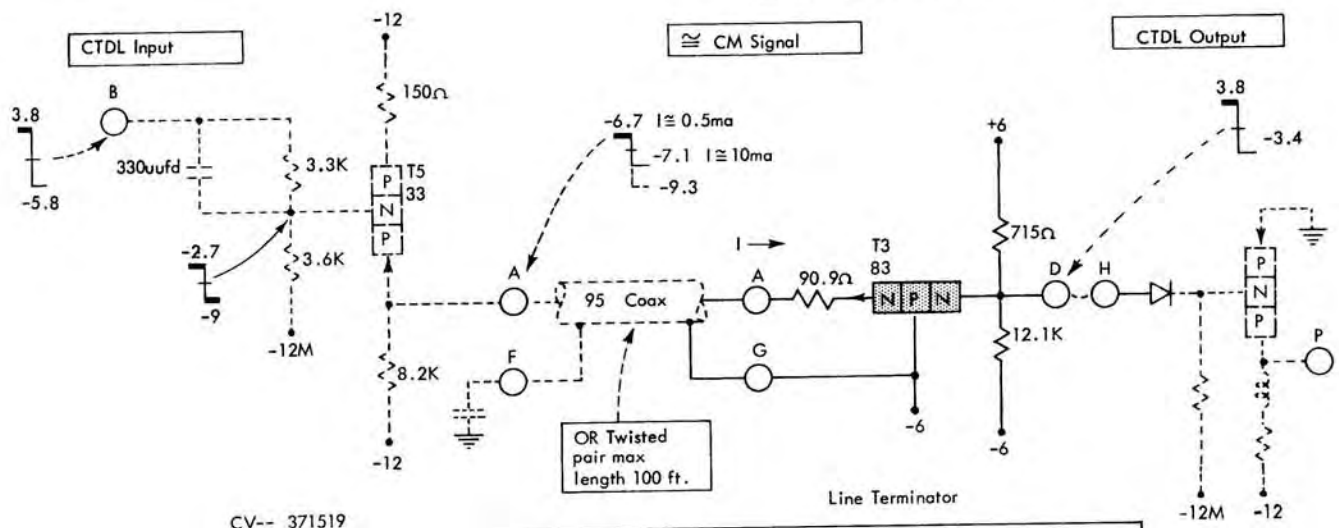


DT on current provided by DL (Ion ≈ 10ma)
 DT off current provided by 8.2K emitter resistor as DL is fully biased off. (Ioff ≈ 0.5ma)



CV-- 371519

CTDL Input		CTDL Output		Delays (usec)				
Pin B (DL)		Pin D (DT)		Turn On	Per	Driver-Cable-Termin'r	100uufd	Cable
Min.	Max.	Min.	Max.		Min.	0.03	0.01	0.003/ft
1.4	6.2	1.4	5.9	Max.	0.15			
-5.5	-6.2	-0.7	-6.2	Turn Off	Min.	0.03	0.02	0.003/ft
					Max.	0.15		

CTDL P-Line Terminator

The cv-- card consists of three NPN transmission line terminator circuits that translate a current-mode P input to a CTDL T in-phase output. Each circuit terminates coaxial or twisted pair cables in their characteristic impedance and provides minimum loading on the PNP driving circuit. The 90.9 ohm resistor in series with the emitter to base impedance of the grounded base stage is selected for optimum match of the twisted pair or coaxial cable used.

For proper decoupling action, the neutral wire of the twisted pair or the shield of the coaxial cable is AC coupled to ground at the line driver and returned to the base reference voltage at the line terminator. The decoupling capacitor is physically located on the line driver card. No phase inversion occurs between the T input at the line driver and the T output from the line terminator.

Circuit Description

Both the line driver and the line terminator are discussed at this time to fully illustrate the operation of the line terminator.

Assume a starting condition of T5 off and T3 on, with the emitter of T5 at -6.7v. When a +T line is applied to pin B of the line driver, the input divider network sets the base of T5 to -2.7v. T5 is reverse-biased off and

approximately 0.5ma of current is supplied to the emitter of T3. Current flow into the common-base amplifier and coupling network causes the voltage at pin D of the line terminator to approach 3.8v.

A -T input at pin B of the line driver causes the base level of T5 to decrease to -9v. T5 is now forward-biased on and supplies up to 10ma to the line terminator. The output at pin A of the line driver decreases to -7.1v. Additional current through T3 and the coupling network causes the line terminator output at pin D to drop to -3.4v.

The delays given above are for the complete driver, cable, and terminator configuration. Capacity loading and cable length increase the delay values. Typical loading for the line terminator is shown.

Application

This configuration (transmission line driver and line terminator) is used whenever a CTDL T line is to be driven between two widely separated points. By limiting the voltage swings driving into the cable, the effects of cable delays and DC crosstalk between cables are minimized. A PNP line driver circuit (cs-- card) is used with this line terminator circuit.