



Figure 3b

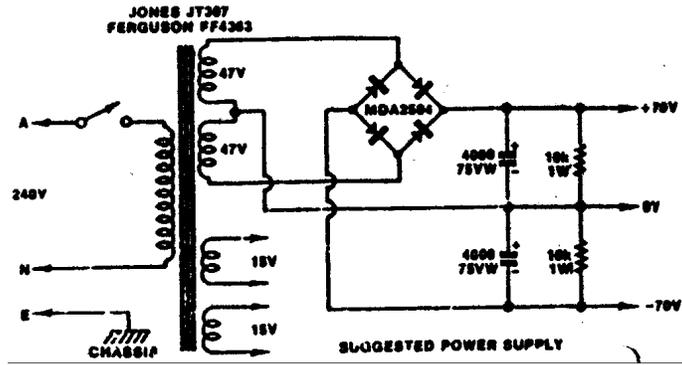


Figure 6

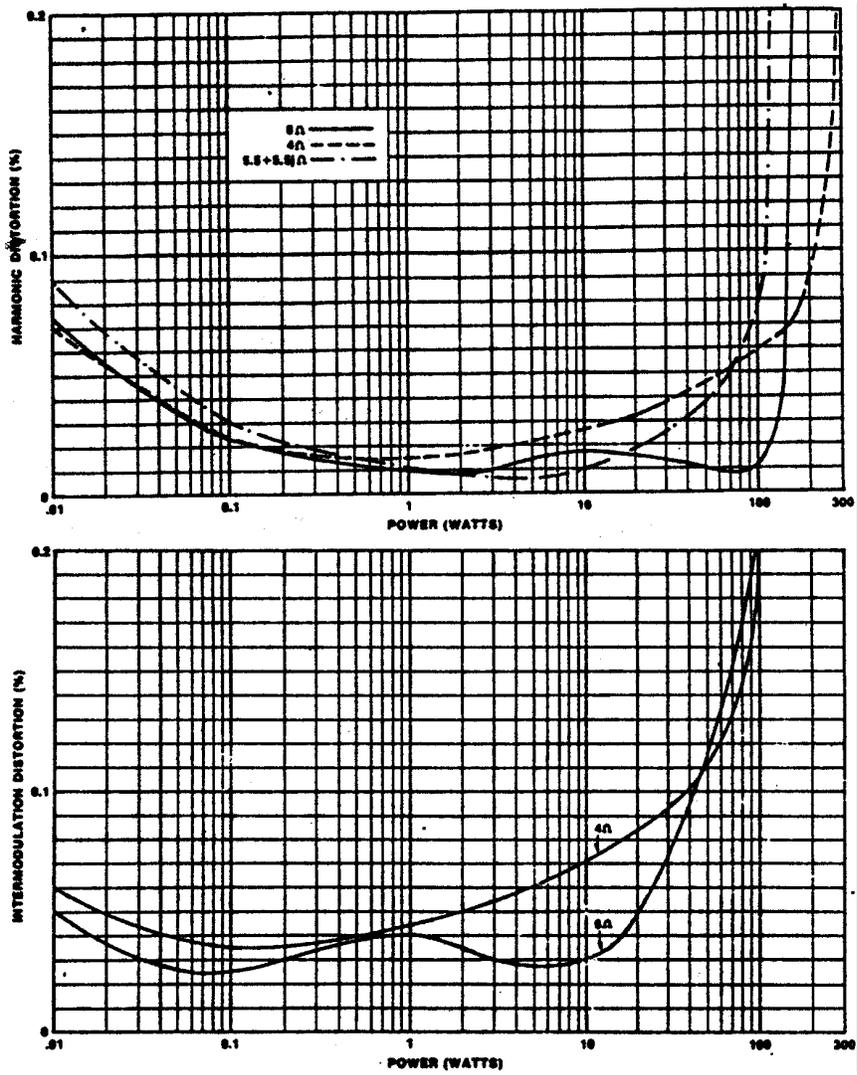
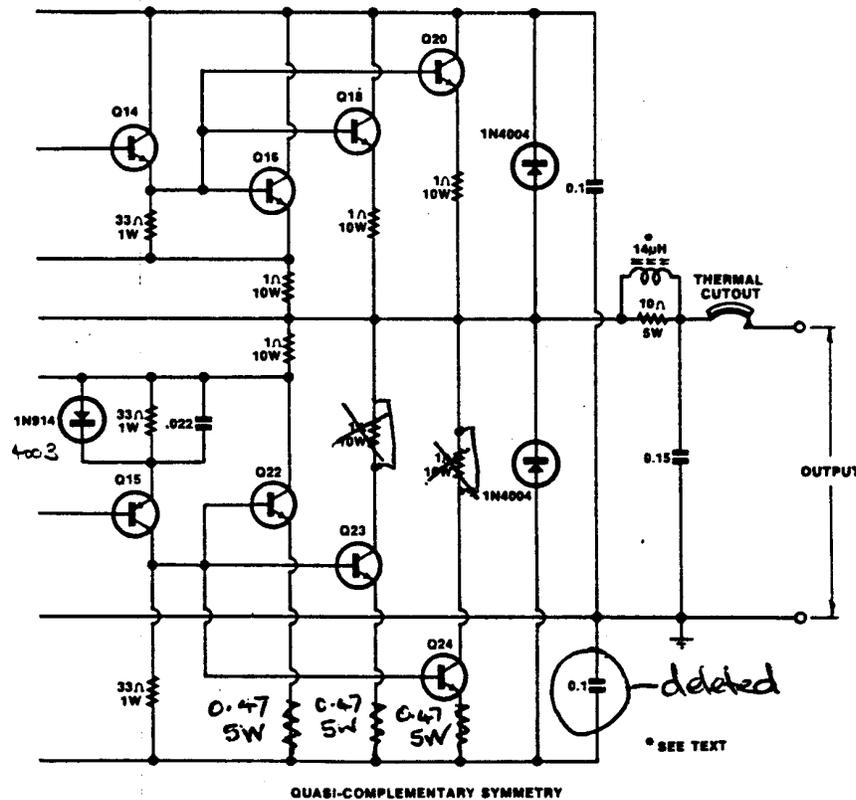


Figure 7

Performance of prototype	
<b>POWER OUTPUT</b>	4 ohms 300W 8 ohms 200W
<b>FREQUENCY RESPONSE</b>	20 Hz to 20kHz -1dB
<b>HARMONIC DISTORTION</b>	see graphs
<b>INPUT SENSITIVITY</b>	1.5V for 47k input impedance
<b>HUM AND NOISE</b>	95dB with respect to 100W
<b>DAMPING FACTOR</b>	better than 100 for both complementary symmetry and quasi complementary symmetry versions at 1kHz and 30Hz.
<b>STABILITY</b>	unconditional
<b>SLEW RATE</b>	70V/microsecond

Figure 5



This is the alternative quasi-complementary output circuit using 2N3773 transistors.

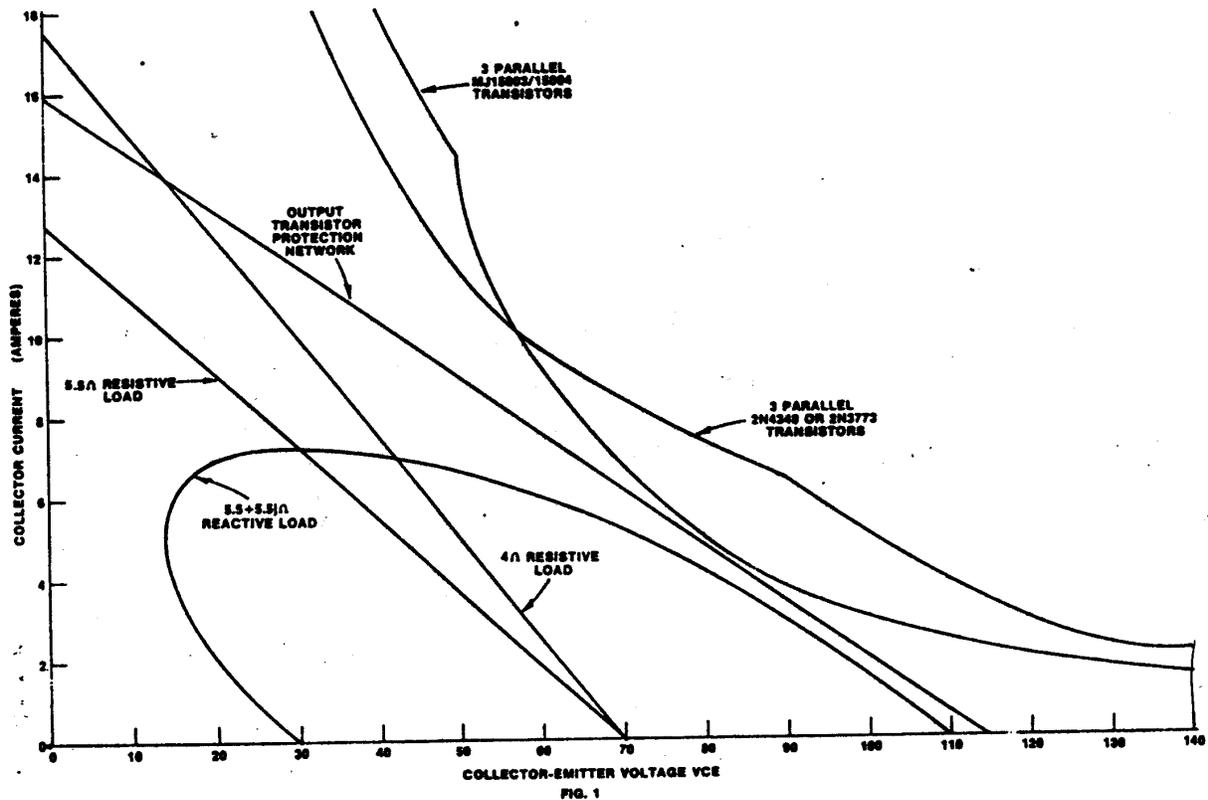


FIG. 1  
 This graph shows the juxtaposition of the safe operating areas of MJ15003/4 (x 3) and 2N3773 (x 3) parallel combinations of output transistors together with the load line protection of the amplifier. Also shown are the notional load lines for a 4 ohm load, and 5.5 ohms resistive and 5.5 ±j5.5 ohms reactive loads.

Figure 4

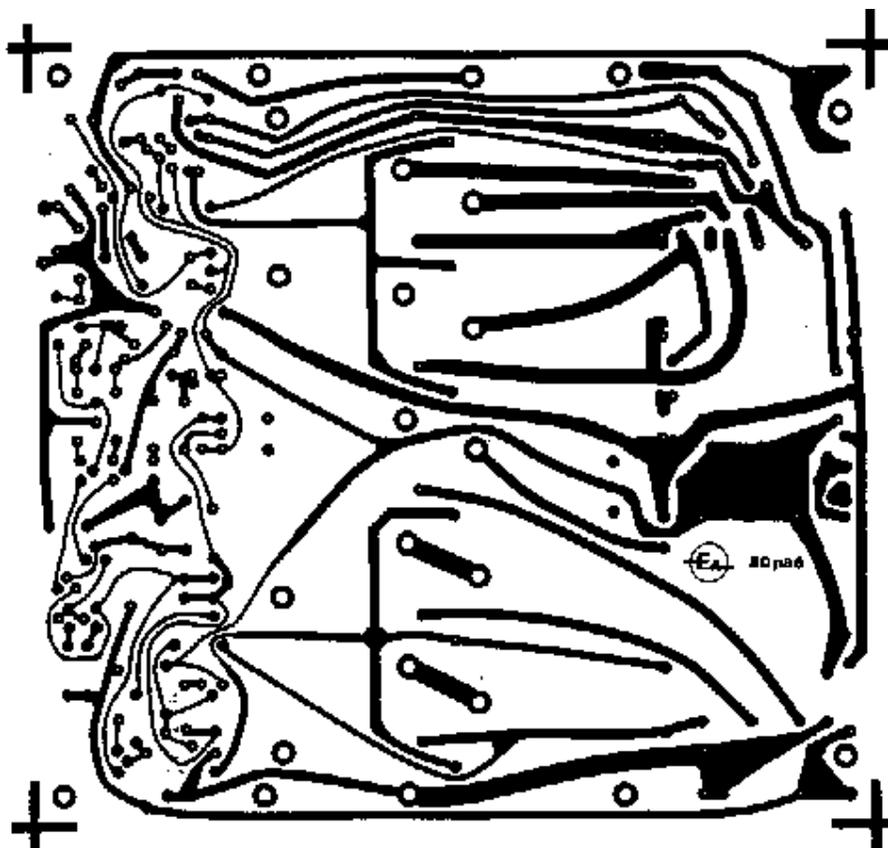


Figure 8

# PARTS LIST

PCB  
\$34-60

- 1 PC board 218mm x 200mm coded 80pa6
- 1 heatsink, Dick Smith cat 3426 or Thermalloy 6169, 200mm long
- 1 14uH choke, 19 turns of 16 gauge wire on Neosid F14 ferrite 40mm x 10mm diameter.
- 1 thermal cut-out, 10A, 95 degrees (if available)
- 4 fuse clips, Swan (McMurdo) FC1 part No 1397-01-18
- 2 5A 3AC fuses
- 6 TO-3 mica washers
- 4 TO-126 mica washers
- 12 insulating bushes
- 1 200mm length of 16 gauge tinned copper wire

## SEMICONDUCTORS

- 4 1N914 silicon signal diodes
- 2 EM404, 1N4004 400PIV 1 amp silicon diodes
- 1 33V 1W zener diode, BZX61, C33, 1N4752
- 4 BC557 PNP transistors
- 7 BC547 NPN transistors
- 2 MJE350 PNP transistors
- 2 MJE340 NPN transistors

- 3 MJ15003 NPN power transistors
- 3 MJ15004 PNP power transistors

## CAPACITORS

- 1 47uF/10VW electrolytic PC type
- 2 0.47uF metallised polyester
- 5 0.1uF metallised polyester
- 1 .001uF metallised polyester
- 1 680pF ceramic
- 1 33pF ceramic
- 1 10pF ceramic

## RESISTORS

- (1/4w unless other specified, 5% tolerance)
- 2x 120k, 1 x 15k/1W, 1 x 10k, 3 x 6.8k/1W, 1 x 5.6k/1W, 2 x 4.7k, 1 x 3.9k, 2 x 560 ohm/5W, 1 x 390 ohm, 2 x 330 ohm, 2 x 300 ohms, 2 x 180 ohm, 1 x 150 ohm, 3 x 100 ohm, 2 x 56 ohm, 1 x 33 ohm, 2 x 33 ohm/1W, 1 x 27 ohm, 2 x 18 ohms, 1 x 10 ohm, 1 x 10ohm/5W, 6 x 1 ohm/10W, 2 x 100 ohm vertical trim pots or 2 ten-turn miniature ceramic trim pots.

## PARTS LIST FOR POWER SUPPLY

- 1 Transformer, Ferguson PF 4363, Jones JT 307 or 94VAC, CT at 3A.
- 1 bridge rectifier MDA2504, 400 PIV, 25A.

- 2 4000uF/75VW electrolytic capacitors
- 1 length of mains cord, and plug
- 1 3-way insulated terminal block
- 2 10k/1W resistors

## PARTS FOR QUASI-COMPLEMENTARY SYMMETRY VERSION

### OUTPUT TRANSISTORS

- 6 NPN silicon power transistors, MJ15003, 2N3773 or 2N4348

### EXTRAS

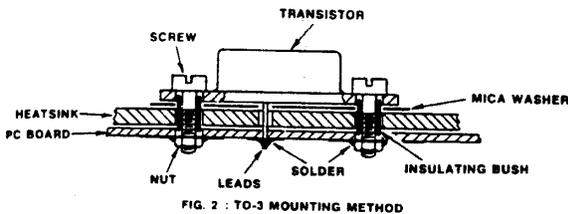
- 1 1N914 silicon signal diode
- 1 .022uF metallised polyester capacitor
- 1 33 ohm/1W resistor

### MISCELLANEOUS

Aluminium for transistor and thermal cut-out brackets 4mm x 4mm approx, heatsink compound, PC stakes, nuts, bolts, washers, solder etc.

NOTE: Resistor wattage ratings and capacitor voltage are those used for our prototype. Where voltage ratings are not quoted, they should be 100V or more. Components with higher ratings may be used provided they are physically compatible.

Figure 9



These two diagrams show the transistor mounting details.

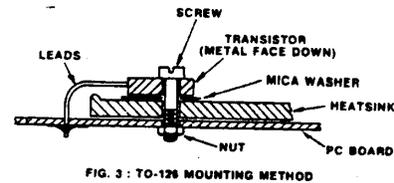


Figure 10