

T.P.T. & T.Co.
Issue 1
12-15-24

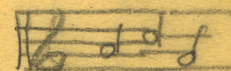
PANEL M.S. OFFICES

263.001

LINE FINDER START AND TRIP CIRCUITS
MANUAL TEST OF LINE FINDER START CIRCUIT

Routine Tests
and Inspections

Happy little Tune



STP STP STP, Rel, STP, Rel, STP, Rel

1. GENERAL:

T and Dis.

1.1 These tests are used to check the start circuits associated with the line finders and are made with the line finder test set (T-501445 or similar circuit) at the line finder frame.

1.2 These tests make a marginal operation check of the ST-A, GA, ST-B, GB, CA, SA, CB and SB relays at the current value equal to the operate test requirements at normal voltage and check their associated leads in the start circuit. A check of the relative speed of operation of the ST-A and ST-B and the GA and GB relays is also made.

2. TESTING EQUIPMENT:

Amount	Code	Description
1	C-42461	Line finder starting test set
1	728	6' three conductor cord equipped with
2	110	Plugs

3. ROUTINE TEST NO. 263.001:

3.1 Test Set Preparation:

3.11 Patch B-GRD jack of the test set to A jack of the line finder frame jack box.

3.12 With all test set keys normal, connect the test plug to the jacks associated with the emergency start circuit.

3.121 This test is made at a time when the circuit is not in use and prior to the test of the regular start circuit. This is to insure its proper operation before being substituted for the regular start circuit.

3.2 Method of Making Test:

3.21 The operation of the test set, lamp signals and indications are as follows:

OPR.	KEYS	LAMP	INDICATION
	OPR.	REL.	SIGNALS

TEST OF ST-A AND GA RELAYS

1	STP.	A lamp lights	Test started ST-A and GA relays.
2	STP.	X lamp lights	Continuity of X lead.

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OPR.	KEYS OPR. REL.	LAMP SIGNALS	INDICATION
		ST lamp lights	Operation of ST-A relay and closure of TR, K and #1 leads. Operation of STP-G magnet.
4		ST lamp out-GA lamp lights GA and X lamps out	Operation of the GA relay and continuity of the Y and ST leads. Test of ST-A and GA relays completed
5	3 STP.	K lamp lights A and K lamps out	Continuity of K lead.

TEST OF ST-B AND GB RELAYS

5	4 STP.	B lamp lights X lamp lights ST lamp lights	Test started ST-B and GB relays. Continuity of X lead. Operation of ST-A relay and closure of TR, K-1 and #2 leads. Operation of the STP-G magnet.
		ST lamp out-GA lamp lights GA and X lamps out	Operation of the GB and continuity of the Y and ST leads. Test of ST-B and GB relays completed.
		K lamp lights	Continuity of the K-1 lead

TEST OF CA AND SA RELAYS

5	STP.	A-BB lamp lights B and K lamps out	Test started CA and SA relays
6	STP	(CA and X lamps light)	False operation CA relay
7	REL	CA lamp lights	Operation of CA relay - Continuity of CH lead.
8	REL	CA and A-BB lamps out SA lamp lights	Operation of SA relay. Test of CA and SA relays completed.

TEST OF CB AND SB RELAYS

9	STP	B-AB lamp lights SA lamp out	Test started CB and SB relays.
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OPR.	KEYS		LAMP SIGNALS	INDICATION
	OPR.	REL.		
10		STP	(CA and X lamps light)	False operation of CB relay
11	REL		CA lamp lights	Operation of CB relay-continuity of CH lead.
12		REL	CA and B-AB lamps out SA lamp lights	Operation of SB relay Test of CB and SB relays completed.

CHECK OF RELATIVE SPEED OF OPERATION

13	STP		A and B lamps light	Operation of ST-A and ST-B relays. The speed of these lamps lighting shows the relative speed of operation of the ST-A and ST-B relays.
14		STP	X lamp lights	
15	REL		X lamp out	
			A and B lamps out	Operation of the GA and GB relays. The relative speed of these lamps going out shows the relative speed of operation of the GA and GB relays.
16		REL		
17	T			
18		T	A and B lamps light	Repeat operations 15 to 18 five times and if the A and B lamps are lighted and extinguished in unison the operation of the ST-A, ST-B, GA and GB relays shall be considered satisfactory.

RESTORING TO NORMAL

19	DISC		All lamps out	All relays released.
20		DISC	All lamps out	Test circuit normal.

3.3 Disconnection of Test Set.

3.31 Restore all test keys to normal and disconnect the test set by removing the patching cord connected to jack associated with emergency start circuit.

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3.4 Substituting the Emergency for the Regular Start Circuit.

3.41 Change the emergency patching plug from the regular to the emergency start circuit jacks. This should be done as quickly and carefully as possible, so as to cause the least interference with service. Trouble encountered on emergency start circuit shall be cleared before being substituted for the regular start circuit.

3.42 Observe the emergency start circuit for proper operation before proceeding with the test of the regular start circuit.

3.5 Test of Regular Start Circuit.

3.51 With all test keys normal, connect the special test plug of the test set to the jacks associated with the regular start circuit.

3.52 Repeat test for regular start circuit as outlined in paragraph 3.21.

3.6 Restoring Regular Start Circuit to Service.

3.61 After completion of the test and the clearing of any trouble found, remove all test equipment and change the emergency switching plug from the emergency to the regular start circuit jacks. This should be done as quickly and carefully as possible, so as to cause the least interference with service.

3.62 Observe the regular start circuit for proper operation.

4. NOTES:

4.1 Restoring Equipment to Service.

4.11 On completion of test remove all testing equipment.

4.12 Circuits in trouble shall be removed from service and referred to the proper source for clearing.

↑
That's you!

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LINE FINDER START AND TRIP CIRCUITS

LINE FINDER CHAIN CIRCUIT TEST

Routine Tests
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1. GENERAL:

1.1 These tests are used to check the switchover feature, the MB relay chain circuits, the TR relay chain circuits, and the chain circuit path through the T jacks.

1.2 These tests are performed by manually operating relays of either the start or the trip circuit. The district circuits do not move off normal.

2. TESTING EQUIPMENT:

<u>Amount</u>	<u>Code</u>	<u>Description</u>
1	136	Tool for blocking punched type relays in operated or non-operated position.
As required	184	Make busy plugs.

3. ROUTINE TEST NO. 263.003:

3.1 Switchover and MB Relay Test.

3.11 Using No. 184 plugs, make busy all line finders in the A sub-group.

3.12 Note the line finder selector on which the selector distributor of the B sub-group is resting and make that line finder selector busy by inserting a No. 184 plug in the associated MB jack.

3.13 Using a No. 136 tool, block in the operated position the BA relay of any trip circuit. Note each selector in the B sub-group is sent to tell-tale in the proper sequence, that no two selectors are rising at the same time, and that each selector is returned to normal.

3.14 Remove the No. 184 plug from the MB jack of the selector in the B sub-group before the selector distributor switch has completed a revolution.

3.15 Repeat operations 3.11, 3.12, 3.13 and 3.14 for the B sub-group.

3.16 Remove No. 136 tool and all No. 184 plugs.

3.2 Check of MB Relay Lock Up Feature.

3.21 Operate the GA relay manually. Block operated the ST-A relay using a No. 136 tool. The GA relay locks. By operating the

GA relay first, the selector is prevented from being sent to tell-tale.

3.22 Using No. 184 plug, make busy the first line finder selector in the A sub-group.

3.23 Remove the plug from the first line finder selector MB jack and note that the associated MB relay remains operated. Release the MB relay.

3.24 Make busy the next line finder selector and remove the plug, noting that the associated MB relay remains operated. Release the MB relay.

3.25 Repeat operations for all line finder selectors in order. The GB and ST-B relays are used when testing selectors in the B sub-group.

3.3 Check of TR Chain Circuits:

3.31 Block in the non-operated position the ST-A and ST-B relays with No. 136 tools.

3.32 Step the group distributor switch to the first terminal. Operate the TR and TR-1 relays of the last trip circuit. They lock.

3.33 Operate the TR relay of the next circuit. It locks. The TR and TR-1 relays of the previous circuit release.

3.34 Operate the TR-1 relay of the same circuit and note that it locks.

3.35 Continue the foregoing operations until all trip circuits have been tested.

3.36 It will be necessary to step the group distributor switch to the last terminal and operate the TR relay of the last trip circuit to release the TR and TR-1 relays of the first.

3.37 A check of the TR chain circuit is also made when making a line finder exercise test.

3.4 Check of Chain Circuit Path Through T Jack.

3.41 Set the A and B selector distributor on the No. 1 terminal.

3.43 Starting with T jack No. 1 on the front of the frame insert a No. 184 plug in every other jack, that is No. 1, No. 5, No. 9, etc. and starting with T jack No. 2 on the rear of the frame insert a No. 184 plug

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in every other jack No. 2, No. 6, No. 10, etc.

3.43 With a No. 136 tool block operated the BA relay in any trip circuit. Note that every other line finder selector in the A sub-group is sent to tell-tale and restored to normal. It will be noted that some selectors are seized twice in succession. This is due to the fact that the selectors are chosen in advance of the selector distributor and is not an indication of trouble.

3.44 Remove the No. 136 tool from the BA relay and block operated the BA-1 relay. Note that every other selector in the B sub-group is sent to tell tale and returned to normal.

3.45 Repeat for other selectors.

4. NOTES:

4.1 Restoring Equipment to Service.

4.11 On completion of test remove all testing equipment.

4.12 Circuits in trouble shall be made busy or removed from service and referred to the proper source for clearing.

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in every other Jack No. 2, No. 6, No. 10, etc.

3.43 With a No. 136 tool block operated the SA relay in any trip circuit. Note that every other line finder selector in the A sub-group is sent to fail-false and restored to normal. It will be noted that same selectors are seized twice in succession. This is due to the fact that the selectors are chosen in advance of the selector distributor and is not an indication of trouble.

3.44 Remove the No. 136 tool from the SA relay and block operated the BA-1 relay. Note that every other selector in the B sub-group is sent to fail false and returned to normal.

3.45 Repeat for other selectors.

4. NOTES:

4.1 Restoring Equipment to Service.

4.11 On completion of test remove all testing equipment.

4.12 Circuits in trouble shall be made busy or removed from service and referred to the proper source for clearing.

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LINE FINDER DISTRICT SELECTOR CIRCUIT

TEST OF DISTRICT WIPE OUT

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1. GENERAL:

1.1 This test checks the line finder district selector circuit for wipe out before dialing, and wipe out after district selections. It is made with the district selector test set (T-501345) at the line finder frame.

1.2 In case a failure occurs and the trouble is not found, repeat the test 10 times before advancing to the next circuit. When trouble is found repeat the test 5 times before advancing to the next circuit.

1.3 Busy circuits should be passed only when some means is taken to assure that these circuits are routined later.

2. TESTING EQUIPMENT:

<u>Amount</u>	<u>Code</u>	<u>Description</u>
1	C-42450	District selector test set (T-501345)
1	-	Operator's telephone set.
1	728	6' three conductor cord equipped with
2	110	Plugs.
1	184	Make busy plug.

3. ROUTINE TEST NO. 263.105:

3.1 Test Set Preparation.

3.11 Plug operator's set into TEL jack of test set.

3.12 Patch B-GRD jack of test set to A jack of line finder frame jack box.

3.13 Plug No.184 plug into T jack of circuit to be tested. If the test set is supplied with a BY cord and lamp, insert the BY cord instead of the No.184 plug in the T jack. The BY lamp lights if the circuit is busy. If No.184 plug is used, note that the line finder selector is normal, then insert plug into the T jack.

3.14 Insert TST cord in C or E jack of line finder frame jack box. Connect to jack which is wired to the test line, which can be picked by line finders to be used in this test.

3.2 Wipe Out Before Dialing.

3.21 Operate the STM key. Dial tone is heard in the receiver.

3.22 Note that the selector does not release prematurely. A premature release will result in the down and up drive magnets being energized simultaneously while the selector is returning to normal.

3.23 Release the STM key. The circuit returns to normal.

3.3 Wipe Out After District Selections.

3.31 Operate the STM key. Dial tone is heard in the receiver. If the circuit to be tested is arranged for coin service, operate the C key momentarily. The C lamp lights.

3.32 Dial office code and two digits of the numerical code of a local full mechanical call.

3.33 Note that the selector does not release prematurely. A premature release will result in the down and up drive magnets being energized simultaneously while the selector is returning to normal.

3.34 Release the STM key. The circuit returns to normal. If testing coin circuit, the C lamp will be extinguished before the selector returns to normal.

3.35 Remove the No.184 plug or BY cord from the T jack of the circuit just tested. Place in T jack of next circuit and proceed with test.

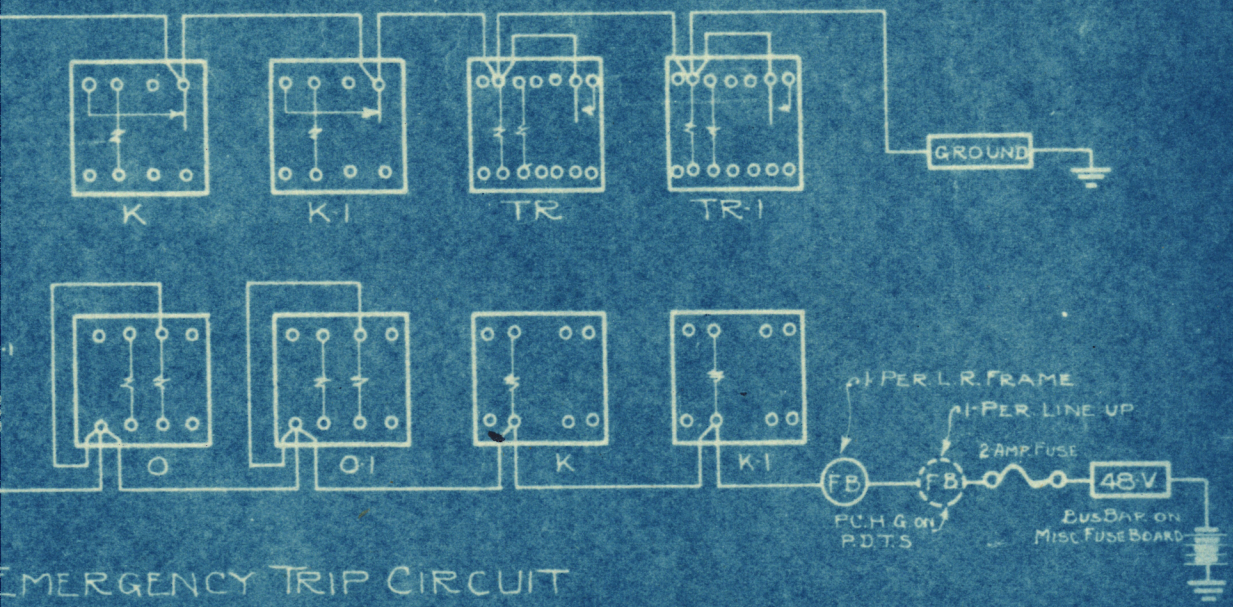
4. NOTES:

4.1 Restoring Equipment to Service.

4.11 On completion of test remove all testing equipment.

4.12 Selectors in trouble shall be made busy and referred to the proper source for clearing.

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JLK



EMERGENCY TRIP CIRCUIT

*G. Smith
Seattle*

FEEDERS ARE #20 BBE WIRE BLACK
 CAPS ARE BLACK
 BATTERY FEEDERS ARE #20 BBE WIRE BLACK RED
 THERE IS ONE EMERGENCY TRIP CCT LOCATED
 AT THE TOP OF EACH LINE RELAY FRAME

NOTE -
 THIS DRAWING APPLIES TO
 MM 650 SCHEMATIC T. 501003
 MM 652 T. 431628
 MM 653 T. 431629

MM-650		
MANUAL TEST T. 501003		
LINE FINDER CIRCUIT		
OPERATION 60101		
EMERGENCY TRIP CIRCUIT		
GROUND AND BATTERY FEEDERS		
W.O.	JLK	gk
W.O.		