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GONSET

INSTRUCTION MANUAL

GONSET LINEAR AMPLIFIER
GSB-201

MODELS: GSB-201 (3340)
GSB-201 Mk II (3340A)
GSB-201 Mk III (3340B)

INSTRUCTION MANUAL

GONSET

Linear Amplifier

GSB-201-(3340)
GSB-201 Mk II (3340A)
GSB-201 Mk III (3340B)

GONSET
DIVISION OF
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INTRODUCTION

The GONSET GSB-201 series of Linear Amplifiers provide approximately 10 db power gain of SSB, AM, RTTY and CW signals. The amplifier is of the grounded grid type and most of the excitation power appears in the output along with the amplified signal. The linear amplifier is complete with the high voltage power supply included in the same cabinet. The GSB-201 Mk II and Mk III amplifier also include a built-in bias supply.

The GSB-201 Mk II and Mk III GONSET series of amplifiers are improved versions of the original GSB-201. The original GSB-201 (3340) Linear Amplifier employing four type 811A tubes was designed for use in a station having separate receiver and transmitter units, rather than a transceiver.

The GSB-201 Mk II(3340A) and Mk III(3340B) Linear Amplifiers are a product of AEROTRON, since its acquisition of the GONSET product line. No Mk II or Mk III amplifiers were shipped by the previous owners of GONSET (prior to January 1, 1968).

Both the GSB-201 Mk II(3340A) and Mk III(3340B) Amplifiers include built-in circuitry for either complete transceiver operation or separate receiver and transmitter operation. In addition, a built-in cut-off bias supply is incorporated, reducing the plate current of the amplifier tubes to zero during standby, as well as reducing any possibility of noise getting into the associated receiver. The GSB-201 Mk II(3340A) employs four type 811A tubes, as was also employed in the original GSB-201(3340) Linear Amplifier. The GSB-201 Mk III(3340B) employs four type 572B/T160L heavy-duty, carbon plate, zero bias triode tubes, providing 2000 watts of conservatively rated SSB peak envelope power input. The use of 572B/T160L tubes provides extended tube life, in addition to increased PEP SSB ratings.

The type 572B/T160L tube has a plate dissipation rating of approximately 2-1/2 times that of the 811A; therefore, four type 572B/T160L tubes are equivalent in plate dissipation to ten 811A tubes. Additional or spare type 572B/T160L tubes are available through Aerotron's GONSET Division.

SPECIFICATIONS

	ORIGINAL TYPE 3340 & MARK II (3340A)	MARK III (3340B)
CW DC INPUT	1000 watts	1000 watts
SSB PEP INPUT	1500 watts	2000 watts
UNMODULATED AM DC INPUT	400 watts	600 watts
RTTY DC INPUT	750 watts	1000 watts
POWER CONSUMPTION	2 KW peak approximately	2.5 KW peak approx.
OUTPUT IMPEDANCE	50 ohm nominal	50 ohm nominal
INPUT IMPEDANCE	50 ohm nominal	50 ohm nominal
TUBE COMPLEMENT	(4) type 811A	(4)type 572B/T160L
SIZE:	8-1/2"H x 12-5/8"W x 17-5/16"D	
SHIPPING WEIGHT:	81 lbs.	

ANTENNAS

Any of the common antenna systems designed for use on the high-frequency amateur bands may be used with the GSB-201, providing the characteristic impedance of the transmission line is not outside the limits of the output matching network of the units.

If a "tuned" open-wire transmission line is used to excite the antenna, a suitable antenna tuner should be used between the linear output and the transmission line to provide a reasonable impedance match between the unbalanced coaxial output and the balanced open-wire line. Methods of constructing and operating tuners of this sort are described in detail in the ARRL Antenna Handbook and similar publications.

For operation on the 20 meter, 15 meter, and 10 meter amateur bands, the efficiency of the station will be greatly increased if a good directional rotary beam antenna is used.

For operation on the 75-80 or 40 meter bands, a simple dipole or trap dipole antenna, cut to resonance in the most-used portions of the band, will perform satisfactorily. The GSB-201 may also be used with the popular multi-band vertical antenna.

When using a "TRAP type antenna be sure that you use the type designed for "maximum Legal Input". A so called junior or miniature antenna will break down with prolonged use with the GSB-201.

INSTALLATION

ORIGINAL TYPE GSB-201 (3340) 3340-B

The unit may be placed in any location that will permit free air circulation through the ventilation holes in the cabinet. Avoid excessively warm locations such as those near radiators and heating vents.

When the GSB-201 (3340) is installed with the GSB-100 (3340) (or similar), used as an exciter, all the necessary T-R functions are provided by the exciter. Attach the antenna transmission line (RG-8/U, etc.), to the indicated connector with a type 83-1SP (SO-239) or equivalent connector. Interconnect the exciter and amplifier with a length of RG-8/U cable terminated at both ends with type 83-1SP connectors. The cable length should not exceed 4 feet.

Remove the shorting strap from the bias strip and interconnect the -100 volt bias terminals of the exciter and the amplifier. A connection between the ground terminals is not required when a DC ground return is provided elsewhere, as through the coaxial line shield.

Interconnect the ANT RELAY plug and socket on the exciter and amplifier, respectively, with the "cheater" cord supplied. Plug in the amplifier, and the installation is complete.

When the GSB-201 (3340) is installed with an exciter other than the GSB-100, the external connections may vary, depending on the facilities of the exciter. The amplifier may be completely "cut off" during receive periods by the application of approximately -100 volts bias between the terminals on the BIAS strip, after first removing the shorting strap. In any case, if this bias is used, it must be removed during transmission periods, and the -100 volt bias terminal automatically grounded through an appropriate relay circuit.

In many installations, the exciter uses its T-R relay to remove the cut-off bias and actuate the linear change-over relay when operation is changed from transmit to receive.

The GSB-201 antenna change-over relay will actuate during transmission periods when keyed; 117V AC line power is applied to the ANT RELAY connector via the cheater cord supplied.

INSTALLATION

GSB-201 Mk II (3340A) & Mk III (3340B)

Before installation of the GSB-201, Mk II or Mk III Linear Amplifier, it will be necessary to check the simple notes and instructions contained on Drawing #1701099, included with this manual on page 15. For transceiver use, it is only necessary to insert the coaxial connector, on the end of the short length of coax, directly into J-2. When this is accomplished, the GSB-201 Mk II and Mk III Amplifiers are automatically connected for transceiver use, or for use with a transmitter having a built-in antenna relay. When so connected, the transceiver or transmitter-receiver will feed the antenna directly in "barefoot" fashion, when the power switch of the GSB-201 is turned off. When the power switch of the GSB-201 is turned on, the antenna will be fed directly through the Linear Amplifier to the transceiver (or transmitter having its own antenna relay) during standby. Whenever the transceiver or transmitter transmits (either MOX or VOX), the amplifier will be automatically keyed, the built-in blocking bias will be removed and the built-in relay will transfer the circuitry so that the transmitting signal is boosted approximately 10 db.

Two terminals are provided on the rear of the chassis, for control-circuitry. J-5 is the popular phono-type connector and is normally used with such equipment as the Galaxy series, S-Line, etc. Other equipment that merely provides terminals can be directly connected to J-6, taking note that the terminal closest the edge of the chassis is the ungrounded side. Both J-5 and J-6 are in parallel and therefore normally one or the other will be used.

Except for the modification to the bias and relay circuitry, as shown in Drawing #A1701098, the circuitry of all models is the same. Rectifier CR-1 is not connected in the Mk III Amplifier employing the 572B/T160L tubes, as these are capable of zero bias operation, up to a plate potential of 2500 volts, and therefore no bias is required during the transmit mode. The Mk II Amplifier employing the 811A tubes retains the use of CR-1 to provide a small standing bias during transmit, to keep the idling plate current down within tube ratings.

In addition to the above, the Mk III Amplifier uses 20 amp fuses in positions F-1 and F-2 to handle the heavier current drawn during maximum load conditions.

CAUTION

FOR MAXIMUM TUBE LIFE, THE LINE VOLTAGE SHOULD BE MAINTAINED AS CLOSE TO 117 VOLTS AS POSSIBLE, AND AT NO TIME ALLOWED TO DROP BELOW 110 VOLTS OR EXCEED 125 VOLTS. THIS EQUIPMENT IS DESIGNED FOR 50/60 CYCLE OPERATION.

SSB OPERATION

CAUTION

ALWAYS HAVE THE TUNE/OPERATE SWITCH IN "TUNE" POSITION BEFORE TURNING POWER SWITCH ON.

TUNE/OPERATE SWITCH SHOULD NOT BE OPERATED WHEN DRIVE IS APPLIED TO UNIT.

DO NOT SWITCH THE BAND SWITCH WITHOUT FIRST TURNING THE POWER SWITCH TO OFF.

Always return the "LOADING" control to CCW position and repeat the loading procedure when the BAND SWITCH is advanced from 80A to 80B, or from 80B to 80C position.

1. Switch the band switch to desired band, e.g. On the 80 meter band, the band switch should first be set to the 80A position. Next turn the power switch ON (up position). The red pilot lamp will light. Turn the meter switch to plate MA position (full counterclockwise). The meter will read approximately 50-75 MA (GSB-201 Mk II) and 125-175 MA (GSB-201 Mk III). (Meter will reach zero if linear amplifier is not keyed by exciter.)

2. Activate the exciter, insert carrier, and load it into the amplifier input, in the manner determined by the exciter type, until the amplifier plate meter reads approximately 200 MA. Be sure the antenna relay is actuated, and that any cut-off bias (external if used on original GSB-201 - 3340) is removed. QUICKLY rotate the FINAL TUNING control for a pronounced "dip" in meter reading, indicating resonance.

3. Rotate the FINAL LOADING control clockwise in small increments, continually resetting the FINAL TUNING control for minimum plate current. As the LOADING is advanced, the minimum plate current will increase steadily at resonance. Continue this procedure until the meter once again reads approximately 260 MA with full drive. On the 80 meter band, it may be necessary to advance the BAND SWITCH to the 80B or 80C position in order to obtain proper loading.

4. When the amplifier is loaded to approximately 260 MA, remove drive. Switch from tune to operate. Apply drive from the exciter until the plate current of the GSB-201 increases to approximately 600 MA (1000 MA on Mk III). Readjust the final TUNING control, if necessary, to maintain resonance (plate current dip).

5. Turn the METER SWITCH to the "OUTPUT IND" range and rotate the meter adjust control for approximately half scale meter reading. Adjust the FINAL TUNING and loading control for MAXIMUM meter reading. A point will be reached where further increase in loading will not cause a corresponding increase in meter reading. Adjust the FINAL LOADING control just slightly clockwise beyond this "leveling off" point.

Adjust the METER SWITCH control knob as necessary to keep the meter on scale during this procedure.

Remove the excitation from the linear. The amplifier is now properly adjusted for class B linear operation under SSB conditions.

NOTE

Tune up must be performed as quickly as possible to avoid damage to the amplifier tubes through excessive plate dissipation.

If you are unable to load the amplifier properly while performing the above steps, the antenna (or transmission line input) impedance is probably outside the limits into which the amplifier can deliver power. See paragraphs on ANTENNAS.

During SSB operation, the plate current should "kick up" to approximately 400 MA on GSB 201 Mk II and 600 MA on Mk III.

CW OPERATION

To place the unit into CW operation, perform the following steps:

CAUTION

ALWAYS HAVE THE TUNE/OPERATE SWITCH IN TUNE POSITION BEFORE TURNING POWER SWITCH ON.

TUNE/OPERATE SWITCH SHOULD NOT BE OPERATED WHEN DRIVE IS APPLIED TO UNIT.

DO NOT SWITCH THE BAND SWITCH WITHOUT FIRST TURNING THE POWER SWITCH TO OFF.

Always return the FINAL LOADING control to CCW position and repeat the loading procedure when the BAND SWITCH is advanced from 80A to 80B, or from 80B to 80C position.

1. Turn the power switch ON (up position). The red pilot lamp will light. Turn the meter switch to plate MA position (full counter-clockwise). The meter will read approximately 50-75 MA (GSB-201 Mk II) and 125-175 MA (GSB-201 Mk III).

NOTE

METER WILL READ ZERO IF LINEAR AMPLIFIER IS NOT KEYED BY EXCITER.

Switch the band switch to desired band, e.g. On the 80 meter band, the band switch should first be set to 80A position.

2. Activate the exciter and load it into the amplifier input, in the manner determined by the exciter type, until the amplifier meter reads approximately 200 mA. Be sure the antenna relay is actuated. QUICKLY rotate the FINAL TUNING control for a pronounced "dip" in meter reading, indicating resonance.

3. Rotate the FINAL LOADING control clockwise in small increments, continually resetting the FINAL TUNING control for minimum plate current. As the LOADING control is advanced, the minimum plate current will increase steadily at resonance. Continue this procedure until the meter once again reads approximately 250 MA with full drive. On the 80 meter band, it may be necessary to advance the BAND SWITCH to the 80B or 80C position in order to obtain proper loading.

4. When the amplifier is loaded to approximately 250 MA remove drive. Switch from tune to operate. Apply drive from the exciter until the plate current of the linear increases to approximately 600 MA. Readjust the FINAL TUNING control, if necessary, to maintain resonance (plate current dip).

NOTE

"TUNE-UP" should be performed as quickly as possible to avoid damage to the amplifier tubes through excessive plate dissipation (especially on models using type 811A tubes). If you are unable to load the amplifier properly while performing the above steps, the antenna (or transmission line input) impedance is probably outside the limits into which the amplifier can deliver power. See paragraphs on ANTENNAS.

AM OPERATION

To place the unit into AM operation, perform the following steps:

ALWAYS HAVE THE TUNE/OPERATE SWITCH IN TUNE POSITION BEFORE TURNING POWER SWITCH ON.

TUNE/OPERATE SWITCH SHOULD NOT BE OPERATED WHEN DRIVE IS APPLIED TO UNIT.

DO NOT SWITCH THE BAND SWITCH WITHOUT FIRST TURNING THE POWER SWITCH TO OFF.

Always return the FINAL LOADING control to CCW position and repeat the loading procedure when the BAND SWITCH is advanced from 80A to 80B, or from 80B to 80C position.

1. Switch the band switch to desired band, e.g. On the 80 meter band, the band switch should first be set to 80A position.

   Turn the power switch ON (up position). The red pilot lamp will light. Turn the meter switch to plate MA position (full counterclockwise). See first paragraph of SSB section for typical meter readings at this point of tune-up procedure.

2. Activate the exciter and load it into the amplifier input, in the manner determined by the exciter type, until the amplifier meter reads approximately 200 MA. Be sure the antenna relay is actuated. QUICKLY rotate the FINAL TUNING control for a pronounced "dip" in meter reading, indicating resonance.

3. Rotate the FINAL LOADING control clockwise in small increments, continually resetting the FINAL TUNING control for minimum plate current. As the LOADING control is advanced, the minimum plate current will increase steadily at resonance. Continue this procedure until the meter once again reads approximately 250 MA with full drive. On the 80 meter band, it may be necessary to advance the BAND SWITCH to the 80B or 80C position in order to obtain proper loading.

4. When the amplifier is loaded to approximately 250 MA remove drive. Switch from tune to operate. Apply drive from the exciter until the plate current of the GSB-201 increases to approximately 600 MA on GSB-201 Mk II and 1000 MA on GSB-201 Mk III. Readjust the FINAL TUNING control, if necessary, to maintain resonance.

5. Turn the METER SWITCH to the OUTPUT IND range and rotate the meter adjust control for approximately half scale meter reading. Adjust the FINAL TUNING and loading control for MAXIMUM meter reading. A point will be reached where further increase in loading will not cause a corresponding increase in meter reading. Adjust the FINAL LOADING control just slightly clockwise beyond this "leveling off" point.

   The excitation must be reduced so that the plate current does not exceed 275 MA (GSB-201 Mk II) 400 MA (GSB-201 Mk III).

During AM linear operation, the plate current should remain substantially constant.

CIRCUIT DESCRIPTION

Refer to the schematic diagram. The amplifier uses four triodes connected in parallel, with the grids by-passed for RF with capacitors C2 - C25. Excitation is fed to the filament circuit through C14 from RF input connector J2. RF chokes L2 and L3 isolate the tube filaments for the RF excitation, but pass 60 cycle AC filament current to light the tubes. Iron core chokes are used to gain maximum inductances while limiting the power loss developed by the filament current. A separate inductance on L2 together with capacitor C7 provides a feedback path from the plate circuit of proper phase to stabilize the amplifier.

The neutralizing capacitor C7 is preset and does not have to be adjusted even when replacing tubes.

A pi-network output circuit (L5, L6, C9, C10, C11 and S3) matches a wide range of load impedances by switching both the inductance and parallel capacitance with a single control. On the 75-80 meter band, capacitors C10 and C11 are in parallel with C9 on the lowest impedance position. They are dropped in sequence as the band switch is advanced. This arrangement results in single-knob switching control of both the band of operation and the "coarse" loading adjustment.

Diode D2 (1N34A) samples RF through C33 (gimmick capacitor), rectifies this voltage, and feeds the resulting DC through to front panel meter M1 via potentiometer R9 and meter switch S4. The resultant meter reading provides a measure of relative output level as an aid while tuning and loading the amplifier.

Operating bias (-4 volts approximately) for the grids as developed by D1 from the filament voltage. The voltage, filtered by C1, is stabilized by bleeder R1. The bias ground return is strapped across BIAS strip PL5 on the back panel of the amplifier and additional bias to cut off the amplifier tubes during reception may be applied externally across the terminal strip, as explained in the installation instructions.

NOTE

The Mk II and Mk III versions have a built in bias supply. This bias is cut off when the amplifier is keyed. No strap connection is present on the rear of the chassis.

This -4 volt bias is used only in the GSB-201 and GSB-201 Mk II employing the 811A type tube. The 572B tubes employed in the GSB-201 Mk III are true zero bias and require no bias during operation.

In the original GSB-201 the antenna change-over relay K1 is externally actuated via 115 V AC applied to K1 strip TS1. DC operating voltage for the relay is developed from the keyed AC input by the rectifier-filter circuit D3, C24, R19 and R20. The DC operation results in a quiet relay action. The relay contacts ground the receiver antenna lead during transmission, thus preventing excessive RF voltage from developing across the receiver input. In the GSB-201 Mk II and Mk III the antenna change-over relay is energized by the built-in bias supply.

HIGH VOLTAGE POWER SUPPLY

A bridge rectifier consisting of 24 (CR4 thru CR27) 600 PIV, 500 MA long life silicon diodes are used for the high voltage power supply. R16 is inserted in the high voltage lead to limit plate dissipation during tuneup.

CHASSIS REMOVAL

To remove the chassis and panel assembly from the cabinet, perform the following steps:

1. Disconnect all leads on the rear of the GSB-201 cabinet. Unplug the power cord and make sure the cord and plug are free to slide as the chassis is withdrawn.

2. Remove 4 screws in bottom of cabinet.

3. Remove the 8 screws holding the chassis to the cabinet backplate.

4. Carefully slide the chassis forward free of the cabinet, letting the power cord slide through the cabinet.

5. To replace the chassis and panel assembly, reverse the above steps.

LUBRICATION & MAINTENANCE

The blower motor should be lubricated approximately once every sixty days during normal operation; it may be lubricated less frequently if the unit is used only occasionally. Before lubricating the motor, turn off all power to the unit. Remove the chassis from the cabinet. Remove the screws holding the fan motor to the bracket so that the fan motor may be turned to get to the fan oil holes. Drop two or three drops of medium light machine oil through the oil holes above the front and rear motor shaft bearings to saturate the felt oil retaining pads.

Whenever the chassis is removed from the cabinet, the fan blade, motor, 811A tubes, and surrounding components should be wiped clean of accumulated dust and other foreign material. This can be done conveniently during the regular blower lubrication procedure.

TROUBLE SHOOTING

The design of this unit is such that the ordinary trouble shooting procedures are not applicable. Blown fuses may occur. In this instance, remove the tubes and check the filament circuit, then check the high voltage circuit for a short. Reinstall the tubes and continue operating. The effects of all other troubles will make their cause readily apparent.

USEFUL NOTES & HINTS

The ARRL publication entitled "Single Sideband for the Radio Amateur" should be refered to for background on operation of Linear Amplifiers. A little time spent in gaining some background information will be most helpful and will result in a stronger and cleaner signal.

The use of a heavy AC power line of at least #10 gage wire direct to its own circuit breaker is highly recommended, and will produce maximum clean single side band peak envelope power output. Preferably, the Linear Amplifier should be fed from its own line, which in addition to providing maximum peak power, will minimize the blinking of lights in the home or operating room.

It may be necessary to slightly retune the exciter for maximum drive to the amplifier on the various bands. When switching to straight-through "barefoot" operation, the exciter unit should normally not require any appreciable retuning.

On the higher frequency bands, minimum loading may not always occur at the fully counter-clockwise rotation of the loading control. The correct setting is clockwise from that position which produces minimum loading.

Do not decrease the loading of the amplifier to reduce SSB plate power input. The amplifier should be loaded for the maximum input consistent with maximum output and the drive of the exciter should be reduced if less SSB plate power input to the final is desired. This will assure best linearity.

While the loading and tuning adjustments may be used to offset some impedance mismatch between the amplifier and the antenna system, it is highly desirable to have the standing wave ratio of the antenna system as low as possible to provide best performance and best harmonic reduction, particularly when using an external low-pass filter. With an appreciable SWR, the tuning may vary widely compared to a dummy load with a low SWR.

Every reasonable consideration has been given to possible local television interference problems in the design of the GSB-201 series of Linear Amplifiers. Design techniques have been used to discourage harmonic generation, and a low-pass filter has been included in series with the AC power leads. The completely enclosed metal cabinet also aids in keeping the interference to a low level. In addition, Linear operation of the amplifier circuitry further helps to keep harmonic radiation to a bare minimum. There will be situations, however, in which some interference may be experienced, particularly in those areas where the television signal is extremely weak. In those instances, where the amateur station overloads the input of the receiver, the only cure is the use of a high-pass filter in the antenna leads of the receiver (such as the Drake type TV-300HP).

In those instances, where further harmonic attenuation is required, it is suggested that a Drake type TV-1000LP filter be connected between the antenna and the antenna terminal of the GSB-201 Linear Amplifier. It is good practice to use such a filter, thereby minimizing any possible interference.

Particular attention should be paid to tuning and loading of the amplifier, particularly during an SSB mode of operation. Improper tuning and loading may result in non-linearity and a high distortion product level being radiated. Although such improper tuning may not always generate a poor sounding signal, when the receiver at the other end is "On Frequency", such improper tuning may result in a broad and splattering signal.

It is recommended that some experience be gained in loading the amplifier into a dummy load in the "operate" position. After this has been accomplished, the amplifier should be switched to "tune" and the plate current reading noted. This will provide a quick reference for tune-ups and the use of the "tune/operate" switch is highly recommended, particularly during the phase of operation when large frequency excursions are made, as well as at such times as retuning on a different band.

The GSB-201 Mk III Amplifier should be loaded to 1000 milliamperes of plate current and then talked up to approximately 640 milliamperes, thus providing 1000 watts of DC input (approximately 2000 watts PEP input).

On both the Mk II and Mk III Amplifiers, it is recommended that the amplifier be unloaded for CW operation to bring the input down to 1000 watts. Reducing the drive of the exciter to obtain 1000 watts of DC input is not recommended as the efficiency will drop, causing the tubes to work harder and simultaneously producing less RF output. Unloading is easily accomplished by rotating the loading control towards the "min" position, while simultaneously retuning the tuning control for minimum plate current. Enough drive should be employed so that further increase produces no further output.

Some confusion has resulted from a 2000 watt RF rating of the original GSB-201 Amplifier, employing the four 811A tubes. This rating was published prior to the acquisition of GONSET by AEROTRON, INC. While the original GSB-201 is capable of being loaded to the 1000 watts of DC input on SSB, laboratory tests indicate that the intermodulation distortion products are greater than any reasonably acceptable level. Despite the fact that the amplifier can be driven this hard, it is not recommended. It was for this reason that the Mk III version, employing four type 572B tubes was introduced.

PARTS LIST

GSB-201 (3340)
GSB-201 Mk II (3340A)
GSB-201 Mk III (3340B)

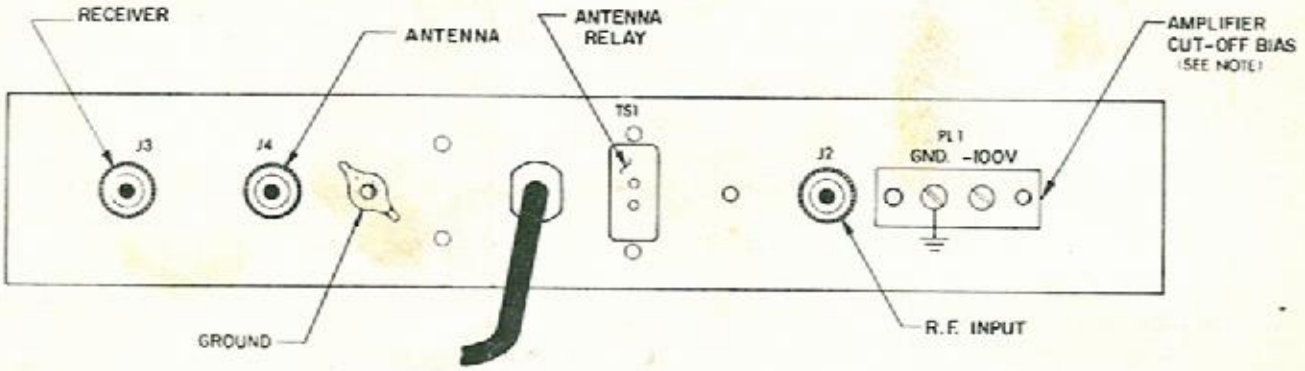
Item	Description	Part No
	CAPACITORS	
C1	250 uF, 25 V, electrolytic	1516 2509 105
C2	.0047 mF, 2 kv, disc	1505 4704 001
C3	.0047 mF, 2 kv, disc	1505 4704 001
C4	.0047 mF, 2 kv, disc	1505 4704 001
C5	.0047 mF, 2 kv, disc	1505 4704 001
C6	.001 mF, 5 kv, ±20%	1528 1004 002
C7	Neutralizing (bracket)	1400 1701 075
C8	250 pf, final tank, variable	1560 2503 003
C9	Loading, variable, 2 sections, 500 pF each	1569 5003 001
C10	500 pF, 2500 W, VDC	1512 5003 001
C11	500 pF, 2500 W, VDC	1512 5003 001
C12	.005 uF, 2 kv, disc	1505 5004 002
C13	.01 mF, 1.4 kv, disc	1505 1005 001
C14	.0047 mF, 2 kv, disc	1505 4704 001
C15	100 MFD, 450 V, electrolytic	1519 1009 003
C16	100 MFD, 450 V, electrolytic	1519 1009 003
C17	100 MFD, 450 V, electrolytic	1519 1009 003
C18	100 MFD, 450 V, electrolytic	1519 1009 003
C19	100 MFD, 450 V, electrolytic	1519 1009 003
C20	.0047 uF, disc ceramic, 2 kv	1505 4704 001
C21	.01 mF, 500 V, disc	1510 1005 001
C22	.0047 uF, 2 kv, disc ceramic	1505 4704 001
C23	.0047 uF, 2 kv, disc ceramic	1505 4704 001
C24	20 MFD, 450 V, elect.	1516 2008 002
C25	.01 mF, 1.4 kv, disc	1505 1005 001
*C26	.0047 disc ceramic, 2 kv	1505 4704 001
C27	.0047 disc ceramic, 2 kv	1505 4704 001
C28	.0047 disc ceramic, 2 kv	1505 4704 001
C29	.0047 disc ceramic, 2 kv	1505 4704 001
C30	.0047 disc ceramic, 2 kv	1505 4704 001
C31	.0047 disc ceramic, 2 kv	1505 4704 001
*C32	.0047 disc ceramic, 2 kv	1505 4704 001
C33	Gimmick	
	RESISTORS	
R1	20 ohm, ±5%, 2 Watt, comp.	4703 2002 002
R2	100 ohm, ±10%, 2 Watt, comp.	4703 1003 001
R3	100 ohm, ±10%, 2 Watt, comp.	4703 1003 001
R4	100 ohm, ±10%, 2 Watt, comp.	4703 1003 001
R5	100 ohm, ±10%, 2 Watt, comp.	4703 1003 001
R6	10 ohm, 5 Watt, wire wound	4714 1002 002
R7	10 ohm, 5 Watt, wire wound	4714 1002 002
R8	1 k, ±10%, 1 watt, comp.	4702 1004 001
R9	100 k, w/SPOT switch	4736 1006 001
R10	50 k, 100 watt, w/mtg.	4721 5005 001
R11	100 k, ±10%, 2 watt, comp.	4703 1006 001
R12	100 k, ±10%, 2 watt, comp.	4703 1006 001
R13	100 k, ±10%, 2 watt, comp.	4703 1006 001
R14	100 k, ±10%, 2 watt, comp.	4703 1006 001
R15	100 k, ±10%, 2 watt, comp.	4703 1006 001
R16	4 k, 100 watt, w/mtg.	4721 4005 001
R17	10 ohm, 10 watt, wire wound	4716 1002 001
R18	10 k, 1 watt, ±5%, comp.	4702 1005 002
R19	10 ohm, ±10%, 2 watt, comp.	4703 1002 001
R20	1 k, ±10%, 10 watt, wire wound	4716 1004 001
*R21	4.7, ±10%, 4 watt, wire wound	4714 4704 001
R22	100 k, ±10%, 1/2 watt, comp.	4701 1006 001
R23	47 k, ±5%, 1 watt, comp.	4702 4705 002
**R24	270 k, ±10%, 1/2 watt	4701 2706 001
**R25	100 k, ±10%, 2 watt, comp.	4703 1006 001
**R26	100 k, ±10%, 2 watt, comp.	4703 1006 001
**R27	100 k, ±10%, 2 watt, comp.	4703 1006 001
**R28	100 k, ±10%, 2 watt, comp.	4703 1006 001
**R29	100 k, ±10%, 2 watt, comp.	4703 1006 001
	TUBES & SEMICONDUCTORS	
V1	Tube, 811A (used only on GSB-201 (3340) and GSB-201 Mk II (3340A)	5711 0000 006
V2	"	"
V3	"	"
V4	"	"
V1	Tube, 572B/T160L (used only on GSB-201 Mk III (3340B	5711 0000 007
V2	"	"
V3	"	"
V4	"	"

Item	Description	Part No
CR1	1N3256 diode	4803 0000 006
CR2	1N34A diode	4804 0000 003
**CR3	1N3256 diode	4803 0000 006
**CR4 thru **CR27	Diode, 800 PIV @ 750 MA, controlled avalanche	4831 0000 002
**CR28	Diode, 1N3256	4803 0000 006
	MISCELLANEOUS	
DS1	Dial lamp, socket, red	3951 0000 006
F1	12 amp line fuse (used only on original GSB-201 (3340)	
F2	"	
F1	15 amp. fuse, 250 V (used only on GSB-201 Mk II (3340A)	5150 1505 004
F2	"	"
F1	20 amp fuse, 250 V (used only on GSB-201 Mk III (3340B)	5150 2005 004
F2	"	"
J2	Coax receptacle	2111 0000 003
J3	Coax receptacle	2111 0000 003
J4	Coax receptacle	2111 0000 003
**J5	Connector, phone, female	2111 0000 001
K1	Relay, 2PDT or 3PDT, 120 VDC	4507 1701 056
L1	Choke, filament	1824 6201 001
L2	Neutralizing winding on L1	1824 6201 001
L3	Choke, filament	1824 6201 001
L4	Choke, filter	5660 1701 060
L5	Coil, final tank, 10 meters	1810 1701 051
L6	Coil, final tank, 15-80 meters	1810 1701 052
L7	Coil, TVI filter	1810 1701 053
L8	Coil, TVI filter	1810 1701 053
L9	Coil, TVI filter	1810 1701 053
*L10	Coil, TVI filter	1810 1701 053
*L11	Coil, TVI filter	1810 1701 053
L12	Choke, R.F. final	1820 7102 001
L13	Choke, R.F., 2.5 mH, 125 MA	1824 2504 002
L14	Wire #16, bare tinned	6072 0016 001
L15	Wire #16, bare tinned	6072 0016 001
L16	Wire #16, bare tinned	6072 0016 001
L17	Wire #16, bare tinned	6072 0016 001
M1	Meter, plate current, 1 MA	2901 1701 018
P1	Plug, coax, male	2110 0000 001
S1	Toggle switch, DPST	5104 0000 002
S2	Toggle switch, DPST	5104 0000 002
S3	Wafer switch, 7 pos.	5112 1701 057
T1	Transformer, power	5610 1701 059
**T2	Transformer, power	5610 0000 019
TB1	Bias terminal board	2166 0602 001
	Front Panel	1418 1701 016
	Cabinet	1403 1701 011
	Rubber Bumper, foot	2806 0000 003
	Knob, small	2409 0000 016
	Knob, large	2409 1700 003

NOTES:

*Used only on GSB-201 (3340)
**Used only on GSB-201 Mk II (3340A) and GSB-201 Mk III (3340B)

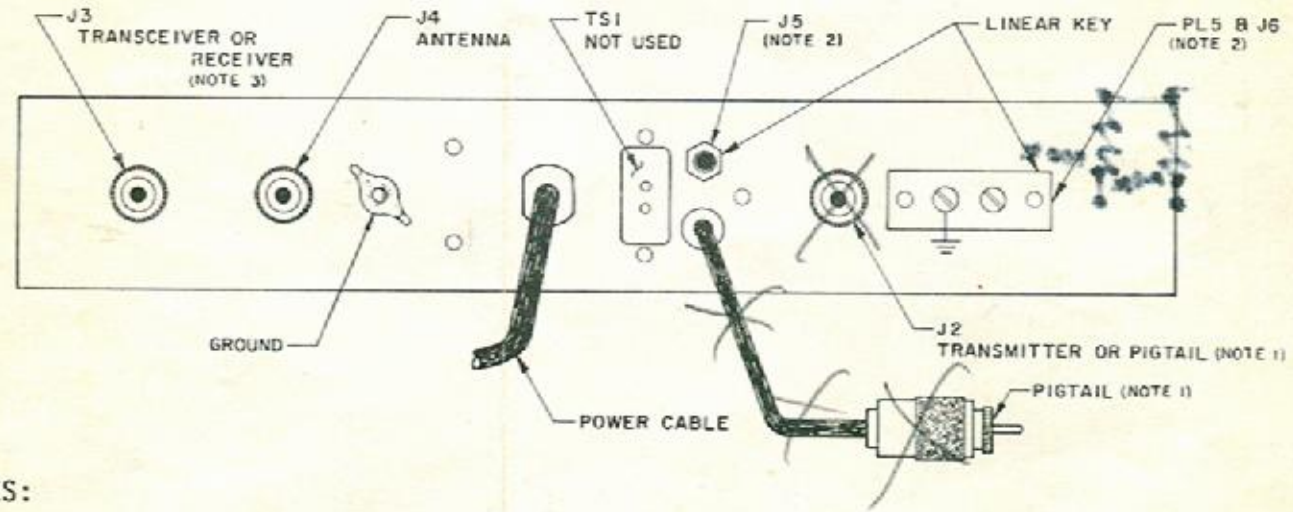
INTERCONNECTION DIAGRAM – ORIGINAL GSB–201 (3340)



NOTE:

-100 V bias is used to cut off linear amplifier tubes during receive periods. These terminals must be shorted to transmit.

INTERCONNECTION DIAGRAM – GSB-201 Mk II (3340A) & Mk III (3340B)

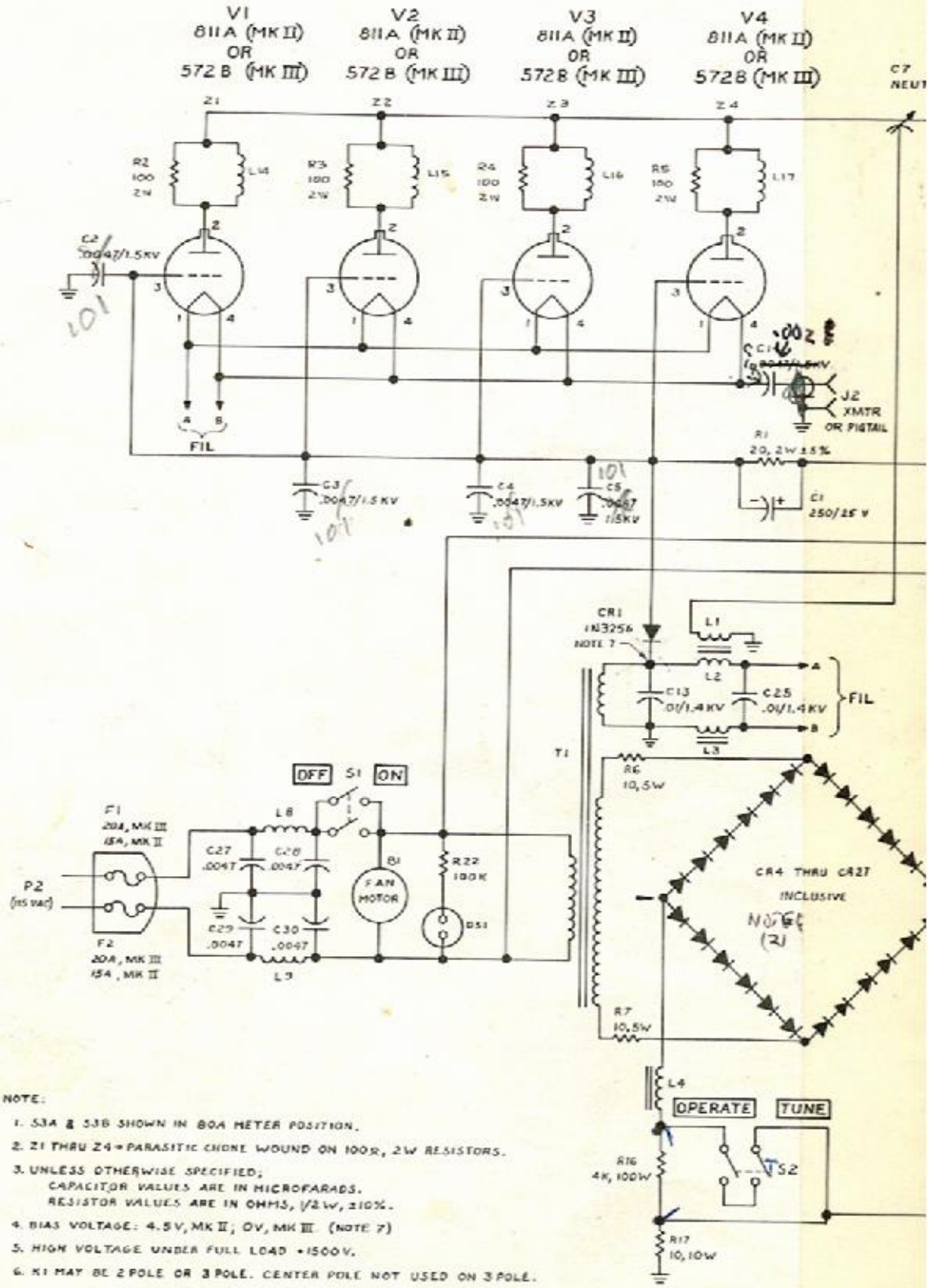


NOTES:

1. Pigtail connector is to be connected to J2 for use with a transceiver (or transmitters with built in antenna relays - such as HX50, HX500, S line, 14 X). Pigtail is not used when transmitter does not have built in antenna relay - such as HT32, HT37, etc.

2. J5 and PL5 are wired in parallel and in a normal installation one or the other will be used.

3. "Receiver" pertains to a receiver in a transmitter-receiver station and does not refer to a receiver used in conjunction with a transceiver.



NOTE(2)

CR4 CR27

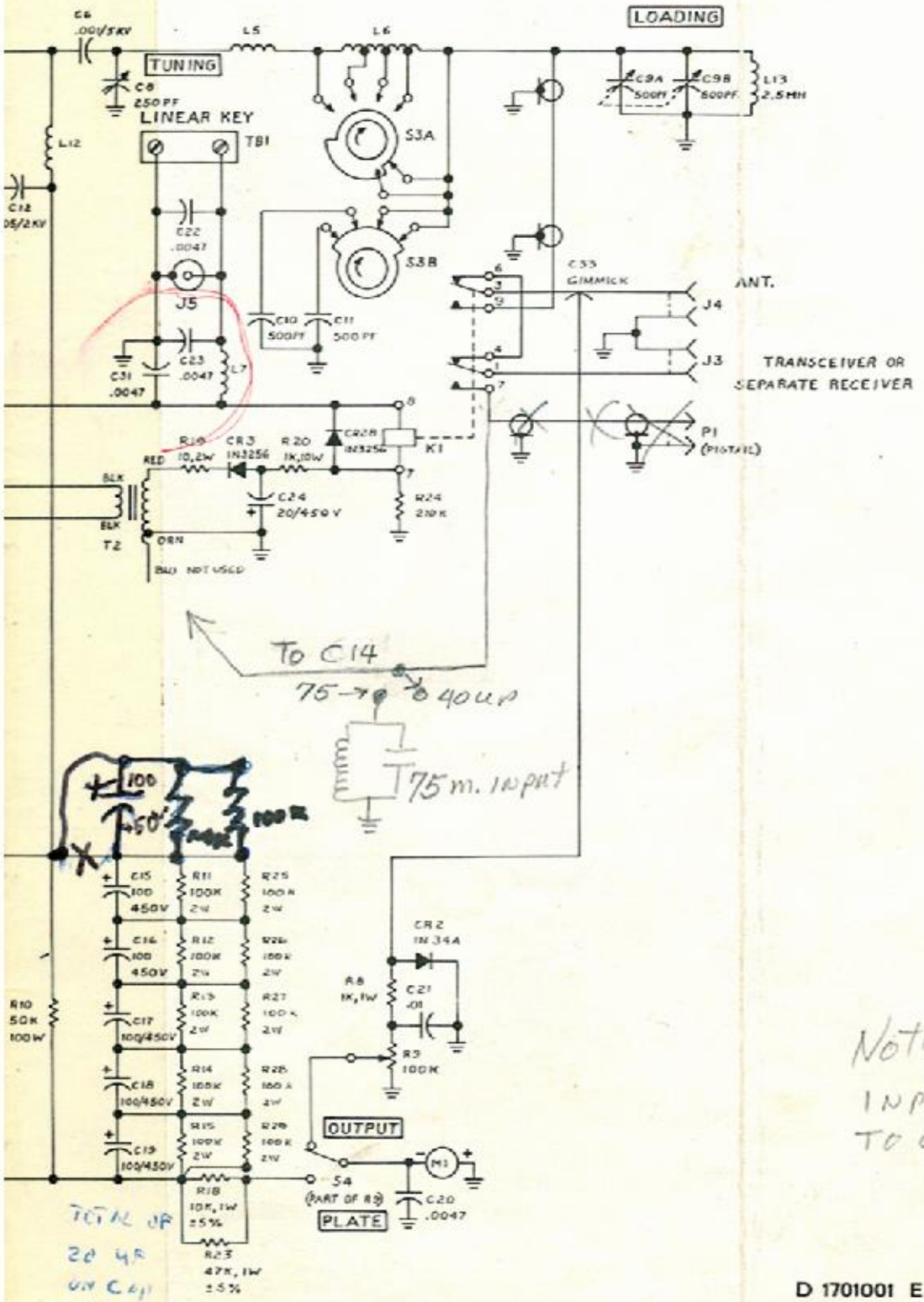
REPLACE (BRIDGE CIRCUIT) BY 4 5KV DIODES ABT (10AMP.

LOCATED ON REAR BOARD.

7-25-94.

NOTE:

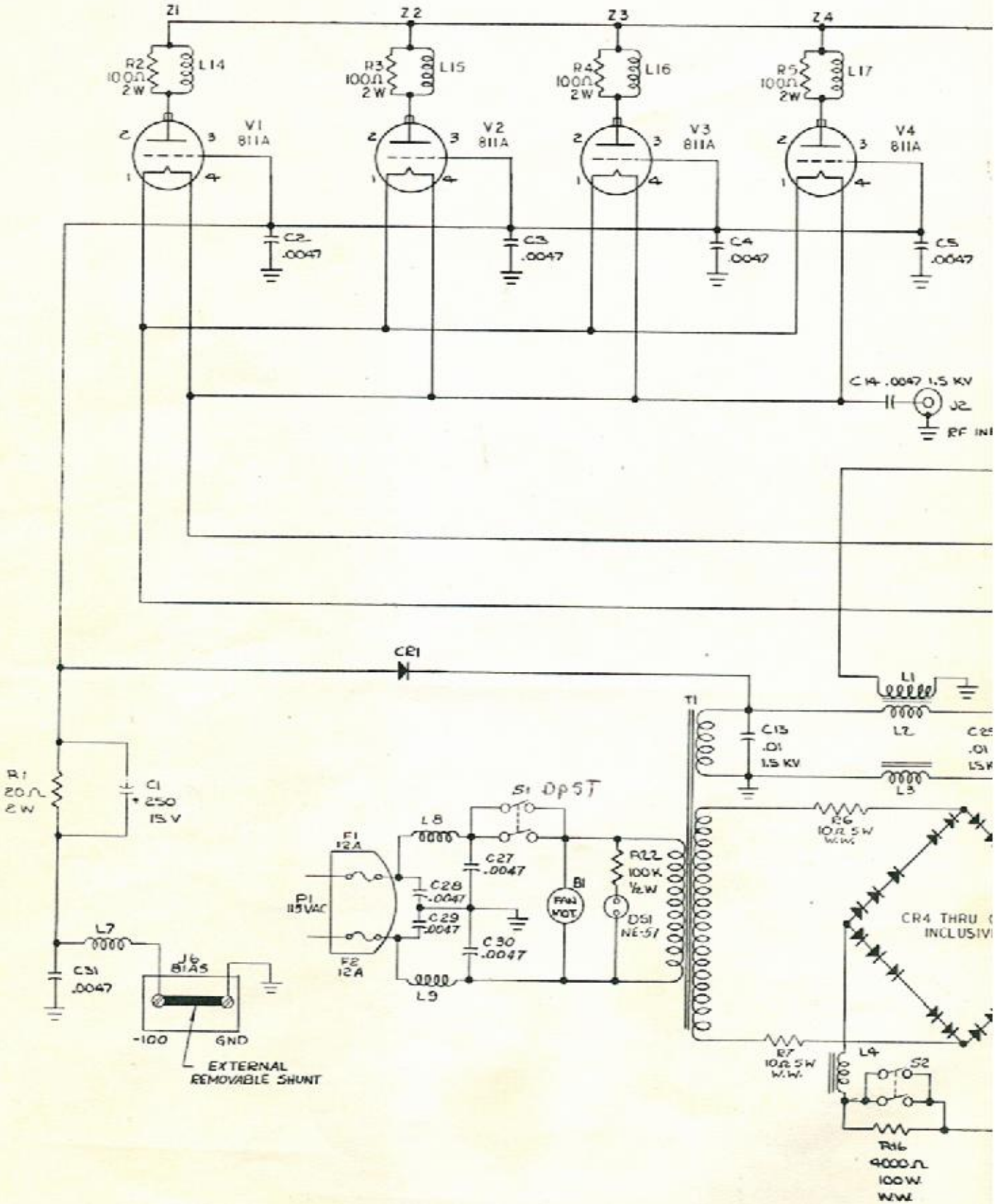
1. S3A & S3B SHOWN IN 80A METER POSITION.
2. Z1 THRU Z4 = PARASITIC CHOKE WOUND ON 100Ω, 2W RESISTORS.
3. UNLESS OTHERWISE SPECIFIED,
   CAPACITOR VALUES ARE IN MICROFARADS.
   RESISTOR VALUES ARE IN OHMS, 1/2W, ±10%.
4. BIAS VOLTAGE: 4.5V, MK II; 0V, MK III (NOTE 7)
5. HIGH VOLTAGE UNDER FULL LOAD +1500V.
6. K1 MAY BE 2 POLE OR 3 POLE. CENTER POLE NOT USED ON 3 POLE.
7. WHEN 572B/T160L TUBES ARE USED IN PLACE OF 811A, CR1 SHOULD BE RECONNECTED FROM SIT TP#16 OF TS2.

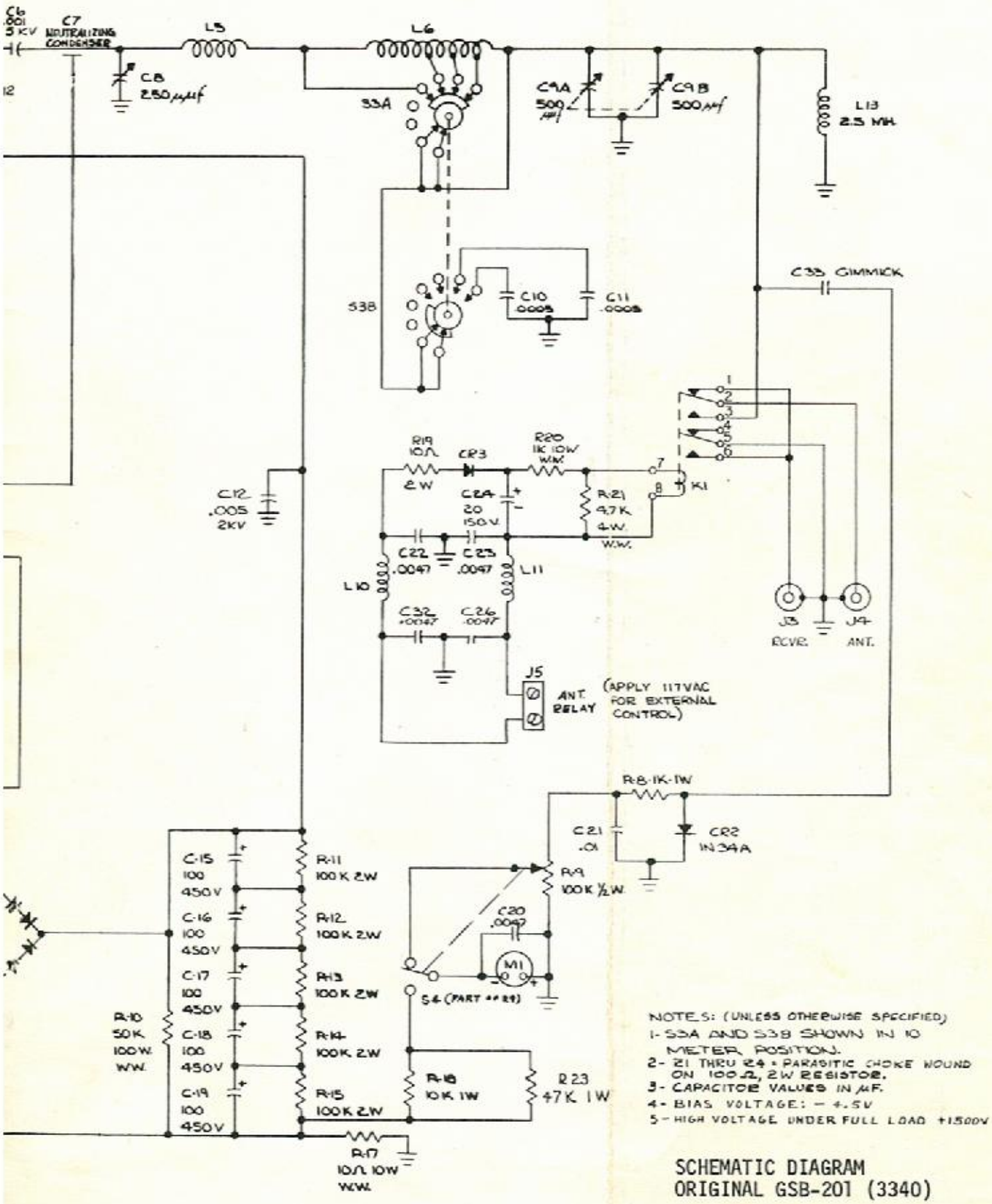


Note: J2 removed, input ckt connects to C-14

D 1701001 E

SCHEMATIC DIAGRAM
GSB-201 Mk II (3340A) &
GSB-201 Mk III (3340B)


Z1
Z2
Z3
Z4
R2 100Ω 2W
R3 100Ω 2W
R4 100Ω 2W
R5 100Ω 2W
L14
L15
L16
L17
V1 811A
V2 811A
V3 811A
V4 811A
C2 .0047
C3 .0047
C4 .0047
C5 .0047
C14 .0047 1.5 KV
J2
RF IN
CR1
L1
L2
L3
T1
C13 .01 1.5 KV
R1 20Ω 2W
C1 250 15V
S1 DPST
L8
L9
F1 12A
F2 12A
P1 115VAC
C27 .0047
C28 .0047
C29 .0047
C30 .0047
B1 FAN MOT
R22 100K ½W
DS1 NE-51
R6 10Ω 5W W.W.
CR4 THRU
INCLUSIV
L7
C31 .0047
J6 BIAS
-100
GND
EXTERNAL REMOVABLE SHUNT
R7 10Ω 5W W.W.
L4
S2
R16 4000Ω 100W W.W.



NOTES: (UNLESS OTHERWISE SPECIFIED)

1- S3A AND S3B SHOWN IN 10 METER POSITION.
2- Z1 THRU Z4 = PARASITIC CHOKE WOUND ON 100Ω, 2W RESISTOR.
3- CAPACITOR VALUES IN μF.
4- BIAS VOLTAGE: − 4.5V
5- HIGH VOLTAGE UNDER FULL LOAD +1500V

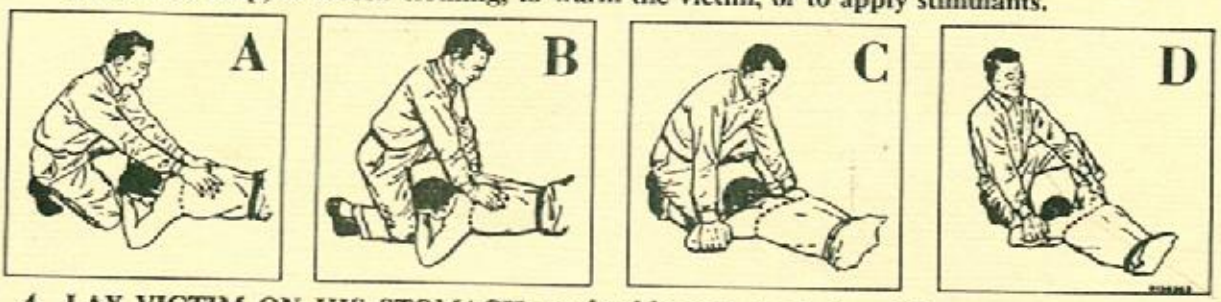
SCHEMATIC DIAGRAM
ORIGINAL GSB-201 (3340)

WARNING

ELECTRICAL OR MECHANICAL SERVICING OF THIS EQUIPMENT SHOULD BE ATTEMPTED ONLY BY QUALIFIED TECHNICAL PERSONNEL AUTHORIZED FOR SUCH WORK. OPERATION OF THIS EQUIPMENT INVOLVES THE USE OF VOLTAGES WHICH MAY BE DANGEROUS TO LIFE.

FIRST AID IN CASE OF ELECTRIC SHOCK

1. PROTECT YOURSELF with dry insulating material.
2. BREAK THE CIRCUIT by opening the power switch or by pulling the victim free of the live conductor. DON'T TOUCH THE VICTIM WITH YOUR BARE HANDS until the circuit is broken.
3. START ARTIFICIAL RESPIRATION IMMEDIATELY, SECONDS COUNT. Do not wait to look for help, to loosen clothing, to warm the victim, or to apply stimulants.



4. LAY VICTIM ON HIS STOMACH, preferably with head downhill.
5. CHECK MOUTH FOR OBSTRUCTIONS, remove foreign objects, pull tongue forward.
6. PLACE VICTIM'S FOREHEAD on his crossed hands, face down.
7. KNEEL AT VICTIM'S HEAD on either knee. See (A)
8. PLACE HANDS, fingers spread with thumbs about two inches apart, heels of hands below line connecting armpits. See (A)
9. WITH ELBOWS STRAIGHT, ROCK FORWARD slowly until arms are vertical. See (B) Do not apply more than 35 pounds pressure.
10. ROCK BACK SLOWLY to release pressure.
11. GRASP VICTIM'S ARMS just above elbows and continue backward. See (C)
12. LIFT ARMS until tension is felt. See (D)
13. LOWER ARMS to complete the cycle.
14. AFTER TWO SECONDS, START AGAIN with step 6.
15. REPEAT THE CYCLE 12 to 15 times per minute.
16. WHILE ARTIFICIAL RESPIRATION IS CONTINUED, HAVE SOMEONE ELSE:
    (a) Loosen the victim's clothing. (b) Summon medical aid.
    (c) Keep the victim warm.
17. DON'T GIVE UP. Continue without interruption until the victim is breathing without help or is certainly dead.
    Four hours or more may be required.
18. REMAIN IN POSITION after victim revives. Be ready to resume artificial respiration if necessary.
19. DO NOT GIVE LIQUIDS WHILE VICTIM IS UNCONSCIOUS.

Warranty

GONSET, Division of AEROTRON, INC., Raleigh, N. C., warrants each new radio product manufactured by it to be free from defective material and workmanship and agrees to remedy any such defect or to furnish a new part, in exchange for any part of any unit of its manufacture which under normal installation, use and service disclosed such defect, provided the unit is delivered by the owner to us or to our authorized radio dealer or wholesaler from whom purchased, or authorized service station, intact, for our examination, with all transportation charges prepaid to our factory, within ninety days from the date of sale to original purchaser and provided that such examination discloses, in our judgment, that it is thus defective.

This warranty does not extend to any of our radio products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, unauthorized modifications, or to use in violation of instructions furnished by us, nor extend to units which have been repaired or altered outside of our factory, nor to cases where the serial number thereof has been removed, defaced or changed, nor to accessories used therewith not of our own manufacture.

This warranty is in lieu of all other warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our radio products.

GONSET

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