

**MODIFICATION OF 3 DIGIT TRANSLATOR TYPE SENDERS
AND ASSOCIATED EQUIPMENTS
FOR USE WITH DECODERS
EQUIPMENT DESIGN REQUIREMENTS
PANEL SYSTEMS**

1. GENERAL

Scope

1.01 This specification together with the supplementary information listed herein, covers the equipment design requirements for the modification of translator-pulse machine type senders for use with decoders and the associated decoder equipment changes in panel offices.

1.02 This specification is reissued to incorporate previous appendix changes.

Capacity

1.03 The capacity of the translator-pulse machine type sender frames to be modified for use with decoder equipment is not affected by this change.

1.04 The capacity of the decoder, decoder test and trouble indicator frames arranged for use with modified senders is not affected.

1.05 A new 5 capacity decoder connector per J28101B or C has been made available for use with modified senders.

Description

1.06 The conversion of 3 digit translator type subscriber and local senders for use with decoder equipment provides for the replacement of the translator, pulse machine, pulse machine fuse board and associated equipment with the decoder, decoder connector, decoder test and trouble indicator frames.

Sender

1.07 The conversion of the translator sender to decoder operation requires major wiring and apparatus changes with restenciling of exist-

ing apparatus that is reused to perform new circuit functions. The removed apparatus exceeds that added providing drilled positions for all new apparatus. All optional equipment including zone and overtime registration equipment can be located on the sender unit.

Decoder Connector

1.08 A new decoder connector (5 connectors per frame) is required for use with translator senders converted to decoder operation. This new connector is very similar to the regular connector (3 connectors per frame) except that the multi-contact relay required in the regular connector, for each sender served by the connector, has been replaced with a group of E and R type relays located in each sender. The new connector is arranged to serve two sender frames of 5 or 6 senders capacity each.

Decoder

1.09 Modification of the decoder consists of adding two E or R type relays required in connection with the registration of "Permanent Signal" and "Dial Zero" calls from pulse machine type senders which have been modified for use with decoder equipment.

Decoder Test Frame

1.10 Two relays and two resistances are required for testing the "Permanent Signal" and "Zero Operator" feature added in the decoder. To arrange the decoder test frame for use with 5 capacity connector frames (connectors A to E) the terminal strips and key and lamp panel shall be redesignated in accordance with job requirements.

Trouble Indicator Frame

1.11 The trouble indicator modifications consist in adding two relays and lamps to differentiate between the two sender frames common to one connector, two relays to register "Dial Zero" and "Trouble Route" and changes in designation of the lamp and jack panel.

Sender Test Frame

1.12 No changes are required in sender test equipment due to the conversion of translator senders to decoder operation. Sender test circuit ES-239493 will test sender selector-type senders per SD-21193-02, SD-21839-01, and SD-21840-01. It must be recognized, however, that test circuit SD-21026-02 has improved features which ES-239493 does not have. When existing senders such as ES-240051 and ES-240053 are modified by SD-21839-01 and SD-21840-01, and new senders per SD-21193-02 are furnished, consideration should be given to provide similar features or options for all three circuits as far as practicable. The test circuit ES-239493 must, of course, be modified accordingly.

Improved Features

1.13 With translator type senders after conversion to decoder operation the following advantages are available:

- (1) Provision for a simplified conversion for zone and overtime registration.
- (2) Provision for additional classes of service.
- (3) Provision for the rearrangement of vacant codes which are superimposed on working codes with translators.
- (4) Provision for simplified conversion for future use of alternate routing.
- (5) Decreased holding time of the sender.
- (6) Decreased maintenance on decoder equipment as compared to translators and pulse machines.
- (7) Decreased floor space requirements.

2. SUPPLEMENTARY INFORMATION

815-000-000 — Panel Systems Index
AA128.006 — List of General Equipment Requirement Sections

X-61200 — List of Engineering Requirement Specifications for Offices Having Ground on the Cut-off Relay

X-61400 — List of Engineering Requirement Specifications for Offices Having Battery on the Cut-off Relay

J23202 (815-405-150) — Trouble Indicator Frame

J23205 (815-406-150) — Decoder Test Frame

J27901 (815-200-150) — Subscriber Sender Frame

J28101 (815-212-150) — Decoder Connector Frame

J28703 (815-210-150) — Decoder Frame

X61274 — Local Sender Frame (6 Sdr. Cap.)

3. DRAWINGS**Circuits**

SD-20011-02 — Sub. Sender — LK — N.C. — Mod. of ES-20011-01

ES-20012-02 — Sub. Sender — LK — C. OR N.C. — Mod. of ES-20012-01

ES-20028-02 — Sub. Sender — SS — N.C. — Mod. of ES-20028-01

SD-20143-01 — Sender Frame Motor Stop Alarm Circuit — LK Type

SD-21187-02 — Decoder Connector Circuit for Use with Translator Type Senders Modified for Decoder Operation

SD-21188-01 — Decoder Test Circuit

SD-21197-01 — Trouble Indicator Circuit

SD-21277-01 — Decoder Circuit

SD-21826-01 — Sub. Sender — S.S. — C. & N.C. Mod. of ES-240067

SD-21839-01 — Sub. Sender — S.S. — C. & N.C. Mod. of ES-240051

SD-21840-01 — Sub. Sender — S.S. — C. & N.C. Mod. of ES-240053

SD-21841-01 — Local Sender Mod. of ES-207831 to ES-207836 & ES-240033

ES-226349 — Sender Frame Motor Stop Alarm Circuit — S.S. Type

Equipment

Subscriber Sdr. — S.S. — C. & N.C.
(SD-21826-01)

ED-20862-01 — Sender Unit Equipment

ES-225317 — Frame and Interrupter Unit Equipment (5 Sender Capacity)

Subscriber Sdr. — S.S. — N.C. —
(ES-20028-02)

ED-20067-01 — Frame Equipment — (6 Sender Capacity)

ED-20070-01 — Interrupter Unit Equipment

ED-20866-01 — Sender Unit Equipment

ES-299102 — Interrupter Unit Terminal Strip Equipment

Subscriber Sdr. — LK — C. & N.C. —
SD-20011-02 & ES-20012-02

ED-20067-01 — Frame Equipment (6 Sender Capacity)

ED-20068-02 — Sender Unit Equipment

ED-20070-01 — Interrupter Unit Equipment

Associated Equipment Changes on Other Frames

ED-20122-01 — Sender Make Busy Frame Equipment

ED-20122-03 — Sender Make Busy Frame Equipment Arranged For Universal Trunks

ED-20176-01 — Decoder Mounting Plate Equipment

ED-20180-01 — Decoder Terminal Strip Equipment

ED-20260-01 — Trouble Indicator Frame and Terminal Strip Equipment

ED-20261-01 — Trouble Indicator Jack Panel and Mounting Plate Equipment

ED-20351-01 — Decoder Test Mounting Plate Equipment

ED-20352-01 — Decoder Test Terminal Strip Equipment

ED-20353-01 — Decoder Test Key & Lamp Panel Equipment

ED-20694-01 — Decoder Test Frame Equipment

ED-20700-01 — Decoder Frame Equipment

ED-20854-01 — Decoder Connector Mounting Plate Equipment

ED-20856-01 — Decoder Connector Frame Eqpt. (5 Connector Capacity)

Wiring and Cabling

ED-20027-01 — Decoder Switchboard Cabling Plan

ED-20146-01 — Decoder Equipment Cabling Schematic (3 Connector Capacity)

ED-20263-01 — Trouble Indicator Frame Switchboard Cabling Plan

ED-20355-01 — Decoder Test Frame Switchboard Cabling Plan

ED-20857-01 — Decoder Equipment Cabling Schematic (5 Connector Capacity)

ED-20858-01 — Decoder Connector Switchboard Cabling Plan (5 Connector Cap.)

ES-225744 — Subscriber Sender Frame Switchboard Cabling Plan — S.S. — C. or N.C. — (5 Sdrs. Cap.)

ES-299105 — Sub. Sdr. Frame Swbd. Cabling Plan — S.S. — N.C. — (6 Sdr. Cap.)

ES-299807 — Sub. Sdr. Frame Swbd. Cabling Plan — LK — (6 Sdr. Cap.)

4. GENERAL NOTES

Sender Frame

4.01 3 digit senders modified for decoder operation shall be wired and equipped in accordance with the general procedure outlined herein. The equipment arrangement of non-unit type senders shall be furnished on a job basis to fit the various equipment layouts now in use.

4.02 For senders modified for use with decoder equipment all optional apparatus, including zone and overtime equipment which is located on an applique unit for link type senders shall be located at the sender unit or sender frame. Wiring and equipment for zone and overtime shall be furnished only when required.

4.03 One relay shall be added on the interrupter unit or sender frame for unit type and non unit type senders in accordance with SD-20143-01, issue 12-B for link type senders and ES-226349, issue 21-B for sender selector type senders. This relay is connected to the (FB) lead from the connector so that when a connector is removed from service the associated senders will be made busy.

4.04 Leads in the unit or frame local cable that have been disconnected and cannot be reused for senders arranged for decoder operation shall be cut dead. A supplementary local cable form shall be superimposed on the local cable unless the condition of the local cable is such that it may be desirable to replace all existing wiring with a complete new form.

4.05 Switchboard cable from the sender frames to the decoder equipment shall be in accordance with ED-20857-01. The switchboard cable to unit type senders and the multiple cable

between unit terminal strips shall be secured to the unit terminal strip supports. For non-unit type senders the switchboard cable should be run to the terminal strips at the top of the frame with all multiple wiring between senders on the same frame run in the frame local cable.

4.06 Two local sender frames should not be connected to the same connector circuit and where possible each local sender frame should be associated with a different connector frame.

4.07 Each connector is arranged to serve two sender frames of 5 or 6 sender capacity ("high numbered" and "low numbered" sender frames). Where there are small sender groups such as in sender selector type offices it may be desirable to arrange the connector to serve one sender frame in each of two sender groups so that when the connector is made busy the minimum number of senders in a group are removed from service.

4.08 Where coin senders are being modified for decoder operation and also being converted to non-coin operation provision has been made on the circuits for the removal of the preliminary coin test relays. The removal of these relays requires a few added leads but eliminates future maintenance otherwise required for these relays.

4.09 Translator type senders which have been modified for decoder operation may be used in the same sender group with regular link type decoder senders. Decoder senders arranged for use with sender selectors would require a special sender test circuit.

4.10 The group busy register circuit for senders modified for decoder operation may be retained unless these senders are placed in the same sender group with regular decoder senders. The translator type sender group busy register circuit operates on a series chain circuit through all the senders in the group while the group busy register for decoder type senders operates on a multiple basis.

4.11 With the exception of the multiple at the register switches, the battery and ground leads for each sender circuit shall be wired throughout with 20 gauge wire. One 20 gauge

ground wire shall be run to each selector switch. The multiple of this lead, however, shall be 24 gauge wire and limited to one 26 type bank.

Decoder Connector Frame

4.12 The decoder connector frame per J28101B or C should be furnished for translator senders which have been converted to decoder operation. This connector frame has a capacity of 5 connectors each of which serves two sender frames of 5 or 6 sender capacity.

Decoder Frame

4.13 Decoders furnished in accordance with issue 16-D of SD-21277-01 contain the wiring necessary for use with modified translator type senders. Decoders furnished in accordance with previous issues shall be modified to agree with the changes covered on issue 16-D of the decoder circuit. The supplementary leads required shall be superimposed on the local cable. The equipment shall be located in accordance with the associated decoder equipment drawings ED-20176-01, issue 19-D and ED-20180-01, issue 20-D.

Decoder Test Frame

4.14 Decoder test frames in accordance with issue 16-D of sender test circuit SD-21188-01 contain the wiring necessary for use with modified translator type senders. Decoder test frames furnished in accordance with previous issues shall be modified to agree with the changes covered on issue 16-D of the decoder test circuit. The supplementary leads required shall be superimposed on the local cable. The equipment shall be in accordance with ED-20351-01, issue 21-D ED-20352-01, issue 15-D and ED-20353-01, issue 13-D.

Trouble Indicator Frame

4.15 Trouble indicator frames in accordance with issue 9-D of trouble indicator circuit SD-21197-01 contains the wiring necessary for use with modified translator type senders. Trouble indicator frames in accordance with previous issues shall be modified to agree with the changes covered on issue 9-D of the trouble indicator circuit. The supplementary leads required shall be superimposed on the local cable. The equipment shall be in accordance with ED-20260-01, issue 13-D and ED-20261-01, issue 8-D.

Sender Make Busy Frame

4.16 Where translator type senders have been converted to decoder operation, one (FB) frame busy jack per Fig. 20 on SD-20143-01, or per Fig. 9 on ES-226349 or similar circuit, shall be furnished for each decoder connector circuit associated therewith. These jacks shall be located on the sender make busy frame in spare jack spaces above or below the regular sender make busy jacks as indicated on equipment drawings ED-20122-01 or ED-20122-03.

Added Equipment

4.17 Where translator type senders have been converted to decoder operation these senders should be served by existing decoder equipment where sufficient capacity is available. Where new decoders, trouble indicator and decoder test frames are required this equipment may be arranged to also serve new and future panel units in the same building. A minimum of two new decoder connector frames arranged to

serve modified translator type senders is required unless there is at least one regular decoder connector frame serving regular decoder senders in the same sender group with the converted senders. In this case a minimum of one connector frame arranged for modified senders is required.

Removed Equipment

4.18 With the conversion of all translator type senders to decoder operation in an office the following equipment is no longer required.

- (1) Translator frames and lamp banks
- (2) Pulse machines
- (3) Pulse machine fuse board
- (4) Pulse machine test frame
- (5) Sender pulse fuse board
- (6) Translator distributing frame
- (7) Associated floor alarm board equipment

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