



CUSTOMER ENGINEERING POLICIES AND PROCEDURES

Memo No: 225

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SUBJECT: (MTA-2) MAGNETIC TAPE ACCESSORY

1. If you have a Magnetic Tape Accessory, Serial Number 20 or less there is a modification (ECO #684) which we may have overlooked and which should be performed. It will decrease the stop time of the transport system. It consists of the following:
 - a. Remove the CR38 rectifier across the coil of Relay #21 on the chassis in the lower half of the cabinet.
 - b. Remove the CR38 rectifier across each capstan solenoid. To do this, it is necessary to pull the middle Potter chassis away from the frame. (This is the chassis with the read head on it). Then remove the cover on the back of the chassis (held down by six screws). Then remove the only two rectifiers on that chassis and replace the cover and main chassis.

2. On Magnetic Tape Accessories, Serial Number 30 and less, we recommend a modification as per Bendix E.C.O. #816. This change calls for the addition of a resistor in the filament circuit of the amplifier packages. This will prevent writing information during turn-on cycle. The modification is as follows:
 - a. Add a 3.9 ohm, 1/2 watt, $\pm 5\%$ wire wound resistor between pin 5 of VI, and pin 4 of V2. (See schematic attached.)
 - b. Remove jumper between pin 4 and pin 5 of VI.

The following information on MTA-2 equipment was submitted by George Baan and Harry Runkel for people with Magnetic Tape Units: The information on probable troubles is based on what has been experienced within the region. Signals to expect under normal operating conditions were scoped at an MTA-2 Unit.

The following publications and prints should be available to people maintaining MTA-2 Units:

1. BCD Bulletin entitled "Accessory MTA-2 Magnetic Tape Unit for the Bendix G-15 Computer" provides a good source of programming information, operating instructions, and write-ups on the operation of BCD components within the tape unit.
2. Instruction Manual, Model 902, Digital Magnetic Tape Handler. This manual provides instructions for servicing the Potter portion of the MTA-2 Unit.
3. Prints on Drive Chassis and Reel Chassis, (Potter); Amplifier Chassis 3C178, Amplifier Package 3C147, and Power Chassis 3C177.



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The following are maintenance tips covering some of the more commonly encountered troubles:

1. Continuous blowing of Fuse F201 - Both Reel Drive Chassis - reference Reel Chassis schematic. C215B 40ufd, (one section of C215) encounters surges which appear to exceed normal load capacity and becomes shorted requiring replacement of C215.
2. Noisy 12AY7's in Amplifier Packages - 12AY7's may be microphonic or noisy giving signals which appear as read signals; however the duration of the signal will be of longer duration than the normal read signal.
3. Amplifier Gain too High - Amplifier gain (adjusted at each package) can be set too high causing the amplifier to oscillate even with Read Command down. The output of the package will look like read signals except duration of the signal will be much longer. When the scope sweep is extended a series of square waves can be seen.
4. Start-Stop Time - Excessive coasting of the tape after termination of commands can be due to faulty stop thyatron or slow pick-up of the stop relay. A good check on start-stop time is as follows:

Sync the scope on the plus side of the FWD signal and view point T of the 5-level package. The signal should be seen 30 to 60 ms after the sweep starts. If not, check or replace thyatrons (2D21) V101 FWD, V102 STOP, V103 REV, or the stop relay.

5. Pick-up of the forward or reverse relays can also cause search difficulties as transfer inhibits the search for file code. Therefore, the T number of the command may become critical if the relays are slow.
6. Packages are located as follows - 6, 5, 4, 3, 2, 1 levels respectively from left to right facing the unit and at the bottom of the tape unit.
7. The Potter Manual gives trouble shooting tips for the tape handling mechanism.
8. The biggest item in keeping the unit trouble free is to keep the tape transport area clean of oxide. However, do not allow Carbon Tet to come in contact with the tape.



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9. Troubles can be encountered when the tape units are moved about excessively.
10. Bias testing as indicated by previous memos should also be done.

TYPICAL READ AND WRITE SIGNALS:

1. Read Signals -- Test Point T

Hi-speed: 60 - 80 us pulse duration, -20 to 0v
Lo-speed: 150 - 200 us pulse duration, -20 to 0v

Read Signals -- Test Point R

Same as above with -80 to 0v

2. Writing -- Normal writing density gives a signal every 2 ms plus or minus, i.e., 450 char/sec. As for scoping the write signal, about all that can be done is to look for presence of a signal to the write head. If point T is scoped, an output is seen when writing. This is brought about by back EMF reflected to the step-up transformer from the write head giving an output. A low amplitude of read signal when reading can also indicate a low writing level. Interchanging of packages can be handy when trouble is encountered with one of the levels.