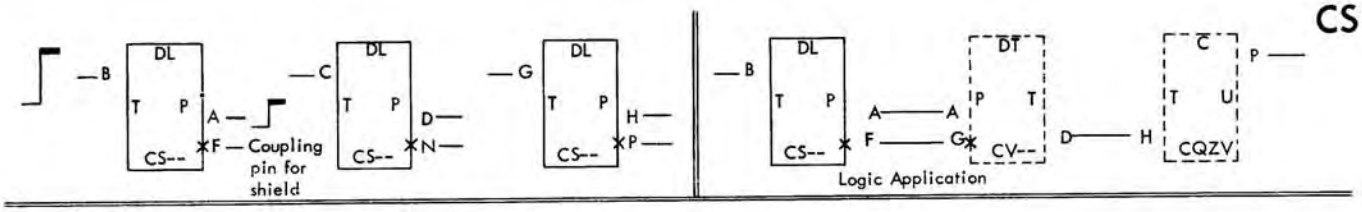

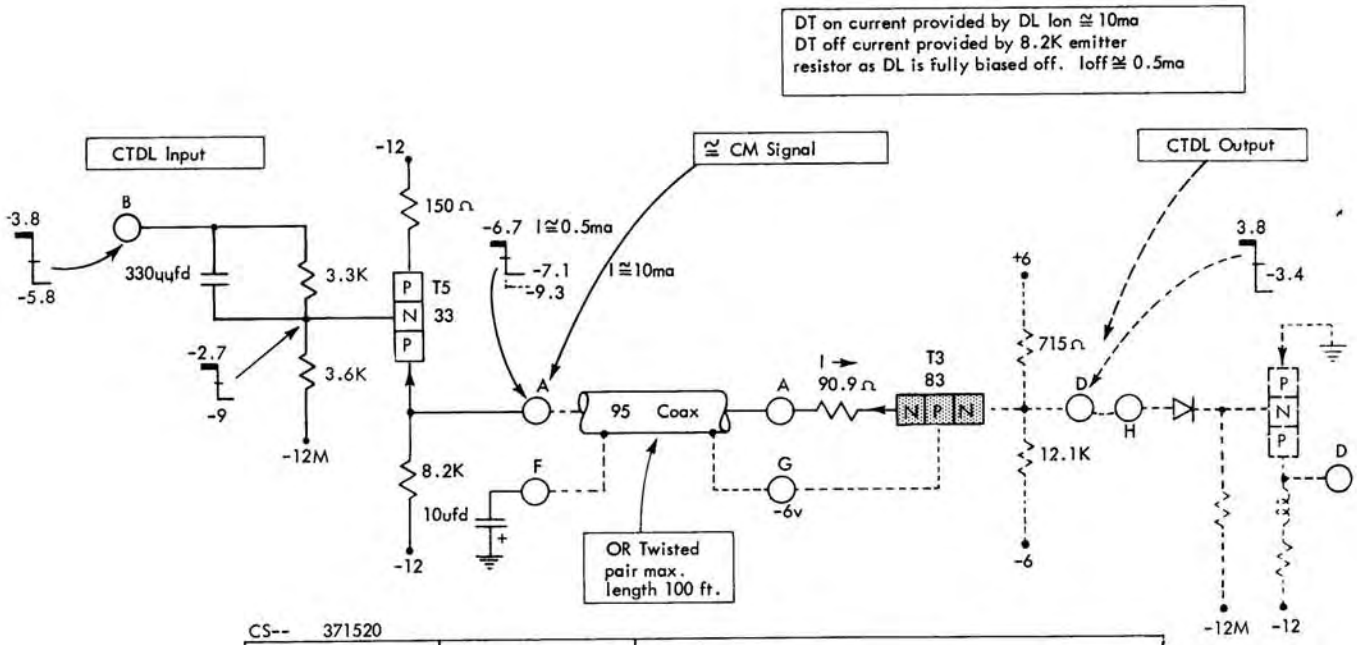

CS-- 371520

CTDL Input		CTDL Output		Delays		usec		
Pin B	(DL)	Pin D	(DT)		Per	Driver-Cable-Termin'r	100 uufd	Cable
Min	Max	Min	Max	Turn On	Min	0.03	0.01	.003/ft
1.4 / -5.5	6.2 / -6.2	1.4 / -0.7	5.9 / 0 / -6.2		Max	0.15		
				Turn Off	Min	0.03	0.02	.003/ft
					Max	0.15		

CTDL N-Type Line Driver

The CS - - card consists of three PNP line driver circuits that translate a T input to a suitable P output for efficient transmission between two widely separated points. Each circuit provides the necessary drive to a coaxial or twisted pair cable that is properly terminated by a NPN line terminator. 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. There is no phase inversion between the T input to the line driver and the T output from the line terminator.

Circuit Description

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

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 the emitter of T3. Current flow through 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 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. The 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 on the line terminator is shown above.

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 NPN line terminator (CV - - card) is used with the line driver.