TYPE N1 CARRIER TELEPHONE SYSTEM — TERMINAL EQUIPMENT
TESTS AND ADJUSTMENTS — GENERAL
CHECK OF ALARM OPERATION

This section is reissued to make minor changes in the test procedures.

Alarm circuits are provided on the terminal mountings for the +130 volt, −130 volt, and −40 volt fuses; for interruptions of received carrier; and for failure of the 3700-cycle signaling supply.

The carrier system must be out of service for these tests.

APPARATUS:

1 — 265C Tool (Contact burnisher)

1 — 266C Tool (Steel music wire)

1 — KS-14510 Volt-Ohm-Milliammeter, or equivalent (20,000 ohms per volt)

1 — KS-13895 Plug, unwired (connector for test connections to J13 to J16 jacks)

STEP	PROCEDURE
	(A) CHECK OF FUSE ALARM OPERATION
1	Place the 266C tool (steel music wire) in the 265C tool (contact burnisher) and the cap in place over the end of the 265C tool. Insert the wire in the opening of the fuse holder cap, beside the alarm indicating plunger, in such a manner as to touch the side of the opening and head of the fuse at the same time. ***Requirement:*** All alarms associated with the particular fuse should operate. ***Note:*** This test can also be performed by inserting a blown fuse in each fuse position. ←
	(B) J98703A TERMINALS — CHECK OF CARRIER ALARM OPERATION
1	Remove the connector from J13 and insert an unwired KS-13895 plug. Be sure the regular connector is in J14.
2	With the volt-ohmmeter measure between terminal 16 (+ to terminal 16) of the KS-13895 plug to ground. This is the dc voltage across the carrier alarm relay (K2). ***Requirement:*** 3.8 volts minimum.

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STEP	PROCEDURE
3	Remove the V3 tube from the receiving group unit and determine the length of time until the CARR lamp lights, and associated office alarms operate. ***Requirement:*** 3 to 30 seconds.
4	Operate the A ALM RLS key. The CARR lamp will remain lighted and the audible alarm and aisle pilot are shut off.
5	Replace the V3 tube in the receiving group unit. Wait 30 seconds and observe that the CARR lamp remains lighted.
6	Operate the B ALM RLS key and observe that the CARR lamp remains lighted.
7	Restore A ALM RLS key to normal and observe that the CARR lamp remains lighted and the aisle pilot and the audible alarm reoperate.
8	Operate the B ALM RLS key and observe that all alarms return to normal.
	(C) J98703A TERMINALS — CHECK OF 3700-CYCLE ALARM OPERATION
1	With the volt-ohmmeter, measure between terminals 11 and 12 (+ to terminal 12) of the KS-13895 plug in J13. This is the dc voltage across the 3700-cycle alarm relay (K4). ***Requirement:*** 0.65 volt minimum.
2	Remove the voltmeter connections from terminals 11 and 12 and then strap terminals 11 and 12 together. This short-circuits the dc from the 3700-cycle alarm rectifier. Observe that the 3700-cycle alarm lamp lights and the aisle pilot and the audible alarm operate.
3	Where 3700-cycle alarm cutoff keys are provided, operate the key and observe that the 3700-cycle alarm lamp remains lighted and the aisle pilot and the audible alarm are shut off. Restore key to normal.
4	Remove the KS-13895 plug from J13 and observe that the 3700-cycle alarm lamp goes out. Reinsert the regular connector in J13.
	(D) J98703AT AND J98703AW TERMINALS — CHECK OF CARRIER ALARM OPERATION *Note:* A carrier failure into an office, or a 3700-cycle oscillator failure at an office, causes an interruption of carrier toward the other terminal, so that both ends are alarmed. Therefore, before the alarm operations at an office are checked, the distant office should be notified. If the distant office is unattended, an alarm release circuit must be available before this sequence of tests can be completed. In order for the alarm operation to function properly, jack J1 (channel position 1) must be equipped with a channel unit with built-in 3700-cycle signaling. **At the Terminal Originating the Test (Near Terminal)**
1	Remove the V3 tube from the transmitting group unit for approximately 30 seconds and then replace. Removing the V3 tube causes a carrier failure toward the ***distant terminal.***

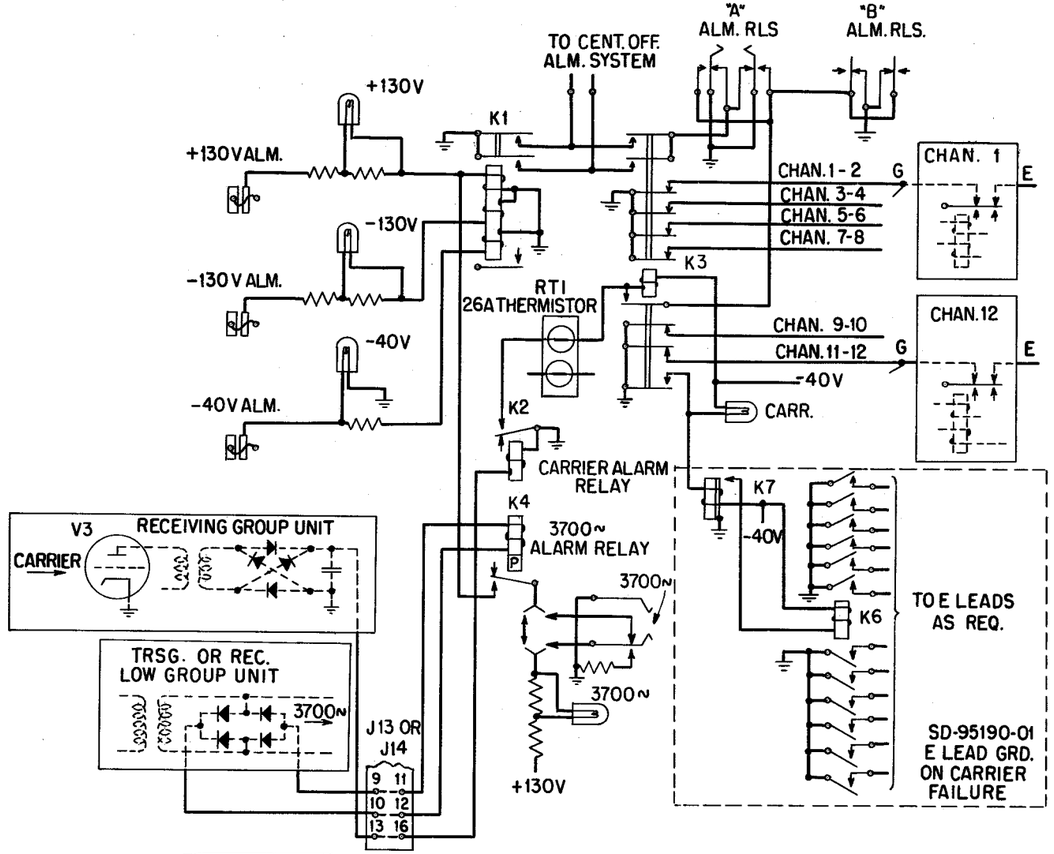

FIG. 1 N1 TERMINAL MOUNTING ALARM CIRCUITS

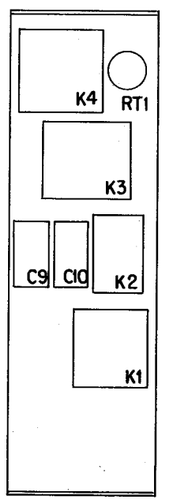

FIG. 2 LOCATION OF ALARM RELAYS ON MOUNTING PLATE BEHIND POWER AND ALARM RESISTANCE PANEL LOWER RIGHT OF TERMINAL.

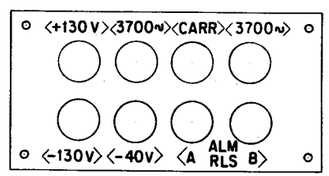

FIG. 3 - TERMINAL ALARM LAMPS AND KEYS

STEP	PROCEDURE
	At the Distant Terminal
2	Under normal conditions, within 2 to 6 seconds after the loss of the ***incoming carrier,*** the following operations take place: (a) The 3700 CARR lamp lights. (b) The FIL CARR 3700 lamp lights. (c) The audible office alarms operate. (d) The plate supply to the transmitting group unit is removed. This removes the transmitted carrier at the ***distant terminal*** causing a carrier failure toward the ***near terminal.*** (See note.) (e) Within 10 to 20 seconds the plate supply to the transmitting group unit is restored and the transmitted carrier from the ***distant terminal*** is restored. (See note.) ***Note:*** At LGT terminals, the 3700 lamp will light when the plate supply is removed from the transmitting group unit. It will extinguish when the supply is restored.
3	Operate the ALM RLS key to silence the audible alarms.
	At the Near Terminal (Terminal Originating the Test)
4	Under normal conditions, within 2 to 6 seconds after the loss of the ***incoming carrier*** (see Step 2 above), the following operations take place: (a) The 3700 CARR lamp lights. (b) The FIL CARR 3700 lamp lights. (c) The audible office alarms operate. (d) The plate supply to the transmitting group unit is removed. (See note.) ***Note:*** At LGT terminals, the 3700 lamp will light when the plate supply is removed from the transmitting group unit. It will extinguish when the supply is restored.
5	Operate the ALM RLS key to silence the audible alarms.
6	At this time carrier should be restored in both directions of transmission, the channels should be "made busy" at both terminals and the audible alarms in both offices should be silenced.
	(E) J98703AT AND J98703AW TERMINALS — PROCEDURE FOR LOOP TESTING
	Note: This test is made to check continuity between the terminals after the carrier is restored in both directions of transmission. The 3700-signaling tone on channel 1 (channel 2 if the channel 2 to 13 allocation is used) provides the loop-testing path.
1	Hold the TST A key depressed.

STEP	PROCEDURE
2	While the TST A key is depressed, slowly pulse the TST B key.
3	Two-way transmission over the carrier system is verified, if the TST lamp pulses in synchronism with the pulsing of the TST B key. If the TST lamp does not pulse, it is an indication that transmission has not been restored in both directions of transmission.
	(F) J98703AT AND J98703AW TERMINALS — PROCEDURE FOR RESTORAL OF SYSTEM *Note:* The carrier system should be restored to normal only after transmission has been verified in both directions by means of the Loop Test and the ALM OVRD keys (both terminals) are in the normal position (vertical). The ALM OVRD keys provide the means for releasing the E signaling leads of the channels on a system in trouble so they can be patched. **Both Terminals**
1	Press the REST SYS KEY. Means must be provided (such as a subscriber's line circuit) for restoring the carrier alarm circuit at a remote unattended office. (a) The "make-busy" grounds are removed from the signaling E leads. (b) The office alarms should operate. (c) The FIL CARR 3700 lamp should extinguish.
2	Restore the ALM RLS key to normal. (a) The office alarms should be silenced.
3	The system is now restored to normal.
	(G) J98703AT AND J98703AW TERMINALS — FAILURE OF 3700-CYCLE SUPPLY
	When trouble develops in the 3700-cycle oscillator circuit, the 3700 lamp lights. In addition, the failure at one terminal will cause a 20-second interruption of carrier toward the other terminal. The result is an alarm sequence, similar to that described in the Check of Carrier Alarm Operation procedure covered above. When the 3700-cycle circuit is restored to normal, the Loop-around tests and the Restoral to Service procedure, must be completed before transmission over the carrier system is restored to normal.

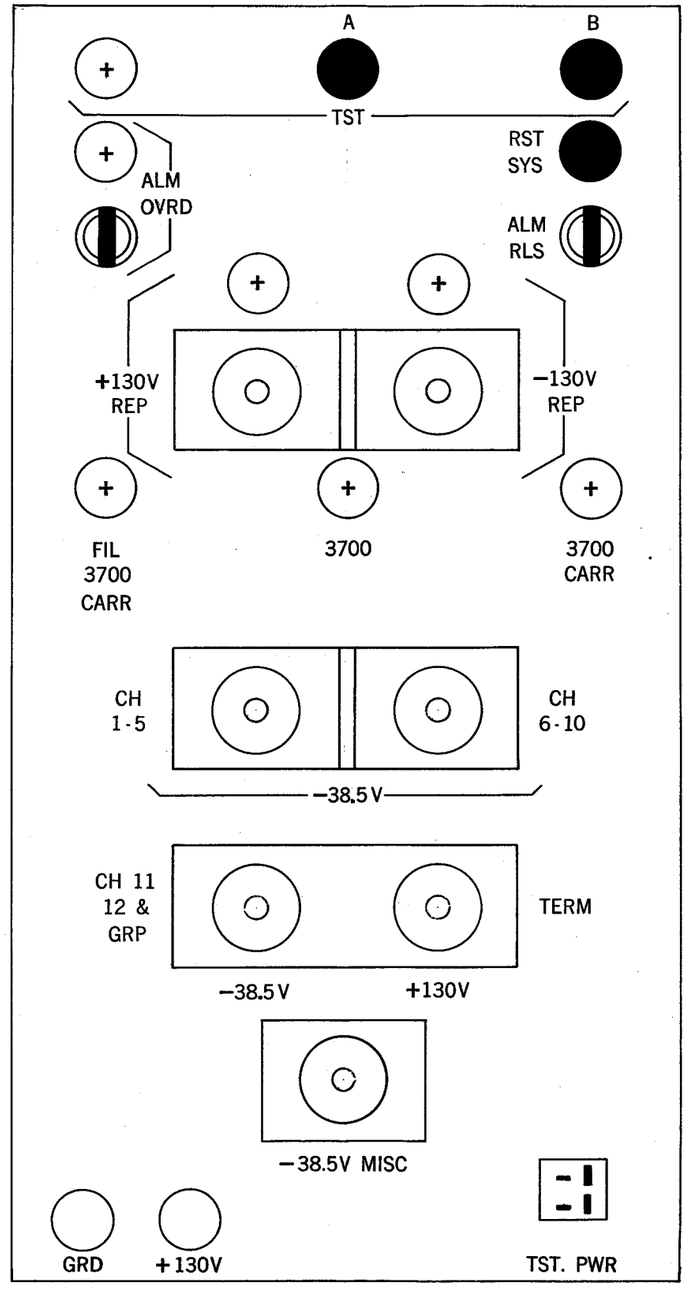

Fig. 4 – Middle Terminal Fuse and Alarm Panel