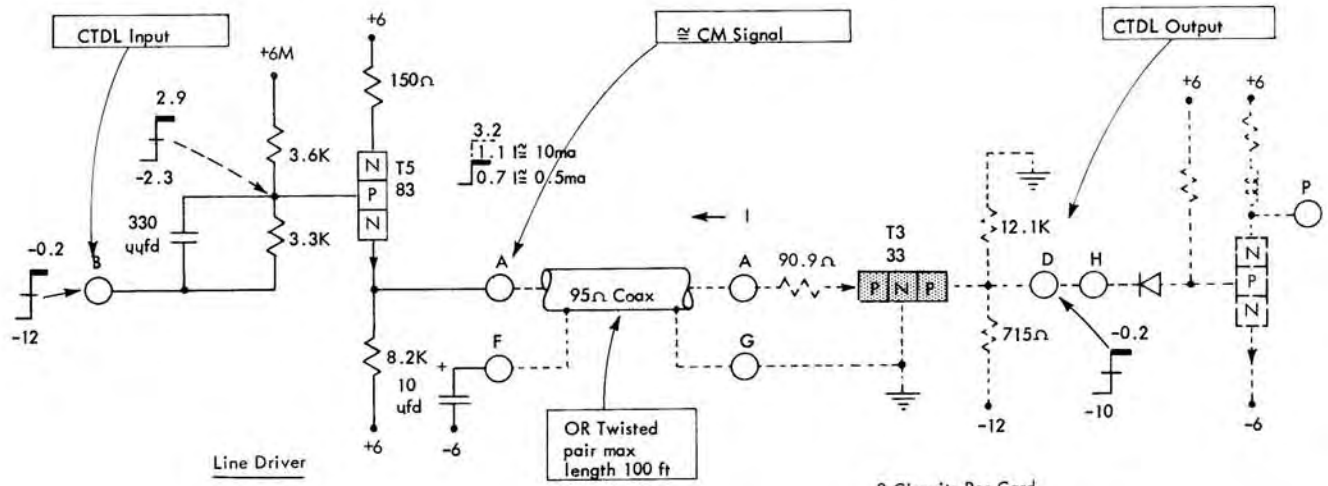


DT on current provided by DL (I_{on} ≈ 10ma)
 DT off current provided by 8.2K emitter
 Resistor as DL is fully biased off. (I_{off} ≈ 0.5ma)



Line Driver

3 Circuits Per Card

CT-- 371521

CTDL Input		CTDL Output		Delays: usec				
Pin B (DL)		Pin D (DT)		Turn On	Per	Driver-Cable-Termin'r	100 ufd	Cable
Min.	Max.	Min.	Max.					
-0.5	0.24	-5.3	0.24	Min.	0.03	0.01	0.01	.003/ft
-7.4	-12.48	-7.4	-12					
				Turn Off	Min.	0.03	0.02	.003/ft

CTDL P-Type Line Driver

The CT-- card consists of three NPN transmission line driver circuits that translate a CTDL U line to a current-mode N line 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 PNP line terminator.

For proper decoupling action, the neutral wire of the twisted pair or the shield of the coaxial cable is AC coupled to -6v 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 U input at the line driver and the U output from the line terminator.

Circuit Description

To aid in understanding the operation of this line driver, both the transmission line driver and terminator circuits are discussed at this time.

Assume a starting condition of T5 off and the grounded base terminator conducting at least 0.5ma. The emitter voltage of T5 is near +0.7v. When a -U line is applied to pin B of the line driver, the base level of T5 is set at

-2.3v by the input divider. T5 is reverse-biased off and the output at pin A stays at +0.7v. Minimum current flow through T3 and the coupling network to the 8.2K resistor and +6v results in an output at pin D near -10.0v.

A +U input at pin B of the line driver causes the base level of T5 to increase to +2.9v. T5 is forward-biased on, and increased current flow (10ma) from the coupling network through T3, the cable, and T5 to +6v causes the output of the line terminator to increase to -0.2v.

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

Application

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

A PNP line terminator circuit (CU-- card) is used with this line driver.