LBO-324/325

40MHz/60MHz OSCILLOSCOPE

SERVICE MANUAL

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NOTE

These servicing instructions are for use by qualified personnel only. To avoid electrical shock, do not perform any servicing other than that contained in the service manual unless you are qualified.

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CONTENTS

1. SPECIFICATIONS

CRT Display	
Type	95 mm Rectangular, Internal-graticule Scale, Aluminized Screen and Flat Face with illumination lamp [LBO-325] and Percentage scale.
Accelerating Potential	12 kV/2 kV regulated
Effective display area	8 x 10 div. (1 div. = 6.35mm)
Beam Rotator	Adjustment on front panel
Intensity Modulation	Blanked by TTL Level Signal
Graticule Illumination	Adjustment on front panel [LBO-325]
Vertical Amplifier (CH-1 and 2)	
Sensitivity	5 mV/div. to 5 V/div. (all bandwidth), 1 mV/div. to 2 mV/div. (5 MHz: MAG x 5) with variable in 10 steps, 1-2-5 sequence, continuously variable between steps.
Calibration Accuracy	±3% (±5%: MAG x 5)
Bandwidth (−3 dB, ref. 8 div.)	
DC coupled	DC to 40 MHz [60 MHz] (DC to 5MHz: MAG x 5)
AC coupled	10 Hz to 40 MHz [60 MHz]
Rise Time	8.8 ns [5.8 ns] (70 ns: MAG x 5)
[Signal Delay Time	Approx. 20 ns on CRT face]
Input Impedance	1 MΩ ± 1.5%, 30 pF within ± 5pF (Tolerance: within ± 2 pF)
Input Coupling	AC, GND, DC
Maximum Input	400 V (DC + ACp-p)
Display Modes	CH-1, CH-2, CHOP, ALT, ADD
Polarity Invert	CH-2 INVERT
CH-1 Output	Approx. 50 mV/div. into 50Ω (DC to 40 MHz [60 MHz], −3 dB)
Horizontal Amplifier	
Sweep Method	Trigger sweep, Automatic trigger sweep, Continuously delayed sweep, Trigger delayed sweep, and ALT sweep.
A Sweep Time	0.2 μs/div. to 0.2 s/div., 1-2-5 sequence 19 steps with continuous adjuster.
B Sweep Time	0.2 μs/div. to 0.5 ms/div., 1-2-5 sequence 11 steps.
Calibration Accuracy	±3%
Hold-off variable	One sweep or more
Delay Time Jitter	1/10,000
Setting accuracy of delay time position	±3% approx.
Magnifier	10 times ± 5%
Max. Sweep Time	20 ns/div. (MAG x 10 ON)

Synchronization

Signal Sources: ALT, CH-1, CH-2, LINE, EXT.

Coupling: AC, HF-REJ, TV-V, TV-H

Slope: + or – and VIDEO POL

Sensitivity:

	Bandwidth	INT.	EXT.
NORM	30 Hz ~ 10 MHz	0.5 div.	0.2 Vp-p
	2 Hz ~ 40 [60] MHz	1.5 div.	0.6 Vp-p
AUTO	30 Hz ~ 10 MHz	0.5 div.	0.2 Vp-p
	30 Hz ~ 40 [60] MHz	1.5 div.	0.6 Vp-p

TV Synchronization: Extracts the synchronizing signal from composite video signal and provides stable synchronization. Slope switch is selected according to polarity of video signals.
If the main sweep (A TIME) is synchronized to TV-V, under B triggering (B TRIG'D) the magnified sweep (B TIME) is automatically synchronized to TV-H.

X-Y Mode (X = CH-1, Y = CH-2)

Sensitivity: X axis: 5 mV/div. to 5 V/div.
Y axis: 5 mV/div. to 5 V/div.

X axis Bandwidth: DC or 10 Hz to 1 MHz (–3 dB, ref. 8 div.)

X-Y phase: Less than 3° at 100 kHz

Calibrator

Output Voltage: 0.5 Vp-p ±2%

Frequency: Approx. 1 kHz, square wave

Power Requirements

Line Voltage: AC100, 120, 200, 220, 240V 50/60 Hz

Power Consumption: 25 W

Size and Weight: 230 (W) x 75 (H) x 290 (D) mm, 4 kg

Supplied Accessories:

Direct/Low capacitance probe LP-16BX [LP-060X]		2
BNC terminal adapter		2
Time lag fuse		1
Instruction manual		1
Carrying case	LBO-325 only	1
Protective front cover	LBO-325 only	1
Shading hood	LBO-325 only	1

Optional Accessories: Carrying Case (with Protective front cover)
Shading hood

2. TEST EQUIPMENT REQUIRED

The following test equipment is required for calibration and servicing of the Model LBO-324/325. The suggested specifications are the minimum necessary for proper calibration of this instrument.

Test Equipment	Minimum Spec
- Multimeter	0 - 200V Accuracy <0.1% High voltage probe
- Oscilloscope	10mV sensitivity 20MHz bandwidth Low capacitance probe
- Amplitude Calibrator	1kHz square wave 1mV-50Vp-p Accuracy <0.5%
- Square Wave Generator	100Hz-10kHz Rise time <10nS
- Time Mark Generator	0.2S-0.02uS Accuracy <0.5%
- Sine Wave Generator	10Hz-40/60MHz
- Capacitance Meter	30pF

3. CALIBRATION PROCEDURE

3.1 General

Calibration should be performed after a 30 minute warm-up period. It should also be confirmed that the unit is connected to the rated power line voltage.

All adjustments should be completed in the given order, because some adjustments interact with others.

During the adjustment procedure, remove the case only when necessary and replace immediately after making an adjustment. This will maintain all circuits at constant operating temperature.

Take utmost precaution to come into contact with the high voltage circuits!

3.2 Initial Control Settings

The initial control settings to be used for each check and adjustment are listed below. Any variations from these settings are stated in the applicable procedure.

Display	
INTEN	As desired
FOCUS	Best focused display
ILLUM	As desired<325 only>
Vertical	
VOLTS/DIV	0.1V (CH-1, 2)
VARIABLE	CAL'D (CH-1, 2)
x5 MAG	OFF (CH-1, 2)
POSITION	Center (CH-1, 2)
V MODE	CH-1
AC-DC-GND	DC (CH-1, 2)
CH-2 INV	OFF
Time base	
A TIME/DIV	0.5mS
B TIME/DIV	0.1mS
VARIABLE	CAL'D
POSITION	Center
HOR DISPLAY	A
DLY TIME MULTI	0.20
A/B TRACE SEP	Center

Trigger	
COUPLING	AC
SOURCE	CH-1
LEVEL	0
NORM/AUTO	AUTO
SLOPE	+
HOLDOFF	NORM

3.3 Power Supply

- Connect the DC voltmeter between test point and chassis.
- Adjust as required, using the adjustment shown in Table 3-1.

Test point	Voltage	Tolerance	Adjustment
P68 pin 3	-8V	-7.8V to -8.2V	VR1(T-3553)
P68 pin 4	+5V	+4.8V to +5.2V	-
P67 pin 3	+8V	+7.6V to +8.4V	-
P68 pin 2	+12V	+11.4V to +12.6V	-
P64 pin 1	+15V*	+13.5V to +16.5V	-
P67 pin 4	+36V	+33V to +39V	-
P68 pin 1	+100V	+95V to +105V	-
TP1(T-3565)	-1900V	-1895V to 1905V	VR2(T-3591)

*: Unregulated

Table 3-1

3.4 Display

(1) Intensity Adjustment

- Set: A TIME/DIV 0.5mS
  AC-GND-DC GND
- Set the INTEN control midway between 10 and 11 o'clock positions.
- Adjust VR1(T-3591) so the trace is just visible.

(2) Focus Adjustment

- Set: FOCUS Center
- Apply CAL 0.5Vp-p to CH-1 INPUT connector.
- Adjust VR3(T-3591) and VR1(T-3565) alternately for optimum trace sharpness.

3.5 Vertical Amplifier

(1) DC Balance Adjustment

* The following adjustments are accessible from the hole on the top and bottom of the cabinet. Use insulated adjustment driver.

- Set: VOLTS/DIV 5mV
  VARIABLE CAL'D
  AC-GND-DC GND

- Position the trace to the center horizontal graticule line using the V-POSITION control.

- Pull x5 MAG on.

- If the trace moves 1 division or more, adjust VR3(T-3554) for minimum trace shift between x5 MAG ON and OFF.

- Apply the same procedure for CH-2 by adjusting VR103(T-3554).

(2) Step Attenuator Balance Adjustment

- Set: VOLTS/DIV 10mV
  AC-GND-DC GND

- Position the trace to the center horizontal graticule line using the V-POSITION control.

- Set the VOLTS/DIV switch to 5mV.

- If the trace moves 1 division or more, adjust VR5(T-3554) for minimum trace shift between 5mV and 10mV.

- Apply the same procedure for CH-2 by adjusting VR105(T-3554).

(3) x1 AC Gain Adjustment

- Set: VOLTS/DIV 5mV
  VARIABLE CAL'D
  V MODE CH-1
  AC-GND-DC DC

- Connect the square wave generator to CH-1 INPUT connector and set the frequency to 1kHz, output level for 5 divisions display.

- Adjust VR1(T-3554) for a best flat-top square wave.

- Apply the same procedure for CH-2 by adjusting VR101(T-3554).

(4) x5 AC Gain Adjustment

- Set: VOLTS/DIV 5mV
  x5 MAG ON

- Connect the square wave generator to CH-1 INPUT connector and set the frequency to 1kHz, output level for 5 divisions display.

- Adjust VR2(T-3554) for a best flat-top square wave.

- Apply the same procedure for CH-2 by adjusting VR102(T-3554).

(5) Sensitivity Adjustment

- Set: VOLTS/DIV 10mV
  VARIABLE CAL'D
  V MODE CH-1
  AC-GND-DC DC

- Connect the amplitude calibrator to CH-1 INPUT connector and set the output level to 50mV.

- Adjust VR1(T-3555) for a 5 divisions display.

- Apply the same procedure for CH-2 by adjusting VR4(T-3555).

- Check accuracy for all settings of VOLTS/DIV switch.

(6) CH-2 INV Balance Adjustment

- Set: V MODE CH-2
  AC-GND-DC GND

- Adjust VR6(T-3555) for a minimum trace shift between CH-2 INV on and off.

(7) Attenuator Phase Compensation

- Set: VOLTS/DIV 20mV
  V MODE CH-1

- Connect the square wave generator to CH-1 INPUT connector and set the frequency to 1kHz, output level for 5 divisions display.

- Check the waveform for a flat-top square wave with less than 3% overshoot or roll-off on the leading edge.

- If not, adjust Cc(T-3554) for best flat-top square wave.

- Apply the same procedure for all other VOLTS/DIV and CH-2 according to Table 3-2.

VOLTS/DIV	CH-1	CH-2
5mV	-	-
20mV	1/2 Cc	1/2 Cc
50mV	1/5 Cc	1/5 Cc
0.1V	1/10 Cc	1/10 Cc
1V	1/100 Cc	1/100 Cc

Table 3-2

(8) Input Capacitance Adjustment

- Set: VOLTS/DIV 5mV
  V MODE CH-1

- Connect the capacitance meter to CH-1 INPUT connector and note the reading of the input capacitance.

- Check the capacitance on all other VOLTS/DIV ranges and if value difference is larger than 1pF between 5mV range and under checking range, adjust Ci(T-3554) for the same reading 2s above noted. Refer to Table 3-3.

NOTE: Do not move the blocking capacitors(C1, C2) at the input circuit to avoid the change of the input capacitance.

- Apply the same procedure for CH-2 according to Table 3-3.

VOLTS/DIV	CH-1	CH-2
20mV	1/2 Ci	1/2 Ci
50mV	1/5 Ci	1/5 Ci
0.1V	1/10 Ci	1/10 Ci
1V	1/100 Ci	1/100 Ci

Table 3-3

- Repeat (7) and (8) if necessary.

(9) CH-1 OUTPUT Adjustment

- Set: VOLTS/DIV 5mV
  VARIABLE CAL'D
  V MODE CH-1
  AC-GND-DC DC

- Connect the amplitude calibrator to CH-1 INPUT connector and set the output level to 0.1Vp-p.

- Connect the test oscilloscope to CH-1 OUTPUT connector on the rear panel via 50 ohm termination and set the sensitivity to 50mV/DIV.

- Adjust VR21(T-3555) for a display of 5 divisions on the test oscilloscope.

- Remove the amplitude calibrator and test oscilloscope.

- Connect the DC voltmeter to CH-1 OUTPUT connector.

- Set: AC-GND-DC GND

- Adjust VR22(T-3555) for a meter reading of 0V.

(10) Position Centering

- Set: V MODE ALT
  V POSITION Center(CH-1, 2)
  AC-GND-DC GND

- Adjust VR2(T-3555) so that the trace is positioned to the center horizontal graticule line.

- Apply the same procedure for CH-2 by adjusting VR5(T-3555).

(11) ADD Balance Adjustment

- Set: V MODE ALT
  AC-GND-DC GND

- Position the two traces to the center horizontal graticule line using V POSITION controls.

- Depress the ADD button of V MODE switch.

- Adjust VR3(T-3555) for minimum trace shift between ALT and ADD mode.

3.6 Time Base/Horizontal Amplifier

(1) x1 Gain, A TIME/DIV Adjustment

- Set: A TIME/DIV 0.5mS
  VARIABLE CAL'D

- Connect the time mark generator to CH-1 INPUT connector and set the time to 0.5mS.

- Adjust VR4(T-3561) for trace length of 12 divisions as shown in Figure 3-1.

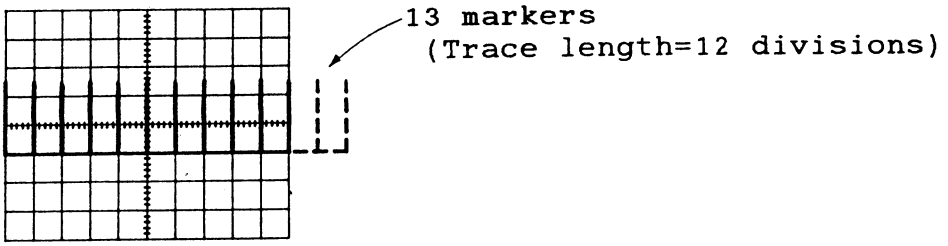


Figure 3-1

- Adjust VR4(T-3560) for 1 marker/division.

- Set: A TIME/DIV 0.5uS

- Set the time mark generator to 0.5uS.

- Adjust VC1(T-3560) for 1 marker/division.

- Check all ranges to verify that the accuracy is within +, - 3%.

(2) x10 MAG, x1 Centering

- Set: HOR DISPLAY ALT
  A TIME/DIV 0.5mS
  B TIME/DIV 0.5uS
  H POSITION Center
  AC-GND-DC GND

- Position the start point of the A sweep at the leftmost vertical graticule line using H POSITION control.

- Position the B sweep(intensified portion on the A sweep) to the 7th vertical graticule line using DLY TIME MULT dial as shown in Figure 3-2.

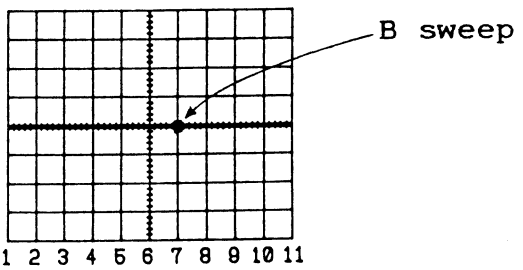


Figure 3-2

- Pull x10 MAG knob on.

- Position the B sweep to the center vertical graticule line by adjusting VR3(T-3561).

- Push the x10 MAG off.

- Position the B sweep to the center vertical graticule line by adjusting VR6(T-3561).

(3) x10 MAG Gain Adjustment

- Set: A TIME/DIV 1mS
  x10 MAG ON

- Connect the time mark generator to CH-1 INPUT connector and set the time to 0.1mS.

- Adjust VR5(T-3561) for 1 marker/division.

(4) x10 MAG Time Adjustment

- Set: A TIME/DIV 0.2uS
  x10 MAG ON

- Connect the time mark generator to CH-1 INPUT connector and set the time to 0.1uS.

- Position the start point of the trace to the leftmost vertical graticule line.

- Adjust VC1 and VC2(T-3561) for the best sweep linearity.

(5) B TIME/DIV Adjustment

- Set: HOR DISPLAY B
  A TIME/DIV 0.1mS
  B TIME/DIV 50uS
  VARIABLE CAL'D
  DLY TIME MULT 0.20

- Connect the time mark generator to CH-1 INPUT connector and set the time to 50uS.

- Adjust VR2(T-3560) for 1 marker/division.

(6) Start and End Adjustment of DLY TIME MULT Dial

- Set: HOR DISPLAY ALT
  A TIME/DIV 0.5mS
  B TIME/DIV 0.5uS
  DLY TIME MULT 0.20

- Position the start point of A sweep to the leftmost vertical graticule line using H POSITION control.

- Position the B sweep(intensified portion on the A sweep) to the 0.2 division right of the leftmost vertical graticule line by adjusting VR7(T-3560).

- Set: DLY TIME MULT 10.0

- Position the B sweep to the rightmost vertical graticule line by adjusting VR6(T-3560).

3.7 Trigger

(1) Trigger Balance Adjustment(CH-1, CH-2 and EXT)

- Set: VOLTS/DIV 10mV
  V MODE CH-1
  AC-GND-DC AC
  TRIG COUPLING AC
  TRIG SOURCE CH-1
  TRIG LEVEL 0

- Connect the oscilloscope to TP1(T-3559). Use low capacitance probe.

- Adjust VR1(T-3559) for a voltage reading of 0Vdc within 50mV.

- Apply the same procedure for CH-2 and EXT TRIG by adjusting VR2 and VR3(T-3559).

(2) TRIG LEVEL Adjustment

- Set:

VOLTS/DIV	10mV
V MODE	CH-1
AC-GND-DC	AC
TRIG COUPLING	AC
TRIG LEVEL	Center

- Connect the sine wave generator to CH-1 INPUT connector and set the frequency to 1kHz, output level for 0.5 division display.

- Adjust VR3(T-3558) to obtain a stable display.

(3) TRIG SLOPE Adjustment

- Setup: Same as (2)

- Adjust VR1(T-3588) to obtain a stable display when SLOPE button is switched between + and -.

3.8 X-Y Operation

(1) X Gain Adjustment

-

V MODE	X-Y
X VOLTS/DIV	20mV
AC-GND-DC	GND

- Connect the amplitude calibrator to X INPUT connector and set the output level to 0.1Vp-p.

- Adjust VR1(T-3561) for a horizontal deflection of 5 divisions.

(2) X Position Centering

- Set:

X POSITION	Center
X AC-GND-DC	GND

- Adjust VR2(T-3561) so that the dot is positioned at the center vertical graticule line.

3.9 CAL 0.5Vp-p Adjustment

(1) Amplitude Adjustment

- Connect the test oscilloscope* to CAL tip on the front panel.

- Adjust VR4(T-3564) for an output voltage of 0.5Vp-p.

NOTE 1: * Vertical sensitivity must be calibrated within 1% or better.

2: Do not touch the adjustment VR4 except the precision peak-voltage measuring device such as well-calibrated oscilloscope is provided.

4. TROUBLESHOOTING PROCEDURE

4.1 Troubleshooting Aid-1

Confirm that the any equipment used with the LBO-324/325 is operating correctly.

Check all control settings, because an incorrect setting can make a good unit appear defective. For instance, if the waveform is not stable, TRIG SOURCE switch may be set to external trigger mode instead of internal.
If there is any question about the function, refer to the INSTRUCTION MANUAL for a correct operation.

Check all circuit for visual defects such as broken component, loose connection of a connector, open wire, poor soldering etc.

Some troubles can be solved with proper adjustment. For instance, if the trace moves upward or downward by rotating V-VARIABLE control, it can be corrected by adjusting DC BAL adjustment.

Check the voltage and waveform as shown in the Schematic Diagram to locate the defective circuit. Start with the power supply.
Typical voltage and waveform are obtained under the same conditions as "3.2 Initial Control Settings"

Take utmost precaution to come into contact with the high voltage circuits!

4.2 Troubleshooting Aid-2

The oscilloscope consists of three major sections which are the high voltage power supply, vertical amplifier and time base/horizontal amplifier. In general, if one of these is defective, the trace will not appear on the CRT.
Therefore, the most effective procedure is to check these three sections one by one.

The high voltage power supply produces -1900Vdc to accelerate the electron beam from the electron gun to the face plate of the CRT. If the -1900Vdc is too low (absolute value in this case), the trace will either not appear or be dim.

The vertical amplifier consists of a pre-amplifier and a final amplifier, all of which are DC coupled balanced circuits. If some portion of the vertical amplifier becomes unbalanced by a defective component, the trace will be deflected upward or downward off the face of the CRT. Therefore, it is best to check the state of amplifier balancing when the trace does not appear on the CRT.

The time base generator/horizontal amplifier drives the spot from left to right on the CRT. The trigger pickoff circuit samples a part of input signal at the pre-amplifier, and applies it to the trigger generator. The trigger generator produces a trigger pulse to start the sweep generator. The sawtooth waveform, generated by the trigger pulse at sweep generator, is applied to the horizontal amplifier and then to the horizontal deflection plates to sweep the spot on the CRT.

4.3 Troubleshooting Aid-3

(1) Overall operation not satisfactory or no trace visible with same conditions as Paragraph "3.2 Initial control settings".

a. Power supply
Check all DC power supplies within tolerance according to Table 3-1.
Yes: See step "b".
No: Troubleshoot the each supply.

-8V, +8V:	IC4, Q4-7 and associated circuit.
+5V:	IC3 and associated circuit.
+12V:	IC2, Q11, 12 and associated circuit.
+15V:	D7, F1 and associated circuit.
+36V:	IC1, Q8-10 and associated circuit.
+100V:	IC1, Q1-3 and associated circuit.
-1900V:	Check waveform at collector of Q1(T-3591) for 50kHz sine wave, and troubleshoot the high voltage generator(Q1 T-3591), feed-back amplifier(Q2-4 T-3591) and associated circuit.

** NOTE: When remove the High Voltage Block from the main frame, connect the ground line between the block and the main frame before turn power switch on. Take utmost precaution to come into contact with the high voltage circuit!

Check all DC voltages are present on the connector board (T-3641). Refer to schematic diagram 1-1/12(Connection diagram) and 12/12(connector board).
If the no voltage is present, check connectors for loose connection.

b. Vertical amplifier
Connect the pin 1 and 4 of P82(T-3556) with short clip lead. Trace appears.
Yes: Connect pin 1 and 3 of P83(T-3556) with short clip lead. Trace appears.
Yes- Check vertical pre-amplifier, input amplifier. Continue the same procedure to the input stage to check the amplifier balancing
No- Troubleshoot the vertical final amplifier.
No: See step "c".

c. Horizontal amplifier
Set TIME/DIV switch to X-Y position. Dot appears.
Yes: Troubleshoot the sawtooth generator. See step "(3) a".
No: Connect the pin 1 and 3 of P76 to check the amplifier balancing. Dot appears.
Yes- Troubleshoot the horizontal amplifier.
No- See step "d".

d. Unblanking circuit
Check that unblanking pulse is present at the TP8(T-3553).
Yes: Adjust VR1(T-3591). Refer to paragraph "3.4(1)".
No: Trace the unblanking signal to time base generator.

(2) Vertical amplifier
a. No waveform appears on the CRT.
Apply the CAL 0.5V to CH-1 and/or CH-2 INPUT connector and set the VOLTS/DIV control to 0.1V, then trace the square wave from the input stage to the output stage to locate the defective circuit. Refer to the schematic diagram 5/12-7/12.
Check that the square wave comes out at pin 1 and 2 of P25(T-3555).
Yes: Troubleshoot delay line<325 only>, final amplifier and associated circuit.
No : Check waveform at P11 and 12(T-3555) for CH-1, P13 and 14(T-3555) for CH-2. If no square wave is present, troubleshoot the input amplifier, attenuator.

b. Sensitivity out of tolerance
Adjust VR1(T-3555) for CH-1, VR4 for CH-2. Refer to paragraph "3.5(5)".

c. V MODE switch works incorrect
Troubleshoot channel select gate, MODE switch and the control circuit.
CH-1: S3(T-3557), IC1, Q11(T-3555) and associated circuit.
CH-2: S3(T-3557), IC1, Q22(T-3555) and associated circuit.
CHOP: Check waveform at pin 3 and 6 of IC1(T-3555) for switching signal.
Yes: Channel select gate.
No: S3(T-3557), multivibrator(IC4 T-3555) and control circuit.
ALT: S3(T-3557), IC5(T-3555) and associated circuit.

d. CH-2 INV does not work
Check Q27, 28(T-3555) and control circuit.

e. x5 MAG mode works incorrect.
Check S2(T-3554) for CH-1, S102(T-3554) for CH-2 and associated circuit.
Adjust VR2(T-3554) for CH-1, VR102(T-3554) for CH-2 if necessary. Refer to paragraph "3.5 (4)".

(3) Time base/Horizontal amplifier
a. No trace appears on A sweep mode(only dot is appeared)
Check that the sawtooth wave comes out at P51(T-3560).
Yes: Check the sensitivity of the horizontal amplifier with X-Y operation. Adjust VR1(T-3561) if necessary. Refer to paragraph "3.8(1)."
No: Check that the A trigger signal is present at P44(T-3560).
Yes: Troubleshoot A sweep generator, A sweep gate.
No: Troubleshoot trigger pulse shaper. trigger source select amplifier. See step "(4)".

b. No trace appears on B sweep mode(only dot is appeared)
Check that the sawtooth comes out at P50(T-3560).
Yes: Horizontal display selector(IC1 T-3561).
No: Check that the B trigger signal is present at P45(T-3560)
Yes- Troubleshoot A, B sweep generator, B sweep gate comparator.
No: Troubleshoot trigger pulse shaper. trigger source select amplifier. See step "(4)".

c. Sweep time out of tolerance
Adjust VR4 and VC1(T-3560) for A sweep time. Refer to paragraph "3.6(1)"
Adjust VR2(T-3560) for B sweep. Refer to paragraph "3.6(5)".

d. Sweep delay function works incorrect.
Confirm that the A, B sweep works correctly.
Check the voltage at center pin of the potentiometer is from +2V to -2V when rotate the DLY TIME MULT dial to both extremes.

e. x10 MAG mode works incorrect
Check Q7-10(T-3561) and associated circuit.

(4) Trigger
a. Display is unstable
The trigger signal must be applied from trigger pickoff circuit to sweep generator. Check the waveform at following points to locate the defective circuit.
P33(T-3559) for CH-1, P34(T-3559) for CH-2.
Yes- See next step.
No- Trigger pickoff amplifier(Q61-63, 65 T-3555)for CH-1, Q67-71(T-3555) for CH-2.
TP1(T-3559).
Yes- See next step.
No- See step "c".
P44(T-3560) for A trigger pulse, P45(T-3560) for B trigger pulse.
Yes- Sweep generator
No- A trigger pulse shaper(Q1-15 T-3558) and associated circuit.
B trigger pulse shaper(IC3 T-3558) and associated circuit.

b. TRIG COUPLING works incorrect

AC:	Confirm that the trigger circuit works correctly.
HF REJ/TV V:	Check IC1(T-3558), Q6(T-3559) and associated circuit.
TV H:	Q16-21(T-3558) and associated circuit.
SLOPE:	Q3-6(T-3558) and associated circuit.

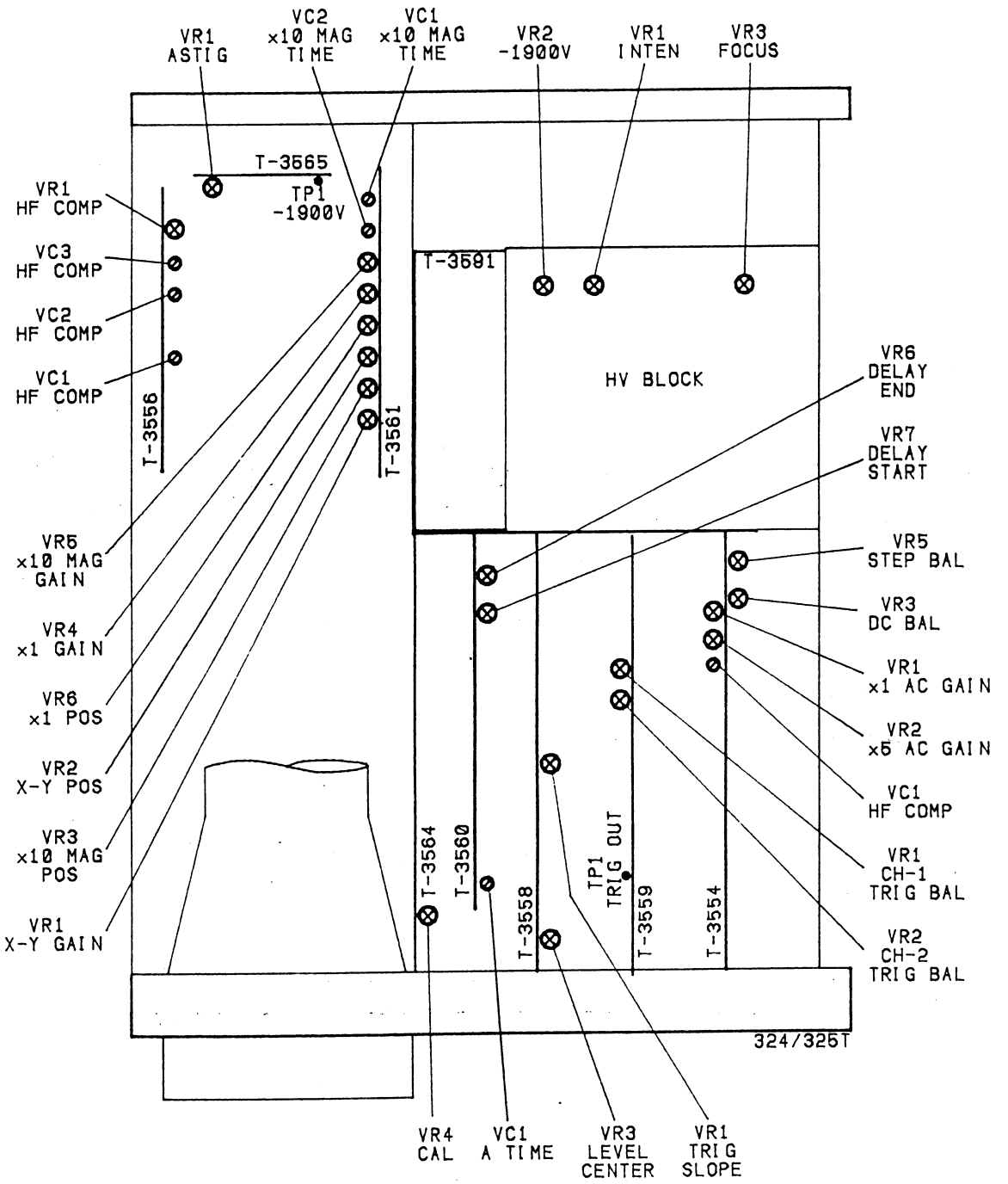
c. TRIG SOURCE works incorrect
CH-1: Q1-3, 5, 7, 13(T-3559) and control circuit.
CH-2: Q10-12,14(T-3559) and control circuit.
LINE: Q20, 22(T-3559) and associated circuit.
EXT: Q15-19, 21, 23(T-3559) and control circuit.
Adjust EXT TRIG BAL VR3(T-3559). Refer to paragraph "3.7(1)".

(5) Others
a. No TRACE ROTATION works
Check Q1, 2(T-3573) and associated circuit

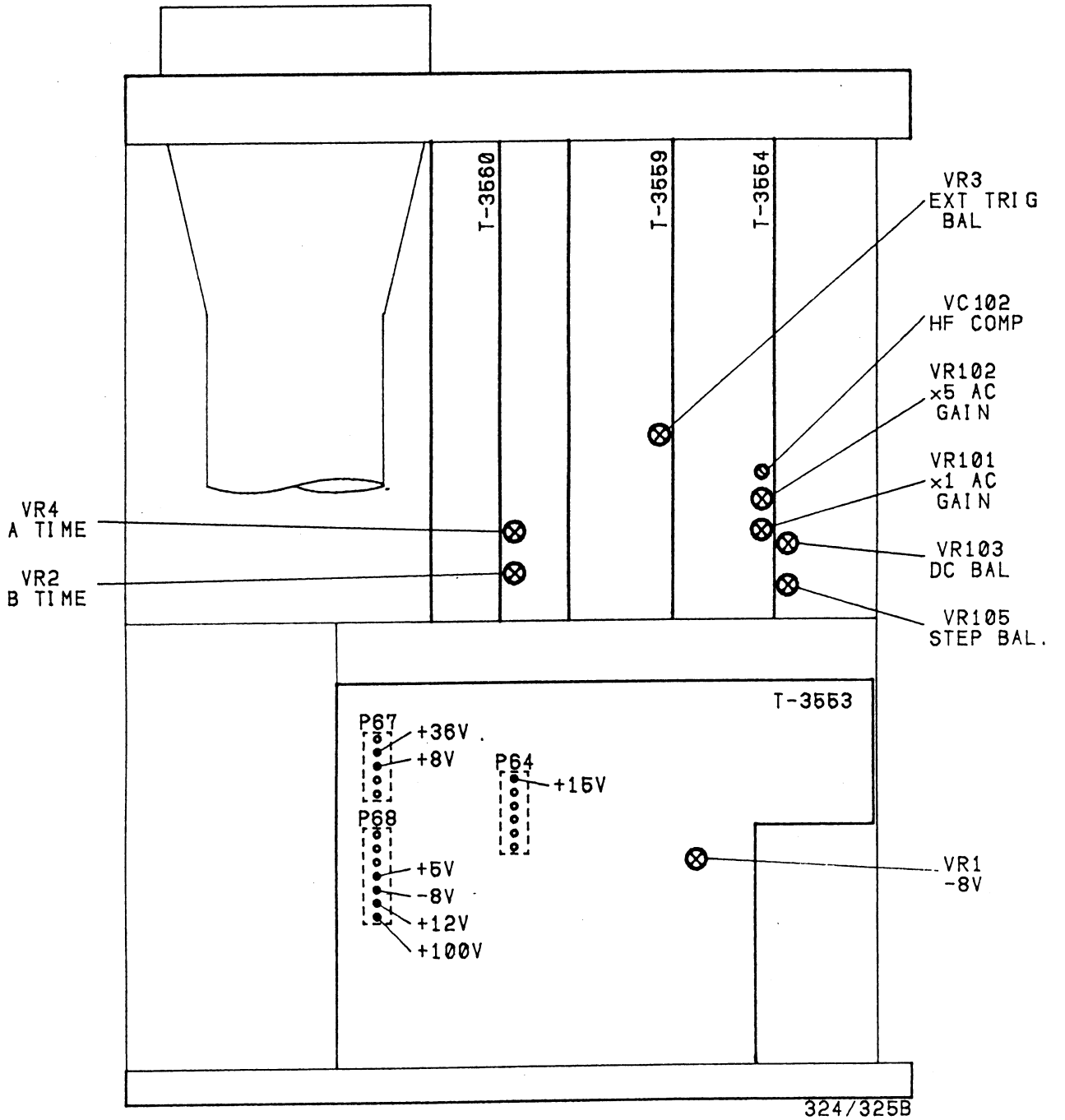
b. No CAL signal comes out
Troubleshoot Q3-5(T-3564) and associated circuit.
Adjust VR4(T-3564) in necessary. Refer to paragraph "3.4 (1).

c. No scale illumination lamp lit<325 only>
Check continuity of V1-3(T-3564)
Check Q1, 2(T-3564).

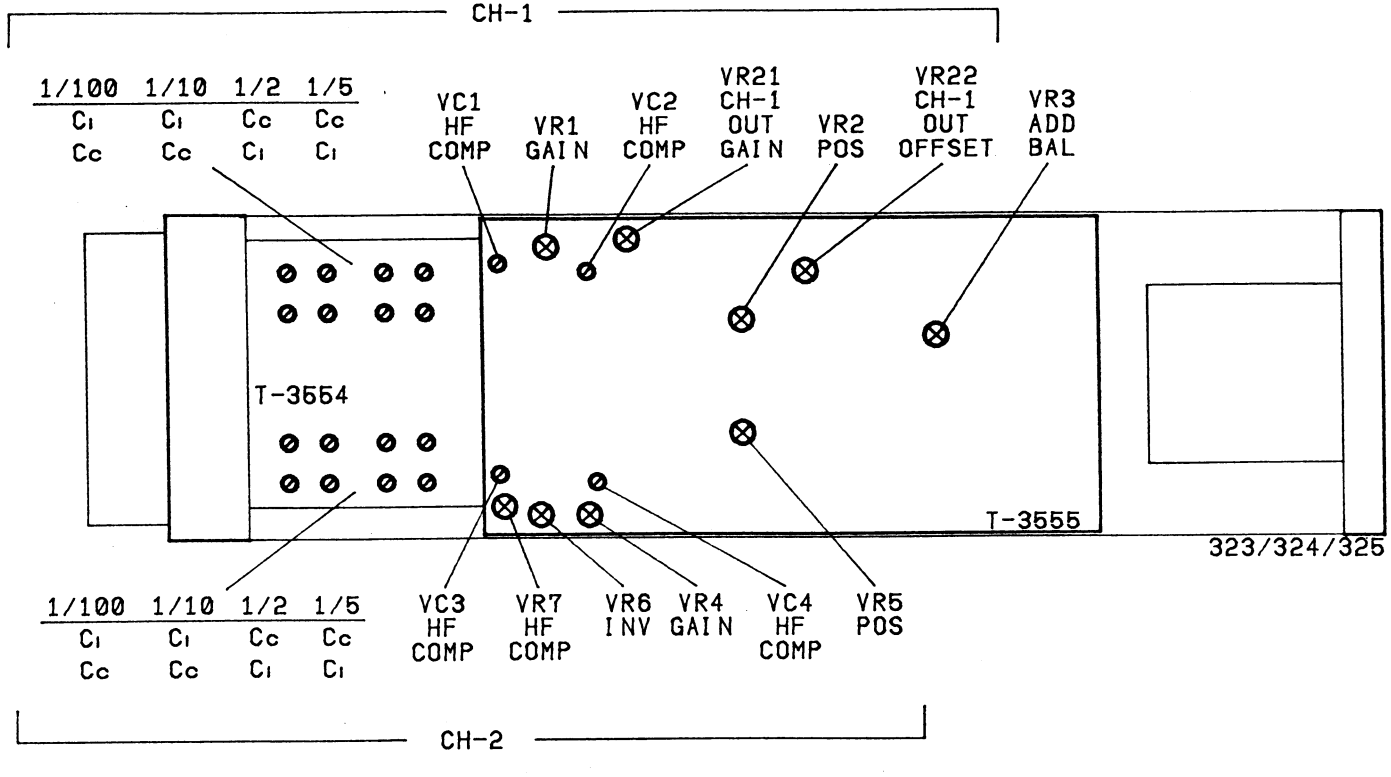
<TOP VIEW>


VR1
ASTIG
VC2
×10 MAG
TIME
VC1
×10 MAG
TIME
VR2
-1900V
VR1
INTEN
VR3
FOCUS
T-3565
TP1
-1900V
VR1
HF COMP
VC3
HF COMP
VC2
HF COMP
VC1
HF COMP
T-3556
T-3561
T-3591
HV BLOCK
VR6
DELAY
END
VR7
DELAY
START
VR5
×10 MAG
GAIN
VR4
×1 GAIN
VR6
×1 POS
VR2
X-Y POS
VR3
×10 MAG
POS
VR1
X-Y GAIN
VR5
STEP BAL
VR3
DC BAL
VR1
×1 AC GAIN
VR2
×5 AC GAIN
VC1
HF COMP
VR1
CH-1
TRIG BAL
VR2
CH-2
TRIG BAL
T-3564
T-3560
T-3558
TP1
TRIG OUT
T-3559
T-3554
324/325T
VR4
CAL
VC1
A TIME
VR3
LEVEL
CENTER
VR1
TRIG
SLOPE

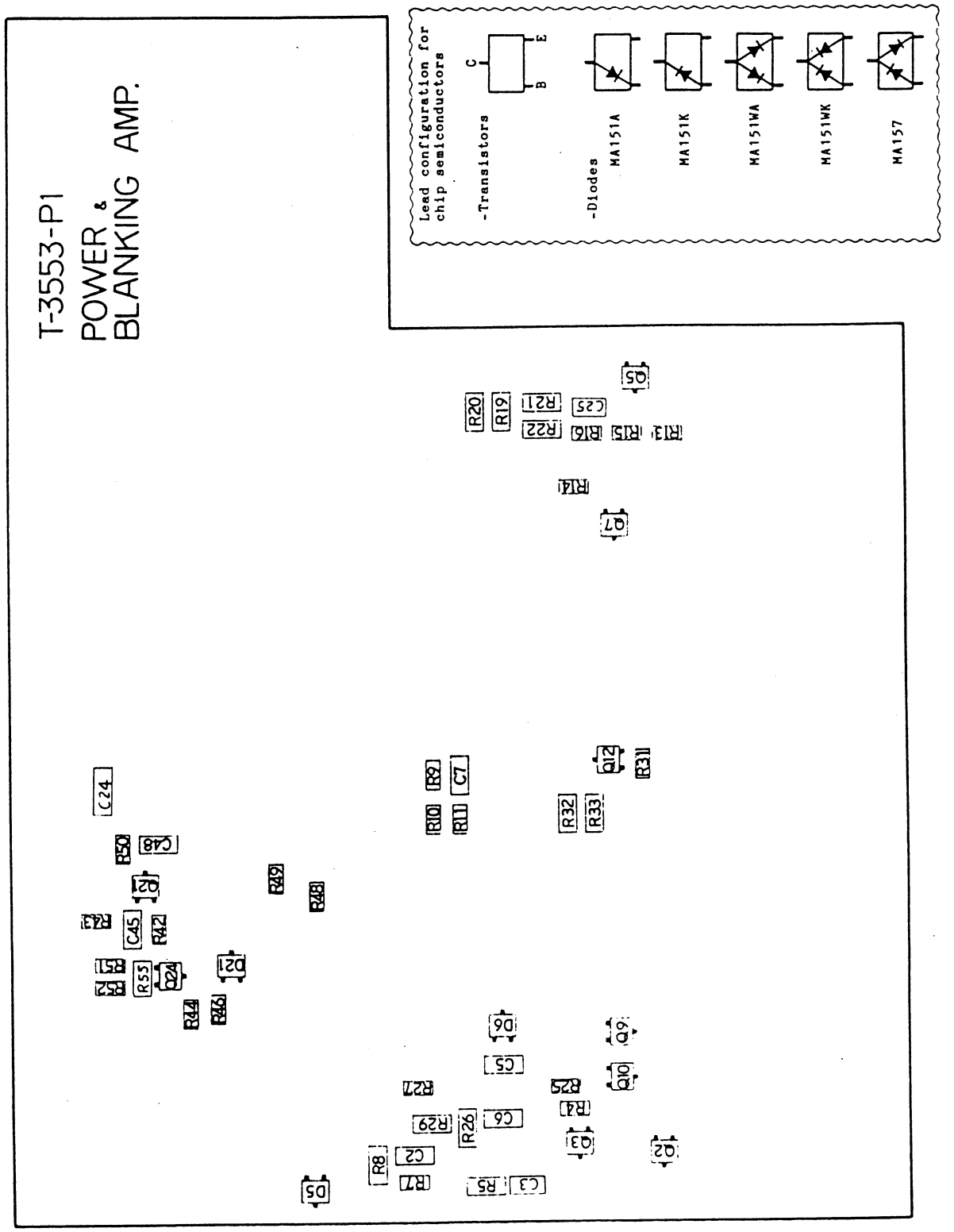
<BOTTOM VIEW>

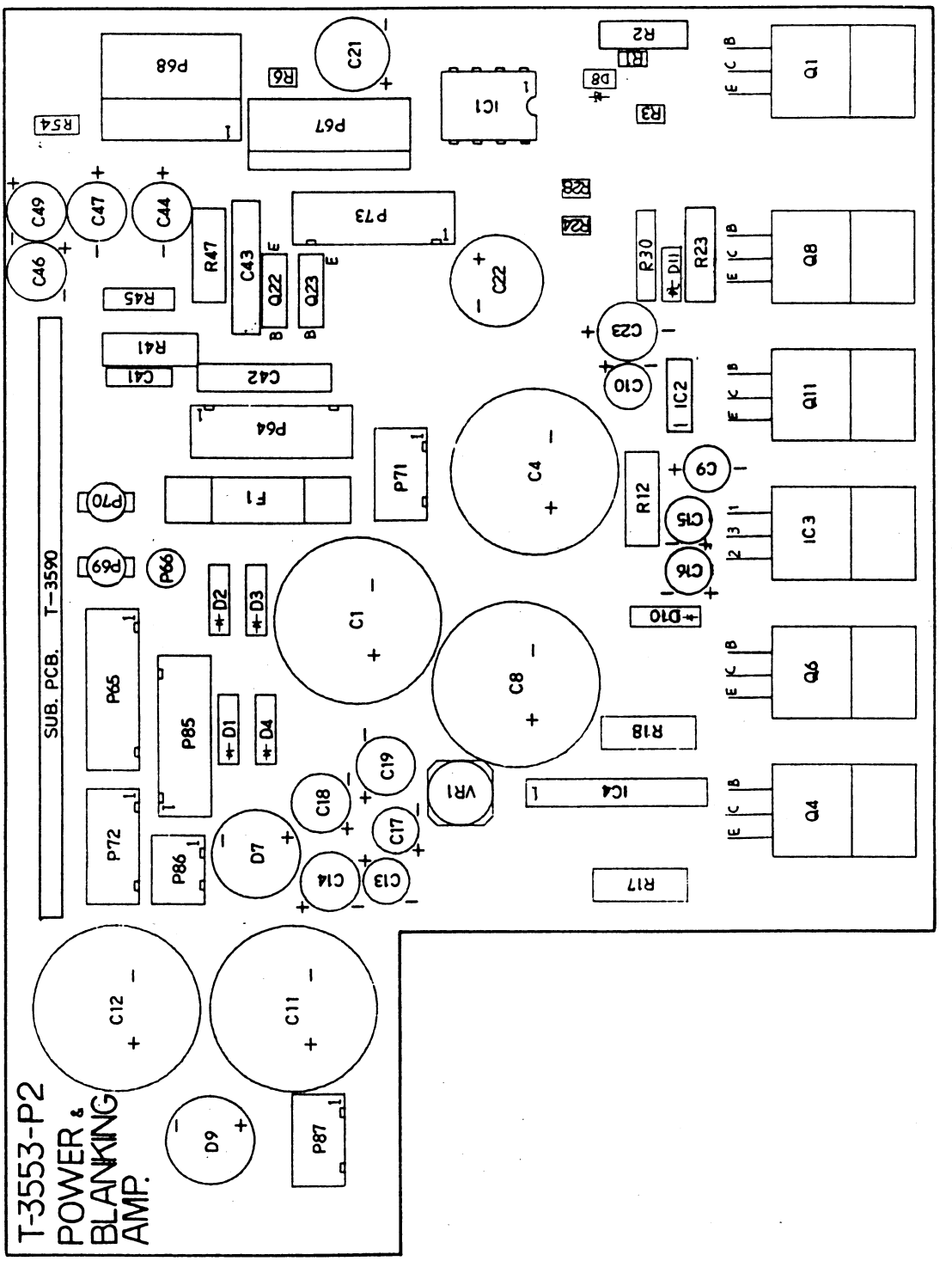

T-3560
T-3559
T-3554
VR3
EXT TRIG
BAL
VC102
HF COMP
VR102
×5 AC
GAIN
VR101
×1 AC
GAIN
VR103
DC BAL
VR105
STEP BAL.
VR4
A TIME
VR2
B TIME
T-3553
P67
+36V
+8V
P64
+15V
P68
+5V
-8V
+12V
+100V
VR1
-8V
324/325B

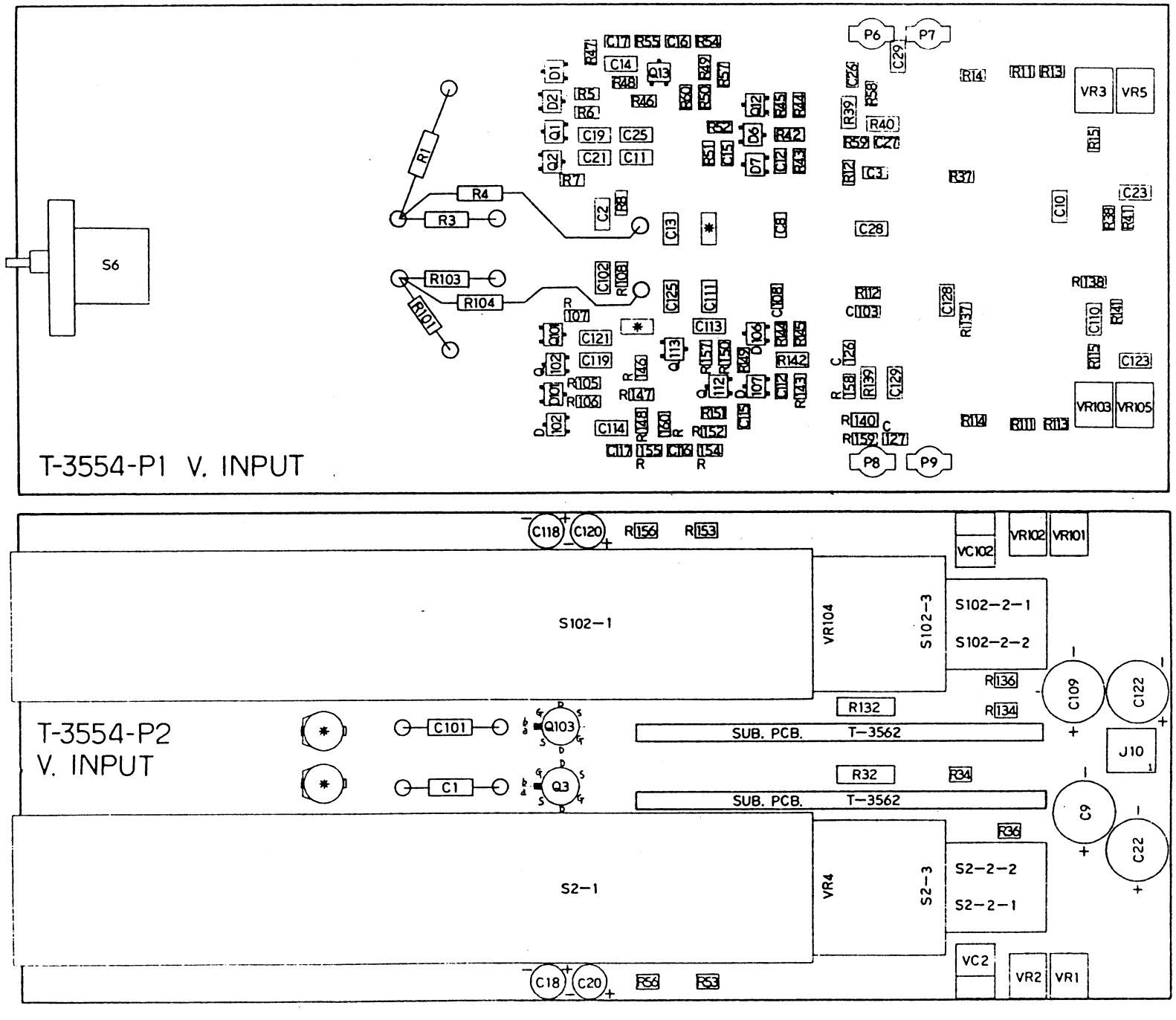
<RIGHT SIDE VIEW>



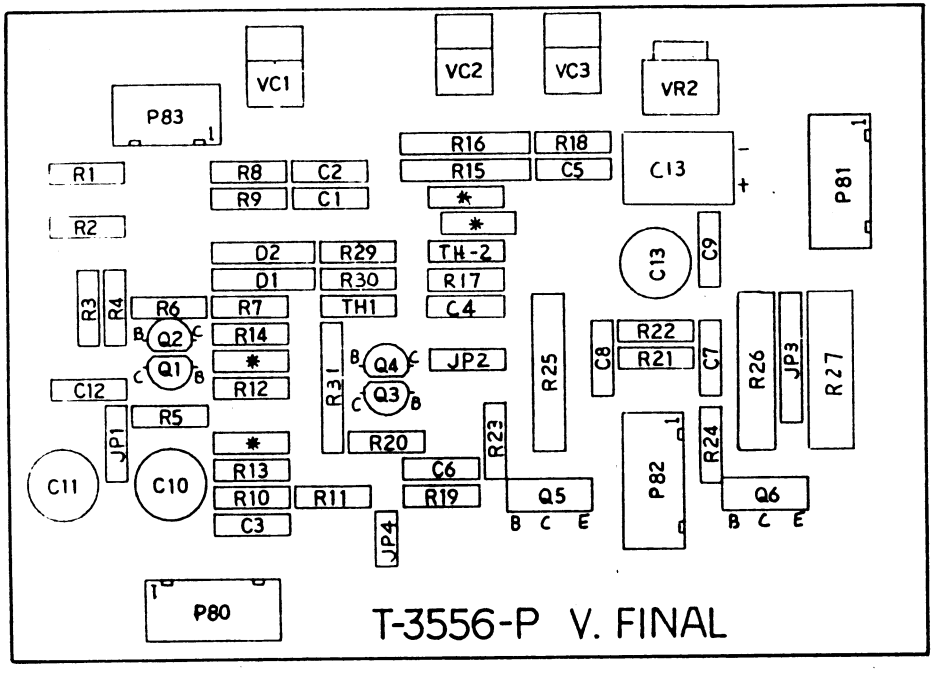
6. PRINTED CIRCUIT BOARD

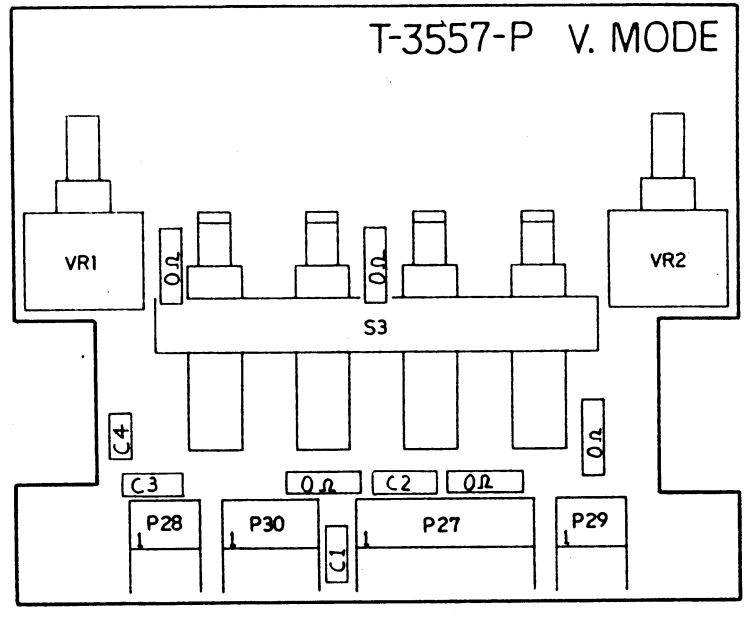


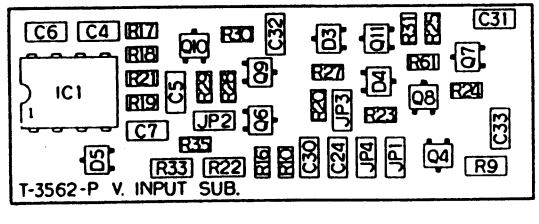

T-3553-P2
POWER &
BLANKING
AMP.
SUB. PCB. T-3590
P68
P67
C21
R6
IC1
R2
D8
R3
Q1
R54
C49
C47
C44
C46
P73
R47
C43
Q22
Q23
R24
R25
R30
D11
R23
Q8
C22
C23
R45
R41
C41
C42
C10
IC2
Q11
P64
P71
C4
P70
F1
R12
C9
C5
C6
IC3
R69
P66
D10
P65
D2
D3
C1
C8
Q6
P85
D1
D4
R18
C19
C18
C17
VR1
IC4
Q4
P72
P86
D7
C14
C13
R17
C12
C11
D9
P87


T-3554-P1 V. INPUT
S6
R1
R4
R3
R103
R104
R101
P6
P7
P8
P9
VR3
VR5
VR103
VR105
T-3554-P2
V. INPUT
S102-1
S102-2-1
S102-2-2
S102-3
VR104
VC102
VR102
VR101
C118
C120
R156
R153
R132
R136
R134
C109
C122
J10
SUB. PCB. T-3562
C101
Q103
C1
Q3
R32
R34
C9
C22
R36
S2-1
S2-2-2
S2-2-1
S2-3
VR4
VC2
VR2
VR1
C18
C20
R56
R53

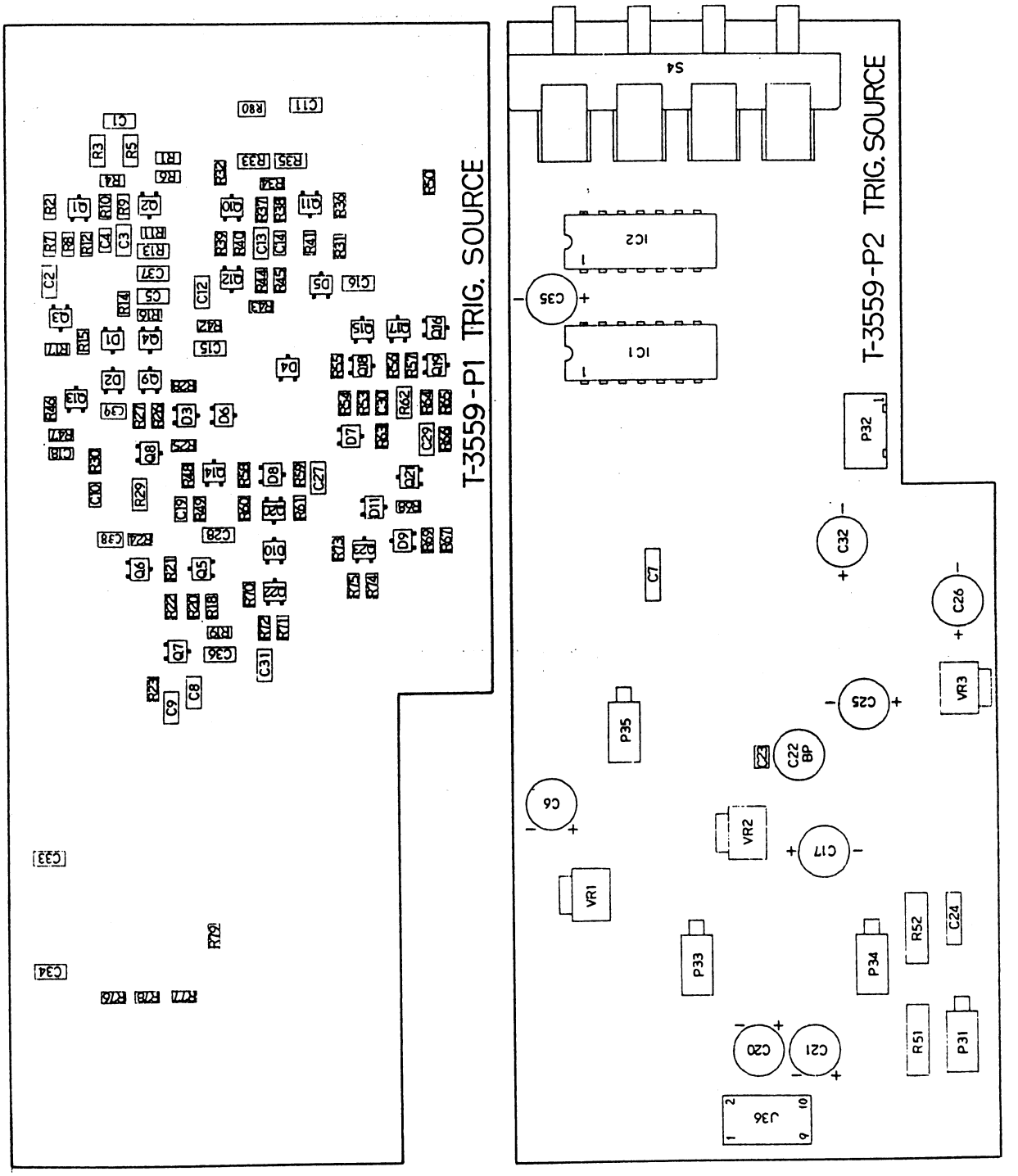
T-3555-P1 V.PRE
324/325 only
* 325 only
T-3555-P2 V.PRE
324/325 only

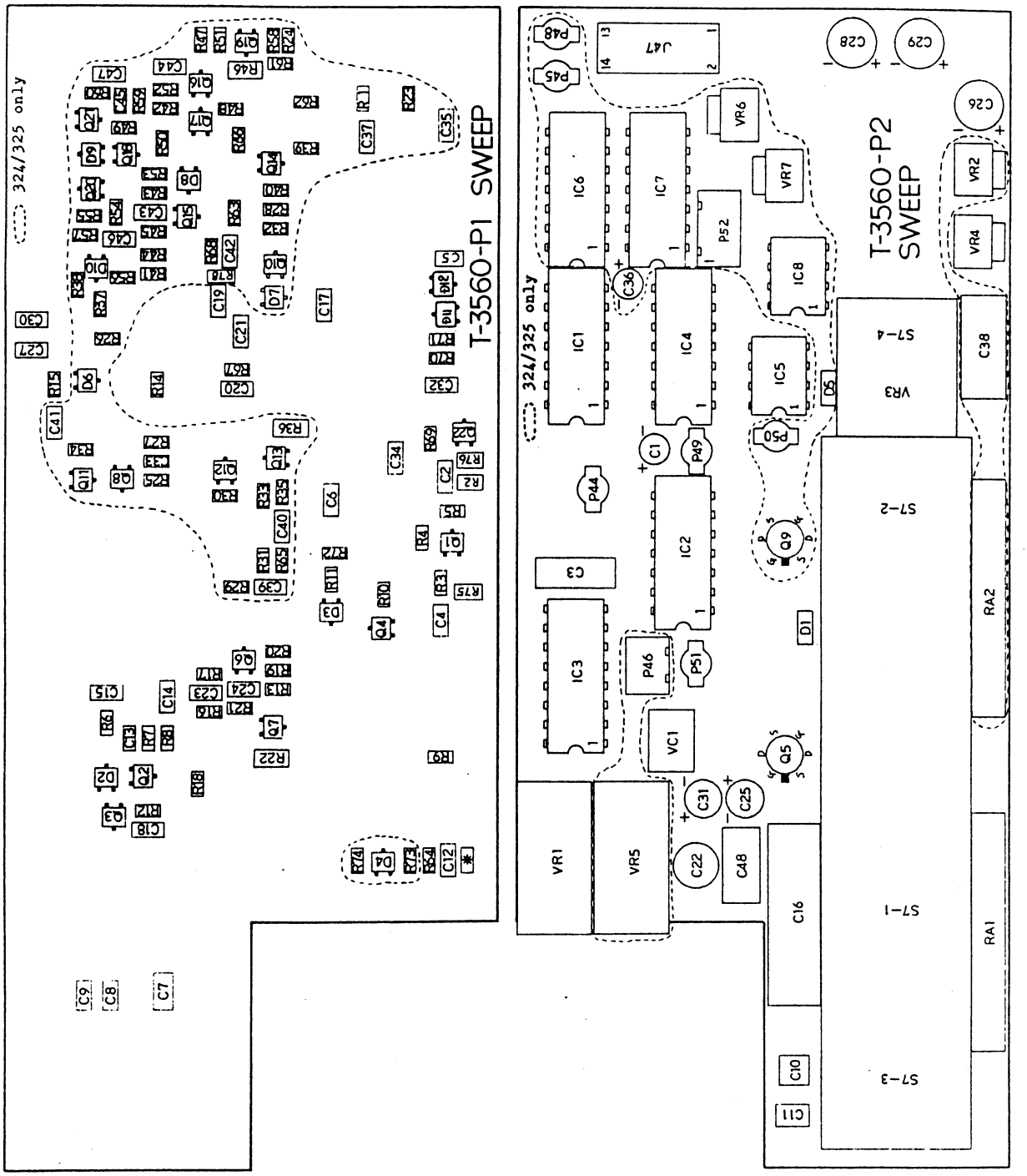

VC1
VC2
VC3
VR2
P83
P81
R1
R2
R8
R9
C2
C1
R16
R15
R18
C5
C13
D2
D1
R29
R30
TH-2
R17
C4
TH1
C9
R3
R4
R6
R7
R14
R12
Q2
Q1
Q4
Q3
JP2
R31
R25
C8
R22
R21
C7
R26
JP3
R27
C12
R5
JP1
R20
R23
R24
C11
C10
R13
R10
R11
C6
R19
Q5
Q6
C3
JP4
P82
P80
B C E
T-3556-P V. FINAL

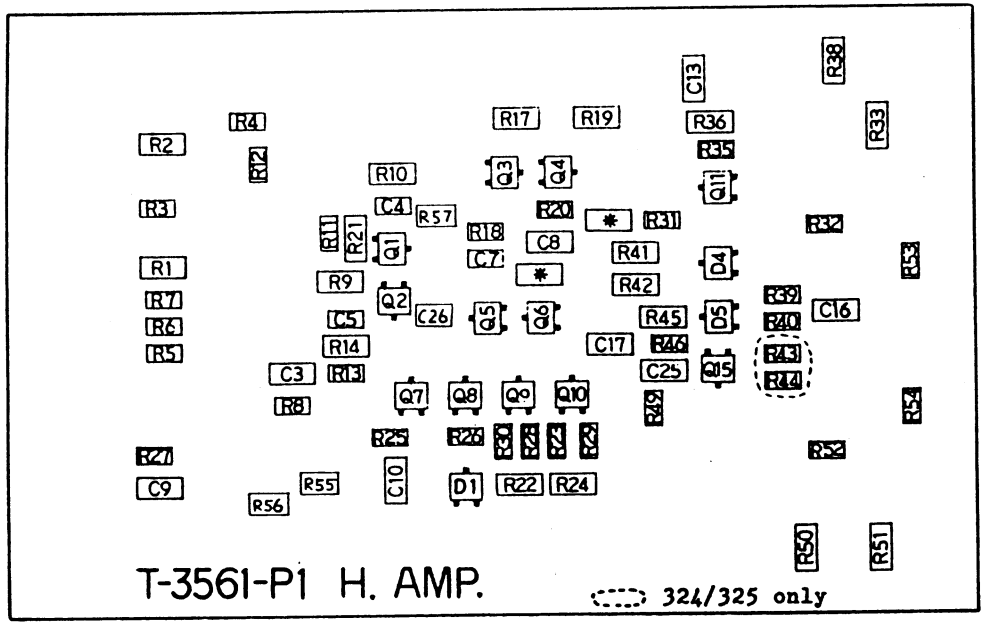

T-3557-P V. MODE
VR1
VR2
0Ω
S3
C4
C3
C2
C1
P28
P30
P27
P29

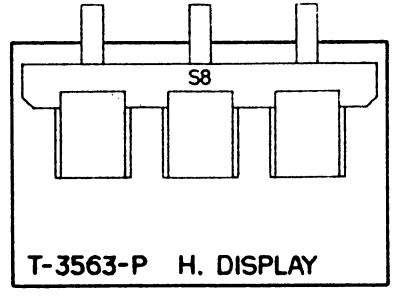

C6
C4
R17
R18
R21
R19
C5
IC1
JP2
C7
R35
R33
R22
C32
C31
C33
JP4
JP1
R9
T-3562-P V. INPUT SUB.

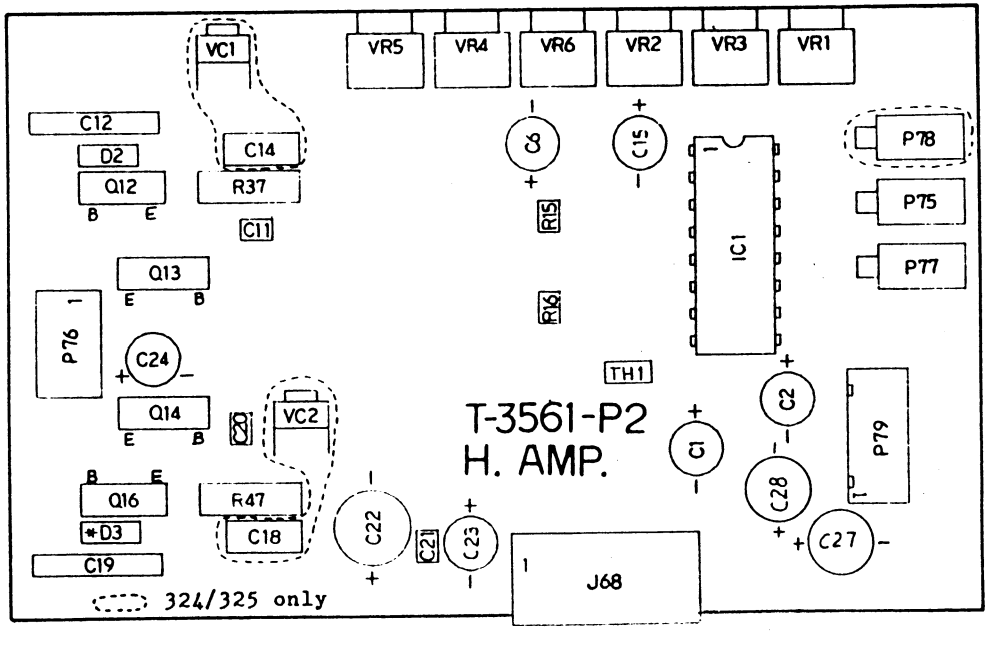
T-3558-P1 TRIG. AMP.
324/325 only
T-3558-P2 TRIG. AMP.
324/325 only
P40
J39
P42
P43
IC1
IC3
IC2
L1
C32
C26
C35
VR1
P41
C34
C8
P38
C3
P37
VR3
S5
VR2
D5

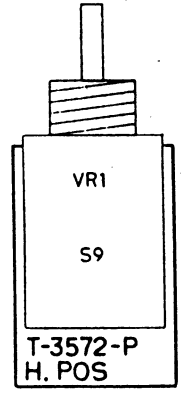

T-3559-P1 TRIG. SOURCE
T-3559-P2 TRIG.SOURCE
S4
IC2
IC1
C35
P32
C32
C26
C7
C25
VR3
P35
C22 BP
C6
VR2
C17
VR1
P33
P34
R52
C24
R51
P31
C28
C21
J36

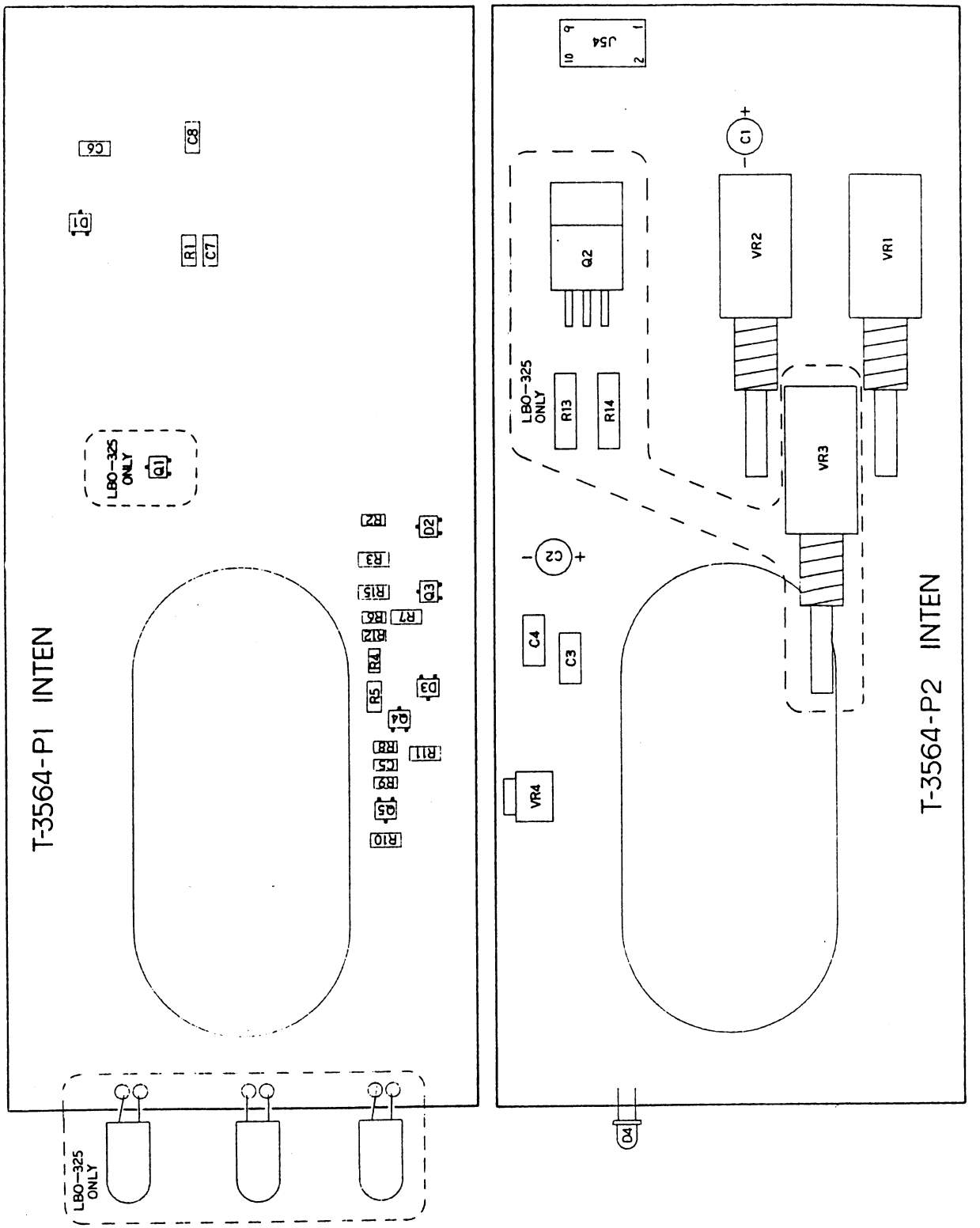

T-3560-P1 SWEEP
324/325 only
T-3560-P2 SWEEP
324/325 only

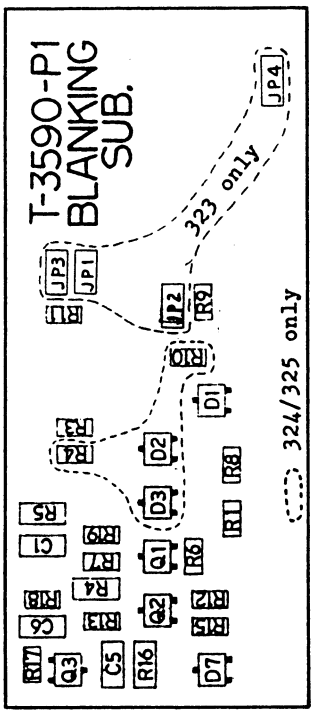

R4
R2
R12
R3
R1
R7
R6
R5
R14
C3
R13
R8
C9
R27
R56
R55
C10
R10
C4
R57
R11
R21
Q1
R18
C7
C8
R9
Q2
C26
C5
Q5
Q6
R17
R19
R20
R41
R42
C17
R25
R26
R22
R24
D1
C13
R36
R35
Q11
R31
D4
R45
R46
C25
Q15
R29
R38
R33
R32
R53
R39
R40
C16
R43
R44
R54
R52
R50
R51
T-3561-P1 H. AMP.
324/325 only

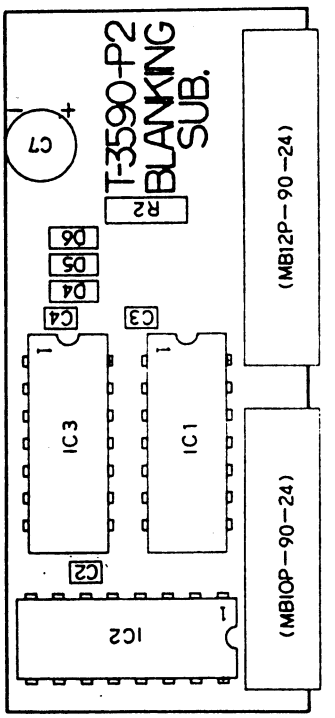

S8
T-3563-P H. DISPLAY

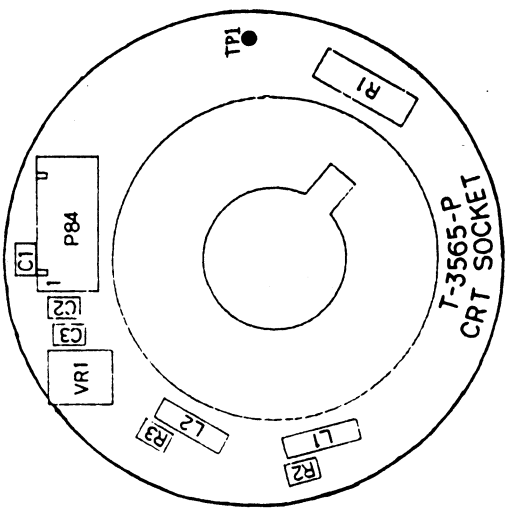

VC1
VR5
VR4
VR6
VR2
VR3
VR1
C12
D2
Q12
B E
C14
R37
C11
C6
C15
R15
R16
IC1
P78
P75
P77
Q13
E B
P76 1
C24
Q14
E B
VC2
C20
TH1
C2
C1
C28
C27
P79
B E
Q16
*D3
C19
R47
C18
C22
C21
C23
J68
T-3561-P2
H. AMP.
324/325 only

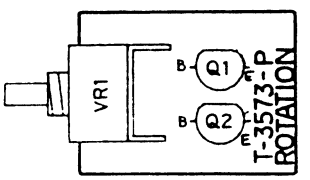

VR1
S9
T-3572-P
H. POS


T-3564-P1 INTEN
T-3564-P2 INTEN
LBO-325 ONLY
LBO-325 ONLY
LBO-325 ONLY
J54
C1
C2
C3
C4
C6
C7
C8
D1
D2
D3
D4
Q1
Q2
Q3
Q4
Q5
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
VR1
VR2
VR3
VR4

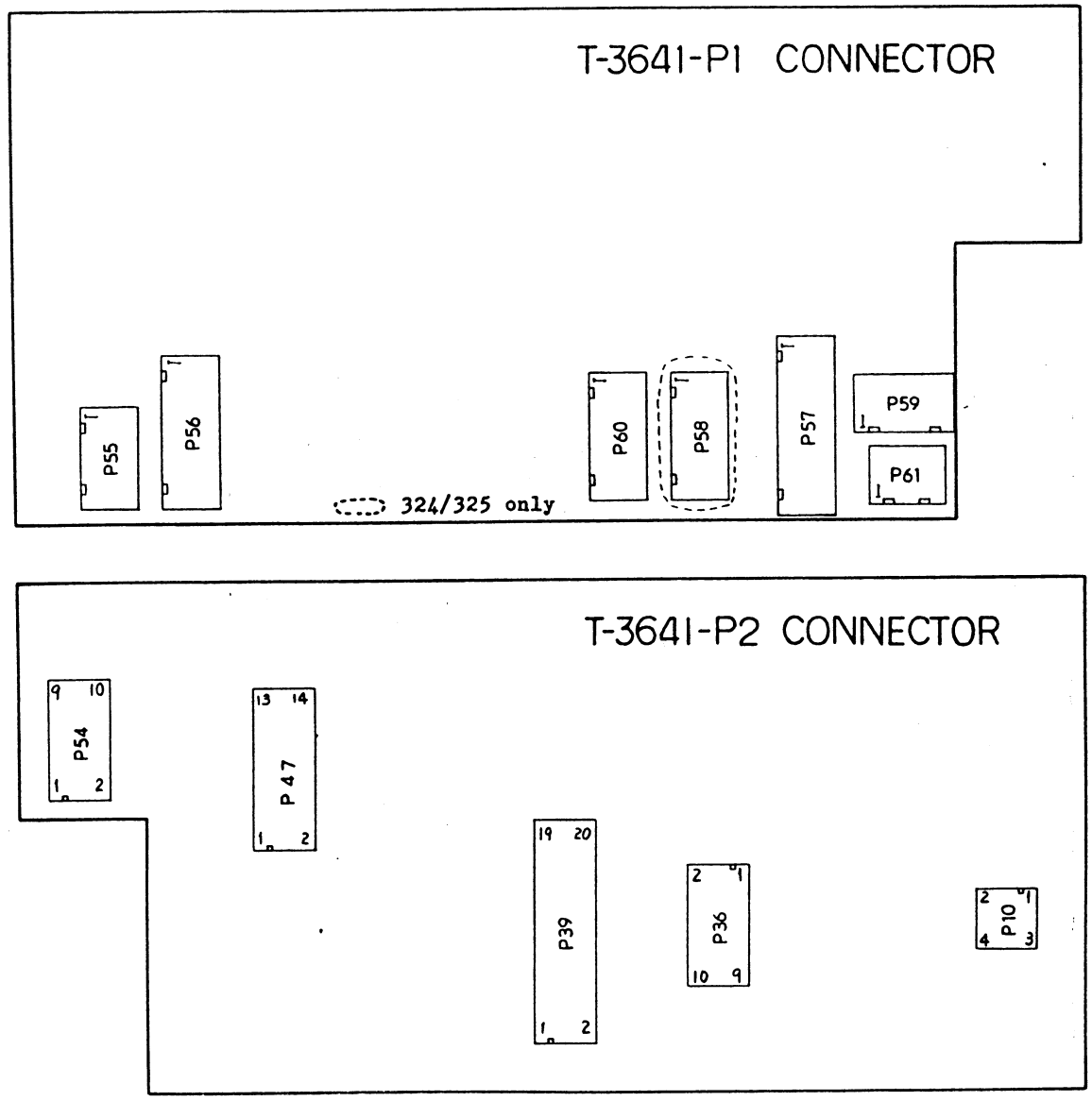

T-3590-P1
BLANKING
SUB.
JP3
JP1
JP2
JP4
323 only
324/325 only
R5
C1
R7
R4
R13
C6
R18
C5
R16
Q3
Q1
Q2
R6
R12
R15
D7
D1
D2
D3
R1
R8
R3
R4

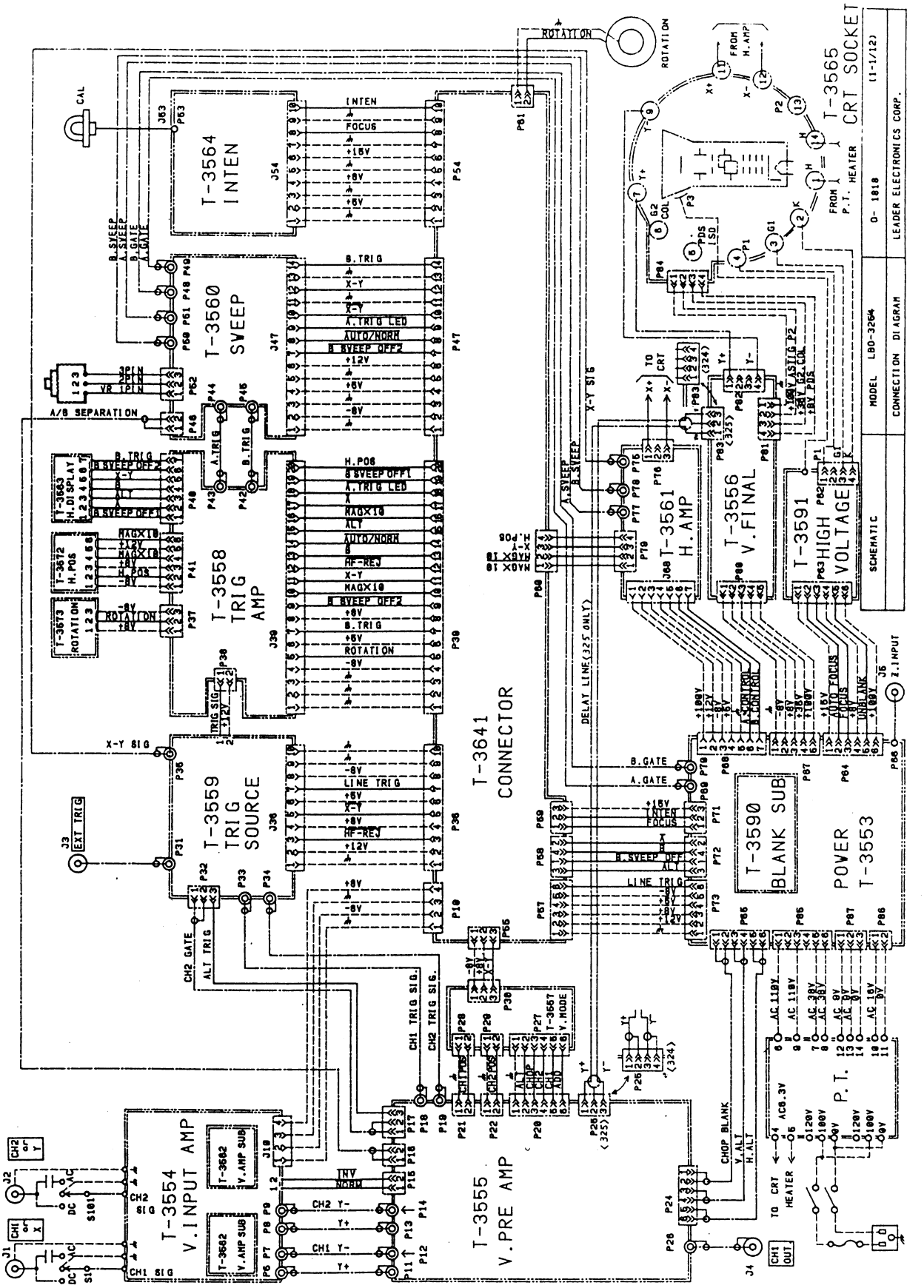

T-3590-P2
BLANKING
SUB.
R2
C5
C4
C3
D6
D5
D4
IC3
IC1
IC2
C2
(MBIOP-90-24)
(MBI2P-90-24)

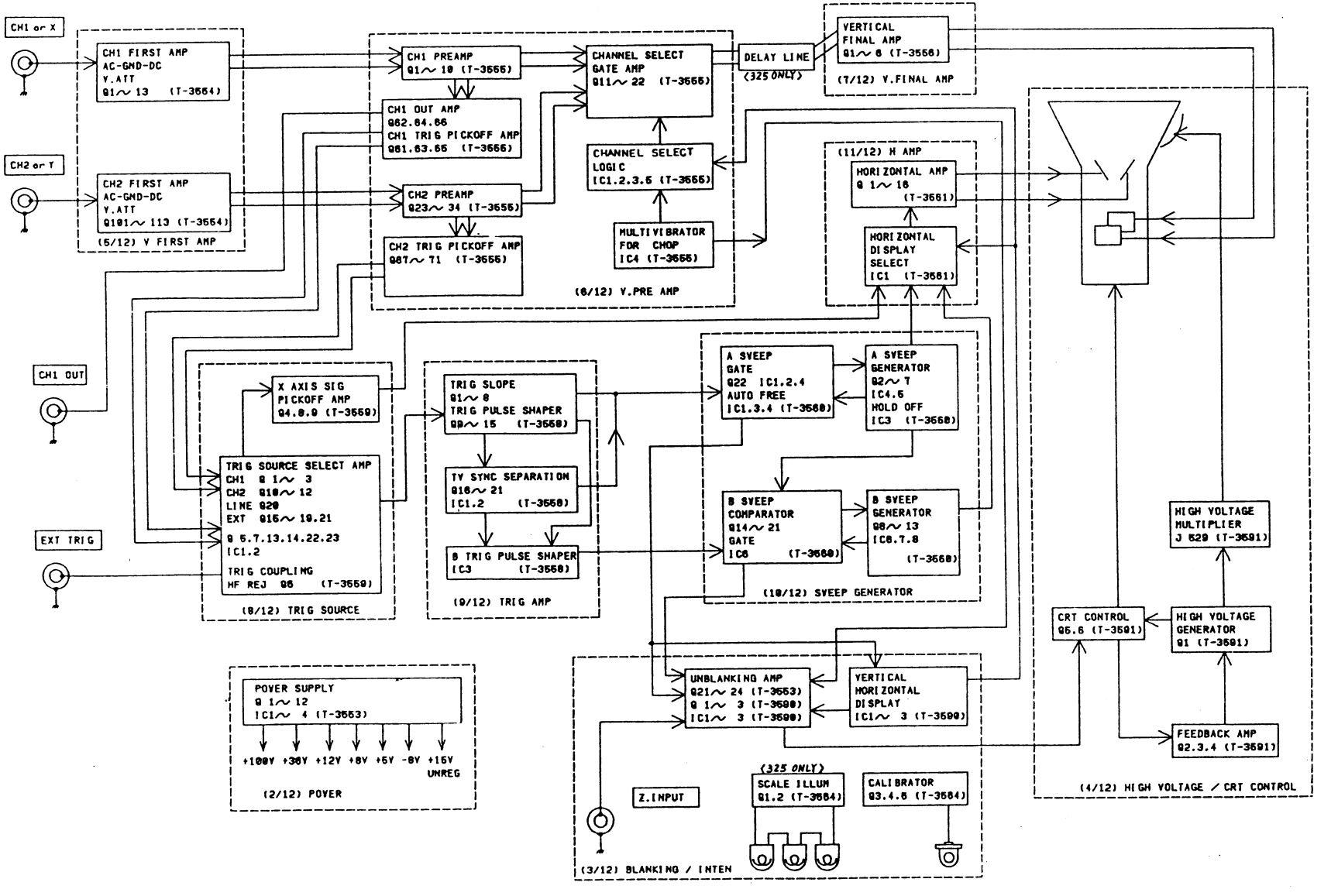

TP1
R1
T-3565-P
CRT SOCKET
P84
C1
C2
C3
VR1
L2
L1
R3
R2


VR1
B
Q1
E
B
Q2
E
T-3573-P
ROTATION

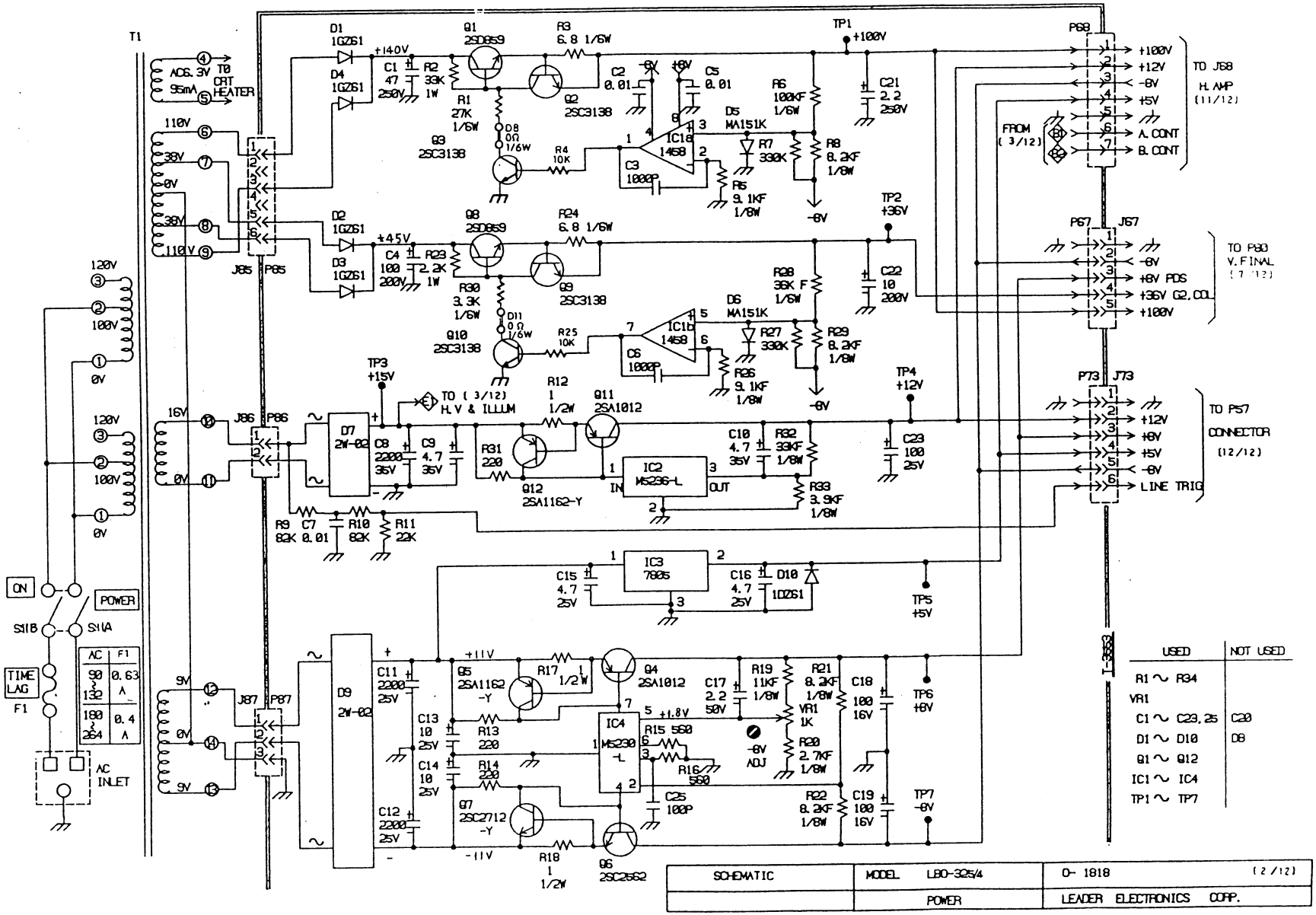
T-3591-P1 HIGH VOLTAGE
R10
R19
R22
R8
R23
Q2
Q3
R2
C10
R9
R11
D10
R24
Q4
D8
R6
R18
T-3591-P2
HIGH
VOLTAGE
P63
R1
C12
C9
C11
C1
Q1
B C E
T1
Q6
R21
VR2
C8
C3
R5
VR1
D6
JP1
R20
Q5
D5
C7
C6
D9
R13
R17
C2
D1
D2
C4
D4
D3
R7
C5
V3
V2
V1
R4
VR3
P62
TP9
C13
R12
R16
C14


T-3641-P1 CONNECTOR
P55
P56
P60
P58
P57
P59
P61
324/325 only
T-3641-P2 CONNECTOR
P54
P47
P39
P36
P10

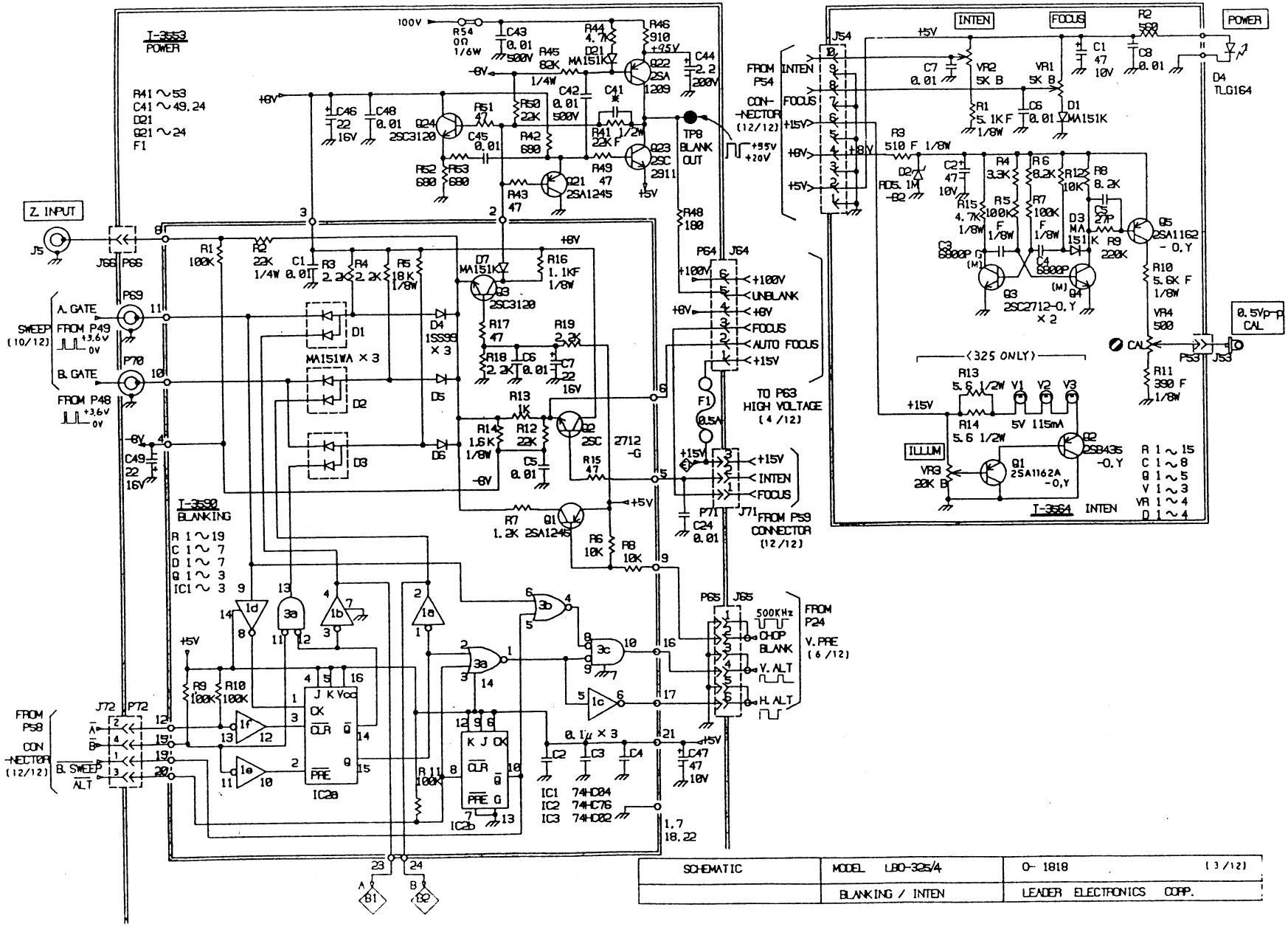

T-3564
INTEN
T-3560
SWEEP
T-3558
TRIG
AMP
T-3559
TRIG
SOURCE
T-3641
CONNECTOR
T-3554
V.INPUT AMP
T-3555
V.PRE AMP
T-3561
H.AMP
T-3556
V.FINAL
T-3591
HIGH
VOLTAGE
T-3590
BLANK SUB
POWER
T-3553
T-3565
CRT SOCKET
P.T.
CAL
ROTATION
A/B SEPARATION
EXT TRIG
CH1
CH2
SCHEMATIC
MODEL LBO-324
CONNECTION DIAGRAM
LEADER ELECTRONICS CORP.



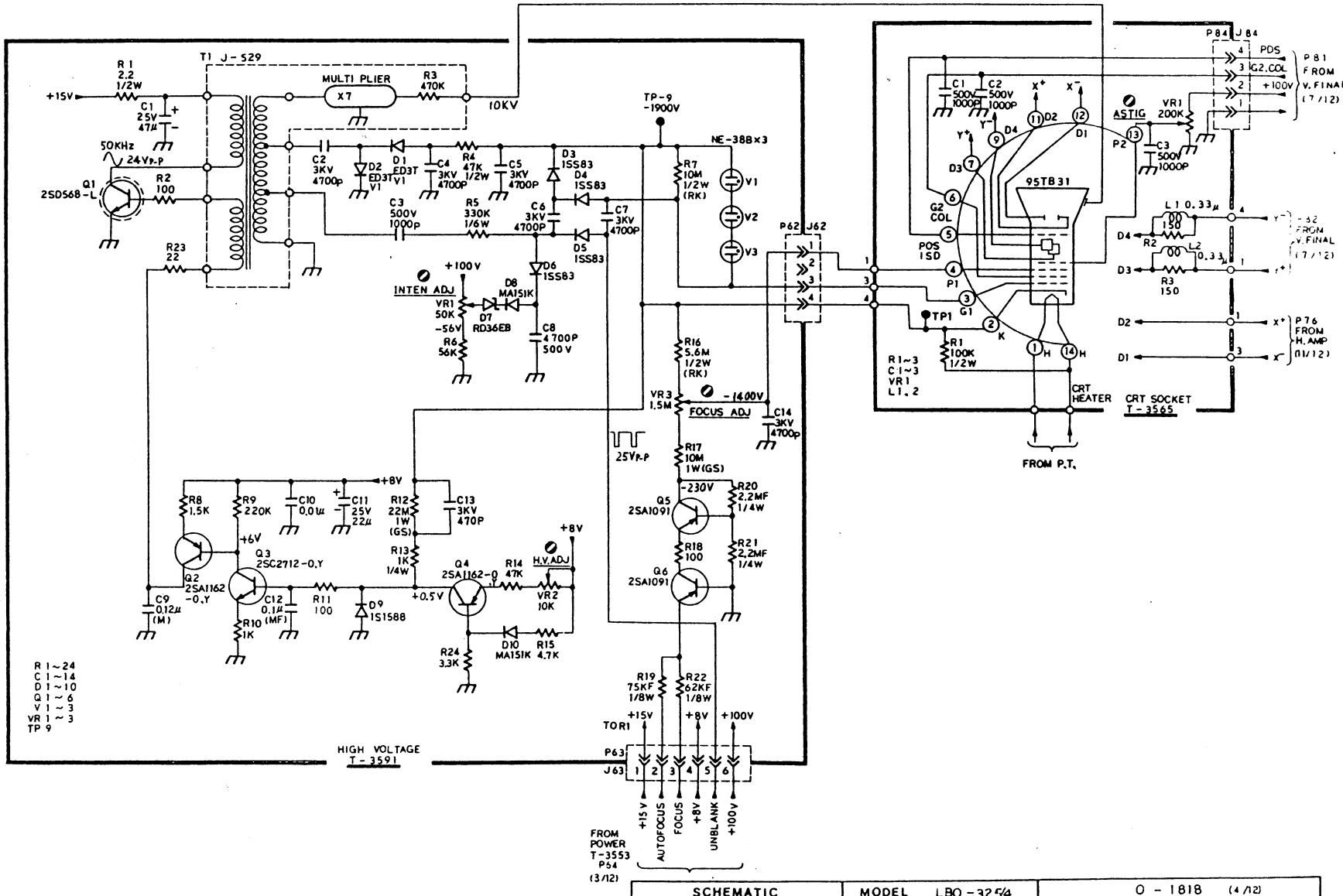
SCHEMATIC	MODEL LBO-326A	O- 1810 (1-2/12)
	BLOCK DIAGRAM	LEADER ELECTRONICS CORP.



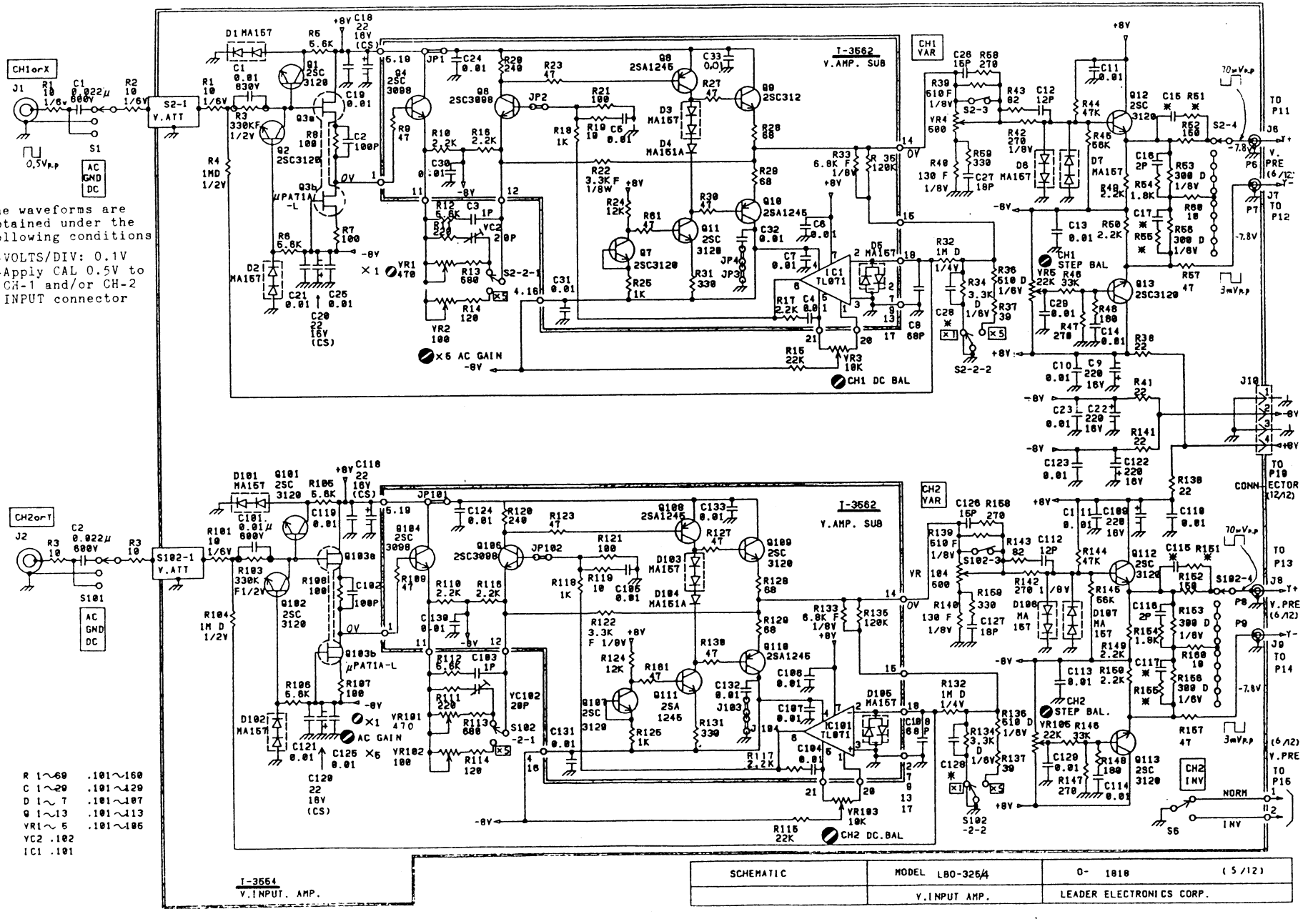
SCHEMATIC	MODEL LBO-325/4	0- 1818 (2/12)
	POWER	LEADER ELECTRONICS CORP.



SCHEMATIC	MODEL LBO-325/4	O- 1818 (3/12)
	BLANKING / INTEN	LEADER ELECTRONICS CORP.



SCHEMATIC	MODEL LBO-325/4	O - 1818 (4/12)
	HIGH VOLTAGE	LEADER ELECTRONICS CORP.

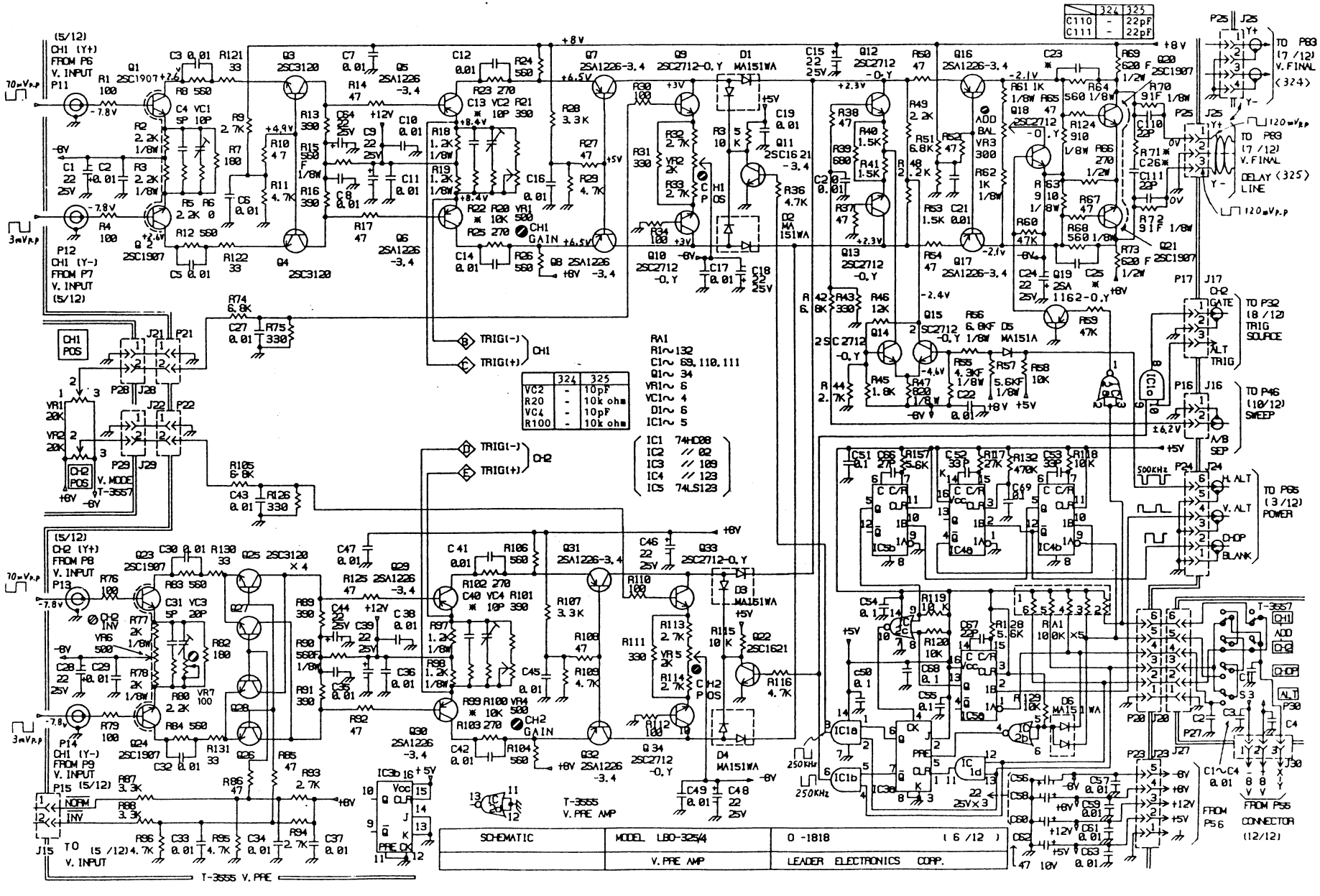


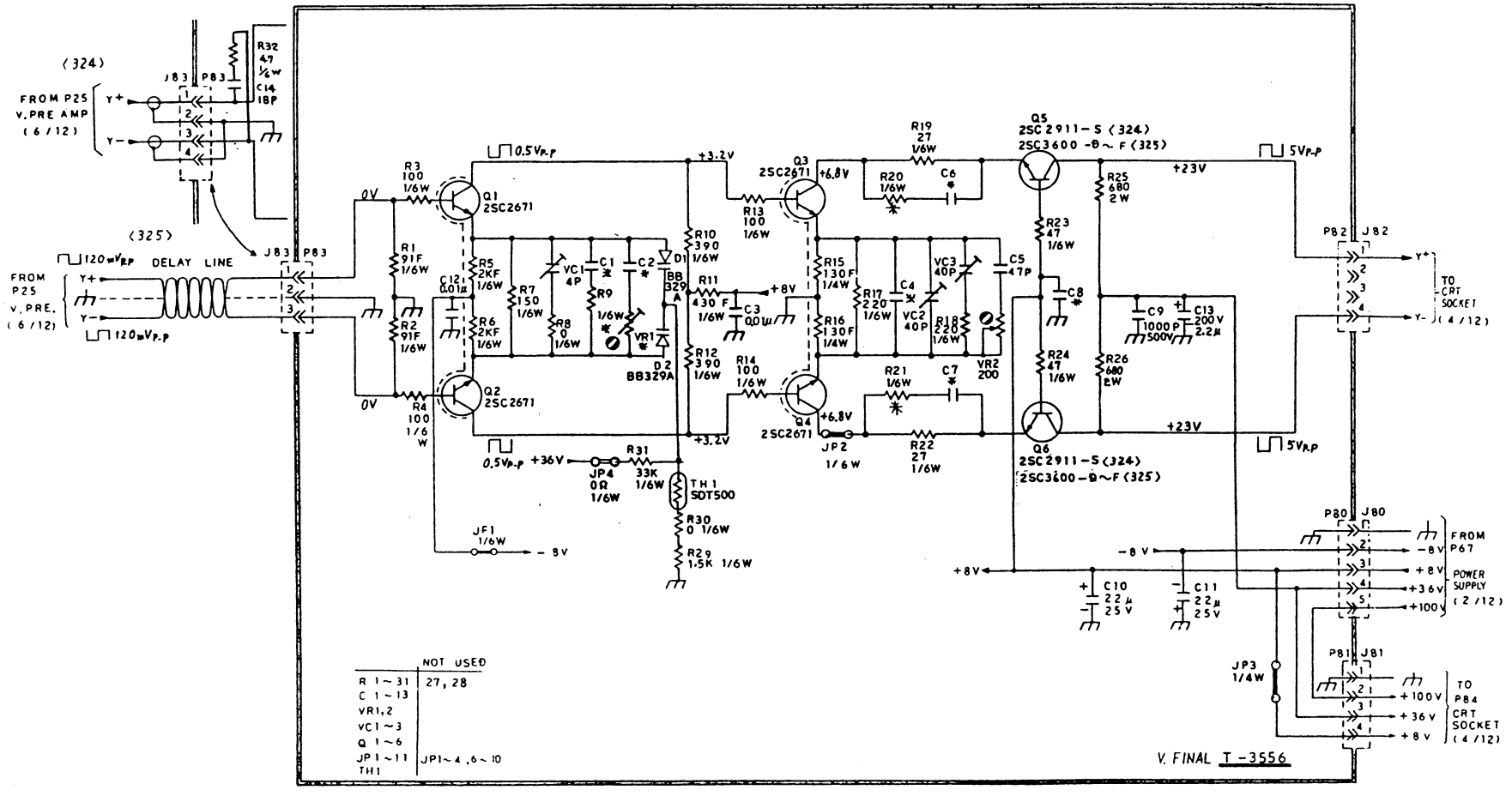
The waveforms are obtained under the following conditions

-VOLTS/DIV: 0.1V
-Apply CAL 0.5V to CH-1 and/or CH-2 INPUT connector

R 1~69 .101~160
C 1~29 .101~129
D 1~ 7 .101~107
Q 1~13 .101~113
VR1~ 5 .101~105
YC2 .102
IC1 .101

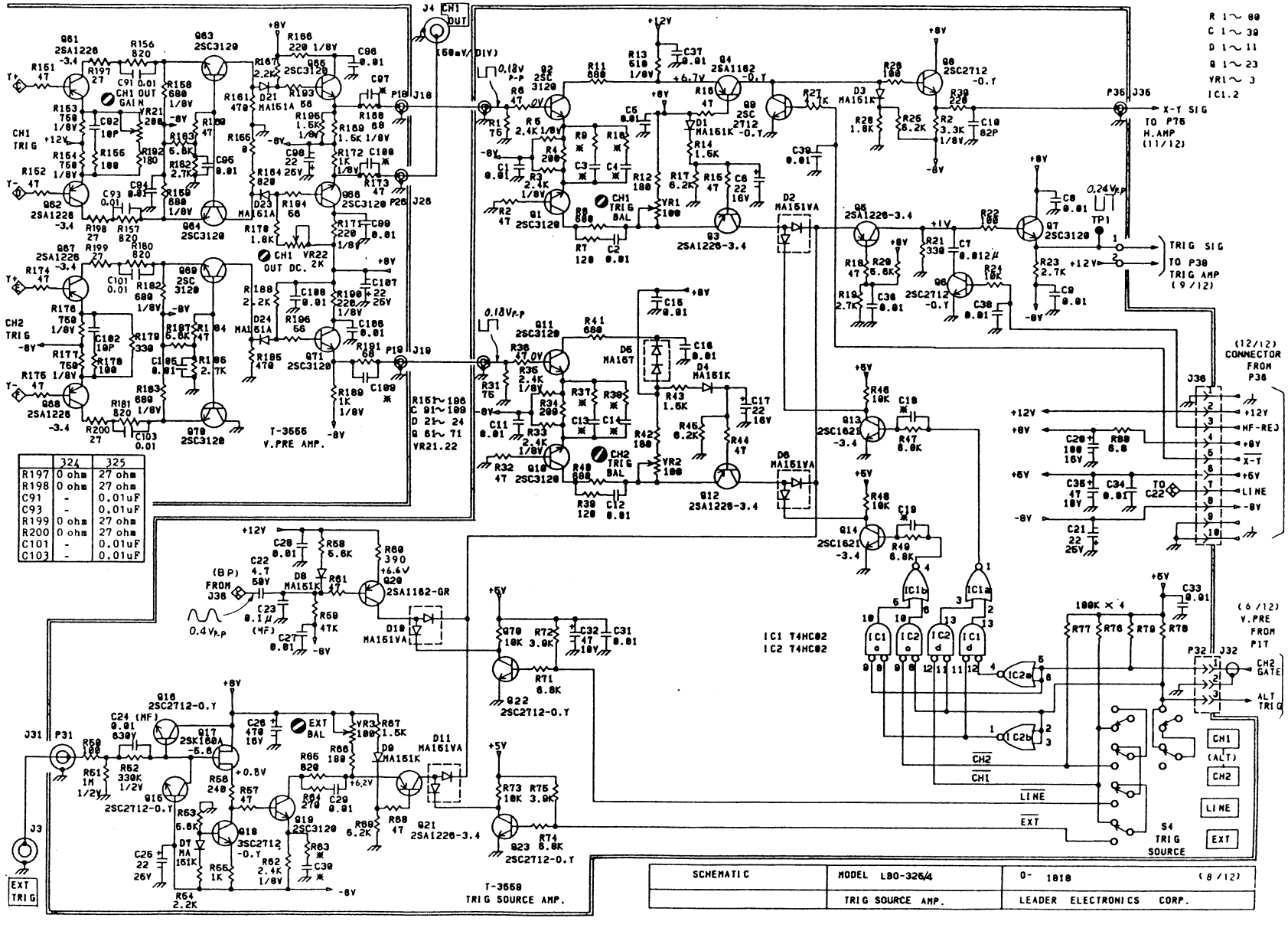
SCHEMATIC	MODEL LBO-326/4	0- 1818 (5/12)
	V.INPUT AMP.	LEADER ELECTRONICS CORP.


(5/12) CH1 (Y+) FROM P6 V. INPUT P11
(5/12) CH1 (Y-) FROM P7 V. INPUT P12
(5/12) CH2 (Y+) FROM P8 V. INPUT P13
(5/12) CH1 (Y-) FROM P9 V. INPUT P14
(5/12) CH2 (Y-) FROM P10 V. INPUT P15
TO V. INPUT J15
T-3555 V. PRE
T-3557 V. MODE
V. PRE AMP
TRIG(-) CH1
TRIG(+) CH1
TRIG(-) CH2
TRIG(+) CH2
CH1 POS
CH2 POS
CH1 GAIN
CH2 GAIN
CH1 POS
CH2 POS
RA1 R1~132 C1~ 69, 110, 111 Q1~ 34 VR1~ 6 VC1~ 4 D1~ 6 IC1~ 5
IC1 74HC08 IC2 // 02 IC3 // 109 IC4 // 123 IC5 74LS123
TO P83 (7/12) V. FINAL (324)
TO P83 (7/12) V. FINAL DELAY (325) LINE
TO P32 (8/12) TRIG SOURCE
TO P46 (10/12) SWEEP
TO P65 (3/12) POWER
FROM P56 CONNECTOR (12/12)
SCHEMATIC | MODEL LBO-325/4 | O-1818 (6/12)
V. PRE AMP | LEADER ELECTRONICS CORP.

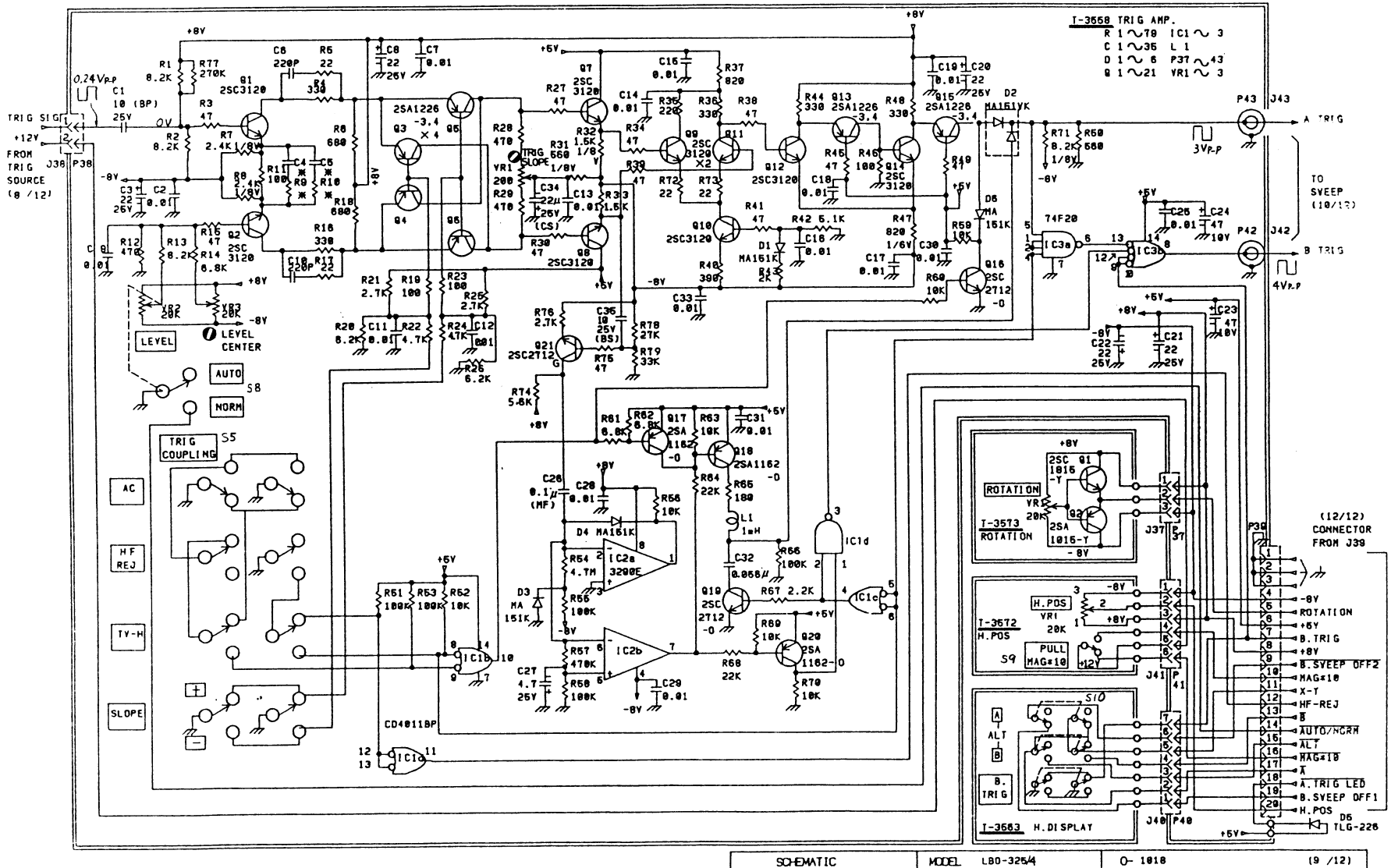


	NOT USED
R 1~31	27, 28
C 1~13	
VR1,2	
VC1~3	
Q 1~6	
JP1~11	JP1~4, 6~10
TH1	

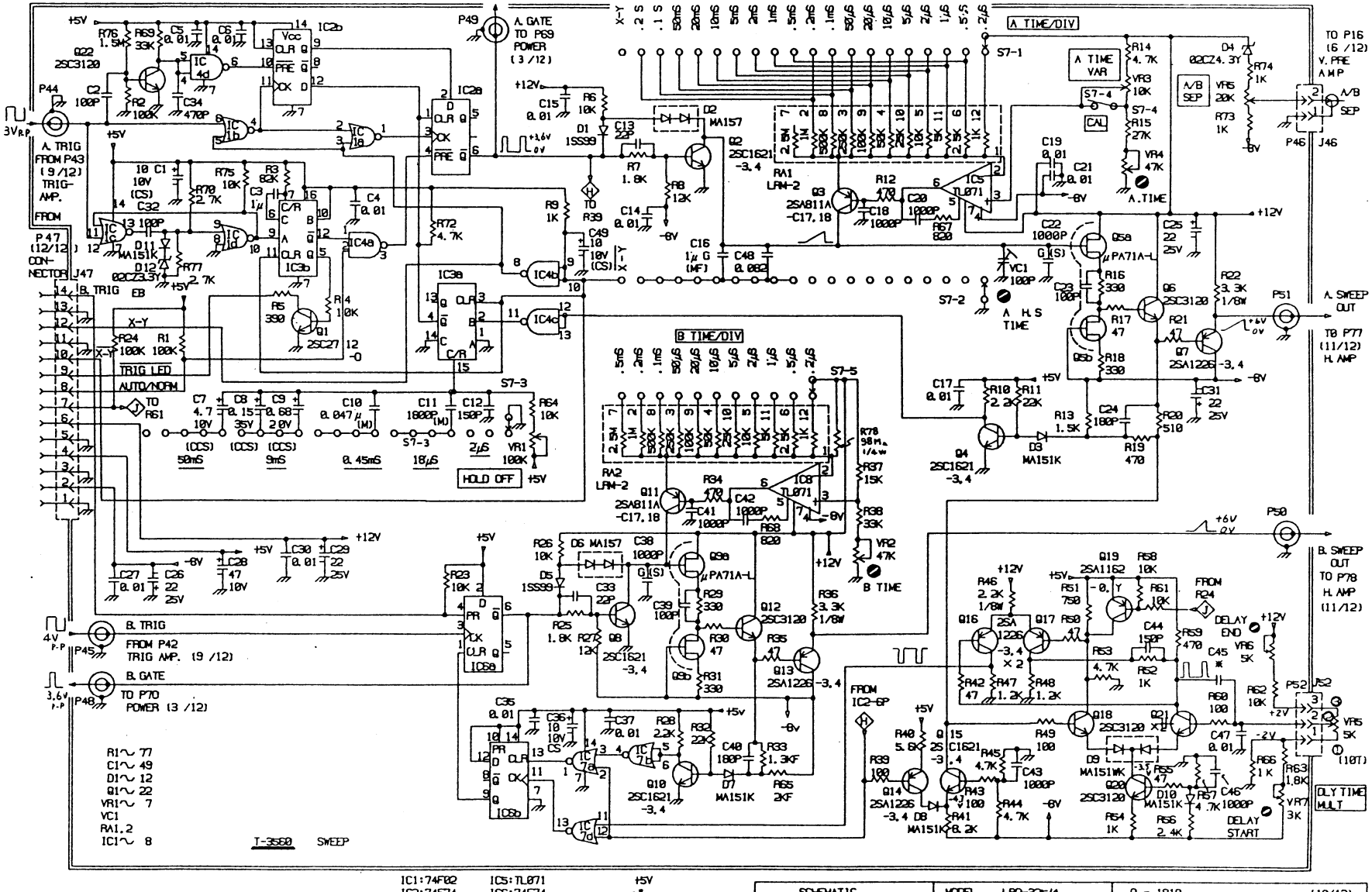
SCHEMATIC	MODEL LBO-325/4	O-1818 (7/12)
	V.FINAL AMP	LEADER ELECTRONICS CORP.



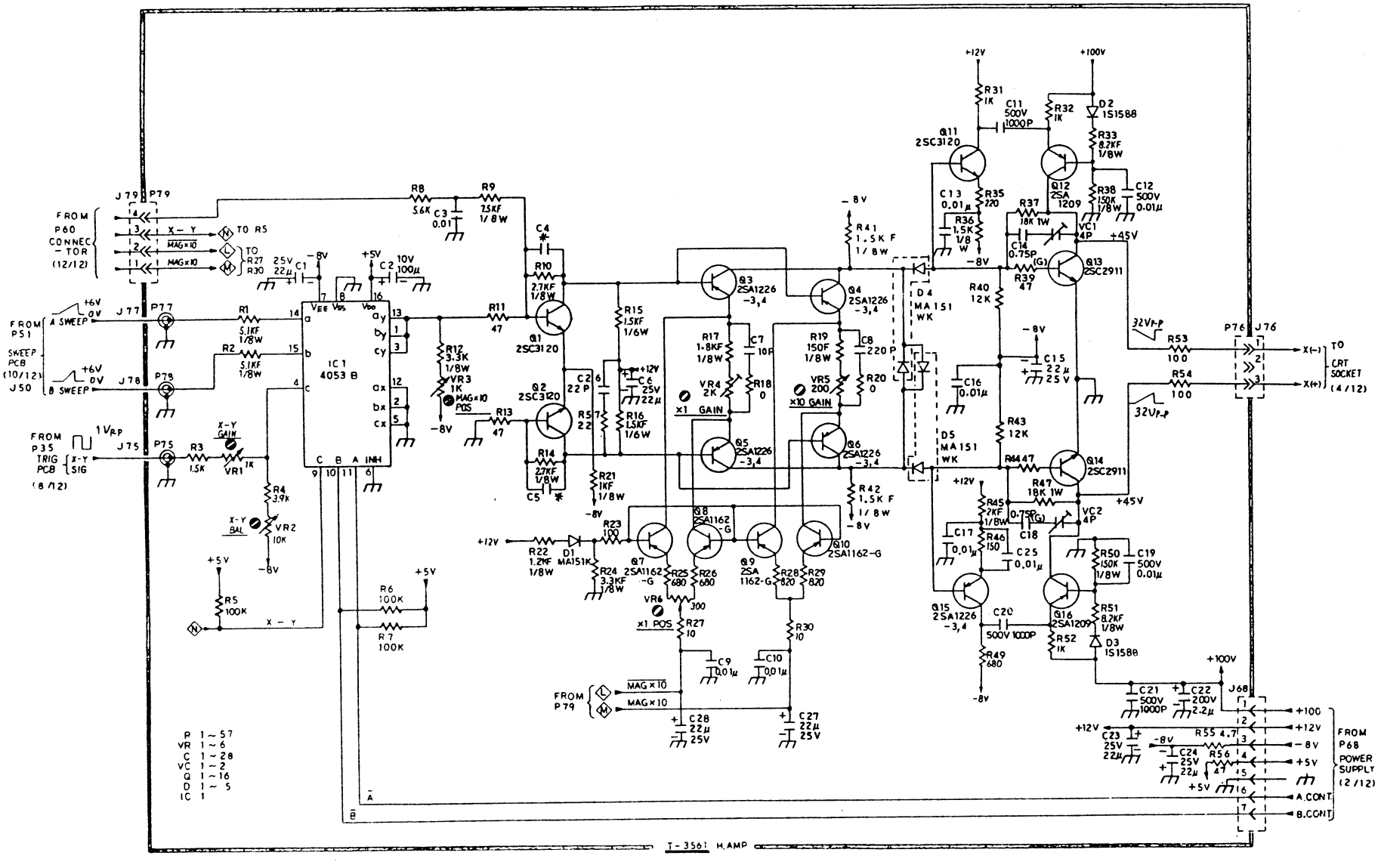
	324	325
R197	0 ohm	27 ohm
R198	0 ohm	27 ohm
C91	-	0.01uF
C93	-	0.01uF
R199	0 ohm	27 ohm
R200	0 ohm	27 ohm
C101	-	0.01uF
C103	-	0.01uF



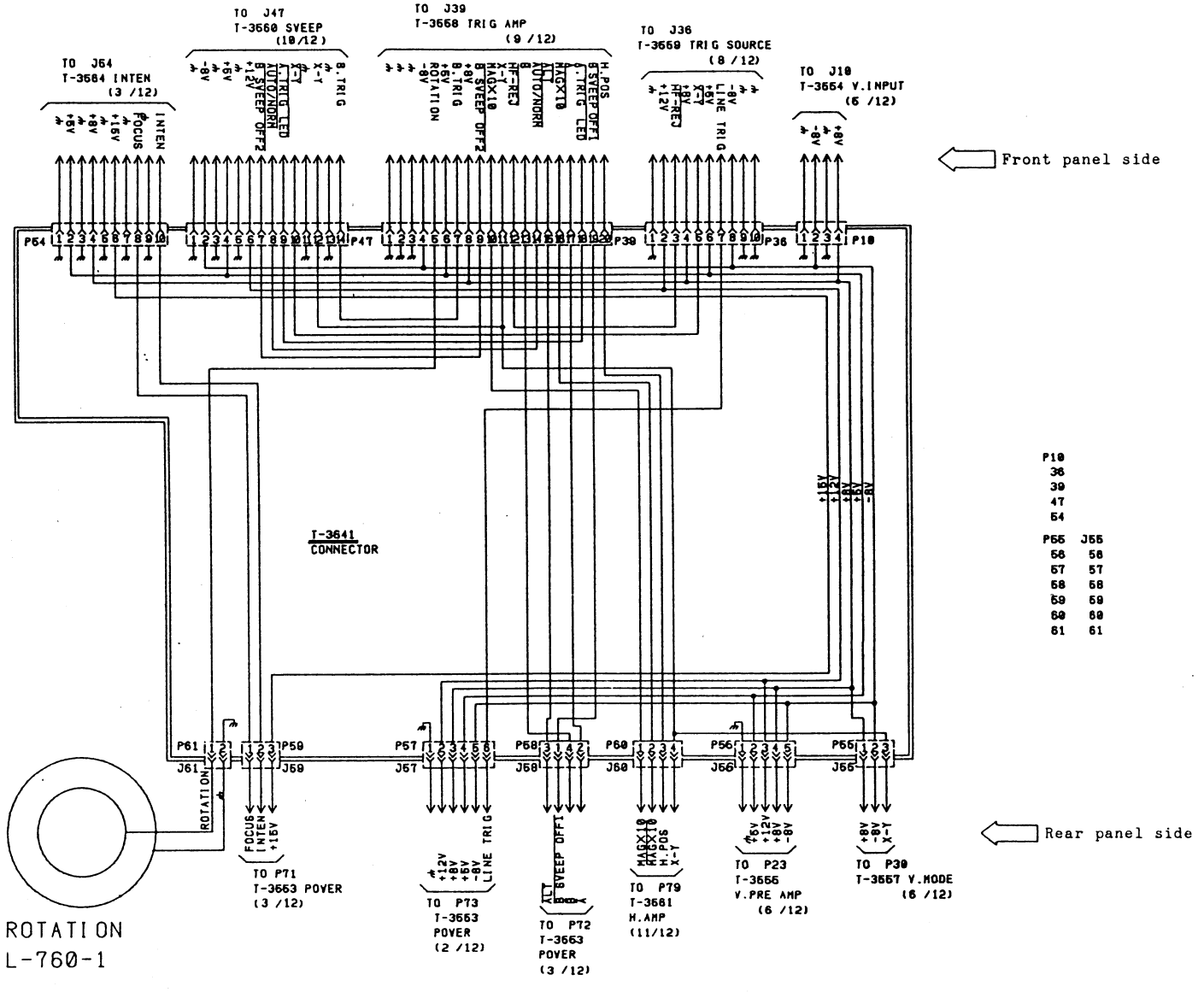
SCHEMATIC	MODEL LBO-325/4	O- 1018 (9 /12)
	TRIG AMP.	LEADER ELECTRONICS CORP.



SCHEMATIC	MODEL LBO-325/4	O - 1818 (10/12)
	SWEEP	LEADER ELECTRONICS CORP.



SCHEMATIC	MODEL LBO-325/4	O-1818 (11/12)
	H. AMP	LEADER ELECTRONICS CORP.



SCHEMATIC	MODEL LBO-325/4	0- 1818 (12/12)
	CONNECTOR	LEADER ELECTRONICS CORP.

No.	LDR PT No.	DESCRIPTION				
*** LBO-324/325 MAIN FRAME ***						
-VARIABLE RESISTOR-						
VR1	1940047014	WIRE WOUND	5K OHM 1.5%	3W	"DLY TIME MULT"	
-CAPACITORS-						
C1	2180223002	PLASTIC FILM	0.022uF	10%	630V	
C2	2180223002	PLASTIC FILM	0.022uF	10%	630V	
-CRT-						
	3710053001	CRT	9STB31			
-TRANSFORMER-						
T1	3800531002	TRANSFORMER	J-531			
-COIL-						
L1	3900760014	ROTATOR COIL	L-760-1			
-SWITCHES-						
S1	4050043009	TOGGLE	8A-2101	"CH-1 AC-GND-DC"		
S11	4020138009	PUSH	ESB-70702Y	"POWER"		
S101	4050043009	TOGGLE	8A-2101	"CH-2 AC-GND-DC"		
-FUSE-						
F1	4363745000	TIME LAG	ST4 400mA	"180V-264V"		
F1	4363755003	TIME LAG	ST4 630mA	"90V-132V"		
-MISCELLANOUS-						
	4325005004	INLET	NC-173			
	4371009003	FUSE HOLDER	FH-032(6.35X31.8)			

No.	LDR PT No.	DESCRIPTION				
*** LBO-324/325 POWER T-3553 ***						
-RESISTORS-						
R1	1000273004	CARBON FILM		27K OHM	5%	1/6W
R2	1580333002	METAL OXIDE		33K OHM	5%	1W
R3	1000689005	CARBON FILM		6.8 OHM	5%	1/6W
R4	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W
R5	1669101302	METAL GLAZE	CHIP	9.1 OHM	1%	1/8W
R6	1461003005	METAL FILM		100K OHM	1%	1/6W
R7	1650334506	METAL GLAZE	CHIP	330K OHM	5%	1/10W
R8	1668201303	METAL GLAZE	CHIP	8.2K OHM	1%	1/8W
R9	1650823501	METAL GLAZE	CHIP	82K OHM	5%	1/10W
R10	1650823501	METAL GLAZE	CHIP	82K OHM	5%	1/10W
R11	1650223507	METAL GLAZE	CHIP	22K OHM	5%	1/10W
R12	1020109005	CARBON FILM		1 OHM	5%	1/2W
R13	1650221503	METAL GLAZE	CHIP	220 OHM	5%	1/10W
R14	1650221503	METAL GLAZE	CHIP	220 OHM	5%	1/10W
R15	1650561507	METAL GLAZE	CHIP	560 OHM	5%	1/10W
R16	1650561507	METAL GLAZE	CHIP	560 OHM	5%	1/10W
R17	1020109005	CARBON FILM		1 OHM	5%	1/2W
R18	1020109005	CARBON FILM		1 OHM	5%	1/2W
R19	1661102306	METAL GLAZE	CHIP	11K OHM	1%	1/8W
R20	1662701304	METAL GLAZE	CHIP	2.7K OHM	1%	1/8W
R21	1668201303	METAL GLAZE	CHIP	8.2K OHM	1%	1/8W
R22	1668201303	METAL GLAZE	CHIP	8.2K OHM	1%	1/8W
(T-3553 CONT'D)						
R23	1580222003	METAL FILM		2.2K OHM	5%	1W
R24	1000689005	CARBON FILM		6.8 OHM	5%	1/6W
R25	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W
R26	1669101302	METAL GLAZE	CHIP	9.1 OHM	1%	1/8W
R27	1650334506	METAL GLAZE	CHIP	330K OHM	5%	1/10W
R28	1463602009	METAL FILM		36K OHM	1%	1/6W
R29	1668201303	METAL GLAZE	CHIP	8.2K OHM	1%	1/8W
R30	1000332004	CARBON FILM		3.3K OHM	5%	1/6W
R31	1650221503	METAL GLAZE	CHIP	220 OHM	5%	1/10W
R32	1663302306	METAL GLAZE	CHIP	33K OHM	1%	1/8W
R33	1663901308	METAL GLAZE	CHIP	3.9K OHM	1%	1/8W
R41	1332202008	METAL FILM		22K OHM	1%	1/6W
R42	1650681507	METAL GLAZE	CHIP	680 OHM	5%	1/10W
R43	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R44	1650472508	METAL GLAZE	CHIP	4.7K OHM	5%	1/10W
R45	1010823000	CARBON FILM		82K OHM	5%	1/4W
R46	1650911508	METAL GLAZE	CHIP	910 OHM	5%	1/10W
R48	1650181507	METAL GLAZE	CHIP	180 OHM	5%	1/10W
R49	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R50	1650223507	METAL GLAZE	CHIP	22K OHM	5%	1/10W
R51	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R52	1650681507	METAL GLAZE	CHIP	680 OHM	5%	1/10W
R53	1650681507	METAL GLAZE	CHIP	680 OHM	5%	1/10W
-VARIABLE RESISTOR-						
VR1	1711004042	CERMET		1K OHM	20%	1/3W
-CAPACITORS-						
C1	2280470108	ELECTROLYTIC		47uF	20%	250V
C2	2680103002	CERAMIC CHIP		0.01uF	10%	50V
C3	2680102000	CERAMIC CHIP		1000pF	10%	50V
C4	2330076006	ELECTROLYTIC		100uF	20%	200V
C5	2680103002	CERAMIC CHIP		0.01uF	10%	50V
C6	2680102000	CERAMIC CHIP		1000pF	10%	50V
C7	2680103002	CERAMIC CHIP		0.01uF	10%	50V
C8	2330077008	ELECTROLYTIC		2200uF	20%	35V
C9	2345479005	ELECTROLYTIC		4.7uF	20%	35V
C10	2345479005	ELECTROLYTIC		4.7uF	20%	35V
C11	2240222101	ELECTROLYTIC		2200uF	20%	25V
C12	2240222101	ELECTROLYTIC		2200uF	20%	25V
C13	2344100008	ELECTROLYTIC		10uF	20%	25V
C14	2344100008	ELECTROLYTIC		10uF	20%	25V
C15	2344479009	ELECTROLYTIC		4.7uF	20%	25V
C16	2344479009	ELECTROLYTIC		4.7uF	20%	25V
C17	2346229008	ELECTROLYTIC		2.2uF	20%	50V
C18	2343101004	ELECTROLYTIC		100uF	20%	16V
C19	2343101004	ELECTROLYTIC		100uF	20%	16V
C21	2280229103	ELECTROLYTIC		2.2uF	20%	250V
C22	2330075004	ELECTROLYTIC		10uF	20%	200V
C23	2240101109	ELECTROLYTIC		100uF	20%	25V
C24	2680103002	CERAMIC CHIP		0.01uF	10%	50V
C25	2682101606	CERAMIC CHIP		100pF	10%	50V
C41	2195007003	COMPOSITION		20pF	10%	500V
C42	2020103002	CERAMIC		0.01uF		500V
C43	2020103002	CERAMIC		0.01uF		500V
C44	2330074002	ELECTROLYTIC		2.2uF	20%	200V
C45	2680103002	CERAMIC CHIP		0.01uF	10%	50V

No.	LDR PT No.	DESCRIPTION				
(T-3553	CONT'D)					
C46	2343220002	ELECTROLYTIC		22uF	20%	16V
C47	2342470009	ELECTROLYTIC		47uF	20%	10V
C48	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C49	2343220002	ELECTROLYTIC		22uF	20%	16V
-TRANSISTORS-						
Q1	3040859000	NPN		2SD859-Q		
Q2	3033138005	NPN	CHIP	2SC3138		
Q3	3033138005	NPN	CHIP	2SC3138		
Q4	3011012007	PNP		2SA1012		
Q5	3011162015	PNP	CHIP	2SA1162-O or Y		
Q6	3032562002	NPN		2SC2562-Y		
Q7	3032712005	NPN	CHIP	2SC2712-O or Y		
Q8	3040859000	NPN		2SD859-Q		
Q9	3033138005	NPN	CHIP	2SC3138		
Q10	3033138005	NPN	CHIP	2SC3138		
Q11	3011012007	PNP		2SA1012		
Q12	3011162015	PNP	CHIP	2SA1162-O or Y		
Q21	3011245000	PNP	CHIP	2SA1245		
Q22	3011209006	PNP		2SA1209-S		
Q23	3032911001	NPN		2SC2911-S		
Q24	3033120006	NPN	CHIP	2SC3120		
-DIODES-						
D1	3110020008	RECTIFIER		1GZ61		
D2	3110020008	RECTIFIER		1GZ61		
D3	3110020008	RECTIFIER		1GZ61		
D4	3110020008	RECTIFIER		1GZ61		
D5	3113004008	DETECTOR	CHIP	MA151K		
D6	3113004008	DETECTOR	CHIP	MA151K		
D7	3110061002	BRIDGE RECTIFIER		2W02		
D9	3110061002	BRIDGE RECTIFIER		2W02		
D10	3110019003	RECTIFIER		1DZ61		
D21	3113004008	DETECTOR	CHIP	MA151K		
-INTEGRATED CIRCUITS-						
IC1	3211458021	OP AMP		MC1458CP1		
IC2	3228001007	REGULATOR		M5236L		
IC3	3217805004	REGULATOR		HA17805P		+5V
IC4	3220161001	REGULATOR		M5230L		
-FUSE-						
F1	4363150009	NORMAL BLOW		BEQ 500mA		
-PC BOARD-						
	5903553024			T-3553B		
-MISCELLANOUS-						
	4371008001	FUSE CLIP		S-N5053		

No.	LDR PT No.	DESCRIPTION				
*** LBO-324/325		Y.INPUT		T-3554 ***		
-RESISTORS-						
R1	1000100003	CARBON FILM		10 OHM	5%	1/6W
R3	1333303000	METAL FILM		330K OHM	1%	1/2W
R4	1371000008	METAL FILM		1M OHM	0.5%	1/2W
R5	1650562509	METAL GLAZE	CHIP	5.6K OHM	5%	1/10W
R6	1650562509	METAL GLAZE	CHIP	5.6K OHM	5%	1/10W
R7	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R8	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R11	1650221503	METAL GLAZE	CHIP	220 OHM	5%	1/10W
R12	1650562509	METAL GLAZE	CHIP	5.6K OHM	5%	1/10W
R13	1650681507	METAL GLAZE	CHIP	680 OHM	5%	1/10W
R14	1650121509	METAL GLAZE	CHIP	120 OHM	5%	1/10W
R15	1650223507	METAL GLAZE	CHIP	22K OHM	5%	1/10W
R32	1361000047	METAL FILM		1M OHM	0.5%	1/4W
R34	1453301008	METAL FILM		3.3K OHM	0.5%	1/6W
R36	1455100000	METAL FILM		510 OHM	0.5%	1/6W
R37	1650390506	METAL GLAZE	CHIP	39 OHM	5%	1/10W
R38	1650220501	METAL GLAZE	CHIP	22 OHM	5%	1/10W
R39	1665100306	METAL GLAZE	CHIP	510 OHM	1%	1/8W
R40	1661300300	METAL GLAZE	CHIP	130 OHM	1%	1/8W
R41	1650220501	METAL GLAZE	CHIP	22 OHM	5%	1/10W
R42	1660271505	METAL GLAZE	CHIP	270 OHM	5%	1/8W
R43	1650820505	METAL GLAZE	CHIP	82 OHM	5%	1/10W
R44	1650473500	METAL GLAZE	CHIP	47K OHM	5%	1/10W
R45	1650563501	METAL GLAZE	CHIP	56K OHM	5%	1/10W
R46	1650333504	METAL GLAZE	CHIP	33K OHM	5%	1/10W
R47	1650271508	METAL GLAZE	CHIP	270 OHM	5%	1/10W
R48	1650181507	METAL GLAZE	CHIP	180 OHM	5%	1/10W
R49	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W
R50	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W
R52	1650151508	METAL GLAZE	CHIP	150 OHM	5%	1/10W
R53	1453000004	METAL FILM		300 OHM	0.5%	1/6W
R54	1650182509	METAL GLAZE	CHIP	1.8K OHM	5%	1/10W
R56	1453000004	METAL FILM		300 OHM	0.5%	1/6W
R57	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R58	1650271508	METAL GLAZE	CHIP	270 OHM	5%	1/10W
R59	1650331500	METAL GLAZE	CHIP	330 OHM	5%	1/10W
R101	1000100003	CARBON FILM		10 OHM	5%	1/6W
R103	1333303000	METAL FILM		330K OHM	1%	1/2W
R104	1371000008	METAL FILM		1M OHM	0.5%	1/2W
R105	1650562509	METAL GLAZE	CHIP	5.6K OHM	5%	1/10W
R106	1650562509	METAL GLAZE	CHIP	5.6K OHM	5%	1/10W
R107	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R108	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R111	1650221503	METAL GLAZE	CHIP	220 OHM	5%	1/10W
R112	1650562509	METAL GLAZE	CHIP	5.6K OHM	5%	1/10W
R113	1650681507	METAL GLAZE	CHIP	680 OHM	5%	1/10W
R114	1650121509	METAL GLAZE	CHIP	120 OHM	5%	1/10W
R115	1650223507	METAL GLAZE	CHIP	22K OHM	5%	1/10W
R132	1361000047	METAL FILM		1M OHM	0.5%	1/4W
R134	1453301008	METAL FILM		3.3K OHM	0.5%	1/6W
R136	1455100000	METAL FILM		510 OHM	0.5%	1/6W
R137	1650390506	METAL GLAZE	CHIP	39 OHM	5%	1/10W
R138	1650220501	METAL GLAZE	CHIP	22 OHM	5%	1/10W
R139	1665100306	METAL GLAZE	CHIP	510 OHM	1%	1/8W
R140	1661300300	METAL GLAZE	CHIP	130 OHM	1%	1/8W

No.	LDR PT No.	DESCRIPTION					
(T-3554	CONT'D)						
R141	1650220501	METAL GLAZE	CHIP	22	OHM	5%	1/10W
R142	1660271505	METAL GLAZE	CHIP	270	OHM	5%	1/8W
R143	1650820505	METAL GLAZE	CHIP	82	OHM	5%	1/10W
R144	1650473500	METAL GLAZE	CHIP	47K	OHM	5%	1/10W
R145	1650563501	METAL GLAZE	CHIP	56K	OHM	5%	1/10W
R146	1650333504	METAL GLAZE	CHIP	33K	OHM	5%	1/10W
R147	1650271508	METAL GLAZE	CHIP	270	OHM	5%	1/10W
R148	1650181507	METAL GLAZE	CHIP	180	OHM	5%	1/10W
R149	1650222505	METAL GLAZE	CHIP	2.2K	OHM	5%	1/10W
R150	1650222505	METAL GLAZE	CHIP	2.2K	OHM	5%	1/10W
R152	1650151508	METAL GLAZE	CHIP	150	OHM	5%	1/10W
R153	1453000004	METAL FILM		300	OHM	0.5%	1/6W
R154	1650182509	METAL GLAZE	CHIP	1.8K	OHM	5%	1/10W
R156	1453000004	METAL FILM		300	OHM	0.5%	1/6W
R157	1650470504	METAL GLAZE	CHIP	47	OHM	5%	1/10W
R158	1650271508	METAL GLAZE	CHIP	270	OHM	5%	1/10W
R159	1650331500	METAL GLAZE	CHIP	330	OHM	5%	1/10W
-VARIABLE RESISTORS-							
VR1	1711007048	METAL GLAZE		470	OHM	25%	1/5W
VR2	1711007002	METAL GLAZE		100	OHM	25%	1/5W
VR3	1711007121	METAL GLAZE		10K	OHM	25%	1/5W
VR5	1711007149	METAL GLAZE		22K	OHM	25%	1/5W
VR101	1711007048	METAL GLAZE		470	OHM	25%	1/5W
VR102	1711007002	METAL GLAZE		100	OHM	25%	1/5W
VR103	1711007121	METAL GLAZE		10K	OHM	25%	1/5W
VR105	1711007149	METAL GLAZE		22K	OHM	25%	1/5W
-CAPACITORS-							
C1	2180103020	PLASTIC FILM		0.01uF		10%	630V
C2	2682101606	CERAMIC	CHIP	100pF		10%	50V
C3	2681109101	CERAMIC	CHIP	1pF		0.25pF	50V
C8	2681680602	CERAMIC	CHIP	68pF		10%	50V
C9	2230221102	ELECTROLYTIC		220uF		20%	16V
C10	2680103002	CERAMIC	CHIP	0.01uF		10%	50V
C11	2680103002	CERAMIC	CHIP	0.01uF		10%	50V
C12	2681120604	CERAMIC	CHIP	12pF		10%	50V
C13	2680103002	CERAMIC	CHIP	0.01uF		10%	50V
C14	2680103002	CERAMIC	CHIP	0.01uF		10%	50V
C16	2681209105	CERAMIC	CHIP	2pF		0.25pF	50V
C18	2440220002	ELECTROLYTIC		22uF		20%	16V
C19	2680103002	CERAMIC	CHIP	0.01uF		10%	50V
C20	2440220002	ELECTROLYTIC		22uF		20%	16V
C21	2680103002	CERAMIC	CHIP	0.01uF		10%	50V
C22	2230221102	ELECTROLYTIC		220uF		20%	16V
C23	2680103002	CERAMIC	CHIP	0.01uF		10%	50V
C25	2680103002	CERAMIC	CHIP	0.01uF		10%	50V
C26	2681150603	CERAMIC	CHIP	15pF		10%	50V
C27	2681180602	CERAMIC	CHIP	18pF		10%	50V
C29	2680103002	CERAMIC	CHIP	0.01uF		10%	50V
C101	2180103020	PLASTIC FILM		0.01uF		10%	630V
C102	2682101606	CERAMIC	CHIP	100pF		10%	50V
C103	2681109101	CERAMIC	CHIP	1pF		0.25pF	50V
C108	2681680602	CERAMIC	CHIP	68pF		10%	50V
C109	2230221102	ELECTROLYTIC		220uF		20%	16V
C110	2680103002	CERAMIC	CHIP	0.01uF		10%	50V
C111	2680103002	CERAMIC	CHIP	0.01uF		10%	50V

No.	LDR PT No.	DESCRIPTION				
(T-3554	CONT'D)					
C112	2681120604	CERAMIC	CHIP	12pF	10%	50V
C113	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C114	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C116	2681209105	CERAMIC	CHIP	2pF	0.25pF	50V
C118	2440220002	ELECTROLYTIC		22uF	20%	16V
C119	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C120	2440220002	ELECTROLYTIC		22uF	20%	16V
C121	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C122	2230221102	ELECTROLYTIC		220uF	20%	16V
C123	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C125	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C126	2681150603	CERAMIC	CHIP	15pF	10%	50V
C127	2681180602	CERAMIC	CHIP	18pF	10%	50V
C129	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
-VARIABLE CAPACITORS-						
VC2	2910048005	CERAMIC		2-12pF	250V	
VC102	2910048005	CERAMIC		2-12pF	250V	
-TRANSISTORS-						
Q1	3033120006	NPN	CHIP	2SC3120		
Q2	3033120006	NPN	CHIP	2SC3120		
Q3	3090026008	FET	DUAL	UPA71A-L		
Q12	3033120006	NPN	CHIP	2SC3120		
Q13	3033120006	NPN	CHIP	2SC3120		
Q101	3033120006	NPN	CHIP	2SC3120		
Q102	3033120006	NPN	CHIP	2SC3120		
Q103	3090026008	FET	DUAL	UPA71A-L		
Q112	3033120006	NPN	CHIP	2SC3120		
Q113	3033120006	NPN	CHIP	2SC3120		
-DIODES-						
D1	3113003006	DETECTOR DUAL	CHIP	MA157		
D2	3113003006	DETECTOR DUAL	CHIP	MA157		
D6	3113003006	DETECTOR DUAL	CHIP	MA157		
D7	3113003006	DETECTOR DUAL	CHIP	MA157		
D101	3113003006	DETECTOR DUAL	CHIP	MA157		
D102	3113003006	DETECTOR DUAL	CHIP	MA157		
D106	3113003006	DETECTOR DUAL	CHIP	MA157		
D107	3113003006	DETECTOR DUAL	CHIP	MA157		
-SWITCHES-						
S2	4000541000	ROTARY	Q-541	"CH-1 VOLTS/DIV"		
S6	4000542002	PUSH	Q-542	"CH-2 INV"		
S102	4000541000	ROTARY	Q-541	"CH-2 VOLTS/DIV"		
-PC BOARD-						
	5903554026			T-3554B		

No.	LDR PT No.	DESCRIPTION					
*** LBO-324/325 V.PRE AMP T-3555 ***							
-RESISTORS-							
R1	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W	
R2	1660222502	METAL GLAZE	CHIP	2.2K OHM	5%	1/8W	
R3	1660222502	METAL GLAZE	CHIP	2.2K OHM	5%	1/8W	
R4	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W	
R5	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W	
R6	1650000002		CHIP	0 OHM			
R7	1650181507	METAL GLAZE	CHIP	180 OHM	5%	1/10W	
R8	1650561507	METAL GLAZE	CHIP	560 OHM	5%	1/10W	
R9	1650272500	METAL GLAZE	CHIP	2.7K OHM	5%	1/10W	
R10	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R11	1650472508	METAL GLAZE	CHIP	4.7K OHM	5%	1/10W	
R12	1650561507	METAL GLAZE	CHIP	560 OHM	5%	1/10W	
R13	1650391508	METAL GLAZE	CHIP	390 OHM	5%	1/10W	
R14	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R15	1665600306	METAL GLAZE	CHIP	560 OHM	1%	1/8W	
R16	1650391508	METAL GLAZE	CHIP	390 OHM	5%	1/10W	
R17	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R18	1660122508	METAL GLAZE	CHIP	1.2K OHM	5%	1/8W	
R19	1660122508	METAL GLAZE	CHIP	1.2K OHM	5%	1/8W	
R21	1650391508	METAL GLAZE	CHIP	390 OHM	5%	1/10W	
R23	1650271508	METAL GLAZE	CHIP	270 OHM	5%	1/10W	
R24	1650561507	METAL GLAZE	CHIP	560 OHM	5%	1/10W	
R25	1650271508	METAL GLAZE	CHIP	270 OHM	5%	1/10W	
R26	1650561507	METAL GLAZE	CHIP	560 OHM	5%	1/10W	
R27	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R28	1650332502	METAL GLAZE	CHIP	3.3K OHM	5%	1/10W	
R29	1650472508	METAL GLAZE	CHIP	4.7K OHM	5%	1/10W	
R30	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W	
R31	1650331500	METAL GLAZE	CHIP	330 OHM	5%	1/10W	
R32	1650272500	METAL GLAZE	CHIP	2.7K OHM	5%	1/10W	
R33	1650272500	METAL GLAZE	CHIP	2.7K OHM	5%	1/10W	
R34	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W	
R35	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W	
R36	1650472508	METAL GLAZE	CHIP	4.7K OHM	5%	1/10W	
R37	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R38	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R39	1650681507	METAL GLAZE	CHIP	680 OHM	5%	1/10W	
R40	1650152500	METAL GLAZE	CHIP	1.5K OHM	5%	1/10W	
R41	1650152500	METAL GLAZE	CHIP	1.5K OHM	5%	1/10W	
R42	1650682509	METAL GLAZE	CHIP	6.8K OHM	5%	1/10W	
R43	1650331500	METAL GLAZE	CHIP	330 OHM	5%	1/10W	
R44	1650272500	METAL GLAZE	CHIP	2.7K OHM	5%	1/10W	
R45	1650182509	METAL GLAZE	CHIP	1.8K OHM	5%	1/10W	
R46	1650123503	METAL GLAZE	CHIP	12K OHM	5%	1/10W	
R47	1660821504	METAL GLAZE	CHIP	820 OHM	5%	1/10W	
R48	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W	
R49	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W	
R50	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R51	1650682509	METAL GLAZE	CHIP	6.8K OHM	5%	1/10W	
R52	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R53	1650152500	METAL GLAZE	CHIP	1.5K OHM	5%	1/10W	
R54	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R55	1664301300	METAL GLAZE	CHIP	4.3K OHM	1%	1/8W	
R56	1666801302	METAL GLAZE	CHIP	6.8K OHM	1%	1/8W	
R57	1665601308	METAL GLAZE	CHIP	5.6K OHM	1%	1/8W	

No.	LDR PT No.	DESCRIPTION					
(T-3555	CONT'D)						
R58	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W	
R59	1650473500	METAL GLAZE	CHIP	47K OHM	5%	1/10W	
R60	1650473500	METAL GLAZE	CHIP	47K OHM	5%	1/10W	
R61	1660102502	METAL GLAZE	CHIP	1K OHM	5%	1/8W	
R62	1660102502	METAL GLAZE	CHIP	1K OHM	5%	1/8W	
R63	1660911505	METAL GLAZE	CHIP	910 OHM	5%	1/8W	
R64	1660561504	METAL GLAZE	CHIP	560 OHM	5%	1/8W	
R65	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R66	1020271004	CARBON FILM		270 OHM	5%	1/2W	
R67	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R68	1660561504	METAL GLAZE	CHIP	560 OHM	5%	1/8W	
R69	1336200008	METAL FILM		620 OHM	1%	1/6W	
R70	1669109308	METAL GLAZE	CHIP	91 OHM	1%	1/8W	
R72	1669109308	METAL GLAZE	CHIP	91 OHM	1%	1/8W	
R73	1336200008	METAL FILM		620 OHM	1%	1/6W	
R74	1650682509	METAL GLAZE	CHIP	6.8K OHM	5%	1/10W	
R75	1650331500	METAL GLAZE	CHIP	330 OHM	5%	1/10W	
R76	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W	
R77	1660202506	METAL GLAZE	CHIP	2K OHM	5%	1/8W	
R78	1660202506	METAL GLAZE	CHIP	2K OHM	5%	1/8W	
R79	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W	
R80	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W	
R82	1650181507	METAL GLAZE	CHIP	180 OHM	5%	1/10W	
R83	1650561507	METAL GLAZE	CHIP	560 OHM	5%	1/10W	
R84	1650561507	METAL GLAZE	CHIP	560 OHM	5%	1/10W	
R85	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R86	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R87	1650332502	METAL GLAZE	CHIP	3.3K OHM	5%	1/10W	
R88	1650332502	METAL GLAZE	CHIP	3.3K OHM	5%	1/10W	
R89	1650391508	METAL GLAZE	CHIP	390 OHM	5%	1/10W	
R90	1665600306	METAL GLAZE	CHIP	560 OHM	1%	1/8W	
R91	1650391508	METAL GLAZE	CHIP	390 OHM	5%	1/10W	
R92	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R93	1650272500	METAL GLAZE	CHIP	2.7K OHM	5%	1/10W	
R94	1650272500	METAL GLAZE	CHIP	2.7K OHM	5%	1/10W	
R95	1650472508	METAL GLAZE	CHIP	4.7K OHM	5%	1/10W	
R96	1650472508	METAL GLAZE	CHIP	4.7K OHM	5%	1/10W	
R97	1660122508	METAL GLAZE	CHIP	1.2K OHM	5%	1/8W	
R98	1660122508	METAL GLAZE	CHIP	1.2K OHM	5%	1/8W	
R101	1650391508	METAL GLAZE	CHIP	390 OHM	5%	1/10W	
R102	1650271508	METAL GLAZE	CHIP	270 OHM	5%	1/10W	
R103	1650271508	METAL GLAZE	CHIP	270 OHM	5%	1/10W	
R104	1650561507	METAL GLAZE	CHIP	560 OHM	5%	1/10W	
R105	1650682509	METAL GLAZE	CHIP	6.8K OHM	5%	1/10W	
R106	1650561507	METAL GLAZE	CHIP	560 OHM	5%	1/10W	
R107	1650332502	METAL GLAZE	CHIP	3.3K OHM	5%	1/10W	
R108	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R109	1650472508	METAL GLAZE	CHIP	4.7K OHM	5%	1/10W	
R110	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W	
R111	1650331500	METAL GLAZE	CHIP	330 OHM	5%	1/10W	
R112	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W	
R113	1650272500	METAL GLAZE	CHIP	2.7K OHM	5%	1/10W	
R114	1650272500	METAL GLAZE	CHIP	2.7K OHM	5%	1/10W	
R115	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W	
R116	1650472508	METAL GLAZE	CHIP	4.7K OHM	5%	1/10W	
R117	1650273502	METAL GLAZE	CHIP	27K OHM	5%	1/10W	
R118	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W	

No.	LDR PT No.	DESCRIPTION					
(T-3555	CONT'D)						
R119	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W	
R120	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W	
R121	1650330508	METAL GLAZE	CHIP	33 OHM	5%	1/10W	
R122	1650330508	METAL GLAZE	CHIP	33 OHM	5%	1/10W	
R124	1660911505	METAL GLAZE	CHIP	910 OHM	5%	1/8W	
R125	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R126	1650331500	METAL GLAZE	CHIP	330 OHM	5%	1/10W	
R127	1650562509	METAL GLAZE	CHIP	5.6K OHM	5%	1/10W	
R128	1650562509	METAL GLAZE	CHIP	5.6K OHM	5%	1/10W	
R129	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W	
R130	1650330508	METAL GLAZE	CHIP	33 OHM	5%	1/10W	
R131	1650330508	METAL GLAZE	CHIP	33 OHM	5%	1/10W	
R132	1650474502	METAL GLAZE	CHIP	470K OHM	5%	1/10W	
R151	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R152	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R153	1660751509	METAL GLAZE	CHIP	750 OHM	5%	1/8W	
R154	1660751509	METAL GLAZE	CHIP	750 OHM	5%	1/8W	
R155	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W	
R156	1650821507	METAL GLAZE	CHIP	820 OHM	5%	1/10W	
R157	1650821507	METAL GLAZE	CHIP	820 OHM	5%	1/10W	
R158	1660681504	METAL GLAZE	CHIP	680 OHM	5%	1/8W	
R159	1660681504	METAL GLAZE	CHIP	680 OHM	5%	1/8W	
R160	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R161	1650471506	METAL GLAZE	CHIP	470 OHM	5%	1/10W	
R162	1650272500	METAL GLAZE	CHIP	2.7K OHM	5%	1/10W	
R163	1650562509	METAL GLAZE	CHIP	5.6K OHM	5%	1/10W	
R164	1650821507	METAL GLAZE	CHIP	820 OHM	5%	1/10W	
R165	1650000002		CHIP	0 OHM			
R166	1660221500	METAL GLAZE	CHIP	220 OHM	5%	1/8W	
R167	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W	
R168	1650680505	METAL GLAZE	CHIP	68 OHM	5%	1/10W	
R169	1660152507	METAL GLAZE	CHIP	1.5K OHM	5%	1/8W	
R170	1650182509	METAL GLAZE	CHIP	1.8K OHM	5%	1/10W	
R171	1660221500	METAL GLAZE	CHIP	220 OHM	5%	1/8W	
R172	1660102502	METAL GLAZE	CHIP	1K OHM	5%	1/8W	
R173	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R174	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R175	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R176	1660751509	METAL GLAZE	CHIP	750 OHM	5%	1/8W	
R177	1660751509	METAL GLAZE	CHIP	750 OHM	5%	1/8W	
R178	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W	
R179	1650331500	METAL GLAZE	CHIP	330 OHM	5%	1/10W	
R180	1650821507	METAL GLAZE	CHIP	820 OHM	5%	1/10W	
R181	1650821507	METAL GLAZE	CHIP	820 OHM	5%	1/10W	
R182	1660681504	METAL GLAZE	CHIP	680 OHM	5%	1/8W	
R183	1660681504	METAL GLAZE	CHIP	680 OHM	5%	1/8W	
R184	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W	
R185	1650471506	METAL GLAZE	CHIP	470 OHM	5%	1/10W	
R186	1650272500	METAL GLAZE	CHIP	2.7K OHM	5%	1/10W	
R187	1650562509	METAL GLAZE	CHIP	5.6K OHM	5%	1/10W	
R188	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W	
R189	1660102502	METAL GLAZE	CHIP	1K OHM	5%	1/8W	
R190	1660221500	METAL GLAZE	CHIP	220 OHM	5%	1/8W	
R191	1650680505	METAL GLAZE	CHIP	68 OHM	5%	1/10W	
R192	1650181507	METAL GLAZE	CHIP	180 OHM	5%	1/10W	
R193	1650560505	METAL GLAZE	CHIP	56 OHM	5%	1/10W	
R194	1650560505	METAL GLAZE	CHIP	56 OHM	5%	1/10W	

No.	LDR PT No.	DESCRIPTION					
(T-3555	CONT'D)						
R195	1660152507	METAL GLAZE	CHIP	1.5K OHM	5%	1/8W	
R196	1650560505	METAL GLAZE	CHIP	56 OHM	5%	1/10W	
R197	1650270506	METAL GLAZE	CHIP	27 OHM	5%	1/10W	
-VARIABLE RESISTORS-							
VR1	1711004033	CERMET		500 OHM	20%	1/3W	
VR2	1711004051	CERMET		2K OHM	20%	1/3W	
VR3	1711004024	CERMET		300 OHM	20%	1/3W	
VR4	1711004033	CERMET		500 OHM	20%	1/3W	
VR5	1711004051	CERMET		2K OHM	20%	1/3W	
VR6	1711004033	CERMET		500 OHM	20%	1/3W	
VR7	1711004006	CERMET		100 OHM	20%	1/3W	
VR21	1711004015	CERMET		200 OHM	20%	1/3W	
VR22	1711004051	CERMET		2K OHM	20%	1/3W	
-CAPACITORS-							
C1	2344220008	ELECTROLYTIC		22uF	20%	25V	
C2	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C3	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C4	2681509107	CERAMIC	CHIP	5pF	0.25pF	50V	
C5	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C6	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C7	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C8	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C9	2344220008	ELECTROLYTIC		22uF	20%	25V	
C10	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C11	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C12	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C14	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C15	2344220008	ELECTROLYTIC		22uF	20%	25V	
C16	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C17	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C18	2344220008	ELECTROLYTIC		22uF	20%	25V	
C19	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C20	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C21	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C22	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C24	2344220008	ELECTROLYTIC		22uF	20%	25V	
C27	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C28	2344220008	ELECTROLYTIC		22uF	20%	25V	
C29	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C30	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C31	2681509107	CERAMIC	CHIP	5pF	0.25pF	50V	
C32	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C33	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C34	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C35	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C36	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C37	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C38	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C39	2344220008	ELECTROLYTIC		22uF	20%	25V	
C41	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C42	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C43	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C44	2344220008	ELECTROLYTIC		22uF	20%	25V	
C45	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C46	2344220008	ELECTROLYTIC		22uF	20%	25V	

No.	LDR PT No.	DESCRIPTION			
(T-3555	CONT'D)				
C47	2680103002	CERAMIC CHIP	0.01uF	10%	50V
C48	2344220008	ELECTROLYTIC	22uF	20%	25V
C49	2680103002	CERAMIC CHIP	0.01uF	10%	50V
C50	2090016006	CERAMIC	0.1uF		50V
C51	2090016006	CERAMIC	0.1uF		50V
C52	2681330605	CERAMIC CHIP	33pF	10%	50V
C53	2681330605	CERAMIC CHIP	33pF	10%	50V
C54	2090016006	CERAMIC	0.1uF		50V
C55	2090016006	CERAMIC	0.1uF		50V
C56	2344220008	ELECTROLYTIC	22uF	20%	25V
C57	2680103002	CERAMIC CHIP	0.01uF	10%	50V
C58	2344220008	ELECTROLYTIC	22uF	20%	25V
C59	2680103002	CERAMIC CHIP	0.01uF	10%	50V
C60	2344220008	ELECTROLYTIC	22uF	20%	25V
C61	2680103002	CERAMIC CHIP	0.01uF	10%	50V
C62	2342470009	ELECTROLYTIC	47uF	20%	10V
C63	2680103002	CERAMIC CHIP	0.01uF	10%	50V
C64	2344220008	ELECTROLYTIC	22uF	20%	25V
C66	2681220608	CERAMIC CHIP	22pF	10%	50V
C67	2681220608	CERAMIC CHIP	22pF	10%	50V
C68	2090016006	CERAMIC	0.1uF		50V
C69	2090016006	CERAMIC	0.1uF		50V
C92	2681100204	CERAMIC CHIP	10pF	10%	50V
C94	2680103002	CERAMIC CHIP	0.01uF	10%	50V
C95	2680103002	CERAMIC CHIP	0.01uF	10%	50V
C96	2680103002	CERAMIC CHIP	0.01uF	10%	50V
C98	2344220008	ELECTROLYTIC	22uF	20%	25V
C99	2680103002	CERAMIC CHIP	0.01uF	10%	50V
C102	2681100204	CERAMIC CHIP	10pF	10%	50V
C105	2680103002	CERAMIC CHIP	0.01uF	10%	50V
C106	2680103002	CERAMIC CHIP	0.01uF	10%	50V
C107	2344220008	ELECTROLYTIC	22uF	20%	25V
C108	2680103002	CERAMIC CHIP	0.01uF	10%	50V
-VARIABLE CAPACITORS-					
VC1	2910018006	CERAMIC	2.8-10pF	250V	
VC3	2910020003	CERAMIC	3.3-18pF	250V	
-TRANSISTORS-					
Q1	3031907004	NPN	2SC1907		
Q2	3031907004	NPN	2SC1907		
Q3	3033120006	NPN CHIP	2SC3120		
Q4	3033120006	NPN CHIP	2SC3120		
Q5	3011226006	PNP CHIP	2SA1226-3 or 4		
Q6	3011226006	PNP CHIP	2SA1226-3 or 4		
Q7	3011226006	PNP CHIP	2SA1226-3 or 4		
Q8	3011226006	PNP CHIP	2SA1226-3 or 4		
Q9	3032712005	NPN CHIP	2SC2712-O or Y		
Q10	3032712005	NPN CHIP	2SC2712-O or Y		
Q11	3031621006	NPN CHIP	2SC1621-3 or 4		
Q12	3032712005	NPN CHIP	2SC2712-O or Y		
Q13	3032712005	NPN CHIP	2SC2712-O or Y		
Q14	3032712005	NPN CHIP	2SC2712-O or Y		
Q15	3032712005	NPN CHIP	2SC2712-O or Y		
Q16	3011226006	PNP CHIP	2SA1226-3 or 4		
Q17	3011226006	PNP CHIP	2SA1226-3 or 4		
Q18	3032712005	NPN CHIP	2SC2712-O or Y		

No.	LDR PT No.	DESCRIPTION	
(T-3555	CONT'D)		
Q19	3011162015	PNP CHIP	2SA1162-O or Y
Q20	3031907004	NPN	2SC1907
Q21	3031907004	NPN	2SC1907
Q22	3031621006	NPN CHIP	2SC1621-3 or 4
Q23	3031907004	NPN	2SC1907
Q24	3031907004	NPN	2SC1907
Q25	3033120006	NPN CHIP	2SC3120
Q26	3033120006	NPN CHIP	2SC3120
Q27	3033120006	NPN CHIP	2SC3120
Q28	3033120006	NPN CHIP	2SC3120
Q29	3011226006	PNP CHIP	2SA1226-3 or 4
Q30	3011226006	PNP CHIP	2SA1226-3 or 4
Q31	3011226006	PNP CHIP	2SA1226-3 or 4
Q32	3011226006	PNP CHIP	2SA1226-3 or 4
Q33	3032712005	NPN CHIP	2SC2712-O or Y
Q34	3032712005	NPN CHIP	2SC2712-O or Y
Q61	3011226006	PNP CHIP	2SA1226-3 or 4
Q62	3011226006	PNP CHIP	2SA1226-3 or 4
Q63	3033120006	NPN CHIP	2SC3120
Q64	3033120006	NPN CHIP	2SC3120
Q65	3033120006	NPN CHIP	2SC3120
Q66	3033120006	NPN CHIP	2SC3120
Q67	3011226006	PNP CHIP	2SA1226-3 or 4
Q68	3011226006	PNP CHIP	2SA1226-3 or 4
Q69	3033120006	NPN CHIP	2SC3120
Q70	3033120006	NPN CHIP	2SC3120
Q71	3033120006	NPN CHIP	2SC3120
-DIODES-			
D1	3113001002	DETECTOR DUAL CHIP	MA151WA
D2	3113001002	DETECTOR DUAL CHIP	MA151WA
D3	3113001002	DETECTOR DUAL CHIP	MA151WA
D4	3113001002	DETECTOR DUAL CHIP	MA151WA
D5	3113000000	DETECTOR CHIP	MA151A
D6	3113001002	DETECTOR DUAL CHIP	MA151WA
D21	3113000000	DETECTOR CHIP	MA151A
D23	3113000000	DETECTOR CHIP	MA151A
D24	3113000000	DETECTOR CHIP	MA151A
-INTEGRATED CIRCUITS-			
IC1	3420008009	CMOS	TC74HC08P
IC2	3420002007	CMOS	TC74HC02P
IC3	3420109005	CMOS	TC74HC109P
IC4	3420123119	CMOS	MC74HC123N
IC5	3260123991	TTL	74LS123
-PC BOARD-			
	5903555028		T-3555B

No.	LDR PT No.	DESCRIPTION			
*** LBO-324/325 V.FINAL AMP T-3556 ***					
-RESISTORS-					
R1	1469109009	METAL FILM	91 OHM	1%	1/6W
R2	1469109009	METAL FILM	91 OHM	1%	1/6W
R3	1000101005	CARBON FILM	100 OHM	5%	1/6W
R4	1000101005	CARBON FILM	100 OHM	5%	1/6W
R5	1462001007	METAL FILM	2K OHM	1%	1/6W
R6	1462001007	METAL FILM	2K OHM	1%	1/6W
R7	1000151000	CARBON FILM	150 OHM	5%	1/6W
R10	1000391000	CARBON FILM	390 OHM	5%	1/6W
R11	1464300009	METAL FILM	430 OHM	1%	1/6W
R12	1000391000	CARBON FILM	390 OHM	5%	1/6W
R13	1000101005	CARBON FILM	100 OHM	5%	1/6W
R14	1000101005	CARBON FILM	100 OHM	5%	1/6W
R15	1311300008	METAL FILM	130 OHM	1%	1/4W
R16	1311300008	METAL FILM	130 OHM	1%	1/4W
R17	1462200003	METAL FILM	220 OHM	1%	1/6W
R18	1000221005	CARBON FILM	220 OHM	5%	1/6W
R19	1000270008	CARBON FILM	27 OHM	5%	1/6W
R22	1000270008	CARBON FILM	27 OHM	5%	1/6W
R23	1000470006	CARBON FILM	47 OHM	5%	1/6W
R24	1000470006	CARBON FILM	47 OHM	5%	1/6W
R25	1590681002	METAL FILM	680 OHM	5%	2W
R26	1590681002	METAL FILM	680 OHM	5%	2W
R29	1000152002	CARBON FILM	1.5K OHM	5%	1/6W
R31	1000333006	CARBON FILM	33K OHM	5%	1/6W
-VARIABLE RESISTOR-					
VR2	1711005127	CERMET	200 OHM 20%	1/3W	
-CAPACITORS-					
C3	2010103005	CERAMIC	0.01uF		50V
C5	2120470016	MICA	47pF	10%	500V
C9	2020102000	CERAMIC	1000pF		500V
C10	2344220008	ELECTROLYTIC	22uF	20%	25V
C11	2344220008	ELECTROLYTIC	22uF	20%	25V
C12	2010103005	CERAMIC	0.01uF		50V
C13	2330074002	ELECTROLYTIC	2.2uF	20%	200V
-VARIABLE CAPACITORS-					
VC1	2910027016	CERAMIC	1.5-5.5pF	250V	
VC2	2910050002	CERAMIC	4-40pF	250V	
VC3	2910050002	CERAMIC	4-40pF	250V	
-TRANSISTORS-					
Q1	3032671007	NPN	2SC2671		
Q2	3032671007	NPN	2SC2671		
Q3	3032671007	NPN	2SC2671		
Q4	3032671007	NPN	2SC2671		
-DIODES-					
D1	3140025009	VARICAP	BB329A		
D2	3140025009	VARICAP	BB329A		

No.	LDR PT No.	DESCRIPTION			
(T-3556 CONT'D)					
-PC BOARD-					
	5903556039		T-3556C		
-MISCELLANOUS-					
TH1	3550030001	THERMISTOR	SDT500		
*** LBO-324/325 V.MODE T-3557 ***					
-VARIABLE RESISTORS-					
VR1	1816006219	CARBON FILM	20K/20K OHM	20% 1/20W	"CH-1 POS"
VR2	1816006219	CARBON FILM	20K/20K OHM	20% 1/20W	"CH-2 POS"
-CAPACITORS-					
C1	2010103005	CERAMIC	0.01uF		50V
C2	2010103005	CERAMIC	0.01uF		50V
C3	2010103005	CERAMIC	0.01uF		50V
C4	2010103005	CERAMIC	0.01uF		50V
-SWITCH-					
S1	4000537009	PUSH	Q-537	"V MODE"	
-PC BOARD-					
	5903557022		T-3557B		
*** LBO-324/325 TRIG COUPLING T-3558 ***					
-RESISTORS-					
R1	1650822509	METAL GLAZE CHIP	8.2K OHM	5%	1/10W
R2	1650822509	METAL GLAZE CHIP	8.2K OHM	5%	1/10W
R3	1650470504	METAL GLAZE CHIP	47 OHM	5%	1/10W
R4	1650331500	METAL GLAZE CHIP	330 OHM	5%	1/10W
R5	1650220501	METAL GLAZE CHIP	22 OHM	5%	1/10W
R6	1650681507	METAL GLAZE CHIP	680 OHM	5%	1/10W
R7	1660242508	METAL GLAZE CHIP	2.4K OHM	5%	1/8W
R8	1660242508	METAL GLAZE CHIP	2.4K OHM	5%	1/8W
R11	1650101503	METAL GLAZE CHIP	100 OHM	5%	1/10W
R12	1650471506	METAL GLAZE CHIP	470 OHM	5%	1/10W
R13	1650822509	METAL GLAZE CHIP	8.2K OHM	5%	1/10W
R14	1650682509	METAL GLAZE CHIP	6.8K OHM	5%	1/10W
R15	1650470504	METAL GLAZE CHIP	47 OHM	5%	1/10W
R16	1650331500	METAL GLAZE CHIP	330 OHM	5%	1/10W
R17	1650220501	METAL GLAZE CHIP	22 OHM	5%	1/10W
R18	1650681507	METAL GLAZE CHIP	680 OHM	5%	1/10W
R19	1650101503	METAL GLAZE CHIP	100 OHM	5%	1/10W
R20	1650622501	METAL GLAZE CHIP	6.2K OHM	5%	1/10W
R21	1650272500	METAL GLAZE CHIP	2.7K OHM	5%	1/10W
R22	1650472508	METAL GLAZE CHIP	4.7K OHM	5%	1/10W
R23	1650101503	METAL GLAZE CHIP	100 OHM	5%	1/10W
R24	1650472508	METAL GLAZE CHIP	4.7K OHM	5%	1/10W
R25	1650272500	METAL GLAZE CHIP	2.7K OHM	5%	1/10W
R26	1650622501	METAL GLAZE CHIP	6.2K OHM	5%	1/10W
R27	1650470504	METAL GLAZE CHIP	47 OHM	5%	1/10W

No.	LDR PT No.	DESCRIPTION					
(T-3558	CONT'D)						
R28	1650471506	METAL	GLAZE	CHIP	470 OHM	5%	1/10W
R29	1650471506	METAL	GLAZE	CHIP	470 OHM	5%	1/10W
R30	1650470504	METAL	GLAZE	CHIP	47 OHM	5%	1/10W
R31	1660561504	METAL	GLAZE	CHIP	560 OHM	5%	1/8W
R32	1660152507	METAL	GLAZE	CHIP	1.5K OHM	5%	1/8W
R33	1660152507	METAL	GLAZE	CHIP	1.5K OHM	5%	1/8W
R34	1650470504	METAL	GLAZE	CHIP	47 OHM	5%	1/10W
R35	1650221503	METAL	GLAZE	CHIP	220 OHM	5%	1/10W
R36	1650331500	METAL	GLAZE	CHIP	330 OHM	5%	1/10W
R37	1650821507	METAL	GLAZE	CHIP	820 OHM	5%	1/10W
R38	1650470504	METAL	GLAZE	CHIP	47 OHM	5%	1/10W
R39	1650470504	METAL	GLAZE	CHIP	47 OHM	5%	1/10W
R40	1650391508	METAL	GLAZE	CHIP	390 OHM	5%	1/10W
R41	1650470504	METAL	GLAZE	CHIP	47 OHM	5%	1/10W
R42	1650512504	METAL	GLAZE	CHIP	5.1K OHM	5%	1/10W
R43	1650202509	METAL	GLAZE	CHIP	2K OHM	5%	1/10W
R44	1650331500	METAL	GLAZE	CHIP	330 OHM	5%	1/10W
R45	1650470504	METAL	GLAZE	CHIP	47 OHM	5%	1/10W
R46	1650101503	METAL	GLAZE	CHIP	100 OHM	5%	1/10W
R47	1000821009	CARBON	FILM		820 OHM	5%	1/6W
R48	1650331500	METAL	GLAZE	CHIP	330 OHM	5%	1/10W
R49	1650470504	METAL	GLAZE	CHIP	47 OHM	5%	1/10W
R50	1650561507	METAL	GLAZE	CHIP	560 OHM	5%	1/10W
R51	1650104509	METAL	GLAZE	CHIP	100K OHM	5%	1/10W
R52	1650103507	METAL	GLAZE	CHIP	10K OHM	5%	1/10W
R53	1650104509	METAL	GLAZE	CHIP	100K OHM	5%	1/10W
R54	1650475504	METAL	GLAZE	CHIP	4.7M OHM	5%	1/10W
R55	1650104509	METAL	GLAZE	CHIP	100K OHM	5%	1/10W
R56	1650103507	METAL	GLAZE	CHIP	10K OHM	5%	1/10W
R57	1650474502	METAL	GLAZE	CHIP	470K OHM	5%	1/10W
R58	1650104509	METAL	GLAZE	CHIP	100K OHM	5%	1/10W
R59	1650103507	METAL	GLAZE	CHIP	10K OHM	5%	1/10W
R60	1650103507	METAL	GLAZE	CHIP	10K OHM	5%	1/10W
R61	1650682509	METAL	GLAZE	CHIP	6.8K OHM	5%	1/10W
R62	1650682509	METAL	GLAZE	CHIP	6.8K OHM	5%	1/10W
R63	1650103507	METAL	GLAZE	CHIP	10K OHM	5%	1/10W
R64	1650223507	METAL	GLAZE	CHIP	22K OHM	5%	1/10W
R65	1650181507	METAL	GLAZE	CHIP	180 OHM	5%	1/10W
R66	1650104509	METAL	GLAZE	CHIP	100K OHM	5%	1/10W
R67	1650222505	METAL	GLAZE	CHIP	2.2K OHM	5%	1/10W
R68	1650223507	METAL	GLAZE	CHIP	22K OHM	5%	1/10W
R69	1650103507	METAL	GLAZE	CHIP	10K OHM	5%	1/10W
R70	1650103507	METAL	GLAZE	CHIP	10K OHM	5%	1/10W
R71	1660822506	METAL	GLAZE	CHIP	8.2K OHM	5%	1/8W
R72	1650220501	METAL	GLAZE	CHIP	22 OHM	5%	1/10W
R73	1650220501	METAL	GLAZE	CHIP	22 OHM	5%	1/10W
R74	1650562509	METAL	GLAZE	CHIP	5.6K OHM	5%	1/10W
R75	1650470504	METAL	GLAZE	CHIP	47 OHM	5%	1/10W
R76	1650272500	METAL	GLAZE	CHIP	2.7K OHM	5%	1/10W
R77	1650274504	METAL	GLAZE	CHIP	270K OHM	5%	1/10W
R78	1650273502	METAL	GLAZE	CHIP	27K OHM	5%	1/10W
R79	1650333504	METAL	GLAZE	CHIP	33K OHM	5%	1/10W

No.	LDR PT No.	DESCRIPTION					
(T-3558	CONT'D)						
-VARIABLE RESISTORS-							
VR1	1711005127	CERMET			200 OHM	20%	1/3W
VR2	1911003211	20K OHM	20%	1/20W	"LEVEL"		
VR3	1711005053	CERMET			20K OHM	20%	1/3W
-CAPACITORS-							
C1	2320024000	ELECTROLYTIC BP			10uF	20%	25V
C2	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C3	2344220008	ELECTROLYTIC			22uF	20%	25V
C6	2680221008	CERAMIC	CHIP		220pF	10%	50V
C7	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C8	2344220008	ELECTROLYTIC			22uF	20%	25V
C9	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C10	2680221008	CERAMIC	CHIP		220pF	10%	50V
C11	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C12	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C13	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C14	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C15	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C16	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C17	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C18	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C19	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C20	2344220008	ELECTROLYTIC			22uF	20%	25V
C21	2344220008	ELECTROLYTIC			22uF	20%	25V
C22	2344220008	ELECTROLYTIC			22uF	20%	25V
C23	2342470009	ELECTROLYTIC			47uF	20%	10V
C24	2342470009	ELECTROLYTIC			47uF	20%	10V
C25	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C26	2610104005	PLASTIC FILM			0.1uF	10%	63V
C27	2344479009	ELECTROLYTIC			4.7uF	20%	25V
C28	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C29	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C30	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C31	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C32	2140563017	PLASTIC FILM			0.056uF	10%	50V
C33	2680103002	CERAMIC	CHIP		0.01uF	10%	50V
C34	2344220008	ELECTROLYTIC			22uF	20%	25V
C35	2320024000	ELECTROLYTIC BP			10uF	20%	25V
-TRANSISTORS-							
Q1	3033120006	NPN	CHIP		2SC3120		
Q2	3033120006	NPN	CHIP		2SC3120		
Q3	3011226006	PNP	CHIP		2SA1226-3 or 4		
Q4	3011226006	PNP	CHIP		2SA1226-3 or 4		
Q5	3011226006	PNP	CHIP		2SA1226-3 or 4		
Q6	3011226006	PNP	CHIP		2SA1226-3 or 4		
Q7	3033120006	NPN	CHIP		2SC3120		
Q8	3033120006	NPN	CHIP		2SC3120		
Q9	3033120006	NPN	CHIP		2SC3120		
Q10	3033120006	NPN	CHIP		2SC3120		
Q11	3033120006	NPN	CHIP		2SC3120		
Q12	3033120006	NPN	CHIP		2SC3120		
Q13	3011226006	PNP	CHIP		2SA1226-3 or 4		
Q14	3033120006	NPN	CHIP		2SC3120		
Q15	3011226006	PNP	CHIP		2SA1226-3 or 4		

No.	LDR PT No.	DESCRIPTION			
(T-3558	CONT'D)				
Q16	3032712005	NPN CHIP	2SC2712-O or Y		
Q17	3011162015	PNP CHIP	2SA1162-O or Y		
Q18	3011162015	PNP CHIP	2SA1162-O or Y		
Q19	3032712005	NPN CHIP	2SC2712-O or Y		
Q20	3011162015	PNP CHIP	2SA1162-O or Y		
Q21	3032712014	NPN CHIP	2SC2712-G		
-DIODES-					
D1	3113004008	DETECTOR CHIP	MA151K		
D2	3113002004	DETECTOR DUAL CHIP	MA151WK		
D3	3113004008	DETECTOR CHIP	MA151K		
D4	3113004008	DETECTOR CHIP	MA151K		
D5	3130031007	LED	TLG-226		
D6	3113004008	DETECTOR CHIP	MA151K		
-INTEGRATED CIRCUITS-					
IC1	3310011021	CMOS	TC4011BP		
IC2	3213290003	COMPARATOR	CA3290E		
IC3	3290020002	TTL	74F20 PC		
-COIL-					
L1	3970102006	COIL	1mH		
-SWITCH-					
S5	4000536016	PUSH	Q-536A	"TRIG COUPLING"	
-PC BOARD-					
	5903558024		T-3558B		

*** LBO-324/325 TRIG SOURCE T-3559 ***

-RESISTORS-						
R1	1650750500	METAL GLAZE	CHIP	75 OHM	5%	1/10W
R2	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R3	1660242508	METAL GLAZE	CHIP	2.4K OHM	5%	1/8W
R4	1650201507	METAL GLAZE	CHIP	200 OHM	5%	1/10W
R5	1660242508	METAL GLAZE	CHIP	2.4K OHM	5%	1/8W
R6	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R7	1650121509	METAL GLAZE	CHIP	120 OHM	5%	1/10W
R8	1650681507	METAL GLAZE	CHIP	680 OHM	5%	1/10W
R11	1650681507	METAL GLAZE	CHIP	680 OHM	5%	1/10W
R12	1650181507	METAL GLAZE	CHIP	180 OHM	5%	1/10W
R13	1665100306	METAL GLAZE	CHIP	510 OHM	1%	1/8W
R14	1650152500	METAL GLAZE	CHIP	1.5K OHM	5%	1/10W
R15	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R16	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R17	1650622501	METAL GLAZE	CHIP	6.2K OHM	5%	1/10W
R18	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R19	1650272500	METAL GLAZE	CHIP	2.7K OHM	5%	1/10W
R20	1650562509	METAL GLAZE	CHIP	5.6K OHM	5%	1/10W
R21	1650331500	METAL GLAZE	CHIP	330 OHM	5%	1/10W
R22	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R23	1650272500	METAL GLAZE	CHIP	2.7K OHM	5%	1/10W
R24	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W
R25	1650622501	METAL GLAZE	CHIP	6.2K OHM	5%	1/10W

No.	LDR PT No.	DESCRIPTION				
(T-3559	CONT'D)					
R26	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R27	1650472508	METAL GLAZE	CHIP	4.7K OHM	5%	1/10W
R28	1650182509	METAL GLAZE	CHIP	1.8K OHM	5%	1/10W
R29	1660332509	METAL GLAZE	CHIP	3.3K OHM	5%	1/8W
R30	1650221503	METAL GLAZE	CHIP	220 OHM	5%	1/10W
R31	1650750500	METAL GLAZE	CHIP	75 OHM	5%	1/10W
R32	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R33	1660242508	METAL GLAZE	CHIP	2.4K OHM	5%	1/8W
R34	1650201507	METAL GLAZE	CHIP	200 OHM	5%	1/10W
R35	1660242508	METAL GLAZE	CHIP	2.4K OHM	5%	1/8W
R36	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R39	1650121509	METAL GLAZE	CHIP	120 OHM	5%	1/10W
R40	1650681507	METAL GLAZE	CHIP	680 OHM	5%	1/10W
R41	1650681507	METAL GLAZE	CHIP	680 OHM	5%	1/10W
R42	1650181507	METAL GLAZE	CHIP	180 OHM	5%	1/10W
R43	1650152500	METAL GLAZE	CHIP	1.5K OHM	5%	1/10W
R44	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R45	1650622501	METAL GLAZE	CHIP	6.2K OHM	5%	1/10W
R46	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W
R47	1650682509	METAL GLAZE	CHIP	6.8K OHM	5%	1/10W
R48	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W
R49	1650682509	METAL GLAZE	CHIP	6.8K OHM	5%	1/10W
R50	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R51	1020105007	CARBON FILM		1M OHM	5%	1/2W
R52	1020334002	CARBON FILM		330K OHM	5%	1/2W
R53	1650562509	METAL GLAZE	CHIP	5.6K OHM	5%	1/10W
R54	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W
R55	1650102505	METAL GLAZE	CHIP	1K OHM	5%	1/10W
R56	1650241509	METAL GLAZE	CHIP	240 OHM	5%	1/10W
R57	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R58	1650562509	METAL GLAZE	CHIP	5.6K OHM	5%	1/10W
R59	1650472508	METAL GLAZE	CHIP	4.7K OHM	5%	1/10W
R60	1650391508	METAL GLAZE	CHIP	390 OHM	5%	1/10W
R61	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R62	1660242508	METAL GLAZE	CHIP	2.4K OHM	5%	1/8W
R64	1650271508	METAL GLAZE	CHIP	270 OHM	5%	1/10W
R65	1650821507	METAL GLAZE	CHIP	820 OHM	5%	1/10W
R66	1650181507	METAL GLAZE	CHIP	180 OHM	5%	1/10W
R67	1650152500	METAL GLAZE	CHIP	1.5K OHM	5%	1/10W
R68	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R69	1650622501	METAL GLAZE	CHIP	6.2K OHM	5%	1/10W
R70	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W
R71	1650682509	METAL GLAZE	CHIP	6.8K OHM	5%	1/10W
R72	1650392500	METAL GLAZE	CHIP	3.9K OHM	5%	1/10W
R73	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W
R74	1650682509	METAL GLAZE	CHIP	6.8K OHM	5%	1/10W
R75	1650392500	METAL GLAZE	CHIP	3.9K OHM	5%	1/10W
R76	1650104509	METAL GLAZE	CHIP	100K OHM	5%	1/10W
R77	1650104509	METAL GLAZE	CHIP	100K OHM	5%	1/10W
R78	1650104509	METAL GLAZE	CHIP	100K OHM	5%	1/10W
R79	1650104509	METAL GLAZE	CHIP	100K OHM	5%	1/10W
R80	1650689503	METAL GLAZE	CHIP	6.8 OHM	5%	1/10W

No.	LDR PT No.	DESCRIPTION				
(T-3559 CONT'D)						
-VARIABLE RESISTORS-						
VR1	1711005071	CERMET	100 OHM	20%	1/3W	
VR2	1711005071	CERMET	100 OHM	20%	1/3W	
VR3	1711005071	CERMET	100 OHM	20%	1/3W	
-CAPACITORS-						
C1	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C2	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C5	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C6	2343220002	ELECTROLYTIC	22uF	20%	16V	
C7	2140123019	PLASTIC FILM	0.012uF	10%	50V	
C8	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C9	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C10	2681820602	CERAMIC CHIP	82pF	10%	50V	
C11	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C12	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C15	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C16	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C17	2343220002	ELECTROLYTIC	22uF	20%	16V	
C20	2343101004	ELECTROLYTIC	100uF	20%	16V	
C21	2344220008	ELECTROLYTIC	22uF	20%	25V	
C22	2320032009	ELECTROLYTIC BP	4.7uF	20%	50V	
C23	2610104005	PLASTIC FILM	0.1uF	10%	63V	
C24	2180103020	PLASTIC FILM	0.01uF	10%	630V	
C25	2344220008	ELECTROLYTIC	22uF	20%	25V	
C26	2230471105	ELECTROLYTIC	470uF	20%	16V	
C27	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C28	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C29	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C31	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C32	2342470009	ELECTROLYTIC	47uF	20%	10V	
C33	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C34	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C35	2342470009	ELECTROLYTIC	47uF	20%	10V	
C36	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C37	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C38	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
C39	2680103002	CERAMIC CHIP	0.01uF	10%	50V	
-TRANSISTORS-						
Q1	3033120006	NPN CHIP	2SC3120			
Q2	3033120006	NPN CHIP	2SC3120			
Q3	3011226006	PNP CHIP	2SA1226-3 or 4			
Q4	3011162015	PNP CHIP	2SA1162-O or Y			
Q5	3011226006	PNP CHIP	2SA1226-3 or 4			
Q6	3032712005	NPN CHIP	2SC2712-O or Y			
Q7	3033120006	NPN CHIP	2SC3120			
Q8	3032712005	NPN CHIP	2SC2712-O or Y			
Q9	3032712005	NPN CHIP	2SC2712-O or Y			
Q10	3033120006	NPN CHIP	2SC3120			
Q11	3033120006	NPN CHIP	2SC3120			
Q12	3011226006	PNP CHIP	2SA1226-3 or 4			
Q13	3031621006	NPN CHIP	2SC1621-3 or 4			
Q14	3031621006	NPN CHIP	2SC1621-3 or 4			
Q15	3032712005	NPN CHIP	2SC2712-O or Y			
Q16	3032712005	NPN CHIP	2SC2712-O or Y			

No.	LDR PT No.	DESCRIPTION				
(T-3559 CONT'D)						
Q17	3050160004	FET PAIR CHIP	2SK160A-K5orK6			
Q18	3032712005	NPN CHIP	2SC2712-O or Y			
Q19	3033120006	NPN CHIP	2SC3120			
Q20	3011162006	PNP CHIP	2SA1162-G			
Q21	3011226006	PNP CHIP	2SA1226-3 or 4			
Q22	3032712005	NPN CHIP	2SC2712-O or Y			
Q23	3032712005	NPN CHIP	2SC2712-O or Y			
-DIODES-						
D1	3113004008	DETECTOR CHIP	MA151K			
D2	3113001002	DETECTOR DUAL CHIP	MA151WA			
D3	3113004008	DETECTOR CHIP	MA151K			
D4	3113004008	DETECTOR CHIP	MA151K			
D5	3113003006	DETECTOR DUAL CHIP	MA157			
D6	3113001002	DETECTOR DUAL CHIP	MA151WA			
D7	3113004008	DETECTOR CHIP	MA151K			
D8	3113004008	DETECTOR CHIP	MA151K			
D9	3113004008	DETECTOR CHIP	MA151K			
D10	3113001002	DETECTOR DUAL CHIP	MA151WA			
D11	3113001002	DETECTOR DUAL CHIP	MA151WA			
-INTEGRATED CIRCUITS-						
IC1	3420002007	CMOS	TC74HC02P			
IC2	3420002007	CMOS	TC74HC02P			
-SWITCH-						
S4	4000537009	PUSH Q-537	"TRIG SOURCE"			
-PC BOARD-						
	5903559026		T-3559B			
*** LBO-324/325 SWEEP T-3560 ***						
-RESISTORS-						
R1	1650104509	METAL GLAZE CHIP	100K OHM	5%	1/10W	
R2	1650104509	METAL GLAZE CHIP	100K OHM	5%	1/10W	
R3	1650823501	METAL GLAZE CHIP	82K OHM	5%	1/10W	
R4	1650103507	METAL GLAZE CHIP	10K OHM	5%	1/10W	
R5	1650391508	METAL GLAZE CHIP	390 OHM	5%	1/10W	
R6	1650103507	METAL GLAZE CHIP	10K OHM	5%	1/10W	
R7	1650182509	METAL GLAZE CHIP	1.8K OHM	5%	1/10W	
R8	1650123503	METAL GLAZE CHIP	12K OHM	5%	1/10W	
R9	1650102505	METAL GLAZE CHIP	1K OHM	5%	1/10W	
R10	1650222505	METAL GLAZE CHIP	2.2K OHM	5%	1/10W	
R11	1650223507	METAL GLAZE CHIP	22K OHM	5%	1/10W	
R12	1650471506	METAL GLAZE CHIP	470 OHM	5%	1/10W	
R13	1650152500	METAL GLAZE CHIP	1.5K OHM	5%	1/10W	
R14	1650472508	METAL GLAZE CHIP	4.7K OHM	5%	1/10W	
R15	1650273502	METAL GLAZE CHIP	27K OHM	5%	1/10W	
R16	1650331500	METAL GLAZE CHIP	330 OHM	5%	1/10W	
R17	1650470504	METAL GLAZE CHIP	47 OHM	5%	1/10W	
R18	1650331500	METAL GLAZE CHIP	330 OHM	5%	1/10W	
R19	1650471506	METAL GLAZE CHIP	470 OHM	5%	1/10W	
R20	1650511502	METAL GLAZE CHIP	510 OHM	5%	1/10W	
R21	1650470504	METAL GLAZE CHIP	47 OHM	5%	1/10W	

No.	LDR PT No.	DESCRIPTION						
(T-3560	CONT'D)							
R22	1660332509	METAL GLAZE	CHIP	3.3K OHM		5%	1/8W	
R23	1650103507	METAL GLAZE	CHIP	10K OHM		5%	1/10W	
R24	1650104509	METAL GLAZE	CHIP	100K OHM		5%	1/10W	
R25	1650182509	METAL GLAZE	CHIP	1.8K OHM		5%	1/10W	
R26	1650103507	METAL GLAZE	CHIP	10K OHM		5%	1/10W	
R27	1650123503	METAL GLAZE	CHIP	12K OHM		5%	1/10W	
R28	1650222505	METAL GLAZE	CHIP	2.2K OHM		5%	1/10W	
R29	1650331500	METAL GLAZE	CHIP	330 OHM		5%	1/10W	
R30	1650470504	METAL GLAZE	CHIP	47 OHM		5%	1/10W	
R31	1650331500	METAL GLAZE	CHIP	330 OHM		5%	1/10W	
R32	1650223507	METAL GLAZE	CHIP	22K OHM		5%	1/10W	
R33	1651301305	METAL GLAZE	CHIP	1.3K OHM		1%	1/10W	
R34	1650471506	METAL GLAZE	CHIP	470 OHM		5%	1/10W	
R35	1650470504	METAL GLAZE	CHIP	47 OHM		5%	1/10W	
R36	1660332509	METAL GLAZE	CHIP	3.3K OHM		5%	1/8W	
R37	1650153502	METAL GLAZE	CHIP	15K OHM		5%	1/10W	
R38	1650333504	METAL GLAZE	CHIP	33K OHM		5%	1/10W	
R39	1650101503	METAL GLAZE	CHIP	100 OHM		5%	1/10W	
R40	1650562509	METAL GLAZE	CHIP	5.6K OHM		5%	1/10W	
R41	1650822509	METAL GLAZE	CHIP	8.2K OHM		5%	1/10W	
R42	1650470504	METAL GLAZE	CHIP	47 OHM		5%	1/10W	
R43	1650101503	METAL GLAZE	CHIP	100 OHM		5%	1/10W	
R44	1650472508	METAL GLAZE	CHIP	4.7K OHM		5%	1/10W	
R45	1650472508	METAL GLAZE	CHIP	4.7K OHM		5%	1/10W	
R46	1660222502	METAL GLAZE	CHIP	2.2K OHM		5%	1/8W	
R47	1650122501	METAL GLAZE	CHIP	1.2K OHM		5%	1/10W	
R48	1650122501	METAL GLAZE	CHIP	1.2K OHM		5%	1/10W	
R49	1650101503	METAL GLAZE	CHIP	100 OHM		5%	1/10W	
R50	1650470504	METAL GLAZE	CHIP	47 OHM		5%	1/10W	
R51	1650751502	METAL GLAZE	CHIP	750 OHM		5%	1/10W	
R52	1650102505	METAL GLAZE	CHIP	1K OHM		5%	1/10W	
R53	1650472508	METAL GLAZE	CHIP	4.7K OHM		5%	1/10W	
R54	1650102505	METAL GLAZE	CHIP	1K OHM		5%	1/10W	
R55	1650470504	METAL GLAZE	CHIP	47 OHM		5%	1/10W	
R56	1650242501	METAL GLAZE	CHIP	2.4K OHM		5%	1/10W	
R57	1650472508	METAL GLAZE	CHIP	4.7K OHM		5%	1/10W	
R58	1650103507	METAL GLAZE	CHIP	10K OHM		5%	1/10W	
R59	1650471506	METAL GLAZE	CHIP	470 OHM		5%	1/10W	
R60	1650101503	METAL GLAZE	CHIP	100 OHM		5%	1/10W	
R61	1650103507	METAL GLAZE	CHIP	10K OHM		5%	1/10W	
R62	1650103507	METAL GLAZE	CHIP	10K OHM		5%	1/10W	
R63	1650182509	METAL GLAZE	CHIP	1.8K OHM		5%	1/10W	
R64	1650822509	METAL GLAZE	CHIP	8.2K OHM		5%	1/10W	
R65	1652001309	METAL GLAZE	CHIP	2K OHM		1%	1/10W	
R66	1650102505	METAL GLAZE	CHIP	1K OHM		5%	1/10W	
R67	1650821507	METAL GLAZE	CHIP	820 OHM		5%	1/10W	
R68	1650821507	METAL GLAZE	CHIP	820 OHM		5%	1/10W	
R69	1650333504	METAL GLAZE	CHIP	33K OHM		5%	1/10W	
R70	1650272500	METAL GLAZE	CHIP	2.7K OHM		5%	1/10W	
R72	1650472508	METAL GLAZE	CHIP	4.7K OHM		5%	1/10W	
R73	1650102505	METAL GLAZE	CHIP	1K OHM		5%	1/10W	
R74	1650102505	METAL GLAZE	CHIP	1K OHM		5%	1/10W	
R75	1650103507	METAL GLAZE	CHIP	10K OHM		5%	1/10W	
R76	1650155506	METAL GLAZE	CHIP	1.5M OHM		5%	1/10W	
R77	1650272500	METAL GLAZE	CHIP	2.7K OHM		5%	1/10W	
R78	1190005000	METAL GLAZE		98M OHM		1%	1/4W	
RA1	1412011005	RESISTOR ARRAY			LRM-2			

No.	LDR PT No.	DESCRIPTION					
(T-3560	CONT'D)						
RA2	1412011005	RESISTOR ARRAY		LRM-2			
-VARIABLE RESISTORS-							
VR1	1913001127	CARBON FILM	100K OHM	20%	1/20W	"HOLDOFF"	
VR2	1711005062	CERMET	50K OHM	20%	1/3W		
VR4	1711005062	CERMET	50K OHM	20%	1/3W		
VR5	1913001219	CARBON FILM	20K OHM	20%	1/20W	"TRACE SEP"	
VR6	1711005035	CERMET	5K OHM	20%	1/3W		
VR7	1711005099	CERMET	3K OHM	20%	1/3W		
-CAPACITORS-							
C1	2430100005	ELECTROLYTIC		10uF	20%	10V	
C2	2682101606	CERAMIC CHIP		100pF	10%	50V	
C3	2610105007	PLASTIC FILM		1uF	10%	63V	
C4	2680103002	CERAMIC CHIP		0.01uF	10%	50V	
C5	2680103002	CERAMIC CHIP		0.01uF	10%	50V	
C6	2680103002	CERAMIC CHIP		0.01uF	10%	50V	
C7	2433475703	ELECTROLYTIC CHIP		4.7uF	20%	10V	
C8	2473154701	ELECTROLYTIC CHIP		0.15uF	20%	35V	
C9	2493684704	ELECTROLYTIC CHIP		0.68uF	20%	20V	
C10	2140473016	PLASTIC FILM		0.047uF	10%	50V	
C11	2140182006	PLASTIC FILM		1800pF	10%	50V	
C12	2680151003	CERAMIC CHIP		150pF	10%	50V	
C13	2681220608	CERAMIC CHIP		22pF	10%	50V	
C14	2680103002	CERAMIC CHIP		0.01uF	10%	50V	
C15	2680103002	CERAMIC CHIP		0.01uF	10%	50V	
C16	2191005005	PLASTIC FILM		1uF	2%	250V	
C17	2680103002	CERAMIC CHIP		0.01uF	10%	50V	
C18	2682102608	CERAMIC CHIP		1000pF	10%	50V	
C19	2680103002	CERAMIC CHIP		0.01uF	10%	50V	
C20	2682102608	CERAMIC CHIP		1000pF	10%	50V	
C21	2680103002	CERAMIC CHIP		0.01uF	10%	50V	
C22	2190002003	PLASTIC FILM		1000pF	2%	125V	
C23	2682101606	CERAMIC CHIP		100pF	10%	50V	
C24	2682181600	CERAMIC CHIP		180pF	10%	50V	
C25	2344220008	ELECTROLYTIC		22uF	20%	25V	
C26	2344220008	ELECTROLYTIC		22uF	20%	25V	
C27	2680103002	CERAMIC CHIP		0.01uF	10%	50V	
C28	2342470009	ELECTROLYTIC		47uF	20%	10V	
C29	2344220008	ELECTROLYTIC		22uF	20%	25V	
C30	2680103002	CERAMIC CHIP		0.01uF	10%	50V	
C31	2344220008	ELECTROLYTIC		22uF	20%	25V	
C32	2682101606	CERAMIC CHIP		100pF	10%	50V	
C33	2681220608	CERAMIC CHIP		22pF	10%	50V	
C34	2680471001	CERAMIC CHIP		470pF	10%	50V	
C35	2680103002	CERAMIC CHIP		0.01uF	10%	50V	
C36	2430100005	ELECTROLYTIC		10uF	20%	10V	
C37	2680103002	CERAMIC CHIP		0.01uF	10%	50V	
C38	2190002003	PLASTIC FILM		1000pF	2%	125V	
C39	2682101606	CERAMIC CHIP		100pF	10%	50V	
C40	2682181600	CERAMIC CHIP		180pF	10%	50V	
C41	2682102608	CERAMIC CHIP		1000pF	10%	50V	
C42	2682102608	CERAMIC CHIP		1000pF	10%	50V	
C43	2682102608	CERAMIC CHIP		1000pF	10%	50V	
C44	2680151003	CERAMIC CHIP		150pF	10%	50V	
C46	2682102608	CERAMIC CHIP		1000pF	10%	50V	
C47	2680103002	CERAMIC CHIP		0.01uF	10%	50V	

No.	LDR PT No.	DESCRIPTION				
(T-3560	CONT'D)					
C48	2140823017	PLASTIC FILM		0.082uF	10%	50V
C49	2430100005	ELECTROLYTIC		10uF	20%	10V
-VARIABLE CAPACITOR-						
VC1	2910056004	CERAMIC		10-100pF		
-TRANSISTORS-						
Q1	3032712005	NPN	CHIP	2SC2712-O or Y		
Q2	3031621006	NPN	CHIP	2SC1621-3 or 4		
Q3	3010811001	PNP	CHIP	2SA811A-17 or 18		
Q4	3031621006	NPN	CHIP	2SC1621-3 or 4		
Q5	3090026008	FET	DUAL	UPA71A-L		
Q6	3033120006	NPN	CHIP	2SC3120		
Q7	3011226006	PNP	CHIP	2SA1226-3 or 4		
Q8	3031621006	NPN	CHIP	2SC1621-3 or 4		
Q9	3090026008	FET	DUAL	UPA71A-L		
Q10	3031621006	NPN	CHIP	2SC1621-3 or 4		
Q11	3010811001	PNP	CHIP	2SA811A-17 or 18		
Q12	3033120006	NPN	CHIP	2SC3120		
Q13	3011226006	PNP	CHIP	2SA1226-3 or 4		
Q14	3011226006	PNP	CHIP	2SA1226-3 or 4		
Q15	3031621006	NPN	CHIP	2SC1621-3 or 4		
Q16	3011226006	PNP	CHIP	2SA1226-3 or 4		
Q17	3011226006	PNP	CHIP	2SA1226-3 or 4		
Q18	3033120006	NPN	CHIP	2SC3120		
Q19	3011162015	PNP	CHIP	2SA1162-O or Y		
Q20	3033120006	NPN	CHIP	2SC3120		
Q21	3033120006	NPN	CHIP	2SC3120		
Q22	3033120006	NPN	CHIP	2SC3120		
-DIODES-						
D1	3110070003	SCHOTTKY		1SS99		
D2	3113003006	DETECTOR DUAL CHIP		MA157		
D3	3113004008	DETECTOR CHIP		MA151K		
D4	3123001009	ZENER CHIP		02CZ4.3Y	4.3V	
D5	3110070003	SCHOTTKY		1SS99		
D6	3113003006	DETECTOR DUAL CHIP		MA157		
D7	3113004008	DETECTOR CHIP		MA151K		
D8	3113004008	DETECTOR CHIP		MA151K		
D9	3113002004	DETECTOR DUAL CHIP		MA151WK		
D10	3113004008	DETECTOR CHIP		MA151K		
D11	3113004008	DETECTOR CHIP		MA151K		
D12	3123000007	ZENER CHIP		02CZ3.3X	3.3V	
-INTEGRATED CIRCUITS-						
IC1	3290002000	TTL		74F02 PC		
IC2	3290074005	TTL		74F74 PC		
IC3	3420123119	CMOS		MC74HC123N		
IC4	3420000003	CMOS		TC74HC00P		
IC5	3220051004	OP AMP		TL 071 CP		
IC6	3290074005	TTL		74F74 PC		
IC7	3420002007	CMOS		TC74HC02P		
IC8	3220051004	OP AMP		TL 071 CP		

No.	LDR PT No.	DESCRIPTION				
(T-3560	CONT'D)					
-SWITCH-						
S7	4000543004	ROTARY		Q-543	"A,B TIME/DIV"	
-PC BOARD-						
	5903560021				T-3560B	

*** LBO-324/325		H.AMP		T-3561 ***		
-RESISTORS-						
R1	1665101308	METAL GLAZE	CHIP	5.1K OHM	1%	1/8W
R2	1665101308	METAL GLAZE	CHIP	5.1K OHM	1%	1/8W
R3	1650152500	METAL GLAZE	CHIP	1.5K OHM	5%	1/10W
R4	1650392500	METAL GLAZE	CHIP	3.9K OHM	5%	1/10W
R5	1650104509	METAL GLAZE	CHIP	100K OHM	5%	1/10W
R6	1650104509	METAL GLAZE	CHIP	100K OHM	5%	1/10W
R7	1650104509	METAL GLAZE	CHIP	100K OHM	5%	1/10W
R8	1650562509	METAL GLAZE	CHIP	5.6K OHM	5%	1/10W
R9	1667501306	METAL GLAZE	CHIP	7.5K OHM	1%	1/8W
R10	1662701304	METAL GLAZE	CHIP	2.7K OHM	1%	1/8W
R11	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R12	1653301307	METAL GLAZE	CHIP	3.3K OHM	1%	1/10W
R13	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R14	1662701304	METAL GLAZE	CHIP	2.7K OHM	1%	1/8W
R15	1461501001	METAL FILM		1.5K OHM	1%	1/6W
R16	1461501001	METAL FILM		1.5K OHM	1%	1/6W
R17	1661801302	METAL GLAZE	CHIP	1.8K OHM	1%	1/8W
R18	1650000002		CHIP	0 OHM		
R19	1661500308	METAL GLAZE	CHIP	150 OHM	1%	1/8W
R20	1650000002		CHIP	0 OHM		
R21	1661001300	METAL GLAZE	CHIP	1K OHM	1%	1/8W
R22	1661201308	METAL GLAZE	CHIP	1.2K OHM	1%	1/8W
R23	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R24	1663301304	METAL GLAZE	CHIP	3.3K OHM	1%	1/8W
R25	1650681507	METAL GLAZE	CHIP	680 OHM	5%	1/10W
R26	1650681507	METAL GLAZE	CHIP	680 OHM	5%	1/10W
R27	1650100501	METAL GLAZE	CHIP	10 OHM	5%	1/10W
R28	1650821507	METAL GLAZE	CHIP	820 OHM	5%	1/10W
R29	1650821507	METAL GLAZE	CHIP	820 OHM	5%	1/10W
R30	1650100501	METAL GLAZE	CHIP	10 OHM	5%	1/10W
R31	1650102505	METAL GLAZE	CHIP	1K OHM	5%	1/10W
R32	1650102505	METAL GLAZE	CHIP	1K OHM	5%	1/10W
R33	1668201303	METAL GLAZE	CHIP	8.2K OHM	1%	1/8W
R35	1650221503	METAL GLAZE	CHIP	220 OHM	5%	1/10W
R36	1660152507	METAL GLAZE	CHIP	1.5K OHM	5%	1/8W
R37	1580183009	METAL FILM		18K OHM	5%	1W
R38	1660154501	METAL GLAZE	CHIP	150K OHM	5%	1/8W
R39	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R40	1650123503	METAL GLAZE	CHIP	12K OHM	5%	1/10W
R41	1661501300	METAL GLAZE	CHIP	1.5K OHM	1%	1/8W
R42	1661501300	METAL GLAZE	CHIP	1.5K OHM	1%	1/8W
R43	1650123503	METAL GLAZE	CHIP	12K OHM	5%	1/10W
R44	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R45	1662001306	METAL GLAZE	CHIP	2K OHM	1%	1/8W
R46	1650151508	METAL GLAZE	CHIP	150 OHM	5%	1/10W

No.	LDR PT No.	DESCRIPTION				
(T-3561	CONT'D)					
R47	1580183009	METAL FILM		18K OHM	5%	1W
R49	1650681507	METAL GLAZE	CHIP	680 OHM	5%	1/10W
R50	1660154501	METAL GLAZE	CHIP	150K OHM	5%	1/8W
R51	1668201303	METAL GLAZE	CHIP	8.2K OHM	1%	1/8W
R52	1650102505	METAL GLAZE	CHIP	1K OHM	5%	1/10W
R53	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R54	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R55	1650479502	METAL GLAZE	CHIP	4.7 OHM	5%	1/10W
R56	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R57	1650220501	METAL GLAZE	CHIP	22 OHM	5%	1/10W
-VARIABLE RESISTORS-						
VR1	1711005026	CERMET		1K OHM	20%	1/3W
VR2	1711005044	CERMET		10K OHM	20%	1/3W
VR3	1711005026	CERMET		1K OHM	20%	1/3W
VR4	1711005080	CERMET		2K OHM	20%	1/3W
VR5	1711005127	CERMET		200 OHM	20%	1/3W
VR6	1711005008	CERMET		300 OHM	20%	1/3W
-CAPACITORS-						
C1	2344220008	ELECTROLYTIC		22uF	20%	25V
C2	2342101008	ELECTROLYTIC		100uF	20%	10V
C3	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C6	2344220008	ELECTROLYTIC		22uF	20%	25V
C7	2681100204	CERAMIC	CHIP	10pF	10%	50V
C8	2680221008	CERAMIC	CHIP	220pF	10%	50V
C9	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C10	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C11	2020102000	CERAMIC		1000pF		500V
C12	2020103002	CERAMIC		0.01uF		500V
C13	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C14	2195004007	COMPOSITION		0.75pF	10%	500V
C15	2344220008	ELECTROLYTIC		22uF	20%	25V
C16	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C17	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C18	2195004007	COMPOSITION		0.75pF	10%	500V
C19	2020103002	CERAMIC		0.01uF		500V
C20	2020102000	CERAMIC		1000pF		500V
C21	2020102000	CERAMIC		1000pF		500V
C22	2330074002	ELECTROLYTIC		2.2uF	20%	200V
C23	2344220008	ELECTROLYTIC		22uF	20%	25V
C24	2344220008	ELECTROLYTIC		22uF	20%	25V
C25	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C26	2681220608	CERAMIC	CHIP	22pF	10%	50V
C27	2344220008	ELECTROLYTIC		22uF	20%	25V
C28	2344220008	ELECTROLYTIC		22uF	20%	25V
-VARIABLE CAPACITORS-						
VC1	2910027016	CERAMIC		1.5-5.5pF		250V
VC2	2910027016	CERAMIC		1.5-5.5pF		250V
-TRANSISTORS-						
Q1	3033120006	NPN	CHIP	2SC3120		
Q2	3033120006	NPN	CHIP	2SC3120		
Q3	3011226006	PNP	CHIP	2SA1226-3 or 4		
Q4	3011226006	PNP	CHIP	2SA1226-3 or 4		
Q5	3011226006	PNP	CHIP	2SA1226-3 or 4		

No.	LDR PT No.	DESCRIPTION			
(T-3561	CONT'D)				
Q6	3011226006	PNP	CHIP	2SA1226-3 or 4	
Q7	3011162006	PNP	CHIP	2SA1162-G	
Q8	3011162006	PNP	CHIP	2SA1162-G	
Q9	3011162006	PNP	CHIP	2SA1162-G	
Q10	3011162006	PNP	CHIP	2SA1162-G	
Q11	3033120006	NPN	CHIP	2SC3120	
Q12	3011209006	PNP		2SA1209-S	
Q13	3032911001	NPN		2SC2911-S	
Q14	3032911001	NPN		2SC2911-S	
Q15	3011226006	PNP	CHIP	2SA1226-3 or 4	
Q16	3011209006	PNP		2SA1209-S	
-DIODES-					
D1	3113004008	DETECTOR	CHIP	MA151K	
D2	3110006004	DETECTOR		1S1588	
D3	3110006004	DETECTOR		1S1588	
D4	3113002004	DETECTOR DUAL	CHIP	MA151WK	
D5	3113002004	DETECTOR DUAL	CHIP	MA151WK	
-INTEGRATED CIRCUIT-					
IC1	3310053009	CMOS		TC4053BP	
-PC BOARD-					
	5903561023			T-3561B	
-MISCELLANOUS-					
TH1	3550025008	THERMISTOR		D-61A	

*** LBO-324/325 V.IN.SUB CH-1 T-3562 ***

-RESISTORS-						
R1	1660000009	METAL GLAZE	CHIP	0 OHM		1/8W
R3	1660000009	METAL GLAZE	CHIP	0 OHM		1/8W
R4	1660000009	METAL GLAZE	CHIP	0 OHM		1/8W
R9	1660470501	METAL GLAZE	CHIP	47 OHM	5%	1/8W
R10	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W
R16	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W
R17	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W
R18	1650102505	METAL GLAZE	CHIP	1K OHM	5%	1/10W
R19	1650100501	METAL GLAZE	CHIP	10 OHM	5%	1/10W
R20	1650241509	METAL GLAZE	CHIP	240 OHM	5%	1/10W
R21	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R22	1663301304	METAL GLAZE	CHIP	3.3K OHM	1%	1/8W
R23	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R24	1650123503	METAL GLAZE	CHIP	12K OHM	5%	1/10W
R25	1650102505	METAL GLAZE	CHIP	1K OHM	5%	1/10W
R27	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R28	1650680505	METAL GLAZE	CHIP	68 OHM	5%	1/10W
R29	1650680505	METAL GLAZE	CHIP	68 OHM	5%	1/10W
R30	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R31	1650331500	METAL GLAZE	CHIP	330 OHM	5%	1/10W
R33	1666801302	METAL GLAZE	CHIP	6.8K OHM	1%	1/8W
R35	1650124505	METAL GLAZE	CHIP	120K OHM	5%	1/10W
R61	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W

No.	LDR PT No.	DESCRIPTION				
(T-3562 CONT'D)						
-CAPACITORS-						
C4	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C5	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C6	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C7	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C24	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C30	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C31	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C32	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C33	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
-TRANSISTORS-						
Q4	3033098009	NPN	CHIP	2SC3098		
Q6	3033098009	NPN	CHIP	2SC3098		
Q7	3033120006	NPN	CHIP	2SC3120		
Q8	3011245000	PNP	CHIP	2SA1245		
Q9	3033120006	NPN	CHIP	2SC3120		
Q10	3011245000	PNP	CHIP	2SA1245		
Q11	3033120006	NPN	CHIP	2SC3120		
-DIODES-						
D3	3113003006	DETECTOR DUAL CHIP		MA157		
D4	3113000000	DETECTOR CHIP		MA151A		
D5	3113003006	DETECTOR DUAL CHIP		MA157		
-INTEGRATED CIRCUIT-						
IC1	3220051004	OP AMP		TL 071 CP		
-PC BOARD-						
	5903562025			T-3562B		

*** LBO-324/325 V.IN.SUB CH-2 T-3562 ***						
-RESISTORS-						
R101	1660000009	METAL GLAZE	CHIP	0 OHM		1/8W
R103	1660000009	METAL GLAZE	CHIP	0 OHM		1/8W
R104	1660000009	METAL GLAZE	CHIP	0 OHM		1/8W
R109	1660470501	METAL GLAZE	CHIP	47 OHM	5%	1/8W
R110	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W
R116	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W
R117	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W
R118	1650102505	METAL GLAZE	CHIP	1K OHM	5%	1/10W
R119	1650100501	METAL GLAZE	CHIP	10 OHM	5%	1/10W
R120	1650241509	METAL GLAZE	CHIP	240 OHM	5%	1/10W
R121	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R122	1663301304	METAL GLAZE	CHIP	3.3K OHM	1%	1/8W
R123	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R124	1650123503	METAL GLAZE	CHIP	12K OHM	5%	1/10W
R125	1650102505	METAL GLAZE	CHIP	1K OHM	5%	1/10W
R127	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R128	1650680505	METAL GLAZE	CHIP	68 OHM	5%	1/10W
R129	1650680505	METAL GLAZE	CHIP	68 OHM	5%	1/10W
R130	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
R131	1650331500	METAL GLAZE	CHIP	330 OHM	5%	1/10W

No.	LDR PT No.	DESCRIPTION				
(T-3562 CONT'D)						
R133	1666801302	METAL GLAZE	CHIP	6.8K OHM	1%	1/8W
R135	1650124505	METAL GLAZE	CHIP	120K OHM	5%	1/10W
R161	1650470504	METAL GLAZE	CHIP	47 OHM	5%	1/10W
-CAPACITORS-						
C104	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C105	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C106	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C107	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C124	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C130	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C131	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C132	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C133	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
-TRANSISTORS-						
Q104	3033098009	NPN	CHIP	2SC3098		
Q106	3033098009	NPN	CHIP	2SC3098		
Q107	3033120006	NPN	CHIP	2SC3120		
Q108	3011245000	PNP	CHIP	2SA1245		
Q109	3033120006	NPN	CHIP	2SC3120		
Q110	3011245000	PNP	CHIP	2SA1245		
Q111	3033120006	NPN	CHIP	2SC3120		
-DIODES-						
D103	3113003006	DETECTOR DUAL CHIP		MA157		
D104	3113000000	DETECTOR CHIP		MA151A		
D105	3113003006	DETECTOR DUAL CHIP		MA157		
-INTEGRATED CIRCUIT-						
IC101	3220051004	OP AMP		TL 071 CP		
-PC BOARD-						
	5903562025			T-3562B		

*** LBO-324/325 H. DISPLAY T-3563 ***						
-SWITCH-						
S10	4000535014	PUSH		Q-535A	"HOR DISP"	
-PC BOARD-						
	5903563018			T-3563A		

*** LBO-324/325 INTEN T-3564 ***						
-RESISTORS-						
R1	1665101308	METAL GLAZE	CHIP	5.1K OHM	1%	1/8W
R2	1650561507	METAL GLAZE	CHIP	560 OHM	5%	1/10W
R3	1665100306	METAL GLAZE	CHIP	510 OHM	1%	1/8W
R4	1650332502	METAL GLAZE	CHIP	3.3K OHM	5%	1/10W
R5	1661003304	METAL GLAZE	CHIP	100K OHM	1%	1/8W
R6	1650822509	METAL GLAZE	CHIP	8.2K OHM	5%	1/10W
R7	1661003304	METAL GLAZE	CHIP	100K OHM	1%	1/8W

No.	LDR PT No.	DESCRIPTION					
(T-3564 CONT'D)							
R8	1650822509	METAL GLAZE	CHIP	8.2K OHM		5%	1/10W
R9	1650224509	METAL GLAZE	CHIP	220K OHM		5%	1/10W
R10	1665601308	METAL GLAZE	CHIP	5.6K OHM		1%	1/8W
R11	1663900306	METAL GLAZE	CHIP	390 OHM		1%	1/8W
R12	1650103507	METAL GLAZE	CHIP	10K OHM		5%	1/10W
R15	1660472505	METAL GLAZE	CHIP	4.7K OHM		5%	1/8W
-VARIABLE RESISTORS-							
VR1	1913001503	CARBON FILM		5K OHM	20%	1/20W	"FOCUS"
VR2	1913001503	CARBON FILM		5K OHM	20%	1/20W	"INTEN"
VR4	1711005017	CERMET		500 OHM	20%	1/3W	
-CAPACITORS-							
C1	2342470009	ELECTROLYTIC		47uF	20%	10V	
C2	2342470009	ELECTROLYTIC		47uF	20%	10V	
C3	2192021009	PLASTIC FILM		6800pF	2%	100V	
C4	2192021009	PLASTIC FILM		6800pF	2%	100V	
C5	2681270603	CERAMIC	CHIP	27pF	10%	50V	
C6	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C7	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
C8	2680103002	CERAMIC	CHIP	0.01uF	10%	50V	
-TRANSISTORS-							
Q3	3032712005	NPN	CHIP	2SC2712-O or Y			
Q4	3032712005	NPN	CHIP	2SC2712-O or Y			
Q5	3011162015	PNP	CHIP	2SA1162-O or Y			
-DIODES-							
D1	3113004008	DETECTOR	CHIP	MA151K			
D2	3120024021	ZENER		RD5.1MB2	5.1V		
D3	3113004008	DETECTOR	CHIP	MA151K			
D4	3130063000	LED		TLG164			
-PC BOARD-							
	5903564010			T-3564A			

*** LBO-324/325 CRT SOCKET T-3565 ***							
-RESISTORS-							
R1	1020104005	CARBON FILM		100K OHM		5%	1/2W
R2	1000151000	CARBON FILM		150 OHM		5%	1/6W
R3	1000151000	CARBON FILM		150 OHM		5%	1/6W
-VARIABLE RESISTOR-							
VR1	1711007204	METAL GLAZE		220K OHM	25%	1/5W	
-CAPACITORS-							
C1	2020102000	CERAMIC		1000pF			500V
C2	2020102000	CERAMIC		1000pF			500V
C3	2020102000	CERAMIC		1000pF			500V

No.	LDR PT No.	DESCRIPTION					
(T-3565 CONT'D)							
-COILS-							
L1	3930338034	COIL		0.33uH		20%	
L2	3930338034	COIL		0.33uH		20%	
-PC BOARD-							
	5903565021			T-3565B			
-MISCELLANOUS-							
	4320018003	CRT SOCKET		NO.1339			

*** LBO-324/325 H.POS T-3572 ***							
-VARIABLE RESISTOR-							
VR1	1911002219	METAL GLAZE		20K OHM	20%	1/20W	"H POS"
-PC BOARD-							
	5903572019			T-3572A			

*** LBO-324/325 ROTATION T-3573 ***							
-VARIABLE RESISTOR-							
VR1	1918001211	CARBON FILM		20K OHM	20%	1/20W	"TRACE ROTATION"
-TRANSISTORS-							
Q1	3031815018	NPN		2SC1815-Y			
Q2	3011015012	PNP		2SA1015-Y			
-PC BOARD-							
	5903573011			T-3573A			

*** LBO-324/325 BLANK T-3590 ***							
-RESISTORS-							
R1	1650104509	METAL GLAZE	CHIP	100K OHM		5%	1/10W
R2	1010223006	CARBON FILM		22K OHM		5%	1/4W
R3	1650222505	METAL GLAZE	CHIP	2.2K OHM		5%	1/10W
R4	1650222505	METAL GLAZE	CHIP	2.2K OHM		5%	1/10W
R5	1661802304	METAL GLAZE	CHIP	18K OHM		1%	1/8W
R6	1650103507	METAL GLAZE	CHIP	10K OHM		5%	1/10W
R7	1650122501	METAL GLAZE	CHIP	1.2K OHM		5%	1/10W
R8	1650103507	METAL GLAZE	CHIP	10K OHM		5%	1/10W
R9	1650104509	METAL GLAZE	CHIP	100K OHM		5%	1/10W
R10	1650104509	METAL GLAZE	CHIP	100K OHM		5%	1/10W
R11	1650104509	METAL GLAZE	CHIP	100K OHM		5%	1/10W
R12	1650223507	METAL GLAZE	CHIP	22K OHM		5%	1/10W
R13	1650102505	METAL GLAZE	CHIP	1K OHM		5%	1/10W
R14	1661601304	METAL GLAZE	CHIP	1.6K OHM		1%	1/8W
R15	1650470504	METAL GLAZE	CHIP	47 OHM		5%	1/10W
R16	1661101304	METAL GLAZE	CHIP	1.1K OHM		1%	1/8W
R17	1650470504	METAL GLAZE	CHIP	47 OHM		5%	1/10W

No.	LDR PT No.	DESCRIPTION				
(T-3590	CONT'D)					
R18	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W
R19	1650222505	METAL GLAZE	CHIP	2.2K OHM	5%	1/10W
-CAPACITORS-						
C1	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C2	2090016006	CERAMIC		0.1uF		50V
C3	2090016006	CERAMIC		0.1uF		50V
C4	2090016006	CERAMIC		0.1uF		50V
C5	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C6	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C7	2440220002	ELECTROLYTIC		22uF	20%	16V
-TRANSISTORS-						
Q1	3011245000	PNP	CHIP	2SA1245		
Q2	3032712014	NPN	CHIP	2SC2712-G		
Q3	3033120006	NPN	CHIP	2SC3120		
-DIODES-						
D1	3113001002	DETECTOR DUAL	CHIP	MA151WA		
D2	3113001002	DETECTOR DUAL	CHIP	MA151WA		
D3	3113001002	DETECTOR DUAL	CHIP	MA151WA		
D4	3110070003	SCHOTTKY		1SS99		
D5	3110070003	SCHOTTKY		1SS99		
D6	3110070003	SCHOTTKY		1SS99		
D7	3113004008	DETECTOR	CHIP	MA151K		
-INTEGRATED CIRCUITS-						
IC1	3420004001	CMOS		TC74HC04P		
IC2	3420076006	CMOS		TC74HC74P		
IC3	3420002007	CMOS		TC74HC02P		
-PC BOARD-						
	5903590020			T-3590B		

*** LBO-324/325	HI VOLTAGE	T-3591 ***				
-RESISTORS-						
R1	1020229005	CARBON FILM		2.2 OHM	5%	1/2W
R2	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R4	1020473006	CARBON FILM		47K OHM	5%	1/2W
R5	1000334008	CARBON FILM		330K OHM	5%	1/6W
R6	1650563501	METAL GLAZE	CHIP	56K OHM	5%	1/10W
R7	1130106004	METAL FILM		10M OHM	5%	1/2W
R8	1650152500	METAL GLAZE	CHIP	1.5K OHM	5%	1/10W
R9	1650224509	METAL GLAZE	CHIP	220K OHM	5%	1/10W
R10	1650102505	METAL GLAZE	CHIP	1K OHM	5%	1/10W
R11	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R12	1190007004	METAL GLAZE		22M OHM	5%	1W
R13	1010102004	CARBON FILM		1K OHM	5%	1/4W
R14	1650473500	METAL GLAZE	CHIP	47K OHM	5%	1/10W
R15	1650472508	METAL GLAZE	CHIP	4.7K OHM	5%	1/10W
R16	1130565006	METAL FILM		5.6M OHM	10%	1/2W
R17	1190008006	METAL GLAZE		10M OHM	5%	1W
R18	1650101503	METAL GLAZE	CHIP	100 OHM	5%	1/10W
R19	1667502308	METAL GLAZE	CHIP	75K OHM	1%	1/8W

No.	LDR PT No.	DESCRIPTION				
(T-3591	CONT'D)					
R20	1312204017	METAL FILM		2.2M OHM	1%	1/6W
R21	1312204017	METAL FILM		2.2M OHM	1%	1/6W
R22	1666202300	METAL GLAZE	CHIP	62K OHM		
R23	1650220501	METAL GLAZE	CHIP	22 OHM	5%	1/10W
R24	1650332502	METAL GLAZE	CHIP	3.3K OHM	5%	1/10W
-VARIABLE RESISTORS-						
VR1	1711004097	CERMET		50K OHM 20%	1/3W	
VR2	1711004079	CERMET		10K OHM 20%	1/3W	
VR3	1712020000	CERMET		1.5M OHM 20%	1/3W	
-CAPACITORS-						
C1	2344470001	ELECTROLYTIC		47uF	20%	25V
C2	2090013000	CERAMIC		4700pF		3KV
C3	2020102000	CERAMIC		1000pF		500V
C4	2090013000	CERAMIC		4700pF		3KV
C5	2090013000	CERAMIC		4700pF		3KV
C6	2090013000	CERAMIC		4700pF		3KV
C7	2090013000	CERAMIC		4700pF		3KV
C8	2020472003	CERAMIC		4700pF		500V
C9	2140124011	PLASTIC FILM		0.12uF	10%	50V
C10	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C11	2240220006	ELECTROLYTIC		22uF	20%	25V
C12	2610104005	PLASTIC FILM		0.1uF	10%	63V
C13	2090005010	CERAMIC		470pF	10%	3KV
C14	2090013000	CERAMIC		4700pF		3KV
-TRANSISTORS-						
Q1	3040568009	NPN		2SD568L		
Q2	3011162015	PNP	CHIP	2SA1162-O or Y		
Q3	3032712005	NPN	CHIP	2SC2712-O or Y		
Q4	3011162015	PNP	CHIP	2SA1162-O or Y		
Q5	3011091009	PNP		2SA1091-R		
Q6	3011091009	PNP		2SA1091-R		
-DIODES-						
D1	3110051009	RECTIFIER	HV	ED-3TV	3KV	
D2	3110051009	RECTIFIER	HV	ED-3TV	3KV	
D3	3110059005	DETECTOR		1SS83		
D4	3110059005	DETECTOR		1SS83		
D5	3110059005	DETECTOR		1SS83		
D6	3110059005	DETECTOR		1SS83		
D7	3120066009	ZENER		RD36EB	36V	
D8	3113004008	DETECTOR	CHIP	MA151K		
D9	3110006004	DETECTOR		1S1588		
D10	3113004008	DETECTOR	CHIP	MA151K		
-TRANSFORMER-						
T1	3800529005	TRANSFORMER		J-529	HV	
-PC BOARD-						
	5903591022			T-3591B		

No	LDR PT No.	DESCRIPTION				
(T-3591 CONT'D)						
-MISCELLANOUS-						
V1	4360027002	NEON BULB		NE-38B		
V2	4360027002	NEON BULB		NE-38B		
V3	4360027002	NEON BULB		NE-38B		
*** LBO-324/325		JUMPER	T-3641 ***			
-PC BOARD-						
	5903641012			T-3641A		
*** LBO-324		V.PRE AMP	T-3555 ***			
-RESISTORS-						
R197	1650000002		CHIP	0 OHM		
R198	1650000002		CHIP	0 OHM		
R199	1650000002		CHIP	0 OHM		
R200	1650000002		CHIP	0 OHM		
*** LBO-324		V.FINAL AMP	T-3556 ***			
-RESISTOR-						
R32	1000470006	CARBON FILM		47 OHM	5%	1/6W
-CAPACITOR-						
C14	2120180008	MICA		18pF	10%	500V
-TRANSISTORS-						
Q5	3032911001	NPN		2SC2911-S		
Q6	3032911001	NPN		2SC2911-S		
*** LBO-325		MAIN FRAME ***				
-MISCELLANOUS-						
	7600116000	DELAY LINE		V-116		
*** LBO-325		V.PRE AMP	T-3555 ***			
-RESISTORS-						
R20	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W
R100	1650103507	METAL GLAZE	CHIP	10K OHM	5%	1/10W
R198	1650270506	METAL GLAZE	CHIP	27 OHM	5%	1/10W
R199	1650270506	METAL GLAZE	CHIP	27 OHM	5%	1/10W
R200	1650270506	METAL GLAZE	CHIP	27 OHM	5%	1/10W
RA1	1512104000	RESISTOR ARRAY		100K OHMx5		1/8W

No.	LDR PT No.	DESCRIPTION				
(T-3555 CONT'D)						
-CAPACITORS-						
C91	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C93	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C101	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C103	2680103002	CERAMIC	CHIP	0.01uF	10%	50V
C110	2681220608	CERAMIC	CHIP	22pF	10%	50V
C111	2681220608	CERAMIC	CHIP	22pF	10%	50V
-VARIABLE CAPACITORS-						
VC2	2910018006	CERAMIC		2.8-10pF	250V	
VC4	2910018006	CERAMIC		2.8-10pF	250V	
*** LBO-325		V.FINAL AMP	T-3556 ***			
-TRANSISTORS-						
Q5	3033600000	NPN	CHIP	2SC3600-D,E,F		
Q6	3033600000	NPN	CHIP	2SC3600-D,E,F		
*** LBO-325		INTEN	T-3564 ***			
-RESISTORS-						
R13	1020569009	CARBON FILM		5.6 OHM	5%	1/2W
R14	1020569009	CARBON FILM		5.6 OHM	5%	1/2W
-VARIABLE RESISTOR-						
VR3	1913001219	CARBON FILM		20K OHM 20% 1/20W "ILLUM"		
-TRANSISTORS-						
Q1	3011162015	PNP	CHIP	2SA1162-O or Y		
Q2	3020435015	PNP		2SB435-Y		
-MISCELLANOUS-						
	4360036003	LAMP		T-3.1WT31504		
	4360036003	LAMP		T-3.1WT31504		
	4360036003	LAMP		T-3.1WT31504		

9. CABINET REMOVAL

- Take seven screws off to remove the Top cover.
- Take four screws off to remove the Bottom cover.