FAIRCHILD

COMPRESSOR CARD WITH REMOTE CONTROL PANEL

MODEL 692AGC
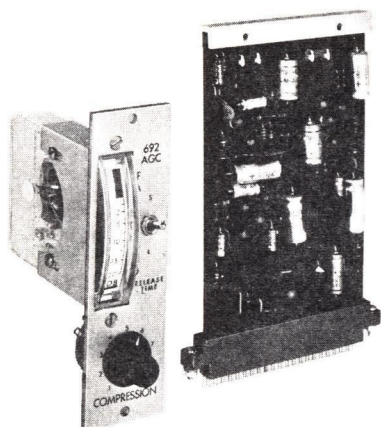
INSTRUCTION MANUAL

IB692AGC/2/69

692AGC REMOTE CONTROLLABLE COMPRESSOR   .

GENERAL DESCRIPTION

The Model 692AGC Compressor was designed to provide
compression of audio signals with no distortion and
no loss of gain. The circuit was designed to provide
a gain reduction with compression ratio of 2 to 1,
meaning that for every 2 db increase of the input signal,
there is only 1 db increase of the output signal.
Capability of the 692AGC Compressor is such that for 40
db of input dynamic range, output is reduced to 20 db
of dynamic range, thereby producing 20 db of compression.

Compression is achieved through the use of light depend-
ent resistors (LDR) illuminated by a light source driven
by processed audio signals. Transistorized circuits of
the lamp drive are controlled remotely by means of DC
current selecting the amount of compression. Compressor
circuit is part of the amplifier which restores lost gain
and, if necessary, supplies additional gain if so desired.
Remote controls for this compressor include meter (indica-
ting and exact amount of compression at any time) choice
of release times, and adjustable amount of compression.
This last function is tied to the gain control of the
booster amplifier automatically compensating for losses
due to compression and effectively keeping output levels
unchanged with varying amount of compression.

The compressor circuit with remote control drive amplifier
is assembled on a printed circuit board card 3-9/16" X
5-1/2" (Integra II card size) and can be mounted in rack
mounts designed for Integra II series cards (692RM, 692SCH
or equivalent).

The 692AGC requires 24V power supply with ripple not ex-
ceeding 0.5 MV at 110 MA.

INSTALLATION

The 692AGC consists of 2 separate assemblies and can be
physically located any place in the system. Not using any
inductors or high impedance circuits, the 692AGC card is
immune to exterior hum fields. The card is normally sup-
plied with a 22 pin connector which can be mounted in a
rack frame, or in any other suitable way. The control
assembly consists of a 5-1/4" X 1-1/2" plate with remote
controls mounted on it. Meter, switch and control potentio-
meter are to be wired and connected to the terminals of the
PC connector as shown in the attached diagram. Remote con-
trol assembly was designed for mounting in a console shell
complementing the Fairchild line of components having front
plate dimensions of 5-1/4" H X 1-1/2" W.

CIRCUIT DESCRIPTION

The 692AGC consists of the following circuits: Compression circuit; Booster Amplifier circuit and Remote Control circuit.

THE COMPRESSION CIRCUIT consists of purely resistive components offering input impedance of 1500 ohms and accepting source impedances from "0" ohms to 1500 ohms. Light dependent resistors are part of this circuitry. Change of the LDR resistance affects the loss produced by this resistive network. Output of the compression network is terminated with resistor R34, which acts as the shunt leg of a pad consisting of resistors R26 and R34. Output of this pad is fed to the booster amplifier input or the base of transistor Q9.

THE BOOSTER AMPLIFIER is a high performance amplifier with power capabilities of + 18 dbm. Distortion is less than 0.2% and frequency response deviating not more than 1/2 db from flat in the range from 20 hz to 20 Khz. Noise of the amplifier is 80 db below "0" dbm. Part of the audio signal fed into the compression network, which appears across potentiometer R13, is directed into the compression amplifier consisting of 5 transistors (Q1 to Q5). The Q2 drives the light source, while the rest of the transistors are amplifying the input signal and converting it to DC current required to control Q2. Power supply of 24 volts is applied to the booster amplifier, but is reduced to 6.3V through the use of R15 and the Zener diode D4 for the compression amplifier. The first two stages of the compression amplifier receive full 24V supply voltage.

THE REMOTE CONTROL CIRCUIT is driven off 6.3V supply. The light emitted by light source B1 is directed toward LDR in the compression network. As audio signal enters the compression network, part of it is fed into the compression amplifier, amplified, converted into light and fed back in form of a light beam affecting LDR 1, thereby reducing the gain of the compression network or decreasing the level of the signal fed into the booster amplifier. The amount of compression is pre-adjusted, using the control R13 but for subsequent adjustments of the compressor action, remote circuit is used. LDR 3 connected across elements R25 and R13 shunts the action of the compressor amplifier, thereby reducing, or increasing, the amount of compression according to the selected position of the remote control connected to Terminals 11 and 12. Light source B2 depends on setting of the remote control varying illumination of LDR 3.

THE METER CIRCUIT, being part of the remote control circuit, functions in the following manner: Meter movement is biased to full scale deflection through voltage applied to it through resistor R33 and shunted by resistor R32. LDR 2, connected across the meter movement, and located in the same light tight compartment with LDR 1, changes its resistance with increased amount of compression, shunting the meter movement and producing deflection of the meter pointer indicating the exact
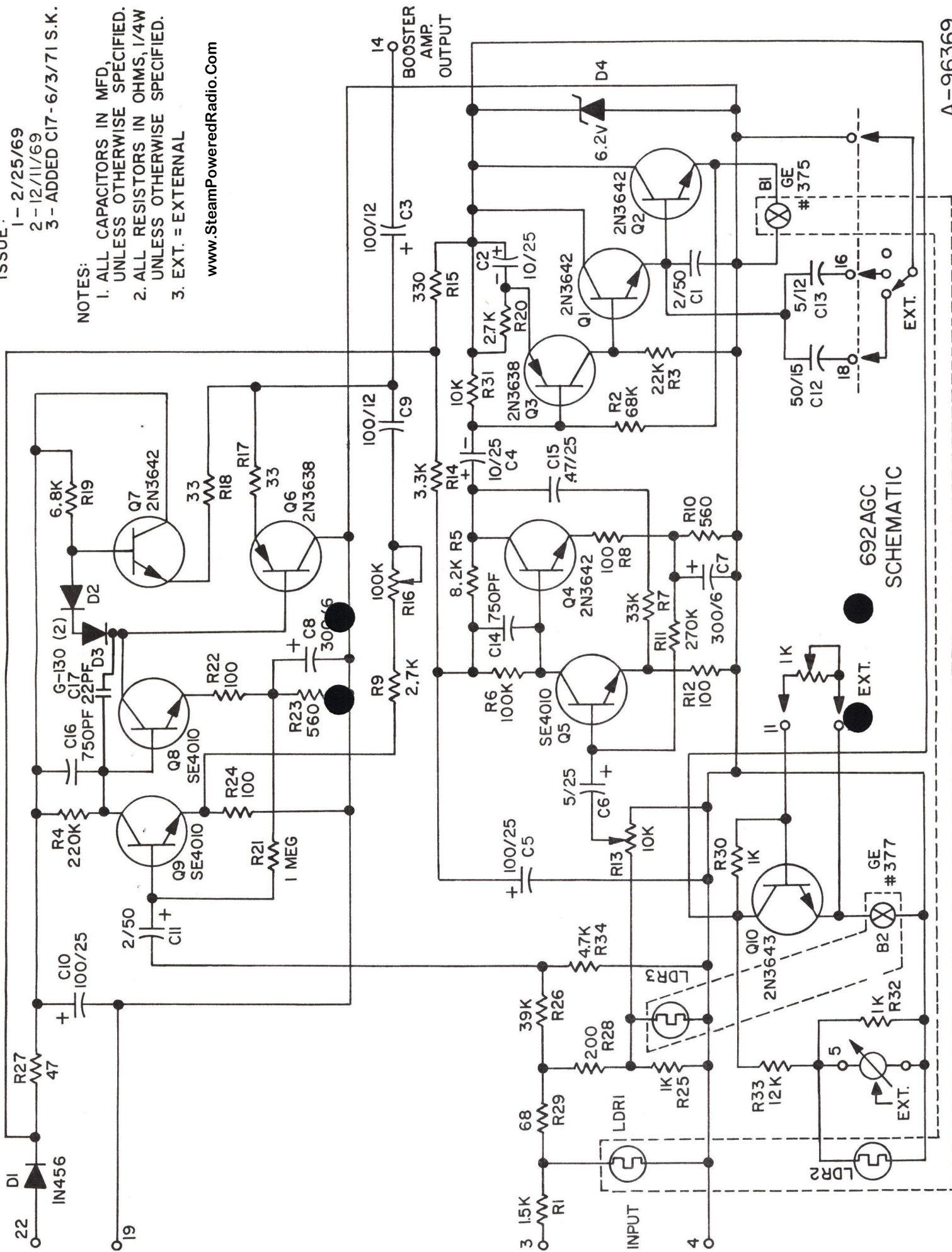
692AGC SCHEMATIC

A-96369

www.SteamPoweredRadio.Com

ISSUE:
1 – 2/25/69
2 – 12/11/69
3 – ADDED C17 – 6/3/71 S.K.

NOTES:
1. ALL CAPACITORS IN MFD,
   UNLESS OTHERWISE SPECIFIED.
2. ALL RESISTORS IN OHMS, 1/4W
   UNLESS OTHERWISE SPECIFIED.
3. EXT. = EXTERNAL

amount of gain reduction.

SPECIFICATIONS

Maximum power handling capabilities	+18 dbm
Compression threshold	-30 dbm
Gain	0 to 40 db
Maximum Compression	20 db
Distortion	.2% at max. output
Frequency Response	± .5 db from 10 hz to 100 khz
Compressor Frequency Response	± 1 db from 20 hz to 30 khz
Noise	-80 db at unity gain
Power requirement	24V DC at 100 MA
Attack time	3 ms
Release time	adjustable from 300ms to 5 seconds

CONNECTIONS (see diagram attached)

Pin #3	Audio in high
Pin #5	Meter high
Pins #11 and 12	Compressor remote control
Pin #14	Audio output high
Pins #15, 17, 19, 20	Ground (input, output, DC, release time, meter)
Pin #22	+ 24V DC
Pins #16, 18	Release time connections

ADJUSTMENT PROCEDURE

Initial conditions: Compressor control - fully closed, no
compression. Threshold and gain controls ccw min. With no
signal in, meter should read in red zone. Feed audio signal
at "0" db level into the compressor. Output of the com-
pressor should read "0" db. Rotate compression control to
fully open and note the output level from the compressor. If
level does not change, and meter shows 20 db of compression,
compressor is aligned properly. If output deviates from "0"
reading, rotate control R13 until output of the compressor is
"0". This alignment procedure adjusts compressor for operation
at "0" level. If operation at any other level is desired (from
-10 dbm to +10 dbm) adjustment of R13 control should be done
at that level.

RECOMMENDED USED FOR 692AGC COMPRESSOR

It is recommended for optimum performance of the unit, that
the 692AGC be designed into the system where levels entering
the compressor are at line level strength for optimum S/N.
The compressor can be used effectively in microphone or high
level input channels, or program channels, acting as overload
protector as well as dynamic range compressor. If additional
gain is required, a change in R34 resistor would be required.
By increasing R34, additional gain can be obtained. Elimination
of it completely will boost the gain by 40 db. Substitution of
R34 by 39K resistor will produce gain of 34 db.

WARRANTY

See standard warranty policy. To validate warranty, complete
and return the warranty registration card included with this
manual. If there is any question on this or any other
FAIRCHILD professional product, please do not hesitate to
contact our Customer Service Department, FAIRCHILD SOUND
EQUIPMENT CORPORATION, 10-40 45th Avenue, Long Island City,
New York 11101.

ATTACHMENTS

Dimensional drawing A-96297
Diagram A-96369
Schematic Warranty and Warranty Registration Card

INTEGRA II PC BOARD
MOUNTING DIMENSIONS

AUDIO SWITCHER CARD USED AS AN EXAMPLE FOR LENGTH & WIDTH. ALL 692 CARDS ARE IDENTICAL IN THESE DIMENSIONS.

$5\frac{19}{32}$

$\frac{3}{8}$

$3\frac{9}{16}$

TYP $\frac{3}{8}$

$\frac{33}{64}$ SWITCH CARD

— ATT HEIGHT

TXI HEIGHT $\frac{27}{32}$

$\frac{45}{64}$ AMP ATTENUATOR CARD

A-9●●7