

### Sync Line Driver

This card consists of one sync line driver that can supply current drive and isolation to five sync line terminators. These terminators are remotely located in various modules and are connected to the sync line drivers by coaxial cable. The sync line driver accepts a 500kc special mode signal from a power inverter and provides the proper current and impedance match to the five coaxial cables for efficient transmission of the input signal. Shields of the five coaxial cables are commoned and AC by-passed to -6v by an external 10 $\mu$ fd electrolytic capacitor at the driven end of the coaxial cable. There is no phase inversion between the input signal at the driver and the output signal of the terminator.

#### *Circuit Description*

Because the sync line driver always feeds coaxial cables terminated by sync line terminator circuits, both the driver and the terminator circuits are described at this time. Assume a starting condition of T2 on, T4 on and the emitter of T4 at 0.2v. When the special mode input at pin F of the sync line driver is down, emitter follower

action clamps the emitter of T2 to -2.8v. D11 is reverse-biased and prevents current flow into the cable from the driver. At this time, approximately 0.58ma flows from the coupling network of the terminator, through T4 and R8 to +6v. The output at pin E of the line terminator is a -P level.

When the special mode input at pin F of the sync line driver increases to +3.2v, emitter follower action clamps the emitter of T2 to near +2.9v. D11 is now forward-biased and additional current flows from the terminator coupling networks, through T4, R28, into the cable, R33, D11, T2 and R13 to +6v. The additional current flow through T4 provides a +P output at pin E of the line terminator.

#### *Application*

The sync line driver can drive five 100-foot lengths of coaxial cable when properly terminated. If only one coaxial cable and terminator are used, the unused driver outputs must be terminated by a 95 ohm resistance to ground. (Resistors are located on LE - - card.)

### Sync Line Terminator

The sync line terminator properly terminates the coaxial cable driven by a sync line driver and translates an N input to an in-phase P output.

The output from the terminator drives current mode P blocks. This circuit function as a class A grounded base amplifier with at least 0.5ma of emitter current flowing at all times. The 90.9 ohm resistor in the input circuit matches the terminator impedance to the characteristic impedance of the cable (95 ohms). Because the base of

the transistor is brought out to a signal pin, it is necessary to back-panel wire this point to its proper reference voltage (ground). However, when more than one terminator is driven by the same sync line driver, one and only one terminator base is connected to ground. The remaining four terminators receive their base reference through the coaxial shield.

Circuit operation is described in the sync line driver card description (HC - -). This circuit functions as part of a line-driver, line-terminator pair.