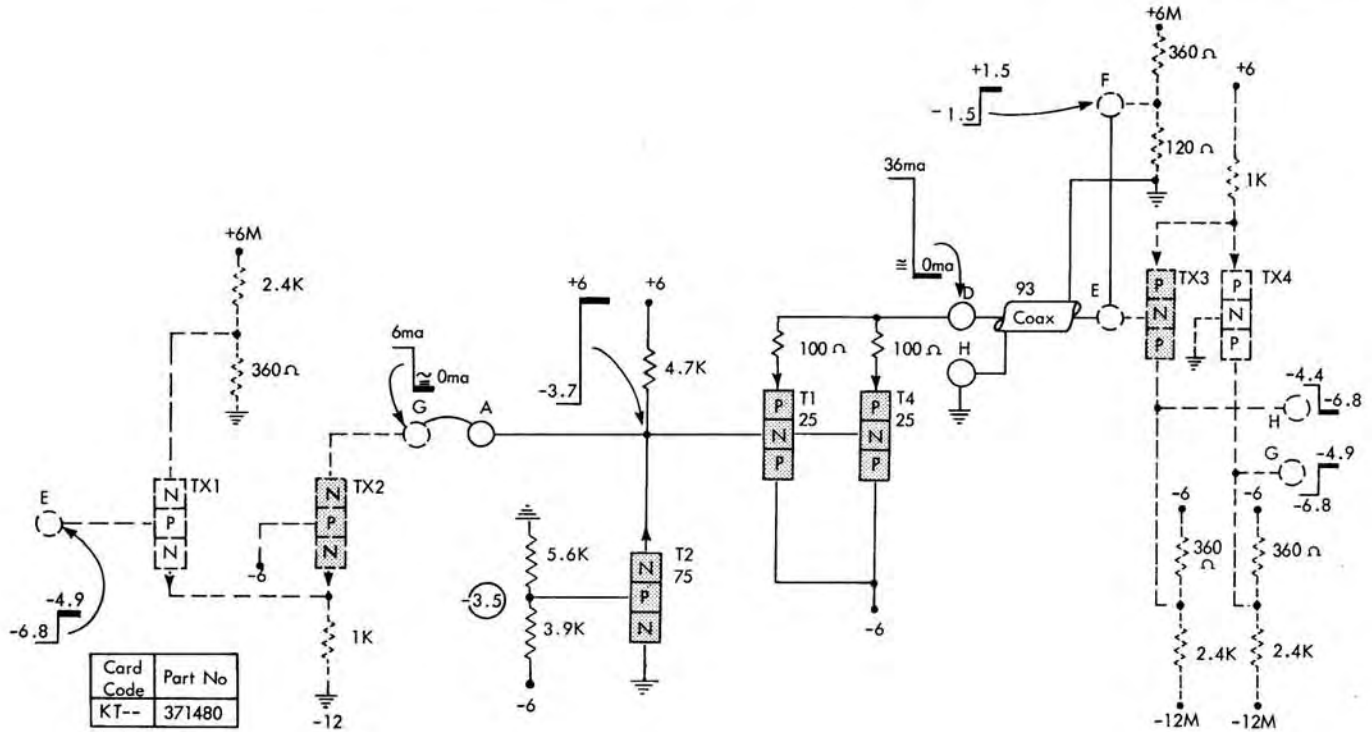


Typical Application of Line Driver



Card Code	Part No
KT--	371480

**Current Mode, N-to-N Line Driver**

The line driver couples information between two widely separated points over a 93 ohm coaxial line. This driver is a current amplifier which amplifies input current to levels large enough to drive long lines. It can drive up to ten circuits dispersed along the coaxial line. Line levels are established by the coupling network which terminates the line. Considering these levels, the driver develops an in-phase N line output for an N line input.

**Circuit Description**

In the state shown, tx2 is forward-biased and 6ma flows from -12v through tx2 into the driver. The sequence which results when input current increases from zero to 6ma is as follows. The input current through the 4.7K resistor to +6v is an increasing current which causes the voltage drop across this resistor to also increase. When this current increases to 1ma the base potential of T1 and T4 falls below +1.5v which forward-biases T1 and T4. Base current for T1 and T4 flows from -12v, through tx2 and

the base-emitter diodes, into the 120 ohm, 360 ohm coupling network. When current flow through the 4.7K resistor increases to 2.1ma, the emitter of T2 falls below -3.5v and T2 is forward-biased. Its emitter clamps to its base potential and current flows from -12v through rx2 and T2 to ground. The 6ma input current divides into three components (current through the 4.7K resistor to +6v, Ib of T1 and T4 and Ice of T2). T2 functions as a clamp circuit; it sets the base voltage of T1 and T4 over a range of input current. In this state, a nominal current of 36ma flows from -6v through T1 and T4 and into the coupling network which establishes the output of the coaxial line at a -N level of -1.5v. The 100 ohm emitter resistors provide degeneration so currents through T1 and T4 tend to divide equally.

When the input signal to the converter rises, tx2 is cut off and input current falls to zero. T1, T4 and T2 are reverse-biased and the output of the coaxial line rises to a +N level of +1.5v.