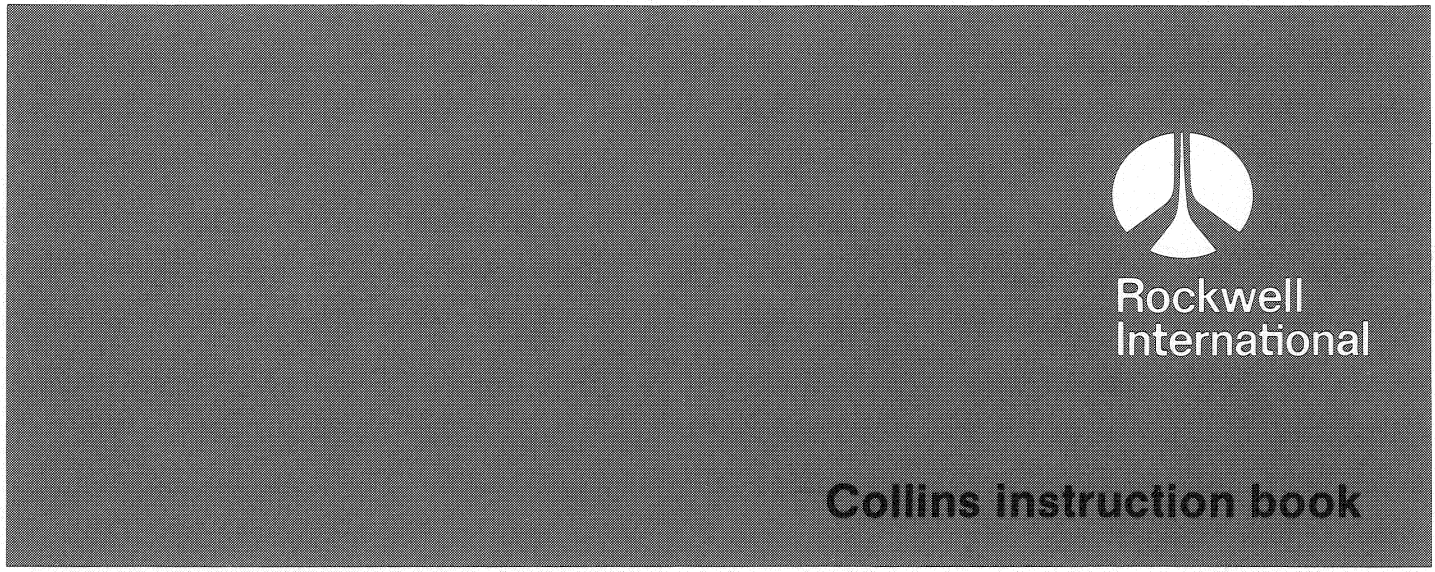


Collins Government Telecommunications Group

Collins 51S-1/1A/1F/1AF/1B Receiver

523-0097000-00B211
11th Edition, 15 September 1975

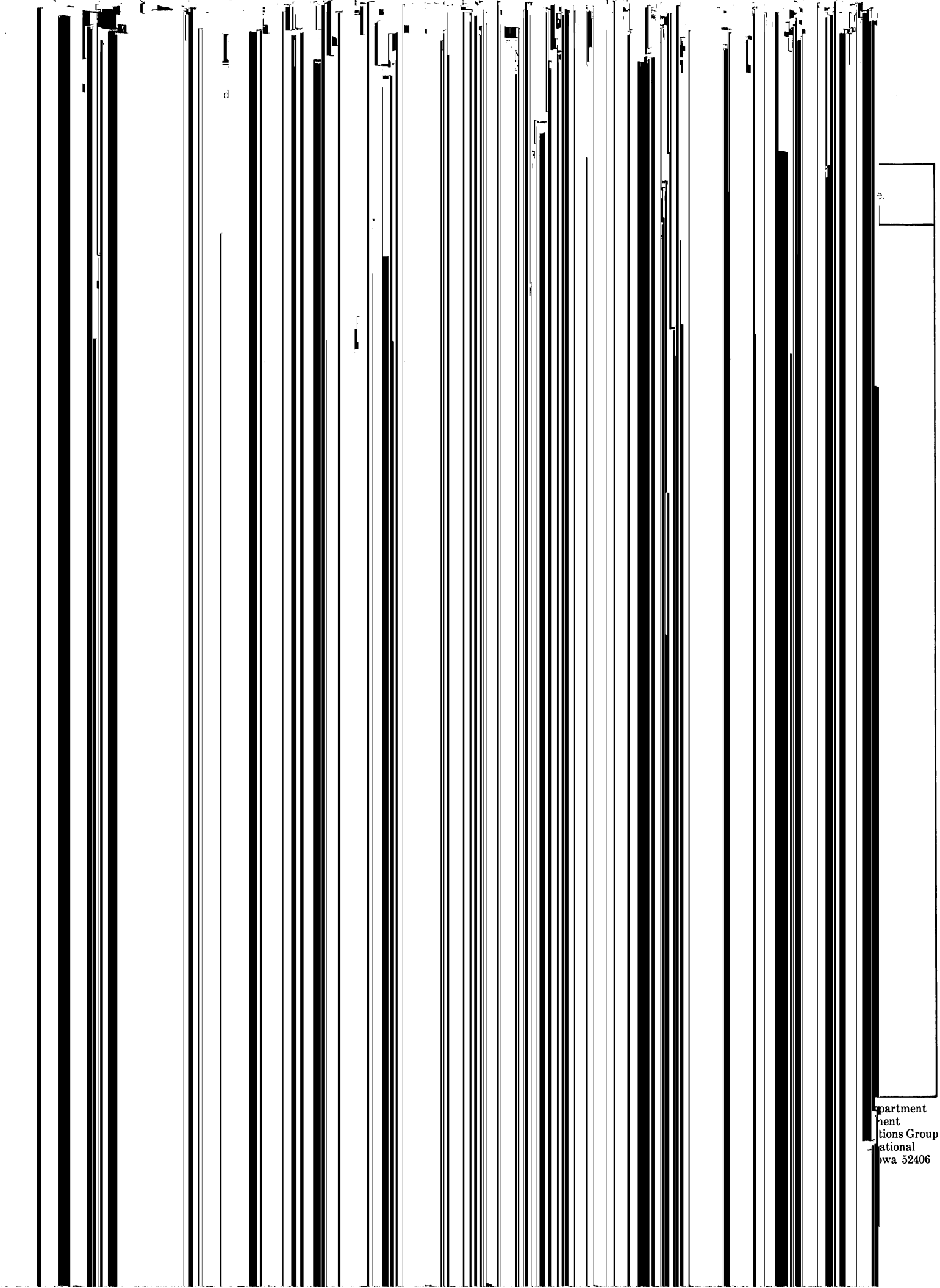
Rockwell
International

Collins instruction book

Collins 51S-1/1A/1F/1AF/1B Receiver

Collins Government
Telecommunications Group
Rockwell International
Cedar Rapids, Iowa 52406

Printed in the United States of America



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Record of Revisions

RETAIN THIS RECORD IN THE FRONT OF MANUAL.
ON RECEIPT OF REVISIONS, INSERT REVISED PAGES IN THE MANUAL, AND ENTER DATE INSERTED AND INITIALS.

REV NO	REVISION DATE	INSERTION DATE	BY	REV NO	REVISION DATE	INSERTION DATE	BY
8th Ed	1 Sep 69						
9th Ed	1 Jul 69						
10th Ed	15 Jan 74						
11th Ed	15 Sep 75						

table of contents

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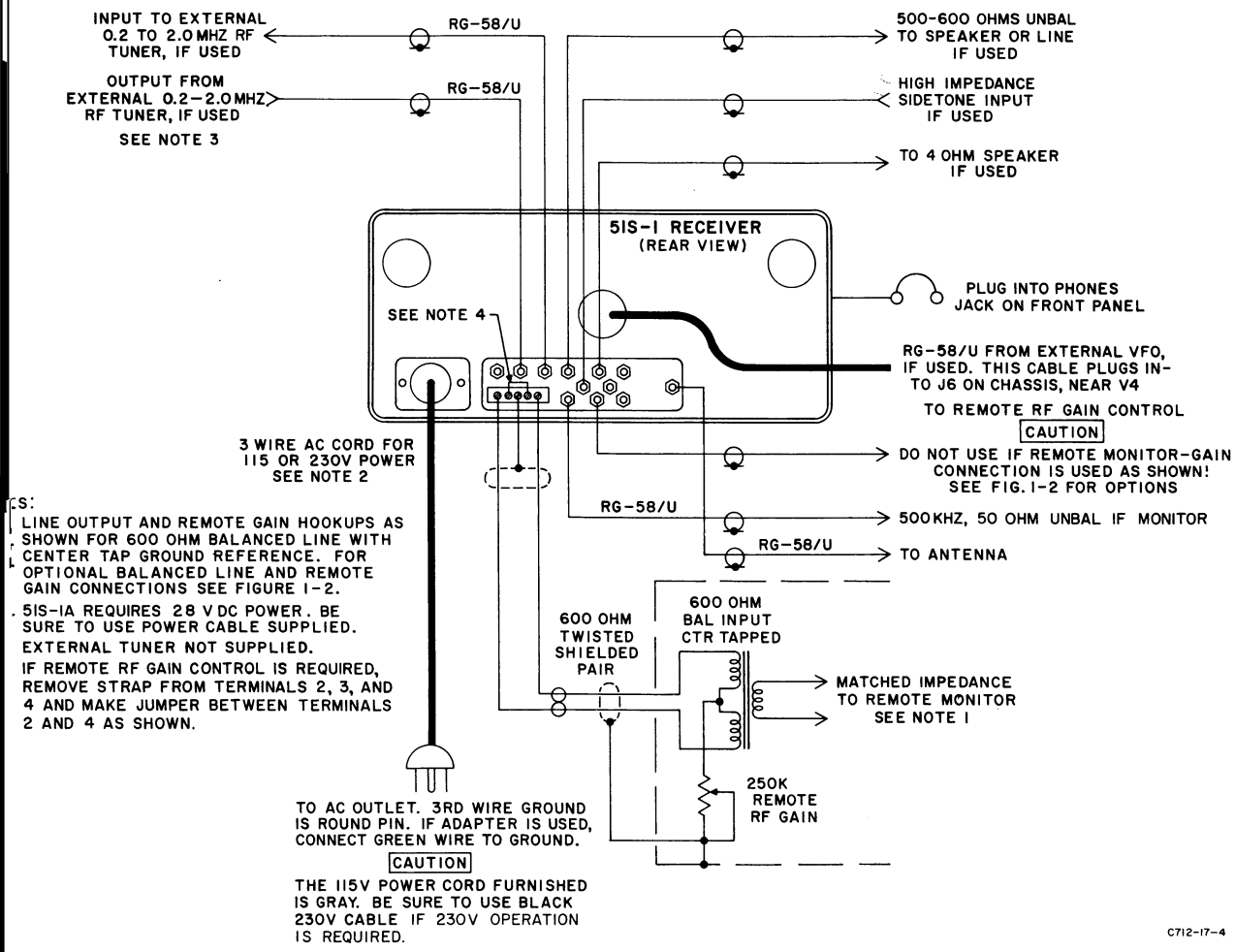

Figure 1-1. External Connections to 51S-1/1A/1F/1AF

ion 1
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or 115-volt
or 230-volt

h a phono-
n the rear
ped with a
nect the
UNBAL on

connector
l PHONES
earphones
nnected to
o the 600Ω
y plugging

S-1 is pro-
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should be

51S-1B

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ockmount.
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fits into a
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the front
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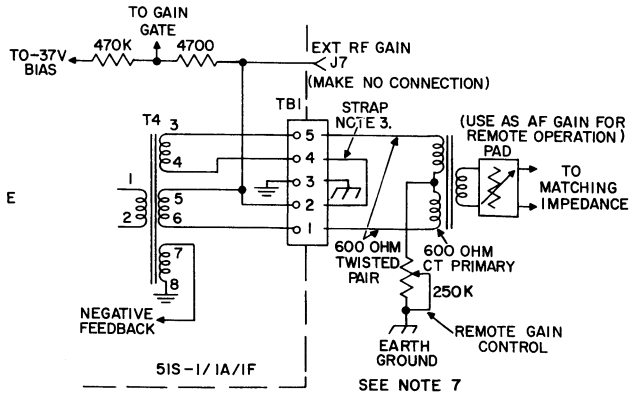
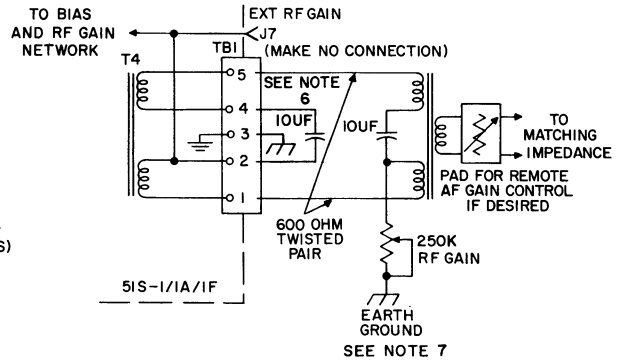


B. 600 OHM BAL CONNECTION WITH CT GROUND REFERENCE AND REMOTE GAIN CONTROL.



D. 600 OHM BAL 2-WIRE CONNECTIONS WITH REMOTE RF GAIN

WILL BLOCK THE 51S-1/1A/1F, J7 MUST BE SHORTED TO GROUND

AY BE MOUNTED ON COMMON PANEL OR BOX.

RNED TO GROUND THRU TRANSFORMER WINDINGS AND EXTERNAL WILL BLOCK THE RECEIVER.

ATCH MONITOR OR LINE.

AIN CONTROL IS NOT REQUIRED, GROUND SLIDER TO EARTH.

PAIR AND MAKE GROUND CONNECTION TO BOTH ENDS OF SHIELD.

C712-20-5

Gain Control Options for 51S-1/1A/1F/1AF

hen muting is being used, the
AL switch on the front panel
be in the STBY position.

ipped with a SIDETONE input
ear of the chassis. Audio-
oring signals may be injected
all EMISSION switch settings
jack mates with a phono plug.

als of the terminal block on the
-1 provide a 600-ohm balanced
a telephone line or a remote
ngement. Refer to figures 1-1
1-2 shows various options for

O Connection

jack, J6, labeled EXT VFO, is
assis near the vfo subassembly.
switching type which opens its
plug is inserted. With no plug
signal is connected to the last
an external signal is plugged
vfo signal is disconnected and
nal is substituted. This allows
external stabilized master os-
proved stability, precise cali-
ed-channel selection purposes.

Note

al signal source is used, such
master oscillator or crystal-
lator, the injection frequency
3.5 and 2.5 MHz. In addition,
be tuned to the desired channel
each change in injection fre-
nect the vfo B+ line to prevent
urious response and shunt the
external signal source with a
e to provide a low-resistance
cathode current of mixer V4A.

ith a miniature phone plug, such
(manufacturer's catalog no.

external
t-receive
-1B, the
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4.4.13 for

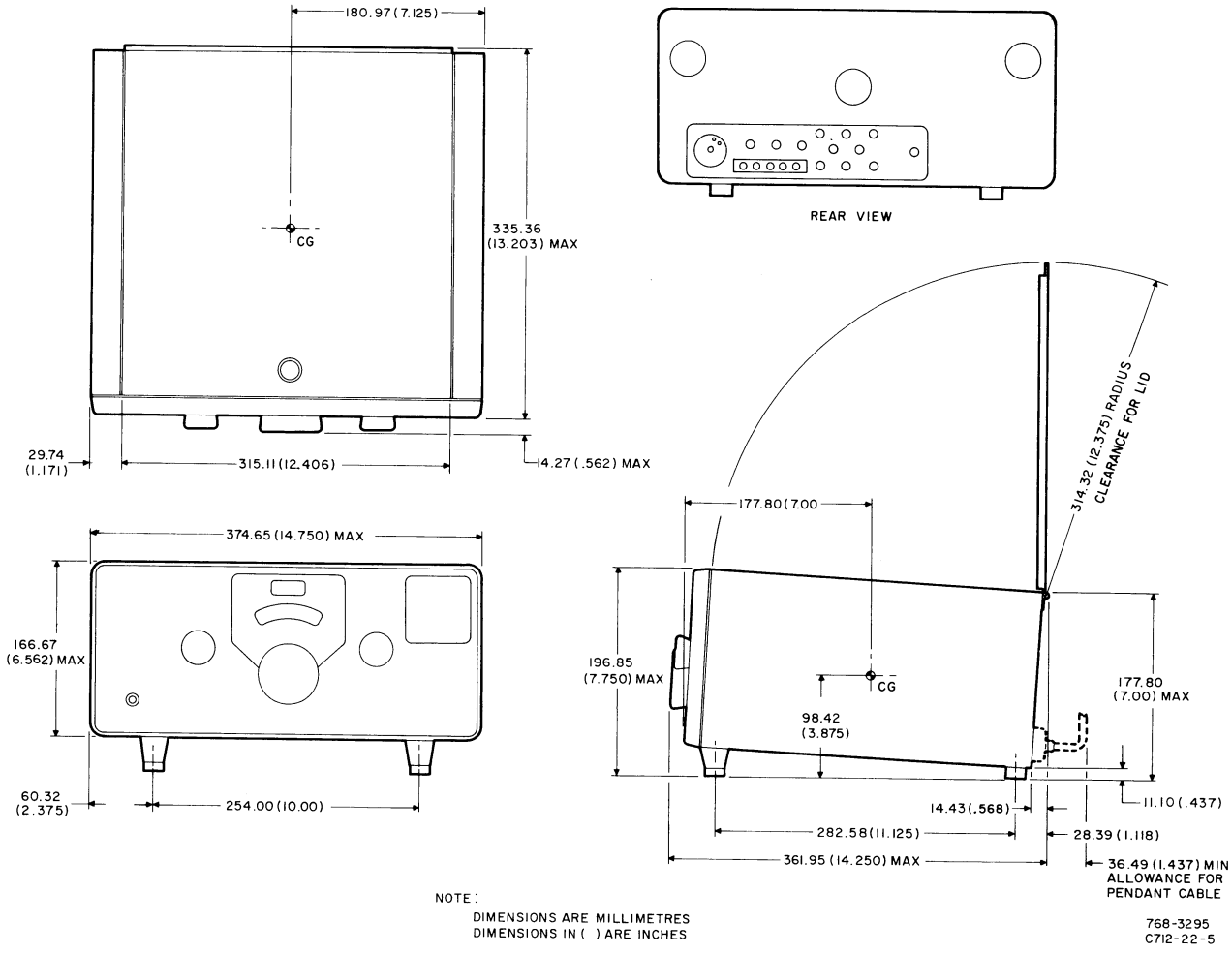


Figure 1-3. 51S-1/1A Receiver, Outline and Mounting Dimensions

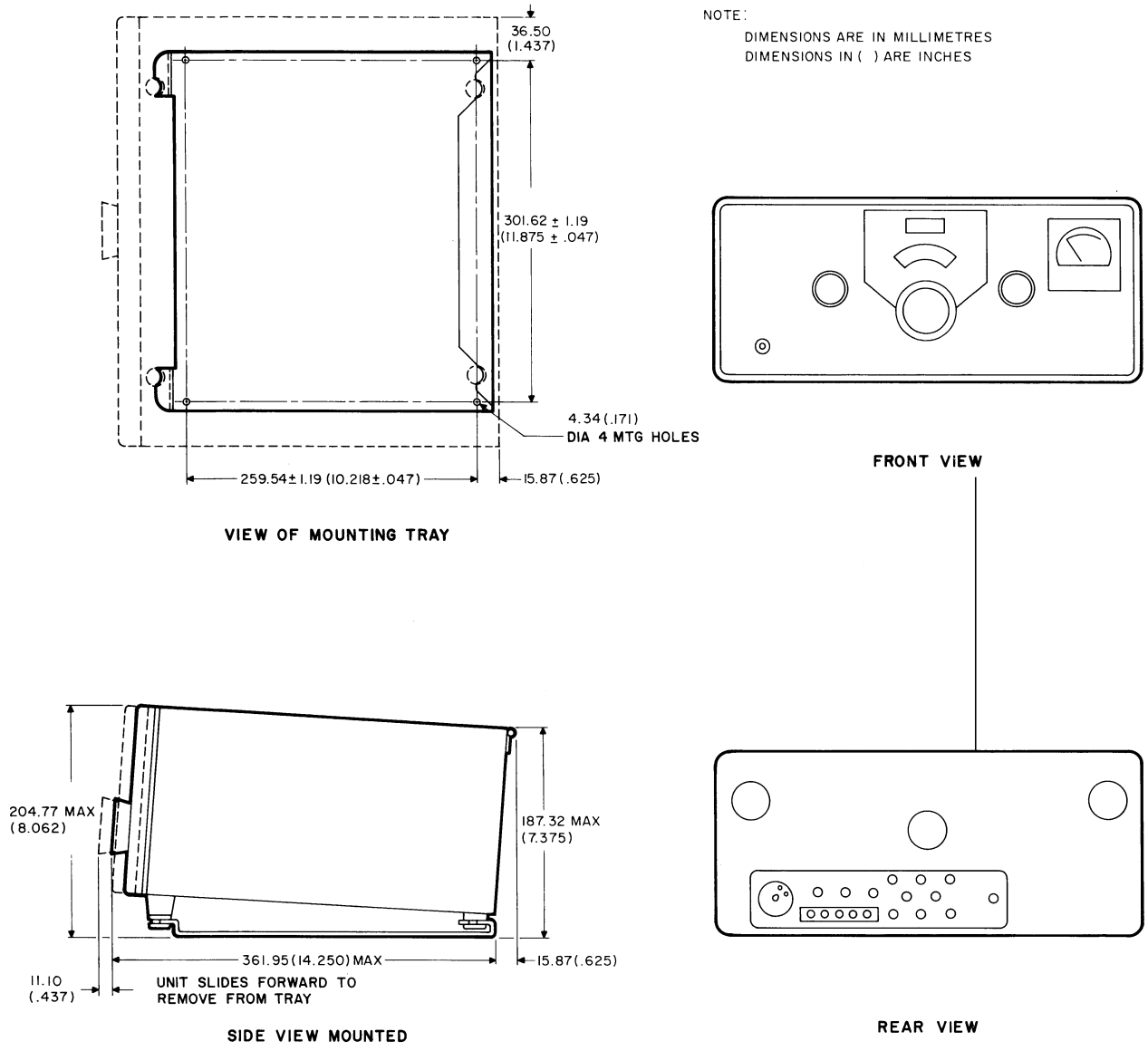


Figure 1-4. 51S-1/1A Receiver, Outline and Mounting Dimensions with 351E-4 Mount

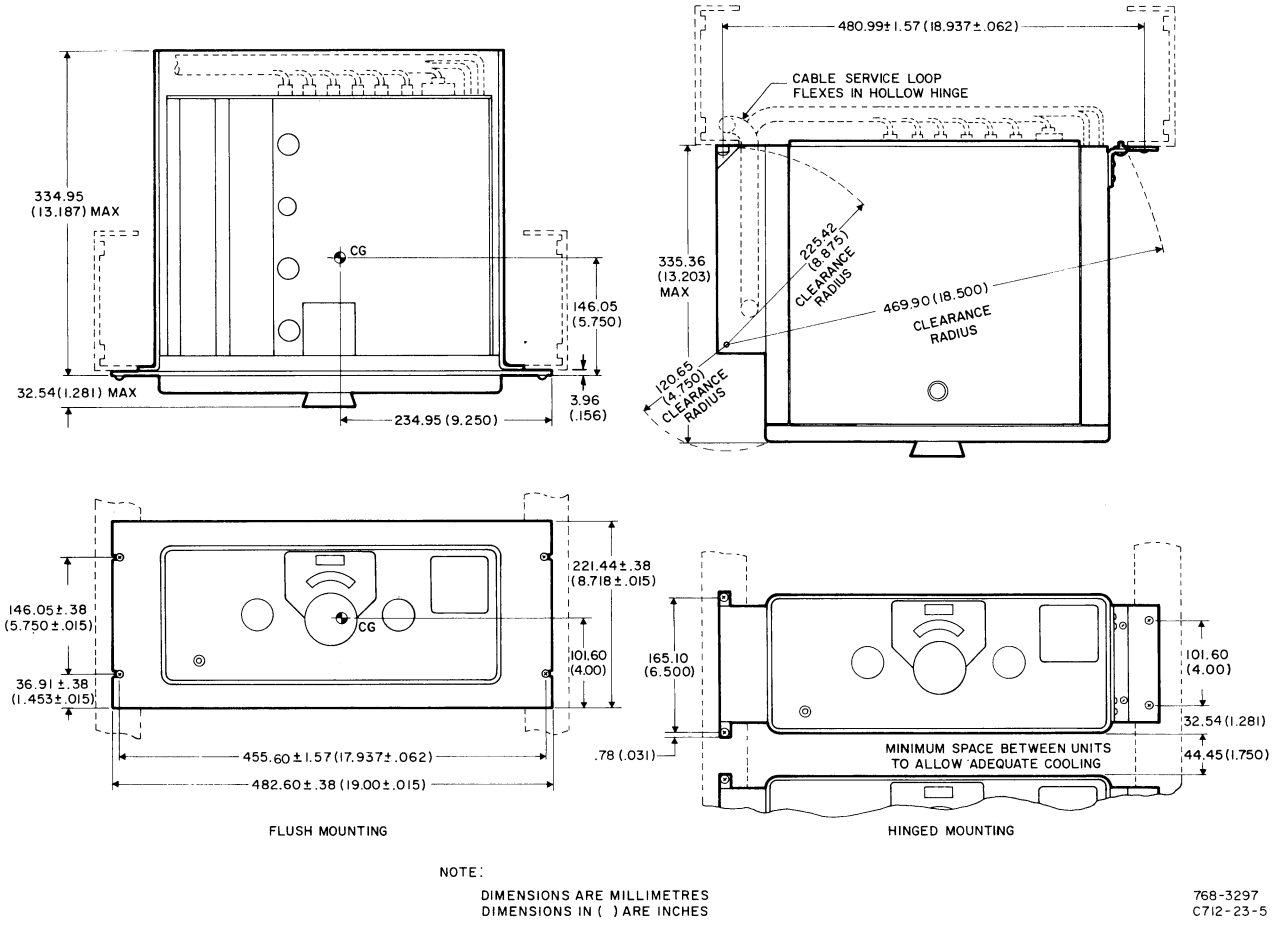
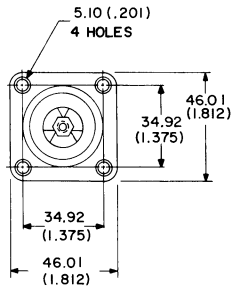


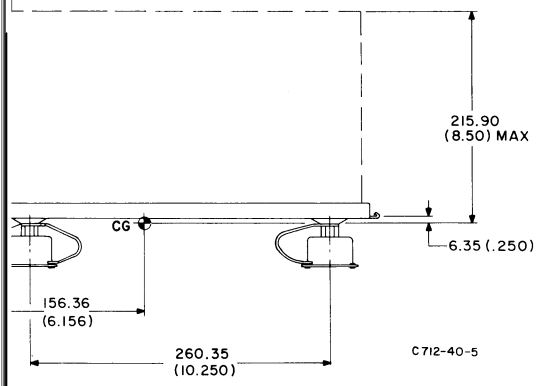
Figure 1-5. 51S-1F/1AF Rack Mount and 51S-1/1A Hinged Mount, Outline and Mounting Dimensions

SHOCKMOUNT FEET DIMENSIONS



R SHOCKMOUNT TRAY, LOADED, IS 9.52 (.375)
S ONLY WHEN ADAPTER PLATE IS MOUNTED ON

kg (1.70 LB.)
N MILLIMETRES
ARE INCHES



ons with 350D-5 Base Shockmount

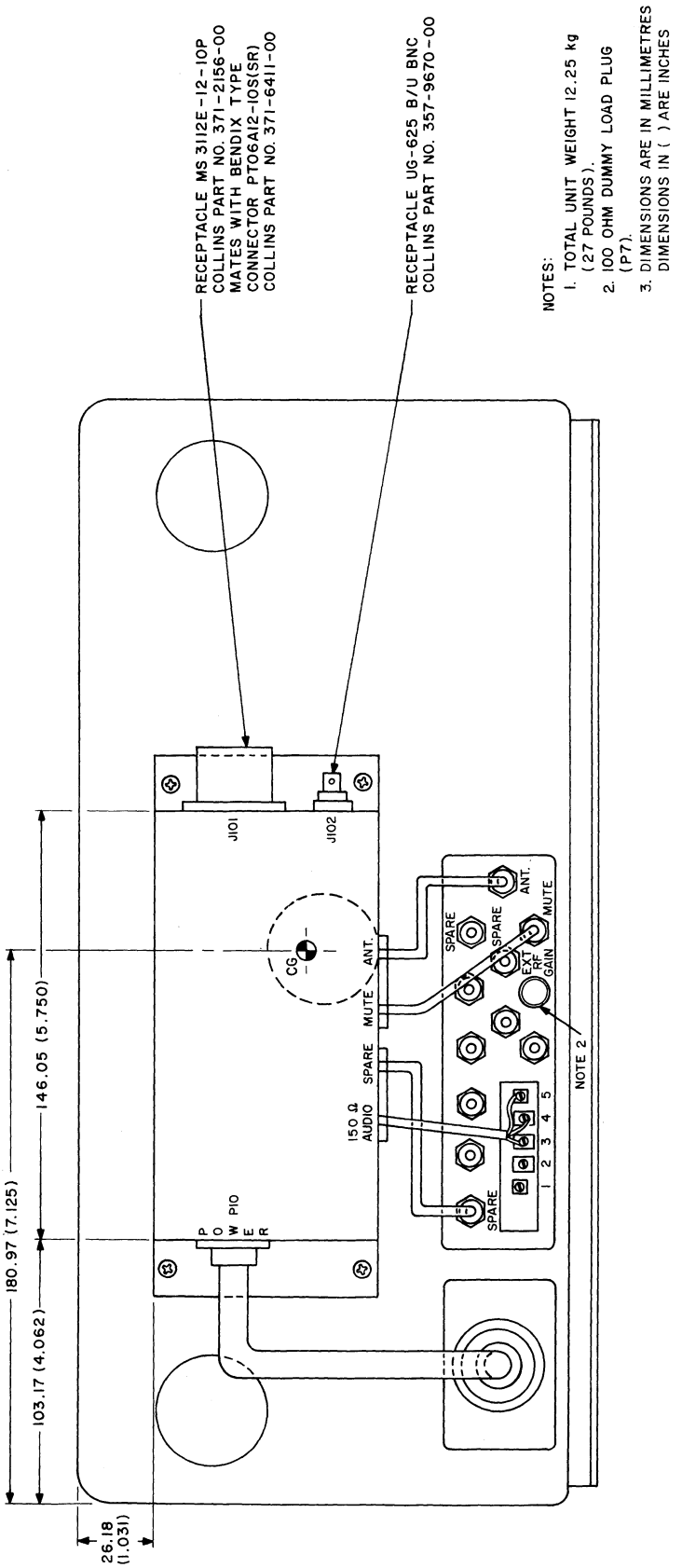


Figure 1-7. 51S-1B Receiver, Installation Details

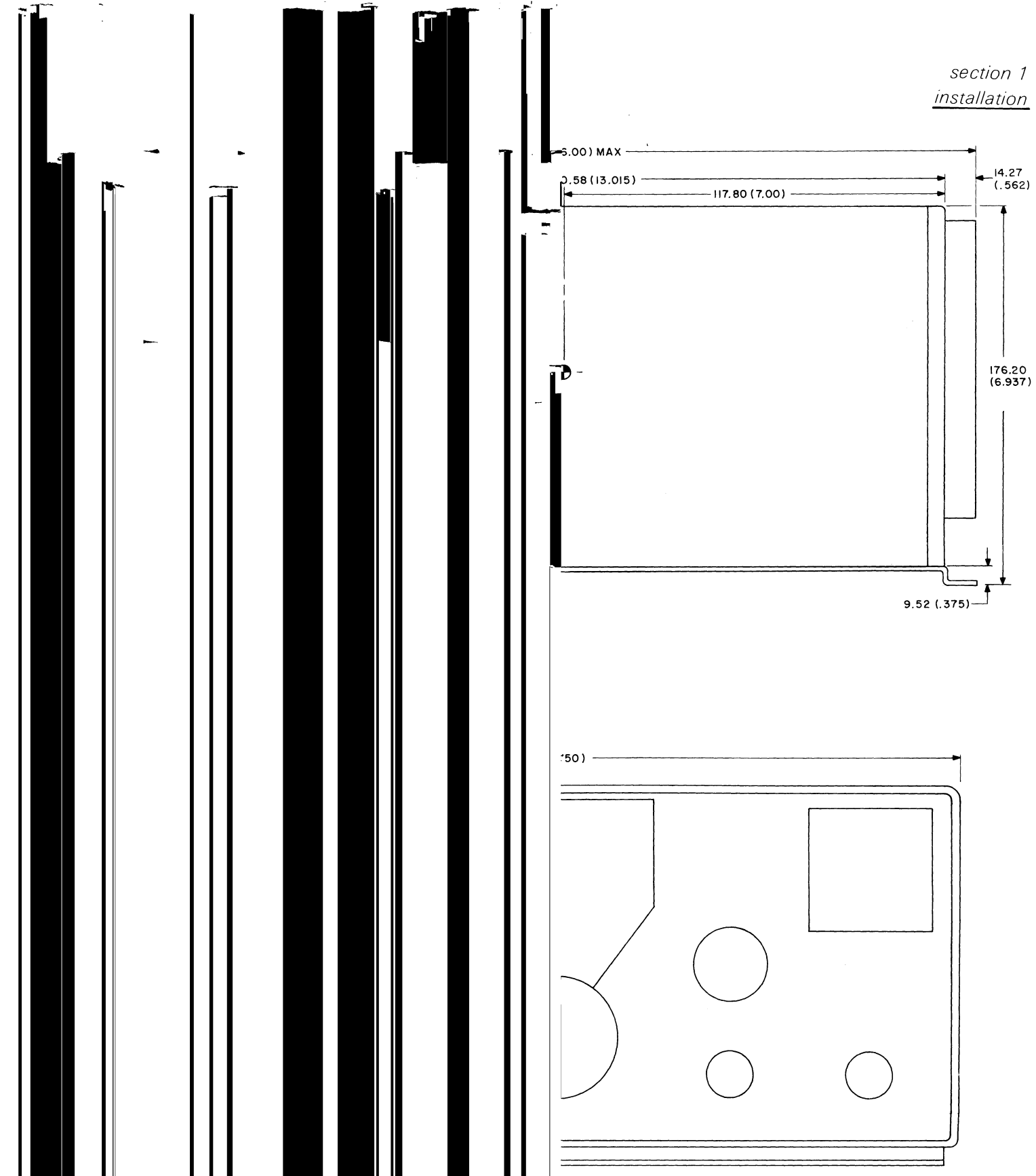

5.00) MAX
0.58 (13.015)
117.80 (7.00)
14.27
(.562)
176.20
(6.937)
9.52 (.375)
50)

Table 1-1. Items Supplied with Receiver

UANTITY	WITH MODEL	ITEM DESCRIPTION	COLLINS PART NUMBER
	*51S-1/1F/1B	Power cable kits, 115/230 volts ac	See table 1-2
	51S-1A/1AF	Power cable, 28 volts dc	548-8245-00
	51S-1A/1AF	Fuse, 6 amperes	264-4100-00
	51S-1/1A/1F/1AF/1B	Bristol wrench #4	024-2900-00
	51S-1/1A/1F/1AF/1B	Bristol wrench #6	024-9730-00
	51S-1/1A/1F/1AF/1B	Bristol wrench #6	024-0167-00
	51S-1/1A/1F/1AF/1B	Bristol wrench #8	024-0019-00
	51S-1/1A/1F/1AF/1B	Phono plugs	361-0062-00
	51S-1/1A/1F/1AF/1B	6-volt pilot lamp bulb #47	262-3240-00
	51S-1/1A/1F/1AF/1B	6-volt pilot lamp bulb #44	262-3220-00
	51S-1F/1AF	12 24 x 5/8-inch screws	348-0008-00
	51S-1F/1AF	10 32 x 1/2-inch screws	319-0165-00
	51S-1F/1AF	Finishing washers	310-0092-00
	51S-1F/1AF	Finishing washers	310-0086-00
	51S-1/1A/1F/1AF/1B	Alignment tool	547-2796-002
	51S-1/1A/1F/1AF/1B	Instruction book	523-0097-000

5-volt ac power cable kit, CPN 554-7055-00, is supplied with 51S-1B.

Table 1-2. Power Cable Kits Available for 51S-1/1F

QUANTITY	DESCRIPTION	COLLINS PART NUMBER
	115-VOLT AC POWER CABLE KIT	554-7055-00
1	Power cable	547-2795-00
1	Adapter plug	368-0138-00
2	Fuse, 1.5 amperes	264-0007-00
	230-VOLT AC POWER CABLE KIT	554-7056-00
1	Power cable	547-2674-00
3	Fuse 0.75 ampere	264-4270-00

section 2
operation

ilohertz dial. See
· indicated is 5.295

CEPTION

)N CAL switch to

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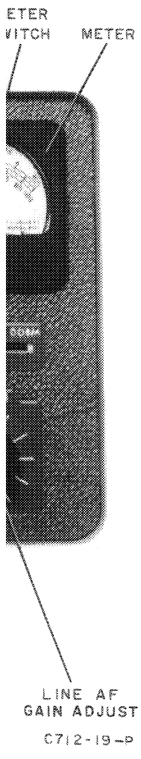
;ahertz counter cor-
and.



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'UNING con-
settings will
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fading are
nals may be
N switch to
the desired

carrier and proceeding as in paragraph 2.3, steps f, g, and h. Move the EMISSION switch to either USB or LSB, whichever results in the better reception.

2.6 CALIBRATION

a. Move the OFF-STBY-ON-CAL switch to CAL position.

b. Move the EMISSION switch to USB or LSB.

c. Turn the tuning knob to obtain an indication of 0 kHz on the kilohertz dial. (The megahertz counter and tenth megahertz counter reading should be close to the desired frequency of operation.)

d. Turn the tuning knob to obtain an indication of zero beat.

e. Using the ZERO SET knob, move the hairline to 0 on the kilohertz dial.

f. Return OFF-STBY-ON-CAL switch to ON position.

2.7 DIAL BRAKE

a. To hold the tuning knob at a particular frequency, move the dial brake mechanism, located under the tuning knob, in a counterclockwise direction.

b. To unlock the tuning knob, turn the dial brake mechanism in a clockwise direction.

ection 3
peration

om J1 through
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is coupled to
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40, L33, L32,
ne components
through A5.
ret wafers are
section of this
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of the turret,
he circuit, and
l by connecting
n shunt. The
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he 1-MHz band.
rk is tuned by
7. The tuning
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g in the same
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ed components
CLES control.
wafers so that
connected into
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upling between
ork is provided
output network
using a band-
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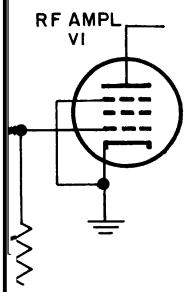
iode. The rf
the hf crystal
the cathode.



HORTED OUT ON 2MHZ BAND.
WITCH IS PART OF TURRET
AFER. C712-02-3

signal is injected into its
nal vfo signal may be in-
f external frequency control
an external injection signal
lected crystal oscillator fre-
ixed channel tuning is de-
case, the tuning dial would
e channel frequency in order
e all the rf and if. gang-

of the third mixer is selected
switch on the front panel. In
ns, mechanical filters FL2 and
ding on the particular model of
options selected, (Section 5,
e mechanical filters provide
3.1-kHz bandwidth for single-
on upper or lower sideband,
W position of the EMISSION
al filter, FL4. The crystal filter
optional 300-Hz) bandwidth for
nals. The AM position of the
lects a network composed of two
Hz if transformers, T14 and T15,
dwidth of 5 kHz for reception of
signals. (Optionally, T14 and
by a mechanical filter providing

posed of CR1,
ing configura-
ncy oscillator,
t demodulator
6. The audio
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3 signal. The
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ir mixing pro-
m a low-pass
o mixing dif-
e rest of the
ing difference
l.

e demodulator
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amplifier is an
mmon emitter
m the product
als from the
ed to the base
output signal
f Q1 through
and CW opera-
ect the audio
nplifier, V14B,

-stage, audio-
cal amplifier,
provides audio
ıker, or phone
isting of V14A
00-ohm remote

51S-1B is 150
schematic dia-

l is selected by
MEGACYCLES
-mounted piston
crystal to fre-

l is crystal con-
s only when the
o 7-MHz range.
to frequency by

tor is a Collins
lator. The fre-
by changing the
ge of inductance
he 51S-1 tuning
cally to the slug
oscillator tube,
de of the third

V17, is a 500-
r which operates
h of the 51S-1 is
No beat-frequency
operation. The
the product de-
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The output of
to agc amplifier
plifier is coupled
d to the if. out-

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e dc output from
automatic gain
s.

es sidetone sig-
on of the 51S-1.
m this stage is
Q1.

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rcuit and

occurring
ute on-off

Remote gain gate V4B presents a high-impedance isolation between the remote gain line and the agc circuit. This prevents the low-impedance remote gain circuit and the bias supply from loading the high-impedance agc circuits.

Table 3-1. 51S-1 Crystal Utilization

CY (MHz)	HF OSCILLATOR OUTPUT (MHz)	17.5 MHz OSCILLATOR	LF CRYSTAL OSCILLATOR (2 x 14 MHz = 28 MHz)
333	31.00	Off	On
0	32.00	Off	On
5	12.50	On	Off
5	11.50	On	Off
5	10.50	On	Off
5	9.50	On	Off
5	8.50	On	Off
0	10.00	Off	Off
0	11.00	Off	Off
0	12.00	Off	Off
0	13.00	Off	Off
0	14.00	Off	Off
0	15.00	Off	Off
0	16.00	Off	Off
5	17.00	Off	Off
0	18.00	Off	Off
5	19.00	Off	Off
0	20.00	Off	Off
5	21.00	Off	Off
0	22.00	Off	Off
5	23.00	Off	Off
0	24.00	Off	Off
5	25.00	Off	Off
0	26.00	Off	Off
5	27.00	Off	Off
0	28.00	Off	Off
5	29.00	Off	Off
0	30.00	Off	Off
333	31.00	Off	Off
0	32.00	Off	Off

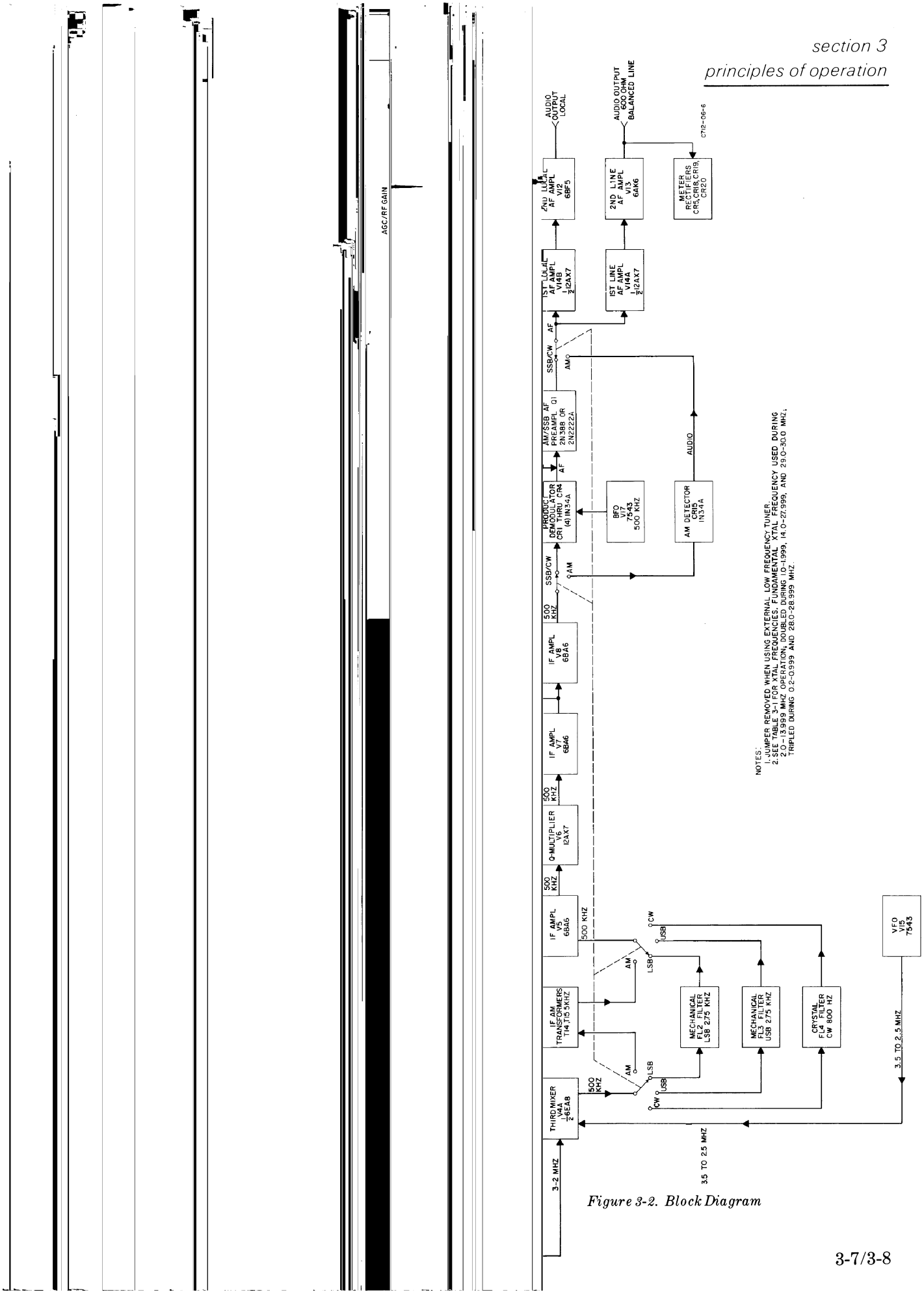

Figure 3-2. Block Diagram

section 4

e instructions

hese compartments. Ex-
t (paragraph 4.4.14), it is
ng of the vfo should be per-
d service agencies.

rom Cabinet

ver plug and all con-
nel jacks.

remove the two flat
front edge of the cabi-
the two outer screws.)

nounting feet and the
r feet from the bottom
he 51S-1B, remove the
ottom of the receiver.)

REFERENCE
1-watt af output
1-watt af output
1-watt af output
10 milliwatts in 600 ohms
10 milliwatts in 600 ohms
1-watt af output
Agc threshold
Agc threshold
Agc threshold
Agc threshold
Agc threshold
Agc threshold
Agc threshold
Agc threshold
Agc threshold
Agc threshold
Agc threshold

m just starts to increase (agc
e level indicated on the output
is point is the signal level listed
he signal generator is tuned to
listed in TEST POINT FRE-
n. Signal voltage at V7-1 and
e measured with agc threshold
vel. Local audio signal levels
ith 1-watt audio output as refer-
dio signal levels are measured
atts into a 600-ohm balanced
with a 600-ohm balanced load.
nominal and may vary ±20

ND RESISTANCE
IENTS

be Measurements

voltage and resistance measure-
ube sockets of the 51S-1 except
e V15. Do not open the vfo os-
Ac voltages shown in table 4-2
1F/1B. These are dc voltages
Measurements are made under
nditions:

ements are made with a vtvm
tubes in sockets. All measure-
de with RF GAIN at maximum

6	7	8	9
	0 0		
3 00	0 0	4.3 *1.5 1000	0 270K
5 00	0 5	4.3 *1.5 1000	0 35
5 00	4.3 *0.7 1000	-0.32 5000	-1.5 250K
68 00	5.4 320		

s (Cont)

6	7	8	9
167 8500	0.22 **300K	0.25 680	0 19.5 0
70 18K	0.13 20		
67 19K	0 0		
140 8500	1.6 76		
145 8500	 5	2.2 *1.4 220	0 0
155 11.2K	0 360K	3.1 1000	 6.8 0
146 12K	-12.3 240K		
153 8500	0 0		
85 460K	 a	 7000	 0
TO MEASURE-- VFO CAN			
118 115K	0 0	2.5 270	0 *1.4 0
50 150K	0 0		

ries with AF GAIN setting.
to 6 MHz only.
2- and 1-MHz bands only.

ıay vary

justment
'12, T13,
co #2543

WWVH
10, 15,

position.

60

4
5
261
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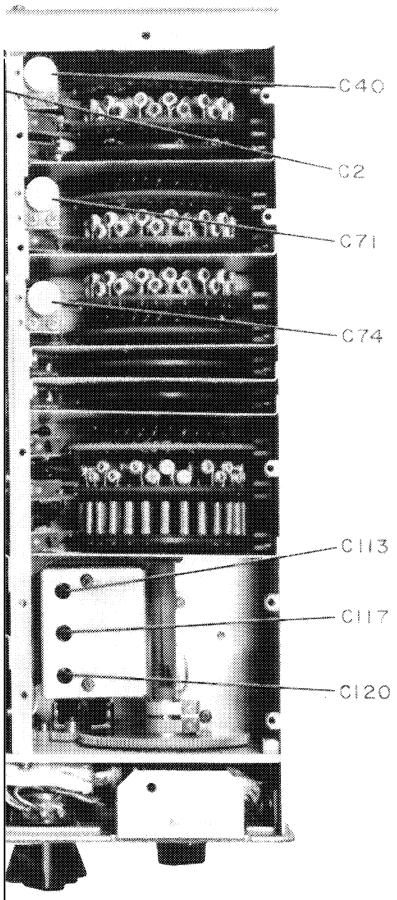
37

38



tment Locations

Meter Zeroing

RF GAIN control, located on the front maximum (fully clockwise).

the meter switch to RF position.

the 51S-1 to a clear, noise-free y and adjust R37, METER ZERO, n an indication of 0 on the rf meter.

ng the signal
nsistent 20-db

o terminals 3
d T15. Tune
T15 for maxi-
meter, again
utput level for
Remove the

witch to USB
tor frequency
) Hz should be

entical to that
1 and 2 (pri-

out level below
during T1 and

(secondary) for
love swamping
primary) of T2
ure. Remove

ch to LSB and
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a 1500-Hz beat
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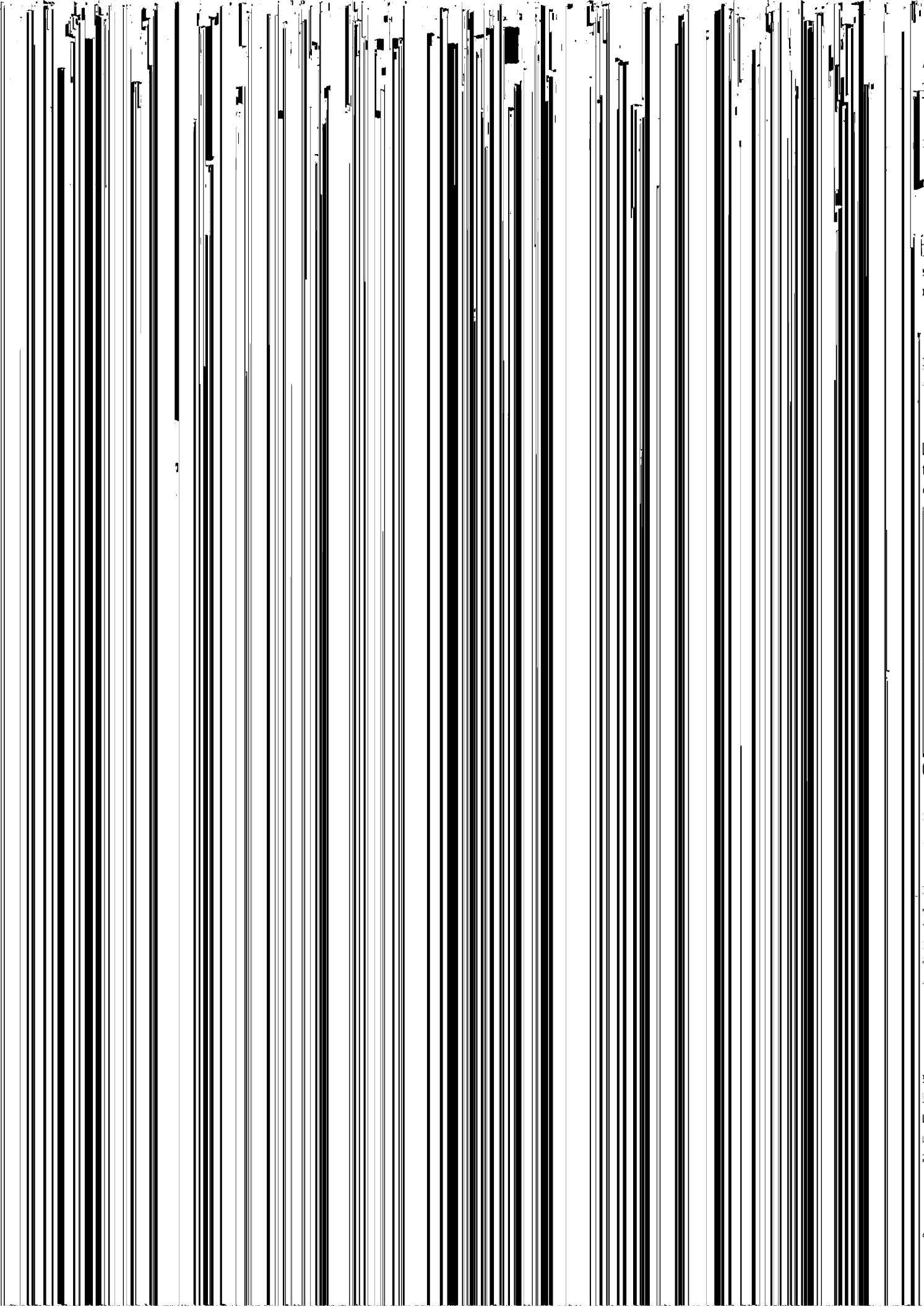
e USB position,



s to receive

rst rf tuned
MHz turret
audio out-

place across
Adjust L2
51S-1.

generator to
or maximum

place across
Adjust slugs
utput on the

p alignment
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l by peaking
at the low
ie 3.0-, 4.0-,
ed using the
tool is not

nd including

t

n to pin 8 of
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of the 51S-1

mum rf volt-
The slug of
he chassis in

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for a zero beat in

quency

gned properly be-
he megahertz in-
agraph 4.4.13 for

control of the
and.

und V15. Connect
arefully calibrated

eiver to 3.5 MHz.
ystal calibrator of
th the tuning knob
tune for zero beat
-1 and the crystal
d receiver. (The
ar the low end of

51S-1 to read zero

eiver.

N-CAL switch of

ch of the 51S-1 to

hrough the slot in
tune the appropri-
ner capacitor for
-1.

switch to the next

tuning knob which
e.

j. Repeat steps h and i above until all bands above 2.0 MHz are aligned.

4.4.11 Receiver Gain Adjustment

a. Connect a signal generator to J1, ANT, on the rear of the 51S-1 as shown in figure 4.5.

b. Tune the signal generator and 51S-1 to 14.5 MHz.

c. Set the EMISSION switch on the 51S-1 to LSB position.

d. Set the RF GAIN control of the 51S-1 fully clockwise.

e. Set the output level of the signal generator to 15 microvolts (1.5 microvolts at the junction of resistors R1 and R2 of test setup). Adjust receiver tuning for a beat note of approximately 1000 Hz.

f. Connect a dc vtvm to the agc line of the 51S-1.

g. Adjust R25, RCVR GAIN, to the setting where the voltmeter indication starts to increase from a steady reading. This is the agc threshold.

h. Repeat paragraph 4.4.2.

4.4.12 RF Meter Calibration

a. Perform the alignment procedure of paragraph 4.4.11.

b. Tune the signal generator and 51S-1 to 14.5 MHz. Set signal generator output to 1000 microvolts (100 microvolts at the junction of R1 and R2 of test setup).

c. Set the meter switch of the 51S-1 in the RF position.

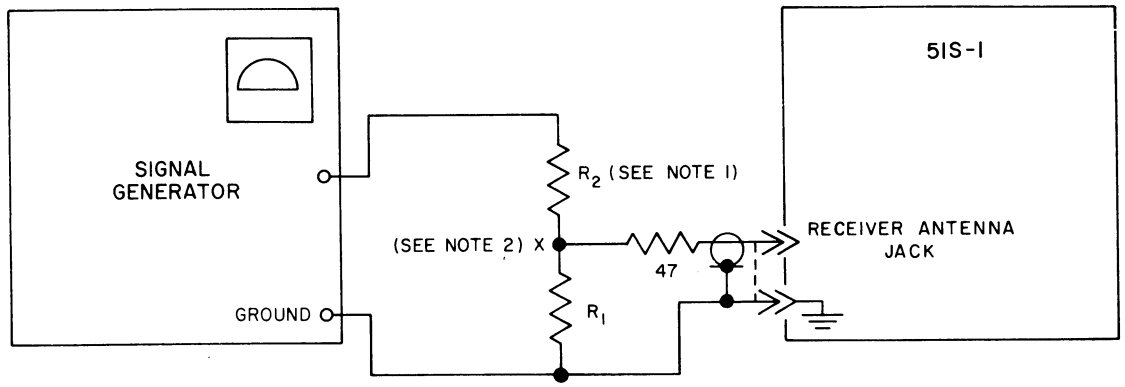
d. Adjust R38, METER SENS, to obtain 40 db indicated on the rf meter of the 51S-1.

4.4.13 Q-Multiplier Alignment

a. Tune the OFF-STBY-ON-CAL switch to CAL position.

b. Set the EMISSION switch to USB position.

c. Tune to zero beat with the calibrator signal at 6.5 MHz.



NOTES:
1. R_1 MUST BE 5 OHMS OR LESS; R_2 MUST BE 9 TIMES R_1. THIS FORMS A 10:1 VOLTAGE DIVIDER (20DB PAD). $R_1 + R_2$ MUST EQUAL PROPER TERMINATION FOR SIGNAL GENERATOR USED. EXAMPLE: FOR HP606A, $R_1 + R_2 = 50$ OHMS.
2. WITH THIS TERMINATION (20DB PAD), SIGNAL GENERATOR OUTPUT READS 10 TIMES ACTUAL OUTPUT AT "X".

C712-25-3

Figure 4-5. Receiver Gain Adjustment Test Setup

calibrate signal to zero beat at
e dial.

e hairline to zero with the ZERO

ıe 51S-1 to zero beat at the low end
l (near 0 on the dial).

e dial error in kilohertz.

y the dial error frequency noted in
ove by 1.5. Add the dial error to
the dial error, and move the dial
ensating amount (passing through
r example, if the dial reading noted
is 1.0 kHz, 1.0 kHz plus 1.5 kHz
kHz. The dial reading 2.5 kHz
98.5. Conversely, if the step d
99, the compensation point is 2.5
r, or 001.5.

the dial set as above, and adjust
L502 to zero beat with the cali-
nal.

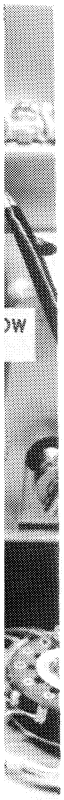
steps a through f until no error is
end points.

YCLES DRIVE CHAIN
EMENT

ures 4-6 and 6-6. Figure 4-6 shows
YCLES dial drive chain properly
MEGACYCLES band-switch drive
idlers, and counter dial drive
Figure 6-6 shows an exploded view
lete mechanical band-switching and
anism.

e 51S-1 from cabinet. Turn 51S-1
le, and remove bottom shield plate
et. Using a flashlight, locate the
ıfer printed circuit pad having a
ınd nib. Turn the MEGACYCLES
ıtil this single-nibbed pad of each
onnected to the fixed turret contacts.
es the receiver in the 2.0- to 3.0-
ion.

e the large tuning knob, the MEGA-
knob, and the ZERO SET knob from



the MEGA-
eplace band-

d, and thread
nd under the
ease pressure
ould be hori-

s do not read
ard with one
ials manually
dials read 02.
ssure on the

os, and dust

scribed in
urs, clean
er. Wipe
e.

been re-
to turret
rear, and
the shaft
twist the
vafer hole
on not to
s or their

he turret
aches the
nd of the
ssis bear-
t bearing
and keep
the left
into the
the shaft
with the
ler aligns
n together
ar chassis
t bearing
, rock the
hand until
the rear
np on the

vafers are
sure all
in proper
ew or re-
he turret,
of para-

in appear-
all turret
t position
complete
During re-
l or tape,
aterial off

d, and re-

4.7 LAMP REPLACEMENT

Dial lamp DS1 is removed from the light reflector by grasping the lamp base at the terminal end and pulling straight out. Slight movement of the lamp holder toward the rear of the unit may be required to clear the retaining screw.

DS2 (meter lamp) is a built-in part of M1. Remove by grasping the lamp holder and pulling straight out until it snaps free.

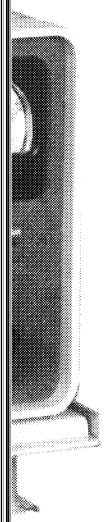
ion 5

tions

N

uire 115-
Hz power
1S-1B re-
400-Hz
e 51S-1A/
4.5 am-
mounted
peration,
late simi-
table in
t. 51S-1/
600-ohm
monitor-
mpedance
o-monitor
o several

17



43-019

(refer to figure 7-
ire an antenna
random length

ty 1-megahertz

d, AM or CW.

led, with provision

load with 5-

r-tap ground ref-
51S-1B, 150 ohms

from 0 to +50 °C,
audio output fre-
than ±885 Hz for
to 7 MHz. From
ity varies from 36
Hz (652 Hz) to 27
z (1210 Hz). For
n, frequency varies

00 kHz calibration
e within ±400 Hz.

nnel).
annel).

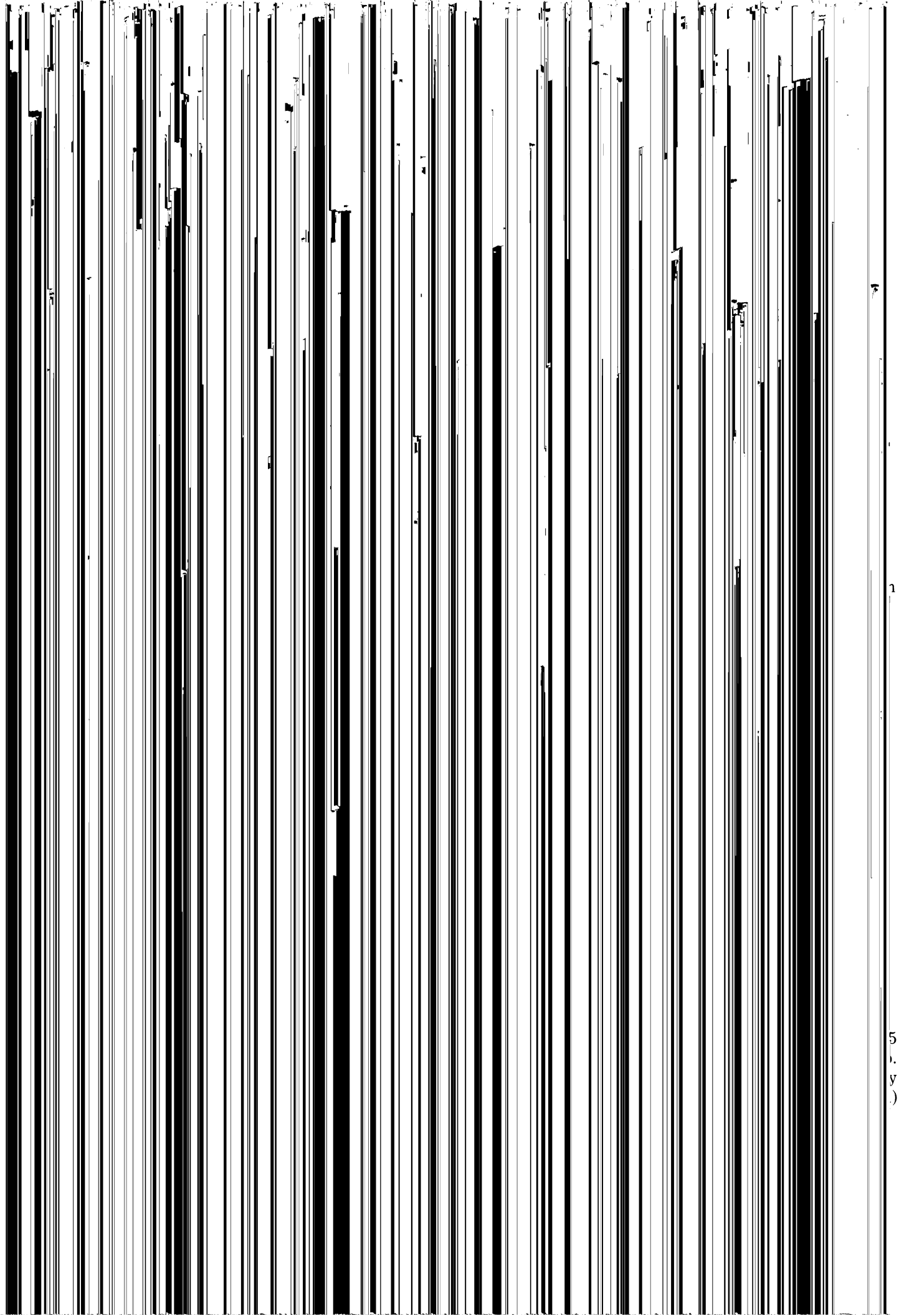
hannel).
channel).

; than 10-db signal

ss than 10-db sig-
Hz).

ss than 10-db sig-
MHz).

5.0 microvolts for
nal + noise/noise



ENT

d Semiconductor Complement

FUNCTION	TYPE
	6DC6
f crystal oscillator	6EA8
nd 17.5 MHz oscillator	6EA8
remote gain gate	6EA8
	6BA6
	12AX7
	6BA6
rystal oscillator	6EA8
wer and agc cathode follower	5670
amplifier	6BF5
mplifier	6AK6
lifier and first local af amplifier	12AX7
ncy oscillator	7543
libration oscillator	6EA8
oscillator	7543
ulator	1N34A
	1N270
ectifier	1N1695
	1N482A
	1N34A
	1N482A
nt suppressor	1N67A
ly rectifier	2N637B
plifier	2N388 or 2N222A
ly switching	2N637B

CESSORIES

Table 5-2. Available Accessories

	FUNCTION	COLLINS PART NUMBER
	0.2- to 2.0-MHz If preselector, with speaker	522-3982-002
	Cabinet speaker	522-1166-00
g Plate	Mount on table or bench	522-1482-00
r supply	Converts 51S-1 to 51S-1A	554-8355-00
ount	Rack mounts 51S-1/1A Receiver	522-2665-00
ly	Cabinet mounts 51S-1F/1AF Receiver	553-2449-00
r	Rack-mounted speaker	522-3526-00
rs	Two speakers rack mounted	522-3527-00
rs	Three speakers rack mounted	522-3528-00
kit	51S-1/1A Shockmount	757-2787-001
	Insert in front panel	273-0021-010

ATA

erences and part numbers of the 51S-( ) communications

HANGE INFORMATION

by this instruction book is 15 September 1975.

t had circuit changes made dur-me covered by this instruction es identified on the applicable ic diagram and in the parts list. lagged on the schematic with a ←) pointed at the component, , or a circuit enclosed by a dash-ne indicates that the component hanged, and the number inside s the specific change. If several ted by the change, there will be ntifier with the same index

The change identification numbers are listed on a schematic changes page that is inserted as sheet A of figure 7-1. The description gives the differences and the reasons for the changes.

The reason for identifying changes in this manner is that the manufacturer has scrambled serial numbers on his amateur products during the period covered by this instruction book.

None of the changes have been made because the equipment has failed to meet the equipment specifications and are not recommended changes for all units. Equipment changes have been made to improve performance or reliability of radios that are built using different fabrication processes. These changes will not necessarily improve the operation of your equipment. The change identification number also is used in the parts list section of this instruction book. However in the parts list the identification number is enclosed in slashes (for example, /2/) instead of the ← symbol.

	COLLINS PART NUMBER
hanical SSB	522-2245-00
ical	522-2245-030
d with	522-2546-00
lz	522-2546-030
ed wer,	522-3857-001
d	522-2498-00
lz	522-2498-030
k md	522-3156-00
Hz	522-3156-030

hanical filters.

list

ter B
tifiers
le as-
SB-1,

ations
d by a
of the

ecified
te the
rs RF
on a

rs are

e dash
ng the

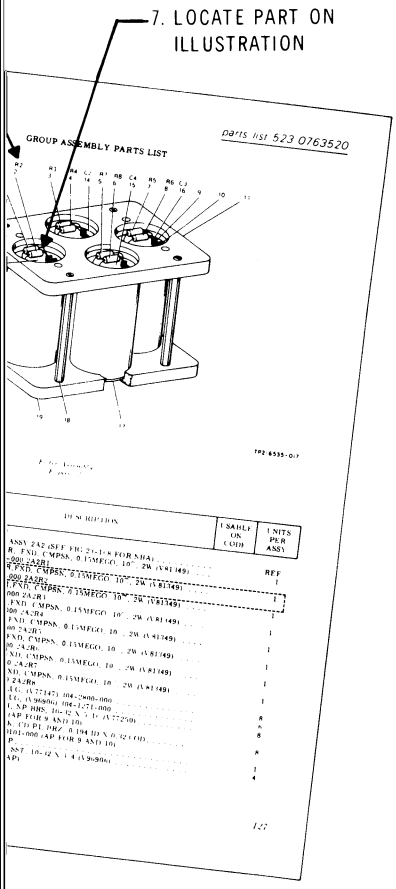
tity of
embly

ference
uence.

e dash
ng the

listed
nations

D PART AND
ITEM NO.



1 NO. ON
MBLY

'HE ILLUSTRATION FOR A
RT NUMBER IS KNOWN:

Numerical Index and find the

Group Assembly Parts List
figure and item number indi-
rical Index for that part. If
he part in a section or system
other than the one desired,
figure numbers listed in the

stration, find item number
(6).

ame, and Address

'S NAME	CODE	MANUFACTURER'S NAME AND ADDRESS
Inc. dhesive	07716	TRW Electronic Components IRC Fixed Resistors Burlington Div. 2850 Mt. Pleasant Burlington, IA 52601
	08257	NPC Electronics P.O. Box 1454 Canogo Park, CA 91304
s Co. ., PA 17065	08664	Bristol Div. of American Chain and Cable Co., Inc. Bristol Rd. Waterbury, CT 06720
17105		
Co. s Business Dept 2188	08806	General Electric Co. Miniature Lamp Products Dept. Nela Park Cleveland, OH 44112
, Inc. up Expressway	09250	Electro Assemblies, Inc. 4338 W. Montrose Ave. Chicago, IL 60641
rp., The ctor Div.	09922	Burndy Corp. Richards Ave. Norwalk, CT 06852
153		
onic Corp. 1880	12127	Permonite Mfg. Co. 910 Jackson Blvd. Chicago, IL 60607
	12204	Chrysler Corp. 341 Massachusetts Ave. Detroit, MI 48231
Products Div. Rd. 08	18986	Jetron, Inc. 4310 N. Kedzie Ave. Chicago, IL 60618
Inc. 540	21242	American Electronic Components Corp. 7516 Camargo Rd. Cincinnati, OH 45243
nductor ild rument Corp.		
A 94042		

RER'S NAME
S

ck
0644

c Co.
lview Blvd.
12

g.
raw-Edison Co.
rsity St.
63107

dsley Ave.
6514

ctronics
e-Union, Inc.
Bay Ave.
I 53201

.
Inc.
ve.
lage, IL 60007

e Mfg. Co., Inc., The
ohn Streets
CT 06226

o.
t Ave.
hts, IL 60656

ogical Products, Inc.
t.
12

ormer Co., Inc.
d St.
11227

c Corp.
lton Ave.
NY 10550

er Co.

30622

ANUFACTURER'S NAME
D ADDRESS

ro, Inc.
0 W. Garland Ave.
rland, TX 75040

A Corp.
lectronic Components
5 S. 5th St.
rrison, NJ 07029

lova Watch Co., Inc.
lectronics Div.
-20 Woodside Ave.
odside, NY 11377

mel Electronics, Inc.
01 75th St.
rth Bergen, NJ 07047

dio Cores, Inc.
33 W. 95th St.
k Lawn, IL 60453

RW, Inc.
emiconductor Div.
520 Aviation Blvd.
wndale, CA 90260

ality Components, Inc.
O. Box 113
. Marys, PA 15857

tional Coil Co.
21 Pan American
uglas, AZ 85607

litary Standards

alectro Corp.
5 Hoyt
amaroneck, NY 10544

nerican Precision Industries, Inc.
Delevan Div.
0 Quaker Rd.
st Aurora, NY 14052

ave been

G-ITEM

assigned

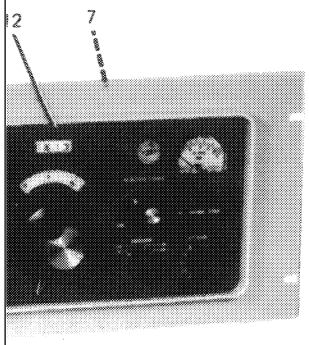
ITEM

36

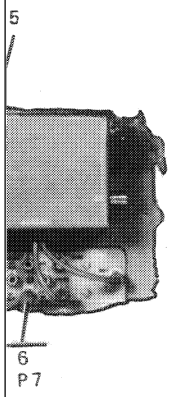
e used in

ITEM

CI/ REV LTR	UNIT PART NUMBER	FIG-ITEM
72114	547-2742-006	6-1-9
72114	767-6255-001	6-1-9
72083	548-8245-000	6-1-14
71463	767-6254-001	6-2-
CM	547-2791-001	6-3-
BG	549-0212-006	6-3-
BG	549-0212-000	6-3-
CM	547-2791-018	6-3-
CM	547-2791-000	6-3-
H	547-2693-000	6-4-
F	547-3930-000	6-5-
AU	547-2692-000	6-6-
AN	547-2694-005	6-7-
67453	547-2680-004	6-8-
F	547-2685-004	6-9-
F	547-2682-004	6-10-
67453	549-0630-004	6-11-
65013	547-2681-004	6-12-
65013	547-2691-004	6-13-
68083	547-2677-004	6-14-
73013	522-3970-001	6-15-
69323	767-6256-001	6-15-3

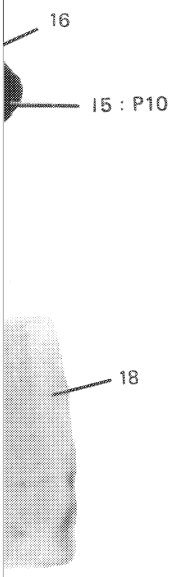


1S-1AF/1F



HE 51S-1B

TP3-8057-027

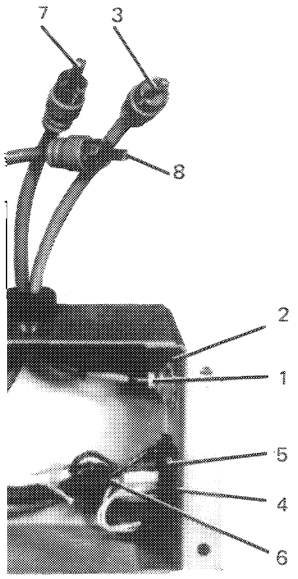


TP3-8057-027

	USABLE ON CODE	UNITS PER ASSY
	A	1
	B	1
	C	1
	D	1
	E	1
	F	1
	G	1
	H	1
	I	1
	A,B,C,D	4
	A,B,C,D	2
	I	1
	I	2
	I	1
	I	1
	A,B,G	1
	D	1
	E,F	1
	G,H	1
	I	1
AF)	A,B	1
)	A,B	1
M)	C,D	1
	C,D	1
AH)	E,F	1

S LIST

TION	USABLE ON CODE	UNITS PER ASSY
0 (EFF REV LTR AH)	E,F	1
0 (EFF TO REV LTR K)	G,H	1
0 (EFF REV LTR K)	G,H	1
0 (EFF TO REV LTR J)	I	1
0 (EFF REV LTR J)	I	1
	A,B,C,D	1
	I	1
	E,F,I	1
	E,F,I	2
	E,F,I	2
		1
	E,F,G	1
		1
	G	1
	E,F	1
		1
V LTR AF)	A,B	1
V LTR M)	C,D	1
V LTR AH)	E,F	1
V LTR K)	G,H	1
V LTR J)	I	1
	B,C,D,G	1
	A	1
60) 372-1953-000 P10	A,D,G	1
72-1762-000 (REPLACE	A,B,C,D G	1
270-010 (REPLACES	A,B,C,D G	1
4-0009-000	B,D,G	1
6-1464-000 P25	A	
024-0100-000		1
20-000		1
240-000		1
0019-000		1
730-000		1
900-000		1
0167-000		1
-000		6
00-000	E,D,G	1
FIG 6-3)	A,E	1
FIG 6-3)	B,F	1
FIG 6-3)	C,G	1
FIG 6-3)	D,H	1
FIG 6-3) (EFF REV LTR	I	1
FIG 6-3) (EFF TO REV	I	1
E FIG 6-15)	I	1

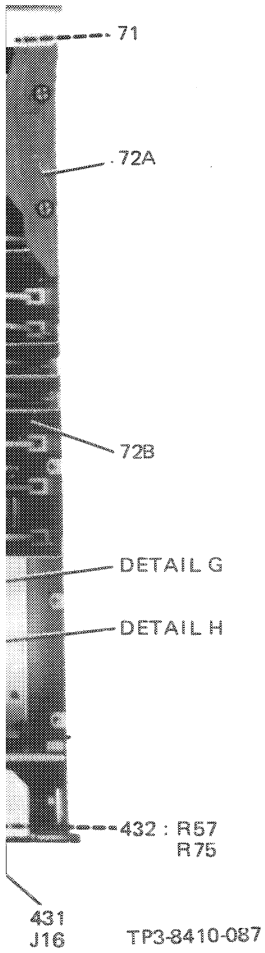


TP3-8058-017

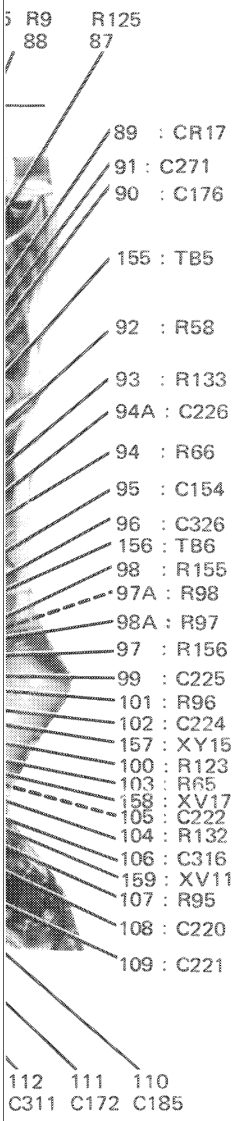
	USABLE ON CODE	UNITS PER ASSY
E FIG 6-1-5)		REF
-9670-000 J102		1
0		1
P1		1
-2156-000 J101		1
0		2
00		2
P5		1
P4		1
0		2
0		1
-1953-000 P10		1
-000 (REPLACE		1
(REPLACES		1
000		3
		1

ES

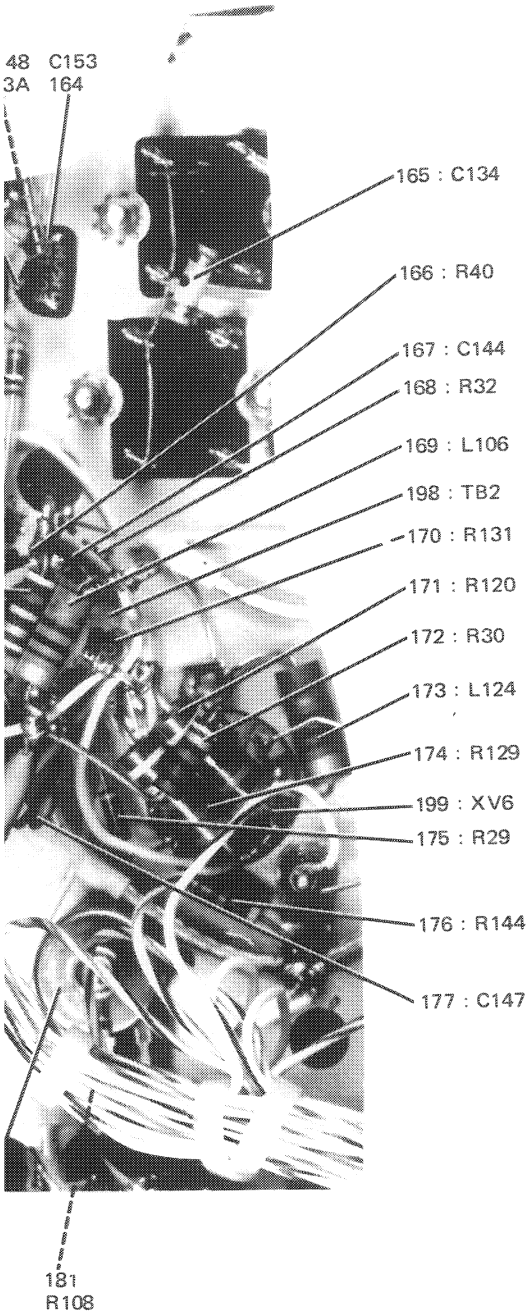
087



TP3-8410-087


5 R9
88
R125
87
89 : CR17
91 : C271
90 : C176
155 : TB5
92 : R58
93 : R133
94A : C226
94 : R66
95 : C154
96 : C326
156 : TB6
98 : R155
97A : R98
98A : R97
97 : R156
99 : C225
101 : R96
102 : C224
157 : XY15
100 : R123
103 : R65
158 : XV17
105 : C222
104 : R132
106 : C316
159 : XV11
107 : R95
108 : C220
109 : C221
112
C311
111
C172
110
C185

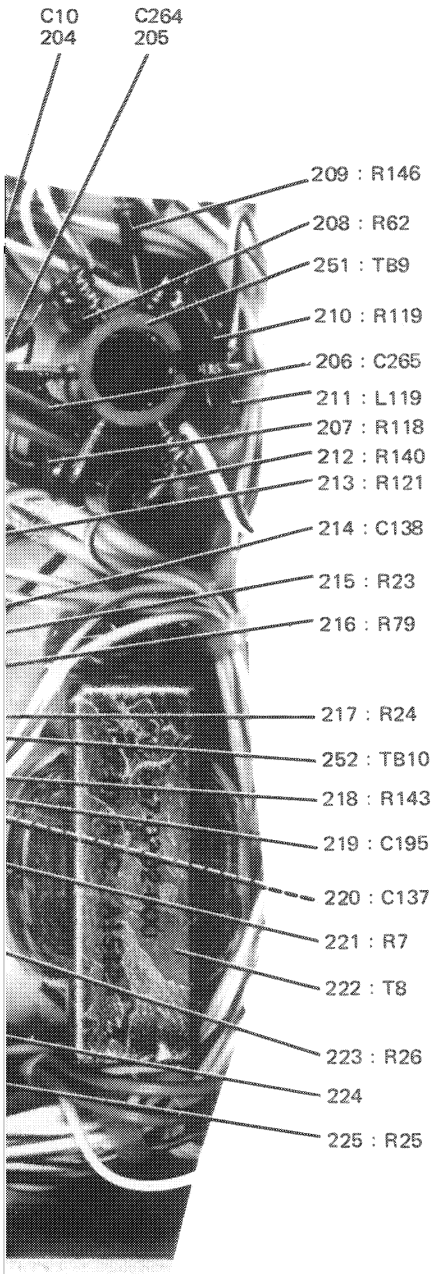
TP3-8410-087



DETAIL C

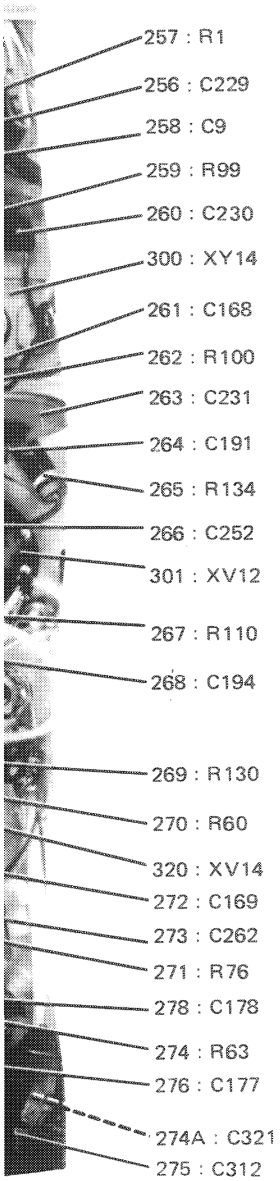
TP3-8410-087

Receiver Subassembly
Figure 6-3 (Sheet 4)


C10
204
C264
205
209 : R146
208 : R62
251 : TB9
210 : R119
206 : C265
211 : L119
207 : R118
212 : R140
213 : R121
214 : C138
215 : R23
216 : R79
217 : R24
252 : TB10
218 : R143
219 : C195
220 : C137
221 : R7
222 : T8
223 : R26
224
225 : R25

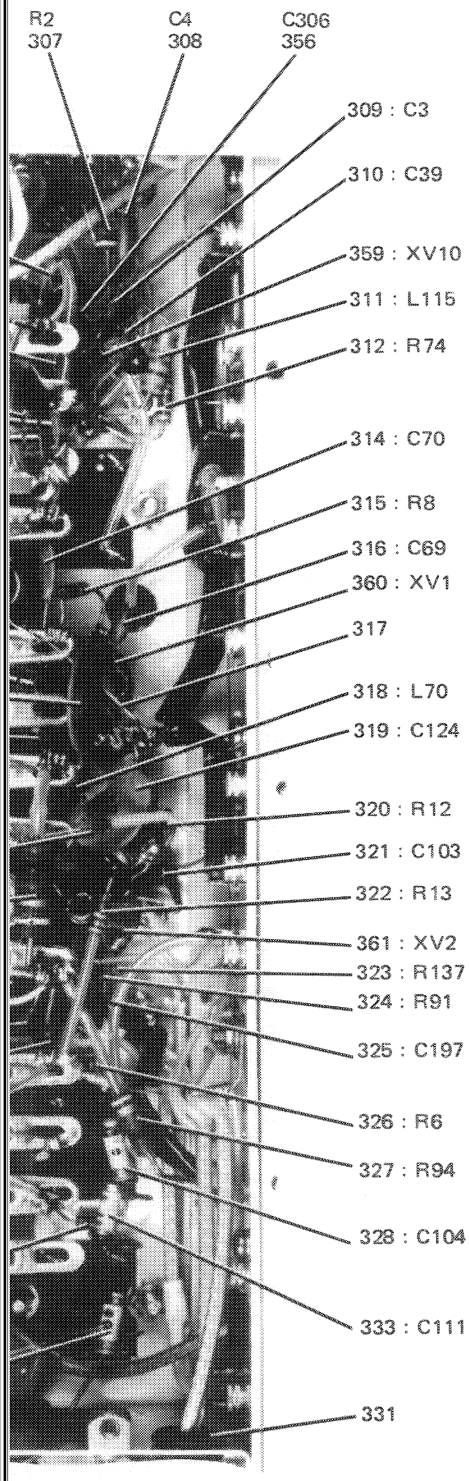
TP3-8410-087

LIST



TP3-8410-087

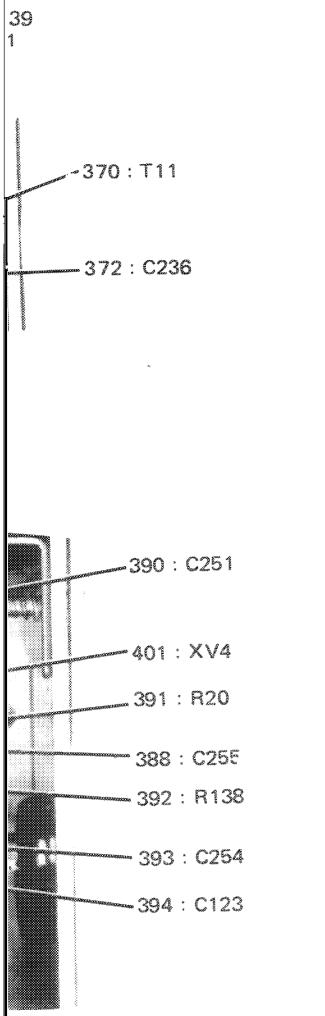
P ASSEMBLY PARTS LIST



DETAIL F

TP3-8410-087

Receiver Subassembly
Figure 6-3 (Sheet 7)


39
1
370 : T11
372 : C236
390 : C251
401 : XV4
391 : R20
388 : C255
392 : R138
393 : C254
394 : C123

TP3-8410-087

UNITS PER ASSY
F
F
F
F
F
1
1
1
1
1
5
5
5
5
7
7
5
7
1
1
1
2
1
1
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2
2
7
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NITS PER SSY
1
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2
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1
1
1
1
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1
1
1

S LIST

TION	USABLE ON CODE	UNITS PER ASSY
60) 372-1951-000 J10		1
		2
0C00PF, 20%, 500V		1
0000PF, 20%, 500V		1
0%, 1W (V81349)		1
10%, 1/2W (V81349)		1
53-2648-000 CR14		1
.47UF, M20%P80%, 25V		1
EGC, 10%, 1/2W		1
0000PF, 20%, 500V		1
EGC, 10%, 1/4W		1
10%, 1/4W (V81349)		1
53-0147-000 CR17		1
, M10%P75%, 50V		1
0C00PF, 20%, 500V		1
10%, 1/2W (V81349)		1
HMS, 10%, 1/2W (REPLACE WITH		1
HMS, 10%, 1/4W (REPLACES 745 1310		1
10%, 1/2W (V81349)		1
0000PF, 20%, 500V (FOR EARLY PRODUCTION		1
000PF, 20%, 500V		1
000PF, 20%, 500V (FOR LATER PRODUCTION		1
10%, 1/4W (V81349) ER PRODUCTION MODELS		1
0%, 1/2W (V81349) Y PRODUCTION MODELS		1
10%, 1/4W (V81349) ER PRODUCTION MODELS		1
10%, 1/2W (V81349) Y PRODUCTION MODELS		1
0C00PF, 20%, 500V		1
10%, 1/4W (V81349)		1
EGC, 10%, 1/2W		1
470PF, 5%, 500V (REPLACE WITH		1
390PF, 5%, 500V (REPLACES		1

	USABLE ON CODE	UNITS PER ASSY
)		1
81349)		1
		1
V		1
349)		1
		1
500V		1
V		1
V		1
		1
)		1
		1
81349)		1
V		1
		1
349)		1
349)		1
349)		1
9)		1
		1
		1
ACE		1
DIFIED		1
V		1
)		1
		1
349)		1
9)		1
9)		1
50V		1
81349)		1
V		1

	USABLE ON CODE	UNITS PER ASSY
+W		1
V81349)		1
50V		1
V81349)		1
P100%, 2982) 42-000)		1
500V		1
14		1
14		1
+W		1
R2		1
R3		1
R4		1
+W		1
+W		1
R1		1
R15		1
23		1
500V		1
+W		1
00V		1
500V		1
00V		1
		10
		1
35		1
36		1
		1
KV17		1
KV11		1
KV11		1
33		1
34		1
500V		1
V (V81349)		1
V (V81349)		AR
00V		1
00V		1
+W		1
500V		1

	USABLE ON CODE	UNITS PER ASSY
		1
		1
9)		1
		1
		1
		1
)		1
9)		1
		1
		1
		1
		1
		1
		1
9)		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
9)		1
	J,K,L,N	1
	J,K,L,N	1
	D	1

	USABLE ON CODE	UNITS PER ASSY
		1
) TB2		1
)0 XV6		1
)0 XV6		1
		1
, 350V		1
500V		1
R PRODUCTION		
500V		1
R PRODUCTION		
P80%, 500V		1
30%, 75V		1
30%, 75V		1
W (V81349)		1
V81349)		1
1/4W		1
2W (V81349)		1
L119		1
2W (V81349)		1
1/2W		1
, 500V		1
(V81349)		1
W (V81349)		1
1/4W		1
1/2W		1
0%, 500V		1
, 500V		1
81349)		1
0 T8		1
V81349)		1
		4
50)		1
4619-000)		
50)		1
-000)		
%P80%, 500V		1
1/2W (V81349)		1
(V81349)		1

	USABLE ON CODE	UNITS PER ASSY
F, 20%, 500V		1
10%, 1/4W		1
F, 20%, 500V		1
/4PF, 500V		1
10%, 1/4W		1
1/4W (V81349) CATION FOR ITEM		AR
M20%P80%, 500V		1
2%, 500V FARLY PRODUCTION		1
60 PF, 350V		1
1/4W (V81349) CATION FOR ITEM		1
60 PF, 350V		1
2%, 500V EARLY PRODUCTION		1
2%, 500V EARLY PRODUCTION		1
		1
23-000 S2A		1
0		2
		1
		1
23-000 S2B		1
		1
7-000		1
		1
		2
9-000 TB9		1
9-000 TB10		1
		1
11-000 XV5	J,K,L,N	1
52-000 XV5	J,K,L,N	1
11-000 XV5	D	1
F, 20%, 500V		1
F, 20%, 500V		1
5%, 1/2W (V81349)		1
20%, 500V		1
1/2W (V81349)		1
10%, 500V		1
F, 20%, 500V		1
0%, 1/2W ACE WITH		1

	USABLE ON CODE	UNITS PER ASSY
		1
		1
		1
	1349)	1
		1
	9)	1
		1
	349)	1
		1
	9)	1
		1
		1
		1
		1
		AR
		1
		1
		1
	)	1
		1
	1349)	1
	9)	1
		1
	1349)	1
		1
		1
		1
		1
		1
	)	1
		1
		1
	1349)	1

TS LIST

PTION	USABLE ON CODE	UNITS PER ASSY
10PF, 0.5PF, 500V		1
8		
F, 350V (V72982)	J,M,N	1
5 TO 37.5PF, 350V	K,L	1
7		
HMS, 10%, 1/2W (V81349)		1
MEGO, 10%, 1/2W		1
1		
1UF, M30%P80%, 75V		1
3		
220-1103-000 XV16		1
0082-000 XY14		1
220-1111-000 XV12		1
220-1103-000 XV14	J,K,L,N	1
0)		
220-1274-000 XV14	J,K,L,N	1
220-1103-000 XV14	M	1
220-1111-000 XV13	J,K,L,N	1
0)		
220-1152-000 XV13	J,K,L,N	1
220-1111-000 XV13	M	1
06-0909-000 TB8		1
06-0909-000 TB7		1
1PF, 1/2PF, 500V		1
2		
OHMS, 5%, 1/2W (V81349)		1
4700PF, 20%, 500V		1
, 100PF, 2%, 500V		1
, 47PF, 5%, 500V		1
9		
240-0198-000 L115		1
0)		
240-2524-000 L115		1
K, 10%, 1/4W (V81349)		1
353-2648-000 CR16		1
4700PF, 20%, 500V		1
0		
OMEGO, 10%, 1/4W		1
470PF, 20%, 500V		1
9		
		1
240-2540-000 L70		1
10000PF, 20%, 500V		1
24		
OHMS, 10%, 1/2W (V81349)		1
, 22PF, 5%, 500V		1
03		
2MEGO, 10%, 1/4W		1
3		
OHMS, 10%, 1/4W (V81349)		1
7MEGO, 10%, 1/4W		1
1		
, 68PF, 5%, 500V		1
97		

	USABLE ON CODE	UNITS PER ASSY
349)		1
49)		1
		1
349)		1
		1
		7
		1
		1
		1
00V		1
349)		1
49)		1
0V		1
		1
49)		1
		1
0V		1
00V		1
		1
349)		1
00V		1
		1
00V		1
81349)		1
576-000		1
		1
00V		1
		1
		1
		1
00V		1
00V		1
0V		1
	J,M,N	1
0V	K,L	1

	USABLE ON CODE	UNITS PER ASSY
10		1
1		1
2		1
5		1
		1
		1
(V81349)		1
00V		1
349)		1
00V		1
		1
		1
		1
0V		1
49)		1
49)		1
0V		1
0V		1
3		1
3		1
6		1
		1
)		1
3		1
		1
00V		1
49)		1
		AR
		1
		1
81349)		1
00V		1
0V		1
, 500V		1
00V		1
(V81349)		1
349)		1
100%, 982)		1

'S LIST

PTION	USABLE ON CODE	UNITS PER ASSY
10000PF, 20%, 500V 3		1
1000PF, 20%, 500V 5		1
0-0164-000 L117 10%, 1/2W (V81349)		1 1
470PF, 5%, 500V 5		1
40-0198-000 L121 4-000 J6 220-1103-000 XV4 06-0909-000 T811 0		1 1 1 1 1 1 3
	J,M,N	1
1-000		1
589-000 M1 OHMS, 10%, 1/2W		1 1
10%, 1/2W (V81349)		1
1336-000 S1 10%, 1/2W (V81349)		1 1
1/4W (V71450)		1
353-2018-000 CR5 , 10%, 1/4W (V81349)		1 1
353-2018-000 CR18 353-2018-000 CR20 353-2018-000 CR19 , 1%, 1/8W (V81349)		1 1 1 1
, 1%, 1/8W (V81349)		1
UF, M20%P50%, 35V 3		1
1358-000 S3		1 1 1 1 1 1 1 1
30%, 500W 376-7676-02		1
1337-000 S2C 6-000 J16 1/4W, 2 SECT (V71450)		1 1 1
		1 1 1 2 1
100PF, 5%, 500V 7		1 1

: CR6

: CR9

: TB12

: CR10

: R105

: CR12

: CR11

: R106

: CR13

: CR7

: CR8

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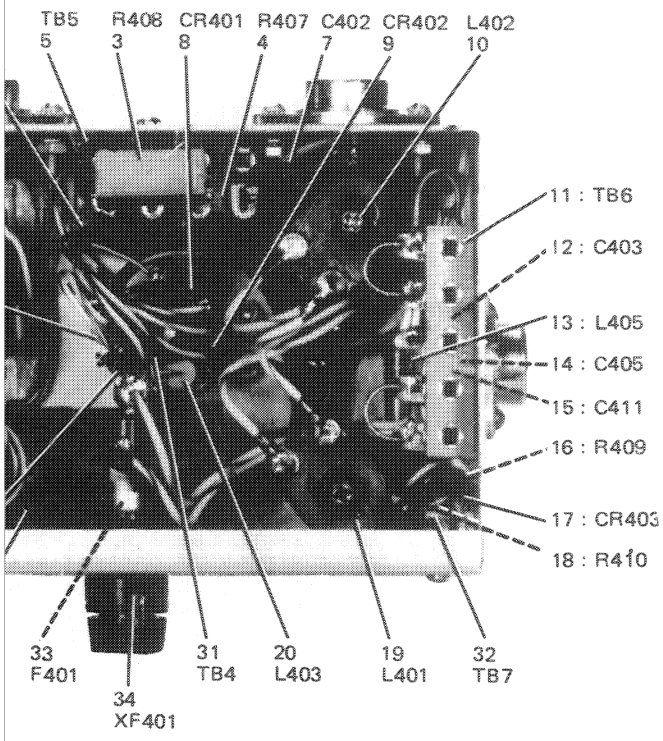
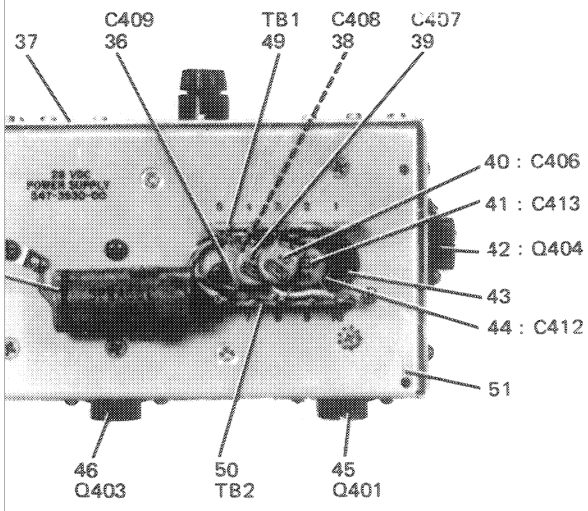
ARTS LIST

CRIPTION	USABLE ON CODE	UNITS PER ASSY
-3-34 FOR NHA)	J,M,N	REF
) 353-1665-000 CR7		1
, 10%, 1/2W (V81349)		1
) 353-1665-000 CR9		1
) 353-1665-000 CR6		1
, 10%, 1/2W (V81349)		1
) 353-1665-000 CR10		1
) 353-1665-000 CR12		1
) 353-1665-000 CR11		1
) 353-1665-000 CR13		1
306-0909-000 TB12		1
) 353-1665-000 CR8		1
, 10%, 2W (V81349)		1
50UF, M10%P75%, 50V		1
247		
306-9033-000 TB17		1
50UF, M10%P75%, 50V		1
183		
40UF, M10%P100%, 200V, 3		1
) 662-0002-000 T6		1
668-0523-000 L109		1
C007-000 F1		1
-1019-000 XF1		1
		1



TOP VIEW



BOTTOM VIEW

TP3-8405-017

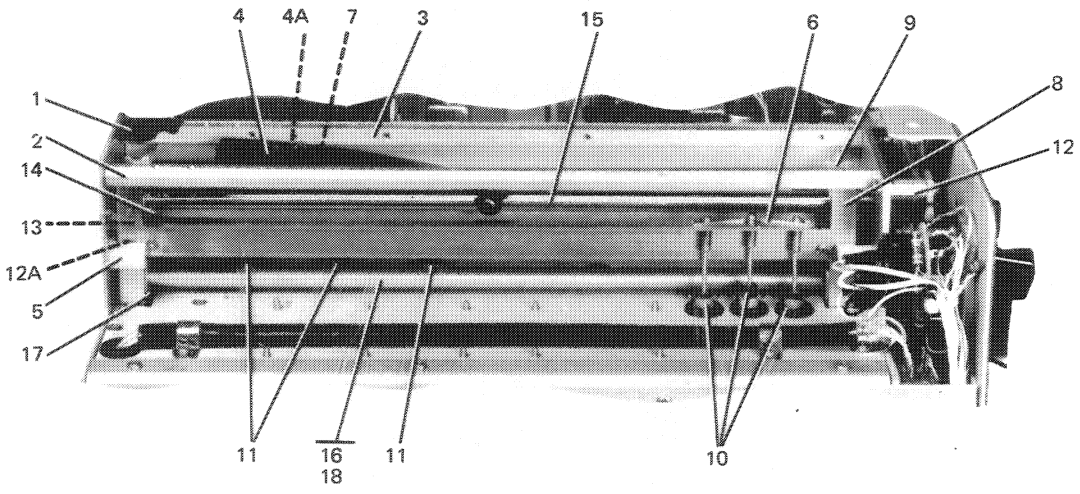
-V DC Power Supply
Figure 6-5

	USABLE ON CODE	UNITS PER ASSY
-34 FOR NHA)	K,L	REF
		1
		1
(V07716)		1
(V07716)		1
000 TB5		1
%P100%, 50V		1
20%, 500V		1
-000 CR401		1
-000 CR402		1
2		1
000 TB6		1
20%, 500V		1
000 L405 (EFF		1
000 L405 (EFF		1
P100%, 50V		1
P100%, 50V		1
W (V81349)		1
-000 CR403		1
W (V81349)		1
1		1
000 L403 (EFF		1
000 L403		1
P100%, 250V, 3		1
(V81349)		1
000 L404 (EFF		1
000 L404 (EFF		1
%, 1/2W		1
W (V81349)		1
%, 1/2W		1
W (V81349)		1
%, 1/2W		1
W (V81349)		1
000 TB3		1
000 TB4		1
000 TB7		1
401		1
XF401		1

EMBLY PARTS LIST

DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
S		1
, CER DIEL, 10000PF, 20%, 500V		1
3013-000 C409		
		1
, CER DIEL, 10000PF, 20%, 500V		1
3013-000 C408		
, CER DIEL, 10000PF, 20%, 500V		1
3013-000 C407		
, CER DIEL, 10000PF, 20%, 500V		1
3013-000 C406		
, CER DIEL, 10000PF, 20%, 500V		1
3013-000 C413		
04713) 352-0203-C00 Q404		1
V75543) 201-1080-000		1
, CER DIEL, 10000PF, 20%, 500V		1
3013-000 C412		
04713) 352-0203-000 Q401		1
04713) 352-0203-000 Q403		1
, ELCTLT, 150UF, M10%P100%, 50V		1
1307-000 C410		
04713) 352-0203-000 Q402		1
) (V71785) 306-0550-000 TB1		1
) (V71785) 306-0550-000 TB2		1
		1

GROUP ASSEMBLY PARTS LIST



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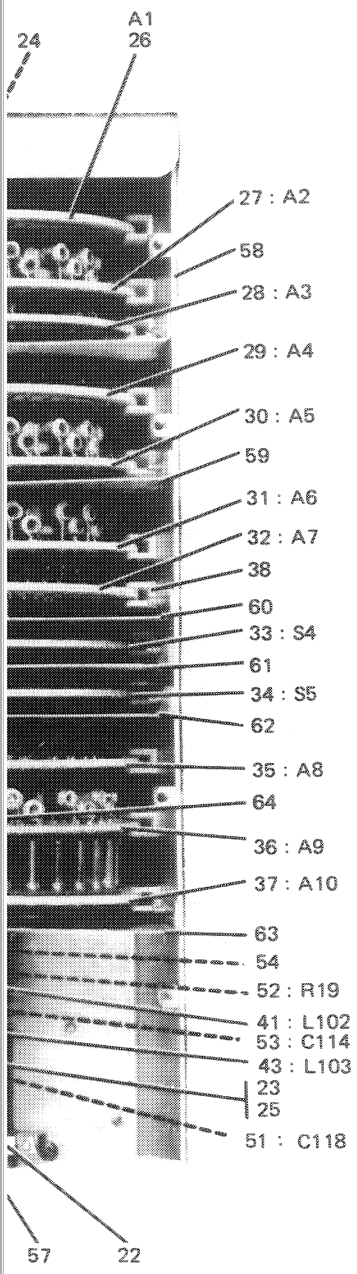
RF Tuning Unit
Figure 6-6 (Sheet 1 of 3)

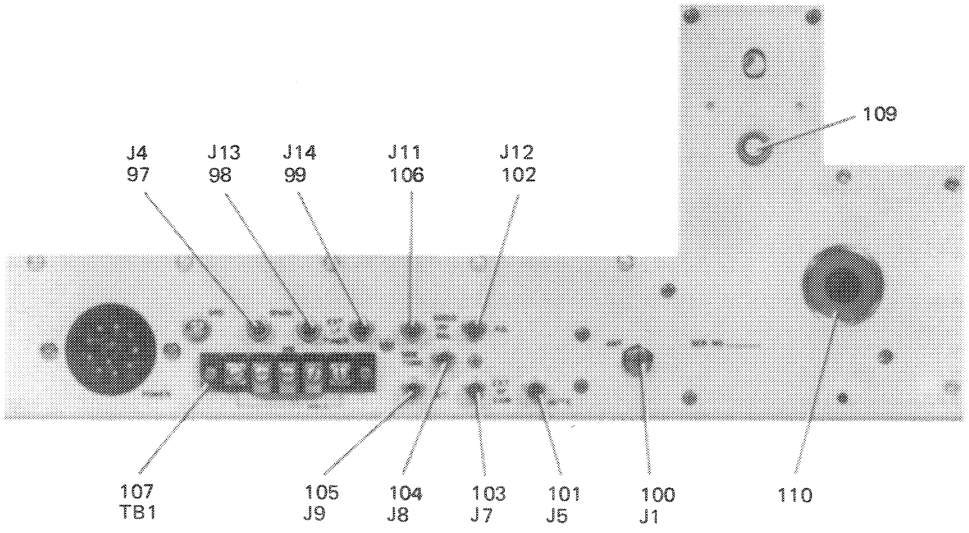
PARTS LIST



TP3-8408-037

g Unit
'Sheet 2)

GROUP ASSEMBLY PARTS LIST



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RF Tuning Unit
Figure 6-6 (Sheet 3)

T

	USABLE ON CODE	UNITS PER ASSY
B FOR NHA)		REF
		1
		1
		1
		1
		1
		2
		1
		1
		1
		1
3-000		3
-000		3
		1
		4
		2
		2
		1
		1
		2
		1
18PF, 350V		1
0V (V72982)		1
0V (V72982)		1
		1
		1
		1
		1
)		1
		1
)		1
)		1
		1
		1
7 (SEE FIG 6-11)		1
		1
		1
TOR A8 (SEE FIG		1
E FIG 6-13)		1
		1
		12
		1
		2
		1
(V72982)		1
		1
		1
(V72982)		1
(V72982)		1
PF, 2%, 500V		1
F, 0.5PF, 500V		1
, 0.5PF, 500V		1

NITS
ER
SSY

500V

500V

81349

, 500

(V813

(V813

T9 ,T
L112
L122
, 500

982)

3
1

9
L67

3
L31

64)

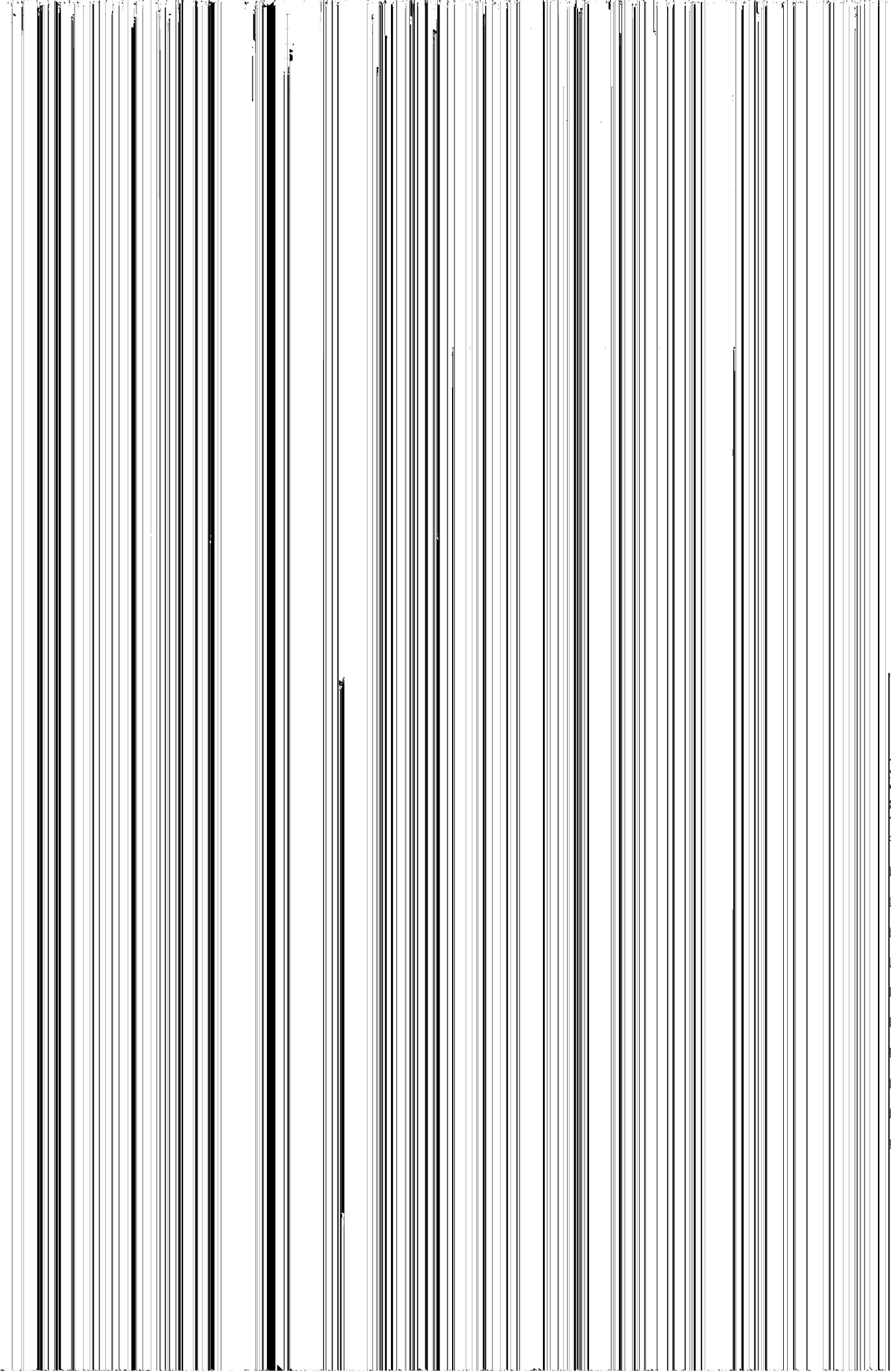
EMBLY PARTS LIST

DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
12389) 360-0148-000 J12		1
12389) 360-0148-000 J7		1
12389) 360-0148-000 J8		1
12389) 360-0148-000 J9		1
12389) 360-0148-000 J11		1
(V75392) 367-7343-000 TB1 (EFF TO		1
(V75382) 367-7321-000 TB1 (EFF		1
		1
		1
		1

TP3-8407-014

ssembly
-7

	USABLE ON CODE	UNITS PER ASSY
1A)		REF
		1
		3
		1
		1
		1
		1
		1
		1
		1
		1
		2
		1
		1
		1
		1
		1
739-001)		1
		1
		1
		2
		2
		1
		1
		1
		1
		1
		AR
		AR
		1
		1
		1
		2
		1
		AR
		1
		1
		1
		2
		1
		1
		1
A11		1
3-002)		2
0)		2
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		2
		1
		1
		1
000		AR
		7
		1
000		4
		1



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NITS
ER
SSY

LIST

ON	USABLE ON CODE	UNITS PER ASSY
5PF, 2%, 500V ,A4C55		1
PF, 2%, 500V ,A4C57		1
3PF, 2%, 500V ,A4C58		1
3PF, 2%, 500V ,A4C60		1
5PF, 5%, 500V ,A4C61		1
DPF, 5%, 500V ,A4C62		1
5PF, 5%, 500V ,A4C64		1
8PF, 5%, 500V ,A4C65		1
5PF, 5%, 500V ,A4C67		1
2PF, 5%, 500V ,A4C68		1
10PF, 2%, 300V A ,A4C41A		1
30PF, 2%, 500V B ,A4C41B		1
30PF, 2%, 300V ,A4C42		1
00PF, 2%, 500V ,A4C43		1
52PF, 2%, 500V ,A4C44		1
		1

43, L78		
44, L79		
45, L80		
46, L81		
L47, L82		
L48, L83		
L49, L84		
L50, L85		
L51, L86		
L52, L87		
L53, L88		
L54, L89		

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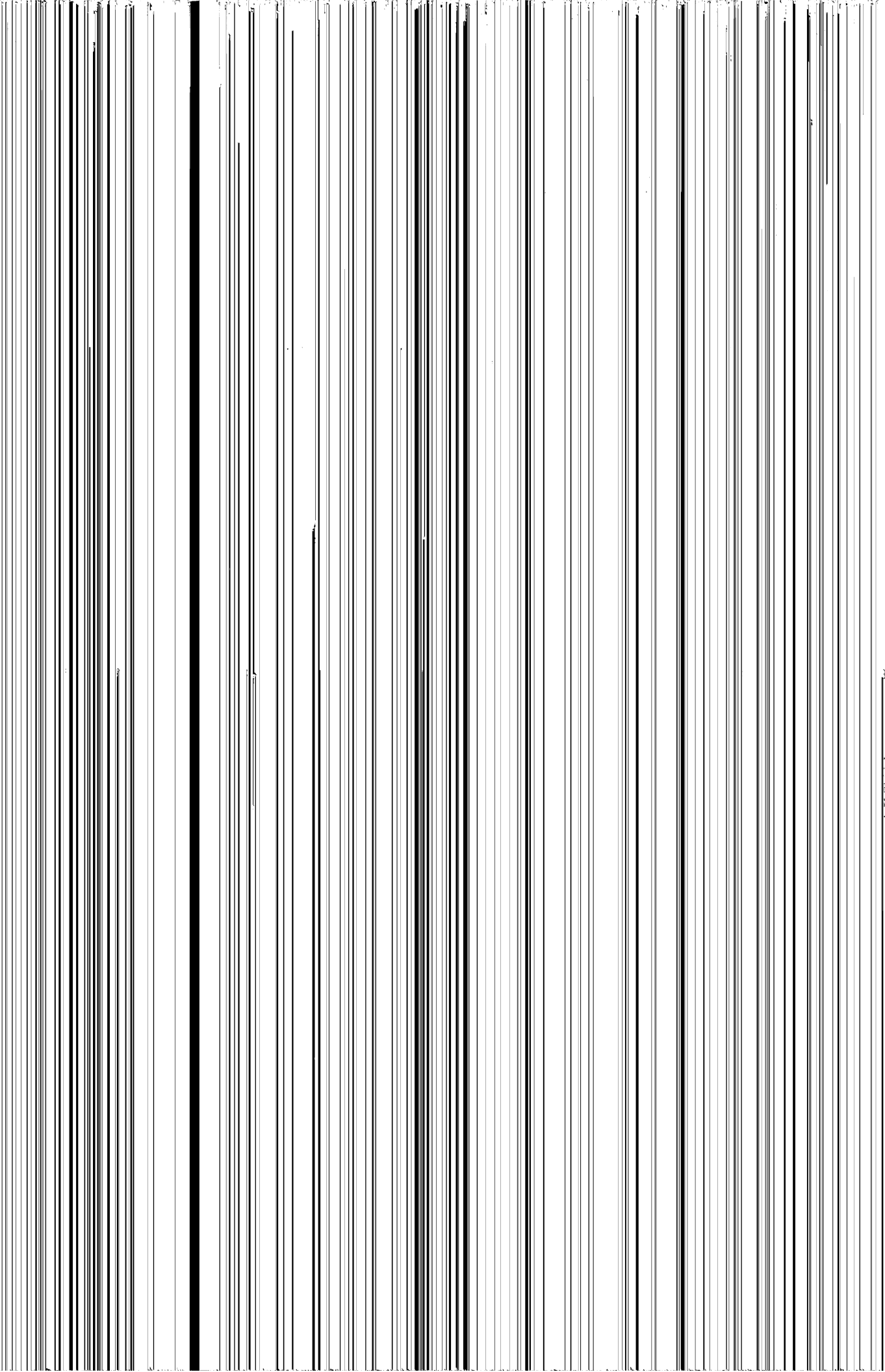
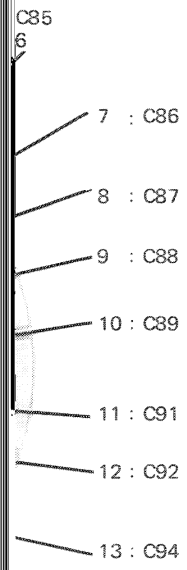
USABLE ON CODE	UNITS PER ASSY
	REF
	1
	1
	1
	1
	1
	1
	1
	1
	1
	1
	1
	1
	1
	1

ST

N	USABLE ON CODE	UNITS PER ASSY
F CI 71403)		1
131-000 A2L7 ,A5L44,		1
F CI 71403)		1
131-000 A2L8 ,A5L45,		1
F CI 71403)		1
132-000 A2L9 ,A5L46,		1
F CI 71403)		1
132-000 A2L10,		1
FF CI 71403)		1
133-000 A2L11,		1
FF CI 71403)		1
133-000 A2L12,		1
FF CI 71403)		1
133-000 A2L13,		1
FF CI 71403)		1
133-000 A2L14,		1
FF CI 71403)		1
134-000 A2L15,		1
FF CI 71403)		1
135-000 A2L16,		1
FF CI 71403)		1
137-000 A2L17,		1
FF CI 71403)		1
143-000 A2L18,		1
FF CI 71403)		1
143-000 A2L19,		1
FF CI 71403)		1
139-000 A2L20,		1
FF CI 71403)		1
139-000 A2L21,		1
FF CI 71403)		1
139-000 A2L22,		1
FF CI 71403)		1
139-000 A2L23,		1
FF CI 71403)		1
140-000 A2L24,		1
FF CI 71403)		1
140-000 A2L25,		1
FF CI 71403)		1
141-000 A2L26,		1
FF CI 71403)		1
141-000 A2L27,		1
FF CI 71403)		1





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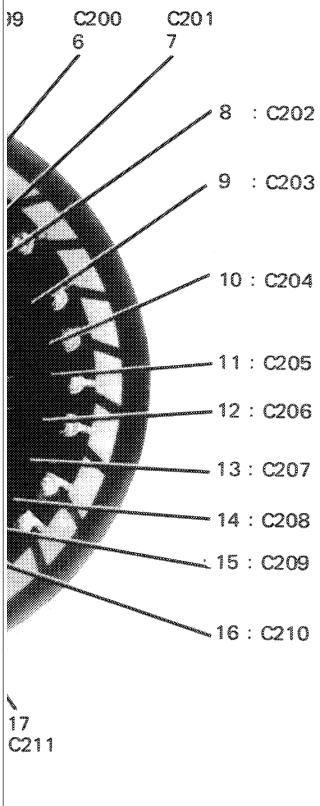
	USABLE ON CODE	UNITS PER ASSY
)2 FOR VHA)		REF
, 500V		1
, 500V		1
, 500V		1
, 500V		1
, 500V		1
500V		1
500V		1
500V		1
500V		1
500V		1
500V		1
500V		1
500V		1
500V		1

ST

N	USABLE ON CODE	UNITS PER ASSY
PF, 5%, 500V		1
PF, 5%, 500V		1
PF, 5%, 500V		1
PF, 5%, 500V		1
PF, 5%, 500V		1
PF, 5%, 500V		1
0PF, 2%, 300V		1
0PF, 2%, 500V		1
5PF, 1%, 300V		1
0PF, 2%, 500V		1
2PF, 2%, 500V		1
0PF, 2%, 500V		1
		1



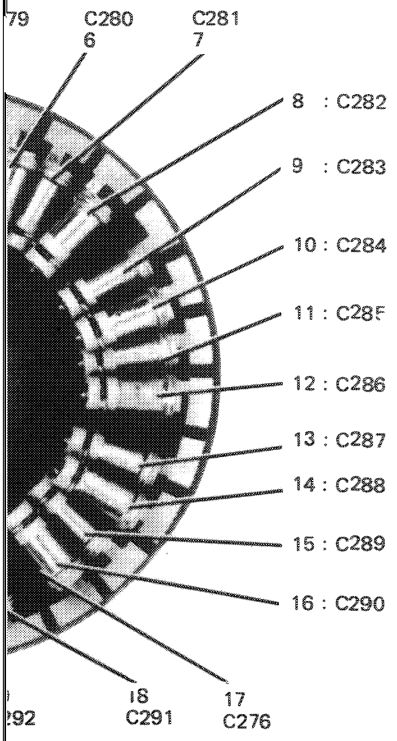
TP3-7991-017

(A8)

ARTS LIST

CRIPTION	USABLE ON CODE	UNITS PER ASSY
STAL OSCILLATOR A8 (SEE		REF
L, 8.2PF, 5%, 500V A8C243		1
L, 4.7PF, 5%, 500V A8C244		1
L, 1.1PF, 5%, 500V A8C245		1
EL, 56PF, 2%, 500V A8C198		1
EL, 68PF, 2%, 500V A8C199		1
EL, 91PF, 2%, 500V A8C200		1
EL, 120PF, 2%, 500V A8C201		1
EL, 160PF, 2%, 500V A8C202		1
EL, 110PF, 2%, 500V A8C203		1
EL, 82PF, 2%, 500V A8C204		1
EL, 62PF, 2%, 500V A8C205		1
EL, 51PF, 2%, 500V A8C206		1
EL, 36PF, 2%, 500V A8C207		1
EL, 27PF, 2%, 500V A8C208		1
EL, 20PF, 5%, 500V A8C209		1
EL, 114PF, 2%, 500V A8C210		1
EL, 100PF, 2%, 500V A8C211		1
EL, 82PF, 2%, 500V A8C212		1
EL, 71PF, 2%, 500V A8C213		1
EL, 62PF, 2%, 500V A8C214		1
EL, 51PF, 2%, 500V A8C215		1
EL, 43PF, 2%, 500V A8C216		1
EL, 36PF, 2%, 500V A8C217		1
EL, 30PF, 2%, 500V A8C218		1
EL, 24PF, 10%, 500V A8C239		1
EL, 20PF, 5%, 500V A8C240		1
EL, 15PF, 5%, 500V A8C241		1
EL, 12PF, 5%, 500V A8C242		1
		1

PARTS LIST



TP3-7989-017

itor Assembly (A9)
ure 6-13

ESCRIPTION	USABLE ON CODE	UNITS PER ASSY
RIMMER A9 (SEE FIG 6-6-36		REF
IEL, 2PF 10PF, 100V (V72982)		1
IEL, 2PF 10PF, 100V (V72982)		1
IEL, 2PF 10PF, 100V (V72982)		1
IEL, 2PF 10PF, 100V (V72982)		1
IEL, 2PF 10PF, 100V (V72982)		1
IEL, 2PF 10PF, 100V (V72982)		1
IEL, 2PF 10PF, 100V (V72982)		1
IEL, 2PF 10PF, 100V (V72982)		1
IEL, 2PF 10PF, 100V (V72982)		1
IEL, 2PF 10PF, 100V (V72982)		1
IEL, 2PF 10PF, 100V (V72982)		1
IEL, 2PF 10PF, 100V (V72982)		1
IEL, 2PF 10PF, 100V (V72982)		1
IEL, 2PF 10PF, 100V (V72982)		1
IEL, 2PF 10PF, 100V (V72982)		1

	USABLE ON CODE	UNITS PER ASSY
F, 100V (V72982)		1
5%, 500V		1
F, 100V (V72982)		1
F, 100V (V72982)		1
F, 100V (V72982)		1
F, 100V (V72982)		1
F, 100V (V72982)		1
F, 100V (V72982)		1
F, 100V (V72982)		1
F, 100V (V72982)		1
F, 100V (V72982)		1
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F, 100V (V72982)		1
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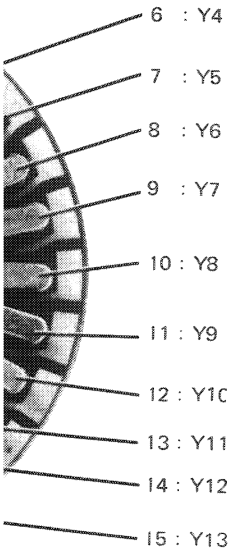
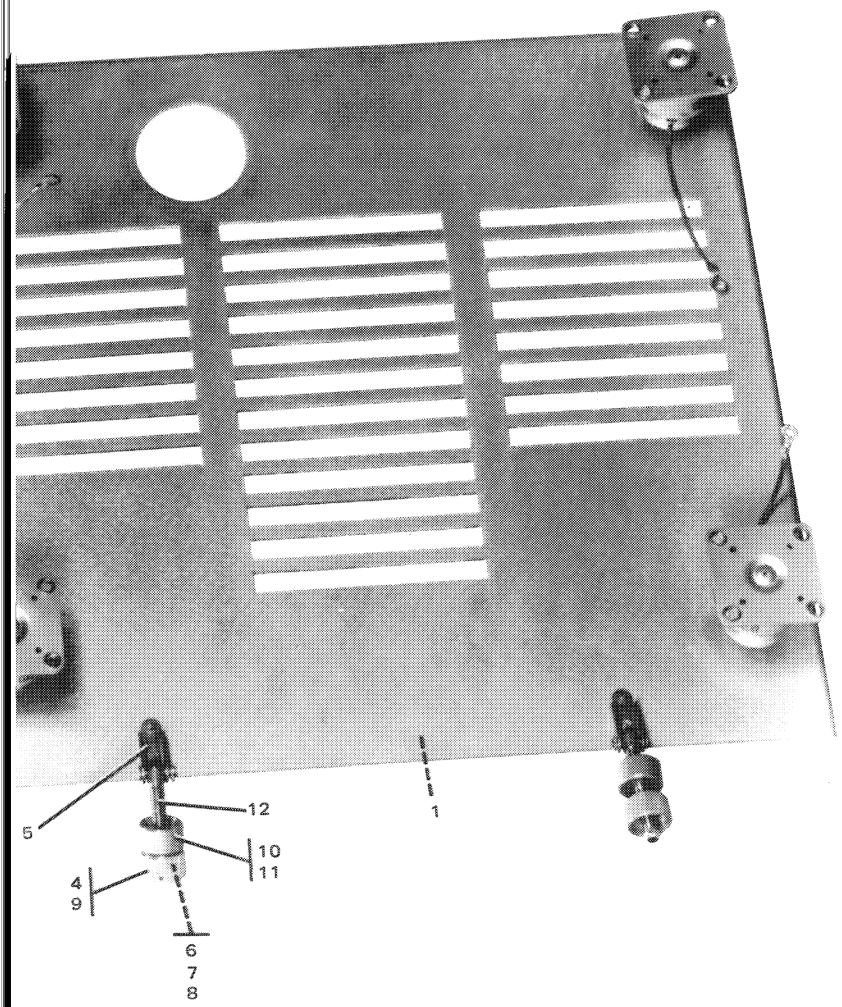


TP3-7990-017

EMBLY PARTS LIST

DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
BLY A10 (SEE FIG 6-6-37 FOR NHA)		REF
, 14500.00KHZ (V00136) 289-1580-000		1
, 10332.50KHZ (V94148) 289-6996-020		1
, 12500.00KHZ (V00136) 289-1567-000		1
, 11500.00KHZ (V00136) 289-1568-000		1
, 10500.00KHZ (V00136) 289-1569-000		1
, 9500.000KHZ (V00136) 289-1570-000		1
, 8500.000KHZ (V00136) 289-1571-000		1
, 10000.00KHZ (V00136) 289-1572-000		1
, 11000.00KHZ (V00136) 289-1573-000		1
, 12000.00KHZ (V00136) 289-1574-000		1
, 13000.00KHZ (V00136) 289-1575-000		1
, 14000.00KHZ (V00136) 289-1576-000		1
, 15000.00KHZ (V00136) 289-1577-000		1
, 16000.00KHZ (V00136) 289-1582-000		1
, 9000.000KHZ (V00136) 289-1578-000		1
, 13500.00KHZ (V00136) 289-1579-000		1
YSTAL		1
		1

GROUP ASSEMBLY PARTS LIST



TP3-8409-017

350D-5 Base Shockmount
Figure 6-15

NCE TION	FIG - ITEM	PART NUMBER
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	6-3-203	1
	6-8-12	1
	6-8-12	1
	6-11-11	1
	6-12-12	1
	6-12-21	1
G03	6-8-11	1
	6-8-11	1
	6-11-10	1
	6-12-4	1
G03	6-3-202	1
	6-3-236	1
	6-3-240	1
	6-3-241	1
	6-8-10	1
	6-8-10	1
	6-11-9	1
	6-12-11	1
	6-12-20	1
G03	6-8-9	1
	6-8-9	1
	6-11-8	1
	6-12-5	1
G03	6-8-8	1
	6-8-8	1
	6-11-7	1
	6-12-10	1
	6-12-18	1
G03	6-3-309	1
	6-8-6	1
	6-8-6	1
	6-11-5	1
	6-12-17	1
J03	6-3-438	1
G03	6-8-5	1
	6-8-5	1
	6-11-4	1
	6-12-9	1
G03	6-12-7	1
J03	6-3-164	1
G03	6-8-4	1
	6-8-4	1
	6-11-3	1
G03	6-8-3	1
	6-8-3	1
	6-11-2	1
G03	6-12-8	1
G03	6-8-2	1
	6-8-2	1
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G03	6-8-1	1
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G03	6-11-25	1
G03	6-8-24	1
	6-8-24	1
G03	6-8-22	1
	6-8-22	1
	6-11-21	1
	6-11-23	1
J03	6-3-112	1
	6-3-153	1

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	3-233	1
	3-315	1
	5-351	1
	3-355	1

ION INDEX

EFERENCE SIGNATION	FIG - ITEM	PART NUMBER
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	6-3-288	1
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	6-3-259	1
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	6-3-412	1
)G151KS	6-5-24	1
	6-5-26	1
	6-5-28	1
0G152JS	6-3-279	1
)G221JS	6-3-307	1
0G221KS	6-3-353	1
)G222KS	6-3-216	1
	6-3-271	1
)G224KS	6-3-85	1
	6-3-218	1
	6-3-262	1
	6-3-291	1
	6-3-297	1
)G271JS	6-3-257	1
)G3R9JS	6-3-227	1
)G330KS	6-3-320	1
	6-3-365	1
	6-3-391	1
)G331KS	6-3-409	1
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	6-3-94	1
	6-3-267	1
)G334KS	6-3-262	1
0G390KS	6-3-265	1
)G470KS	6-3-181	1
	6-3-293	1
	6-3-296	1
)G471KS	6-3-213	1
)G472KS	6-3-387	1
)G473KS	6-3-130	1
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	6-3-345	1
	6-3-367	1
	6-3-410	1
)G474KS	6-3-176	1
	6-3-270	1
	6-3-274	1
	6-3-386	1
)G512JS	6-3-290	1
)G562KS	6-3-98A	1
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	6-3-282	1
0G751JS	6-3-284	1
0G820KS	6-3-115	1
2G102KS	6-3-81	1
	6-3-221	1
	6-3-341	1
	6-5-22	1
2G121KS	6-3-174	1
	6-3-269	1
2G153KS	6-3-188	1
2G472KS	6-5-25	1
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2G680KS	6-3-171	1

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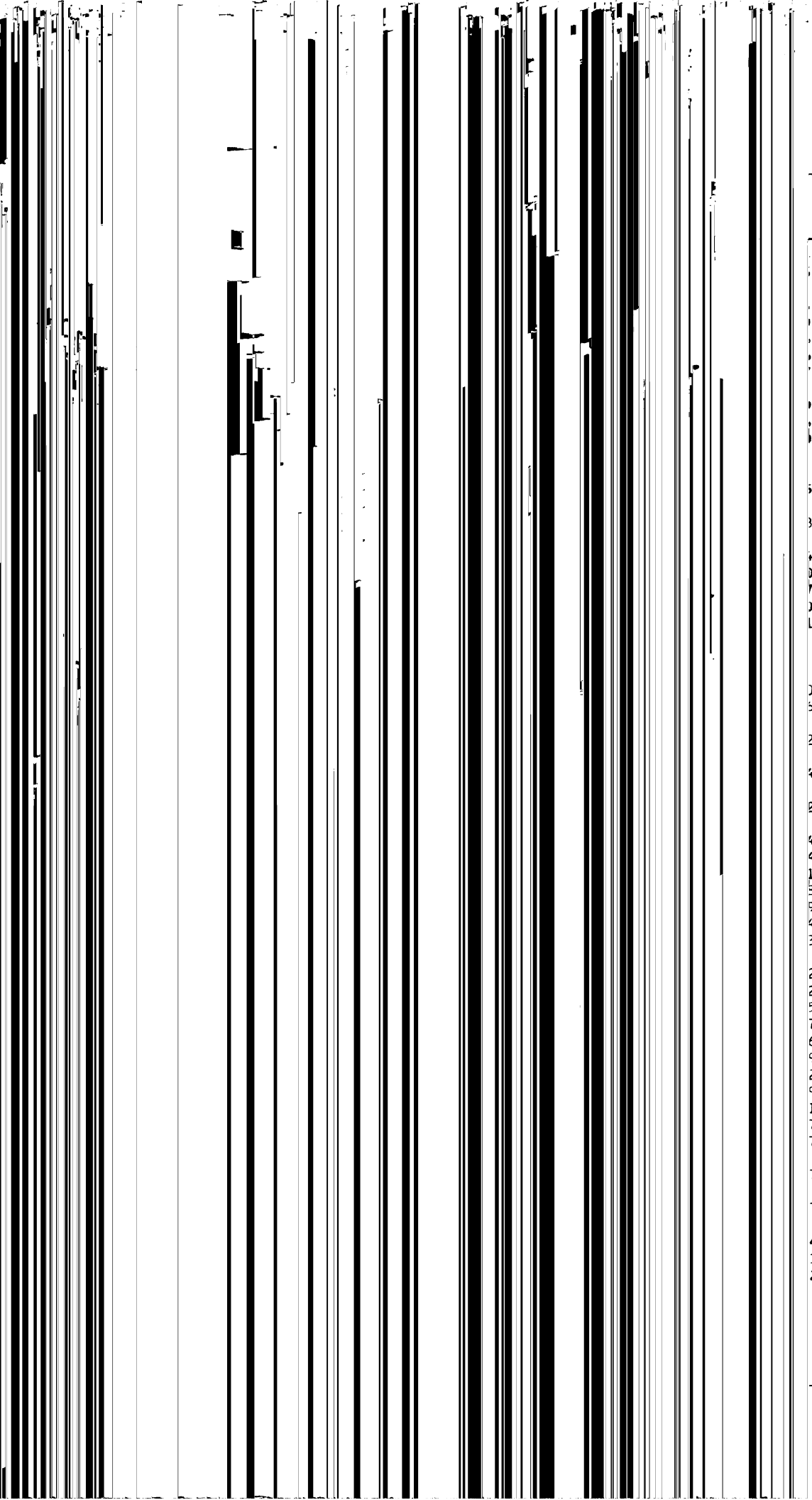

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	6-2-11	1
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8980-2 1-2	6-3-243A	2
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	6-6-89B	8
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956-0614-410	6-3-14	1

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6-12-19	DM15E710G0500WV4 CR
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6-12-21	CM05ED510G03
6-12-22	CM05ED430G03
6-12-23	CM05ED360G03
6-12-24	CM05ED300G03
6-12-25	DM15E240K500WV4C R
6-12-26	CM05ED200J03
6-12-27	CM05CD150J03
6-12-28	CM05CD120J03
6-12-1	QC8-200UF5PCT
6-12-2	QC4-700UF5PCT
6-12-3	QC1-100UF5PCT
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WEE-470
MS90540-07
546-7109-003
MS18130-9
547-2625-003
MS18130-8
C800
C800
240-0194-000
MS75103-10
240-0194-000
MS75103-10
240-0194-000
MS75103-10
MS18130-9
547-2625-003
MS18130-8
MS90539-15
MS18130-8
547-2625-003

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ATION INDEX

REFERENCE DESIGNATION	FIG - ITEM	PART NUMBER
	6-6-107	599-2004-5
0	6-3-252	6H12
1	6-3-402	6H12
2	6-4-10	6H12
3	6-3-332	1909
4	6-3-339	1560
5	6-3-362	1520A
6	6-3-378	332-1403-165
7	6-4-14	1520A
	6-5-50	1542A
	6-3-198	6H12
	6-5-30	6H12
	6-3-160	6H12
	6-5-31	6H12
	6-3-161	6H12
	6-5-5	1532A
	6-3-155	6H12
	6-5-11	1542A
	6-3-156	6H12
	6-5-32	1542A
	6-3-305	6H12
	6-3-304	6H12
	6-3-251	6H12
	6-3-44	X201-2
	6-6-72	X189-2
	6-3-370	X188-1
	6-3-13	X209-2
	6-3-11	X209-2
	6-3-39	X206-2
	6-3-41	X206-2
	6-3-27	X364-1
	6-3-43	X201-2
	6-3-38	X205-2
	6-3-14	956-0614-410
1	6-5-2	664-1020-000
	6-4-17	37558
	6-3-35	X207-2
	6-3-222	E13657
	6-6-72	X189-2
	6-3-21	6DC6
	6-3-26	6EA8
	6-3-33	5670
	6-3-24	6BF5
	6-3-15	6AK6
	6-3-18	12AX7A
	6-3-29	6EA8
	6-3-30	7543
	6-3-16	6EA8
	6-3-10	6EA8
	6-3-9	6EA8
	6-3-47	6BA6
	6-3-46	12AX7A
	6-3-45	6BA6
	6-3-40	6BA6
	6-3-36	6BA6
1	6-3-53	4159-043
	6-4-20	HKPHJRZZ
01	6-5-34	HKPHJRZZ
	6-3-360	TS102P01
0	6-3-359	TS103P01
1	6-3-159	TS103P01
1	6-3-159	TS103P02
2	6-3-301	TS102P01

REFERENCE DESIGNATION INDEX

REFERENCE DESIGNATION	FIG - ITEM	PART NUMBER
3	6-3-303	TS102P01
3	6-3-303	TS102P02
3	6-3-303	TS102P01
	6-3-302	TS103P01
	6-3-302	TS103P02
	6-3-302	TS103P01
	6-3-299	TS103P01
	6-3-158	TS102P01
	6-3-361	TS103P01
	6-3-381	TS103P01
	6-3-401	TS103P01
	6-3-254	TS102P01
	6-3-254	TS102P02
	6-3-254	TS102P01
	6-3-199	TS103P01
	6-3-199	TS103P02
	6-3-196	TS102P01
	6-3-196	TS102P02
	6-3-196	TS102P01
	6-3-300	TS0205C01
	6-3-157	TS0205C01
	6-3-379	TS0205C01
	6-3-28	BL289-1424-000
	6-3-17	B9-7064-010
	6-3-350	289-1576-00M20
	6-3-12	S289-1587-000

REFERENCE DESIGNATION	FIG - ITEM	PART NUMBER

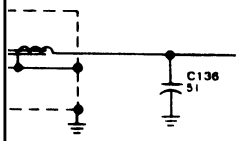
section 7
illustrations

CHANGES

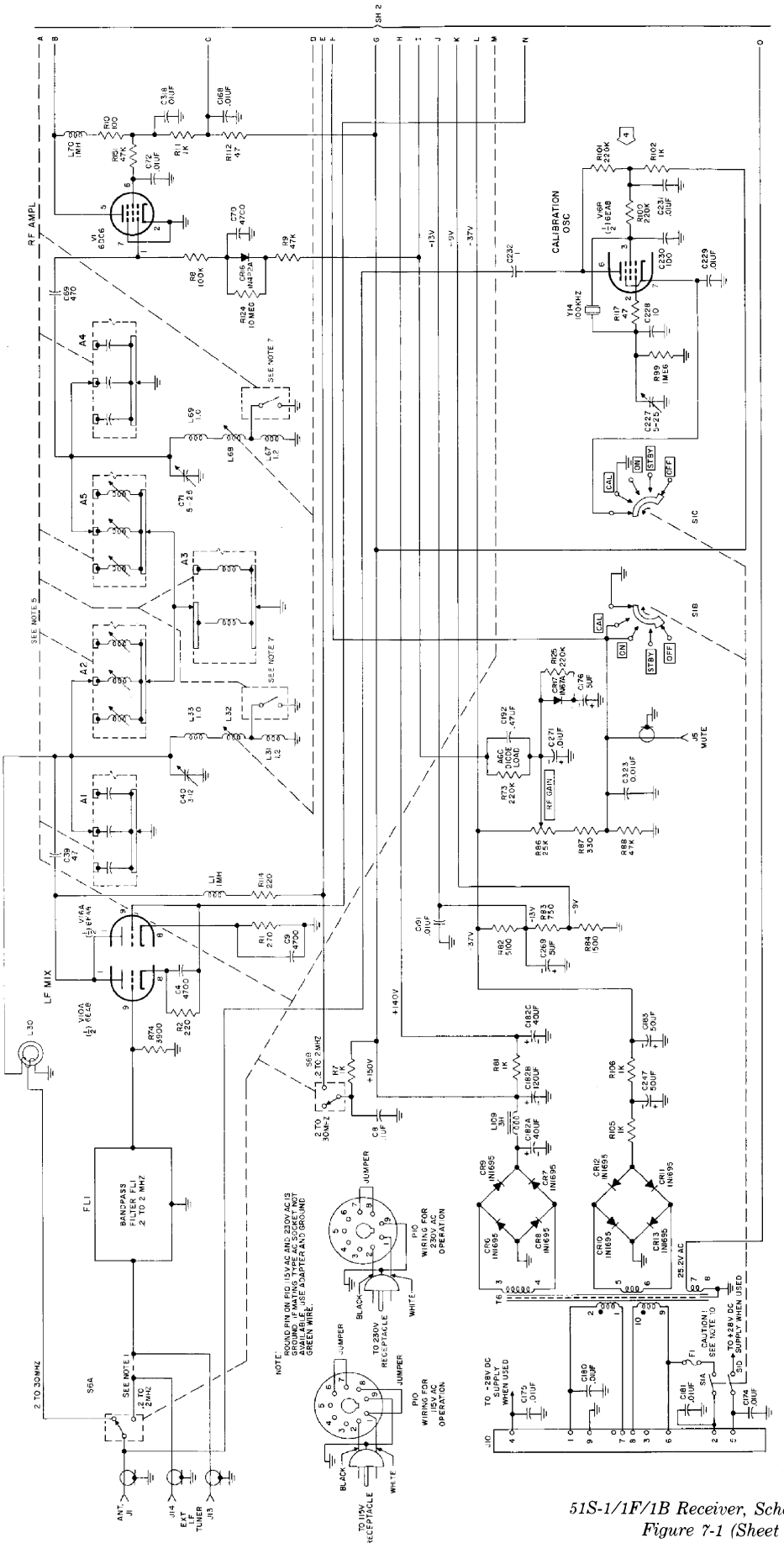
SION NGE	SERVICE BULLETIN	EFFECTIVITY
l capaci- circuits , C131, C130 reduce by add- 14, value of R156, d re- on of for Q1. 0 from re that ill illator acitor to ations. to 390 to 502, 504 to output ainst d C505 s, and and		

Schematic Diagram (Sheet A)

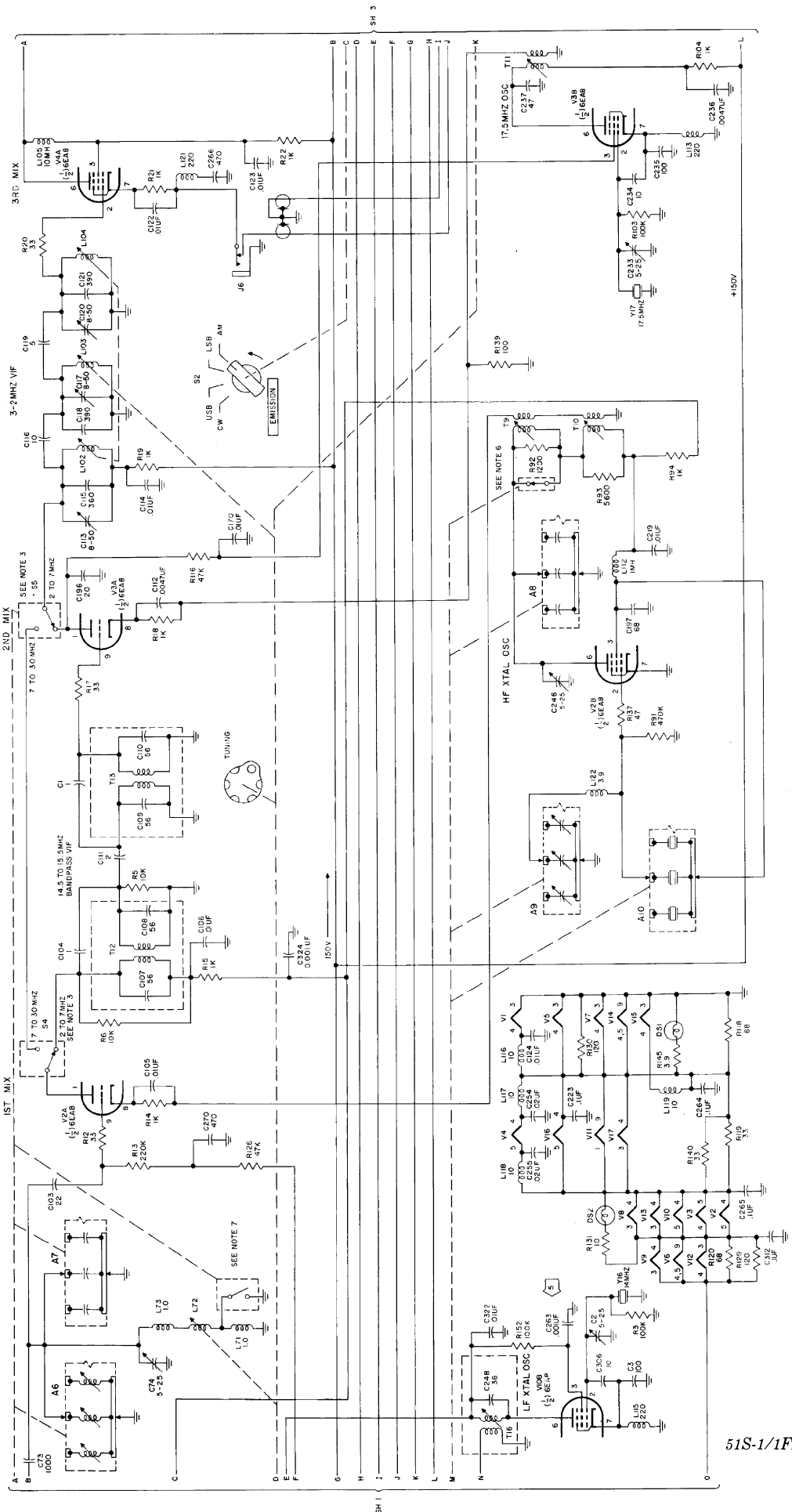
MATIC CHANGES

F REVISION)R CHANGE	SERVICE BULLETIN	EFFECTIVITY
z CW filter may 134 may be ced with 6-kHz :r; schematic .s as follows:  ay be optionally .1-kHz mechani-		

} Receiver, Schematic Diagram
'igure 7-1 (Sheet B)

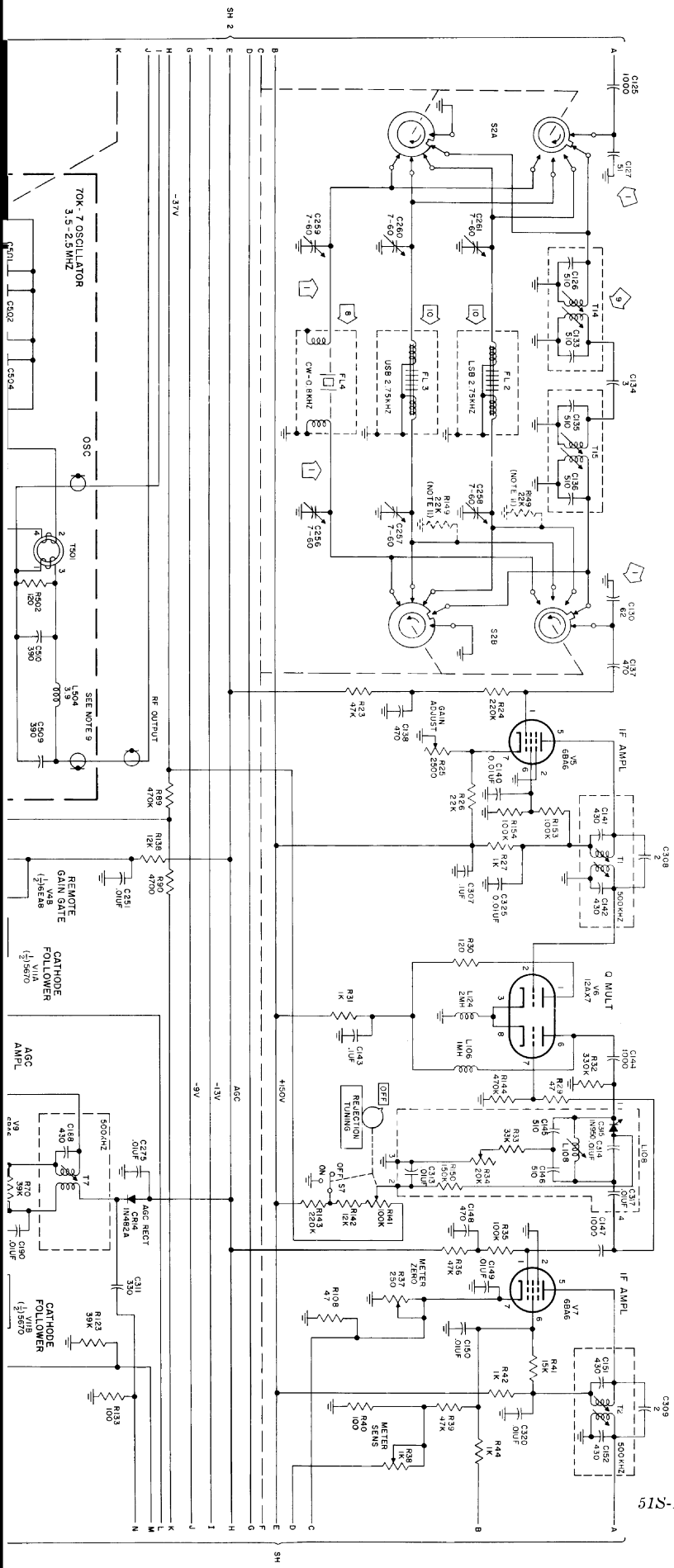


51S-1/1F/1B Receiver, Schematic Diagram
Figure 7-1 (Sheet 1 of 4)



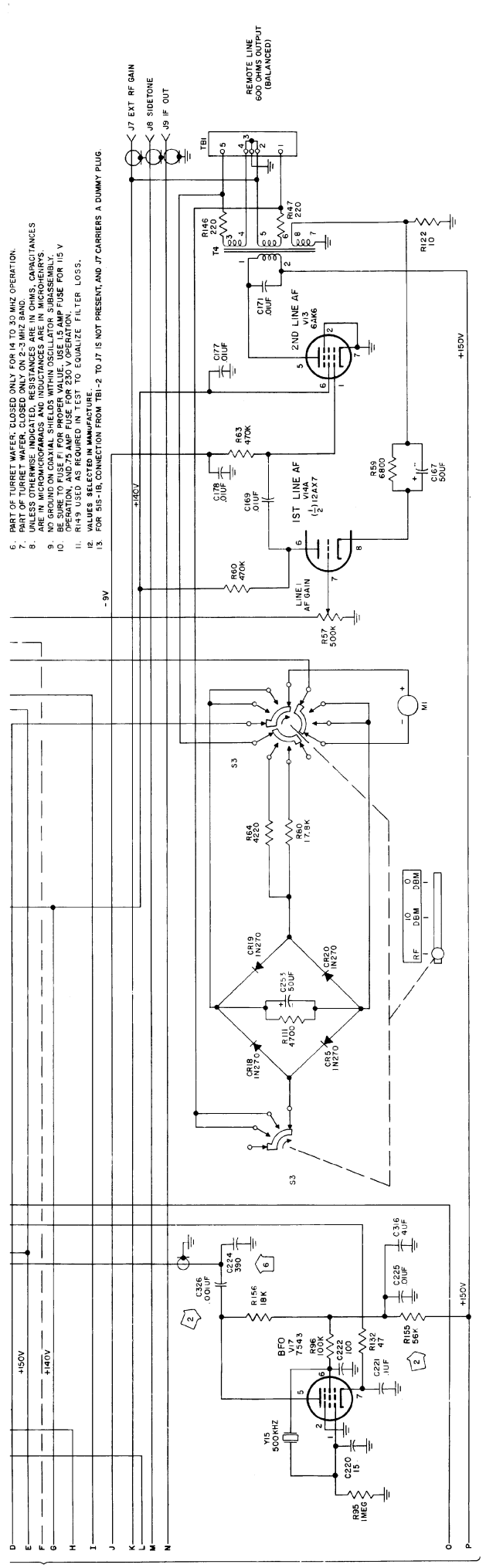
TP3-8697-045

51S-1/1F/1B Receiver, Schematic Diagram
Figure 7-1 (Sheet 2)



TP3-8697-045

51S-1/1F/1B Receiver, Schematic Diagram
Figure 7-1 (Sheet 3)



6. PART OF TURRET WAFER, CLOSED ONLY FOR 14 TO 30 MHZ OPERATION.
7. PART OF TURRET WAFER, CLOSED ONLY ON 2-3 MHZ BAND.
8. UNLESS OTHERWISE INDICATED, RESISTANCES ARE IN OHMS, CAPACITANCES ARE IN MICROMICROFARADS AND INDUCTANCES ARE IN MICROHENRYS.
9. NO GROUND ON COAXIAL SHIELDS WITHIN OSCILLATOR SUBASSEMBLY.
10. BE SURE TO FUSE F1 FOR PROPER VALUE. USE 1.5 AMP FUSE FOR 115 V OPERATION, AND .75 AMP FUSE FOR 230 V OPERATION.
11. R149 USED AS REQUIRED IN TEST TO EQUALIZE FILTER LOSS.
12. VALUES SELECTED IN MANUFACTURE.
13. FOR 51S-1B, CONNECTION FROM TBI-2 TO J7 IS NOT PRESENT, AND J7 CARRIERS A DUMMY PLUG.

TP3-8697-045

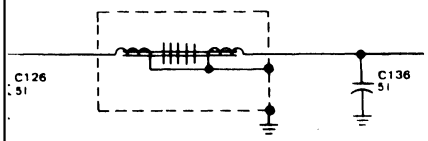
51S-1/1F/1B Receiver, Schematic Diagram
Figure 7-1 (Sheet 4)

SCHEMATIC CHANGES

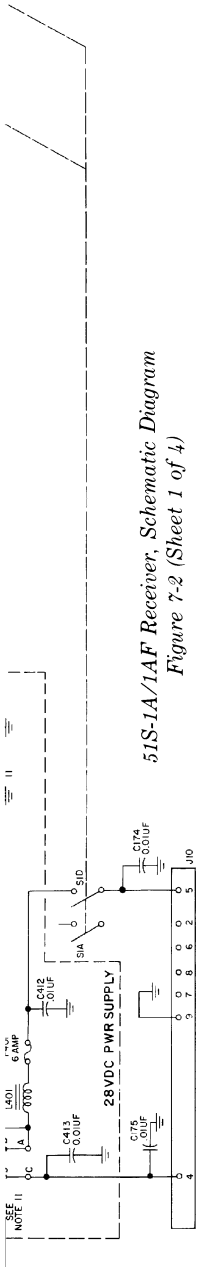
REVISION IDENTIFICATION	DESCRIPTION OF REVISION AND REASON FOR CHANGE	SERVICE BULLETIN	EFFECTIVITY
1	Reduced number of fixed capacitors at the input of filter circuits by removing C128, C129, C131, and C132 and relocating C130 and C127.		
2	Changed bfo circuit to reduce spurious 500-kHz signal by adding C337, relocating L114, relocating and changing value of C224, changing value of R156, adding capacitor 327, and replacing R99 with R155.		
3	Added additional selection of replacement transistor for Q1.		
4	Decreased value of R100 from 330 to 220 kΩ to ensure that calibration oscillator will oscillate.		
5	Changed LF crystal oscillator screeen grid bypass capacitor C263 from 0.01 to 0.001 to prevent parasitic oscillations.		
6	Changed C224 from 470 to 390 to improve resonance.		
7	Added CR501, CR502, R502, R505, C510, C509, and L504 to reduce higher harmonic output of VFO, and stabilize against voltage changes; changed C505 from 68 to 27 picofarads, and R503 from 56 to 33 kΩ; and deleted C506.		
8	Optional 0.3-kHz CW filter may be used.		

51S-1A/1AF Receiver, Schematic Diagram
Figure 7-2 (Sheet A)

SCHEMATIC CHANGES

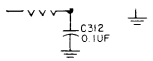
CRIPTION OF REVISION - REASON FOR CHANGE	SERVICE BULLETIN	EFFECTIVITY
4, T15, and C134 may be ionally replaced with 6-kHz chanical filter; schematic)resentation is as follows:  2 and FL3 may be optionally)laced with 3.1-kHz mechani- filters.		

51S-1A/1AF Receiver, Schematic Diagram
Figure 7-2 (Sheet B)

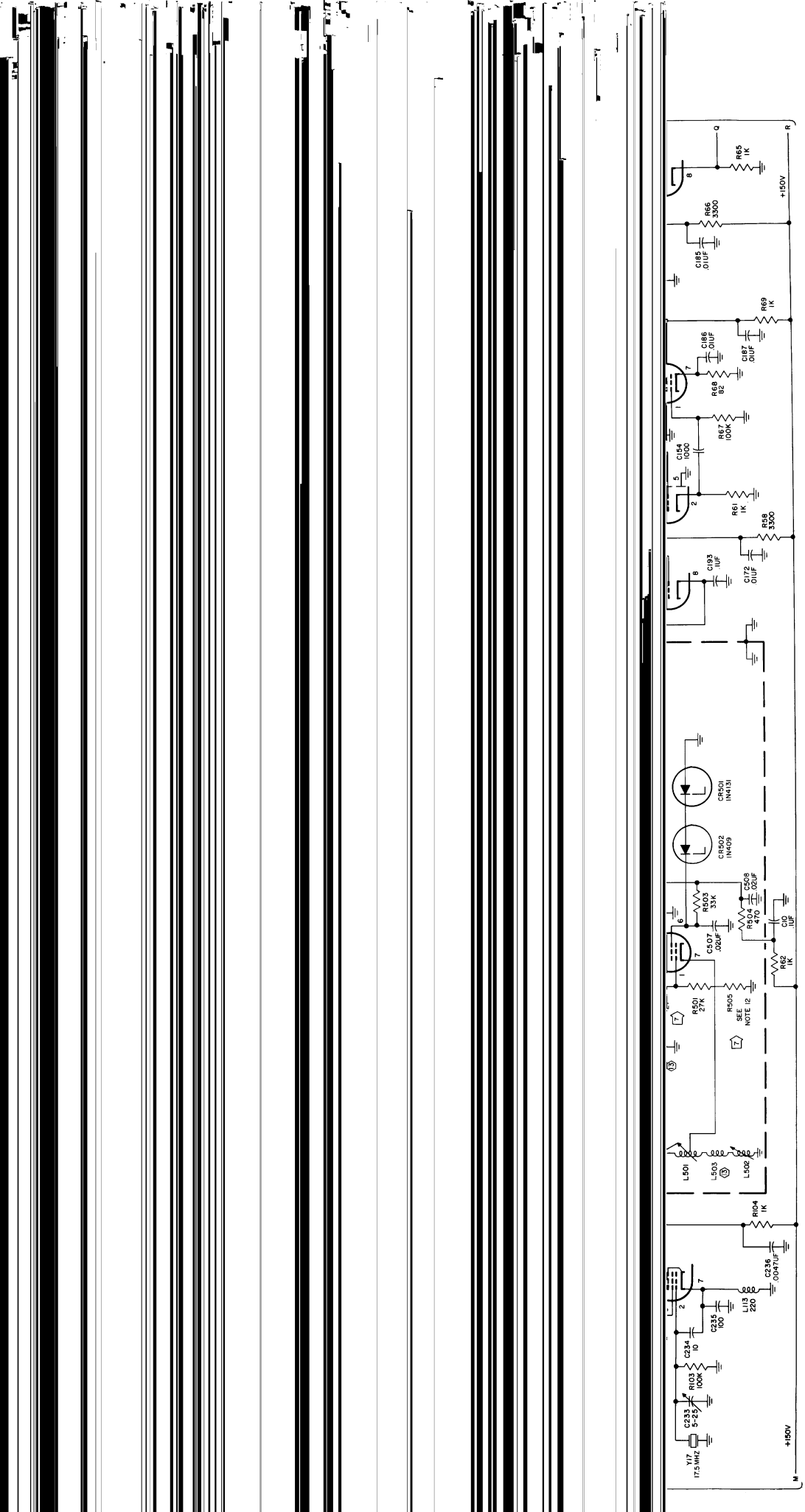


51S-1A/1AF Receiver, Schematic Diagram
Figure 7-2 (Sheet 1 of 4)

TP3-8698-045

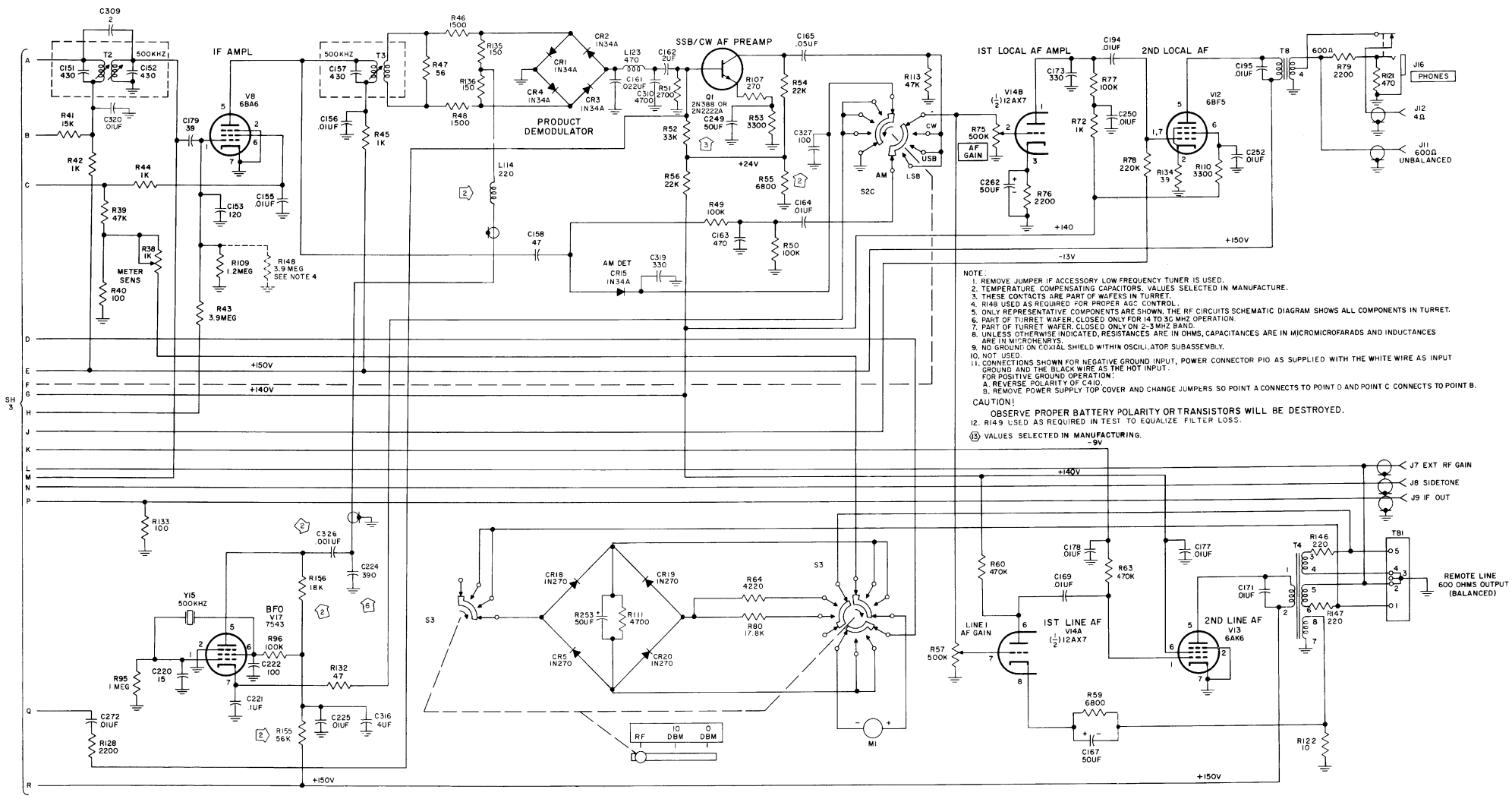


51S-1A/1AF Receiver, Schematic Diagram
Figure 7-2 (Sheet 2)



51S-1A/1AF Receiver, Schematic Diagram
Figure 7-2 (Sheet 3)

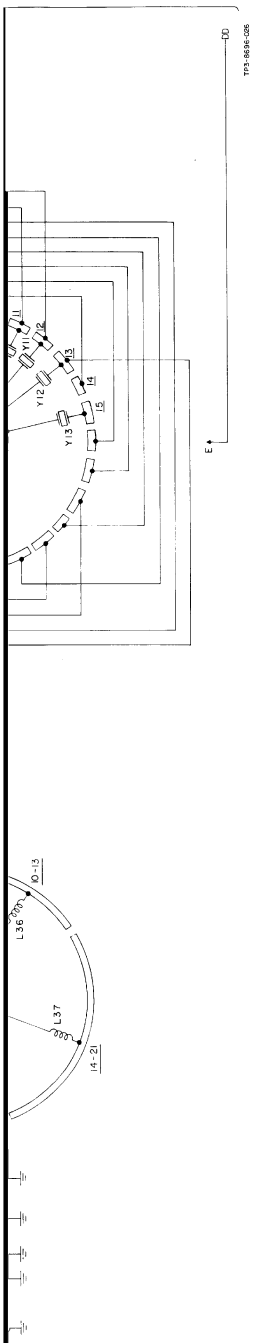
TP3-8698-045



51S-1A/1AF Receiver, Schematic Diagram
Figure 7-2 (Sheet 4)

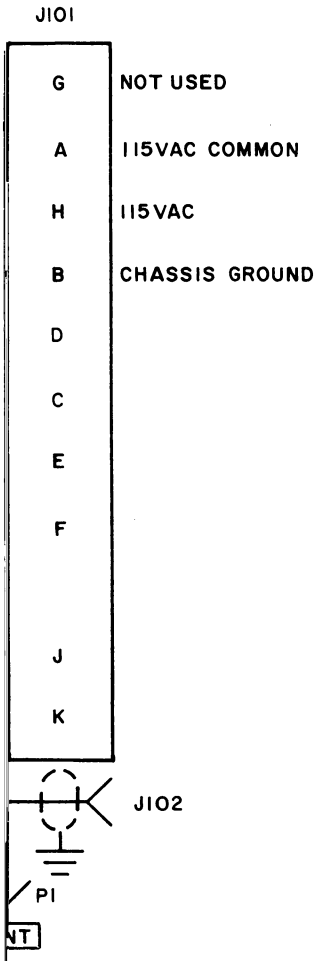
A

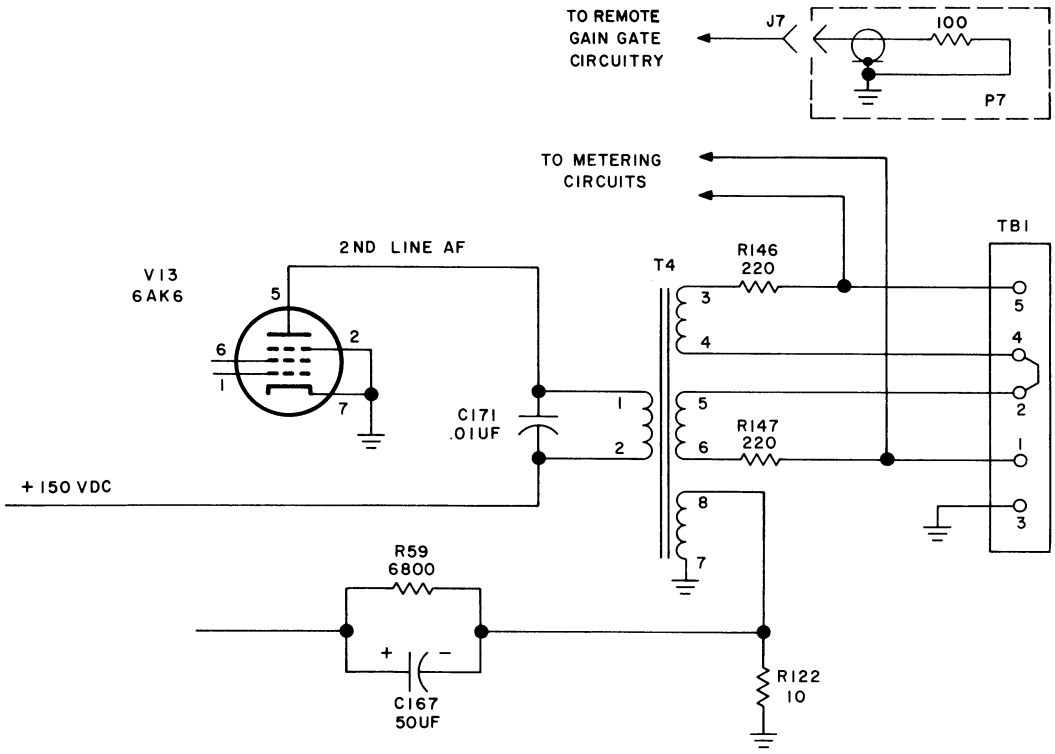
TP3-8698-045



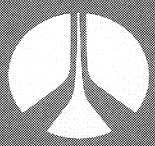
Turret and RF Section, Schematic Diagram
Figure 7-3 (Sheet 1 of 2)

Turrent and RF Section, Schematic Diagram
Figure 7-3 (Sheet 2)


J101
G
NOT USED
A
115VAC COMMON
H
115VAC
B
CHASSIS GROUND
D
C
E
F
J
K
J102
P1
NT



51S-1B Output Circuit, Partial Schematic Diagram
Figure 7-5



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International