

PROGRAM REPRODUCE AMPLIFIER
FOR
SP, WP, RP, RPD, & 3D MACHINES

831-0094-003 (Mono)
831-0094-013 (Stereo)

General Description

The Program Reproduce Amplifier shown in the Technical Manual has been replaced with a new amplifier circuit bearing ITC part number 831-0094-003 (mono) or 831-0094-013 (stereo). The new amplifier offers improved sonic performance, passive squelching and increased reliability.

All interconnect wiring to the 831-0094 printed circuit board (via J4) remains as represented in the Technical Manual. However, one jumper wire has been added from the Program Reproduce Amplifier edge connector, J4, Pin 3 to the Detector card edge connector, J5, Pin 5. This jumper supplies 24 volts to the squelch devices (LDR 101 and LDR 102) on the Program Reproduce Amplifier P.C. card.

Circuit Description

The 831-0094-003 (mono) and 831-0094-013 (stereo) Program Reproduce Amplifiers are provided to amplify and contour the signal supplied by the reproduce tape head.

On stereo units the Left Channel and Right Channel are identical. Therefore, the description on the following page references components in the Left Channel Only.



INTERNATIONAL TAPETRONICS CORPORATION

2425 SOUTH MAIN STREET • BLOOMINGTON, ILLINOIS 61701

TELEPHONE: 309-828-1381

Circuit Description (continued)

The input signal is coupled from the reproduce tape head to the first stage via coupling capacitor C102. Transistors Q101 and Q102 serve as a pre-amplifier which is stabilized to prevent performance variations. DC Feedback is supplied to the base of Q101 from the emitter of Q102 via R101, R107, and R108. AC feedback from the collector of Q102 to the emitter of Q101 (C105, R105, and R104) determines the frequency response of the amplifier. Variable "equalization" is provided by potentiometer R105. C103 and C104 are included for high frequency (RF) rejection.

The output of the pre-amplifier is AC coupled (C107) to the Light Dependent Resistor, LDR 101, which functions as a squelching device. LDR 101 and R113 form a signal voltage divider circuit. The resistance of LDR 101 is controlled by the internal lamp element's brilliance. In this application, the lamp is either fully "on" or "off" as determined by relay K1. With the deck in the run mode, a ground path is supplied to LDR 101 via contacts 6 and 10 of relay K1. Hence, the resistance element of LDR 101 exhibits minimum resistance and the potential across R113 is at its maximum value.

Signal from R113 is again AC coupled (C108) to the base of Q103, a common emitter amplifier stage, with the biasing resistor, R114, connected between the collector and base for DC and temperature stability. The collector output of Q103 is AC coupled (C109) to the base of driver transistor Q104. Q104 supplies drive current for complimentary amplifiers Q105 and Q106. Transistors Q104, Q105, and Q106 are direct coupled with local feedback provided by R119. The output stage (Q105 and Q106) is AC coupled (C111) to Pin 2 of J4.

PARTS LIST

831-0094-003 (Mono)
831-0094-013 (Stereo)

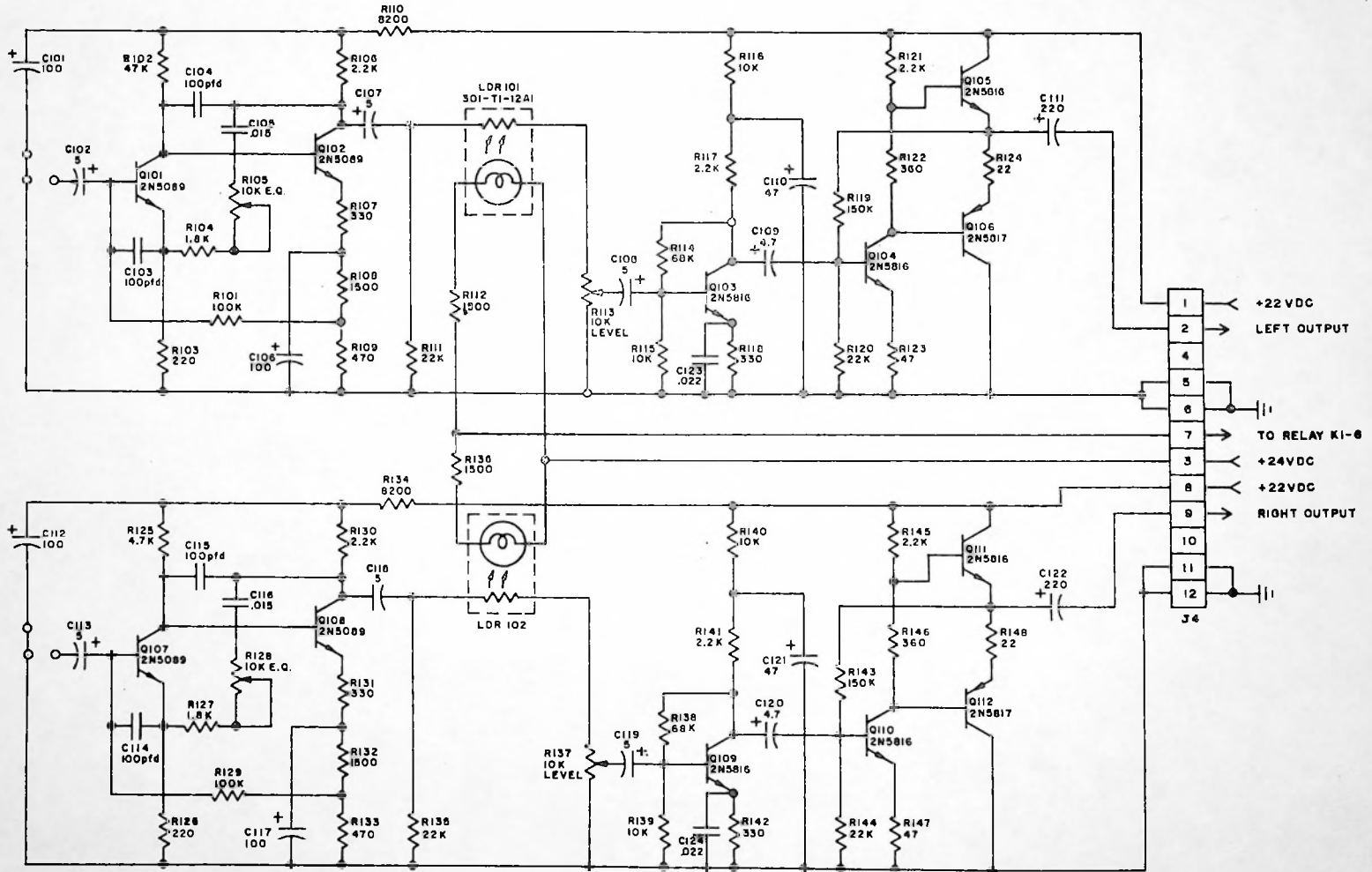
<u>Component</u> (LC-RC)	<u>ITC Part Number</u>	<u>Description</u>
R101, R129	630-0311-000	Resistor, 100K ohm 1/2 watt 5%
R102, R125	630-0303-000	Resistor, 47K ohm 1/2 watt 5%
R103, R126	630-0247-000	Resistor, 220 ohm 1/2 watt 5%
R104, R127	630-0269-000	Resistor, 1.8K ohm 1/2 watt 5%
R105, R128	636-0002-000	Potentiometer, 10K ohm 1/4 watt
R113, R137	"	"
R106, R130	630-0271-000	Resistor, 2.2K ohm 1/2 watt 5%
R117, R141	"	"
R121, R145	"	"
R107, R131	630-0251-000	Resistor, 330 ohm 1/2 watt 5%
R118, R142	"	"
R108, R132	630-0267-000	Resistor, 1.5K ohm 1/2 watt 5%
R109, R133	630-0255-000	Resistor, 470 ohm 1/2 watt 5%
R110, R134	630-0285-000	Resistor, 8.2K ohm 1/2 watt 5%
R111, R135	630-0295-000	Resistor, 22K ohm 1/2 watt 5%
R120, R144	"	"
R112, R136	630-0258-000	Resistor, 620 ohm 1/2 watt 5%
R114, R138	630-0307-000	Resistor, 68K ohm 1/2 watt 5%
R115, R139	630-0287-000	Resistor, 10K ohm 1/2 watt 5%
R116, R140	"	"
R119, R143	630-0315-000	Resistor, 150K ohm 1/2 watt 5%
R122, R146	630-0252-000	Resistor, 360 ohm 1/2 watt 5%
R123, R147	630-0231-000	Resistor, 47 ohm 1/2 watt 5%
R124, R148	630-0223-000	Resistor, 22 ohm 1/2 watt 5%
C101, C112	696-0124-000	Capacitor, Electrolytic 100MFD, 25V
C102, C113	696-0114-000	Capacitor, Electrolytic 5MFD, 25V
C107, C118	"	"
C108, C119	"	"
C103, C114	677-0001-000	Capacitor, Silver Mica 100PFD 300V
C104, C115	"	"
C105, C116	681-0048-000	Capacitor, Paper .015 MFD 200V
C106, C117	696-0078-000	Capacitor, Electrolytic 100 MFD 12V
C109, C120	694-0003-000	Capacitor, Tantalum 4.7 MFD 35V
C110, C121	694-0007-000	Capacitor, Tantalum 47 MFD 20V
C111, C122	696-0201-000	Capacitor, Electrolytic 220 MFD 25V
C123, C124	681-0050-000	Capacitor, Paper .022 MFD 200V

PARTS LIST (cont.)

<u>Component</u>	<u>ITC Part Number</u>	<u>Description</u>
Q101, Q107	590-0013-000	Transistor, 2N5089
Q102, Q108	"	"
Q103, Q109	590-0017-000	Transistor, 2N5816
Q104, Q110	"	"
Q105, Q111	"	"
Q106, Q112	590-0018-000	Transistor, 2N5817
LDR101	650-0003-000	LDR, Sigma, 301-T1-12B1
LDR102	"	"

Miscellaneous Parts

(3/6)	282-0002-000	Pin, Terminal, P.C.
(1)	325-0094-003	P.C. Card, Mono
(1)	325-0094-013	P.C. Card, Stereo
(12)	613-0001-000	Socket, Transistor



TITLE		SCHEMATIC - SP, WP, 3D	
		REPRODUCE AMP	
INTERNATIONAL	893-0064-003		
TAPETRONICS			
CORPORATION			
BLOOMINGTON, ILL. 61710	DRAWING NUMBER	REV	

