tellabs
technical manual
76-81267S
rev A

practice section 81267S

267S Signaling and Terminating Assembly

contents

1. description/application

1.01 The Tellabs 267S SF Signaling and Terminating Assembly (figure 1) provides mounting for one or two complete single frequency (SF) signaling and terminating circuits, plus power and ringing, in a compact, wall-mounted apparatus case. Designed primarily to house Tellabs' 6927 2Wire and 6947 4Wire Universal SF Signaling Set modules with Gain, the self-contained 267S Assembly requires only connection to the facility and to a standard 117Vac, 60Hz receptacle to become fully operational.

1.02 In the event that this Practice is reissued, the reason for reissue will be stated in this paragraph.

1.03 Tellabs' 6927 and 6947 modules interface a 4wire SF facility and convert SF signaling to any of three switch-selected signaling modes on the terminal side: E&M, foreign exchange office-end (FXO), and foreign exchange station-end (FXS). Both modules contain integral amplifiers and attenuators that accommodate a wide range of facility-side transmit and receive levels without the need for a separate line-amplifier module. As a result, each 6927 and 6947 provides all required signaling and transmission levels in a single-module package that offers end-to-end compatibility with E- and F-type signaling units of other manufacturers. Two versions of these modules are available, identical in every respect but for the manner in which transmit and receive levels are adjusted in each: the 6927 and 6947 levels are controlled by front-panel-mounted continuously-adjustable potentiometers, while those of the 6927A and 6947A are prescription-set in discrete increments by front-panel-mounted DIP switches.

1.04 In addition to the 6927 and 6947 modules, ten other 6900-family Signaling Set modules are available for use in the 267S Assembly. One of these, the 6962 4Wire E&M SF Signaling Set with Gain, like the 6927 and 6947 combines signaling functions and amplification in a single module, thus allowing two complete and independent 4 wire SF to E&M circuits with gain to be mounted in each 267S Assembly. The remaining 6900-family SF modules include both 2wire and 4wire E&M, FXO, FXS, and ringdown units, as well as a 4wire DX module. These nine modules are designed to interface the 4wire facility at standard +7 and −16

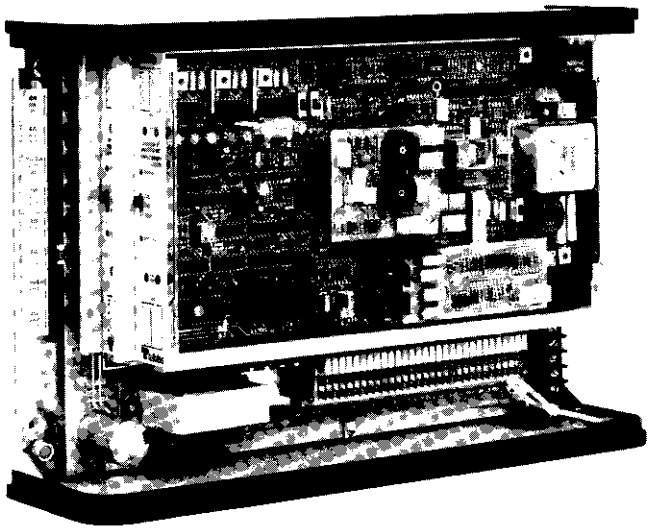

figure 1. 267S Signaling and Terminating Assembly (shown equipped with two 6927A modules)

levels: if gain is required, it is usually provided by a separate 4wire line amplifier such as the Tellabs 4944; attenuation can be provided by a 490X Pad or Pad/Transformer module. The line amplifier or pad module occupying the other mounting position in the 267S limits its capacity to one complete SF signaling circuit.

1.05 Power and ringing are normally provided with the 267S, but if these are locally available, the Assembly may be ordered without power, or without power and ringing. The standard power supply included with the 267S is the Tellabs 8014, a compact unit that plugs into a standard wall outlet and derives a 24Vac output from an input of 117Vac, 60Hz. The 24Vac is converted to dc for distribution to the enclosed modules by rectifier/voltage regulator circuitry within the 267S Assembly. The rest of the 6900-family modules require −48Vdc, as do the 6927/27A and 6947/47A only when optioned as an FXO in ground-start applications. The integral ring generator provides negatively superimposed ringing at a frequency of 20Hz, and the ringing circuit is equipped with strap options that permit the use of an external ringing source should requirements change at some future date.

1.06 The 267S Assembly attaches to the wall such that the enclosed modules are in an upright position, necessary for the proper functioning of modules that contain mercury-wetted relays, as do the 6927 and 6947. (Both the 6927 and 6947 may be horizontally mounted when optioned as an FXS, as this mode does not use the integral mercury-wetted relay). The case is hinged, allowing the Assembly to be swung away from the wall for service

access. The 267S may also be desk-top-mounted when used with modules that need not be operated in an upright position.

1.07 As mentioned above, the 267S is a prewired Assembly compatible with the entire Tellabs 6900 family of SF Signaling Set modules. These modules make electrical connection through two 56-pin card-edge connectors mounted at the rear of the Assembly (please refer to figure 2). These connectors are factory-wired to a 60-pin Type 66 quick-connect block via printed-circuit-board traces. Power and, if supplied externally, ringing connections are made to a barrier-type terminal strip near the cable entrance hole. Eight 310-type jacks (four per module position) are located near

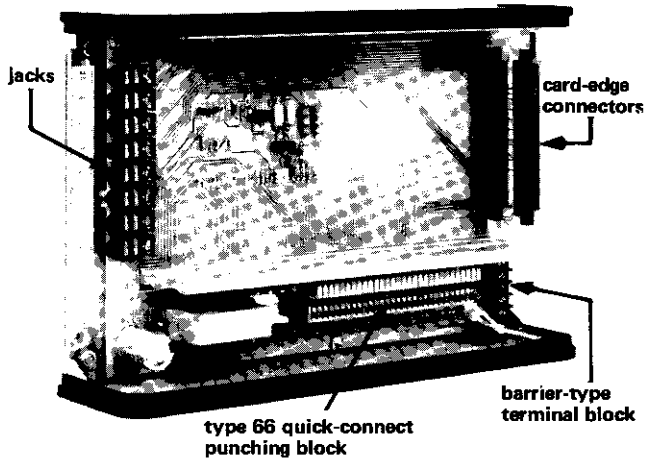

figure 2. 267S Assembly showing jack and connector locations

the front panels of the modules. These opening jacks provide access to all four ports of each module (transmit and receive inputs and outputs).

2. mechanical installation

inspection

2.01 The 267S Signaling and Terminating Assembly should be visually inspected upon arrival to find possible damage incurred during shipment. If damage is noted, a claim should immediately be filed with the carrier. If the 267S is stored for later use, it should again be inspected prior to installation. Modules used in the 267S System are shipped in separate cartons, and each should be subjected to the same inspection as the 267S Assembly.

cover removal

2.02 To remove the cover of the 267S Assembly prior to installation, turn the four plastic retaining latches so the pointers face the center of the Assembly. Grasp the wrap-around ends of the cover between open palms and lift the cover away from the Assembly. Store the cover in a convenient location where it will not be damaged. Reverse the disassembly procedure to reinstall the cover.

Caution: *Ensure that the cover is properly positioned and slides freely into place. The cover can be damaged if mishandled.*

wall mounting

2.03 The 267S Assembly is designed for mounting on a wall or other vertical surface in an indoor environment. The mounting hardware selected for use should be capable of supporting at least 20 pounds. The 267S is 10.5 inches high, 15.5 inches wide, and projects approximately 5 inches from the wall in the closed position. It is recommended that the 267S be centered within an area approximately 15 inches high by 22 inches wide to allow clearance for service access. When the unit is swung out for service access, it projects approximately 16 inches from the wall. An additional 12 inches (28 inches total) should be allowed for viewing the modules' front panels and for jack access.

Note: *Before wall-mounting the 267S, remove the flathead machine screw and spacer and the two rubber feet from the hinge. These are only used when the unit is desk-top-mounted.*

The unit requires four mounting screws (not supplied) of a type suitable for the particular wall surface. Attach the two screws through the hinge first, and then remove the two rubber feet on the latch side. Mount the latch bracket to the wall with the remaining two screws through the two access holes provided for this purpose in the bottom of the case. After the Assembly has been secured to the wall, it may be swung out for service by removing the two thumbscrews that secure the bracket to the case.

desktop mounting

2.04 If the 267S will be used to house 6900-family modules that do not contain mercury-wetted relays, a horizontal surface such as a desktop is a suitable location for the Assembly. In this instance, the small flathead machine screw and spacer in the small hole in the center of the hinge and the two rubber feet in the two larger holes at either end of the hinge should be left in place to protect the mounting surface.

3. wiring

entrance leads

3.01 All facility, power, and ring generator (if external) leads enter the 267S Signaling and Terminating Assembly through a hole on the lower righthand side. These leads should be dressed as per local convention, allowing enough slack to permit the Assembly to be swung away from the wall without stressing the cable. Figure 2 shows the physical locations of the terminal blocks discussed in the following paragraphs.

facility connections

3.02 All facility connections are made to a 60-pin Type 66 quick-connect punching block within the Assembly. Terminal numbers are silk-screened on the block's printed circuit board mounting; these numbers correspond to those shown in figure 3, the 267S Wiring Diagram. Figure 3 also shows the lead designations of each of the punchings used in the dedicated wiring plan, as well as the strapped spares which may be used by the installer for miscellaneous connections. Make all facility connections in accordance with figure 3.

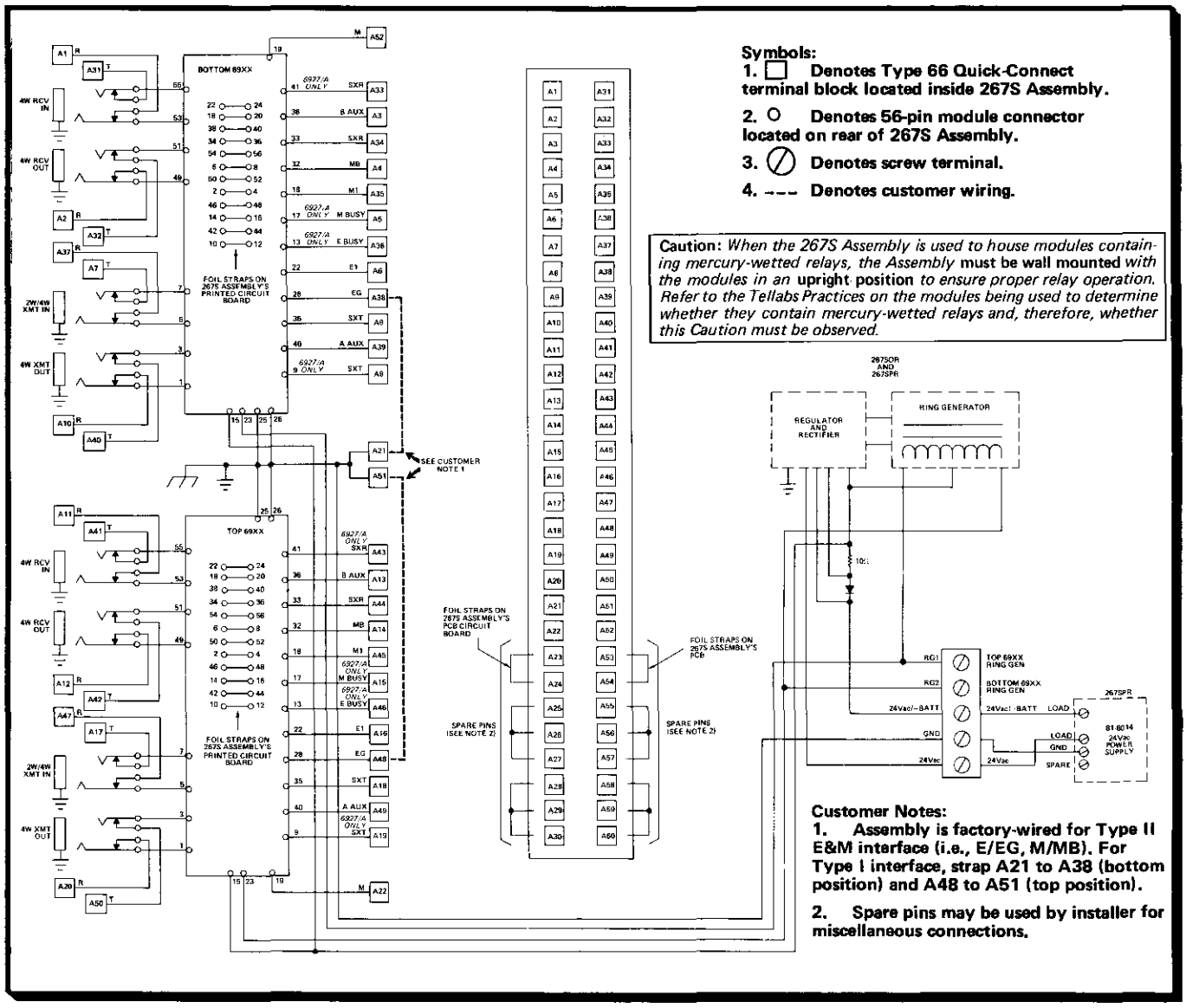

figure 3. 267S wiring diagram

ac power input

3.03 Power to the 267S Assembly (when ordered with power) is provided by the Tellabs 8014 24Vac Power Supply. Connect the 8014 as shown in figure 3 using a twisted pair, 20AWG or larger, and no more than 30 or 40 feet long. A shielded pair, although preferable to an unshielded pair, is not mandatory. If a shielded twisted pair is used, connect the shield at the transformer, but not at the 267S Assembly unless a local telephone company ground is not available. If a telephone company ground is used, strip the shield back from the power leads and insulate the shield with tape to prevent incidental ground contact with the chassis. Connect the power leads as shown in figure 3, but do not plug the 8014 into the wall until after the properly optioned modules are installed.

dc power input

3.04 For 267S Assemblies ordered without power, connect a local source of –24Vdc or –48 Vdc (refer to paragraph 1.05) filtered battery to the input power terminals of the Assembly's barrier-type terminal strip. Use either a twisted pair or a shielded twisted pair, 20AWG or larger and no longer than about 20 feet. Connect the positive power lead to the *GND* terminal on the barrier strip and the negative power lead to the *–BATT* terminal (see figure 3).

external ringing source

3.05 If an external source of negatively-superimposed ringing is to be used, connect its output to the *–BATT* and *RG1* terminals on the barrier strip. If both module positions require ringing, strap terminal *RG1* to *RG2*.

Caution: *If an external ringing source is to be used with a 267S Assembly that contains an integral ringing generator, the internal straps on the ringing generator* **must be removed.**

4. specifications

Note: *For specifications of the individual modules used in the 267S System, refer to the specific Tellabs practices or catalog sheets on these modules.*

Assembly variations
267SPR includes prewired mounting, ringing generator, and power supply (for 6927/27A and 6947/47A only, and excluding ground-start FXO applications); 267SOR includes prewired mounting and ringing generator; 267SOO includes prewired mounting only

system capacity
one or two complete SF signaling and terminating circuits, depending upon modules used

power requirements
267SPR requires only conventional 117Vac wall receptacle; 267SOR and 267SOO requirements depend upon specific module(s) used in Assembly

power supplied to modules
267SPR: filtered −24Vdc (nominal); 267SOR and 267SOO: dependent upon external power supply

integral ringing generator (267SPR/SOR)
20Hz, 105Vac, negatively-superimposed

operating environment
20° to 120°F (−7° to 49°C), humidity to 95% (no condensation)

dimensions
15.5 inches (39.4cm) wide
10.5 inches (26.7cm) high
4.8 inches (12.2cm) deep

weight
267SPR 10 lbs 8 ounces (4.76kg)
267SOR 9 lbs 2 ounces (4.16kg)
267SOO 8 lbs 4 ounces (3.74kg)

mounting
swing-out wall mount, or unit can be desktop-mounted when used with modules that do not contain mercury-wetted relays

5. testing and troubleshooting

5.01 This *testing guide checklist* may be used to install, test, or troubleshoot the 267S Signaling and Terminating Assembly. The Guide is intended as an aid in localizing the problem. If a 267S is suspected of being defective, a new unit should be substituted and tested. If the new unit operates properly the first unit should be considered defective and returned to Tellabs for repair or replacement.

5.02 It is strongly recommended that no internal (component-level) testing or repairs be attempted on the 267S Assembly or 6900-family modules. Unauthorized testing or repairs may void your Tellabs warranty.

5.03 If a situation arises that is not covered in the Checklist, contact Tellabs Customer Service at your Tellabs Regional Office or at our Lisle, Illinois, or Mississauga, Ontario, Headquarters. Telephone numbers are as follows:

US central region: (312) 969-8800
US northeast region: (412) 787-7860
US southeast region: (305) 645-5888
US western region: (213) 595-7071
Lisle Headquarters: (312) 969-8800
Mississauga Headquarters: (416) 624-0052

testing guide checklist

trouble condition	possible cause (in order of likelihood)
system inoperative, both signaling and transmission	1) Power connection faulty. Verify power output by measuring voltage between *−BATT* and *GND* terminals on power distribution terminal strip ☐. 2) Signaling Set incorrectly optioned ☐. 3) External wiring incorrect ☐.
transmission levels proper, signaling faulty	1) Improper optioning of 69XX module ☐. 2) Improper System grounding ☐. 3) Incorrect external wiring ☐.
excessive noise in transmission path	1) Improper grounding, especially existence of ground loops ☐. 2) Amplifier levels misaligned ☐. 3) Unbalanced 2wire terminations ☐. 4) Optional transmit or receive equalizer not properly adjusted ☐.
inability to send test tone in transmit direction	1) Circuit not seized locally to remove transmit speech path cut in 69XX module ☐.
inability to ring local station	1) Local station off-hook or wiring incorrect ☐. 2) Signaling Set improperly optioned ☐. 3) Defective ringing generator. Verify presence of 20Hz ringing potential between the *−BATT* and *RING GEN* terminals on the power distribution barrier strip ☐.
inability to derive proper transmission levels	1) Improper impedance optioning of 69XX or term set portion of 69XX Signaling Set ☐. 2) Signal levels exceeding overload limits of Amplifier, Signaling Set, or Term Set ☐.