FEATURE DOCUMENT

BUSY VERIFICATION OF STATION LINES

(CENTREX-CO)

NO. 2 ELECTRONIC SWITCHING SYSTEM

FEATURE DEFINITION AND DESCRIPTION

1. DEFINITION

1.01 The Busy Verification of Station Lines (BVL) feature is a centrex feature which permits the attendant to establish a "talking connection" to an apparently busy station line in order to determine if the line is in working order. When the attendant is connected to a busy line, the switching system provides periodic bursts of tone which are applied to alert the talking parties of the attendant's presence.

1.02 In the No. 2 Electronic Switching System (ESS), the BVL feature is available only with Centrex-CO. The BVL feature enables the centrex attendant to dial a given station in the centrex group for the following purposes:

- Determining that the station line is in working order

- Passing emergency information to the parties engaged in an existing call

- Requesting that the parties engaged in a call terminate the call due to emergency or maintenance conditions.

Bursts of 440-Hz tone are automatically placed on the line to indicate the attendant is exercising the busy verification feature.

1.03 To obtain the BVL feature, no special hardware is required; however, the No. 2 ESS must be equipped with the EF-1 generic program, and the customer must have the universal attendant console in order to process busy verification requests, and the BVL option must be provided in translations. If the BVL option is provided, all attendants in the centrex customer group equipped with universal consoles are capable of exercising the BVL feature.

2. DESCRIPTION

Customer (User) Perspective

2.01 When the attendant receives a request to perform the Busy Verify feature on a station

line, the following actions must be performed on the attendant console (refer to Figure 1):

- Operate an idle loop key

- Operate the BSY VER key (BSY VER lamp is lighted)

- Operate START key

- Dial number of centrex station to be verified

- Station is idle—BSY VER lamp winks (attendant can ring station by operating SIG SRC key)

- Station is busy—A talking connection is set up to the busy station (burst of tone is put on line every six seconds)

- Operate RLS or HOLD key to release from the connection—BV connection automatically releases after 30 seconds (BV lamp is darkened)

- With busy verify connection in tact, attendant can operate RLS SRC key or RLS DEST key and preempt the call.

System Implementation

2.02 The BVL feature is initiated by the centrex attendant at the request of the customer in order to verify that a dialed number is legitimately busy. The BVL feature is activated when the centrex attendant operates the BSY VER (busy verify) key on the attendant console. The BV bit in the attendant call record is set and the BSY VER lamp on the console is lighted.

2.03 The attendant then operates the START key on the console and dials the station number of the centrex station to be verified. If the station to be busy verified is idle, the BSY VER lamp on the attendant console winks. The station is jointly held with the attendant and is placed on the source port. If desired, the attendant can ring the idle station by operating the SIG SRC (signal source) key on the attendant console.

2.04 When the station being busy verified is found to be busy, the attendant call record is checked for the BV bit being set. Being set, a search is made of the centrex scatter table for

12 TRUNK GROUP BUSY LAMPS
6 TRUNK GROUP BUSY OR CALL INDICATOR LAMPS
6 CALL INDICATOR LAMPS

LOOP LAMPS AND KEYS

COMMON LAMPS AND KEYS

IB TYPE ATTENDANT CONSOLE

60 TRUNK GROUP BUSY LAMPS

24 CALL INDICATOR LAMPS

LOOP LAMPS AND KEYS

COMMON LAMPS AND KEYS

2B TYPE ATTENDANT CONSOLE

K—KEY
L—LAMP
KL—KEY AND LAMP COMBINATION

Fig. 1—Attendant Telephone Console Lamp and Key Arrangements

the terminal equipment number of the station. If the terminal equipment number is found, the call is then checked for being transient. If the terminal equipment number for the station is not found in the centrex scatter table, a search for the terminal equipment number is then made in the high and dry list. If the station terminal equipment number is located in the high and dry list, the attendant hears high tone to indicate this condition. Where the terminal equipment number is not located in the high and dry list, a search is made of the terminal memory records to find the terminal equipment number of the station.

2.05 At this point, a check is made to determine if the call is transient. If the call is transient, the attendant is given reorder tone. Otherwise, the attendant is bridged to the busy station with a talking connection through the no-test vertical. A burst of 440-Hz tone is given every six seconds to alert the parties of the call to the presence of the attendant.

2.06 With the busy verification connection made, if the attendant operates the RLS (release) or HOLD key, the busy verify connection is released, the BV lamp darkened, and the original talking connection is left undisturbed. The busy verify call is likewise released after a time interval of 30 seconds has elapsed.

2.07 The attendant can preempt the call and idle the stations by operating the RLS SRC (release source) key or RLS DEST (release destination) key. This action by the attendant causes on-hook entries to be made in the on-hook hopper for both parties of the connection. This causes the existing call to be torn down.

3. FEATURE FLOW DIAGRAM

3.01 A feature flow diagram giving the functional operation of the BVL feature is shown in Figure 2.

4. INTERACTIONS

4.01 If the centrex customer has the BVL feature, the following No. 2 ESS features are interactive.

4.02 Call Forwarding—Busy Line—If the attendant attempts to busy verify a busy station having the Call Forwarding—Busy Line feature (with or

without the All Calls option) the BVL feature takes precedence. The attendant's busy verify request will be processed through the test vertical and will be processed as described in Paragraph 2.

4.03 Call Transfer and Call Hold—If the attendant busy verifies a station line and the station user exercises the call transfer or call hold features, the nature of the connection changes and the busy verify connection will be dropped.

4.04 Intercentrex Group Dialing—The attendant in a given centrex group cannot busy verify lines outside of the centrex group, even though these lines may reside in the same intercentrex calling group.

4.05 Call Forwarding—Variable—When an attendant busy verifies a centrex station that has Call Forwarding—Variable activated, the Call Forwarding—Variable feature takes precedence, whether the station is busy or idle. The "forwarded to" station becomes the one which is busy verified.

4.06 Call Pickup—When an attendant busy verifies an idle station, and chooses to ring that station by depressing the SIG SRC key, another station within the same call pickup group as the original station may be used to pickup this call via the Call Pickup feature.

4.07 Fully Restricted Terminating and Denied Terminating Stations—An attendant cannot normally complete calls to a centrex station which is marked Fully Restricted Terminating or Denied Terminating; therefore, an attendant busy verifying such a station using the BVL feature is given dialing error treatment.

4.08 The attendant can only busy verify stable calls. The types of calls that cannot be busy verified are as follows:

- Calls that are made by a station that is the controlling party of a 3-party conference

- Calls that have code call connections

- Outgoing, unanswered, AMA recorded calls

- Calls to paging equipment.

ATTRIBUTES

5. STATION/SYSTEM

5.01 The BVL feature is provided to centrex customers on a per-group basis.

6. LIMITATIONS

6.01 The centrex customer's facility must be equipped with the universal attendant console.

6.02 The BVL feature can only be utilized from a universal console to verify a centrex station within the same customer group as the universal console. All universal console attendants can perform the BVL feature if the customer group is marked as having the BVL feature in translations.

7. RESTRICTION CAPABILITY

7.01 The BVL feature has no restrictions associated with its operation. All station lines in the centrex group can be verified by the attendant and individual station lines within the centrex group cannot be restricted in order to deny the attendant access to the verification of those lines.

8. COST DATA

8.01 The costs of providing BVL are as follows:

Software

The customer must have the EF-1 generic program.

INCORPORATION INTO SYSTEM

9. PLANNING

9.01 No extraordinary planning or coordination is associated with the BVL feature.

10. HARDWARE ENGINEERING

10.01 No special circuitry or hardware is required to obtain this feature other than the universal attendant console.

11. SOFTWARE ENGINEERING

11.01 None required.

12. COMPATIBILITY

12.01 There are no hardware compatibility or interface requirements since the BVL feature does not require hardware changes or additions if the customer has the universal attendant console.

13. OFFICE DATA

Translations

13.01 The primary translator associated with the BVL feature is the centrex group expansion. Refer to Figure 3 for the translation layout.

13.02 For initial No. 2 ESS installations where an office data administration (ODA) run is required, the following ESS form must be completed and submitted to the WECo Regional Center for processing:

> ESS 2109-1 Attendant and Group Assignment Table—This portion of the ESS 2109 form series provides the ODA with the capacities and options of the centrex group. Each item on this form, which includes a block for noting the BVL feature, is a unique characteristic of the centrex group and the group attendant.

Details for completing the above form can be found in the No. 2 ESS Translation Guide, TG-2H.

Recent Change Messages

13.03 The BVL feature may be added to or deleted from an existing centrex customer group without making an ODA run through the use of recent change messages. The A RC:CTX recent change message is used with key words BV ADD and BV DLT in order to assign the BVL feature as desired. Refer to IM-2H200-01 for details concerning the usage of the above input messages.

13.04 The A VY:CTX message is used to verify that the BVL feature has been correctly defined in translations. Refer to OM-2H200 for information concerning the interpretation of the verify printout.

14. GROWTH/RETROFIT PROCEDURES

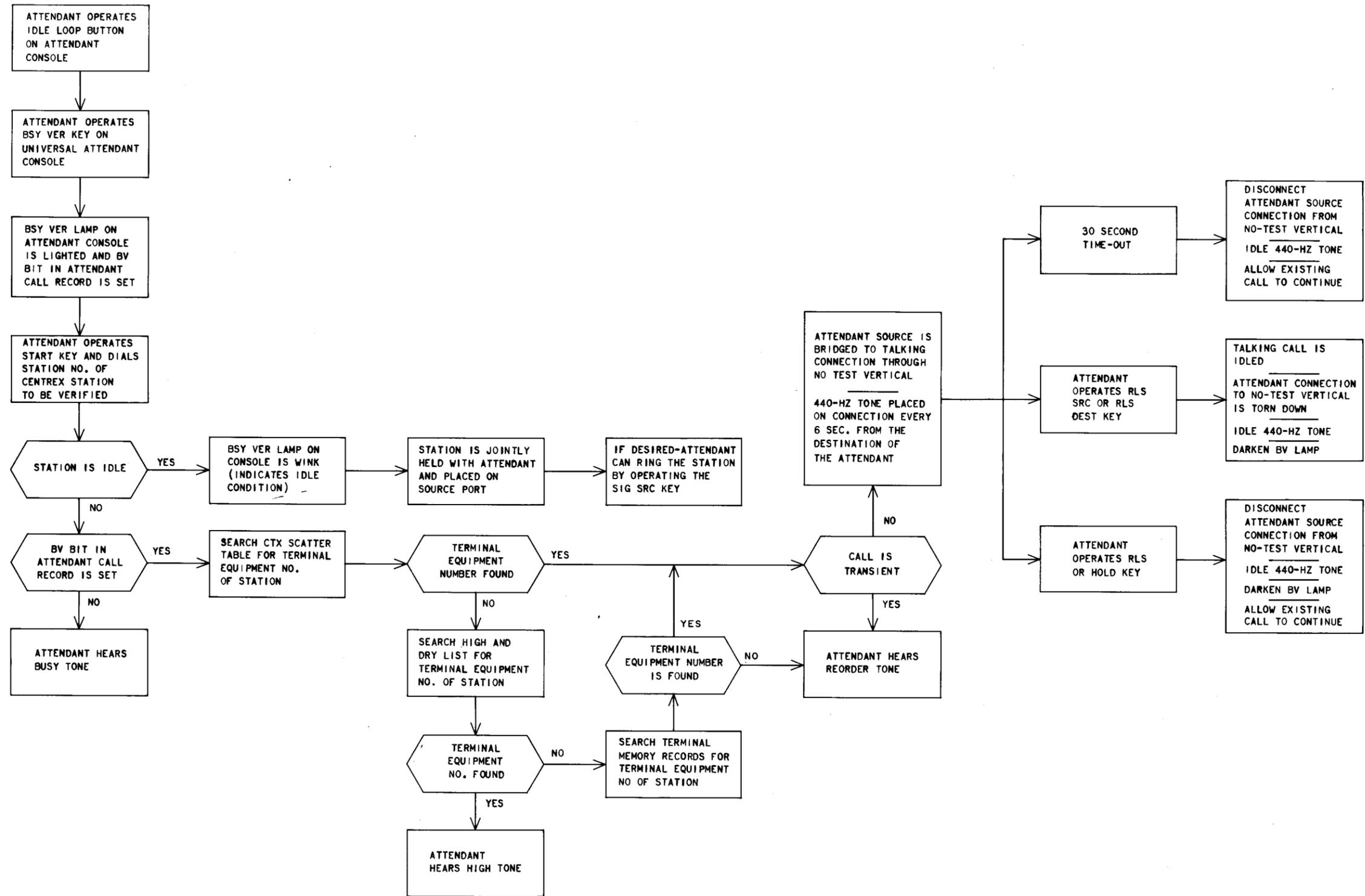**14.01** The BVL feature can be added or deleted on a per-customer group basis only.
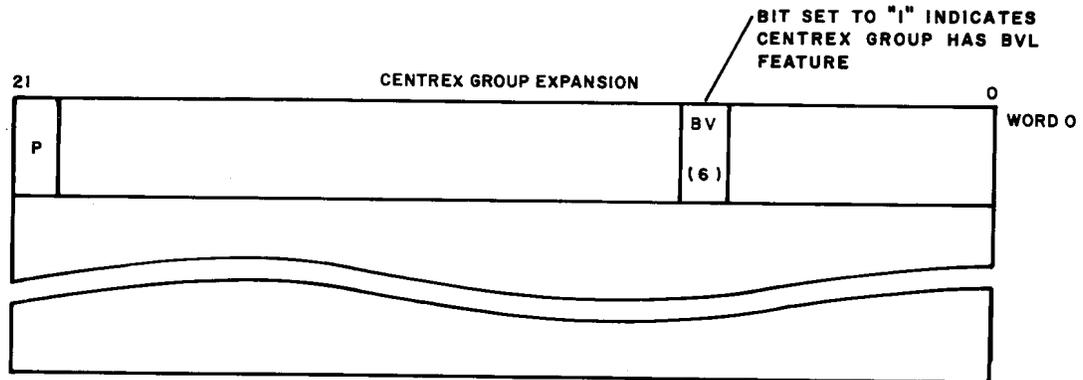
Fig. 2—Busy Verification of Station Lines

Fig. 3—Centrex Group Expansion

Provisions for making these changes are detailed in OFFICE DATA.

15. TESTING

15.01 The BVL feature does not require any special testing when incorporated into the No. 2 ESS and assigned to the desired centrex groups. The following tests can be performed to verify that the feature has been correctly defined and is operating properly.

- The attendant in a centrex group having the BVL feature may operate the BSY VER key on the attendant console, observe the BSY VER lamp illumination, and place a test call to a test station to verify correct BVL operation.

- The recent change A VY:CTX message can be examined to check for the BVL feature being correctly defined and assigned in translation.

ADMINISTRATION

16. MEASUREMENTS

16.01 There are no traffic or plant measurements required for this feature.

17. RECORD KEEPING

17.01 No special record keeping is required other than maintaining the office data records (ESS 2109-1-R) to reflect any changes that are made via recent change messages or ODA runs.

18. CHARGING

18.01 Charging for the BVL feature is controlled per local tariff regulations.

AVAILABILITY

19. NEW INSTALLATIONS

19.01 The programs required to provide this feature are available to new installations in the EF-1 generic program.

20. GROWTH/RETROFIT

20.01 The BVL feature is contained in the EF-1 generic program and is available.

SUPPLEMENTARY INFORMATION

21. GLOSSARY

21.01 The following list defines abbreviations and nonstandard terms used in this feature:

- *Automatic Message Accounting (AMA):* A mechanized system used to record charging information in telephone switching systems.

- *EF-1*—Extended Feature generic program

- *Office Data Administration (ODA) Run:* Mechanism by which translation information may be assembled or changed for a No. 2 ESS. Information from the ESS input forms is inputted into the regional

ODA computer, assembled, then sent to the No. 2 ESS.

22. REASONS FOR REISSUE

22.01 This is the initial issue of this document.

23. REFERENCES

23.01 The following documents may be referred to for supplementary information concerning the BVL feature:

- Translation Guide, TG-2H

- Input Message Manual—IM-2H200

- Output Message Manual—OM-2H200

- PD-2H308 Attendant Monitor Program

- PD-2H311 Attendant Services Program

- PD-2H221 No-Test Trace Program