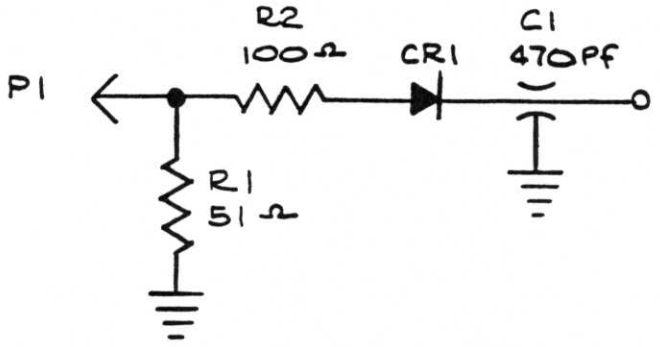
BILL NO: 1002823-507 REV: C U/M: EA DRAWING NO: ARC\1001097
REGULATOR ASSY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1001098	L	SCHEMATIC DIAGRAM,REGULATOR ASSY	EA	REF	ARC\1001098	
0410	27058		CAP,ELECT,1UF,50V,+/-20%,RADIAL	EA	1.000	PAN\ECEA1HU010	C4
0420	27063		CAP,ELECT,10UF,50V,+/-20%,AXIAL	EA	1.000	PAN\ECEB1HU100	C5
0700	1N5401		DIODE,3AMP,100V PIV	EA	2.000	SSM\1N5401	CR1 ,CR2
0710	1N5061		DIODE,RECTIFIER,1.5AMP,600V	EA	1.000	TEL\1N5061	CR4
1000	33002		LED,RED,WIDE-ANGLE,T1(3mm)	EA	1.000	H-P\HLMP-1002	DS1
2700	55612-1801J		RESISTOR,FXD,METAL FILM,1.8K,5%,1/4-1/2W	EA	2.000	TRW\GP55-1801+/-5%	R1 ,R5
2710	55923		RES,VAR,CERMET,MULTITURN,SIDE ADJ,100,10%,1/2W	EA	1.000	BOR\3299Z-1-101	R2
2720	55930		RESISTOR,VARIABLE,COMP,10K,10%,1/4W	EA	1.000	CTS\U201R103B	R3
2730	55612-8200J		RESISTOR,FXD,METAL FILM,820,5%,1/4-1/2W	EA	1.000	TRW\GP55-8200+/-5%	R4
2740	55718-R200J		RESISTOR,FXD,WW,0.2,5%,5W	EA	1.000	OHM\80055	R9
3700	60033		INTEGRATED CIRCUIT,LINEAR,POS.,ADJ.VOLTAGE,2A	EA	1.000	SGS\L200CV	U1
4000	1N52398		DIODE,ZENER,9.1V,5%,500MW	EA	1.000	NJS\1N5239B	VR1
4200	66047		WIRE,BUSS,TINNED COPPER,22 AWG	IN	3.000	ALP\9022	W7 ,W8 W9
4200	66139		TUBING,TEFLON,NAT'L COLR,20AWG,.034ID,.012WALL THK	IN	A/R	ALP\TFT200 20AWG	W7 ,W8 W9
5000	1001096-101	M	PWB,REGULATOR	EA	1.000	ARC\1001096	
5010	1001099-101	B	BRACKET,MOUNTING,MPLV REGULATOR	EA	1.000	ARC\1001099	
5020	69175		MOUNTING TAB,NAT'L COLOR NYLON,21/32 O/A,3/8 W	EA	1.000	PLM\A-30-167	
5020	77064		COMPOUND,THERMAL JOINT,TYPE 120	EA	A/R	WAK\120-S	
7100	11011		SCREW,MACH,PAN HD,CROSS-REC,S/S,4-40 X .38	EA	1.000		
7100	11020		SCREW,MACH,PAN HD,CROSS-REC,S/S,6-32 X .50	EA	4.000		
7100	11064		SCREW,MACH,FLT HD,100 DEG,CROSS-REC,S/S,6-32X.38	EA	1.000		
7300	13003		NUT,HEX,S/S,4-40,.187AF	EA	1.000		

BILL NO: 1002823-507 REV: C U/M: EA DRAWING NO: ARC\1001097
REGULATOR ASSY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
7300	13004		NUT,HEX,S/S,6-32,.250AF	EA	5.000		
7500	12000		WASHER,LOCK,INT TOOTH,S/S,#4	EA	1.000		
7500	12001		WASHER,LOCK,INT TOOTH,S/S,#6	EA	5.000		
7500	12010		WASHER,FLAT,S/S,#4,.250 OD X .125 ID X .028 THK	EA	1.000	\MS-15795-803	
7500	12011		WASHER,FLAT,S/S,#6,.312 OD	EA	5.000		
7500	12024		WASHER,FLAT,B/ZN PLTG,.312 OD X .164 ID X .125 THK	EA	4.000	\S785-M01-F21-.164	

ECN	DATE	REV
—	17MAR87	—



QTY. REQD.	ITEM	PART NO.	DESCRIPTION	MARK	FIN	MATL
		PARTS LIST				

UNLESS OTHERWISE SPECIFIED
- DO NOT SCALE DRAWING.
- DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS.
- ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
- REMOVE ALL BURRS AND SHARP EDGES.
- TOLERANCE: ±.010.

GEN.USE

USED ON MODEL

DRAWN J. VOGENBERG
DATE 17 MAR 87

CHKD
DATE 15 NOV 88

MECH
DATE 15 NOV 88

ELEC
DATE

AMPLIFIER RESEARCH

SCHEMATIC DIAG. DETECTOR ASSY

DWG. SCALE

DWG. NO. 1002997

REV. -

SHEET 1 OF 1

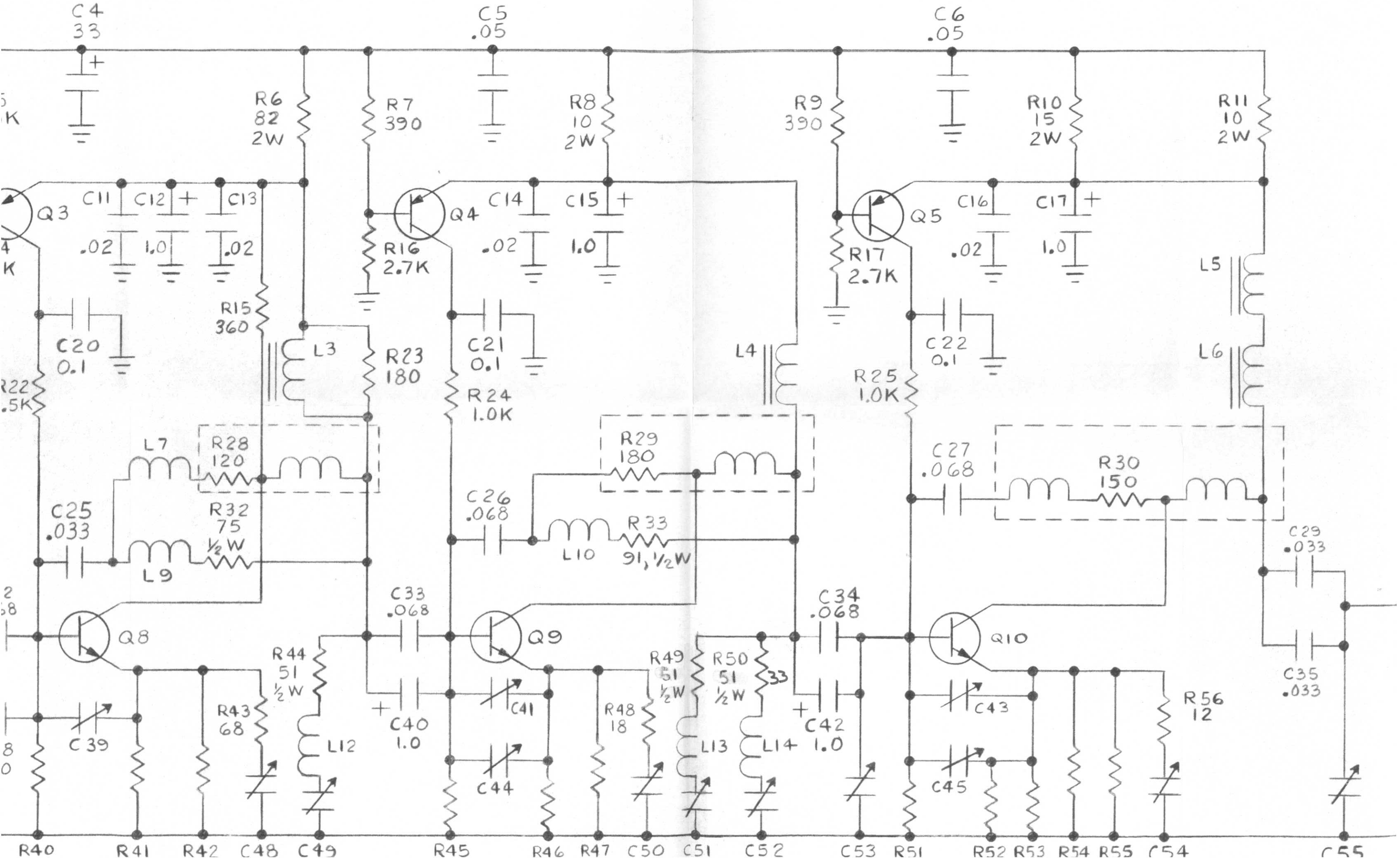
FORM119 REV0386

125098

BILL NO: 1001203-501 REV: C U/M: EA DRAWING NO: ARC\1001203
DETECTOR ASSEMBLY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1002997	-	SCHEMATIC DIAGRAM,DETECTOR ASSY	EA	REF	ARC\1002997	
0400	27097		CAP,FEED-THRU,FILTER,470PF,400V	EA	1.000	MET\FA5C-471GMV	C1
0700	30015		DIODE,1N82A,2V-3V,SELECTED SENSITIVITY	EA	1.000	MWA\IN82A	CR1
2200	41013		CONNECTOR,COAX,BNC,PLUG,RG-188A/U	EA	1.000	KIN\KC-59-152	P1
2700	55512-51R0J		RESISTOR,FXD,CARBON COMP,51,5%,1/4W	EA	1.000		R1
2710	55612-1000J		RESISTOR,FXD,METAL FILM,100,5%,1/4-1/2	EA	1.000	TRW\GP55-1000+/-5%	R2
4200	66151		WIRE,IRRADIATED,PVC,26 AWG,SOLID,RED	IN	A/R		W1
4200	66152		WIRE,IRRADIATED,PVC,26 AWG,SOLID,BLACK	IN	A/R		W1
4210	20004	-	CABLE ASSY,#22 AWG SHIELDED,10.0"	EA	1.000	ARC\1002571	W4
5000	1002464-102	-	CAN,MODIFIED	EA	1.000	ARC\1002464	1
5010	80002		COVER,HU5365 CAN	EA	1.000	HUC\HU5365CAST-HTD	2

J2
+28.0VDC
1.1AMP
C1
.004
W1
C2
.05
CR1
3A
100V
C3
.05
C4
33
R1
1.5K
R2
270
½W
R3
1.5K
R4
120
1W
R5
1.5K
Q1
C7
.02
C8
1.0
R12
2.7K
R13
2.7K
Q2
C9
.02
C10
1.0
Q3
C11
.02
C12
1.0
R14
2.7K
C18
0.1
C19
0.1
C20
0.1
R18
3.3K
L1
R19
300
R20
2.7K
L2
R21
180
R22
1.5K
C23
.033
R26
180
R27
120
C24
.033
R31
150 120
½W
L8
C25
.033
L7
L9
C28
.033
RFIN
P1
C30 .068
C36
L11
Q6
C31
.068
C37
1.0
Q7
C32
.068
Q8
R39
4.7
51
C38
1.0
C39
C46
R34
1.0K
R35
10
R36
10
R37
1.0K
R38
18
C47
2-18
R40
R41
R42


C4
33
C5
.05
C6
.05
R6
82
2W
R7
390
R8
10
2W
R9
390
R10
15
2W
R11
10
2W
Q3
C11
.02
C12
1.0
C13
.02
Q4
R16
2.7K
C14
.02
C15
1.0
Q5
R17
2.7K
C16
.02
C17
1.0
L5
L6
C20
0.1
R15
360
L3
R23
180
C21
0.1
R24
1.0K
L4
C22
0.1
R25
1.0K
L7
R28
120
R29
180
C27
.068
R30
150
C25
.033
R32
75
½W
L9
C26
.068
L10
R33
91, ½W
C29
.033
C35
.033
C33
.068
Q8
Q9
Q10
C34
.068
R44
51
½W
R43
68
L12
C40
1.0
C39
C41
C44
R48
18
R49
51
½W
R50
51
½W
33
L13
L14
C42
1.0
C43
C45
R56
12
R40
R41
R42
C48
C49
R45
R46
R47
C50
C51
C52
C53
R51
R52
R53
R54
R55
C54
C55

C5
.05

C6
.05

R7
390

R8
10
2W

R9
390

R10
15
2W

R11
10
2W

Q4

C14
.02

C15
1.0

Q5

C16
.02

C17
1.0

R16
2.7K

R17
2.7K

L5

L6

L3

R23
180

C21
0.1

C22
0.1

L4

R24
1.0K

R25
1.0K

R29
180

C26
.068

L10

R33
91, ½W

C27
.068

R30
150

C29
.033

C33
.068

Q9

C34
.068

Q10

RF OUT

W2

R44
51
½W

R49
51
½W

R50
51
½W

33

C35
.033

C40
1.0

C41

R48
18

L12

L13

L14

C42
1.0

C43

R56
12

C44

C45

C49

R45

R46

R47

C50

C51

C52

C53

R51

R52

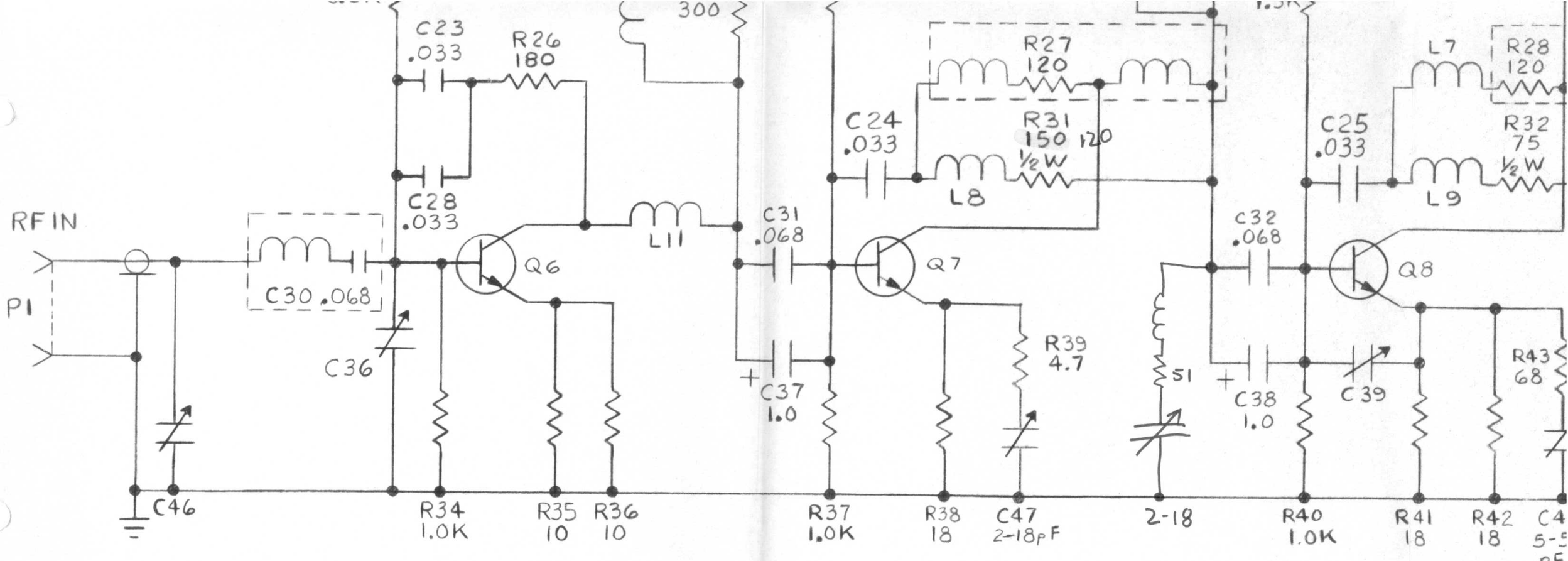
R53

R54

R55

C54

C55

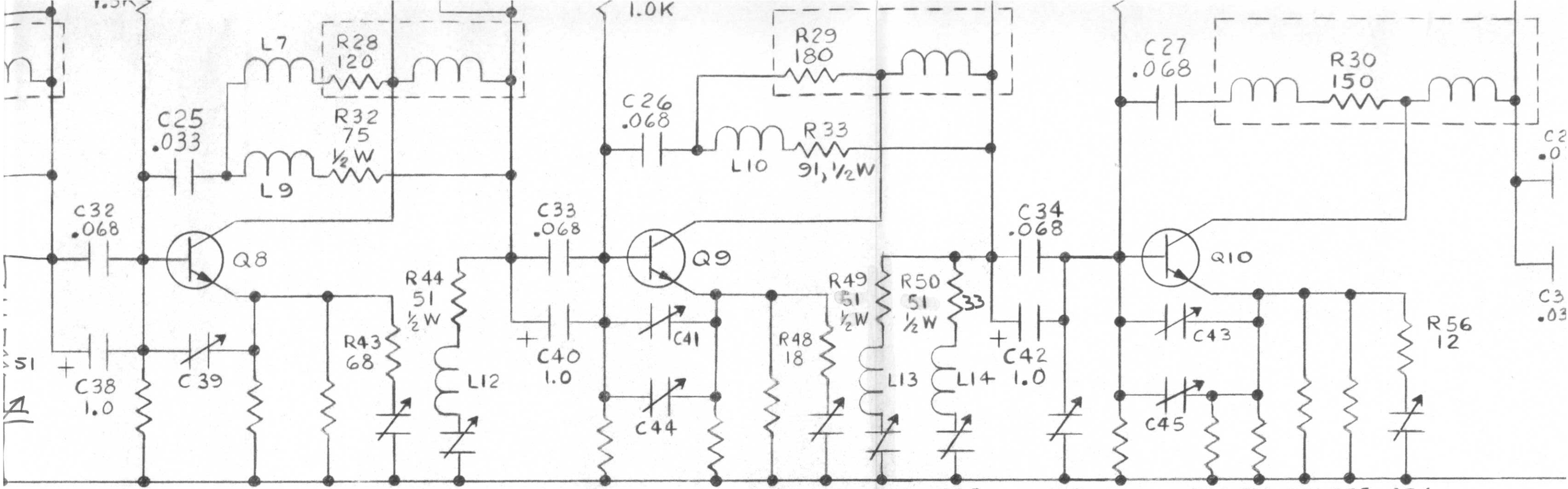


NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
RESISTOR VALUES ARE OHMS
RESISTOR RATINGS ARE 1/4 WATT
CAPACITOR VALUES ARE MICROFARADS
VARIABLE CAPACITORS ARE 1.5–4PF

2.0 THIS SCHEMATIC MAY REPRESENT MULTIPLE ASSEMBLIES. SEE APPROPRIATE PARTS LIST FOR FINAL COMPONENT VALUES.

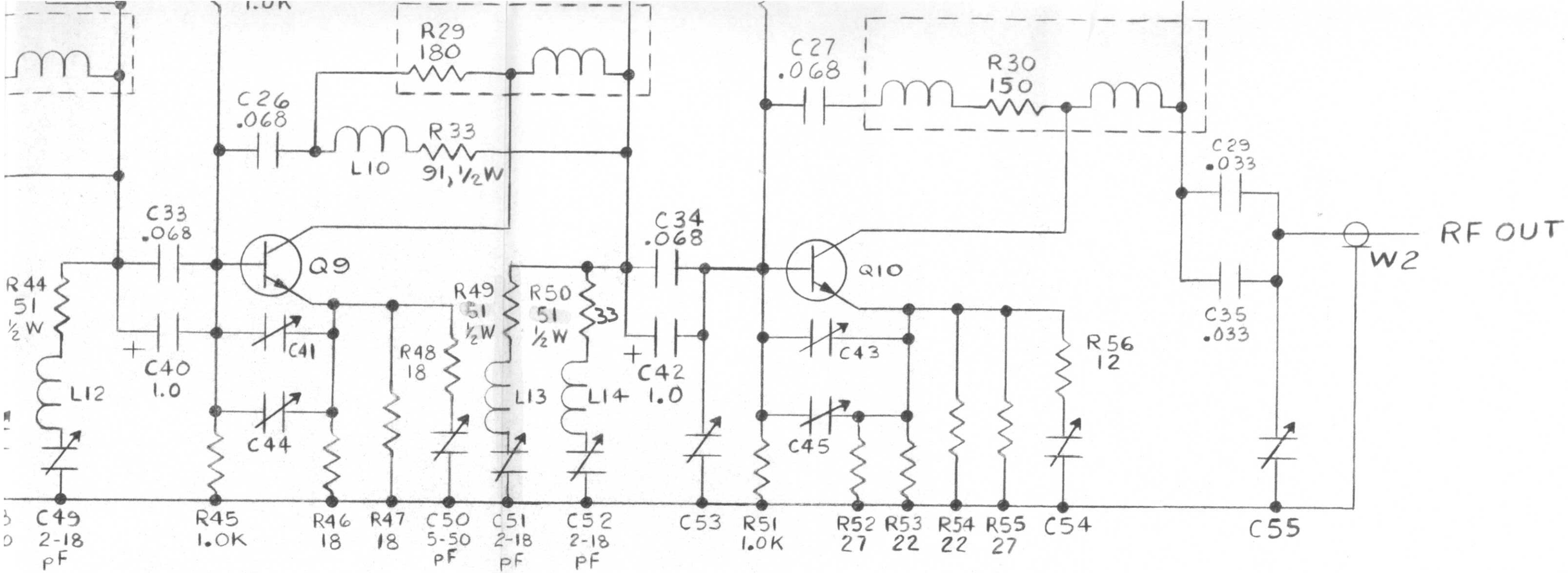
REFERENCE DESIGNATIONS	
LAST USED	NOT USED
J2 L18	J1
Q10 CR1	
C55 R56	
W2 P1	



-18	R40	R41	R42	C48	C49	R45	R46	R47	C50	C51	C52	C53	R51	R52	R53	R54	R55	C54
	1.0K	18	18	5-50 pF	2-18 pF	1.0K	18	18	5-50 pF	2-18 pF	2-18 pF		1.0K	27	22	22	27	

										ITEM	P
QTY. REQD.											
											DRAWN C. BU
											DATE
											CHKD
											DATE
											MECH
											DATE
											ELEC
10W1000M7											DATE
USED ON MODEL											

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING.
DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS.
ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
REMOVE ALL BURRS AND SHARP EDGES.
TOLERANCE: ±.010.



QTY. REQD.	ITEM	PART NO.	DESCRIPTION	MARK	FIN	MATL
		PARTS LIST				

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING.
DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS.
ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
REMOVE ALL BURRS AND SHARP EDGES.
TOLERANCE: ±.010.

10W1000M7
USED ON MODEL

DRAWN C. BICKELMAN DATE 5MAR87
CHKD DATE
MECH DATE 8APR87
ELEC DATE APRIL 8,87

AMPLIFIER RESEARCH

SCHEMATIC DIAG RF BOARD

DWG. SCALE: NONE
DWG. NO. 1003010
REV. —
SHEET 1 OF 1

BILL NO: 1003002-501 REV: D U/M: EA DRAWING NO: ARC\1003002
RF ASSY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1003010	-	SCHEMATIC DIAGRAM,RF BOARD ASSY	EA REF			
0100	1003006-501	B	RF BOARD ASSY	EA	1.000	ARC\1003006	A1
0110	1003003-501	-	RF BOARD ASSY	EA	1.000	ARC\1003003	A2
1500	20090	-	CABLE ASSY,COAX,RG-188A/U,BNC,9.0"	EA	1.000	ARC\1002494	P1
1510	20044	-	CABLE ASSY,COAX,RG-188A/U,5.5	EA	1.000	ARC\1002571	W2
5000	1000964-301	P	HEAT SINK	EA	1.000	ARC\1000964	4
5010	1000966-101	K	SHIELD	EA	4.000	ARC\1000966	6
5010	1000966-102	K	SHIELD	EA	1.000	ARC\1000966	7
5010	1000966-103	F	SHIELD	EA	1.000	ARC\1000966	8
5020	77064		COMPOUND,THERMAL JOINT,TYPE 120	EA A/R		WAK\120-S	9
5030	69162		CABLE TIES,7/8"MAX BUNDLE DIA,4"L	EA	1.000	DEN\08432	10
7100	11018		SCREW,MACH,PAN HD,CROSS-REC,ZN,6-32 X .38,TYPE SW	EA	66.000		1
7110	11011		SCREW,MACH,PAN HD,CROSS-REC,S/S,4-40 X .38	EA	2.000		2
7500	12022		WASHER,FLAT,B/ZINC PLTG,.312 OD X .164 ID X .060	EA	8.000	UNC\S-781-M01F05AG	3
7500	12023		WASHER,FLAT,B/ZN PLTG,.312 OD X .141 ID X .093 THK	EA	28.000	UNC\S-783-M01F05AG	5

BILL NO: 1003006-501 REV: B U/M: EA DRAWING NO: ARC\1003006
RF BOARD ASSY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
5000	1003007-501	E	PWB ASSY,RF	EA	1.000	ARC\1003006	
5000	1003008-501	B	RF COMPONENT KIT	EA	1.000	ARC\1003006	

BILL NO: 1003007-501 REV: E U/M: EA DRAWING NO: ARC\1003006
PWB ASSY,RF

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0400	27198		CAP,CERAMIC,0.1MF,+80-20%,100V,CHAR.Z5U	EA	6.000	MPC\EF104Z	C2 ,C3 C5 ,C6 C14 ,C16
0410	27051		CAP,TANT,33UF,35VDC	EA	1.000	MAL\TDC336K035WLG	C4
0420	27192		CAP,CERAMIC,.022MF,20%,25V,CHAR.Y5T	EA	4.000	MUE\CA223M	C7 ,C9 C11 ,C13
0430	27047		CAP,TANT,1UF,50V	EA	9.000	MAL\TDC105M050WLE	C8 ,C10 C12 ,C15 C17 ,C37 C38 ,C40 C42
0440	27196		CAP,CERAMIC,0.1MF,20%,25V,CHAR.Y5T	EA	5.000	MUE\CA-104M	C18 ,C19 C20 ,C21 C22
0450	27045		CAP,CERAMIC,.033UF,100VDC	EA	6.000	TCC\UEZ333M1	C23 ,C24 C25 ,C28 C29 ,C35
0460	27046		CAP,CERAMIC,.068UF,100V	EA	7.000	VIT\VP32BY683KB	C26 ,C27 C30 ,C31 C32 ,C33 C34
0470	27125		CAP,VARIABLE,CERAMIC,NP0,1.5-4PF,250V	EA	5.000	JDE\9371	C36 ,C46 C53 ,C54 C55
0480	27128		CAP,VARIABLE,2-18PF,250V	EA	4.000		C47 ,C49 C51 ,C52
0490	27129		CAP,VARIABLE,5-50PF,250V	EA	2.000	MEP\2810C5R550H	C48 ,C50
0700	1N5401		DIODE,3AMP,100V PIV	EA	1.000	SSM\1N5401	CR1
1800	49112	-	INDUCTOR,AIR,WOUND,012-03-05R0-A03-22-2	EA	1.000	ARC\1002503	L1
1805	49000	-	INDUCTOR,CORE,023-623X1-10-26-2-1	EA	2.000	ARC\1002497	L2 ,L3
1810	49001	-	INDUCTOR,CORE,023-612X1-09-26-2-1	EA	2.000	ARC\1002803	L4 ,L6
1820	49002	-	INDUCTOR,CORE,023-605X1-32-26-2-1	EA	1.000	ARC\1002803	L5
1850	49006	-	INDUCTOR,AIR,WOUND,012-04-04R0-A03-26-2	EA	2.000	ARC\1002503	L8 ,L10

BILL NO: 1003007-501 REV: E U/M: EA DRAWING NO: ARC\1003006
PWB ASSY,RF

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
1860	49007	-	INDUCTOR,AIR,WOUND,012-04-05R0-A03-26-2	EA	1.000	ARC\1002503	L9
1865	49005	-	INDUCTOR,AIR,WOUND,012-04-02R0-A03-22-2	EA	1.000	ARC\1002503	L12
1870	49008	-	INDUCTOR,AIR,WOUND,012-04-03R0-A03-26-2	EA	2.000	ARC\1002503	L13 ,L14
2500	2N3906		TRANSISTOR,SWITCHING,PNP,40V,0.2A,1W	EA	5.000	ARE\2N3906	Q1 ,Q2 Q3 ,Q4 Q5
2700	55612-1501J		RESISTOR,FXD,METAL FILM,1.5K,5%,1/4-1/2W	EA	4.000	TRW\GP55-1501+/-5%	R1 ,R3 R5 ,R22
2710	55612-2700J		RESISTOR,FXD,METAL FILM,270,5%,1/4-1/2W	EA	1.000	TRW\GP55-2700+/-5%	R2
2720	55514-1200J		RESISTOR,FXD,CARBON COMP,120,5%,1W	EA	1.000	A-B\GB1215	R4
2730	55515-82R0J		RESISTOR,FXD,CARBON COMP,82,5%,2W	EA	1.000	A-B\HB8205	R6
2740	55612-3900J		RESISTOR,FXD,METAL FILM,390,5%,1/4-1/2W	EA	2.000	TRW\GP55-3900+/-5%	R7 ,R9
2750	55515-10R0J		RESISTOR,FXD,CARBON COMP,10,5%,2W	EA	1.000	A-B\HB1005	R8
2760	55515-15R0J		RESISTOR,FXD,CARBON COMP,15,5%,2W	EA	1.000	A-B\15 OHM,5%,2W	R10
2765	55515-12R0J		RESISTOR,FXD,CARBON COMP,12,5%,2W	EA	1.000	A-B\HB1205	R11
2770	55612-2701J		RESISTOR,FXD,METAL FILM,2.7K,5%,1/4-1/2W	EA	6.000	TRW\GP55-2701+/-5%	R12 ,R13 R14 ,R16 R17 ,R20
2790	55612-3301J		RESISTOR,FXD,METAL FILM,3.3K,5%,1/4-1/2W	EA	1.000	TRW\GP55-3301+/-5%	R18
2800	55612-3000J		RESISTOR,FXD,METAL FILM,300,5%,1/4-1/2W	EA	1.000	TRW\GP55-3000+/-5%	R19
2810	55612-1800J		RESISTOR,FXD,METAL FILM,180,5%,1/4-1/2W	EA	2.000	TRW\GP55-1800+/-5%	R21 ,R23
2820	55612-1001J		RESISTOR,FXD,METAL FILM,1K,5%,1/4-1/2W	EA	7.000	TRW\GP55-1001+/-5%	R24 ,R25 R34 ,R37 R40 ,R45 R51
2830	55612-1500J		RESISTOR,FXD,METAL FILM,150,5%,1/4-1/2W	EA	1.000	TRW\GP55-1501+/-5%	R31
2840	55612-75R0J		RESISTOR,FXD,METAL FILM,75,5%,1/4-1/2W	EA	1.000	TRW\GP55-75R0+/-5%	R32
2850	55612-91R0J		RESISTOR,FXD,METAL FILM,91,5%,1/4-1/2W	EA	1.000	TRW\GP55-91R0+/-5%	R33

BILL NO: 1003007-501 REV: E U/M: EA DRAWING NO: ARC\1003006
PWB ASSY,RF

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
2860	55512-10R0J		RESISTOR,FXD,CARBON COMP,10,5%,1/4W	EA	2.000	A-B\CB1005	R35 ,R36
2870	55512-18R0J		RESISTOR,FXD,CARBON COMP,18,5%,1/4W	EA	4.000	A-B\CB1805	R38 ,R41 R42 ,R48
2880	55512-4R70J		RESISTOR,FXD,CARBON COMP,4.7,5%,1/4W	EA	1.000	A-B\CB4765	R39
2890	55512-6R80J		RESISTOR,FXD,CARBON COMP,6.8,5%,1/4W	EA	1.000	A-B\CB6865	R43
2900	55513-51R0J		RESISTOR,FXD,CARBON COMP51,5%,1/2W	EA	3.000		R44 ,R49 R50
2910	55512-36R0J		RESISTOR,FXD,CARBON COMP,36,5%,1/4W	EA	10.000	A-B\CN3605	R46 ,R47 R52 ,R53 R54 ,R55 R57 ,R58 R59 ,R60
2920	55512-12R0J		RESISTOR,FXD,CARBON COMP,12,5%,1/4W	EA	1.000	A-B\CB1205	R56
4200	66047		WIRE,BUSS,TINNED COPPER,22 AWG	IN	5.000	ALP\9022	W1 ,2
4200	66139		TUBING,TEFLON,NAT'L COLR,20AWG,.034ID,.012WALL THK	IN A/R		ALP\TFT200 20AWG	W1
5000	1000866-101	C	PWB,RF BOARD	EA	1.000	ARC\1000866	1

BILL NO: 1003008-501 REV: B U/M: EA DRAWING NO: ARC\1003006
RF COMPONENT KIT

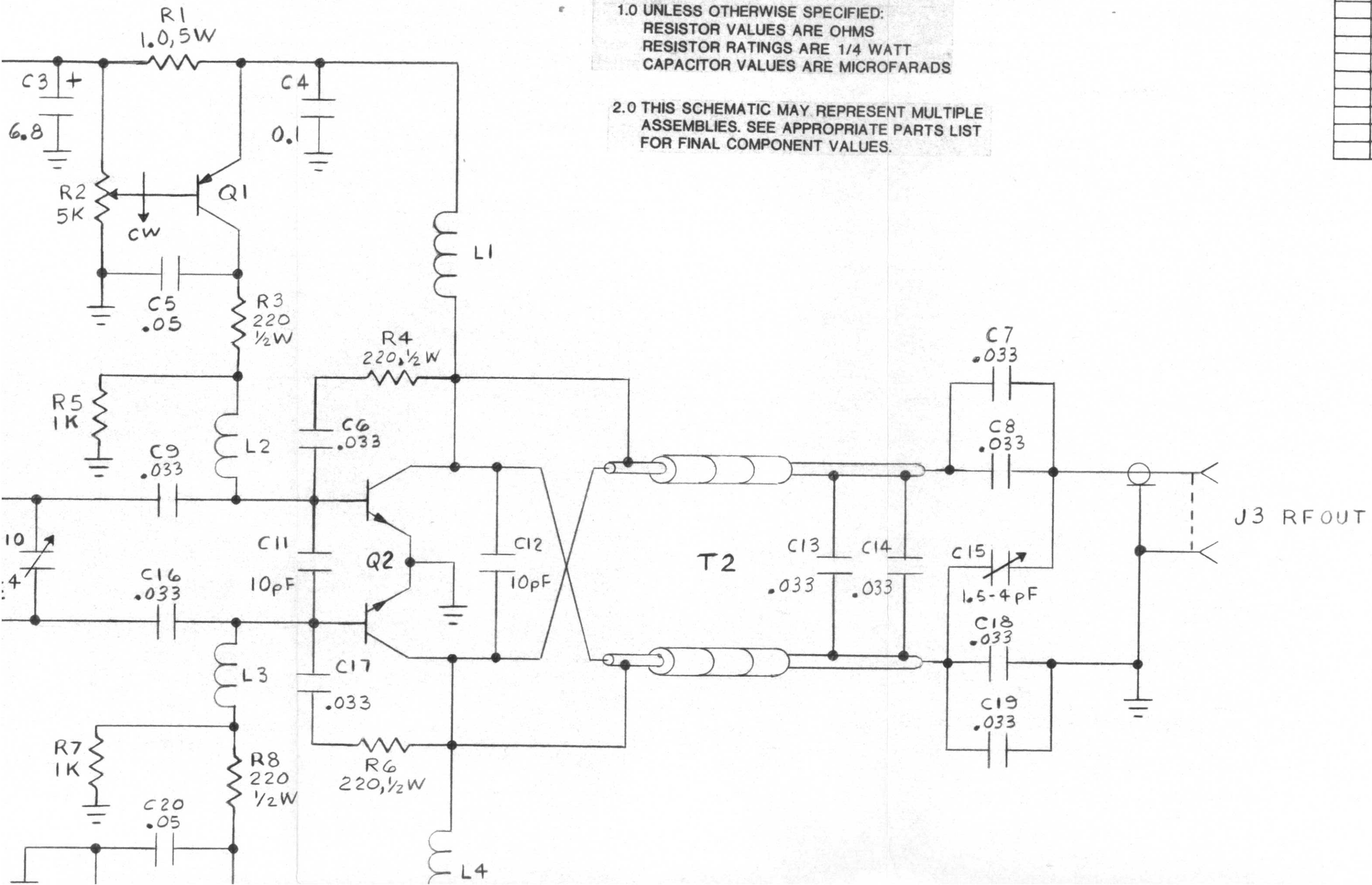
SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0400	27100		CAP,FEED-THRU,FILTER,.004UF,500V	EA	1.000	TXS\FR3-50	C1
0410	27125		CAP,VARIABLE,CERAMIC,NP0,1.5-4PF,250V	EA	5.000	JDE\9371	C39 ,C41 C43 ,C44 C45
1500	41110		SOCKET,PIN,.040 PIN-THRU HOLE	EA	1.000	CON\09-9002-1-04	J2
1800	49003	-	INDUCTOR,AIR,WOUND,012-02-02R0-B03-26-2	EA	1.000	ARC\1002503	L7
1810	77103		STRIP,COPPER,.125 W X .008 THK	IN	0.500		L11
2500	1000034-125	AF	TRANSISTOR,RF,HI POWER	EA	1.000	ARC\1000034	Q6
2510	1000034-158	AL	TRANSISTOR,RF,.370,8-32 STUD	EA	2.000	ARC\1000034	Q7 ,Q8
2520	1000034-130	AL	TRANSISTOR,RF,HI POWER	EA	1.000	ARC\1000034	Q9
2530	1000034-137	AL	TRANSISTOR,RF,HI POWER	EA	1.000	ARC\1000034	Q10
2700	55612-3600J		RESISTOR,FXD,METAL FILM,360,5%,1/4-1/2W	EA	1.000	TRW\GP55-3600+/-5%	R15
2710	55612-1200J		RESISTOR,FXD,METAL FILM,120,5%,1/4-1/2W	EA	2.000	TRW\GP55-1200+/-5%	R27 ,R28
2710	55612-1800J		RESISTOR,FXD,METAL FILM,180,5%,1/4-1/2W	EA	2.000	TRW\GP55-1800+/-5%	R26 ,R29
2720	55612-1500J		RESISTOR,FXD,METAL FILM,150,5%,1/4-1/2W	EA	1.000	TRW\GP55-1501+/-5%	R30

ECN	DATE	REV
—	5 MAR 87	—

NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
RESISTOR VALUES ARE OHMS
RESISTOR RATINGS ARE 1/4 WATT
CAPACITOR VALUES ARE MICROFARADS

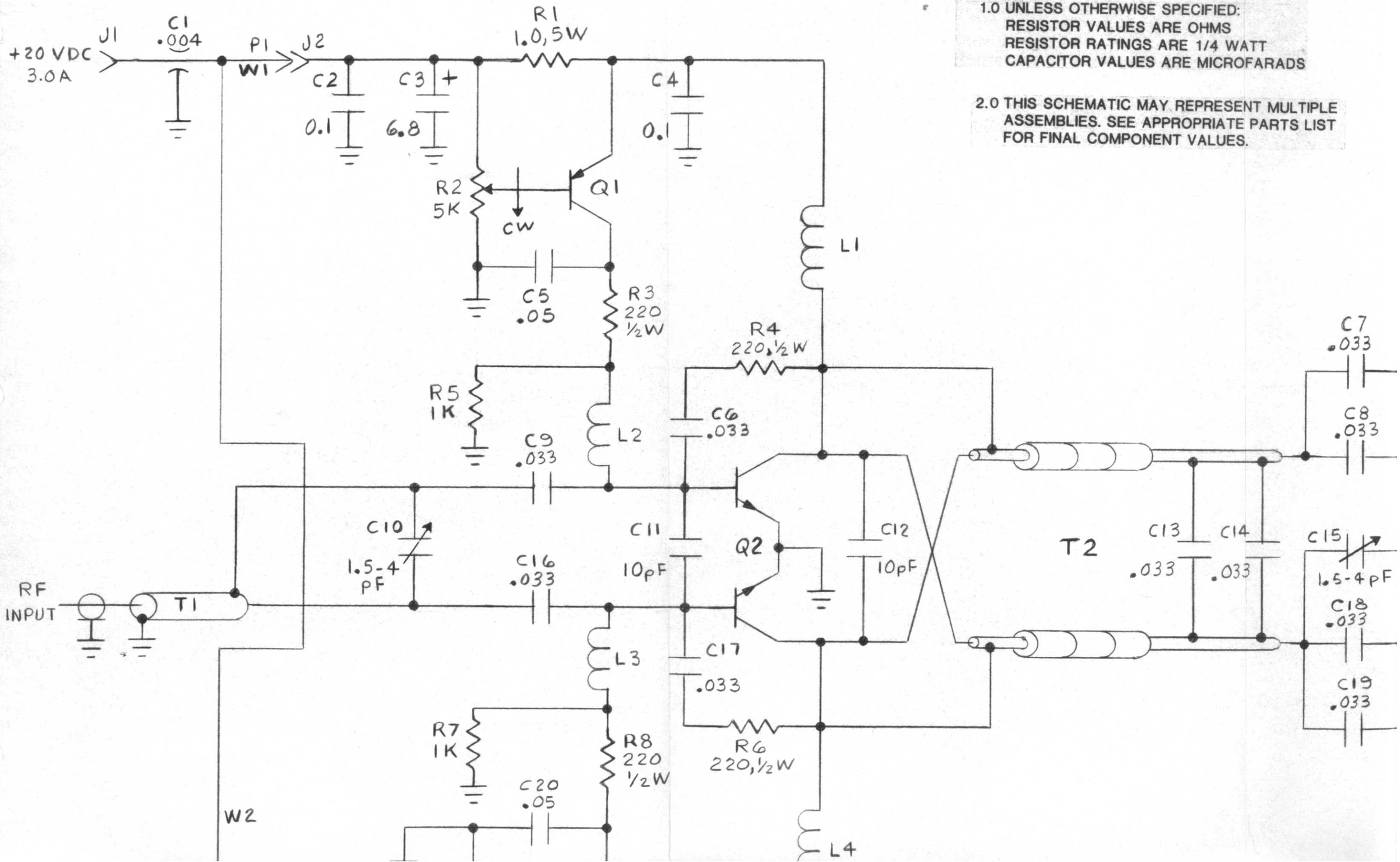
2.0 THIS SCHEMATIC MAY REPRESENT MULTIPLE ASSEMBLIES. SEE APPROPRIATE PARTS LIST FOR FINAL COMPONENT VALUES.

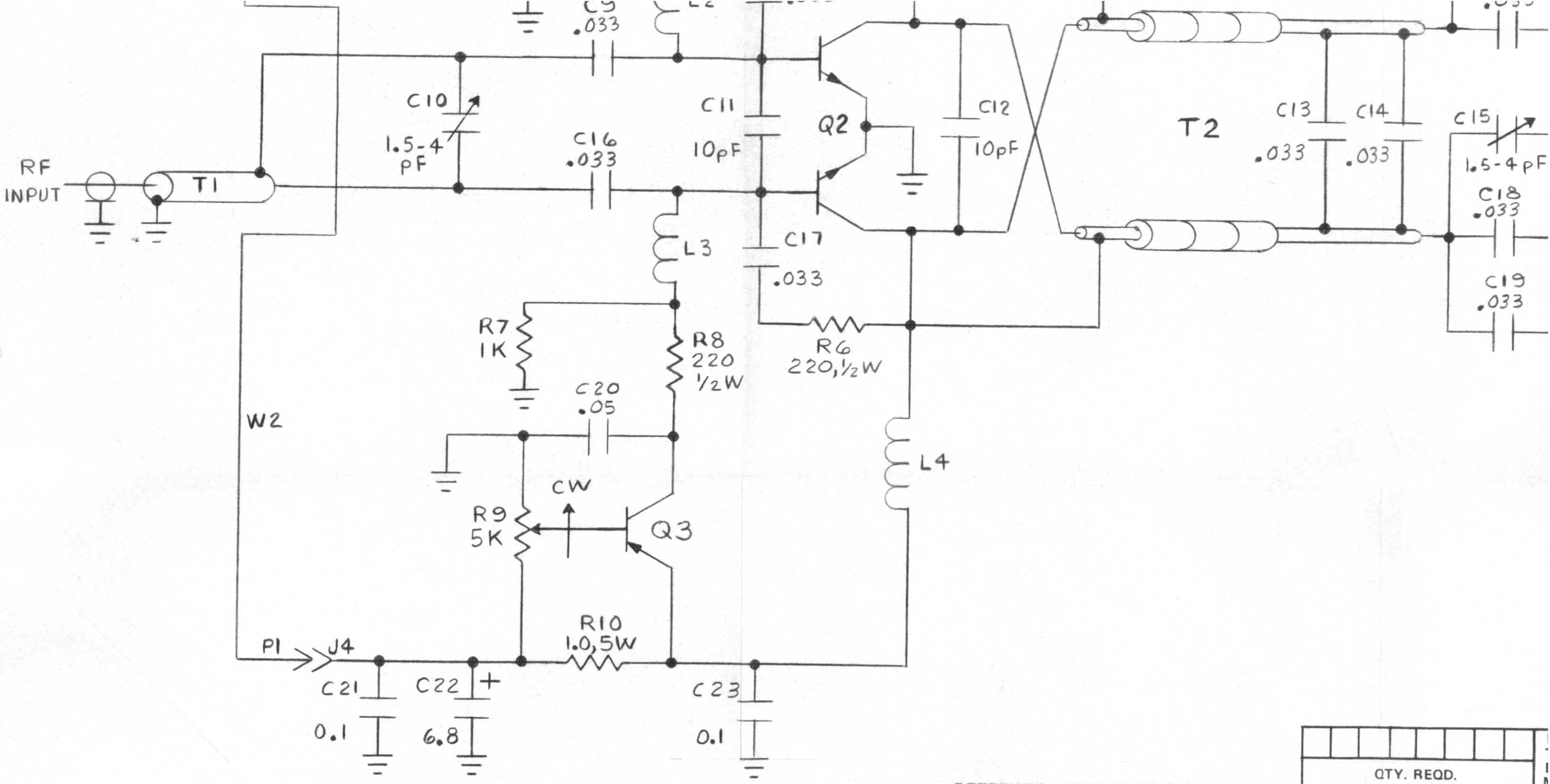


NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
RESISTOR VALUES ARE OHMS
RESISTOR RATINGS ARE 1/4 WATT
CAPACITOR VALUES ARE MICROFARADS

2.0 THIS SCHEMATIC MAY REPRESENT MULTIPLE ASSEMBLIES. SEE APPROPRIATE PARTS LIST FOR FINAL COMPONENT VALUES.





REFERENCE DESIGNATIONS

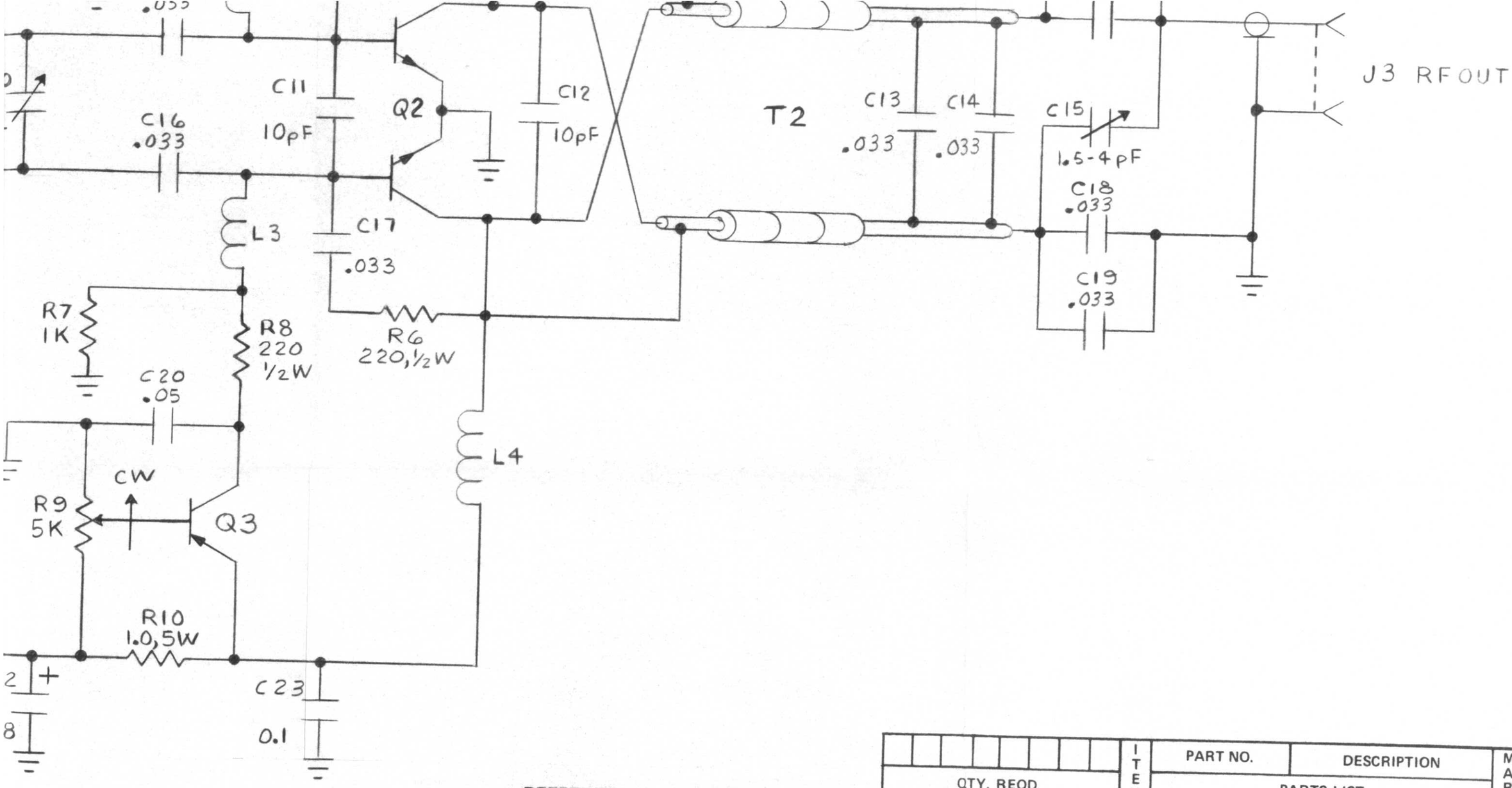
LAST USED	NOT USED
L4	C23
J4	R10
Q3	T2
P1	W2

QTY. REQD.
10W1000M7
USED ON MODEL

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING.
DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS.
ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
REMOVE ALL BURRS AND SHARP EDGES.
TOLERANCE: ± .010.

129970

FORM 162 REV 1286



REFERENCE DESIGNATIONS

LAST USED	NOT USED
L4	C23
J4	R10
Q3	T2
P1	W2

QTY. REQD.	ITEM	PART NO.	DESCRIPTION	MARK	FIN	MATL
		PARTS LIST				

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING.
DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS.
ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
REMOVE ALL BURRS AND SHARP EDGES.
TOLERANCE: ±.010.

10W1000M7
USED ON MODEL

DRAWN C. BICKELMAN
DATE 5 MAR 87
CHKD
DATE
MECH
DATE 8 APR 87
ELEC
DATE 4/8/87

AMPLIFIER RESEARCH

SCHEMATIC DIAG
RF BOARD

DWG. SCALE: NL
DWG. NO. 1003009
REV. —
SHEET 1 OF 1

BILL NO: 1003003-501 REV: - U/M: EA DRAWING NO: ARC\1003003
RF BOARD ASSY

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0010	1003009	-	SCHEMATIC DIAGRAM,RF BOARD ASSY	EA	REF		
5000	1003004-501	B	PWB ASSY,RF	EA	1.000		
5000	1003005-501	A	RF COMPONENT KIT	EA	1.000		

BILL NO: 1003004-501 REV: B U/M: EA DRAWING NO:
PWB ASSY,RF

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0400	27196		CAP,CERAMIC,0.1MF,20%,25V,CHAR.Y5T	EA	4.000	MUE\CA-104M	C2 ,C4 C21 ,C23
0410	27055		CAP,TANT,6.8UF,50V	EA	2.000	MAL\TDC685K050NLF	C3 ,C22
0420	27195		CAP,CERAMIC,0.05UF,20%,25V,CHAR.Y5T	EA	2.000	MUE\CA503M	C5 ,C20
0430	27045		CAP,CERAMIC,.033UF,100VDC	EA	6.000	TCC\UEZ333M1	C7 ,C8 C13 ,C14 C18 ,C19
0440	27046		CAP,CERAMIC,.068UF,100V	EA	2.000	VIT\VP32BY683KB	C9 ,C16
0450	27125		CAP,VARIABLE,CERAMIC,NP0,1.5-4PF,250V	EA	2.000	JDE\9371	C10 ,C15
0460	27029		CAP,CHIP,10PF,10%,500V	EA	1.000	DIL\C17AH100K4TXL	C11
1500	20006	-	CABLE ASSY,COAX,RG-142B/U,N,10.0	EA	1.000	ARC\1002494	J3
1510	41110		SOCKET,PIN,.040 PIN-THRU HOLE	EA	2.000	CON\09-9002-1-04	J2 ,J4
1800	49161	-	INDUCTOR,AIR,WOUND,012-03-07R0-A04-22-2	EA	4.000	ARC\1002503	L1 ,L2 L3 ,L4
2500	54506		TRANSISTOR,SWITCHING,PNP,40V,2A,10W	EA	2.000	MOT\MPS-U51A	Q1 ,Q3
2700	55718-1R00J		RESISTOR,FXD,WW,1.0,5%,5W	EA	2.000	OHM\4530\95J1R0	R1 ,R10
2710	55918		RES,VAR,CERMET,MULTITURN,TOP ADJ,5K,10%,1W	EA	2.000	MEP\8024EKW502	R2 ,R9
2720	55612-2200J		RESISTOR,FXD,METAL FILM,220,5%,1/4-1/2W	EA	2.000	TRW\GP55-2200+/-5%	R3 ,R8
2730	55612-1001J		RESISTOR,FXD,METAL FILM,1K,5%,1/4-1/2W	EA	2.000	TRW\GP55-1001+/-5%	R5 ,R7
3200	1000643-402	C	CORE,FERRITE,BEAD,CMD5005	EA	12.000	ARC\1000643	T1 ,T2
3210	66094		WIRE,MICRO COAX,50 OHM,COPPER JCKT,PTFE-FEP DIE.MT	IN	A/R	COM\UT47	T1
3220	66104		WIRE,COAX,SEMI-RIGID,25 OHM	IN	A/R	COM\DE25038	T2
5000	1002120-101	-	PWB,RF BOARD	EA	1.000	ARC\1002120	1
5010	66122		TUBING,SHRINKABLE,BLACK,1.00 EXP,.500 REC	IN	A/R	REM\FIT-221 1"EXP	

BILL NO: 1003005-501 REV: A U/M: EA DRAWING NO:
RF COMPONENT KIT

SEQ	PART NUMBER	REV	D E S C R I P T I O N	U/M	QUANTITY-PER	DRAWING NUMBER	CRCT-DSGN
0400	27100		CAP,FEED-THRU,FILTER,.004UF,500V	EA	1.000	TXS\FR3-50	C1
0410	27045		CAP,CERAMIC,.033UF,100VDC	EA	2.000	TCC\UEZ333M1	C6 ,C17
0420	27029		CAP,CHIP,10PF,10%,500V	EA	1.000	DIL\C17AH100K4TXL	C12
1500	41110		SOCKET,PIN,.040 PIN-THRU HOLE	EA	1.000	CON\09-9002-1-04	J1
2500	1000034-150	AL	TRANSISTOR,RF,HI POWER,BALANCED	EA	1.000	ARC\1000034	Q2
2700	55612-2200J		RESISTOR,FXD,METAL FILM,220,5%,1/4-1/2W	EA	2.000	TRW\GP55-2200+/-5%	R4 ,R6
5000	20043	-	CABLE ASSY,22 AWG,PIN,5.0	EA	2.000	ARC\1002575	W1 ,W2

160 School House Road, Souderton, PA 18964-9990 USA
TEL 215-723-8181 • TWX 510-661-6094 • FAX 215-723-5688

WARRANTIES: LIMITATION OF LIABILITY

Seller warrants (i) that seller has title to the goods sold and (ii) that the goods will be free from defects in material and workmanship for a period of one (1) year from date of shipment shown on Amplifier Research invoice. Seller's sole responsibility in fulfilling these warranties shall be to repair or replace any goods which do not conform to the foregoing warranties or, at seller's option, to give buyer credit for defective goods. Warranty service will be provided only for defective goods which are returned within the warranty period, freight costs prepaid, to Amplifier Research or its designated repair facility.

THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS. SELLER SHALL NOT BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM ANY BREACH OF WARRANTY.

No person other than an officer of Amplifier Research Corporation, has any authority to bind seller to any affirmation, representation or warranty except as specifically included in the preceding terms and conditions.

AMPLIFIER RESEARCH

MODEL NO. 10W1000M7
SERIAL NO. 10359
TESTED BY J.A.V.
DATE 7/26/90

TEST DATA SHEET

FREQ (MHz)	POWER OUTPUT @ 1dB COMPRESSION (WATTS)	POWER OUTPUT SATURATED (WATTS) @ * dBm INPUT
.1	—	—
.2	—	—
.5	—	—
1	—	—
5	—	—
10	—	—
50	—	—
100	>12.7	12.7 +2 dBM
200	>14.5	14.5 +2
300	>16.3	16.3 +2
400	>13.9	13.9 +2
500	>12.8	12.8 +2
600	11.8	13.4 +2
700	>12.3	12.3 +2
800	>10.3	10.3 +2
900	>10.4	10.4 +2
1000	8.1	10.7 +2

GAIN 46 dB @ 4.3 WATTS OUTPUT @ 500MHz

FLATNESS ± 1.5 dB
OPEN TEST √OK
SHORT TEST √OK
STABILITY √OK

DISTORTION -20 dBC Max
INPUT VSWR 2.0 : 1.0
OUTPUT VSWR —
REMOTE CONTROL OPERATION N/A (✓)

10W1000M7
S/N 10359

1000892
REV0989