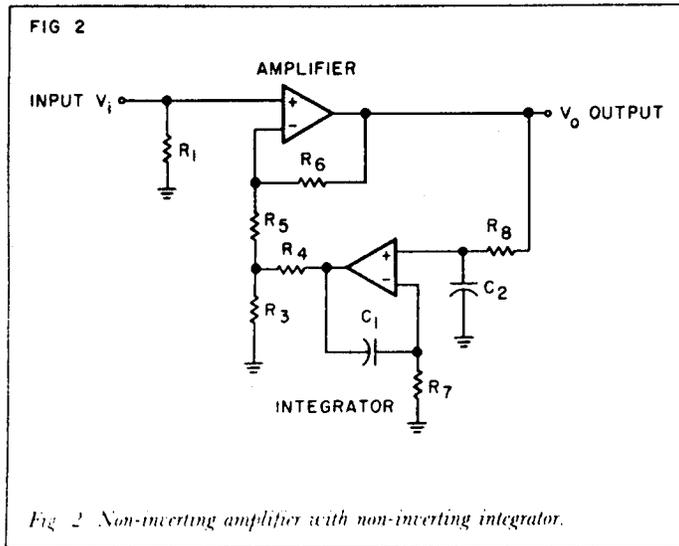


Amplifier Servo Calculation



R1 = leave as is in the amp to be modified
 R3 = get this value from the amp – leave in the amp
 R4 = **to be determined by the formula below**
 R5 = usually not used – set to 0
 R6 = feedback resistor get from the amp – leave in the amp
 R7 = 1 Meg Ohm
 R8 = 1 Meg Ohm

C1 & C2 = .22 Mfd.

Determining Value of R4

Servo output is determined by the following formula:

$$V_{out} = (R4/(R3 \times R6)) \times (R6 + R3) \times (V_s + V_a)$$

where V_s is the offset voltage of the source input and V_a is the measure offset voltage of the amp output.
 - Or replace $(V_s + V_a)$ in the calculations with 0.1 V for Power Amps and 0.06V for Preamps. Any larger offset could mean that there is a problem with the amp or better match the transistors are needed in the amp.

If the max servo output (V_{out}) is set to 12 Volts then: (set to 6 Volts for Preamp calculations)

$$R4 = \frac{12 \times R3 \times R6}{(R3 + R6) (V_s + V_a)} \quad \text{eg: DH200} \quad \frac{12(100)(2210)}{(100 + 2210) (.1)} = 11,480 \quad \text{or } 10K \text{ ohm}$$

Note: In the amps without servos, there is usually a low frequency roll-off cap in the feedback. When modifying them to work with a servo, remove and replace this cap with a wire.
 - Some amps, like the Hafler amps, have another resistor in parallel with the feedback resistor. Calculate R6 by paralleling the 2 values together. This second resistor is the larger value of the two. In modifying the amp, this larger value resistor can be removed and only R6 is left in as the only feedback resistor – then use the lower value for calculations. eg: DH-200 the 2 values in the feedback is 2.21K & 22.1k - the paralleled value is 2.009K. If the second resistor is removed, then 2.21k is the value used.