FAIRCHILD 10 WATT AMPLIFIERS

MODEL 610 - MONITOR

MODEL 610MI - MIC or PHONO

IB 610/1167

INSTRUCTION MANUAL

USER MANUAL WIKI.COM

FAIRCHILD RECORDING EQUIPMENT CORPORATION, 10-40 45th Avenue, Long Island City, N.Y. 11101, 212 784-6163

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FAIRCHILD MODEL 610 10 WATT AMPLIFIER

GENERAL

The FAIRCHILD MODEL 610 amplifier is a fully siliconized, 10 watt rms monitor amplifier with short circuit and overload protection. The amplifier features compact design, low distortion, flat response and low noise. It has bridging input, transformerless output and an integrated power supply.

The complete amplifier, less line transformer, is on printed circuit card. In this design, heat sink of the output stage is coupled to the chassis of the amplifier, effectively increasing heat radiating surface.

The MODEL 610 accommodates input levels from -10 dbm (.25V bridging) and higher. Minimum level of .25V is required to produce 10 watts rms power into an 8 ohm load, or 6½ watts power into a 16 ohm load.

The amplifier circuit consists of four directly coupled stages of amplification, phase inversion and driving. DC feedback loops stabilize the operating point over a wide range of operating temperatures with no degradation in performance of the unit.

Instantaneous overload protection is obtained through current-limiting transistors in the driving circuit of each half of the output stage. As current through either of the output transistors exceeds preset value (clipping point for 10 watts), output stage is clamped down driving the output stage into non-conductive state. Output stage is CLASS AB circuit, with maximum current flowing through the transistors being .4 amps, and idling current 20 ma.

APPLICATIONS

The MODEL 610 amplifier is intended for professional use in systems where moderate power levels are adequate. It is excellent for driving speakers with or without transformer isolation. 70 volt line can be achieved by using appropriate step-up transformer with 1:8 ratio, primary being 4 or 8 ohms. The 610 can be used in cue circuits, talkback and intercom systems where high quality and high reliability are required. If the unit is used as a line amplifier, a transformer may be used with sufficiently high power rating and low distortion so that full use of available power can be achieved.

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INSTALLATION & OPERATION - MODEL 610

The MODEL 610 amplifier may be rack mounted. A rack mounting frame (MODEL 662RM) is available for this purpose. Five 610s can be placed side-by-side in this frame, taking up 5¼" of rack space. If less than five amplifiers are mounted in the frame, either blank panels can be used to fill in or other FAIRCHILD INTEGRA components can be mounted in the empty space. CAUTION, however, must be exercised not to mount equipment with mic transformers next to the amplifiers. The integral power supply of the amplifier creates AC field capable of inducing 60 cycle hum into low level transformers.

ALTHOUGH the chassis of the 610 amplfier is made out of steel for shielding purposes, it is recommended that the amplifier be checked out for proximity interference before being mounted next to other amplifiers.

The 610 will work off any impedance not exceeding 10,000 ohms, and levels not lower than -10dbm (.25V). It has capacitive input isolation. In order to run it off a balanced line, an input transformer may be in order. However, direct operation of the 610 from a balanced line is feasible provided that the amplifier ground is a floating ground and the load is not grounded (either transformer output or speaker).

CONNECTIONS

Input to the amplifier is TERMINALS 1 and 2 - TERMINAL 2 being ground. Output of the amplifier is TERMINALS 3 and 4 - TERMINAL 4 being low side.

Care should be exercised in making appropriate grounding to the load for if input and output grounds are interconnected to the same terminal output, current could flow through the input ground causing an unwanted feedback condition.

SHIELDS

If shielded wire is used for the input, shield can be tied to either the case ground of the rack assembly, or to the low side of the input, providing the other end of the shield is not tied to ground and is floating. Shield should be tied at one end only, and it may be at the source end. Internal shielding of the amplifier is tied to the chassis ground internally, and is automatically grounded when the unit is mounted on the grounded rack.

PRECAUTIONS

The MODEL 610 amplifier is capable of taking abuse. However, some operating precautions should be exercised. As stated in the specifications, input level of -10 dbm will produce full output into any load. Since the output impedance is very low, varying loads will not change the output level to any appreciable degree. Short circuiting output will produce instantaneous turn off of the output transistors. It is virtually impossible to

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damage the output stage. However, if excessively high levels are fed into the input (in excess of 20 dbm or 30 db higher than the specified -10) with the input gain control wide open, power dissipation of the input stage will be excessive and component damage may occur.

The power switch can be turned on or off at any time without fear of damage to the circuit. If excessive levels hit the power amplifier and the output stage goes into "blocked" state, turning the unit off and on again will not remove the disable condition. Protection of the output stage will continue as long as excessive power is present in the unit. To remove the disable condition, turn the input gain control down. Then turn the amplifier off and then on again and increase input level for desired output. If overload or momentary short occurs during operation of the amplifier, the protection circuit will automatically disable itself as soon as dangerous transient has passed.

SPECIFICATIONS MODEL 610

POWER OUTPUT	10W - 8 ohm load 6.5W - 16 ohm load
OUTPUT IMPEDANCE	.5 ohm
DAMPING FACTOR	Min. 16
INPUT IMPEDANCE	10K bridging
INPUT LEVEL	-10 dbm for full output (.25V)
POWER REQUIREMENT	117V AC 1/4 amp
FREQUENCY RESPONSE	±1 db 20 to 20KC
THD DISTORTION	Less than .4% at full power any frequency. Less than .2% at 1 watt output
NOISE	-86 db below rated output
DIMENSIONS & WEIGHT	3"x5¼"x10"D - 4 lbs 8 oz
CONTROLS	ON/OFF switch. Input gain control

MODEL 610MI - mic or phono amplifier

The MODEL 610MI differs from the standard MODEL 610 in that it has three added stages of amplification providing enough gain to drive the power section of the circuit directly from microphone or phono cartridge.

CONNECTIONS - same as MODEL 610 Terminal 1 - high side input
2 - low side input
3 - high side output
4 - low side output

The 610MI normally comes strapped for mic input and is provided for phono input on special order. However, in order to select proper equalization for mic or phono inputs, remove the cover from

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the amplifier and select position for the jumper on the printed circuit card:

Jumper soldered to TERMINALS A and B provides phono equalization with 3 mv sensitivity at 1Khz for full 10 watts of output power

Jumper strapped between TERMINALS B and C will provide flat response for mic input with sensitivity of -50 dbm for full 10 watts of output power

Since gain control of the amplifier is between the output of the preamplifier section and the input to the power amplifier, CAUTION should be exercised not to overload the input to the preamplifier. Maximum levels are:

FOR MIC - 20 dbm
FOR PHONO - 25 dbm

Shield for the phono cable should be tied to TERMINAL 2, together with the low side of the cable. Double conductor cable is recommended to be used with the mic or phono sources. Mic cable can be several feet long, but if long cables are anticipated, input transformer providing balanced input is recommended.

SPECIFICATIONS (Preamp)

INPUT IMPEDANCE	50K (input will accept any source requiring loads 50K or lower)
EQUALIZATION	Flat ±1 db or phono NAB within 1 db
GAIN	40 db
NOISE & HUM	80 db below full power output
DISTORTION THD	.5% or less

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 RECORDING EQUIPMENT CORPORATION, 10-40 45th Avenue, Long Island City, N.Y. 11101

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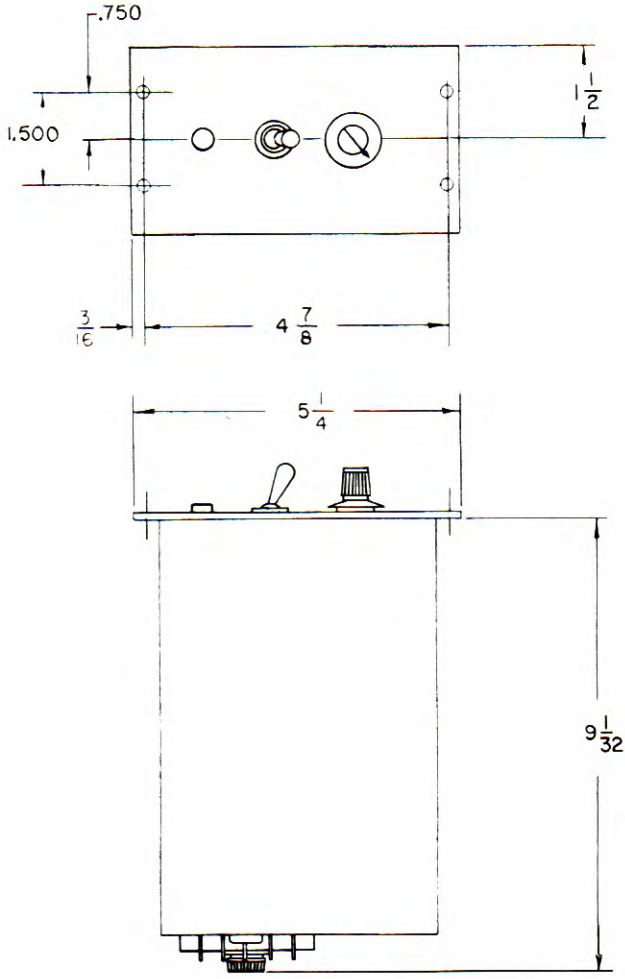

610 MONITOR AMP
MOUNTING DIMENSIONS

A-96292

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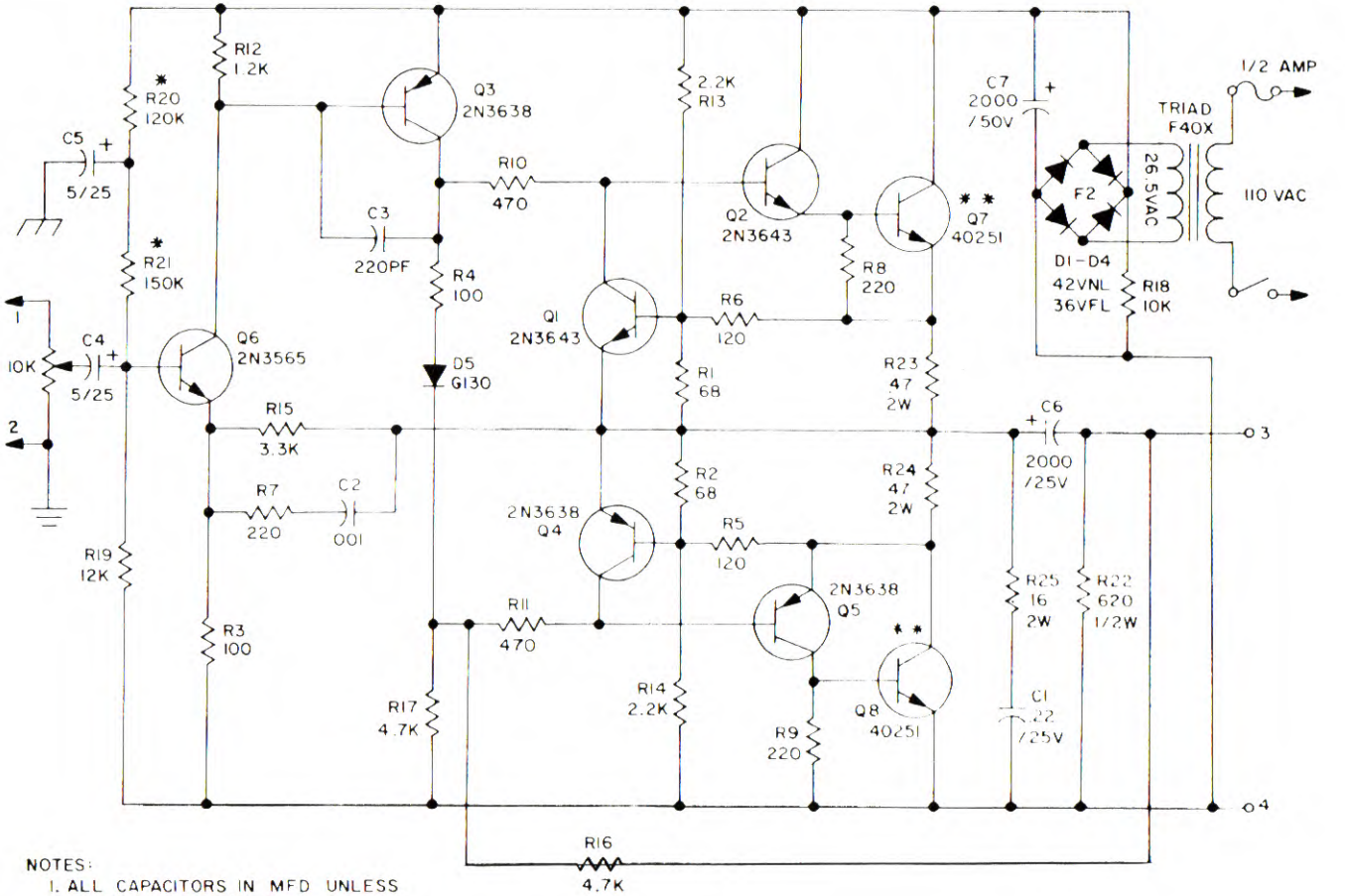


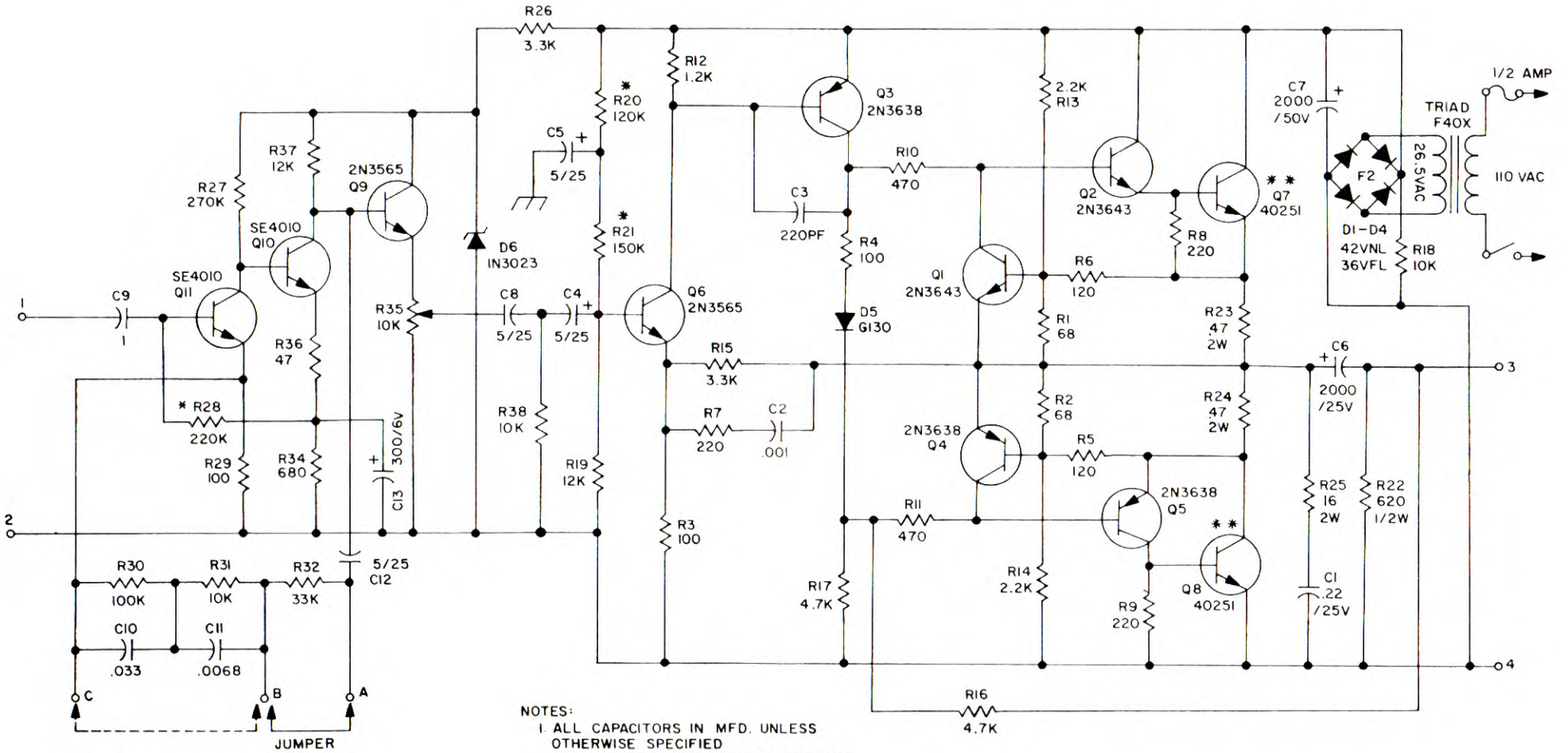
NOTES:
1. ALL CAPACITORS IN MFD UNLESS OTHERWISE SPECIFIED
2. ALL RESISTORS IN OHMS & 1/4 WATT UNLESS OTHERWISE SPECIFIED
3. * - TO BE SELECTED

** - HEAT SINK

610 AMP SCHEMATIC

A-96235

ISSUE: 1 7-10-68
2 12-26-68



INTERCONNECT:

B – A RIAA PHONO EQUALIZATION
C – B MIC INPUT, FLAT RESPONSE

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2. ALL RESISTORS IN OHMS & 1/4 WATT UNLESS OTHERWISE SPECIFIED
3. * - TO BE SELECTED
4. ** – HEAT SINK

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