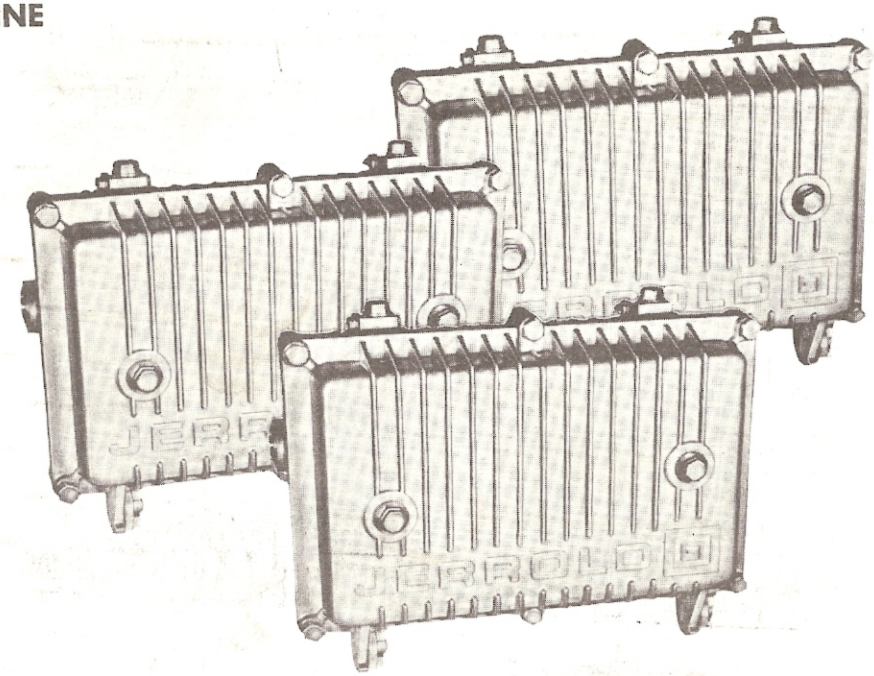
GENERAL INSTRUMENT

INSTRUCTION MANUAL
435-840-03

JERROLD CATV AMPLIFIERS

STARLINE



Models
JLE-5-350-1W
JLE-6-350-1W
JLE-7-350-1W
JLE-5-350-2W
JLE-6-350-2W
JLE-7-350-2W
Series

A. GENERAL DESCRIPTION

Jerrold Models JLE-5-350-1W, JLE-6-350-1W, JLE-7-350-1W and JLE-5-350-2W, JLE-6-350-2W, JLE-7-350-2W are cable-powered amplifiers designed for CATV distribution systems. The "5" station has very high gain (45 dB) making it exceptionally suitable for use as a trunk-terminating/bridging amplifier, a very economical substitute for such stations as Jerrold Models SJ-5E or SS-5-X. It can be the source of a very long feeder line before a conventional line extender is needed or, through an external splitter of the STC-*D type several feeder lines can be established.

Model JLE-6-350-2W, having a high gain of 37 dB, can also be used for stretching a feeder line before a standard line extender is needed, while Model JLE-7-350-2W with a gain of 28 dB is intended for typical line extender use.

All three models are characterized by high output capability, well-filtered 2-way circuitry, and 60 or 30 volt a.c. operation capability via a slide switch factory-set for 60 V. This switch together with the LOCAL/REMOTE switch allows application of any one of four a.c. input ranges as specified. Bypass circuitry for up to 5 amperes rms together with a circuit breaker Model CBJ-5, factory-inserted in the "5" model, optional for the "6" and "7" models, allows powering of additional line extenders. The power supply is protected by current-limiting circuitry and the r.f. module by an over-voltage sensing circuit. A 0.75 A fuse gives protection against high current drain. Protection against line voltage surges can be provided by insertion of optional surge arrester Models AO-36, usable for both 30 and 60 V systems.

Optional, high or low gain sub-channel amplifiers Models JRA-30H and JRA-30L, are available and can be plugged into the main module in either direction.

The amplifier housing is designed for maximum heat dissipation, has a woven wire gasket between body and lid for efficient ground continuity and r.f. shielding, and a silicone rubber gasket for weather protection. Two clamp and bolt assemblies are provided on the housing for strandmounting and additional tapped holes permit the installation of auxiliary brackets for surface mounting. The input and output ports have extrusions for the secure interfacing of cable connectors with heat-shrunk tubing or sealing tape. The ports are protected by factory-inserted plastic cap plugs, to be discarded when installing the cable connectors. The input and output terminal platforms have special receptacles for the optional surge arresters. R.F. input and output test fittings, accessible through plug-sealed ports in the housing cover, accept Jerrold standard test adapter Model SPD-30D for signal measurements without having to open the housing. O-rings on the test port plugs prevent ingress of moisture and dirt. A station data card is provided in the housing cover for the recording of signal parameters measured and optional accessories installed.

The amplifier module can be plugged into the housing in either direction as required by signal flow and hence for easy access and maintenance from the street side, away from private property. Module covers have access holes for the gain and slope controls, the Local/Remote slide switch, B+ and Rectifier Test points, and the two RF test terminals. Thru-holes in the module allow closing of terminal screws on the center conductors of the input and output cables, without having to remove the module.

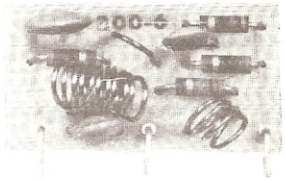
B. SPECIFICATIONS

Model		JLE-5	JLE-6	JLE-7
PASSBANDS	1W	40 to 350 MHz, all Models.		
	2W	54 to 350, 5 to 30 MHz, all Models.		
RESPONSE FLATNESS		±0.5 dB, all Models.		
MIN. FULL GAIN, at 300 MHz with 6 dB slope; see Notes 2,7		45 dB	37 dB	28 dB
TYPICAL OPERATING GAIN RANGE, see Note 3.		41-35 dB	33-27 dB	24-18 dB
MANUAL GAIN CONTROL RANGE (JXP-0 is factory-inserted.)		9 dB min., all Models; additional gain reduction by optional Models JXP-*		
MANUAL SLOPE CONTROL RANGE		0 to 18 dB of cable, referenced to 350 MHz. additional compensation for attenuation vs. frequency by optional equalizer Models SEE-*, and vs. temperature by optional compensator Models CTF-*.		
NOISE FIGURE; with JXP-0 and without equalizer, at Min. Full Gain		8.5 dB	9 dB ref. to Ch. W.	12 dB ref. to Ch. W.
RATED OUTPUT, worst case, for 35 chs., with 6 dB slope; a. X-Mod. at −57 dB or better (see Notes 4, 5)		51 dBmV	51 dBmV	51 dBmV
b. 2nd Order Intermod at −66 dB or better, measured at Chs. 2, G, and 13		51 dBmV	51 dBmV	51 dBmV
c. Composite Triple Beat at −57 dB or better		51 dBmV	51 dBmV	51 dBmV
DISTORTION CHARACTERISTICS, worst case, for 35 Chs. without equalizer, with typical output level of: a. X-Mod., with 6 dB slope		47 dBmV	47 dBmV	47 dBmV
b. 2nd Order Intermod, with 6 dB slope		−65 dB	−65 dB	−65 dB
c. Composite Triple Beat, with 6 dB slope		−70 dB	−70 dB	−70 dB
		−65 dB	−65 dB	−65 dB
MAX. CHROMA DELAY	Forward	Ch. 2: 7ns; Ch. 3: 4ns; Ch. 4: 2ns; all other forward channels less than 1ns.		
	Return	Ch. T7 and T8: 4ns; Ch. T9: 7.5ns; Ch. T10: 15ns.		
HUM MODULATION, by 60 Hz source		−60 dB or better, all Models.		
OPERATING AMBIENT TEMPERATURE RANGE		−40° to +60°C, all Models.		
TERMINAL MATCH, at 75Ω impedance, input and output		16 dB min. return loss, all Models.		
A. C. INPUT RANGE, switchable by slide switches to 30 or 60 V and to LOCAL or REMOTE: factory-set to 60 V and LOCAL, all models.		60V LOCAL: 52-60 V; 60V REMOTE: 44-52 V; 30V LOCAL: 26-30 V; 30V REMOTE: 22-26 V — all Models		
POWER REQUIREMENTS (Power Factor = 0.95) 60-V Models, Local 52 V min. input:	Watts	13.2	13.2	10.7
	Amperes	0.27	0.27	0.215
Remote 44 V min. input:	Watts	13.2	13.2	10.7
	Amperes	0.315	0.315	0.255
30-V Models, Local 26 V min. input:	Watts	13.2	13.2	10.7
	Amperes	0.54	0.54	0.43
Remote 22 V min. input:	Watts	13.2	13.2	10.7
	Amperes	0.63	0.63	0.51
A. C. BYPASS CAPABILITY		5A continuously, all Models		
A. C. DISPOSITION: STOP or THRU, by Model CBJ-5		factory-inserted	optional	optional
SURGE PROTECTORS, optional by Models A0-36		145V d. c. (striking) ±20%, usable in all Models.		
D. C. OUTPUT OF BUILT-IN POWER PACK		24 to 24.5 V, all Models.		
HOUSING:	Type:	Die-cast Aluminum, all Models.		
	Overall Dimensions:	12.5 X 8 X 5 inches, all Models.		
	Mounting:	Strand, Pedestal, or Wall; all Models.		
NET WEIGHT		12 lbs. all Models.		

NOTES:
1. Specifications apply to module installed in housing.
2. Min. Full Gain Specification is referenced to use without optional equalizer Models SEE-* or optional temperature compensator Models CTF-*; for relevant insertion losses see pertinent catalog sheets.
3. Typical Operating Gain Range is referenced to use with equalizer and temperature compensator and with factory-inserted JXP-O.
4. For 21 channels, X-Mod. output rating increases 2 dBmV and composite triple beat output rating increases 3 dBmV, referenced to 35-channel ratings.
5. For 12 channels, X-Mod. output rating increases 4 dBmV and composite triple beat output rating increases 6 dBmV, referenced to 35-channel ratings.
6. Return passband and chroma delay specifications apply to 2W models only.
7. 6 dB Slope implies Channel 2 level operated 6 dB below Channel W level.
8. Composite triple beat is measured with CW signals and spectrum analyzer.

C. SPECIFICATIONS — OPTIONAL ACCESSORIES

1. Equalizer Models SEE-Series



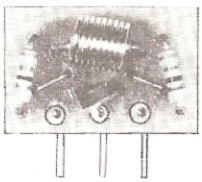
EQUALIZER SEE-300-6

Model SEE-	220-6	220-12	220-18	220-24	270-6	270-12	270-18	270-24	300-6	300-12	300-18	300-24
Passband	40 to 220 MHz				40 to 270 MHz				40 to 300 MHz			
Equalization *	6±0.5dB	12±0.5dB	18±0.5dB	24±0.5dB	6±0.5dB	12±0.5dB	18±0.5dB	24±0.5dB	6±0.5dB	12±0.5dB	18±0.5dB	24±0.5dB
Insertion Loss, max.	1.5dB	1dB	1dB	1dB	1.5dB	1dB	1dB	1dB	1dB	1dB	1dB	1dB
Terminal Match	16 dB minimum return loss at 75 Ω											

Model SEE-	350-6	350-12	350-18	350-24	400-6	400-12	400-18	400-24
Passband	40 to 350 MHz				40 to 400 MHz			
Equalization *	6±0.5dB	12±0.5dB	18±0.5dB	24±0.5dB	6±0.5dB	12±0.5dB	18±0.5dB	24±0.5dB
Insertion Loss, max.	1dB	1dB	1dB	1dB	1dB	1dB	1dB	1dB
Terminal Match	16 dB minimum return loss at 75 Ω							

* Equalization measured at high-band edge through 0.412 inch aluminum-sheathed coaxial cable.

2. Thermal Compensator Model CTF-*



THERMAL COMPENSATOR CTF-11A

Model	CTF-11A	CTF-20	CTF-30
PASSBAND	40 to 400 MHz.		
ATTENUATION, at 300 MHz			
at +25° C ambient.	3.2 dB maximum.	3.2 dB maximum	5.2 dB maximum.
at +25° C ambient.	3.0 dB nominal.	3.0 dB nominal.	5.0 dB nominal.
at −40° C ambient.	5.0 dB nominal.	7.0 dB nominal.	9.8 dB nominal.
at +60° C ambient.	2.0 dB nominal.	2.0 dB nominal.	3.1 dB nominal.
SLOPE from 54 to 300 MHz	0.7 dB at +25 C.	0.7 dB at +25 C.	
THERMAL COMPENSATION	11 dB of tap-loaded cable	20 dB of trunk cable 0.5"	
TERMINAL MATCH at 75 Ω	20 dB min. return loss	18 dB min. return loss.	18 dB min. return loss.

3. Surge Protector Model AO-36 (usable for both 30V and 60V systems)

D.C. BREAK-DOWN VOLTAGE	145 V ±20%.
PEAK CURRENT	5 kA (6/20) min.; 1 kA (10/250) min.
FOLLOW-ON CURRENT	40 A (½ wave, 60 Hz) max.
CAPACITANCE	2 pF max.
OPERATING TEMPERATURE RANGE	−55°C to +125°C.

4. Feeder Return Amplifier Models JRA-30*

Model	JRA-30 L	JRA-30 H
PASSBAND	5 to 30 MHz	
MINIMUM FULL GAIN	15 dB	24 dB
FLATNESS	±0.3 dB	
GAIN CONTROL RANGE	9 dB	
SLOPE	fixed 3 dB, rising from 5 to 30 MHz	
RATED OUTPUT, for −57 dB Cross-Modulation	55 dBmV for 2 channels 50 dBmV for 4 channels	
MAX. NOISE FIGURE, at full gain specified	7 dB	6 dB
DISTORTION CHARACTERISTICS; a. Cross-Modulation b. 2nd Order Beats	−57 dB for rated output −60 dB at 50 dBmV out	
HUM MODULATION, by 60 Hz source	−66 dB or better	
TERMINAL MATCH, at 75Ω impedance;	18 dB min. return loss, both terminals	
D.C. OPERATING VOLTAGE	24.0 to 24.5 V	
POWER REQUIREMENTS, additional to those of forward amplifier, Models JLE-*-6P-2W		
60-V Models, Local 52 V min. input: Watts	2.6	
Amperes	0.05	
Remote 44 V min. input: Watts	2.6	
Amperes	0.06	
30-V Models, Local 26 V min. input: Watts	2.6	
Amperes	0.10	
Remote 22 V min. input: Watts	2.6	
Amperes	0.12	
OPERATING AMBIENT TEMPERATURE RANGE	−40° to +60°C	

D. INSTALLATION

1.0 Introduction

The amplifier is factory-equipped with two clamp and bolt assemblies for vertical suspension from strand. Where greater clearance from strand is required, auxiliary hanger brackets have to be substituted and the clamp and bolt assemblies transferred from the housing to the brackets. For pedestal mounting use the clamp bolts through appropriate holes in the pedestal mounting plate for securing the amplifier at the tapped holes provided in the back of the amplifier housing.

2.0 Preparation on the Bench

2.1 The amplifier has to be prepared for the service required at the specific location for which it is intended, i.e.:

a. Insertion of AO-36 surge arresters, if desired.
b. Setting of 30V/60V switch.
c. Setting of LOCAL/REMOTE switch.
d. Use or non-use of CBJ-5, as required.
e. Insertion of SEE-* type equalizer, if required.
f. Insertion of JXP-* pad, if required.
g. Insertion of CTF-* type thermal compensator, if required.
h. Insertion of JRA-30* amplifier, if required.

These requirements are to be determined from the data in the system layout documentation. All options inserted and the switch settings should be entered on the data card provided in the housing cover. During insertion of options, care must be taken not to deform any of the r.f. coils to prevent detuning of circuits.

2.2 Open the amplifier housing by using a 7/16-inch nutdriver for loosening the six captive bolts on the housing cover flange. Then remove the module and its cover.

2.3 Before an SEE-* can be inserted, the factory-installed shorting bus on the printed circuit board must be removed (see illustration). Then plug the SEE-* in so that the equalizer circuit components face the JXP-O.

2.4 If system requirements call for an output level lower than can be reached with the gain control at minimum setting, replace the factory-inserted JXP-O by a pad with a dB rating sufficient to leave about 2 to 3 dB reserve in the gain control.

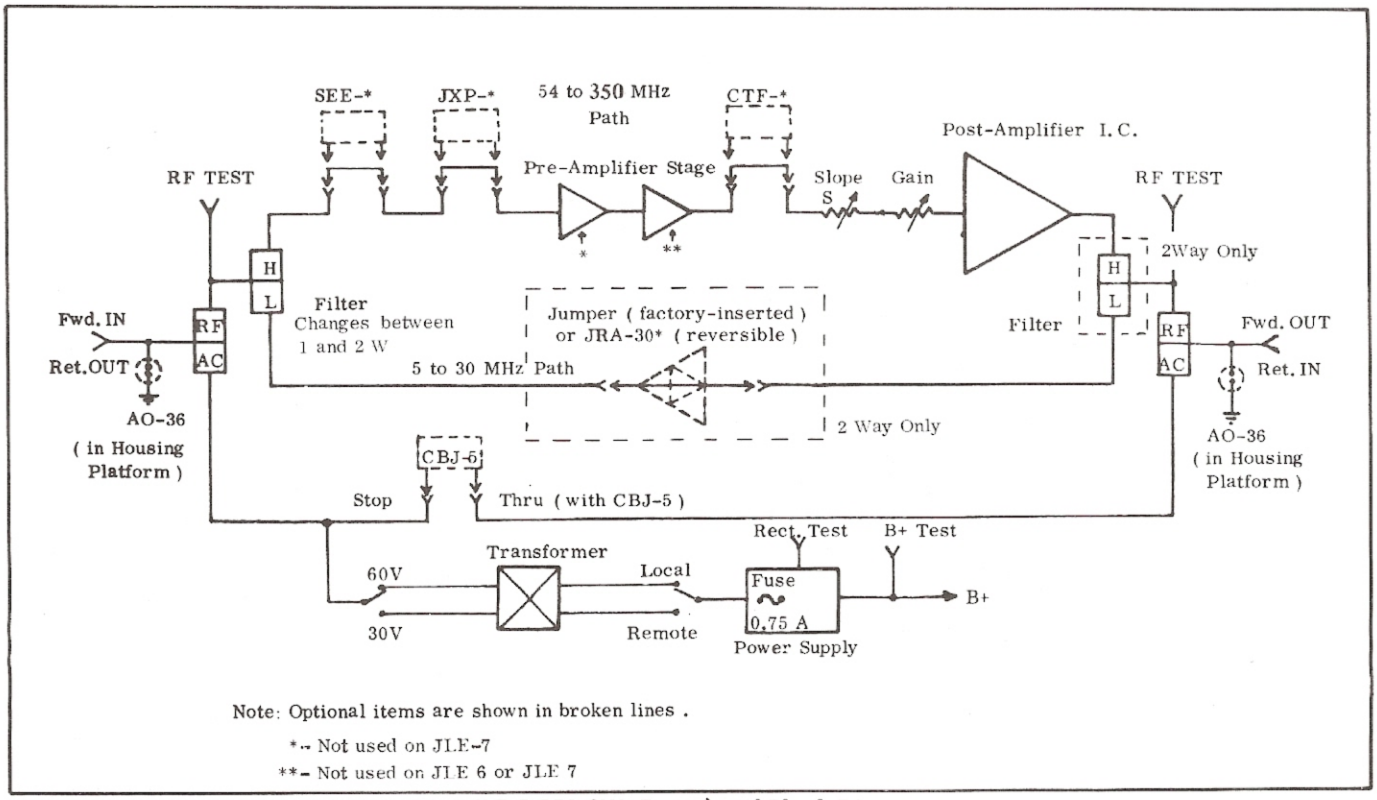
2.5 If system requirements call for the use of a CTF-*, first remove the jumper from the amplifier circuit board and then insert the thermal compensator so that its circuit components face the integrated circuit.

2.6 If a sub-channel amplifier Model JRA-30* is required, first remove the factory-inserted jumper from the main module circuit board; then plug in the JRA-30* as required by signal flow.

2.7 Next, set the a.c. application facilities as required by system design.

2.8 Check that the fuse is properly seated, then replace and secure the module cover.

2.9 If desired, the AO-36 surge protectors can now be inserted. Insert the AO-36 in the clip provided at the terminal assembly of the housing body. Then replace and secure the module.

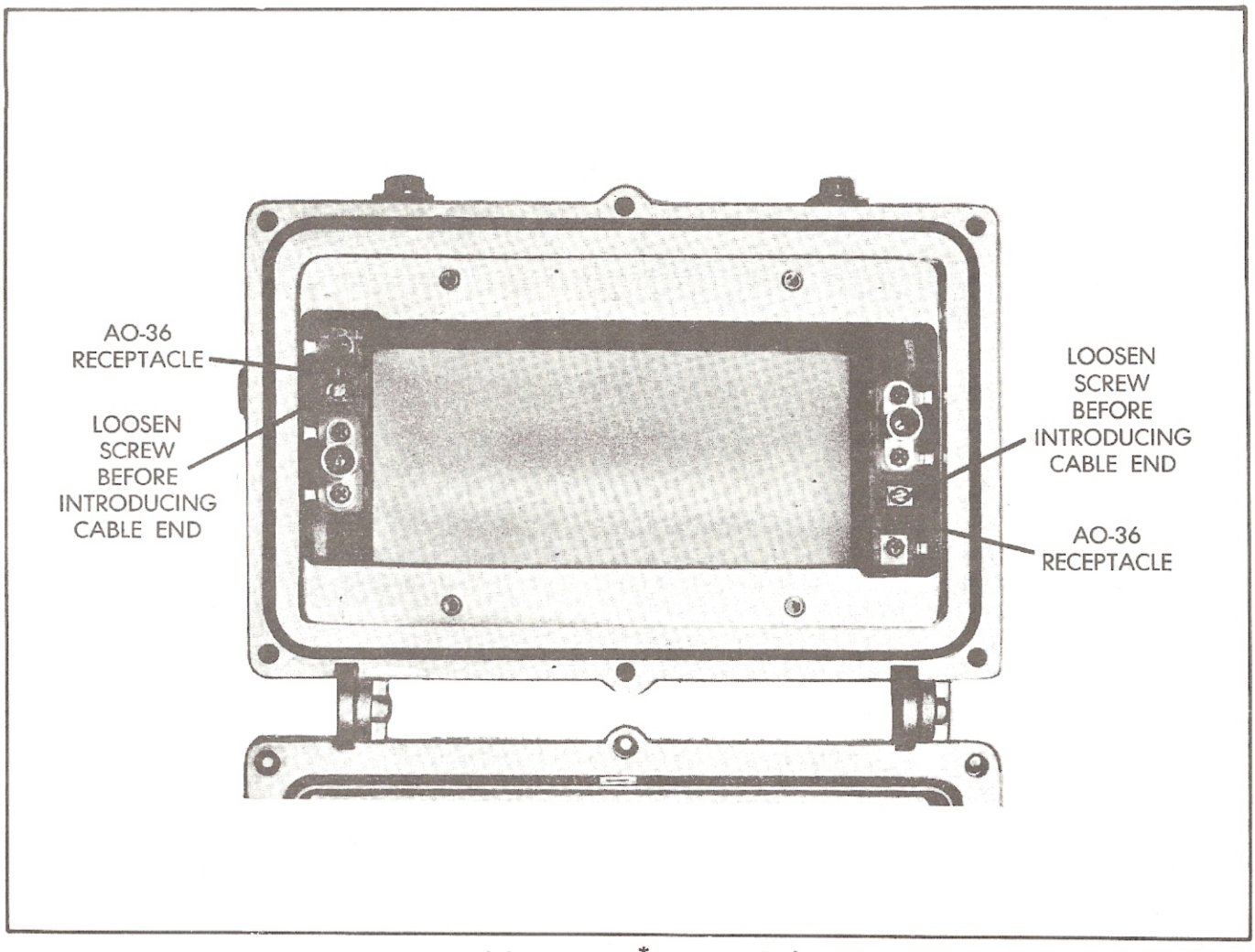


Note: Optional items are shown in broken lines .

*- Not used on JLE-7

**- Not used on JLE 6 or JLE 7

JLE-5-350-2W, Functional Block Diagram



Model JLE-350-2W*, Housing Body

2.10 If desired, the unit can now be sweep-tested in a conventional set-up for checking flatness, gain, slope, and match characteristics.

2.11 See that the gaskets are properly seated, then firmly close the housing to prevent ingress of moisture or dirt until the amplifier is actually installed on the cable.

3.0 Strand-Mounting and Cable Connections

3.1 It is assumed that a.c. has been shut off from the cable on which the amplifier has to be installed.

3.2 Loosen the bolts on the strand clamps 3/16 of an inch, then open the amplifier housing and loosen the two terminal screws in the housing platforms sufficiently to allow unimpeded entry of cable center conductors.

3.3 Remove the cap plugs from the cable ports in the housing. Install in each port a VSF-type fitting; make sure the threads are clean. Hand-tighten, then wrench-tighten the barrel nut on each connector; consult the associated instruction sheet for proper torque. Temporarily close the housing; slight engagement of the top center bolt is sufficient.

3.4 Take the housing up to the strand and loosely engage the strand wire in the clamp assemblies; the clamps will open when forced onto the strand wire. Close the clamp bolts only so far that the housing can be moved freely for proper positioning on the strand; one turn of the clamp bolts will suffice.

3.5 Open the housing and let the cover hang down freely.

3.6 Prepare the coaxial cable ends as required by the type of connectors used. The center conductor should be exposed to a lengh of 1 3/8 inches (or the adapter pin should have that length). Then apply a film of silicone-lubricant to the exposed center conductor or pin and also to one inch of exposed aluminum sheath. One cable end should be connected completely before connecting the second cable end.

3.7 Feed the cable end all the way through the connector into the housing platform terminal.

3.8 Secure the cable end in the cable connector as described in the associated instruction sheet, then firmly close the terminal screw onto the center conductor or pin.

3.9 Repeat this procedure with the other cable end, then protect both cable connections by material that can be heat-shrunk, or by an appropriate wrapping of sealing tape.

3.10 Position the housing so that the customary symmetrical expansion loops can be formed on the coaxial cables. Hand-tighten, then wrench-tighten the bolts on the strand clamps.

3.11 Lash the cables to the strand where they approach the wire and secure the lashing wire to the strand with commercial clamps.

4.0 Operational Set-Up

4.1 It is assumed:

a. All trunk equipment is installed and operational.

b. A.C. has been restored to the cable.

c. All signals to be processed by the amplifier are present on the cable.

d. A signal level meter, a SPD-30D test probe, and a small screwdriver or "diddle-stick" are available.

4.2 Connect the meter through the SPD-30D to the RF output test terminal and tune the meter to the highest channel carried on the system. Measure the output level and, if needed, adjust the GAIN control for the output level required by system design. Remember that with the use of the SPD-30D all meter readings will be 30 dB below the actual levels present at the input and output ports.

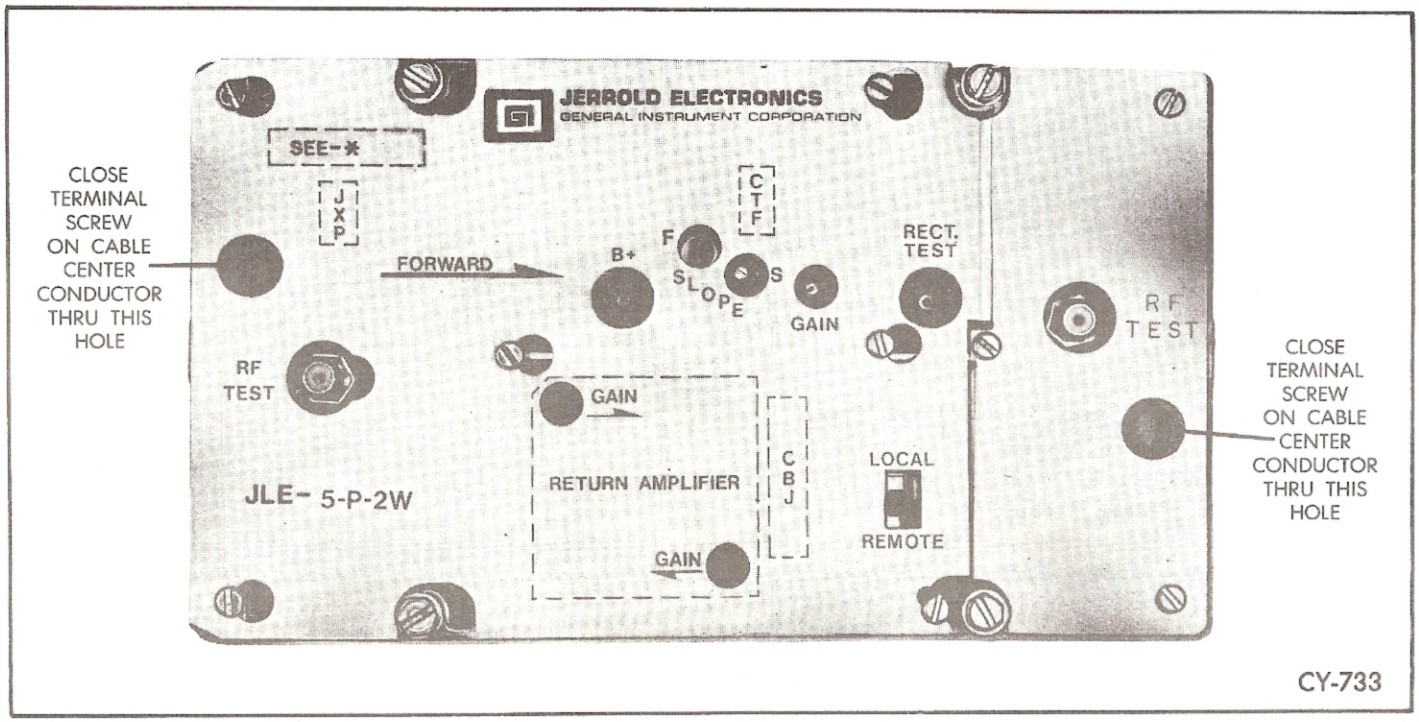
4.3 Tune the meter to the lowest channel carried on the system and measure the output level. Determine the diffence between the levels of the highest and the lowest channel and from system design data determine the adjustment that may be required on the SLOPE control to obtain the desired output response.

4.4 Measure the output levels of all other channels carried on the system and record all levels on the data card in the housing cover.

4.5 Where return channels are carried, make similar measurements by connecting the test equipment to the RF input test terminal and record all levels on the data card.

4.6 Measure the d.c. voltage between the RECT. TEST point and chassis ground; it should be between —3 and —9 volts. This will tell whether the LOCAL/REMOTE switch is properly set.

4.7 This completes the installation and operational set-up procedures. The housing should now be firmly closed only opened again if access is required for making fine adjustments during the system balancing process. For measurements during periodical maintenance checks, use the test apertures in the housing cover, making sure the aperture plugs are firmly sealed after completion of tests.



Amplifier Module

E. CIRCUIT DESCRIPTIONS

1.0

MODEL JLE-5-350-1W
(see schematic E863-893)
MODEL JLE-6-350-1W
(see schematic E863-894)
MODEL JLE-7-350-1W
(see schematic E863-895)
COMMON POWER SUPPLY
(see schematic C863-872)

MODEL JLE-5-350-2W
(see schematic E863-871)
MODEL JLE-6-350-2W
(see schematic E863-883)
MODEL JLE-7-350-2W
(see schematic E863-891)
MODEL JRA-30*
(see schematic 863-877)

2.1 Forward Signal Path

The AC diplexing filter separates the AC voltage from the RF signal and applies this voltage to the power transformer via a 30V/60V switch. The RF signal is applied to the input high/low band split filter.

The high/low band split filter provides a separate path for the high band and low band frequencies. The high band forward frequencies are separate from the input RF signal while the low band return frequencies are combined. (Two Way Models Only.)

The high band frequencies after leaving the filter are applied to an equalizer facility (SEE-*) and pass on to a plug-in pad facility JXP-*, which is used for coarse gain adjustment.

These high band frequencies are amplified by two stud stage amplifiers, JLE-6-350-2W and JLE-6-350-1W, which use only a single stage stud amplifier. The JLE-7-350-2W and JLE-7-350-1W have no stud amplifier stages.

The high band frequencies now enter a thermal compensation facility (CTF-*) in which a jumper is installed at the factory.

The slope controls provide control over units response to compensate for cable tilt and provide for 6dB sloped output when used in combination with (SEE-*) type equalizers. The control's range is from 0dB to 8dB of cable.

The gain control provides a fine adjustment of the unit's gain with a range of 9dB.

The signal is then amplified by a post amplifier IC stage. 33dB of gain is provided by this stage.

After amplification, the RF signal enters the output high/low band split filter. The high band frequencies are recombined with return band frequencies and are coupled to the AC diplexing filter. The above high/low band split filter is not used in JLE-5, 6, 7-350-1W. In these models the signal is coupled direct to the AC diplexing filter.

The AC diplexing filter can re-insert as AC voltage if so desired. A power through facility is provided by a CBJ-5 and is an option, for JLE-6 and JLE-7, Standard with JLE-5.

2.2 Return Signal Path
(only on JLE-5, 6, 6-350-2W)

The return signal is coupled through the AC diplexing filter to the high/low output filter. Here the low band frequencies pass through the low pass section and are applied to the return amplifier facility.

The return amplifier facility has a jumper installed at the factory. The return amplifier JRA-30H or JRA-30L are options to be installed according to system needs.

The return signals are applied to the low pass section of the high/low band input filter. The high/low band split filter combines the return frequencies to the RF path. The signal is then coupled through the input AC diplexing filters and out the input.

2.3 AC Path

The AC voltage is separated from the RF signal at the input AC diplexing filter and applied to a 30V/60V switch. The switch provides the option of use on a 30V or a 60V system. This switch is located on the power supply board, and is preset to 60V at the factory.

The AC after passing through the power transformer is applied to a local remote switch. This switch determines the proper secondary voltage for the power supply.

2.4 Power Supply

The power supply is the same for all models. AC is applied through terminal P201 of the plug-in module and then through A.C. choke L221 and 60/30V switch S101 to the primary of line transformer T101. The Tap of the secondary winding on T101 is determined by the position of the LOCAL/REMOTE switch S301 located in the amplifier module section. The voltage is then applied to bridge rectifier CR101/104 whose output is filtered across electrolytic capacitor C105. The 0.75 A fuse F101 protects the station from over-currents. The series-pass type regulator employs Q101, Q102, and associated components. Potentiometer R104 is factory-adjusted for +24 V d.c., required for powering the amplifier circuitry.

2.5 MODELS JRA-30H and JRA-30L (used only in 2-WAY UNITS)
(see schematic D863-877)

The return signal is applied at P901 and transformer-coupled by T901 to the base of input amplifier Q901. This input stage is arranged in a grounded emitter circuit with feedback applied through C903, L901, and R901. The collector output is coupled by C904 to the gain control stage which employs potentiometer R905 and associated components in a "bridged T" circuit. From there the signal is applied to a slope control circuit designed to provide a fixed slope of 3dB across the return passband. The output amplifier Q902 which has a configuration similar to that of the input stage. After reamplification, the signal is coupled by C909 to output terminal P904.

Note that both models have essentially the same circuitry, distinguished only by the values of some of the components as tabulated.

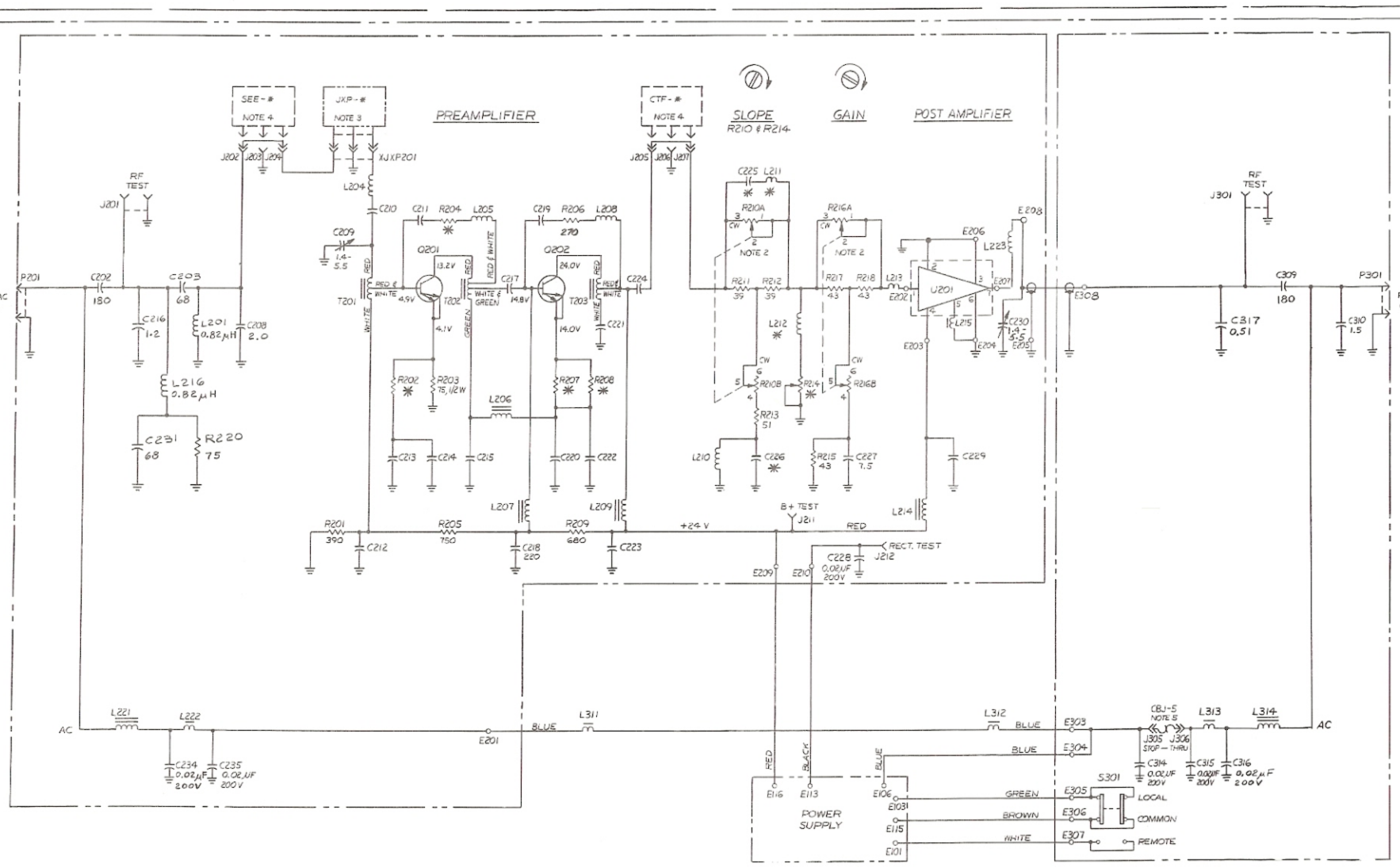
REPLACEMENT PARTS LISTS

REPLACEMENT PARTS LIST	
MODEL No. JLE-5-350-IW	
INPUT BOARD	
DRAWING No. 863-893-01	
Schematic Designations or Part Descriptions	JERROLD Part No.
CAPACITORS	
C202	126-168-00
C203, C231	126-099-00
C208	122-030-00
C209, C230	128-574-00
C210, C211, C212, C213, C214, C215, C217, C219, C220, C221, C222, C223, C224, C229	S124-078-00
C225	S124-322-08
C227	122-014-00
C228, C234, C235 C231	124-154-00
RESISTORS	
R201	112-099-04
R202	112-982-04
R203	112-221-04
R204	112-097-04
R205	112-917-04
R206	112-993-04
R207, R208	112-978-04
R209	112-105-04
R210, R216	118-601-00
R211, R212	112-983-04
R213	112-087-04
R215, R217, R218	112-086-04
R220	112-954-04
INDUCTORS	
L221	S157-138-00
INTEGRATED CIRCUIT	
U201	134-109-02
TRANSFORMER	
T201, T203, T202	B144-799-00 B144-798-00
TRANSISTORS	
Q201, Q202	130-658-00

REPLACEMENT PARTS LIST	
MODEL No. JLE-6-350-IW	
INPUT BOARD	
SCHEMATIC No. 863-894-01	
Schematic Designations or Part Descriptions	JERROLD Part No.
CAPACITORS	
C202	126-168-00
C203, C231	126-099-00
C208	122-030-00
C209, C230	128-574-00
C210, C218, C219, C220, C221, C222, C223, C224, C229	S124-078-00
C216	122-091-00
C217	122-060-00
C225	S124-322-08
C227	122-014-00
C228, C234, C235	124-154-00
RESISTORS	
R203	112-245-04
R204	112-254-04
R205	112-934-04
R206	112-993-04
R207, R208, R215, R217, R218	112-086-04
R209	111-012-04
R210, R216	118-601-00
R211, R212	112-983-04
R213	112-087-04
R220	112-954-04
INDUCTORS	
L221	S157-138-00
INTEGRATED CIRCUIT	
U201	134-109-02
TRANSFORMER	
T201	B144-802-00
TRANSISTOR	
Q201	130-658-00

REPLACEMENT PARTS LIST	
MODEL No. JLE-7-350-IW	
INPUT BOARD	
SCHEMATIC No. 863-895-01	
Schematic Designations or Part Descriptions	JERROLD Part No.
CAPACTIORS	
C202	126-168-00
C203, C231	126-099-00
C208	122-030-00
C209, C230, C237	128-574-00
C216	122-091-00
C223, C229	S124-078-00
C225	S124-322-08
C227	122-014-00
C228, C234, C235	124-154-00
C236	122-007-00
RESISTORS	
R210	118-601-00
R211, R212	112-983-04
R213	112-087-04
R215, R217, R218	112-086-04
R220	112-954-04
INDUCTORS	
L214	S157-102-01
L216	S157-118-04
L221	S157-138-00
INTEGRATED CIRCUIT	
U201	134-109-02
TRANSFORMER	
T201	B144-802-00
TRANSISTOR	
Q201	130-658-00

REPLACEMENT PARTS LIST	
MODEL No. JLE-*-350-IW	
OUTPUT BOARD	
SCHEMATIC Nos. 863-893, 894, & 895, ALL-01.	
Schematic Designations or Part Descriptions	JERROLD Part No.
CAPACITORS	
C309	126-168-00
C310	122-056-00
C314, 315, 316	124-154-00
C317	122-090-00
INDUCTORS	
L314	157-138-00
SWITCH	
S301	162-037-00
CIRCUIT BREAKER	
Model CBJ-6	B812-464-00



NOTES:

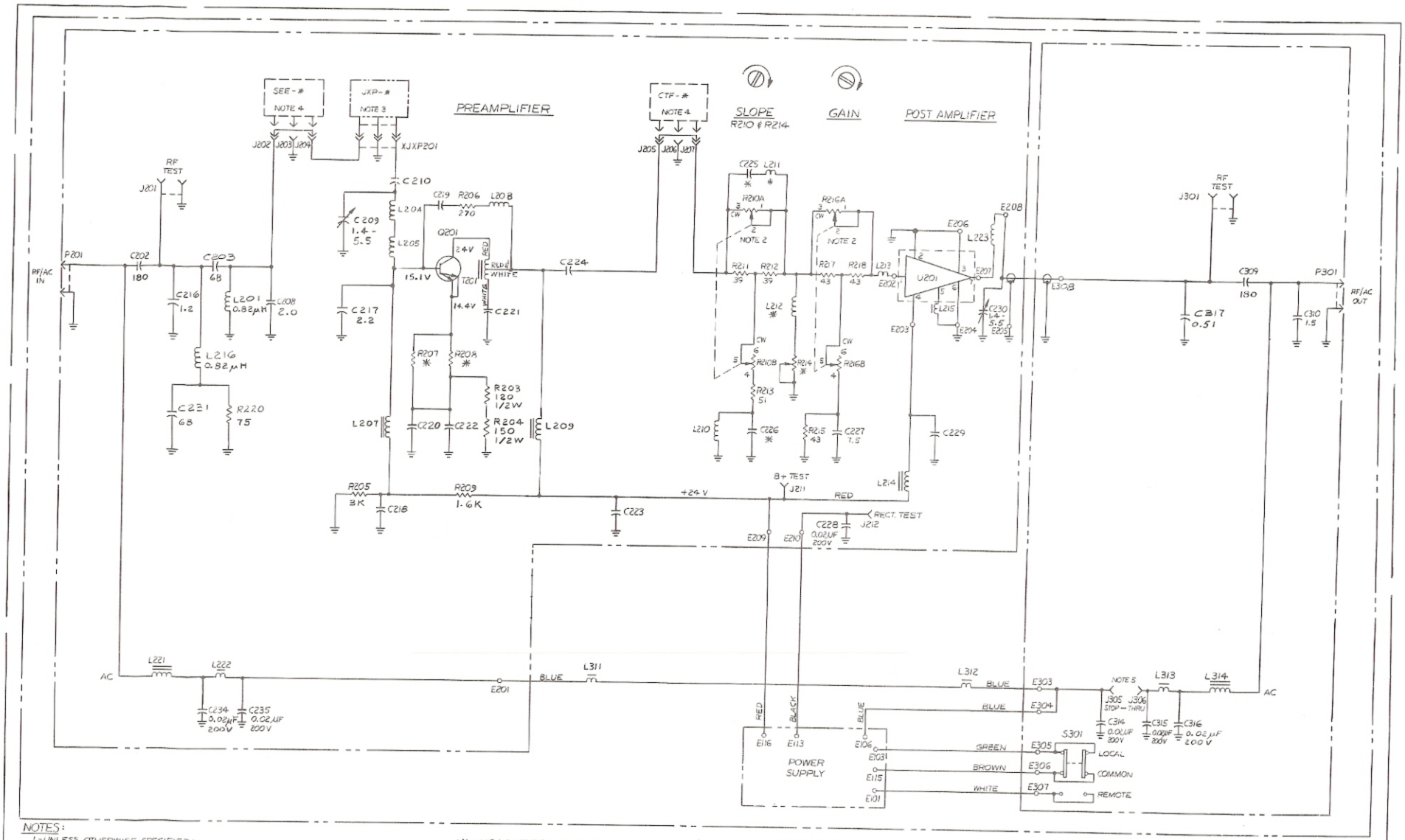
1- UNLESS OTHERWISE SPECIFIED:
   A- ALL RESISTANCES IN OHMS, 5%, 1/4 W.
   B- ALL CAPACITANCES IN pF
   C- ALL UNMARKED CAPACITORS 0.02 μF, 30V
2- "CW" DENOTES POTENTIOMETER WIPER POSITION AT EXTREME CLOCKWISE ROTATION.
3- UNIT SHIPPED WITH JXP-0 FOR -00 & JXP-2 FOR -01.
4- UNIT SHIPPED WITH JUMPER.
5- REMOVE CBJ-5 FOR POWER STOP MODE.
6- COIL L211 FORMED FROM LEAD OF CAPACITOR C225.
7- ALL VOLTAGES ARE REFERENCED TO GROUND.

* INDICATES VARIABLE ITEMS (SEE TAB & NOTES)

TAB	MODEL NO.	C225	C226	L211	L212	R202	R204	R207	R208	R214	822-987	823-762
863-893-00	JLE-5-6P-1W/E	9.1	2.2	NOTE 6	0.56μH	20	300	47	24	2K	-01	-03
863-893-01	JLE-5-350-1W/E	8.2	OMIT	OMIT	OMIT	30	330	36	36	OMIT	-04	-12

AMPLIFIER MODULE
MODEL JLE-5-* -1W/E

863-893-TAB REV. C



NOTES:

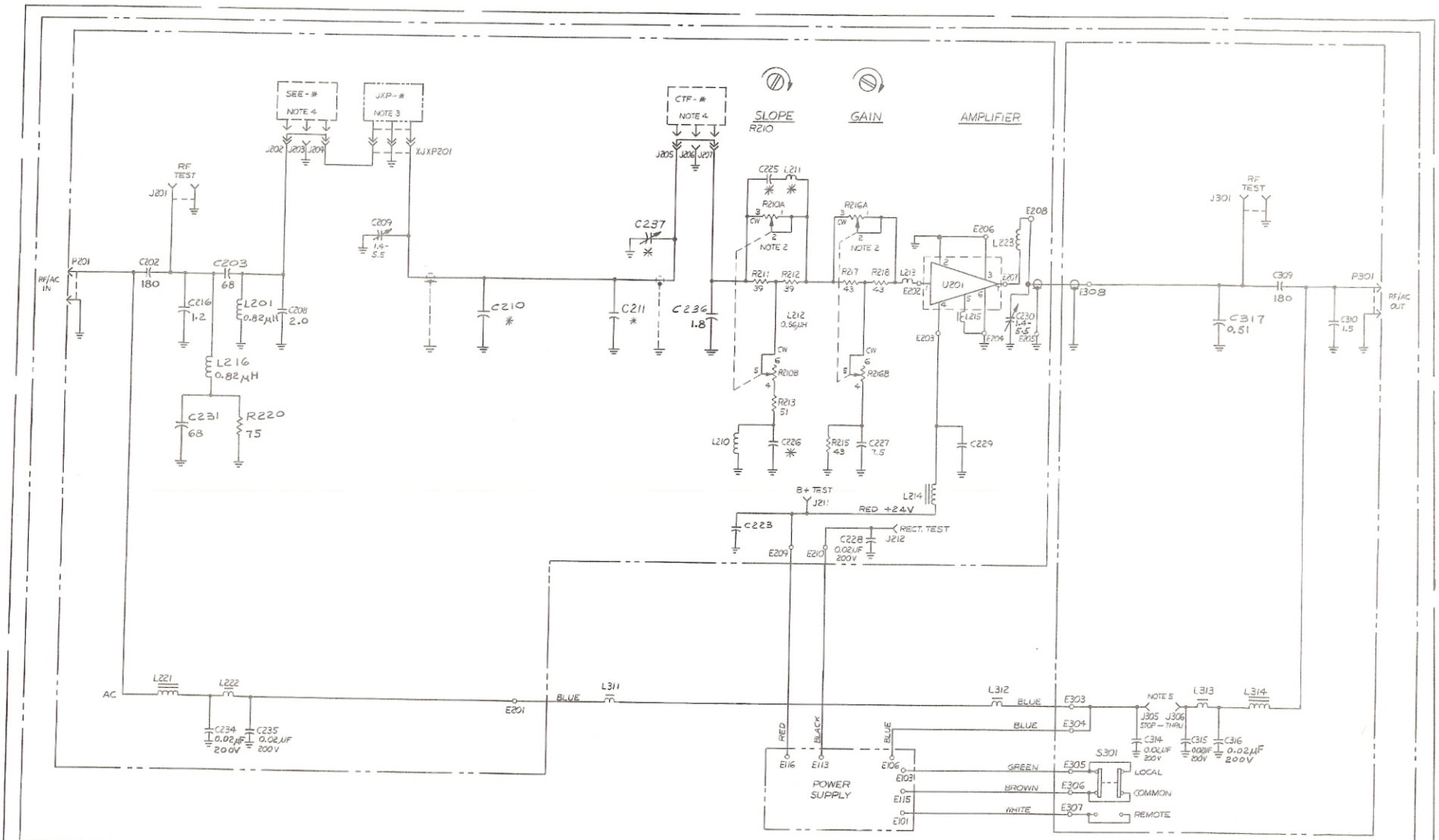
1 - UNLESS OTHERWISE SPECIFIED:
A - ALL RESISTANCES IN OHMS, 5%, 1/4 W.
B - ALL CAPACITANCES IN pF
C - ALL UNMARKED CAPACITORS 0.02 µF, 30V
2 - "CW" DENOTES POTENTIOMETER WIPER POSITION AT EXTREME CLOCKWISE ROTATION.
3 - UNIT SHIPPED WITH JXP-0 FOR -00 & JXP-* FOR -01
4 - UNIT SHIPPED WITH JUMPER.
5 - INSTALL CBJ-5 FOR POWER THRU MODE.
6 - COIL L211 FORMED FROM LEAD OF CAPACITOR C225.
7 - ALL VOLTAGES ARE REFERENCED TO GROUND.

* INDICATES VARIABLE ITEMS (SEE TAB & NOTES)

TAB	MODEL NO.	C225	C226	L211	L212	R207	R208	R214	822-997	823-762
863-894-00	JLE-6-6P-1W/E	9.1	2.2	NOTE 6	0.56µH	47	36	2K	-01	-04
863-894-01	JLE-6-350-1W/E	8.2	OMIT	OMIT	OMIT	43	43	OMIT	-04	-13

AMPLIFIER MODULE
MODEL JLE-6-*-1W/E

863-894-TAB REV. C



NOTES:

1- UNLESS OTHERWISE SPECIFIED:
   A- ALL RESISTANCES IN OHMS, 5%, 1/4 W.
   B- ALL CAPACITANCES IN pF
   C- ALL UNMARKED CAPACITORS 0.02 μF, 30V
2- "CW" DENOTES POTENTIOMETER WIPER POSITION AT EXTREME CLOCKWISE ROTATION.
3- UNIT SHIPPED WITH JXP-0 FOR -00 & JXP-2 FOR -01.
4- UNIT SHIPPED WITH JUMPER
5- INSTALL CBJ-5 FOR POWER THRU MODE.
6- COIL L211 FORMED FROM LEAD OF CAPACITOR C225.
7- ALL VOLTAGES ARE REFERENCED TO GROUND.

*INDICATES VARIABLE ITEMS (SEE TAB & NOTES).

TAB	MODEL NO.	C210	C211	C225	C226	C237	L211	832-007	823-762
863-895-00	JLE-7-6P-1W/E	2.4	2.7	9.1	2.2	OMIT	NOTE 6	-01	-05
863-895-01	JLE-7-350-1W/E	OMIT	OMIT	8.2	OMIT	1.4-5.5	OMIT	-04	-14

AMPLIFIER MODULE
MODEL JLE-7-*-1W/E

863-895-TAB-REV. B

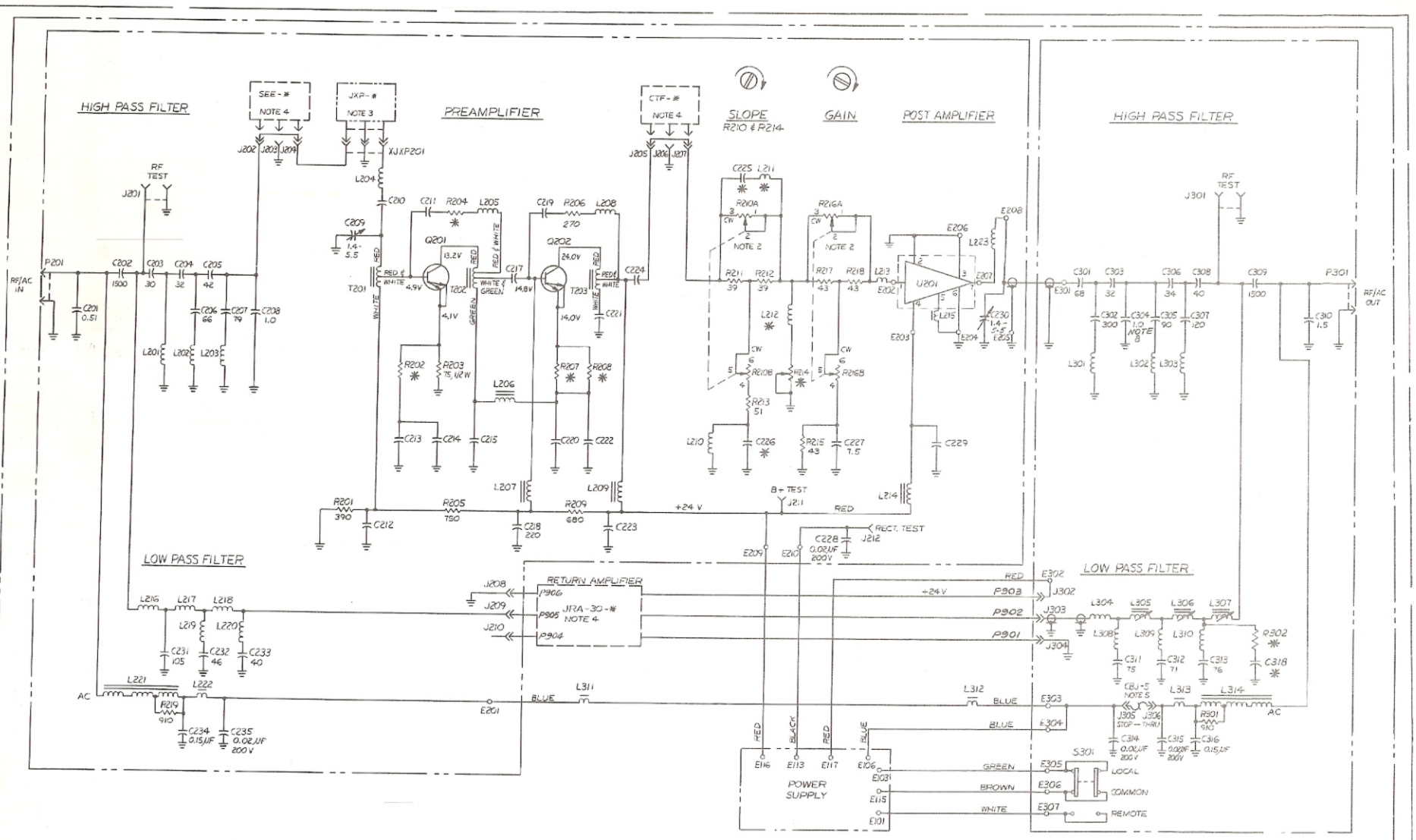
REPLACEMENT PARTS LISTS

REPLACEMENT PARTS LIST	
MODEL No. JLE-5-350-2W	
INPUT BOARD	
DRAWING No. 863-871-01	
Schematic Designations or Part Descriptions	JERROLD Part No.
CAPACITORS	
C201	122-090-00
C202	126-033-00
C203	126-222-00
C204	S126-230-05
C205	S126-230-15
C206	S126-230-39
C207	S126-230-52
C208	122-055-00
C209, C230	128-574-00
C210, C211, C212, C213, C214, C215, C217, C219, C220, C221, C222, C223, C224, C229	S124-078-00
C225	S124-322-08
C227	122-014-00
C228, C235	124-154-00
C231	S126-230-78
C232	S126-230-19
C233	S126-230-13
C234	S124-191-00
RESISTORS	
R201	112-099-04
R202	112-982-04
R203	112-221-04
R204	112-097-04
R205	112-917-04
R206	112-993-04
R207, R208	112-978-04
R209	112-105-04
R10, R216	118-601-00
R211, R212	112-983-04
R213	112-087-04
R215, R217, R218	112-086-04
R219	112-920-04
INDUCTORS	
L221	S157-155-00
INTEGRATED CIRCUIT	
U201	134-109-02
TRANSFORMER	
T201, T203	B144-799-00
T202	B144-798-00
TRANSISTORS	
Q201, Q202	130-658-00

REPLACEMENT PARTS LIST	
MODEL No. JLE6-350-2W	
INPUT BOARD	
SCHEMATIC No. 863-883-01	
Schematic Designations or Part Descriptions	JERROLD Part No.
CAPACITORS	
C201	122-090-00
C202	126-033-00
C203	126-222-00
C204	S126-230-05
C205	S126-230-15
C206	S126-230-39
C207	S126-230-52
C208	122-055-00
C209, C230	128-574-00
C210, C218, C219, C220, C221, C222, C223, C224, C229	S124-078-00
C217	122-060-00
C225	S124-322-08
C227	122-014-00
C228, C235	124-154-00
C231	S126-230-78
C232	S126-230-19
C233	S126-230-13
C234	S124-191-00
RESISTORS	
R203	112-245-04
R204	112-254-04
R205	112-934-04
R206	112-993-04
R207, R208, R215, R217, R218	112-086-04
R209	111-012-04
R210, R216	118-601-00
R211, R212	112-983-04
R213	112-087-04
R219	112-920-04
INDUCTORS	
L221	S157-155-00
INTEGRATED CIRCUIT	
U201	134-109-02
TRANSFORMER	
T201	B144-802-00
TRANSISTOR	
Q201	130-658-00

REPLACEMENT PARTS LIST	
MODEL No. JLE-7-350-2W	
INPUT BOARD	
SCHEMATIC No. 863-891-01	
Schematic Designations or Part Descriptions	JERROLD Part No.
CAPACITORS	
C201	122-090-00
C202	126-033-00
C203	126-222-00
C204	S126-230-05
C205	S126-230-15
C206	S126-230-39
C207	S126-230-43
C208	122-055-00
C209, C230, C237	128-574-00
C223, C229	S124-078-00
C225	S124-322-08
C227	122-014-00
C228, C235	124-154-00
C231	S126-230-78
C232	S126-230-19
C233	S126-230-13
C234	S124-191-00
C236	122-007-00
RESISTORS	
R210	118-601-00
R211, R12	112-983-04
R213	112-087-04
R215, R217, R218	112-086-04
R219	112-920-04
INDUCTORS	
L214	S157-102-01
L221	S157-155-00
INTEGRATED CIRCUIT	
U201	134-109-02
TRANSFORMER	
T201	B144-802-00
TRANSISTOR	
Q201	130-658-00

REPLACEMENT PARTS LIST	
MODEL No. JLE-*-350-2W	
OUTPUT BOARD	
SCHEMATIC Nos. 863-871, 883, 891, ALL-01.	
Schematic Designations or Part Descriptions	JERROLD Part No.
CAPACITORS	
C301	S126-230-41
C302	126-113-00
C303	S126-230-05
C304	122-055-00
C305	S126-230-63
C306	S126-230-07
C307	S126-230-93
C308	S126-230-13
C309	126-033-00
C310	122-056-00
C311	S126-230-48
C312	S126-230-44
C313	S126-230-49
C314, C315	124-154-00
C316	S124-191-00
C318	S124-064-00
INDUCTORS	
L305	B155-654-01
L306	B155-653-00
L307	B155-654-00
L314	S157-155-00
RESISTORS	
R301	112-920-04
R302	112-097-04
SWITCH	162-037-00



NOTES:

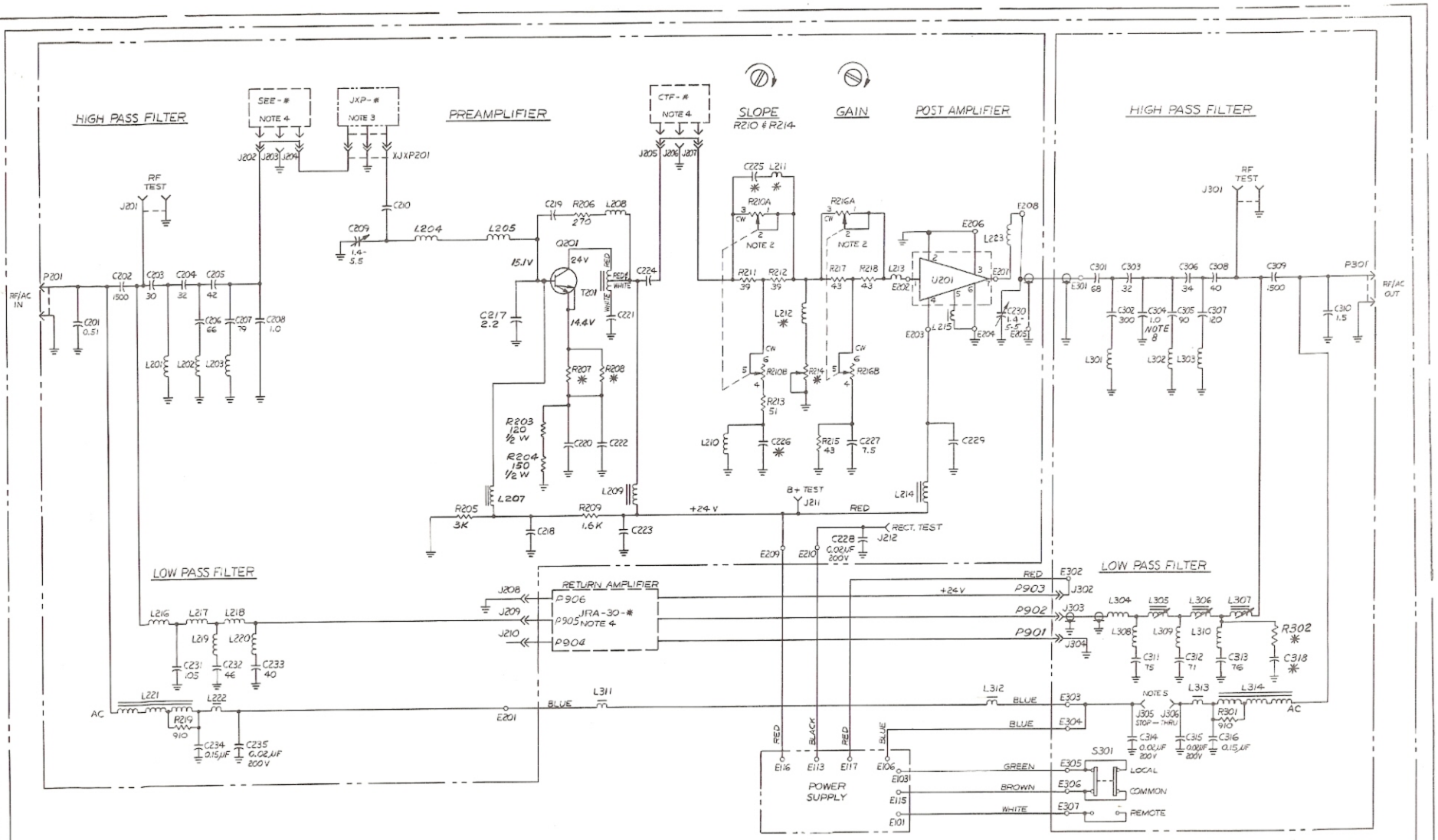
1 - UNLESS OTHERWISE SPECIFIED:
A - ALL RESISTANCES IN OHMS, 5%, 1/4 W.
B - ALL CAPACITANCES IN pF.
C - ALL UNMARKED CAPACITORS 0.02 μF, 30 V.
2 - "CW" DENOTES POTENTIOMETER WIPER POSITION AT EXTREME CLOCKWISE ROTATION.
3 - UNIT SHIPPED WITH JXP-0 FOR -00 & JXP-2 FOR -01
4 - UNIT SHIPPED WITH JUMPER.
5 - REMOVE CBJ-5 FOR POWER STOP MODE.
6 - COIL L211 FORMED FROM LEAD OF CAPACITOR C225.
7 - ALL VOLTAGES ARE REFERENCED TO GROUND.
8 - MAY NOT BE IN ALL UNITS.

* INDICATES VARIABLE ITEMS (SEE TAB & NOTES)

AMPLIFIER MODULE MODEL JLE-5-*-2W/E

TAB	MODEL NO.	C225	C226	L211	L212	R202	R204	R207	R208	R214	C318	R302	822-987	822-988	823-762
863-871-00	JLE-5-6P-2W/E	9.1	2.2	NOTE 6	0.56μH	20	300	47	24	2K	OMIT	OMIT	-00	-00	-00
863-871-01	JLE-5-350-2W/E	8.2	OMIT	OMIT	OMIT	30	330	36	36	OMIT	2.2	330	-03	-03	-09

863-871-TAB REV. D



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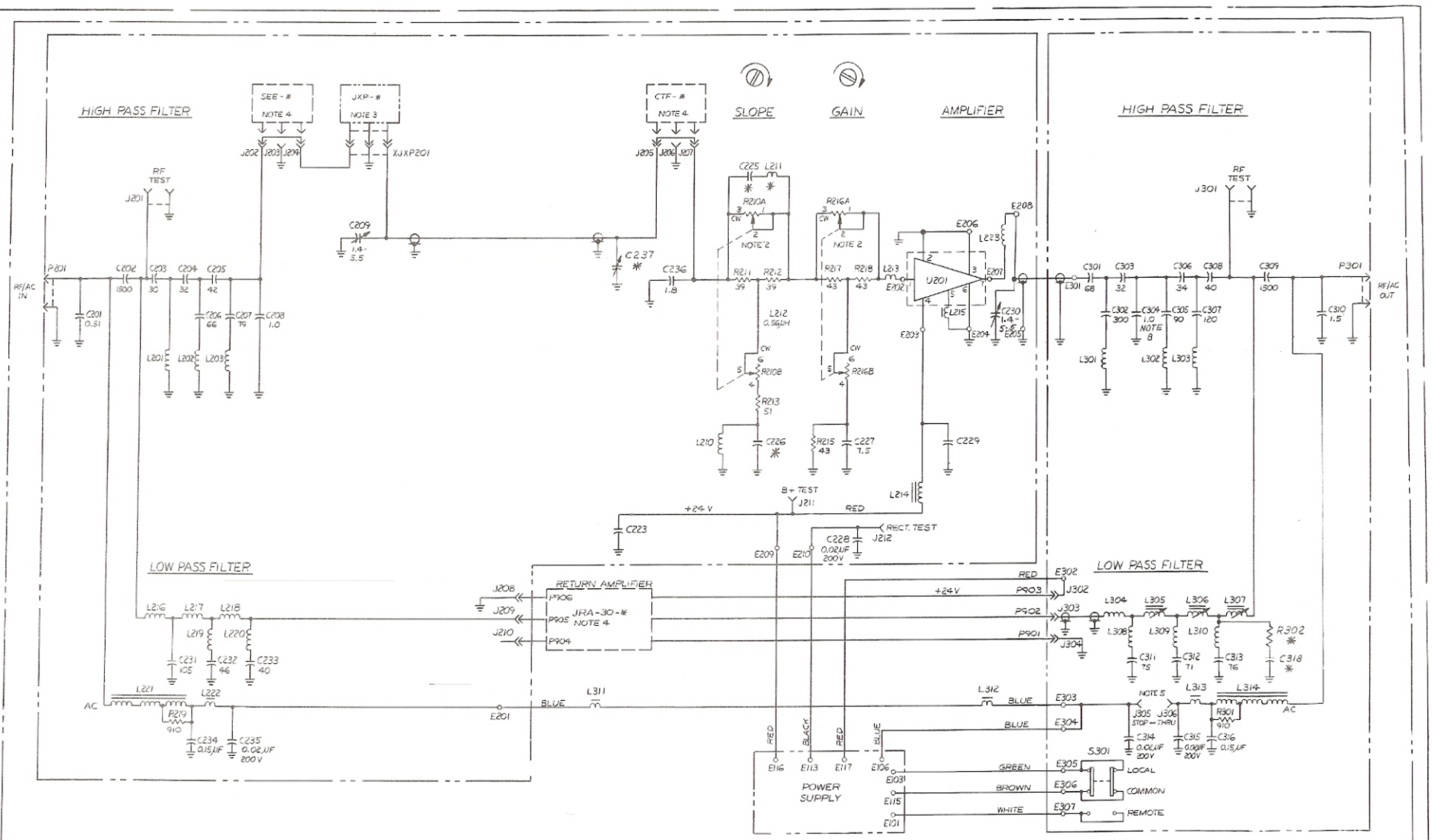
NOTES:
1 - UNLESS OTHERWISE SPECIFIED:
A - ALL RESISTANCES IN OHMS, 5%, 1/4 W.
B - ALL CAPACITANCES IN PF
C - ALL UNMARKED CAPACITORS 0.02 μF, 30 V
2 - "CW" DENOTES POTENTIOMETER WIPER POSITION AT EXTREME CLOCKWISE ROTATION.
3 - UNIT SHIPPED WITH JXP-0 FOR -00 & JXP-2 FOR -01
4 - UNIT SHIPPED WITH JUMPER.
5 - INSTALL CBJ-5 FOR POWER THRU MODE.
6 - COIL L211 FORMED FROM LEAD OF CAPACITOR C225.
7 - ALL VOLTAGES ARE REFERENCED TO GROUND.
8 - MAY NOT BE IN ALL UNITS.

* INDICATES VARIABLE ITEMS (SEE TAB & NOTES).

AMPLIFIER MODULE MODEL JLE-6-*-2W/E

TAB	MODEL NO.	C225	C226	C318	L211	L212	R207	R208	R214	R302	822-988	822-997	823-762
863-883-00	JLE-6-6P-2W/E	9.1	2.2	OMIT	NOTE6	0.56μH	47	36	2K	OMIT	-00	-00	-01
863-883-01	JLE-6-350-2W/E	8.2	OMIT	2.2	OMIT	OMIT	43	43	OMIT	330	-03	-03	-10

863-883-TAB REV. D



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   A. ALL RESISTANCES IN OHMS, 5%, 1/4 W.
   B. ALL CAPACITANCES IN pF.
   C. ALL UNMARKED CAPACITORS 0.02 µF, 30 V.
2. "CW" DENOTES POTENTIOMETER WIPER POSITION AT EXTREME CLOCKWISE ROTATION.
3. UNIT SHIPPED WITH JXP-0 FOR -00 & JXP-2 FOR -01.
4. UNIT SHIPPED WITH JUMPER.
5. INSTALL CBJ-5 FOR POWER THRU MODE.
6. COIL L211 FORMED FROM LEAD OF CAPACITOR C225.
7. ALL VOLTAGES ARE REFERENCED TO GROUND.
8. MAY NOT BE IN ALL UNITS.

*INDICATES VARIABLE ITEMS (SEE TAB & NOTES)

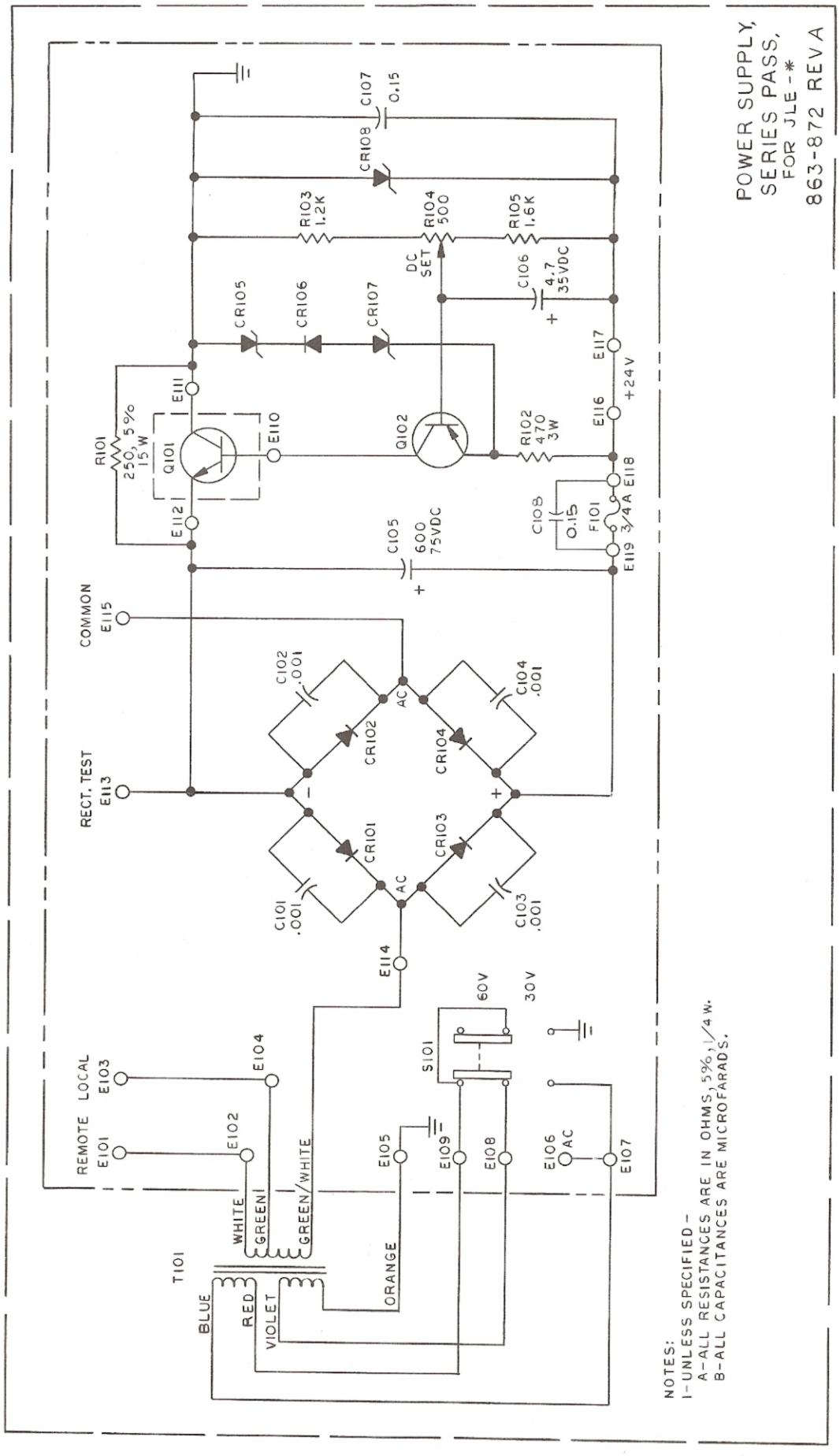
TAB	MODEL NO.	C225	C226	C237	C318	L211	R302	832-007	822-988	823-767
863-891-00	JLE-7-6P-2WE	9.1	2.2	OMIT	OMIT	NOTE 6	OMIT	-00	-00	-02
863-891-01	JLE-7-350-2WE	8.2	OMIT	1.4-5.5	2.2	OMIT	330	-03	-03	-11

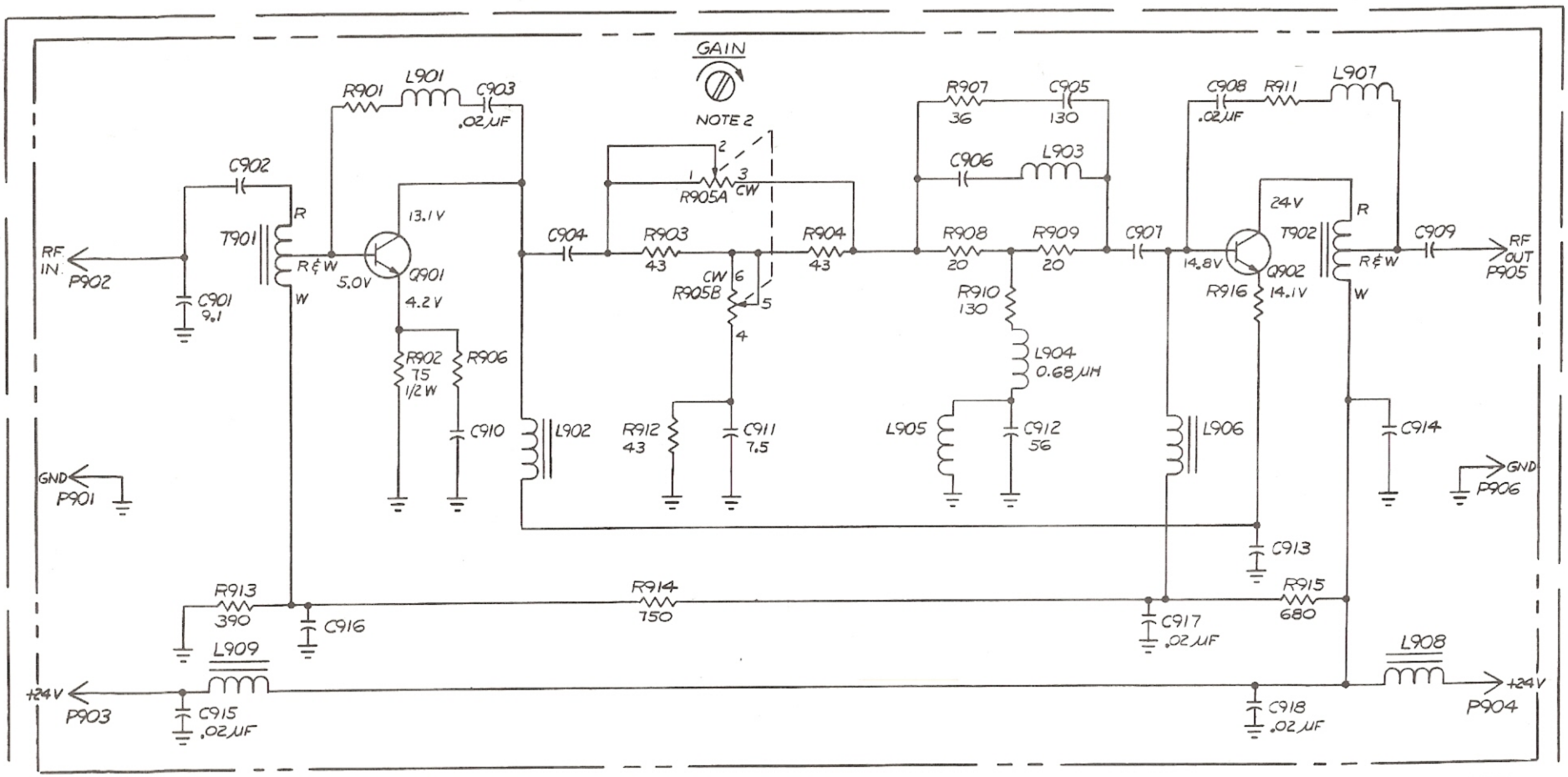
AMPLIFIER MODULE
MODEL JLE-7-*-2W/E

863-891-TAB REV. C

ALL MODELS	
POWER SUPPLY	
DRAWING No. 863-872	
Schematic Designations or Part Descriptions	JERROLD Part No.
CAPACITORS	
C101, 102, 103, 104	S123-115
C105	127-206-00
C106	127-332-00
C107	120-152
DIODES	
CR101, 102, 103, 104	137-788
CR105, 107	137-854-00
CR106	137-824
CR108	137-864
FUSE	
F101	101-341
RESISTORS	
R101	112-236-00
R102	113-163-00
R103	112-921-04
R104	S118-259-01
R105	111-012-04
TRANSFORMER	
T101	A141-336
TRANSISTORS	
Q101	130-318
Q102	130-317
SWITCH	
S101	S162-256

MODEL No. JRA-30H, JRA-30L	
RETURN AMP	
DRAWING No. 863-877	
Schematic Designations or Part Descriptions	JERROLD Part No.
CAPACITORS	
C901	122-097
C902, 904, 909, 910, 913, 914, 916	120-152
C903, 907, 908, 917	S124-078
C905	126-097
C906...JRA-30H	126-107
JRA-30L	126-104
C911	122-014
C912	126-104
RESISTORS	
R901...JRA-30H	112-098-04
JRA-30L	112-095-04
R902	112-221-04
R903, 904, 912	112-086-04
R905	118-601-00
R907	112-978-04
R908, 909	112-083-04
R910	112-997-04
R911...JRA-30H	112-101-04
JRA-30L	112-097-04
R913	112-099-04
R914	112-917-04
R915	112-105-04
R916...JRA-30H	112-080-04
JRA-30L	112-083-04
R917...JRA-30H	112-075-04
JRA-30L	112-973-04
RF TRANSFORMERS	
T901, 902	B144-801
TRANSISTORS	
Q901, 902	S130-659-00


POWER SUPPLY,
SERIES PASS,
FOR JLE-*
863-872 REVA
NOTES:
1-UNLESS SPECIFIED-
A-ALL RESISTANCES ARE IN OHMS, 5%, 1/4 W.
B-ALL CAPACITANCES ARE MICROFARADS.
T101
BLUE
RED
VIOLET
WHITE
GREEN
GREEN/WHITE
ORANGE
REMOTE
LOCAL
E101
E102
E103
E104
E105
E106
AC
E107
E108
E109
E110
E111
E112
E113
RECT. TEST
E114
COMMON
E115
E116
E117
+24V
E118
E119
S101
60V
30V
R101
250, 5%
15 W
R102
470
3W
R103
1.2K
R104
500
DC
SET
R105
1.6K
Q101
Q102
CR101
CR102
CR103
CR104
CR105
CR106
CR107
CR108
C101
.001
C102
.001
C103
.001
C104
.001
C105
600
75VDC
C106
4.7
35VDC
C107
0.15
C108
0.15
F101
3/4A



NOTES:
1-UNLESS OTHERWISE SPECIFIED:
A-ALL RESISTANCES IN OHMS, 5%, 1/4 W.
B-ALL CAPACITANCES IN pF.
C-ALL UNMARKED CAPACITORS 0.15 µF, 100V., OR SEE TAB.
2-"CW" DENOTES POTENTIOMETER WIPER POSITION AT EXTREME CLOCKWISE ROTATION.
3-ALL VOLTAGES ARE REFERENCED TO GROUND.

TAB	MODEL NO.	L901	L905	L907	R901	R906	R911	R916	C906
863-877-00	JRA-30H	6-1/2T	11-1/2T	6-1/2T	360	8.2	470	13	62
863-877-01	JRA-30L	3-1/2T	10-1/2T	3-1/2T	220	15	330	20	56

Optional for 2W Amps Not used in 1W

RETURN AMPLIFIER
MODEL JRA-30 *

863-877, REV. 0

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