INSTALLATION • OPERATION • MAINTENANCE

INSTRUCTIONS

TYPE CVM VOLTAGE MATCHER
STYLE 379P751A01

CAUTION

Before putting relays into service, remove all blocking which may have been inserted for the purpose of securing the parts during shipment, make sure that all moving parts operate freely, inspect the contacts to see that they are clean and close properly, and operate the relay to check the settings and electrical connections.

CONSTRUCTION

The relay consists of two potential energized electromognets operating on a single disc. The electromagnets produce torque in opposite directions. The moving contacts are spring biased towards a central position marked 100% on the curved scale. The adjustable front and back contacts can be positioned about a curved scale marked 105% - 102.5% - 100% - 97.5% - 95%.

The scale markings refer to the incoming voltage expressed as a percentage of the running voltage and the relay is calibrated for a running voltage of 120 volts.

The net torque on the disc is proportional to the difference in the squares of the running and incoming voltage.

For example, if the running voltage is 120 volts, and the incoming voltage is 114 volts, the moving contact will go to the 95% position.

However, if the running voltage is 110 volts the moving contact will go to the 95% position of the incoming voltage is 103.3 volts or 94% of the running voltage.

Re calibrating resistors are used to provide a notching action as the incoming voltage aproaches equality with the running voltage within the limits as determined by the relay settings. This is further explained under operation. The amount of recalibration as adjusted at the factory is 2.5%.

OPERATION

Operation is explained with reference to the basic external diagram dwg. 307A368. If the incoming machine voltage is low, the auxiliary relay 60RX is energized to operate thefield rheostat in the raise direction. A contact of 60RX also inserts the recalibrating resistor B in series with the running electromagnet, to produce an apparent reduction in the running potential. If the incoming voltage is within 2.5% of the setting of the left hand contact, the left hand contact will open to reset 60RX. The left Hand contact will again close and then open after relay 60RX operates. Thus, as the incoming voltage approaches equality with the running voltage within the limits established by the relay setting, a notching action occurs which prevents overshooting of the incoming voltage. Similarly, if the incoming voltage is high, a contact of 60LX sets up a notching action as the incoming voltage is lowered.

ENERGY REQUIREMENTS

The burden of each element at 120 volts is 6. V A, 30% Power Factor.

ACCEPTANCE CHECKS

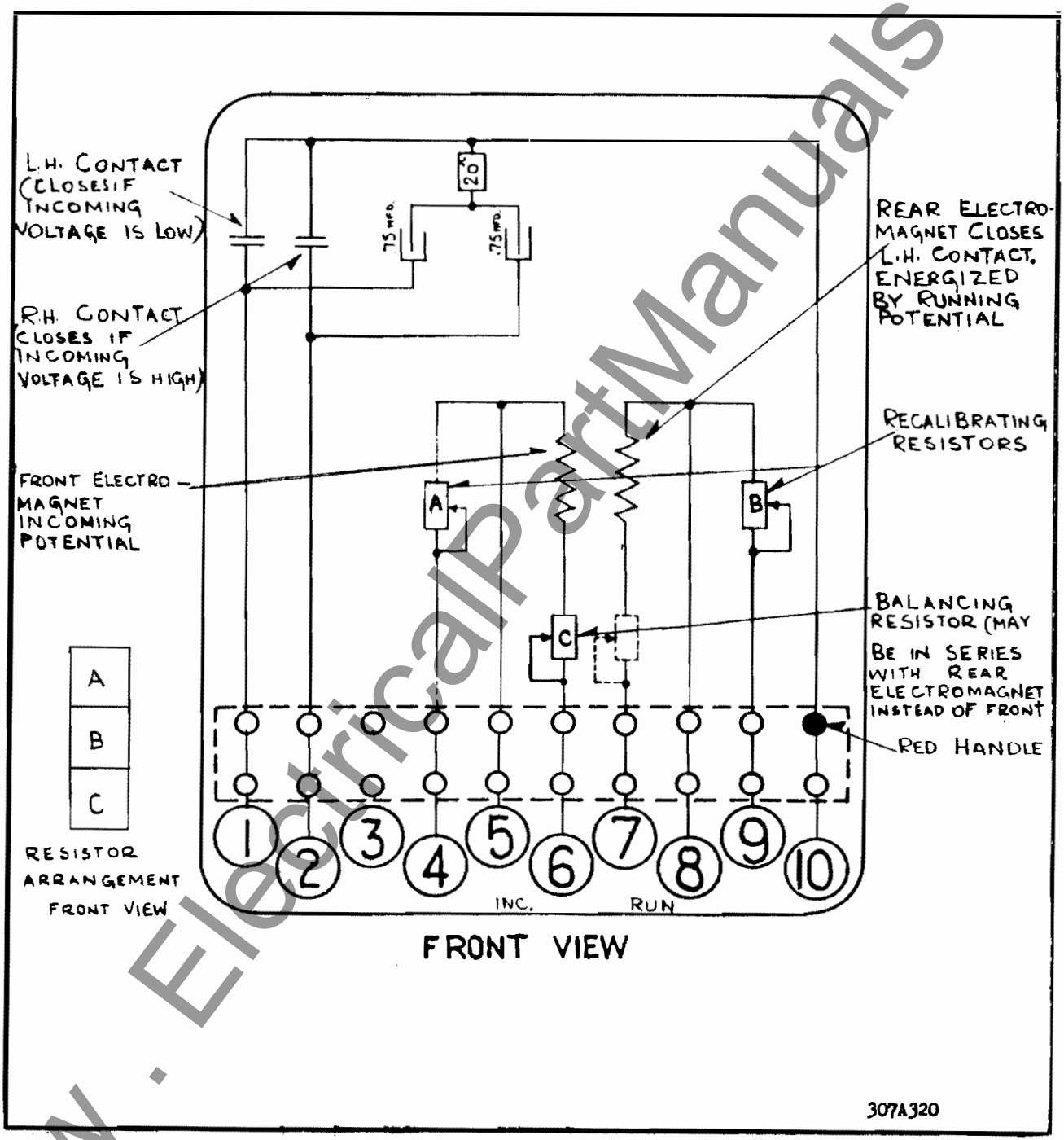
With the relay de-energized bring each adjustable contact in turn toward the disc mounted moving contact until a light circuit is barely made. Note position of adjustable contacts when the light circuit is made. The contact positions should coincide with the 100% mark on the scale within 1/32 inch.

Move each adjustable contact to be 1/32 inch from the 100% point. Join terminals 6 to 7 and terminal 5 to 8. Apply 120 volts to terminals 5 to 6 and the disc moving contact should be midway between the two adjustable contacts.

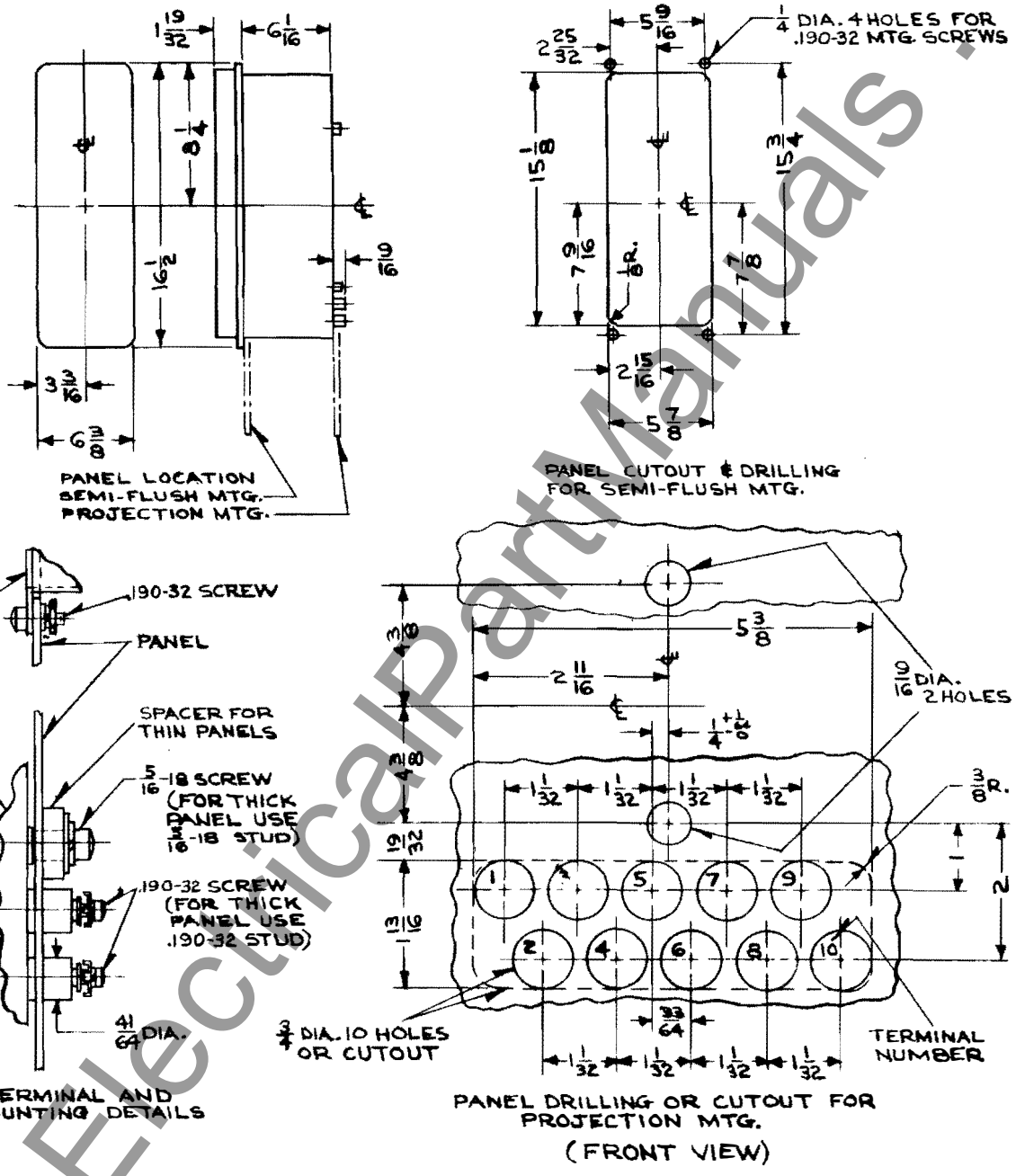
Apply 120 volts to terminals 7 and 8 and using voltages on terminals 5 and 6 and adjustable contact settings given in the table below, check for proper calibration.

Voltage 5 - 6	Contacts Make	Right Hand Contact Setting.	Left Hand Contact Setting.
125.5 - 126.5	right	105%	95%
122.5 - 123.5	right	102.5%	95%
119.5 - 120.5	right	100%	95%
113.5 - 114.5	left	105%	95%
116.5 - 117.5	left	105%	97.5%
119.5 - 120.5	left	105%	100%

Apply 120 volts to terminals 7 and 9 and 117 $\pm$ 0.5 volts to terminals 5 and 6. The moving contact should go to the 100% position.



INTERNAL SCHEMATIC



C.W.Co. Note
Allow at least 1" vertical
Separation between mounting
holes of adjacent relays

Note: All Dimensions in inches.

57-D-7902

OUTLINE AND DRILLING PLAN

Canadian Westinghouse Company Limited

HAMILTON – CANADA

Apply 120 volts to terminals 7 and 8 and 123 ± 0.5 volts to terminals 4 and 6. The moving contact should go to the 100% position.

CALIBRATION

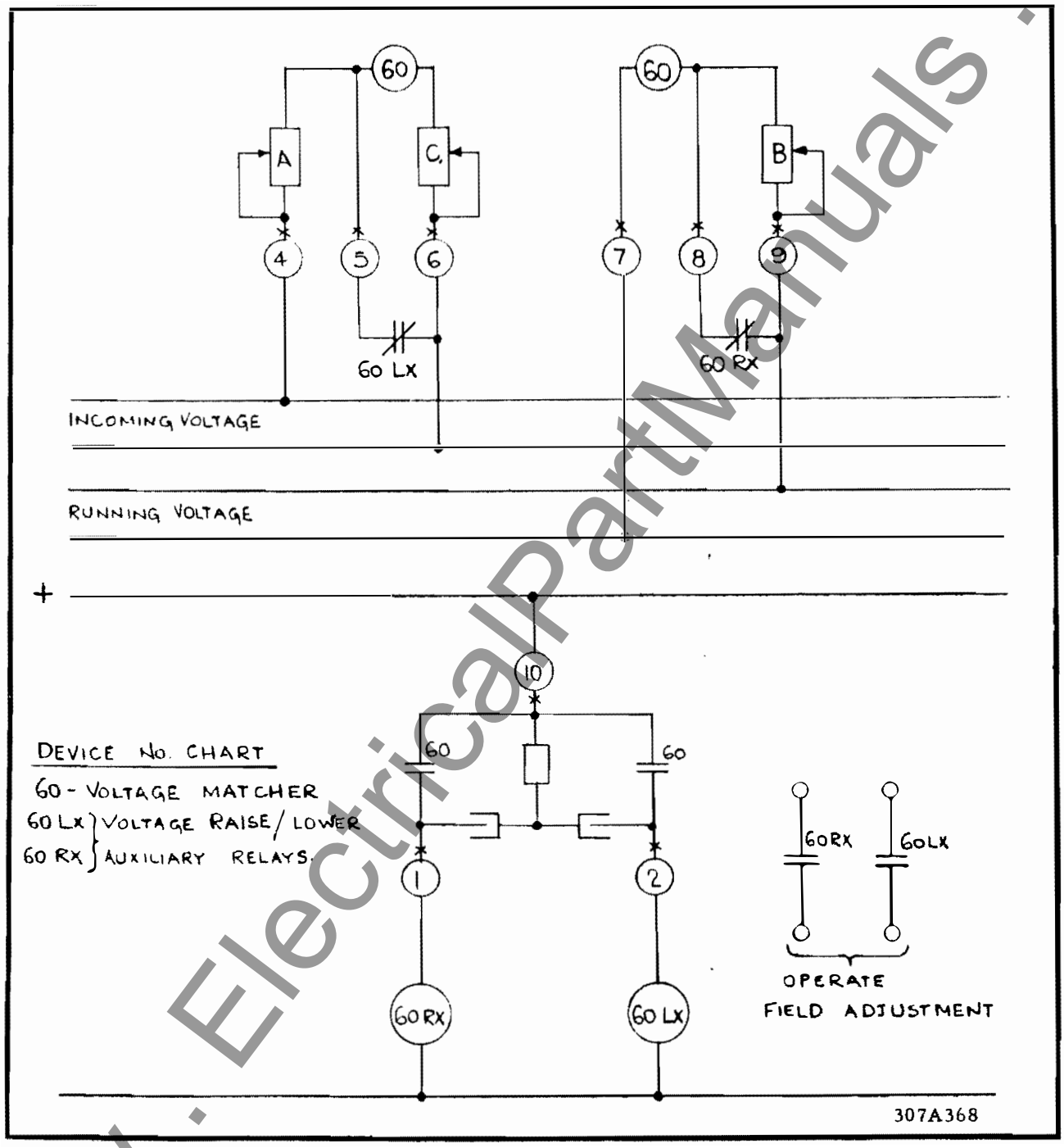
If the acceptance checks are not satisfactory, the following calibration procedure may be followed.

With the relay de energized, the moving contact position should correspond to 100%. This can be adjusted by means of the notched spring adjuster. Both adjustable contacts should just make when set for 100%. Contact positions can be changed to agree with setting by means of the small set screw located just above each contact.

The electrical balance is checked by joining terminals 5 to 8 and terminal 6 to 7. Apply 120 volts to terminals 5 and 6 and adjust resistor C until there is no difference in disc position with the voltage on or off.

The damping magnet is adjusted at the factory as follows. The right stationary contact is set at 100%, the left at 97.5%. The relay is energized with 120 volts on terminals 7 and 8 and 114 volts on terminals 5 and 6. The damping magnet is adjusted by means of the screw type keeper so that the left hand contacts make 1.25 ± .05 seconds after the relay is energized.

If it is desired to change the keeper position, the small set screw which locks the keeper should be loosened, and tightened after the final keeper position is determined.



EXTERNAL DIAGRAM

ISSUE	DATE	DWN.	REVISIONS
1	9/3/61	K SCHNEIDER	

ISSUE 1

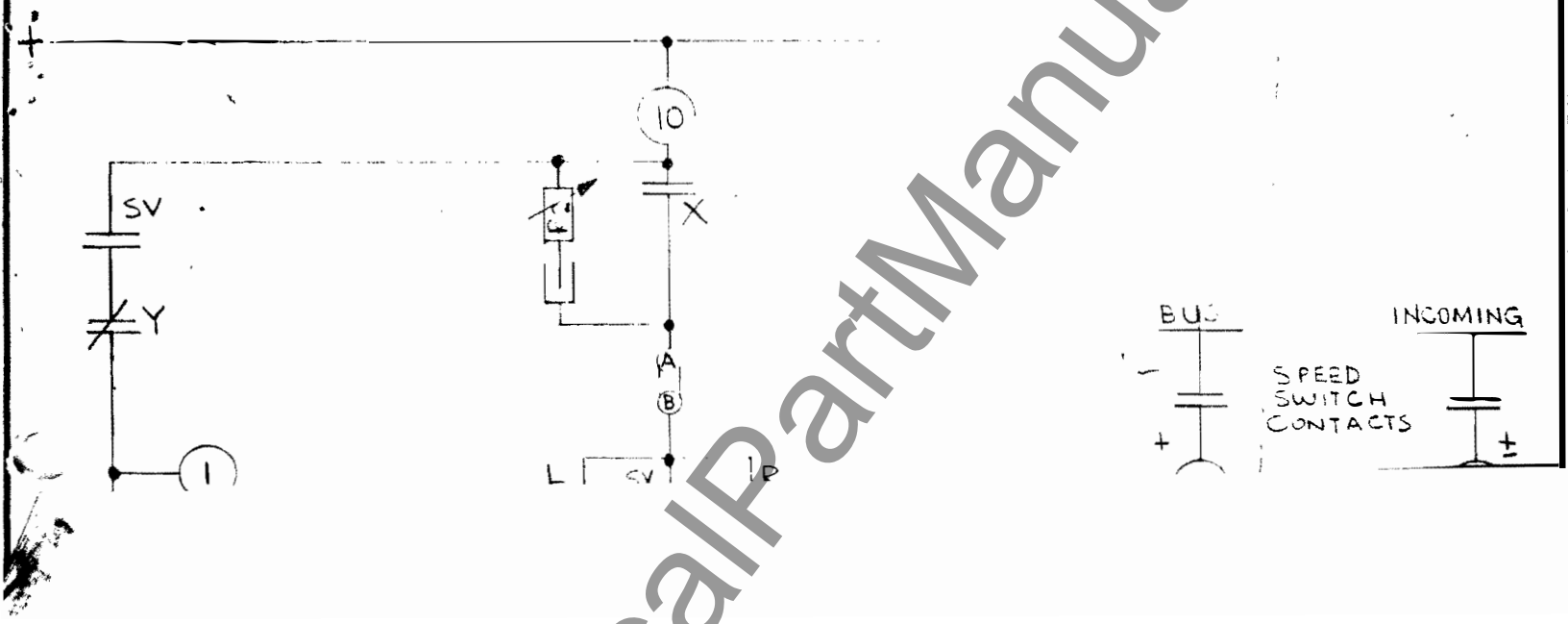
SCALE —

DWG. 307A650

CANADIAN WESTINGHOUSE CO. LIMITED HAMILTON CANADA

TITLE RVC SPEED MATCHER
EXTERNAL DIAGRAM FOR DWG. 307A055.

ALL DIMENSIONS IN INCHES | DEPT. | DIVISION



CANADIAN WESTINGHOUSE CO. LIMITED HAMILTON CANADA

"RVC" SPEED MATCHER- CONTINUOUS PULSING IN F.T.-31 CASE

DWG. 307A055 SUB. 2 SCALE

SEND 3 COPIES TO MGR. INDUSTRY APPLICATION

INTERNAL SCHEMATIC