

# Collins

TE 101

## FOUR CHANNEL PREDICTED WAVE MULTIPLEX TERMINAL EQUIPMENT

### APPLICATION:

The Collins TE101 four channel Multiplex Terminal Equipment uses Predicted Wave Techniques to provide near optimum use of available power on VHF scatter circuits. Time division multiplexing is used to provide four 60 speed teleprinter channels and allow the transmitter to operate always at maximum capability. Use of Predicted Wave Techniques provides a 9db improvement over conventional frequency shift keying. Extensive field tests have demonstrated the efficiency, reliability and improved performance of this equipment.

### DESCRIPTION:

The equipment is mounted in two 80 inch relay racks. A unique articulated hinge design allows units to be mounted on both sides of the rack for optimum space utilization. These hinges allow the rear side of each unit to be accessible for maintenance purposes without removing the unit from the rack.

The equipment consists of the following types of units:

- Input units whose function it is to convert the start-stop teleprinter signal to a synchronous DC signal.

- Multiplexing equipment whose function it is to combine the four parallel individual teletype signals into series form.

- The tone generator circuits which generate the two tone signal in the 20 to 24 KC range from the multiplexed signal.

- Channelling equipment which translates the tone to 250 KC and also translates the received tone from 250 KC to 20—24 KC.

- The tone detector circuits which detect the received tone and deliver a DC output.

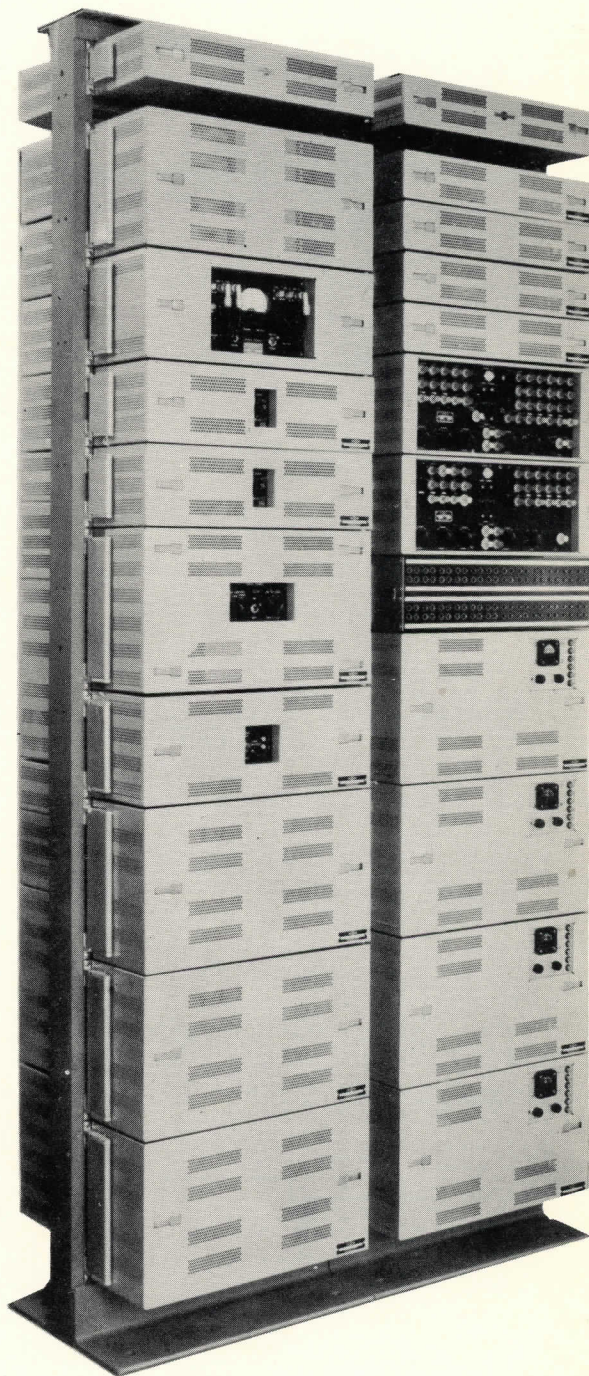
- The demultiplex equipment, which distributes the multiplexed information from the tone detector to the 4 teletype channels.

- The output circuits which deliver the required line current to operate the teleprinters.

- The timing equipment which controls the synchronous timing of the entire system.

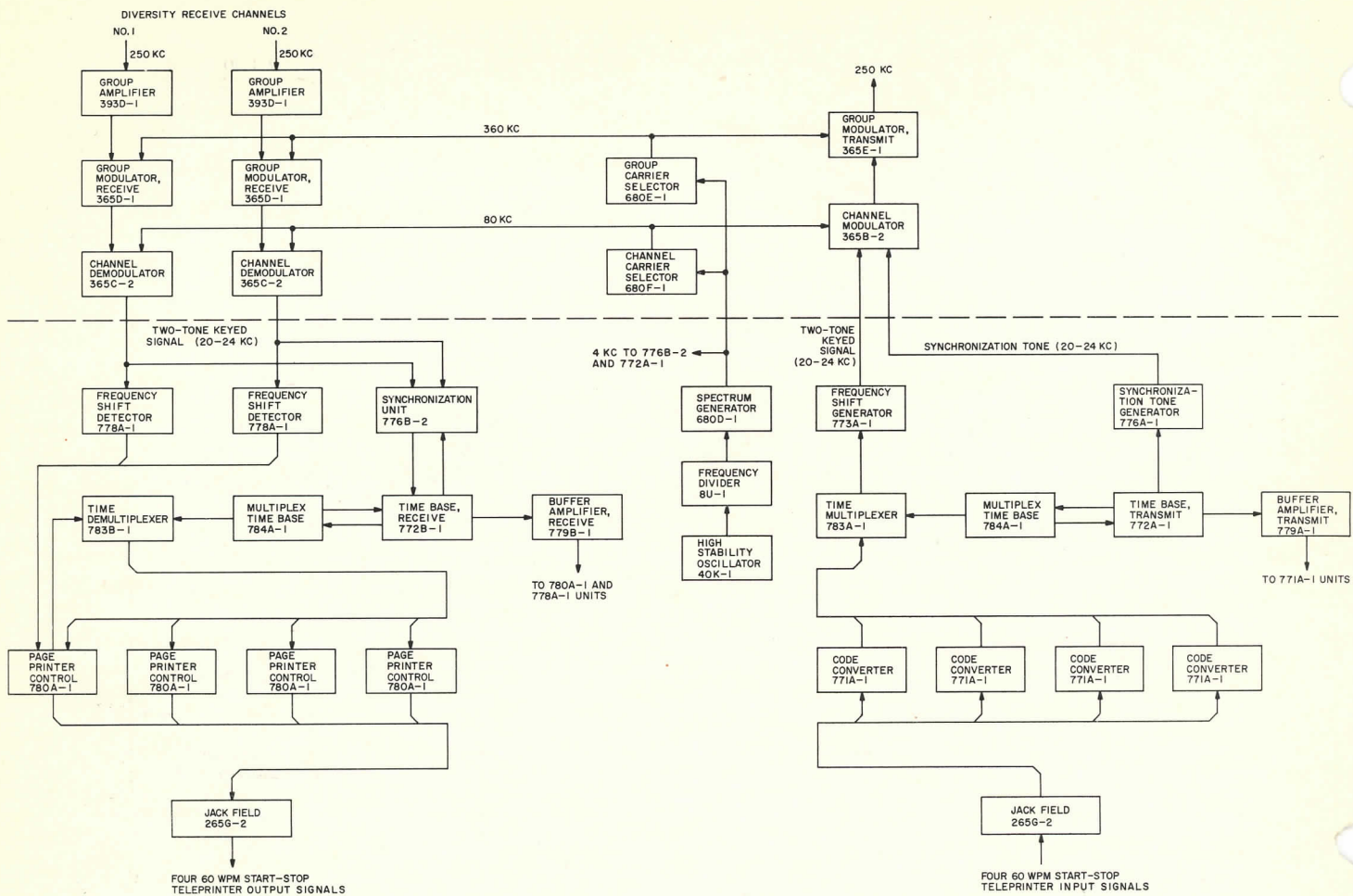
The equipment is provided with front panel switching for multiplex by one, two, or four, as circuit conditions or traffic require. This allows all of the power in the transmitter to be placed in one channel when conditions require. Front panel control of input and output loop options are provided for the most common connections.

Control panels are provided with individual circuit indicating fuses which provide maintenance personnel with a ready key to defective units. Tests points are provided on all units to determine proper operation.

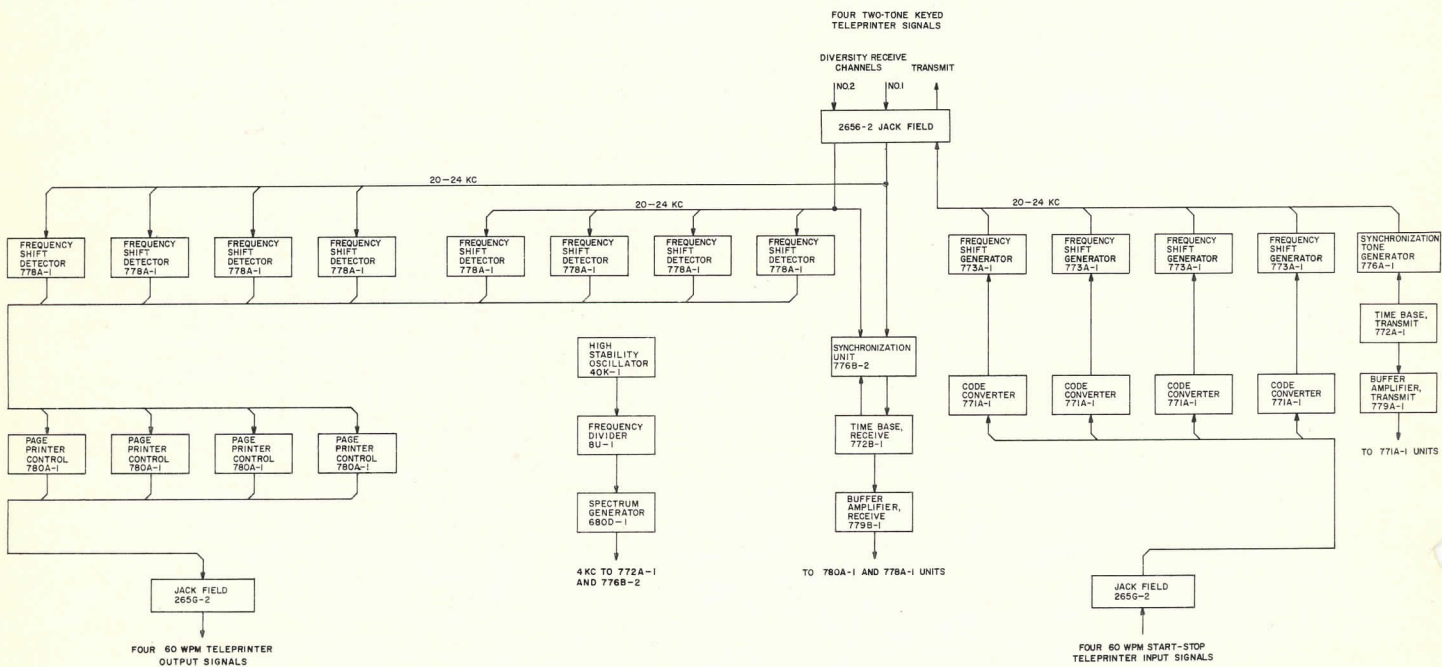




FUNCTIONAL BLOCK DIAGRAM—COLLINS TE101 FOUR CHANNEL TIME DIVISION PREDICTED WAVE MULTIPLEX TERMINAL EQUIPMENT



FUNCTIONAL BLOCK DIAGRAM - COLLINS TE101 FOUR CHANNEL PREDICTED WAVE MULTIPLEX EQUIPMENT



EQUIPMENT RACK LAYOUT - COLLINS TE101 FOUR CHANNEL TIME DIVISION  
PREDICTED WAVE MULTIPLEX TERMINAL EQUIPMENT

JUNCTION PANEL	JUNCTION PANEL	JUNCTION PANEL	JUNCTION PANEL
40K-1	780A-1	526D-1	526D-1
8U-1	780A-1	776A-1	426A-1
779B-1	780A-1	773A-1	
778A-1	780A-1	779A-1	
778A-1	780A-1	CONTROL PANEL	526C-3
	783B-1	CONTROL PANEL	526C-4
	784A-1	265G-2	526C-4
776B-2	772B-1	771A-1	526C-4
781A-2	783A-1	771A-1	526C-4
MODULE MOUNTING PANEL	784A-1	771A-1	526C-4
MODULE MOUNTING PANEL	772A-1	771A-1	526C-4
MODULE MOUNTING PANEL	BLOWER ASSEMBLY	771A-1	BLOWER ASSEMBLY
FRONT	REAR	FRONT	REAR

RACK 1 RACK 2

EQUIPMENT RACK LAYOUT - COLLINS TE101 FOUR CHANNEL PREDICTED WAVE MULTIPLEX  
TERMINAL EQUIPMENT

JUNCTION PANEL	JUNCTION PANEL	JUNCTION PANEL	JUNCTION PANEL	JUNCTION PANEL
		265G-2	779B-1	
773A-1	779A-1	265G-2	772B-1	
773A-1	772A-1	778A-1	776B-2	
773A-1	CONTROL PANEL	778A-1	CONTROL PANEL	
773A-1	CONTROL PANEL	778A-1	526D-1	
776A-1	526D-1	778A-1	526C-4	
265G-2	526C-4	778A-1	526C-4	
771A-1	526C-4	780A-1	526C-3	MODULE MOUNTING PANEL
771A-1	526C-4	780A-1	BLOWER ASSEMBLY	8U-1
771A-1	BLOWER ASSEMBLY	780A-1		40K-1
		780A-1		426A-1
				526C-4
FRONT	REAR	FRONT	REAR	FRONT

RACK 1 RACK 2 RACK 3

## EQUIPMENT SPECIFICATIONS

TYPE OF MODULATION: ..... Time division multiplex, synchronous keyed two tone; 1, 2 or 4 channels.

### INPUT:

TRANSMIT: ..... 60 speed teleprinter input, neutral or polar, normal or reverse. Balanced input, 2500 ohms adjustable for 60 ma.

RECEIVE: ..... 250 kc signal, unbalanced  
50 ohms, 50 $\mu$ v nominal level

### OUTPUT:

TRANSMIT: ..... Two-tone keyed signals spaced at multiples of 100 cycles within 248-252 kc band. 0.15 v rms, 100 ohms unbalanced.

RECEIVE: ..... 60 speed teleprinter data  
60 ma balanced line or relay operation

FREQUENCY STABILITY: ..... 1 part in 10<sup>8</sup> per day

POWER REQUIREMENTS: ..... 2.1 KW

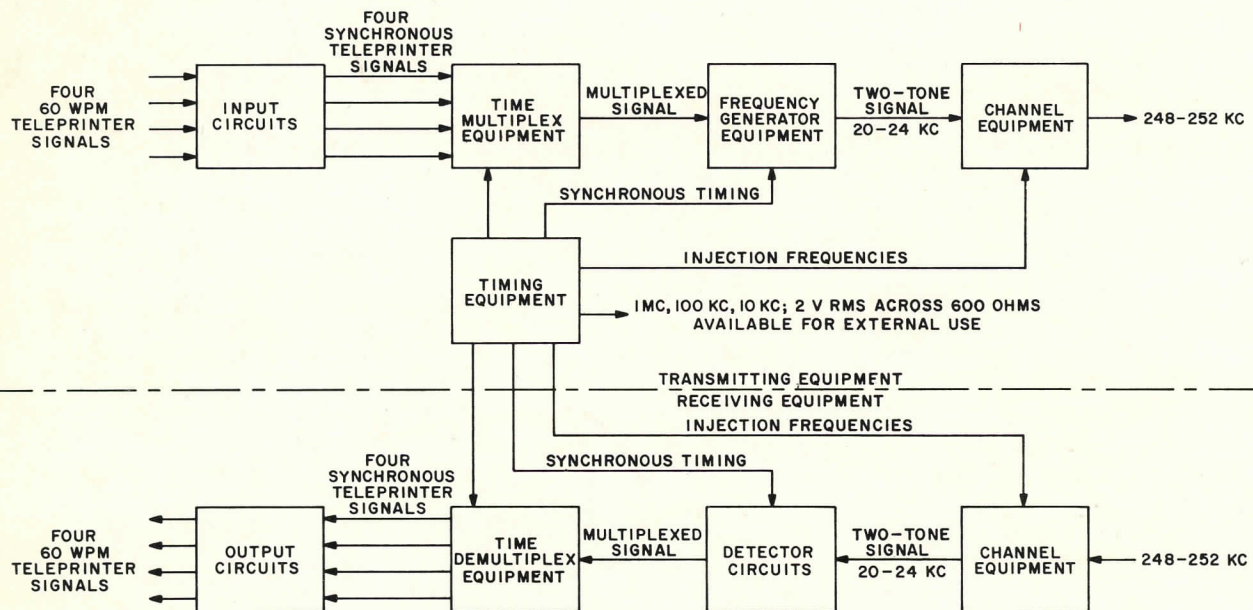
SIZE: ..... Two 80 inch relay racks

WEIGHT: ..... 650 lbs excluding relay racks

FINISH: ..... Chromate dip

ENVIRONMENTAL CONDITIONS: ..... 0-50° C temp; humidity to 95%

## FUNCTIONAL BLOCK DIAGRAM



## COLLINS RADIO COMPANY

CEDAR RAPIDS, IOWA

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1200 18th Street N.W., WASHINGTON, D. C.

COLLINS RADIO CO. OF CANADA, LTD.  
11 Bermondsey Road, TORONTO 16, ONTARIO  
COLLINS RADIO CO. OF ENGLAND, LTD.  
Sunflex Works, Colham Mill Road  
West Drayton, MIDDLESEX, ENGLAND



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