



**V --- THEORY OF OPERATION** (Page 1 of 2)

A. INTRODUCTION

The DTC25U transcoder was designed to meet or exceed all FCC applicable specifications for TV broadcast equipment. Special attention was given to the selection of sub-assemblies and components to achieve maximum reliability and minimum down time. The construction of the DTC25U is BASIC and MODULAR with most components field replaceable. Special emphasis was placed on "KEEPING IT SIMPLE" and returning to more traditional transmitter layouts and instrumentation.

Refer to the DTC25U block diagram for an overview of the transmitter architecture. This will give the technician basic information needed to understand the operation of the transmitter and the function of each subassembly.

SEE SECTION VI.A FOR PARTS LIST AND BLOCK DIAGRAM.

B. XC100LC Regenerative Transcoder

B-1 Exciter

Refer to the Larcan user manual for information on the exciter portion of the transcoder.

SEE SECTION VI.B FOR SCHEMATIC AND PARTS LIST

B-2. Drake Up Converter

Refer to Drake user manual for information on the operation of this portion of the transcoder.



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**C. LTX Mainframe Power Amplifier**

**Cabinet** - The cabinet is constructed of heavy gauge steel and is very durable. This enclosure is painted black and is resistive to harsh environment. Standard 19 inch rack mounting.

LTX-D1 Mainframe Assembly - Internal sub-assemblies include the following:

1. DC Power Supply
2. RF Deck
3. Status Monitoring (1A0035)
4. Output Power Detector Board (1A0027)
5. Reflected Power Detector (1A0029) and Shutdown Switch
6. Metering and Monitoring Assembly (1A0300)

For details of this sections above, see appropriate sections in this manual.

**D. BPUD100 Digital Mask Filter**

The FCC Stringent Mask filter supplied with the DTC25U transcoder is designed to completely satisfy the FCC Rules for a low power TV transmitter and translator.

This is a closed unit and does not require field adjustment.

**E. Optional Low Pass Filter**

This low pass filter is required and will be supplied with DTC25U translators that operate on Channels 22 - 24, 32 - 36 and 38 for the specific purpose of providing "out of band" protection to Radio Navigation Satellite Services.



**VIII --- ADJUSTMENTS AND TUNING**

The DTU25C is a new series of digital transcoders offered by Pineapple Technology, Inc. The latest in LDMOS device and circuit technology are employed to ensure reliable and serviceable operation for many years.

There are very few adjustments necessary to maintain full service condition. Typically the gain adjustment shown in the initial Transcoder Turn-On Procedure (Section IV) of this manual should require minimal attention. The front meter panel has been set up so that 100% indication in Forward Power is equivalent to 25W average output power.

The input frequency (channel) can be adjusted, within the auspices of the broadcasting re-transmission rights, to the appropriate required channel (See Larcan Manual). The transmitter output must remain on the channel licensed by the FCC and in accordance with the supplied digital mask filter.