INSTALLATION • OPERATION • MAINTENANCE

INSTRUCTIONS

TYPE JY CARRIER SLEET DETECTOR STYLE 1472056 FOR 125 OR 250 VOLT D.C. OPERATION

CAUTION Before working on this equipment, turn off the power supply, and ground or open circuit the R.F. lead.

APPLICATION

The Sleet Detector provides a means of introducing attenuation into the carrier relay receiver RF input circuit. The condition of the line is determined by a comparative reading of the receiver detector plate current under normal and sleet conditions.

CONSTRUCTION AND OPERATION

The general layout and outline dimensions of this Unit are shown in Figure 2. The electrical parts, including the adjustable resistor, are conveniently located on the rear of the panel, which can be mounted on the swinging frame of any Type JY Power Line Carrier cabinet. A pushbutton for test purposes is operated from the front of the panel. The electrical circuits are shown in Figure 1.

The effect of sleet, snow, etc., accumulating on the power transmission line is to attenuate the carrier signal coming over the line. Comparative readings of the carrier receiver detector plate current under different conditions will serve as indications of the line attenuation under those conditions. Line switching, and other factors independent of weather, will also alter the attenuation; therefore, these factors should be the same for sleet tests as they were during the original adjustments on this Unit.

To make a sleet test, where this Unit is used with the TRF Type JY double receiver, transmit carrier from the far end of the line, then push the TEST button on this Unit. Read the receiver plate current with a meter plugged into receiver jack 1, or on the permanently mounted meter.

Relay K-2 is interlocked with the Fault Detector relay so if during a sleet test the Fault Detector operates, K-2 will short R-1 and allow normal operation of the carrier channel.

INSTALLATION

This Unit may be supplied as part of a Type JY Power Line Carrier Equipment Assembly. In these cases, it is shipped assembled with the other units in a cabinet completely wired and no further work is necessary for the installation of the individual Unit.

In cases where the Unit is shipped separately from an assembly, proceed as follows: Unpack the box and check its contents carefully against the shipping list, the order, or the requisition for the equipment. Do not discard the packing material until all parts have been found. Inspect the Unit carefully for damaged parts. Report any damage or shortage immediately to both the transportation company and the nearest Westinghouse District Office. Look for nuts, washers, etc., which may have been loosened and for wires which may have been broken by vibration during shipment.

The RF terminals for the Sleet Detector Attenuator R-1 are the two porcelain posts near the center of the panel. Terminal 1 is ground. Control voltage from the Fault Detector is connected to terminals 2 and 3. Terminals 5 and 6 are connected to 125 volts for operation of K-1. The jumpers should be removed from R-2 and R-4 for 250 volt operation. Terminal 4 is the connection for a remote test pushbutton.

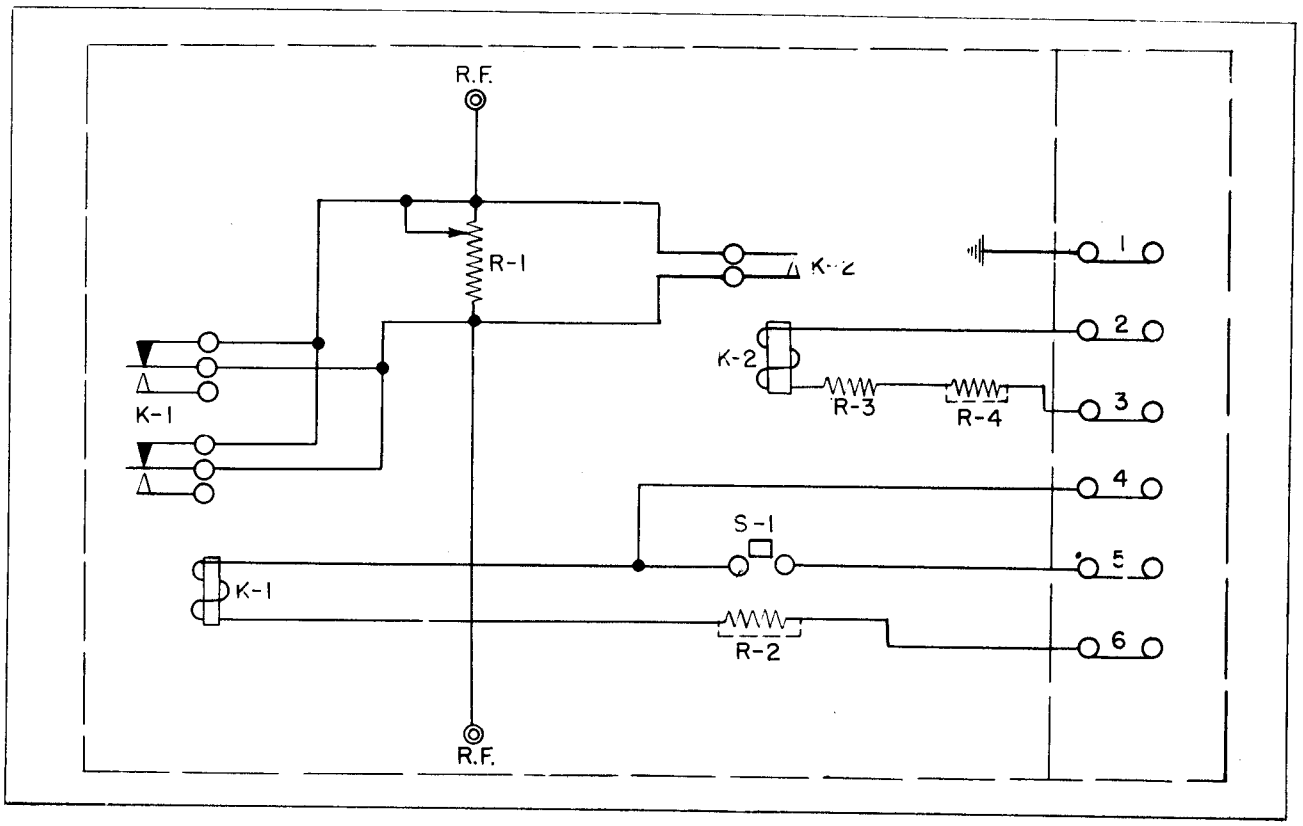

Fig. 1—Internal Schematic of the Type JY Sleet Detector.

ADJUSTMENTS

The only adjustment to make on this Unit is on the Attenuator Resistor R-1. Make this adjustment on a clear dry day, and under conditions of line switching which will result in a maximum received signal from the distant end of the carrier channel.

For operation with the Type JY double receivers, proceed as follows:

(a) Adjust receiver per the instruction book for this Unit.

(b) With K-1 relay contacts closed, tune the receiver to resonance with carrier transmitted from the distant end of the line.

(c) With K-1 relay contacts open, adjust the slider on R-1 until the receiver plate current is approximately 18 milliamperes.

Be sure that the carrier transmitter at the far end is unmodulated during the adjustment and has the same power output as will be used for subsequent sleet tests.

MAINTENANCE

During regular maintenance periods, the contacts of the relays may be cleaned, if necessary, with a fine file. S#1002110 file is recommended for this purpose.

If one of the relays fails to operate, check to see that there is the proper voltage across its coil. This should be between 15 and 25 volts on relay K1 coil and between 40 and 70 volts on relay K2 coil. Full line volts across the coil only, indicates an open circuit in the coil. Zero volts across the coil indicates either a short circuit in the coil, or an open circuit in the series resistor, provided supply voltage is available.

If the voltage on the coil is within the above limits, failure to operate indicates mechanical obstruction of some kind.

RENEWAL PARTS

When ordering renewal parts for this Unit, include the following data from the nameplate.

(1) The name of the unit.
(2) The style or DL number.
(3) The serial number.

SLEET DETECTOR PARTS LIST

Diagram Symbol	Req'd.	Function	Rating
		RELAYS	
K-1	1	Attenuator Cutout	S#2D-29-DR-5-DDD-10/6
K-2	1	Attenuator Cutout	S#1164077
		RESISTORS	
R-1	1	Attenuator	2000 ohms, 2 bands
R-2	1	Relay Series	8000 ohms
R-3	1	Relay Series	2000 ohms
R-4	1	Relay Series	3100 ohms
		SWITCHES	
S-1	1	Sleet Test	S#511813
			REF. T-7619919

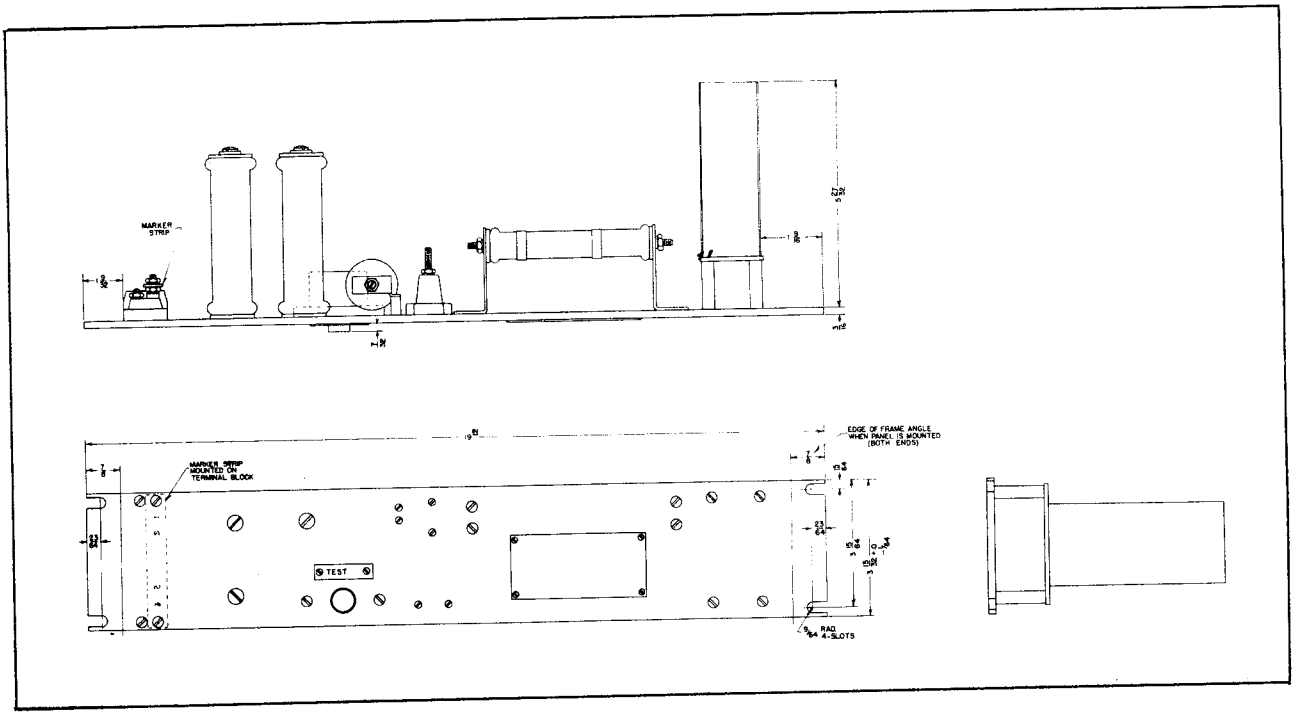

Fig. 2—Outline of the Type JY Sleet Detector. For Reference Only.

WESTINGHOUSE ELECTRIC CORPORATION

METER DIVISION

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NEWARK, N.J.

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The general layout and outline dimensions of this Unit are shown in Figure 2. The electrical parts, including the adjustable resistor, are conveniently located on the rear of the panel, which can be mounted on the swinging frame of any Type JY Power Line Carrier cabinet. A pushbutton for test purposes is operated from the front of the panel. The electrical circuits are shown in Figure 1.

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Relay K-2 is interlocked with the Fault Detector relay so if during a sleet test the Fault Detector operates, K-2 will short R-1 and allow normal operation of the carrier channel.

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SUPERSEDES I.L. 41-709 A

EFFECTIVE FEBRUARY 1953

*Denotes change from previous issue.

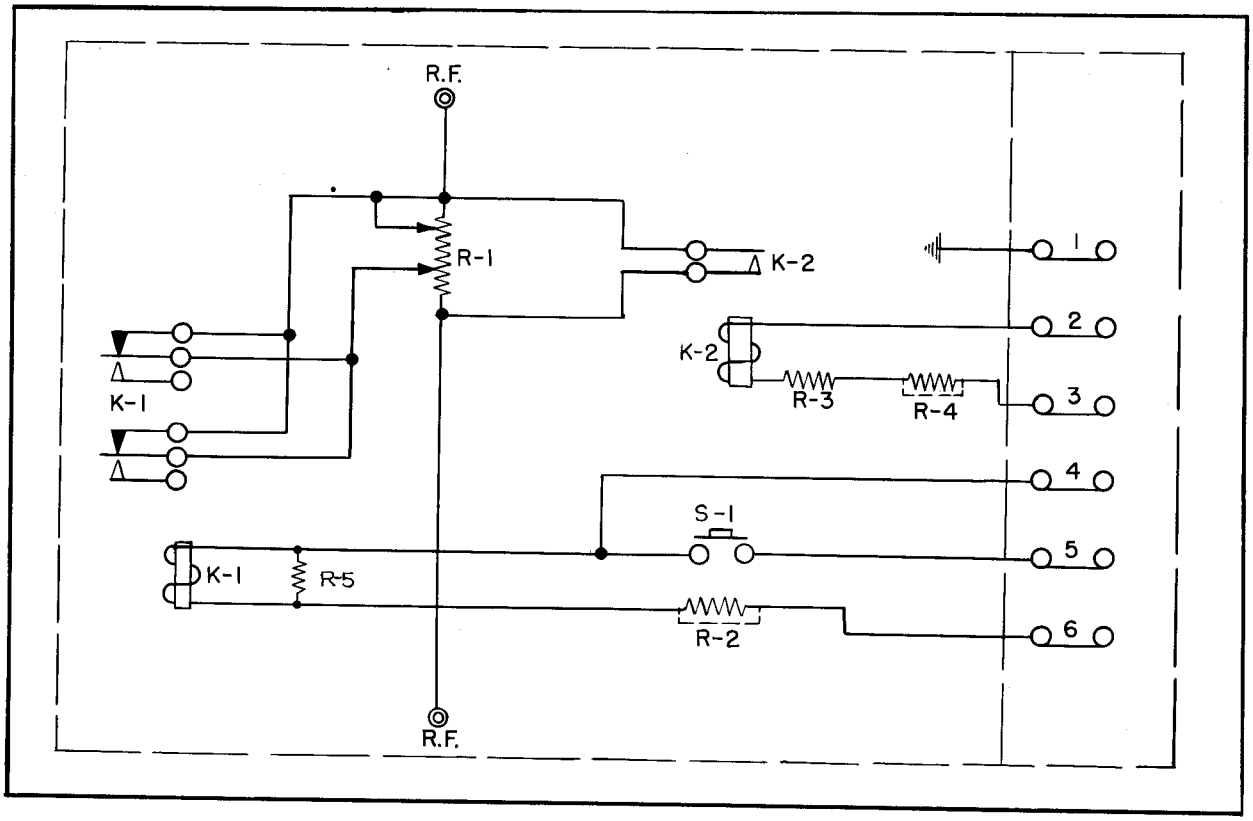

Fig. 1—Internal Schematic of the Type JY Sleet Detector.

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For operation with the Type JY double receivers, proceed as follows:

(a) Adjust receiver per the instruction book for this Unit.

(b) With K-1 relay contacts closed, (S-1 released) tune the receiver to resonance with carrier transmitted from the distant end of the line.

(c) With K-1 relay contacts open by closing the "TEST" pushbutton, adjust the sliders on R-1 until the receiver plate current is approximately 18 milliamperes.

Be sure that the carrier transmitter at the far end is unmodulated during the adjustment and has the same power output as will be used for subsequent sleet tests.

MAINTENANCE

During regular maintenance periods, the contacts of the relays may be cleaned, if necessary, with a fine file. S#1002110 file is recommended for this purpose.

If one of the relays fails to operate, check to see that there is the proper voltage across its coil. This should be between 15 and 25 volts on relay K1 coil and between 40 and 70 volts on relay K2 coil. Full line volts across the coil only, indicates an open circuit in the coil. Zero volts across the coil indicates either a short circuit in the coil, or an open circuit in the series resistor, provided supply voltage is available.

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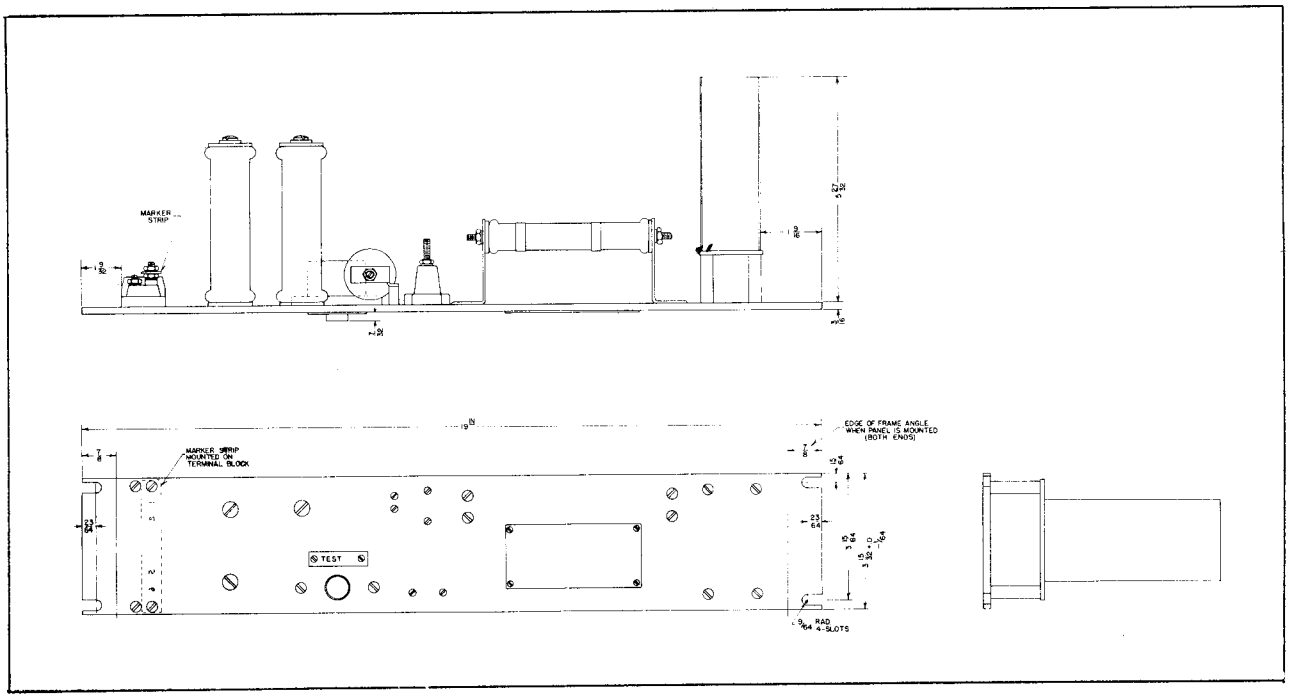
SLEET DETECTOR PARTS LIST

Diagram Symbol	Req'd.	Function	Rating
		RELAYS	
K-1	1	Attenuator Cutout	2D-29-RR-5-DDD-10/6 Coil 7000-ohms See Note
K-2	1	Attenuator Cutout	S#1164077. Coil 1100-ohms
		RESISTORS	
R-1	1	Attenuator	2000 ohms, 2 bands
R-2	1	Relay Series	8000 ohms
R-3	1	Relay Series	2000 ohms
R-4	1	Relay Series	3100 ohms
* R-5	1	Relay Coil Shunt	150,000 ohms
		SWITCHES	
S-1	1	Sleet Test	S#511813
			REF. T-7619919

* NOTE: K-1 and K-2 Relays--Insulated for 1500 V. ac Test. Coil impregnated.



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