

### 11.3 ASSEMBLER'S INSTRUCTIONS

ADTEK MODELS 3120, 5120, 6120 CONTROLS WITH MODEL 3250 HIGH VOLTAGE GENERATOR.

#### GENERAL INFORMATION:

Model 5120 and 6120 controls and Model 3250 High Voltage Generator are compatible with a rotating anode tube with a rating of at least 500MA @ 125KVP, and a Collimator which meets 21 CFR Federal Standards for the particular application being considered. Model 3120 control and Model 3250 High Voltage Generator are compatible with a tube rated to 300MA @ 125KVP. A Collimator interlock circuit is provided to accommodate an isolated switch or relay in the Collimator logic of a PBL System. For applications not requiring PBL, this interlock can be jumpered.

Refer to: USER'S INFORMATION Pages 1, 2, 3, 4.

#### ASSEMBLY:

The Control and High Voltage Generator are completely assembled when they are shipped, including the 8ft. line cable and the 20ft. transformer cables, if they have been ordered as an option. A knockout plate is provided in the bottom of the Control to connect type s/o Hard Service Oil Resistance Cable or Conduit as desired.

#### INSTALLATION:

1. Position the Control to satisfy the Radiation Safety Requirements.
2. The High Voltage Generator will usually be located at one end of the Tubestand or may be placed under or inside a Horizontal Table.

3. Make the electrical connections as below:

<u>CONTROL</u>	<u>H.V. GENERATOR</u>	<u>LINE</u>	<u>BUCKY</u>	<u>COLLIMATOR</u>
L1		208-250V		
L2				
P1	P1			
P2	P2			
G	G	GROUND	FRAME	
MA	MA			
XS	XS			
XC	XC			
XL	XL			
B1			B1	
B2-1			B2-BUCKY #1	
B3-1			B3-BUCKY #1	
B2-2			B2-BUCKY #2	
B3-2			B3-BUCKY #2	
B4			B4	
A1				
A2				120V AC
11				
12				COLLIMATOR INTERLOCK
	<u>X-RAY TUBE</u>			
07	7 BLK			
08	8 GR			
09	9 WH			

4. NOTE: There is room under the Control to store approximately 3ft. of cable so as to allow the Control to be pushed back against a wall.

**ADJUSTMENTS & TESTS:**

The Control and High Voltage Generator with matched serial numbers have been adjusted and tested before shipment with a DX 60, 1-2 X-Ray Tube (Models 5120 and 6120) and a DX 40 X-Ray Tube (Model 3120).

Electrical and Radiation Compliance Testing was done with this tube; however, any comparable Certified Tube can be used by following the instructions below.

1. The Line Voltage Adjustment Strap on the Control interconnecting panel should be set to the tap nearest the incoming voltage as measured by an AC Voltmeter across L1 & L2. The final selection should be the tap which produces the nearest voltage to 120V AC on A1-A2 terminals. Note: A1 & A2 output is fused @ 10A for auxiliary circuit power.
2. The MA Overload Sensing Relay has been adjusted to operate at 20% above maximum MA Station on Model 3120 and 10% on Models 5120 and 6120. Operation of the Overload Circuit causes a relay to lockout the exposure circuit, and light the Red Pilot Lamp above the MA Meter. Turn the Line Switch "OFF" and "ON" again to reset this circuit.
3. The Tubestarter Sensing Circuit has been adjusted so that an exposure cannot be made if one of the Rotor leads (7, 8 or 9) is open. The rotor time delay is approximately 1½ seconds.
4. With the X-Ray Tube connected to the Generator, but with the Collimator not installed, disconnect P1 & P2 from the Control and depress the Rotor Start Switch. Check the filament of the tube to be sure that the

correct filament lights with different positions of the MA-Focal Spot Selector Switch. (No exposure can be made with P1 & P2 open while you are checking the tube). Install Collimator and replace P1 & P2 leads in the Control.

5. The X-Ray tube filament heat has been set at manufacture for the indicated MA values shown on the Selector Dial, and the spacecharge compensation has been properly phased and adjusted for a DX 60, 1-2 insert (Models 5120 and 6120) and for a DX 40 (Model 3120). With a comparable tube, little or no adjustments will be required to calibrate the MA Stations. Close the shutters on the Collimator and make a test exposure at 70KVP for each MA Station at  $\frac{1}{2}$  second to check the MA values. Once you know the approximate settings, increase the time so that the MA Meter will reach the full value (8/10 second) and adjust the filament, preset resistors for the proper MA. (Watch the Tube Rating Chart and the accumulated exposures so as to not overload the tube). \*
6. Repeat the tests under (5) at 60, 80 and 100KVP to check the spacecharge adjustment. This has been preset, but if a tube with different spacecharge characteristics is installed, it may require readjustments so that the MA is the same at 60, 80 and 100KVP within 10%. Use a MAS Meter above 300MA. \*
- 6a. Measure the line regulation as described under 5 of User's Information. The calculated regulation at Full Load should not exceed 5% in order to not exceed the stated tolerance.

7. The Timer has been adjusted to give accurate time settings. If it becomes necessary to check it, connect an impulse counter to terminals P1 & P2 in the Control and make exposures at 60KVP, 50MA. A Spintop can also be used for this test.
8. The KVP Meter has been calibrated for the correct load compensation on a powerline which has 3.8% regulation at maximum line current for 300MA, 125KVP. Set the Control to 50MA at 100KVP. The voltage from P2 to the Auto Transformer side of the contactor (P1 before exposure) should be 204V. The Meter should read approximately as shown:

3250 Generator

MA STATION	METER KVP
50S	100
100S	98
100L	98
200L	94
300L	90
400L	86
500L	82
600L	78

9. A Tone Oscillator sounds during the exposure.
10. The exposure will be terminated if either the Rotor Switch or Exposure Switch are released before the timer has terminated the exposure.
11. With the Collimator interlock open, no exposure can be made. (Terminals 11 & 12).

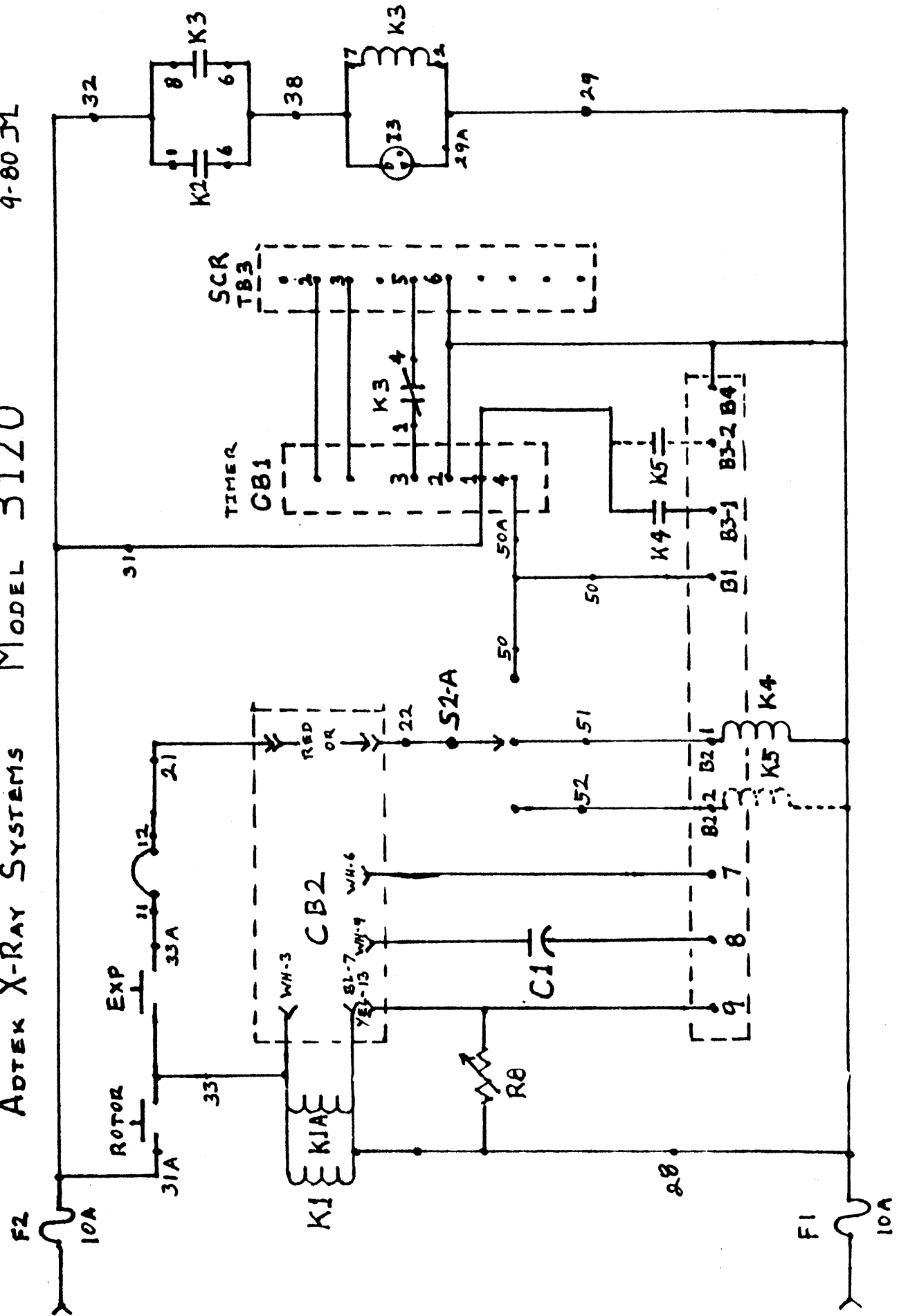
**MAINTENANCE:**

Should access be required to the under side of the top panel, the panel can be removed and tilted backward 90° to rest on the top of the lower cabinet. (4) 10-32 screws hold the top panel in place. Remove the nuts first.

The required annual maintenance consists of checking the items listed under Adjustments and Tests as well as inspection of the switches, knobs and relay contact points on the X-Ray contactor.

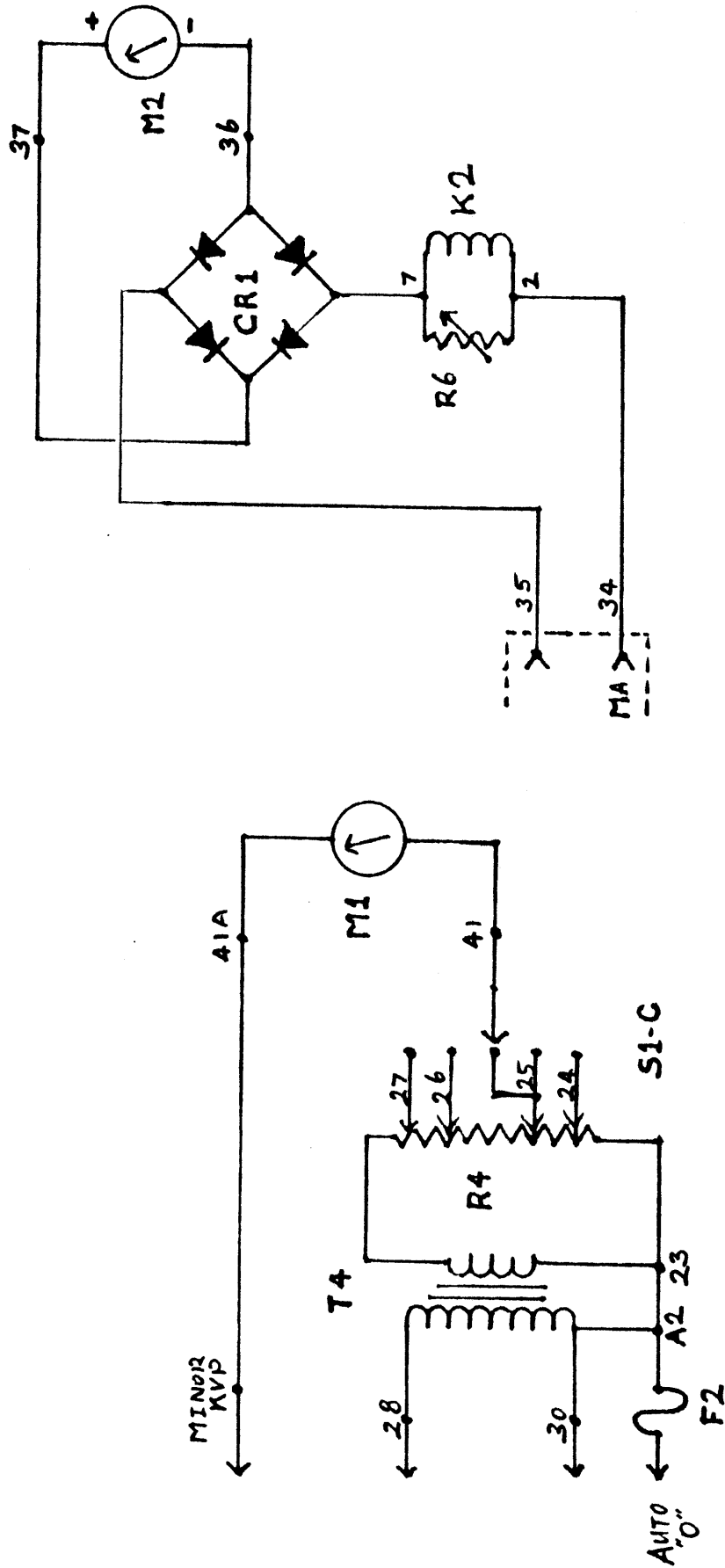
# ADTEK X-RAY SYSTEMS MODEL 3120

9-80 JM



# ADTEK X-RAY SYSTEMS      MODEL 3120

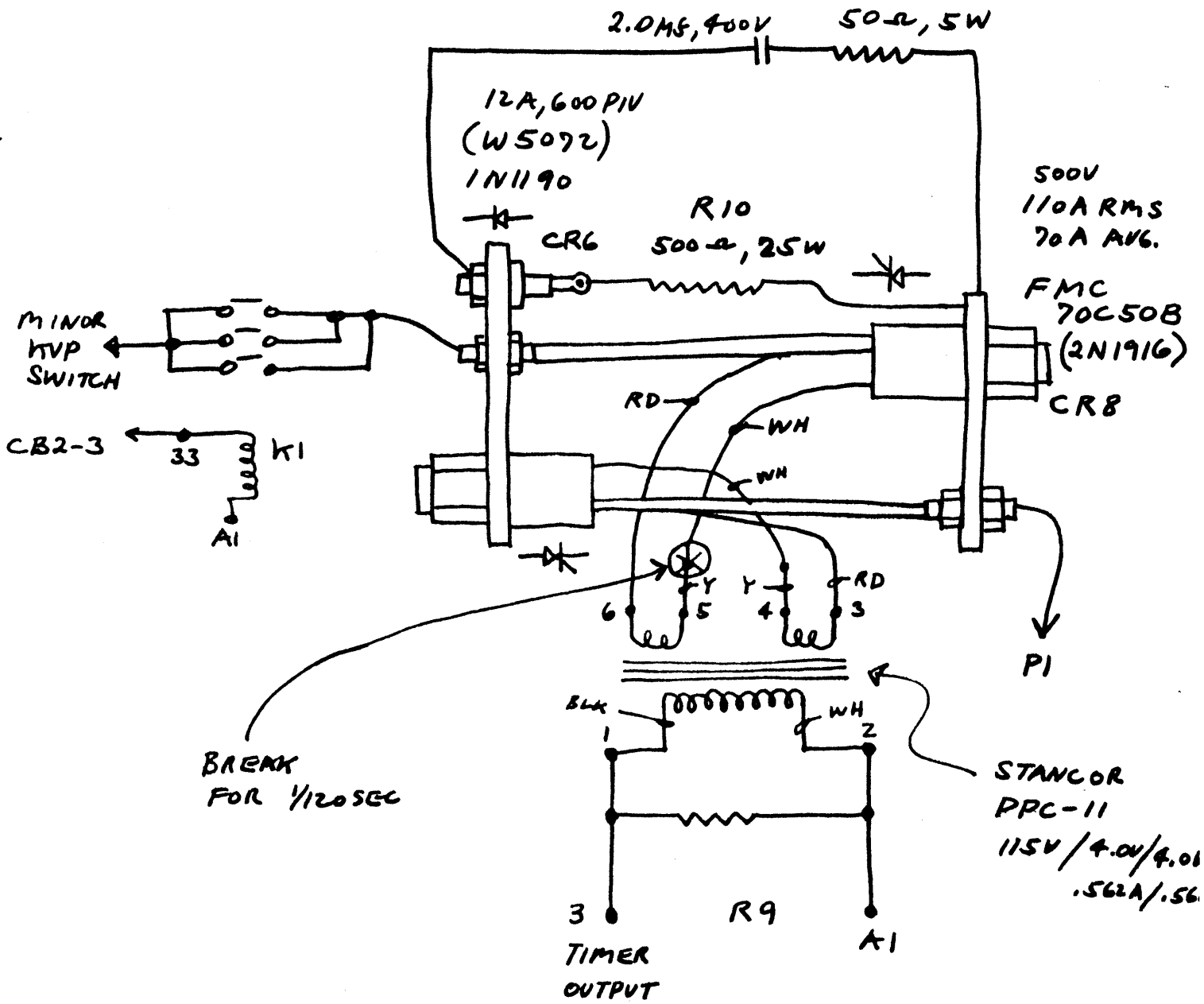
9-80 JM





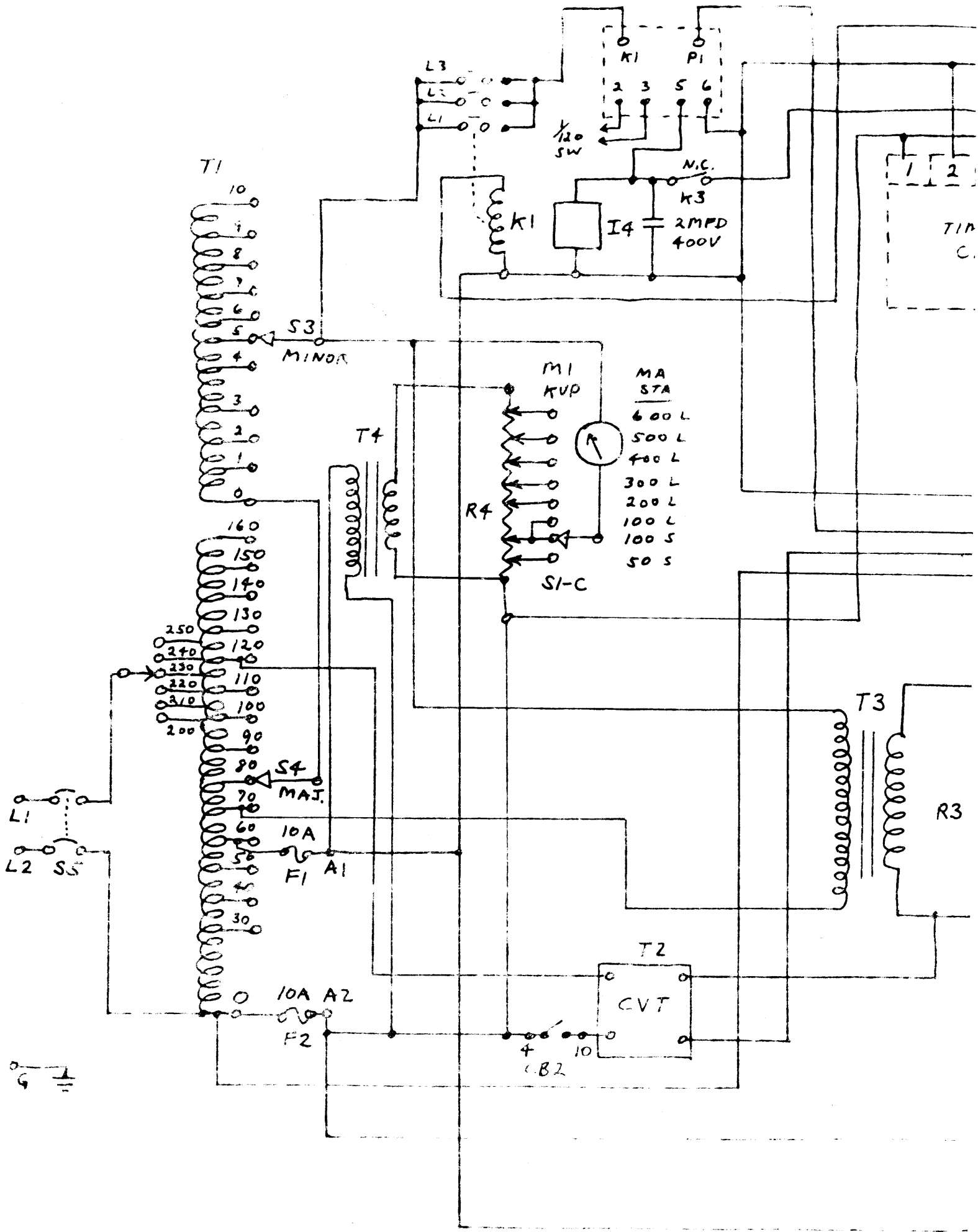


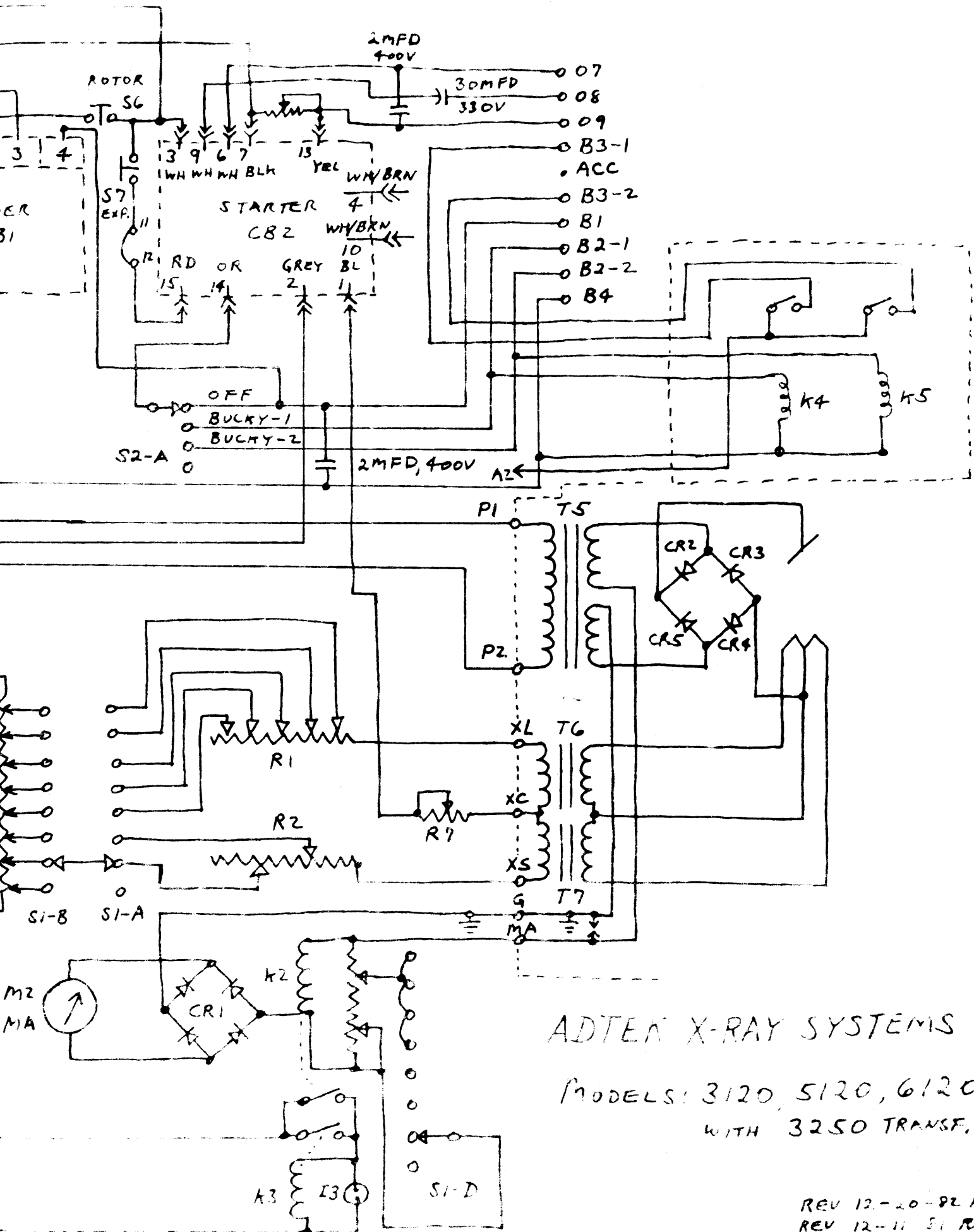




7/25/77  
 REV 9/22/80  
 REV 12-11-81 AB

ADTEK X-RAY SYSTEMS  
 SCR CONTACTOR





# ADTEK X-RAY SYSTEMS

MODELS: 3120, 5120, 6120  
WITH 3250 TRANSF.

REV 12-20-82 AB  
REV 12-11-81 R  
REV 3-3-78 B