## INSTALLATION <br> MANUAL

## TAU/88

## Audio Amplifier

## Please Note:

THIS AMPLIFIER MUST BE INSTALLED by a properly certificated and authorized person in accordance with the Federal Aviation Regulations, Part 43. No responsibility for improper installation of this unit is either implied or assumed by the manufacturer. Units shown to be installed in violation of the FARs will not be covered by the warranty and will remove any and all responsibility from the manufacturer for such equipment.


GENERAL:
WEIGHT:
SIZE:

INPUT POWER:

NUMBER OF IC's:
NUMBER OF TRANSISTORS:
AMPLIFIER:
FREQUENCY (3 db pts): $\quad 200-3000 \mathrm{~Hz}$
LOW LEVEL SENSITIVITY: 1.0 V rms
HIGH LEVEL SENSITIVITY: 5 W into 4 ohms
AUDIO OUTPUT:
NUMBER OF INPUTS: 6 Low Level
INPUT ISOLATION:
INPUT IMPEDANCE:
OUTPUT IMPEDANCE:

2 High Level
1.0 lbs. Remote Amplifier

Remote Amplifier: $31 / 4^{\prime \prime}$ wide X $2^{\prime \prime}$ high X $45 / 8^{\prime \prime}$ long ( $512^{\prime \prime}$ incl. mounting flanges)
14 VDC, .02 A (Min) 1.5 A (Max) 28 VDC, . 04 A (Min) . 93 A (Max) 1

5 all silicon

10 W @ 14 V , 16 W @ 28 V

50 db
Low Level: 680 ohms High Level: 4 ohms 3-6 ohms

## Proper Installation

## Will Assure Quality

The unit you are installing is a high quality, rugged, complex piece of electronic equipment. It has been manufactured under rigid quality control and has been fully tested and operated at high temperatures to stabilize the component parts.

Proper installation of the unit into your customer's aircraft is essential to complete the quality assurance program under which the unit was manufactured.

## Unpacking

CAREFULLY REMOVE the unit and its mounting accessories from the shipping container by removing the staples from the top of the carton and lifting the contents straight out. The carton should be saved until the installation is complete in the event that damage is discovered or return of the unit is necessary for some reason. Any damage due to shipping should be reported and a claim filed as soon as possible with the shipping company. (If it is necessary to re-ship, use our container which is specifically designed for that purpose.)

## Pre-Installation Check

VISUALLY INSPECT the unit for any obvious external damage, such as dents, loose wires, etc. Any damage not related to shipping should be reported to General Aviation Electronics, Inc., 4141 Kingman Drive, Indianapolis, Indiana (46226), Area Code 317-546-1111, as soon as possible.

Damage due to shipping should be reported to and a claim should be filed promptly with the transportation company.

All units are shipped in perfect operating condition. However, a pre-installation electrical test may be performed to assure that the unit has suffered no internal damage during shipment. For a detailed test procedure, refer to the Maintenance Section of the Service Manual. DO NOT ATTEMPT to bench test the unit without proper equipment as specified in the Service Manual.

## Installation Planning

THE LOCATION of the Unit in the aircraft should be carefully selected with due consideration to the following:

1. The unit generates only a very small amount of heat and, as such, does not require any type of cooling. However, the unit must NOT be mounted directly above a vacuum tube device or any other equipments that generate a large amount of heat unless such equipments have cooling provisions installed to keep the heat generated therein from coming in contact with other equipments mounted in close proximity to them.

MOUNTING THE UNIT DIRECTLY OVER UNCOOLED VACCUM TUBE EQUIPMENT OR IN THE HOT AIR BLAST OF ANY DEVICE, INCLUDING CABIN HEATERS, WILL AUTOMATICALLY VOID THE WARRANTY.
2. The placement of the unit should be such that all controls are easily accessible.

## Installation

1. Install the amplifier in the aircraft using a minimum of two mounting holes in opposite sides of the unit. Use the amplifier itself for a template, and drill the selected holes with a $5 / 32^{\prime \prime}$ drill. Use the $\# 8-32$ hardware supplied to attach the unit to the aircraft.
2. Fabricate the power and signal cable using the connector socket supplied. A wiring diagram is shown in Figure 2.
3. Connect the wires just fabricated to the appropriate points in the aircraft's electronic system. Mechanically secure the cables at appropriate support points.
4. Connect the cables to the amplifier.
5. Update appropriate logs and papers of the aircraft.
6. Fill in the necessary information required by the warranty card.
7. Be sure the remainder of the warranty card is filled in by your customer and returned to the Factory. The Warranty Card must be completed and returned to Genave for the warranty to be in effect.


## Schematic



## Parts/Track Map



## TAU/88 Parts List

| Ref. No. | Part No. | Description | Ref. No. | Part No. | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | CAPACITORS |  |  | RESISTORS (Cont'd) |
| C1 | 1540023 | Electrolytic, $125 \mathrm{mfa}, 10 \mathrm{~V}$ | R23 | 4700049 | 100k, 1/2w, 10\% |
| c2 | 1540014 | Electrolytic, $10 \mathrm{mfa}, 16 \mathrm{~V}$ | R24 | 4700025 | 1K, 1/2w, 10\% |
| c3 | 1520034 | Y5E Disc, 220 pfd. | R25 | 4700013 | $100 \mathrm{ohm}, 1 / 2 \mathrm{w}, 10 \%$ |
| 54 | 1520034 | Y5E Disc, 220 pfd. | R26 | 4700027 | 1.5K, 1/2W, 10\% |
| [5 | 1520053 | M25 Disc, . 02 mfd . | R27 | 4700016 | $180 \mathrm{ohm}, 1 / 2 \mathrm{~L}, 10 \%$ |
| C6 | 1540019. | Electrolytic, $50 \mathrm{mfd}, 40 \mathrm{~V}$ | R28 | 4700016 | $180 \mathrm{ohm}, 1 / 2 \omega, 10 \%$ |
| C7 | 1520055 | Disc, . 1 mfd , +80-20 | R29 | 4700023 | 680 ohm, 1/2W, 10\% |
| C8 | 1540012 | Electrolytic, $6.4 \mathrm{mfd}, 40 \mathrm{~V}$ | R30 | 4740000 | . $1 \mathrm{ohm}, 2 \mathrm{~L}, 10 \%$ |
| C9 | 1550004 | Tantalum, $10 \mathrm{mfd}, 25 \mathrm{~V}$ | R31 | 4740000 | - 1 ohm, 2w, 10\% |
| C10 | 1520034 | Y5E Disc, 220 pfd. | R32 |  | Unassigned |
| C11 | 1520034 | Y5E Disc, 220 pfd. |  |  |  |
| C12 | 1540019 | Electrolytic, $50 \mathrm{mfd}, 40 \mathrm{~V}$ |  |  | IC's |
| C13 | 1520042 | Y5E Disc, 470 pfd. |  |  |  |
| C14 | 1520034 | Y5E Disc, 220 prd. | IC1 | 3130012 | Dual DP-AMP, N5558V |
| C15 | 1520051 | Y5U Disc, 01 mfd . | . |  |  |
| C16 | 1540038 | Electrolytic, $1000 \mathrm{mfd}, 30 \mathrm{~V}$ |  |  | TRANSISTORS |
| C17 | 1520053 | M25 Disc, . 02 mfd . |  |  |  |
| C18 |  | Unassigned | $\begin{aligned} & \text { Q1 } \\ & \text { Q2 } \end{aligned}$ | $\begin{aligned} & 4800016 \\ & 4800018 \end{aligned}$ | Silicon, PNP, MPS-A55 Silicon, NPN, MPS-U01 |
|  |  | RESISTARS | Q3 | 4800022 | Silican, PNP, MPS-U51 |
|  |  |  | Q4 | 4800011 | Silicon, PNP, MJE-105 |
| R1 | 4700023 | 680 ohm, 1/2w, 10\% | Q5 | 4800014 | Silicon, NPN, SJE-5036 |
| R2 | 4700023 | 680 ohm, 1/2w, 10\% |  |  |  |
| R3 | 4700023 | 680 ohm, 1/2w, 10\% |  |  | DIIODES |
| $R 4$ $R 5$ | 4700023 4700023 | $680 \mathrm{ohm}, ~ 1 / 2 \mathrm{l}$ <br> $680 \mathrm{hm}, 110 \%$ <br> $1 / 2 \mathrm{w}$ <br> $10 \%$ |  |  |  |
| R5 R6 | 4700023 | $680 \mathrm{ohm}, 1 / 2 \mathrm{l}, 10 \%$ $680 \mathrm{hm}, 1 / 2 \mathrm{l}, 10 \%$ | CR1 | 4810013 4810017 | Silicon, Gen. Purpose, 100V, SD-1 Silicon,Hi.Speed Switch, |
| R7 | 4700023 | $680 \mathrm{ohm}, 1 / 2 \mathrm{~W}, 10 \%$ | CR3 | 4810017 | Silican,Hi.Speed Switch,FD1936 |
| R8 | 4700023 | $680 \mathrm{ohm}, 1 / 2 \mathrm{~L}, 10 \%$ | CR4 | 4810017 | Silicon,Hi.Speed Switch,FD1936 |
| R9 | 4740016 | $4 \mathrm{ohm}, 5 \mathrm{l}$, 10\%, 山الW | CR5 | 4810017 | Silicon,Hi.Speed Switch,FD1936 |
| R10 | 4740016 | 4 ohm, 5w, 10\%, 山ll |  |  |  |
| R11 | 4700008 | $33 \mathrm{ohm}, 1 / 2 \mathrm{~W}, 10 \%$ |  |  | TRANSFORMER |
| R12 | 4700039 | 15K, 1/2W, 10\% |  |  |  |
| R13 R14 |  |  | T1 | 5600034 | Audio Dutput |
| R14 R15 R15 | 4700013 | 100 ohm, 1/2W, 10\% Trimmer, 1K |  |  |  |
| R15 R16 | 4760015 | 10k, 1/2w, 10\% |  |  | MISCELLANEOUS |
| R17 | 4700025 | 1K, 1/2W, $10 \%$ | J1 | 2100011 | Connector, 16 pin, Female |
| R18 | 4700025 | 1K, 1/2W, 10\% | P1 | 2100014 | Connector, 16 pin, Male |
| R19 | 4720014 | 150K, 1/4w, 10\% |  | 2100018 | Cover |
| R20 | 4720013 | 140k, 1/4w, 10\% |  | 2508052 | Chassis |
| R21 | 4700037 | 10k, 1/2W, 10\% |  | 2500281 | Cover |
| R22 | 4700037 | 10K, 1/2W, 10\% |  | 2504271 | Heatsink (2-used) |

## Wiring Diagram



