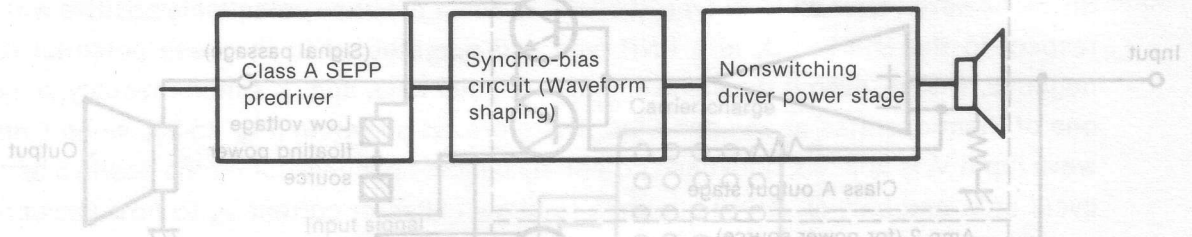
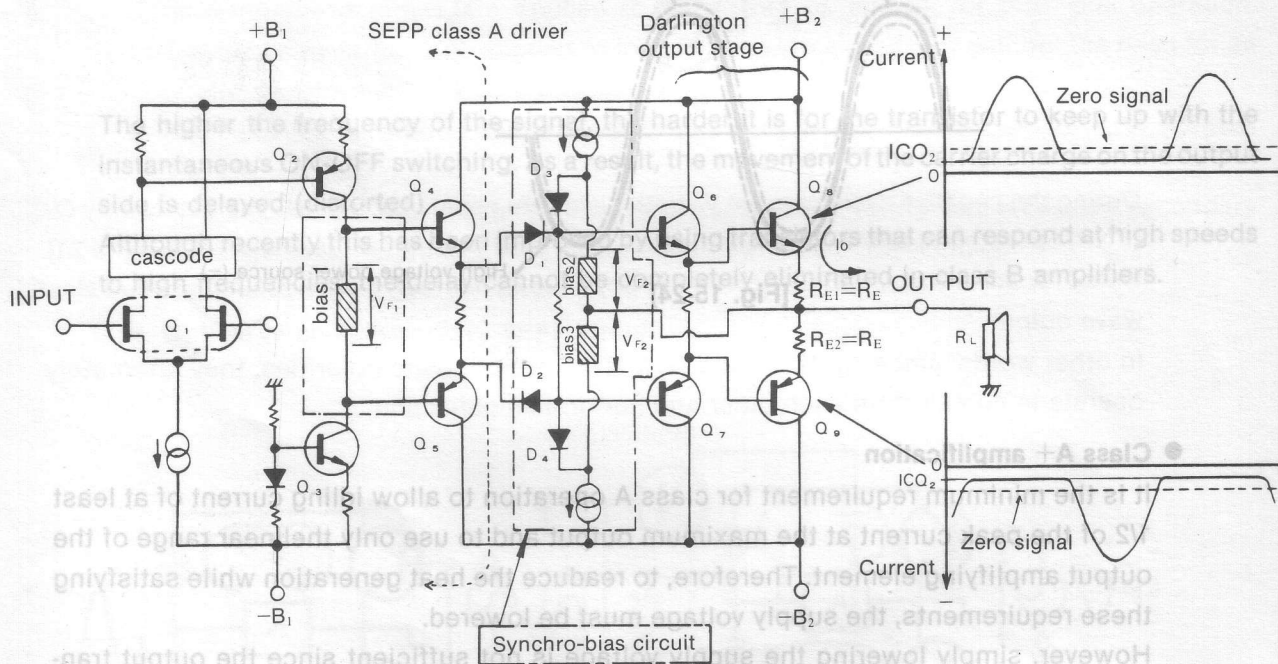


15-4. New Class A

The "new class A" having the low distortion of class A along with the efficiency of class B.



Technics "new class A"/synchro-bias circuit is set up so that the same fixed bias current is always flowing in both transistors during reproduction of both the positive and negative half cycles of the signal. Therefore, the output transistors never turn off, no matter what conditions of signal reproduction are present. Furthermore, the distortion-free quality of class A amps is achieved since there is no switching distortion and there is no nonlinearity in the load seen by the predriver voltage amp stage. Yet this "new class A" operation is accompanied by power conversion efficiency on a par with class B amplifiers.



[Fig. 15-25] "new class A" circuit

[Fig. 15-25] shows the entire circuit used in the new class A amplifier; the block enclosed by the dotted line is the synchro-bias circuit which is the key to the success of this revolutionary configuration.

The FET differential (Q_1) cascode first stage and voltage amp Q_2 with constant current load Q_3 , along with SEPP-connected transistor Q_4 and Q_5 use bias 1 for class A operation as an emitter follower output stage driver circuit.

Bias 2 is for the positive half cycle output stage, and bias 3 is for the negative half cycle output stage, so that forward bias is always applied to the driver and output transistors so they are never turned off. Bias 2 and 3 are set at exactly the same voltage V_{F2} so that a fixed current will be supplied by the stabilized current supply circuitry.