Subject: Voltage Adjustments-Type 706

Purpose: To provide information for adjusting the Electrostatic Storage Unit, Type 706.

Information:

+40 Volt Power Supply

Adjust the "+40 V Adjust" potentiometer (Fig. 2) so that the output voltage measures 40 volts at the test terminal which is labeled +30 V.

-150 Volt Supply

Adjust the potentiometer so that the output voltage measures 150 volts at the test terminal, Figure 2.

+400 Volt Supply

1. Adjust the "+450 Adjust" potentiometer so that the output voltage measures +400 volts at the test terminal labeled +400 V. (Fig. 2).

2. Adjust the 75 ohm Adjustable Resistor potentiometer in the +400 volt supply (Fig. 1) for 2.5 volts measured at the test terminals labeled Jk and +450 (Fig. 1.)

+270 Volt Supply (Horizontal Deflection)

Adjust the potentiometer (Fig. 2) for +270 volts output measured at the test terminal.

+270 Volt Supply (Vertical Deflection)

Adjust the potentiometer for +270 volts output at the test terminal. (Fig. 2)

Astigmatism Voltage (+217 Volts) Supply

1. With machine in Regeneration using a DC voltmeter (1000 ohms/volt or better), measure the DC voltage on all 4 deflection lines (U, D, R, L) at TBZ. (Fig. 1)

(over)
2. The average value of these 4 voltages gives the optimum setting for the astigmatism voltage. This is not necessarily 217 volts but around 200 Volts. The voltages should vary no more than 2 Volts from each other.

3. The astigmatism voltage adjustment potentiometer and the test terminal are located on the gate in the memory frame. See Figure 2.

-2300 Volt Supply

1. Place the -2300 volt monitor in the OUT position.

2. Turn off the high voltage in memory by means of the high voltage switch.

3. Connect the meter leads to the test jacks. Use the Weston Model (0-0.15 ma, scale) 931 milliammeter; full scale will now equal 3000 volts since the resistors in the machine act as the multiplying resistors.

CAUTION:

Do not connect or disconnect the meter leads while the high voltage is turned on, under any circumstances. If only the -2300 volt lead is connected, and the circuit is "hot", the meter leads and the case will be at high potential. This condition will exist until the ground lead is connected to ground. Therefore, always turn off the high voltage when connecting or disconnecting the leads to measure the -2300 volts.

4. Turn on the high voltage.

5. Adjust the voltage adjust potentiometer for 2300 volts. (0.115 ma)

6. Turn off the high voltage.

7. Remove the meter leads.

8. Turn on the high voltage.

9. Adjust the balance potentiometer for zero volts between the plates, pins 1 and 6, of the 12 AX 7 (Fig. 2). (V34) (Voltage across 807 must be 300 to 350 volts—vary Sola Taps)
10. Place the -2450 volt monitor in the IN position.

-150 Volt (CRT Bias) Supply

1. Place the -2450 volt monitor in the OUT position.

2. Turn off the high voltage in memory by means of the HV switch.

3. Connect the meter leads to the test jacks. Use the Weston Model 931 milliammeter's full scale will now equal 300 volts.

**CAUTION:** Do not touch the tests leads while measuring this voltage. As soon as the HV is turned on, both of the test leads and the meter are at high potential at ALL times. If it is necessary to rearrange the meter or the test leads, FIRST turn off the high voltage.

4. Turn on the HV.

5. Adjust the voltage adjust potentiometer for 150 volts.

6. Adjust the balance potentiometer for minimum voltage between the plates, pins 1 and 6, of the 12AX7. (V56) (Fig. 2)

7. Turn off the HV.

8. Disconnect the meter leads.

9. Turn on the HV.

10. Place the -2450 volt monitor in the IN position.

**Memory Drawer Adjustments**

See Engineering Reference Memorandum #5 for these adjustments.

**Focus Margin**

Normally the switch is in the OUT position. This grounds the high voltage bleeders in all drawers (the focusing anodes are fed from a tap on these bleeders) and makes the focus margin circuit inoperative. When in use, a voltmeter is connected across the test jacks. The voltmeter measures the amount of focusing bias applied for machine testing.
Bit Sweep Adjustments

1. Make sure that the dash pulse is adjusted correctly. See Main Frame Adjustments. The dash should begin at 10.5 and should be 2.9 micro-seconds duration.

2. Adjust the timing of the bit sweep start by means of the .45 micro-second delay line located at MF3-A33. The bit sweep should start 0.1 micro-seconds after the dash pulse starts, i.e. at 10.6 time.

3. Stop all deflections other than the bit sweep by turning off the HV, and by placing the machine in use time (I or E time). Do this by means of the cycle time manual control switch located in the Main Frame Panel 1.

4. Measure the bit sweep voltage on either horizontal deflection line. The left and right bit sweep voltages are of approximately equal amplitude and opposite polarity. Adjust the bit sweep adjust potentiometer (Fig. 2) so that the voltage is one volt at the end of dash time.

Pulse Timings

The following pulse timings and amplitudes are measured at the Memory Frame.

<table>
<thead>
<tr>
<th>Pulse</th>
<th>Approximate Starting Time</th>
<th>Amplitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. MV Trg. Turn Off</td>
<td>3.0</td>
<td>40V</td>
</tr>
<tr>
<td>2. Bit Sweep Start</td>
<td>10.6</td>
<td>40V</td>
</tr>
<tr>
<td>3. Lt. Sample</td>
<td>7.2</td>
<td>35V</td>
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<tr>
<td>4. Rt. Sample</td>
<td>9.7</td>
<td>35V</td>
</tr>
<tr>
<td>5. Sample RI</td>
<td>9.5</td>
<td>(-20 to +40) V</td>
</tr>
<tr>
<td>6. Dash</td>
<td>10.5</td>
<td>(-30 to +5) V Approx.</td>
</tr>
<tr>
<td>7. Dot</td>
<td>6.5 or 9.0</td>
<td>(-30 to +15) V Approx.</td>
</tr>
<tr>
<td>8. Control Lines</td>
<td>2</td>
<td>(-30 to +10)</td>
</tr>
</tbody>
</table>

Pulses 1 through 4 above are very critical and the amplitudes given are the absolute minimums which can be tolerated for reliable operation.

The Address Control Line (8 above) is normally 5 to 10 volts more positive than the Operation Control Line which drives it.

****
Figure 1  Front of ESM Gate
Figure 2  Rear of ESM Gate
Figure 3 Rear of ESM Frame
SUBJECT: General Service Technique and Information-Type 706

PURPOSE: To inform the field of the latest service techniques and also problems which have been encountered at other installations.

INFORMATION:

1. Repair of Memory Drawers

Increasing video amplifier gain causes an increase in the effects of spill in the following manner:

Consider a typical dot signal as viewed at the video amplifier sixth stage. (See Fig. 1.) As the "potential well" of the dot is filled by the collection of secondary electrons from surrounding areas in the cathode ray tube, the negative swing of the dot will go in a positive direction (refer to Curve A). As long as this swing stays negative, increasing the amplifier gain will have no effect on the changing of this dot to a dash. However, when the spill becomes sufficient to cause this swing to go positive, (refer to Curve B), it is possible to increase the amplifier gain to the point where the positive dot will go above the clipping level enough to appear as a dash signal.

The more frequent causes for spill other than the cathode ray tube in the order of most troublesome to least troublesome are:

(a) Noisy video amplifier
(b) Excessive gain setting of the drawer
(c) Marginal trigger tubes
(d) Marginal circuitry associated with the trigger
(e) Weak diodes in the unblanking circuit
(f) Weak sample pulse
(g) Noise in the deflection circuit due to microphonic tubes or noisy increment resistors

It has been pointed out that although items "f" and "g" pertain to the memory frame, a failure in a single drawer (which is actually good) sometimes results.

Other than standard tests you might try tap testing for microphonic tubes and thorough bias checking of the storage trigger circuitry.
The phenomenon of spill cannot be observed by looking at some particular point in a memory drawer with an oscilloscope while the drawer is being operated. This is because the signals observed with an oscilloscope in a drawer are composite signals representing information from all the bits on the cathode ray tube. It would, therefore, be impossible to observe the "spilling" of a particular bit on a tube while running a program because the identity of a particular signal would be obscured by the presence of other signals.

A dot signal viewed at the Output of the Video Amplifier

2. To observe noise on the deflection lines:

(a) Turn off the high and bias voltages.
(b) Remove the bit sweep trigger.
(c) Set instruction counter to 7777.
(d) Lock in 1 time (switch on Panel 1) to kill deflection.
(e) With scope observe horizontal deflection lines while tapping all switch and deflection CF tubes on deflection gate. Noise spikes generated by tapping will appear as differentiated square waves. All tubes can be caused to generate spikes, however, some are more sensitive than others and should be replaced. The average noise level on the deflection lines should be approximately 70 millivolts.
(f) While checking for noise, look for any indication of sixty cycle hum which indicates a low impedance between cathode and heater. These tubes should be replaced.
(g) Repeat observing vertical deflection lines.
(h) Set instruction counter to 0000 for opposite deflection operation.
(i) Repeat horizontal and vertical tapping test.

3. To check for loose connections or microphonic tubes in Memory:
   While running forget or dropout:
   (1) Tap individual drawers.
   (2) Tap tubes on gate.
   (3) If error occurs, machine will stop with error indicated on operators panel.
4. A method of examining the CRT for a bad spot follows. Repeated failure of a CRT at the same address may be due to a bad spot on the face of the tube at that address.

(a) Set the instruction-Store the error address in keyboard.
(b) Put machine in continuous memory Read IN
(c) Observe the output of the faulty drawer. The normal output of both tubes during regeneration time will appear on the scope; in addition to this the output from the suspected bad spot will appear during "use" time. (6.5 to 7.7 time).
(d) A bad spot will appear as low output, 20% less than normal.

5. Memory Drawer Unit P/N 319112-On some occasions machine time does not permit the complete analysis of a memory drawer problem. If a condition on a given unit cannot be located on the tester and troubles still persist, we suggest that the drawer be returned to Poughkeepsie for a complete check. We will advise you the outcome of the analysis. Every effort should be made to maintain the spare memory units at good operating level.

6. Removing Memory Drawers-The D.C. Voltage should be turned off when removing a Memory Drawer. Reason for this being that the contacts in the memory drawer do not make and break in a sequential manner, thus the possibility exists of diode deterioration due to large back EMF's without benefit of clamp voltages. It has also been noted that the back plugs will blacken due to arcing from removal of drawers with D.C. ON. It is suggested that a spare memory drawer receptacle be in the spare parts stock. This is P/N 319126-Memory Unit Receptacle.

7. Method to detect bad clamp diodes in memory drawers-

(a) Machine in regeneration
(b) Connect meter to read +40 volt supply
(c) Raise +40 volt supply to +44 volts
(d) While watching meter, reset memory from 1's to 0's continuously
(e) No deflection of meter should exist
(f) If meter fluctuates (even a fraction of a volt) the memory drawers should be pulled until the trouble is located.
(g) A deflection of as little as 3/4 volt has been known to be caused by one defective clamp diode in a memory drawer.
8. **BIAS CHECKING UNBLANK VOLTAGE**

A new program ES #010 (PKS-012) which is a combination of ES-003 and ES-004 writes and checks "1's" and "0's" alternately. This is very useful when used while varying the unblank voltage (+40V). This test should operate correctly while varying the +40 volts from +37 to +44 volts.

The program will stop with the error address in MQ in the form of —R Add (error address). Contents of the accumulator register will show the drawer in error.

If this line is raised above 46 volts, the "catcher" thyratron will fire, necessitating a DC off.

9. **RIPPLE CONTENT**-Type 706 Voltages

- **+400 Volt Supply**- The ripple on the output should be less than 15 millivolts peak-to-peak as measured with an oscilloscope.

- **-150 Volt Supply**- The ripple should be less than 15 millivolts measured with an oscilloscope

- **+30 Volt Supply**- The ripple should be less than 40 millivolts peak-to-peak

- **+270 Volt Supply**- (Horizontal)- The ripple voltage should be less than 5 millivolts peak-to-peak

Bias Supply- The output ripple should be less than 50 millivolts peak-to-peak as measured with an oscilloscope.

Hi-Voltage Supply- Ripple should not exceed 0.5 volts peak-to-peak. CAUTION must be exercised when measuring the ripple voltage. The following procedure is recommended:

Be sure the high voltage switch is OFF, then connect a 1.0 MFD or larger capacitor of the oil filled type rated for at least 2500 volts in series with a 1 meg ohm resistor. This combination is then connected across the output of the supply with the resistor connected to ground. Connect an oscilloscope across the resistor and observe ripple. Do not have the oscilloscope connected when the supply is turned ON or OFF. Turn on the supply and wait a sufficient length of time to insure the capacitor is fully charged.

****
NOTES:
1. MU 30 MEANS "THIS LINE GOES TO PIN 30 ON MU"
2. JUNCTION NOTATION "U" MEANS UPPER "L" MEANS LOWER.
VIEW LOOKING AT REAR OF MEM UNIT OR AT REAR OF FRAME

1 +220
2 +150
3 -100
4 -250
5 ASTIG + 20°
6 HI-VOLTAGE-2300
7 HI-VOLTAGE-2450
8 HV FILS
9 HV FILS
10 LV FILS
11 LV FILS
12 -30
13 +30
14 +15
16 CONTROL
17 DOWN
18 UP
19 LEFT
20 RIGHT
21 LT DOT & DASH TL
22 RT DOT & DASH TL
23 LT SAMPLE TL
24 RT SAMPLE TL
25 MEMORY IN/OUT COAX
26 SPARE
27 SAMPLE RT TL
28 RESET (MU TGR TURN OFF) TL
29 GND LOCATING PIN
30 GND LOCATING PIN

* TL OPEN WIRE TRANSMISSION LINE
## Cable Connections for Memory Busses

- **Memory Bus 1**
- **Memory Bus 2**
- **Memory Bus 3**
- **Memory Bus 4**
- **Memory Bus 5**

<table>
<thead>
<tr>
<th>Memory Bus</th>
<th>Connector</th>
<th>Receptacle MF-ESF1 (Pin No)</th>
<th>Connector</th>
<th>Receptacle ESF-ESF1 (Pin No)</th>
<th>Connector</th>
<th>Receptacle ESF-ESF2 (Pin No)</th>
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Two ESF operation only.
VERTICAL DEFLECTION CIRCUIT

8 FULL 5965'S IN PARALLEL

(107.04)
TS-102-1
*400 V SPECIAL

(107.03)
TS-102-5
+270 V

4.7 K

5.6 K

5-4K50 W
RESISTORS
IN PARALLEL

9.30
TB-22-1 (UP)

TB-22-2 (DOWN)

9.30

TO 72 CRT
VERTICAL DEFLECTION
PLATES

B12
-50V SPECIAL
TS-102-5
(107.05)

5965(1)

5965(1)

5965(1)

5965(1)

5965(2)

5965(4)

HEX PAGING
1-SMALL VERTICAL
2-SMALL VERTICAL
4-SMALL VERTICAL
1-LARGE VERTICAL
2-LARGE VERTICAL

*1-SUCH COMPONENT FOR EACH TUBE HALF CONNECTED IN PARALLEL
|       | 0     | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    | 24    | 25    | 26    | 27    | 28    | 29    | 30    | 31    |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 00    | 0-100 | 1-200 | 2-300 | 3-400 | 4-500 | 5-600 | 6-700 | 7-800 | 8-900 | 9-100 | 10-200| 11-300| 12-400| 13-500| 14-600| 15-700| 16-800| 17-900| 18-100| 19-200| 20-300| 21-400| 22-500| 23-600| 24-700| 25-800| 26-900| 27-100| 28-200| 29-300| 30-400| 31-500|
| 01    | 0-100 | 1-200 | 2-300 | 3-400 | 4-500 | 5-600 | 6-700 | 7-800 | 8-900 | 9-100 | 10-200| 11-300| 12-400| 13-500| 14-600| 15-700| 16-800| 17-900| 18-100| 19-200| 20-300| 21-400| 22-500| 23-600| 24-700| 25-800| 26-900| 27-100| 28-200| 29-300| 30-400| 31-500|
|       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |

**NOTES:**

1. THIS LAYOUT IS FOR EVEN ADDRESSES, LT TUBES
2. FOR ODD ADDRESSES, ADD TO ABOVE ADDRESSES
3. FOR SINGLE ADDRESSES, ADD TO ABOVE ADDRESSES
4. FOR EVEN ADDRESSES, RT TUBES

---

323028 EC 50669
NOTE 1: BUS SIGNALS ARE PLUS EQUAL ONE (DOT)  
MINUS EQUAL ZERO (DASH)

NOTE 2: SWITCH & DEFLECT TIME INCLUDES TIME  
FOR SETTING INFORMATION INTO DEFLECTION  
REGISTER

NOTE 3: WHEN A ONE (DOT) IS READ IN, THE BUS SIGNAL  
IS HELD UP BY MEMORY UNIT AFTER 10.5 TIME.  
WITHOUT MEMORY UNIT, BUS SIGNAL RETURNS TO  
−30 V AS SHOWN BY DOTTED LINE

NOTE 4: ON BUS SIGNAL (RI), DASHED LINE INDICATES  
CONDITION FOR A ZERO (DASH) READ IN.
330 Ω

RESET TO ONES
  \(\text{Kills Dash pulse}\)

RESET TO ZEROS
  \(\text{Kills Sample pulses}\)

PIN #4
TUBE OI-K
DEFL GATE

-30 VOLTS
RESET TO ONES \(\rightarrow 1.04\)
RESET TO ZEROS \(\rightarrow 1.04\)

8 FT CABLE
JONES PLUG

THESE PUSH BUTTONS ARE ONLY
USED FOR TESTING DURING
SETTING UP OF MEMORY
CRT HIGH VOLTAGE SUPPLY

NOTES

XI POTENTIOMETER CONVENTION FROM SHAFT END
CLOCKWISE ROTATION MOVES ROTOR TOWARD "R" TERMINAL

ZZ: 6.3V AC @ 0V DC (HTR TRANS)
WITH VOLTAGE JUG: 3000V FULL SCALE ON A
DISMA WESTON MODEL 931 MILLIAMMETER
V = 6.3V AC @ -2300V DC (BIAS TRANS)

107.02

107.05

107.01

2µf 3000V

-2300V

0-2450V

180K 2W

180K 2W

330K 2W

330K 2W

330K 2W

330K 2W

330K 2W

330K 2W

330K 2W

90K 2W

90K 2W

180K 2W

90K 2W

50K 10W

50K 10W

50K 10W

50K 10W

10µf 3000V

220K 1W

220K 1W

220K 1W

220K 1W

0.1µf 4000V

24K 1W

24K 1W

24K 1W

24K 1W

1K 3000V

1K 3000V

1K 3000V

1K 3000V

-100V

TS-106-3

0-250V

107.05

107.05

107.05

107.05

107.05

107.05

107.05

107.05

107.05

107.05
DEFLECTION GATE LOCATION CHART

5965 LAYOUT
L - LEFT
R - RIGHT
U - UP
D - DOWN
X - BLANK POSITION

VIEWED FROM WIRING SIDE

T-12
DEFLECTION GATE
HEATER TRANSFORMER
(TOP)

T-12 CONNECTIONS
1. TB-23-1 AC REG
2. TB-23-2 NEUT
3. TS-104-1 6.3 AC
4. TS-104-2 6.3(GND)
5. TS-103-1 6.3 AC
6. GND CT GND
7. TS-103-2 6.3 AC
8. TS-101-1 6.3 AC
9. CT&200V
10. TS-101-2 6.3 AC
11. TS-105 6.3 AC
12. CT&200V
13. TS-105-10 6.3 AC
14. TB-24-1 6.3400VDC
15. TB-24-7 CT#4 300V
16. TB-24-2 6.3400VDC
17. TS-105-3 6.3 AC
18. CT & 140 V
19. TS-105-4 6.3 AC

TERMINAL BLOCK PINS
TERMINAL LOCATION OF COAXIAL CABLE IN HOLDER WIRE
1. TB-23-1 AC REG DEF LADR 15
2. TB-23-2 NEUT DEF LADR 14
3. TS-104-1 6.3 AC DEF LADR 13
4. TS-104-2 6.3(GND) DEF LADR 12
5. TS-103-1 6.3 AC DEF LADR 11
6. GND CT GND DEF LADR 10
7. TS-103-2 6.3 AC DEF LADR 9
8. TS-101-1 6.3 AC DEF LADR 8
9. CT&200V DEF LADR 7
10. TS-101-2 6.3 AC DEF LADR 6
11. TS-105 6.3 AC DEF LADR 5
12. CT&200V DEF LADR 4
13. TS-105-10 6.3 AC DEF LADR 3
14. TB-24-1 6.3400VDC DEF LADR 2
15. TB-24-7 CT#4 300V DEF LADR 1
16. TB-24-2 6.3400VDC DEF LADR 0
17. TS-105-3 6.3 AC DEF LADR 0
18. CT & 140 V DEF LADR 0
19. TS-105-4 6.3 AC DEF LADR 0

TERMINAL BLOCK PINS
TERMINAL LOCATION OF COAXIAL CABLE IN HOLDER WIRE
1. TB-23-1 AC REG DEF LADR 15
2. TB-23-2 NEUT DEF LADR 14
3. TS-104-1 6.3 AC DEF LADR 13
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6. GND CT GND DEF LADR 10
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8. TS-101-1 6.3 AC DEF LADR 8
9. CT&200V DEF LADR 7
10. TS-101-2 6.3 AC DEF LADR 6
11. TS-105 6.3 AC DEF LADR 5
12. CT&200V DEF LADR 4
13. TS-105-10 6.3 AC DEF LADR 3
14. TB-24-1 6.3400VDC DEF LADR 2
15. TB-24-7 CT#4 300V DEF LADR 1
16. TB-24-2 6.3400VDC DEF LADR 0
17. TS-105-3 6.3 AC DEF LADR 0
18. CT & 140 V DEF LADR 0
19. TS-105-4 6.3 AC DEF LADR 0

GRAPHIC 1
WIRING SIDE VIEW OF TERMINAL BLOCKS & COAXIAL CABLE HOLDER IN DEFLECTION GATE

GRAPHIC 2
WIRING SIDE VIEW OF TERMINAL BLOCKS & COAXIAL CABLE HOLDER IN DEFLECTION GATE

* FOR OTHER TERMINAL BOARD LOCATIONS SEE 9.30

323043 EC 30880
NOTE

FILAMENT CENTER TAP
BIASED AT -50 V.
POTENTIOMETER CONVENTION:
FROM SHAFT END, CLOCKWISE
ROTATION MOVES ROTOR TOWARD "R" TERMINAL
NOTES

THIS DIAGRAM REFERS TO PLUGGABLE UNITS 0341 AND 0342. DOTTED LINES, VALUES IN PARENTHESIS, AND X APPLY TO 0342 ONLY.
CF_L

PLUGGABLE UNIT

SYSTEM

IN

15 uuf

220 K (A)

390 K (A)

-250 V

+150 V

5965

2

150 Ω

OUT

4.7 K

2 W

3.3 K

2 W

-100 V
X-INDICATES 220V
PLATE SUPPLY
THY

PLUGGABLE UNIT

SYSTEM

+55V\textsuperscript{THROUGH CAM CONTACTS}

323445 EC 50175
## DATA FOR MAIN FRAME ADJUSTMENTS

<table>
<thead>
<tr>
<th>PULSE</th>
<th>LOCATION SYSTEMS</th>
<th>PHYSICAL</th>
<th>START</th>
<th>DURATION</th>
<th>AMPLITUDE</th>
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<tr>
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<td>Conlt Line</td>
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<td>MF3 J34</td>
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<td>-30 to 10v</td>
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**NOTES:**

1. The first four pulses above are very critical in timing and amplitudes given are absolute minimums for satisfactory operation.

2. All pulses are measured in ESM Frame as near as possible to drawer connector.

3. Left and Right dots are initiated by 6D1 and 8D1 respectively. Inherent circuit delays account for 0.5usec delay and a lumped constant delay of 0.5usec is added to the Right Dot circuit. The Dash pulse is initiated by a 9D1 and has 0.5usec inherent delay and 1.0usec lumped constant delay line.

4. Sample Pulse adjustments are outlined further in ERM #12

5. Clock line delay and Master Oscillator adjustments are outlined in ERM #6 and 7.
6. The Left and Right Sample pulses are timed at the factory to coincide with the timing of the clipper output. The clipper timing outputs of all drawers for any one machine are centered with their trimmers and the average timing is used. This value should not require adjustment under normal field conditions.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>BASE COMM'S</th>
<th>Heater</th>
<th>Deflection</th>
<th>Screen Dia.</th>
<th>Used As</th>
<th>Focusing Anode N°1</th>
<th>Anode N°2</th>
<th>Grid N°1</th>
<th>Grid N°2</th>
<th>Max. Peak Volts Between Anode N°2 &amp; Any Deflection Plate</th>
<th>Maximum fluorescent screen input power per sq centimeter (milli-watts)</th>
<th>Deflection Sensitivity (mms/volts d.c.) D1 + D2 + D3 + D4</th>
<th>Peak to Peak Signal Swing Volts</th>
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