

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G33.123.1
Issue 3, July, 1957
AT&T Co Standard

O CARRIER SYSTEMS

538-TYPE FILTERS

1. GENERAL

1.01 This section covers the installation and wiring of pole mounted carrier line filters used in O Carrier Telephone Systems. It is being reissued to cover 538J and 538K Filters, and retains information about 538C and 538D Filters.

1.02 538-type line filters segregate certain carrier systems, operating on the same open wire pair, as shown in the chart below:

Type of Line Filter	Examples of Use	
	Separate These Carrier Systems	From These Systems
538C	C Carrier, telegraph, and voice channels	OB, OC, OD
538D	OA, Lenkurt 33A, Lynch B-37, C Carrier	OB, OC, OD
538J	OA, OB, or any lower frequency system	OC, OD
538K	OA, OB, OC, or any lower frequency system	OD

Detail plans will specify the type of filter to be installed.

2. DESCRIPTION OF 538-TYPE FILTERS

2.01 The 538C Filter consists of a 537C Filter contained in an aluminum weatherproof housing suitable for cross-arm mounting. The housing is about 10-1/4 inches high, 12-3/4 inches wide, and 6 inches deep. Two hook brackets, attached to the back of the housing, permit hanging the filter on a standard 3-1/4-inch by 4-1/4-inch crossarm. Two 111B Protectors, equipped with 107B Protectors (capsule type carbon blocks similar to those used in NC cable terminals) and a

terminal block are also mounted in the filter housing. The weight of the 538C Filter, complete with mounting brackets, is approximately 16 pounds.

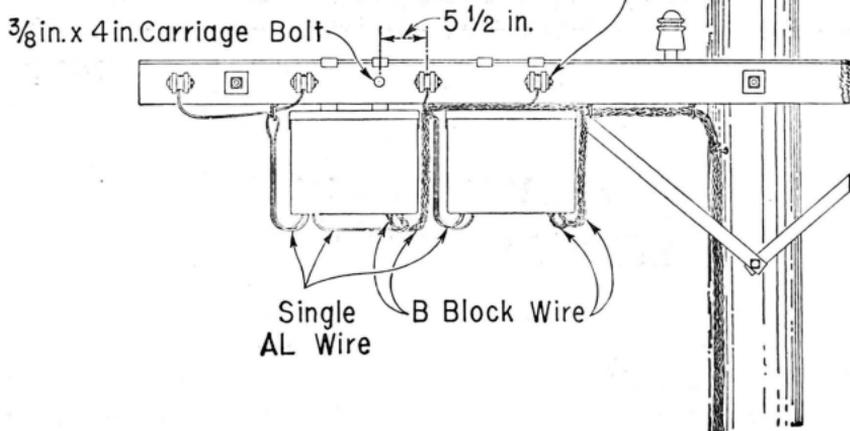
2.02 The 538D Filter consists of a 219S Filter mounted in a weatherproof housing similar to that used with the 538C Filter, except that the exterior is painted white in order to limit temperatures within the housing, during hot sunny weather, to values which will not affect the operating characteristics of the 219S Filter components. Three 111B Protectors are mounted in the housing.

2.03 The 538J and 538K Filters consist of 220F and 220G[†] Filters, respectively, mounted in a weatherproof housing similar to that used with the 538D Filter. Three 111B Protectors and two terminal blocks are also mounted in the filter housing. The 220F and 220G Filters contain a transformer which provides a 135-ohm termination to the drop side of the high pass branch when required. The transformer may be omitted from the circuit by rearranging the wiring to a 6-terminal connecting block, thus providing a 600-ohm termination. Detail plans should specify the termination to be used. ↓

3. INSTALLATION OF 538-TYPE FILTERS

3.01 At O Carrier repeater locations two filters are required for each open wire pair that is being equipped for OB, OC, or OD Carrier operation. At such locations, it will be necessary to place double crossarms and dead-end each carrier pair from both directions.

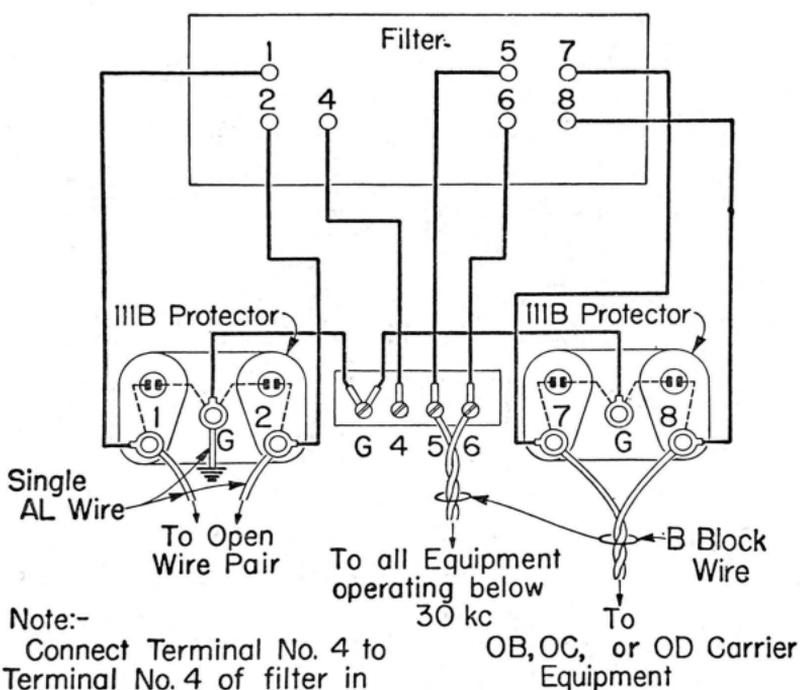
3.02 Mount the filters as shown in the following sketch. Use $\frac{3}{8}$ in. x $5\frac{1}{2}$ in. Carriage Bolt in Crossarm Brace Hole for mounting Filter Bracket, Dead-End Bracket, and Crossarm Brace



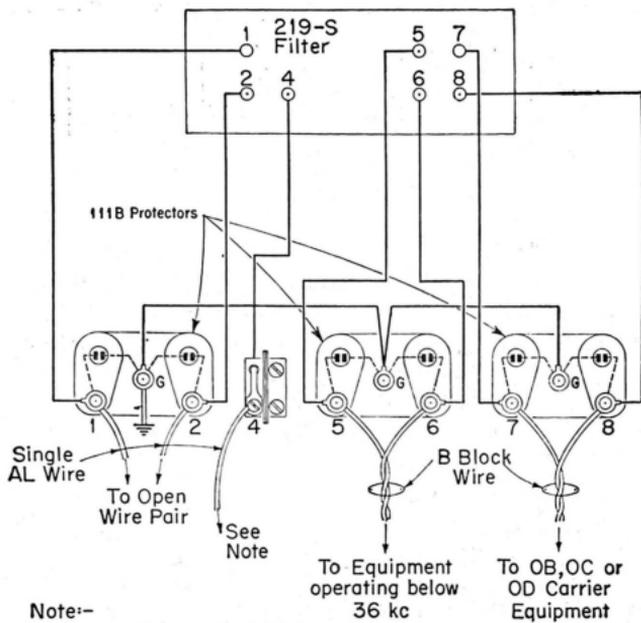
3.03 At cable open wire junctions one filter will be required for each open wire pair being equipped for OB, OC, or OD Carrier operation. Mount the filter as indicated in Paragraph 3.02.

4. WIRING

4.01 Detail plans or other instructions will specify the connections to be made between the filter, the open wire pair, and the cable terminal or repeater. Connections in the filter are shown in the following diagrams.

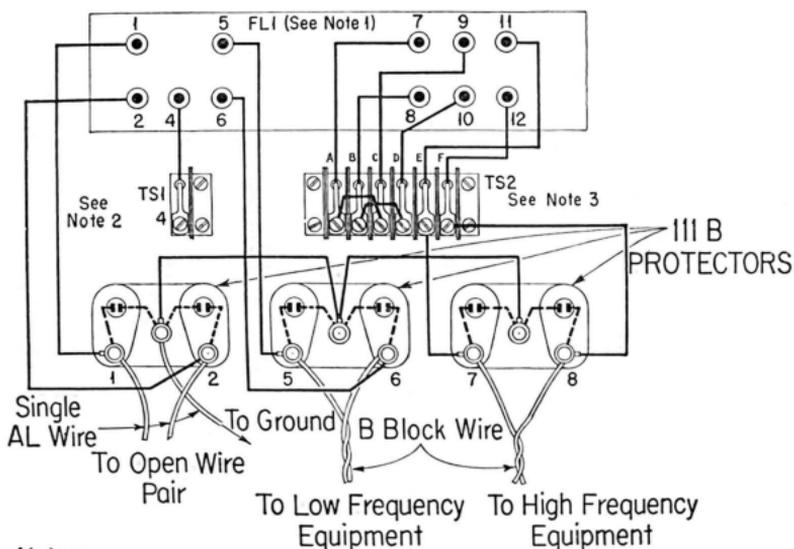


Wiring Diagram
538C Filter



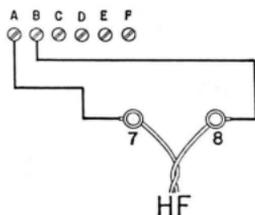
Note:-
 Connect Terminal No. 4 to Terminal No. 4 of filter in adjacent side circuit, if open wire pairs are phantomded.
 Use single AL Wire

Wiring Diagram
 538D Filter



Notes:-

1. FL1 in 538J Line Filter is a 220F Filter
FL1 in 538K Line Filter is a 220G Filter
2. Connect Terminal No.4 to Terminal No.4 of filter in adjacent side circuit, if open wire pairs are phantomed. Use single AL Wire.
3. The above diagram shows the wiring for a 135-ohm termination. If a 600-ohm termination is specified, arrange wiring between TS2 and the high frequency equipment in this manner. →



WIRING DIAGRAM
538J and 538K Filters

4.02 Use single AL Wire for connecting from line wires to filters. Use B Block Wire for connecting from filters to repeater equipment or to cable terminals. All paired wires from filters to repeaters or to cable terminals may be run in the same rings. The ground connection from the filter to the vertical grounding conductor should be made with single AL Wire, and should be run from the ground post of the 111B Protector that is connected to the open wire pair. Ground wires should be run in the same rings on the crossarm with the paired bridge connections.

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