MAY 24 1974

PBX SYSTEMS
NO. 756A
TRAFFIC REGISTER CIRCUIT FOR INTERNAL TRAFFIC AND TROUBLE REGISTERS

CHANGES

D. Description of Changes

D.1 The rating of this circuit is changed from AT&TCo Standard to Mfr Disc.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 3224-WVS-RVL

PBX SYSTEMS
NO. 756A
TRAFFIC REGISTER CIRCUIT
FOR INTERNAL TRAFFIC
AND TROUBLE REGISTERS

CHANGES

A. Changed and Added Functions

A.1 External traffic registers may be provided on an optional basis in a cabinet located near the PBX attendant. When used in conjunction with ten external traffic registers, the six internal registers may be used to record the same data or additional data or they may be temporarily removed from the circuit.

D. Description of Changes

D.1 On sheet 1, the sheet index is changed to show revised FS headings.

D.2 On sheet 1, Circuit Note 102 is corrected to indicate one App. Fig. 1 per PBX.

D.3 On sheet 1, supporting information is added for external traffic registers.

D.4 On sheet 1, the title of the circuit is changed to add sub-title "For Internal Traffic and Trouble Registers" to distinguish from external traffic and trouble registers.

D.5 On sheet 2, titles of FS1 and FS2 are changed to differentiate traffic and trouble registers and cross-connections added along with explanatory sheet note 2.

D.6 On sheet 2, App. Fig. 1 is corrected to indicate six message registers designated REG1-6 with sheet note 1 added to clarify use of internal and external traffic registers.

F. Changes in CD Sections

F.1 Under GENERAL DESCRIPTION, SECTION I, paragraph 3.1, change first sentence to read: "A maximum of four internal and four external message registers may be connected as trouble peg count registers to record the number of times that troubles cause abnormal behavior of the marker."

F.2 Under CONNECTING CIRCUITS, SECTION III, Part 4, add:

4.2 Traffic Register Circuit for External Traffic and Trouble Registers - SD-5E010-01.

BELL TELEPHONE LABORATORIES, INCORPORATED

(WECo 7760HW-RHB-JGW)
DEPT 5337-RAV

PBX SYSTEMS
NO. 756A
TRAFFIC AND TROUBLE REGISTER CIRCUIT

SECTION I - GENERAL DESCRIPTION

1. TRAFFIC OVERFLOW REGISTERS

1.1 This circuit provides means to register the number of calls which overflow from an "all busy" condition on dial pulse registers, links, busy tone trunk, junctors and trunk codes 8, 9 and 0. An overflow register may be provided for each group of dial pulse registers, links, junctors and trunks. For example, when a call requires a junctor and all junctors are busy, the junctor overflow register JOF will be operated. The operation of these registers is controlled by the marker.

2. TRAFFIC PEG COUNT REGISTERS

2.1 Means are also provided by this circuit to register the number of calls handled by the junctors, the busy tone trunk and the 8, 9 and 0 trunk groups. The terminating peg count TPC8, TPC9 and TPC0 registers are operated each time a call is terminated from the PBX to the associated trunk group. The originating peg count OPC register is operated on each call originated by station lines on the PBX. The terminating peg count TPC- register is operated on each call terminated to the PBX from trunks. The operation of these registers is controlled by the marker except for the OPC8 and OPC9 registers which are controlled by the marker and the dial pulse register.

3. TROUBLE PEG COUNT REGISTERS

3.1 Four trouble peg count registers are provided to record the number of times that troubles cause abnormal behavior of the marker. These registers are: (1) marker second trial peg count register STPC, (2) marker no connection peg count register MCPC, (3) marker trouble release peg count register TRPC, and (4) marker time out peg count register TOPC. If a marker cannot complete a call on a first trial because of trouble, a second trial is automatically made. If the marker cannot complete the call on the second trial, it is automatically released from this call and allowed to proceed to other calls before returning to this call. After a call has been served and no other calls are waiting, the marker automatically checks its time-out circuits that control the second trials and trouble releasing. These circuits will again be checked following any call which is terminated to the Busy Tone Trunk and no other calls are waiting. The TOPC register records the number of times that the marker checks these time-out circuits. Each of the trouble registers is advanced once each time that the marker checks its time-out circuits. Therefore, the number of second trials, no connections, and trouble releases experienced is determined by subtracting the reading of the TOPC register from each of the readings of the STPC, NCPC and TRPC registers. These registers are controlled by the marker.

SECTION II - DETAILED DESCRIPTION

1. OVERFLOW REGISTERS

1.1 Register Overflow

When a station line or a trunk originates a call and operates marker relays TR0, TR1, or T2, T3, T4, T5, T6 or T7 and all dial pulse registers are busy, ground is connected from the TEA0 and TEB0 relays, which operate from the TR- or T- relays, through contacts of the marker ARBA and ARBB relays to lead ROF. This ground operates register ROF.

1.2 Link Overflow

When a call requires a link and all links are busy, marker relays ALBA and ALBB operate. Ground from the ALB- relays is connected to the LOF lead and operates register LOF.

1.3 Busy Tone Overflow

When a call is routed to the busy tone trunk and the busy tone trunk is already busy, marker relays BYA and BYB will operate. Ground from contacts of the BY- relays through contacts of the marker BTCA and BTCB relays is connected to lead BTOF operating the BTOF register.

1.4 Junctor Overflow

When a call requires a junctor and all junctors are busy, the marker BYA and BYB relays operate. Ground from contacts of the BY- relays through contacts of the marker JTAA and JTBA relays is connected to lead JOF operating register JOF.

1.5 Trunk Group Overflow

When a call is directed to a trunk group and all trunks in that group are busy, marker relays BYA and BYB operate.

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Ground from contacts of the BY- relays through contacts of marker relays TDB8, TKB9 or TKBO is connected to lead OF8, OF9 or OFO respectively. This ground operates register OF8, OF9 or OFO. If more than one trunk group is designated by tens digit 8, all overflows from all groups designated 8 will be recorded on register OF8.

2. PEG COUNT REGISTERS

2.1 Junctor Peg Count

When a call requires a junctor, the marker JTAA and JTBA relays operate. These relays connect ground to lead JPC to operate register JPC. This register records all calls for which a junctor is required including those which go to overflow.

2.2 Busy Tone Trunk Peg Count

When a call cannot be completed, it is routed to the busy tone trunk. Marker relays BTCA and BTCB operate and connect ground to lead BTPC operating register BTPC. This register records all calls which require busy tone including those overflow calls on which a dial pulse register must supply busy tone.

2.3 Trunk Terminating Peg Count

When a call is directed to a trunk by dialing 8, 9 or 0 marker relays TKB8, TKB9 or TKBO operate. The operation of these relays connects ground to lead TPC8, TPC9 or TPCO. These registers record all calls directed to these trunk groups including those calls which go to overflow. If there is more than one trunk group having a tens digit 8, all calls directed to these trunk groups will be recorded on register TPC8.

2.4 Trunk Originating Peg Count

When a call in this PBX is originated by a trunk, marker relays RGAA, RGBA and RAOA or RA1a operate when the trunk is connected to a dial pulse register. The dial pulse register class relay COT, or TT will operate depending on whether the call is from a central office trunk or a tie trunk. Ground is connected from relay RAOA or RA1A, through contacts of the dial pulse register class relay and contacts of the RGAA and RGBA relays to lead OPC8 or OPC9, operating register OPC8 or OPC9. Calls originated by attendant trunks will not be registered. Register OPC8 will record all calls from all trunks designated by tens digit 8.

2.5 Total Originating Peg Count

When a station line originates a call one of marker relays TP2 to TP7 operates, grounding lead OPc. Ground on lead OPC operates register OPC.

2.6 Total Terminating Peg Count

When a trunk initiates a call to the PBX, one of marker relays TRPO or TRP1 operates, grounding lead TPC. Ground on lead TPC operates register TPC.

3. TROUBLE PEG COUNT REGISTERS

3.1 Second Trial Peg Count

When the marker is unable to complete a call before its shortest timeout circuit functions, the marker advances to second trial and tries again. At the time the marker advances to second trial, marker relays STAR and STBR operate connecting ground to lead STPC operating register STPC.

3.2 No Connection Peg Count

If the marker is unable to complete a call on its second trial before its longer timeout circuit functions, the marker advances to a "no connection" condition and tries to complete the calling party to the busy tone trunk. At the time the marker advances to the "no connection" condition, marker relays NAA and NAB operate grounding lead NCPC to operate register NCPC.

3.3 Trouble Release Peg Count

If the marker is unable to complete a call to busy tone after it has advanced to "no connection", before its longest timeout circuit functions, the marker will release and try to serve another call. When the marker releases, marker relays TRA and TRB operate, grounding lead TRPC to operate register TRPC.

3.4 Timeout Peg Count

When the marker becomes idle and no calls are waiting to be served and the preceding call was routed to the Busy Tone Trunk, the timeout check circuit functions to check the marker advance, timeout and release circuit. When the timeout check circuit functions, marker relays TOLA and TOLB release and connect ground to lead TOPC to operate register TOPC. As the marker advance circuit functions, registers STPC, NCPC and TRPC will operate.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

1.1 None

2. FUNCTIONAL DESIGNATIONS

BTOF - Busy Tone Trunk Overflow
BTPC - Busy Tone Trunk Peg Count
JOF - Junctor Overflow
JPC - Junctor Peg Count
LOF - Link Overflow

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NCPC - No Connection Peg Count
OF0 - Trunk Group 0 Overflow
OF8 - Trunk Group 8 Overflow
OF9 - Trunk Group 9 Overflow
OPC - Originating Peg Count
OPC8 - Trunk Group 8 Originating Peg Count
OPC9 - Trunk Group 9 Originating Peg Count
ROF - Dial Pulse Register Overflow
STPC - Second Trial Peg Count
TOPC - Time Out Peg Count
TPC - Terminating Peg Count
TPC0 - Trunk Group 0 Terminating Peg Count
TPC8 - Trunk Group 8 Terminating Peg Count
TPC9 - Trunk Group 9 Terminating Peg Count
TRPC - Trouble Release Peg Count

3. FUNCTIONS

3.01 To record overflows on registers.

3.02 To record overflows on links.

3.03 To record overflows on the busy tone trunk.

3.04 To record overflows on junctors.

3.05 To record overflows on trunk groups.

3.06 To record peg counts on junctors.

3.07 To record peg counts on the busy tone trunk.

3.08 To record originating peg counts on trunk group 8 and 9.

3.09 To record terminating peg counts on trunk groups 0, 8 and 9.

3.10 To record originating peg counts from station lines.

3.11 To record terminating peg counts from trunks.

3.12 To record marker second trials, no connections and trouble releases.

3.13 To record marker timeout checks.

4. CONNECTING CIRCUITS

When this circuit is listed on a keysheet the information thereon is to be followed.

4.1 Line, Link and Marker Circuit - SD-65741-01.

5. MANUFACTURING TEST REQUIREMENTS

5.1 The traffic register circuit shall be capable of meeting all the requirements of the Circuit Requirements Table.

6. TAKING EQUIPMENT OUT OF SERVICE

6.1 Any register in this circuit may be removed from service by disconnecting its associated strap on the unit terminal strip.

7. ALARM INFORMATION

7.1 There are no alarms associated with or actuated by this circuit.

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DEPT. 2714-RDW-RCD-C4