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AUA26 (COT) CU — POTS WITH DERIVED CHANNEL ALARM - 5SC1CC1AXX

DATA SHEET

SLC® SERIES 5 CARRIER SYSTEM

The AUA26 channel unit (COMCODE 103840427) is designed for 2-wire, single party POTS applications with derived channel alarm service. It contains a current sink circuit that provides the interface between the central office loop-start line circuit and the *SLC* Series 5 carrier system. This plug-in can provide two channels of service and will always be located in the COT (central office terminal). The AUA26 is intended for use with the AUA27 RT (remote terminal) channel unit to provide compatibility with derived channel alarm transport equipment that utilizes an out-of-band signaling tone of 36 Hz. Transmission of this out-of-band tone is unidirectional, i.e., from the RT to the COT only.

Figure 1 is a functional block diagram of the AUA26 unit and Figure 2 shows the AUA26 faceplate.

Note: The end-to-end test and maintenance procedures for the AUA26 channel unit are included beginning with page 5 of this data sheet.

The AUA26 channel unit is a voice-frequency transmission channel unit having a transformer coupled line interface with a nominal structural impedance of 900 Ω that provides a high return loss against 900 Ω in series with 2.15 μF. When linked with an AUA27 channel unit at the RT, the AUA26 provides an end-to-end, off-hook loss of 1 dB in both the transmit and receive directions. The nominal, off-hook dc resistance of the AUA26 is 1000 ohms. The AUA26 provides on-hook transmission capability. The on-hook end-to-end voltage loss will not increase beyond the off-hook loss by more than 5 dB (in either direction) with the moderately high on-hook termination impedances expected at each end. In the on-hook state, the AUA26 is compatible with ALIT (automatic line insulation tests). A forward disconnect feature is also provided by the AUA26. There are no options or settings that need to be selected on this channel unit.

When used in conjunction with derived channel alarm systems, the AUA26 injects an out-of-band signaling tone on tip and ring whenever an out-of-band tone is present at the AUA27 end. During the on-hook state, the signal amplitude is nominally −19 dBm into a 900 Ω load. In the off-hook condition, the tone aplitude is reduced to a nominal level of −36 dBm into a 900 Ω load.

The AUA26 channel unit responds to a trunk processing signal from the *SLC* Series 5 carrier system by removing a loop closure condition and signaling the idle state to the far end. In addition, transmission of the out-of-band signaling tone is disabled.

The AUA26 channel unit is compatible with PGTC (pair gain test controller) and XTC (extended test controller) test systems. When polled for identification by the COP (centralized operations and provisioning) software program, the response for the AUA26 channel unit is a readout of *POTS*.

Faceplate LEDs indicate specific conditions:

- **ODD BUSY** (Red LED): When lighted, indicates that the odd channel is busy.
- **EVEN BUSY** (Red LED): When lighted, indicates that the even channel is busy.

The faceplate jack provides convenient test access to the tip (T) and ring (R) of both the odd (O) and even E) channels.

Technical assistance for the *SLC* Series 5 carrier system can be obtained by calling the Regional Technical Assistance Center at **1-800-225-RTAC**. This telephone number is staffed 24 hours per day.

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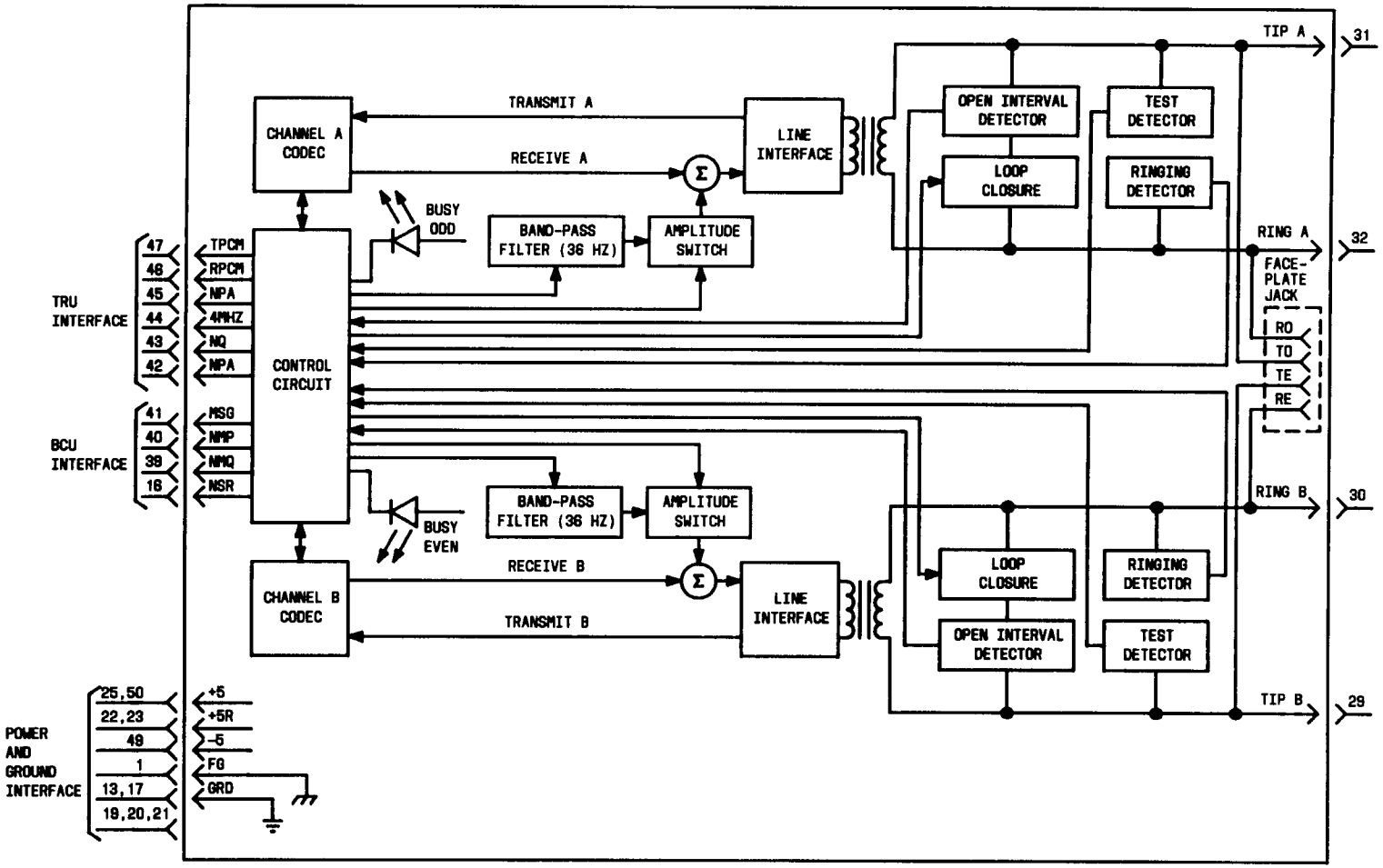

Figure 1—AUA26 Block Diagram

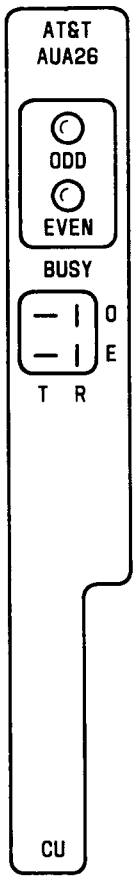

Figure 2—AUA26 Faceplate

END-TO-END TEST FOR POTS WITH DERIVED CHANNEL ALARM ON UNIVERSAL *SLC*® SERIES 5 CARRIER SYSTEM

SUMMARY

This procedure tests POTS with derived channel alarm and key telephone service compatibility (fast forward disconnect). At COT, use test line to connect unassigned subscriber line and call number to channel being tested. If PGTC or XTC is available, perform PGTC or XTC channel tests. Otherwise, at RT, determine corresponding channel. Connect a test telephone set with ringer connected for bridged ringing to channel being tested. Make talking, dialing, ringing, and ring-trip tests on each channel. Off-hook T/R = 4 Vdc to 15 Vdc. Key set feature = 0 Vdc, then 4 Vdc to 15 Vdc. At COT and RT, connect transmission measuring set to channel and measure 36 Hz transmission. Receive level at COT (no input at RT) = lower than –30 dBm; receive level at COT (–20 dBm input at RT) = higher than –25 dBm.

STEP	PROCEDURE

1. Obtain test equipment:

   - KS-14510 VOM or Equivalent at RT
   - Test Telephone Set (rotary dial or touch-tone) at RT

   Note: Test set must be able to send and detect 36 Hz tone.

   - Halcyon &704A TMS (transmission measuring set) or equivalent at COT and RT

2. Install channel units as required (AUA26 at COT and AUA27 at RT).

3. Establish communication between central office and remote terminal.

4. ***Caution: Channel must be out of service before testing — otherwise, service will be interrupted.***

   At the COT, select channel for testing and inform RT of channel selected.

5. At selected channel appearance on MDF, connect a temporary call number and subscriber line circuit test line.

6. Is PGTC (Pair Gain Test Controller) or XTC (Extended Test Controller) available to test channels?

   If **YES,** then continue with Step **7.**

   If **NO,** then proceed to Step **10.**

7. ***Note:*** AT&T Practice 662-505-507 provides procedures for using the PGTC to test channels. The XTC procedures are given in AT&T Practice 363-205-300. The PGTC or XTC can only verify operation to the RT channel unit. To verify operation to cross-connect field, a test telephone must be used at each channel location on the cross-connect field.

   Request RSB (Repair Service Bureau) or LTD (Local Test Desk) to perform PGTC or XTC channel tests. Did tests pass?

STEP	PROCEDURE

If **YES,** then proceed to Step **9.**

If **NO,** then continue with Step **8.**

8. The following items may be used to clear trouble. Repeat channel tests after each item until tests pass, then continue with Step **9.**

   a. Check test connections and correct if needed.

   b. Replace RT channel unit.

   c. Replace COT channel unit.

   d. Make sure PGTC or XTC is working properly and that you are using proper procedures.

   e. Use office drawings and schematic drawings to check wiring. Look for tip and ring reversal between COT channel appearance and office equipment — also between RT and cross-connect terminal. Correct wiring problem until channel tests pass.

9. Repeat channel tests with PGTC or XTC as required on remaining POTS with derived channel alarm channels and proceed to Step **22.**

10. ***Note:*** Test telephone set should be connected for bridged ringing. To verify correct wiring from RT, connect test telephone at cross-connect field. The 52A channel unit test extender may be used (AT&T Practice 363-005-235 Data Sheet).

    At RT, temporarily connect a test telephone set to channel selected for test.

11. At RT, lift handset and check for dial tone. Is dial tone present?

    If **YES,** then proceed to Step **13.**

    If **NO,** then continue with Step **12.**

12. The following items may be used to clear trouble. Check for dial tone after each item. When dial tone is present at each phone, continue with Step **13.**

    a. Check test connections and correct if needed.

    b. Replace RT channel unit.

    c. Replace COT channel unit.

    d. Use office drawings and schematic drawings to check wiring. Look for tip and ring reversal between COT channel appearance and office equipment — also between RT and cross-connect terminal. Correct wiring problem.

13. At RT, dial local MDF or CO number and make normal talk tests.

14. Was call completed with normal transmission quality in both directions?

STEP	PROCEDURE

If **YES,** then proceed to Step **16.**

If **NO,** then continue with Step **15.**

15. The following items may be used to clear trouble. Repeat from Step **13** after each item until call is completed normally, then continue with Step **16.**

    a. Replace RT channel unit.

    b. Replace COT channel unit.

    c. Use COT and RT schematic drawings to check channel bank wiring. Look for tip and ring reversal between COT channel appearance and office equipment — also between RT and cross-connect terminal. Correct wiring problem.

16. At RT, put handset on hook.

17. At COT, dial test line number to ring telephone at RT.

18. At RT does test telephone ring normally?

    If **YES,** then proceed to Step **20.**

    If **NO,** then continue with Step **19.**

19. The following items may be used to clear trouble. If first item does not clear trouble, try the remaining items in sequence until test telephone rings normally, then continue with Step **20.**

    a. Replace RT channel unit.

    b. Replace COT channel unit.

    c. Use office drawings and schematic drawings to check wiring. Look for tip and ring reversal between COT channel appearance and office equipment — also between RT and cross-connect terminal. Correct wiring problem until channel tests pass.

20. At RT, lift telephone handset during ringing. Does ringing trip normally?

    If **YES,** then proceed to Step **22.**

    If **NO,** then continue with Step **21.**

21. The following items may be used to clear trouble. If the first item does not clear trouble, try next item until ringing trips normally, then continue with Step **22.**

    a. Replace RT channel unit.

    b. Replace COT channel unit.

22. ***Note:*** Key telephone service compatibility cannot be tested with the PGTC or XTC. A test telephone must be connected at the RT and a test call established between COT and RT.

STEP	PROCEDURE

At RT, condition VOM (voltmeter) to measure dc volts.

23. Make sure test call is established and held between COT and RT.

24. Connect (+) red lead of VOM to tip conductor and (–) black lead to ring conductor of test telephone.

25. Does meter indicate between 4 Vdc and 15 Vdc?

    If **YES,** then proceed to Step **27.**

    If **NO,** then continue with Step **26.**

26. The following items may be used to clear trouble. If first item does not clear trouble, try the remaining items in sequence until meter indicates between 4 Vdc and 15 Vdc, then continue with Step **27.**

    a. Check test connections and correct if needed.

    b. Replace RT channel unit.

    c. Replace COT channel unit.

    d. Use COT and RT schematic drawings to check wiring. Use office drawings to check central office wiring. Correct wiring problem.

27. At RT, observe VOM meter.

    Comment: A VOM should be used to observe results at RT because results may be difficult to see with a digital voltmeter.

28. At COT, momentarily (1-2 seconds) break tip or ring connection for channel being tested.

29. At RT, does meter indicate 0 volts for approximately 1 second, then return to previous level (4 to 15 volts)?

    If **YES,** then proceed to Step **31.**

    If **NO,** then continue with Step **30.**

30. The following items may be used to clear trouble. If first item does not clear trouble, try the remaining items in sequence until meter indicates correctly, then continue with Step **31.**

    a. Replace RT channel unit.

    b. Replace COT channel unit.

    c. Use COT and RT schematic drawings to check wiring. Use office drawings to check central office wiring. Correct wiring problem.

STEP	PROCEDURE

31. At RT, put handset on hook.

32. ***Note:*** Transmission test sets must be able to send or detect 36 Hz tone.

    At COT, remove test line. On TMS, connect RECEIVE jack to AUA26 channel unit. Condition TMS to receive tone with impedance set to 900 ohms.

33. Does TMS indicate a receive tone level lower than –30 dBm?

    If **YES,** then proceed to Step **35.**

    If **NO,** then continue with Step **34.**

34. Recheck test setup and correct if necessary. If TMS does not indicate correct level, replace RT channel unit and repeat from Step **6.** If TMS still does not indicate correct level, replace COT channel unit and repeat from Step **6.**

35. At RT, disconnect test telephone. On TMS, connect TRANSMIT jack to AUA27 channel unit. Condition TMS to send –20 dBm tone at 36 Hz with impedance set to 900 ohms.

36. At COT, does TMS indicate a receive tone level higher than –25 dBm (at 36 Hz)?

    If **YES,** then proceed to Step **38.**

    If **NO,** then continue with Step **37.**

37. Recheck test setup and correct if necessary. If TMS does not indicate correct level, replace RT channel unit and repeat from Step **6.** If TMS still does not indicate correct level, replace COT channel unit and repeat from Step **6.**

38. At COT and RT, disconnect TMS.

39. Is this the last POTS with derived channel alarm channel to be tested on this system?

    If **YES,** then **STOP. YOU HAVE COMPLETED THIS PROCEDURE**

    If **NO,** then continue with Step **40.**

40. At COT, select next channel to be tested and inform RT of channel selected.

41. At selected channel appearance on MDF, connect a temporary call number and subscriber line circuit test line

42. Have channels been tested with PGTC or XTC?

    If **YES,** then proceed to Step **22.**

    If **NO,** then proceed to Step **10.**

CLEAR CHANNEL FAILURE - POTS WITH DERIVED CHANNEL ALARM ON UNIVERSAL *SLC*® SERIES 5 CARRIER SYSTEM

STEP	PROCEDURE

1. What kind of trouble was reported on channel?

   If trouble is in **voice channel,** then continue with Step **2.**

   If trouble is in **voice channel with interference (chirps),** then proceed to Step **32.**

   If trouble is in **alarm channel,** then proceed to Step **33.**

2. At COT, replace channel unit for failed channel.

3. At selected channel appearance on MDF, connect a temporary call number and subscriber line circuit test line.

4. ***Note:*** If maintenance center or test desk cannot access failed channel unit with PGTC or XTC, make sure no fuses are blown in the lower (blue) system **CFU** (channel fuse unit). If PGTC or XTC is not available, use Steps **10** through **31** of end-to-end test.

   Can maintenance center or test desk access failed channel for testing?

   If **YES,** then proceed to Step **6.**

   If **NO,** then continue with Step **5.**

5. Using CIU (craft interface unit) and KS-14510 VOM, clear test bus. Refer to CIU User's Manual (Test Bus Access/Provision) for test procedure.

6. ***Note:*** AT&T Practice 662-505-507 provides procedures for using the PGTC to test channels. The XTC procedures are given in AT&T Practice 363-205-300.

   Request maintenance center or test desk to test failed channel. Did trouble clear?

   If **YES,** then continue with Step **7.**

   If **NO,** then proceed to Step **8.**

7. Restore channel to service.

   STOP. YOU HAVE COMPLETED THIS PROCEDURE

8. At COT, reinstall original channel unit.

9. At RT, replace channel unit for failed channel.

STEP	PROCEDURE

10. Request maintenance center or test desk to test failed channel. Did trouble clear?

    If **YES,** then continue with Step **11.**

    If **NO,** then proceed to Step **12.**

11. Restore channel to service.

    STOP. YOU HAVE COMPLETED THIS PROCEDURE

12. At RT, reinstall original channel unit.

13. Remove service on shelf that has channel trouble.

14. ***Caution: In any of these procedures, any time a circuit pack is replaced, make sure that any option switches are set identical to the data on the facility record.***

    At COT, replace TRU associated with shelf having channel trouble.

15. Request maintenance center or test desk to test failed channel. Did trouble clear?

    If **YES,** then continue with Step **16.**

    If **NO,** then proceed to Step **17.**

16. Restore channel to service.

    STOP. YOU HAVE COMPLETED THIS PROCEDURE

17. At COT, unseat all channel units on shelf except channel unit being tested. (Channel units do not have to be removed from the shelf.)

18. Request maintenance center or test desk to test channel on installed channel unit. Did trouble clear?

    If **YES,** then continue with Step **19.**

    If **NO,** then proceed to Step **22.**

19. Reinstall channel units one at a time and request maintenance center or test desk to re-test channel after each insertion.

20. Replace channel unit that causes test to fail.

21. Reinstall remaining channel units and restore service.

    STOP. YOU HAVE COMPLETED THIS PROCEDURE

22. At RT, replace TRU associated with shelf being tested.

STEP	PROCEDURE

23. Request maintenance center or test desk to test failed channel. Did trouble clear?

    If **YES,** then proceed to Step **27.**

    If **NO,** then continue with Step **24.**

24. At RT, unseat all channel units except the one matching equipped channel at COT on shelf being tested. (Channel units do not have to be removed from the shelf.)

25. Request maintenance center or test desk to test equipped channel. Did trouble clear?

    If **YES,** then proceed to Step **27.**

    If **NO,** then continue with Step **26.**

26. Use COT and RT schematic drawings to locate and clear trouble.

27. Were channel units unseated?

    If **YES,** then proceed to Step **29.**

    If **NO,** then continue with Step **28.**

28. Restore service.

    STOP. YOU HAVE COMPLETED THIS PROCEDURE

29. Reinstall channel units one at a time and request maintenance center or test desk to re-test channel after each insertion.

30. Replace channel unit that causes test to fail.

31. Reinstall remaining channel units and restore service.

    STOP. YOU HAVE COMPLETED THIS PROCEDURE

32. ***Note:*** If alarm service is provisioned for off-hook polling, interference may be reported on voice channel as chirps heard at regular intervals when handset is off-hook.

    Request alarm company to notify customer and possibly reprovision service for on-hook polling.

    STOP. YOU HAVE COMPLETED THIS PROCEDURE

33. At COT and RT for failed channel, remove lightning protectors (to disconnect tip and ring).

34. ***Note:*** Test set must be able to send and detect 36 Hz tone.

    At COT and RT, get Halcyon 704A TMS (transmission measuring set) or equivalent.

35. ***Note:*** The 52A channel unit test extender may be used to access channel. Refer to AT&T Practice 363-005-235 Data Sheet.

STEP	PROCEDURE

At COT on TMS, connect RECEIVE jack to tip and ring of failed channel (on AUA26 channel unit). Condition TMS to receive tone with impedance set to 900 ohms.

36. Does TMS indicate a receive tone level lower than –30 dBm?

    If **YES,** then proceed to Step **38.**

    If **NO,** then continue with Step **37.**

37. Recheck TMS settings and connections and correct if necessary. If TMS does not indicate correct level, replace COT channel unit and repeat from Step **35.** If TMS still does not indicate correct level, reinstall original channel unit and replace RT channel unit. Repeat from Step **35.** If problem clears, proceed to Step **51.**

38. At RT on TMS, connect TRANSMIT jack to AUA27 channel unit. Condition TMS to send –20 dBm tone at 36 Hz, set impedance to 900 ohms, and make sure HOLD is off.

39. At COT after 3 seconds, does TMS indicate a receive tone level higher than –25 dBm at a frequency between 34 Hz and 38 Hz?

    If **YES,** then *note level* and proceed to Step **41.**

    If **NO,** then continue with Step **40.**

40. Recheck TMS settings and connections at COT and RT and correct if necessary. If TMS does not indicate correct level, replace COT channel unit and repeat from Step **35.** If TMS still does not indicate correct level, reinstall original channel unit and replace RT channel unit. Repeat from Step **35.** If problem clears, proceed to Step **51.**

41. At RT on TMS, activate HOLD function.

42. At COT after 3 seconds, does TMS indicate a receive level at least 15 dB more negative than level noted in Step **39?**

    If **YES,** then continue with Step **43.**

    If **NO,** then proceed to Step **40.**

43. At RT, condition TMS to send 0 dBm at 1000 Hz (on-hook transmission)

44. At COT, does TMS indicate receive tone level greater than or equal to –15 dBm at 1000 Hz?

    If **YES,** then continue with Step **45.**

    If **NO,** then proceed to Step **40.**

45. At RT, condition TMS to receive.

46. At COT, condition TMS to send 0 dBm at 1000 Hz.

STEP	PROCEDURE

47. At RT, does TMS indicate receive tone level greater than or equal to -15 dBm at 1000 Hz?

    If **YES,** then continue with Step **48.**

    If **NO,** then proceed to Step **40.**

48. Was trouble cleared?

    If **YES,** then proceed to Step **50.**

    If **NO,** then continue with Step **49.**

49. System appears to be working properly. Trouble may be in customer drop or in alarm company equipment. Refer trouble to appropriate repair forces.

50. At COT and RT, disconnect TMS and reconnect tip and ring (reinstall protectors).

51. **STOP. YOU HAVE COMPLETED THIS PROCEDURE**