Federal Aviation Administration

Initial En Route Qualification Training

Instructor
Lesson 44
Simulated Voice Switching and Control System (SVSCS) Equipment

Course 50148001

LESSON PLAN DATA SHEET

COURSE NAME: INITIAL EN ROUTE QUALIFICATION TRAINING
COURSE NUMBER: 50148001

LESSON TITLE: SIMULATED VOICE SWITCHING AND CONTROL SYSTEM (SVSCS) EQUIPMENT

DURATION: 2+00 HOURS

DATE REVISED: 2022-02
VERSION: V.2022-02

REFERENCE(S): TI 6690.17, VOICE SWITCHING AND CONTROL SYSTEM (VSCS) AIR TRAFFIC CONTROLLER OPERATORS MANUAL

HANDOUT(S): NONE

EXERCISE(S)/ ACTIVITY(S): EXERCISE: USING SVSCS EQUIPMENT (TO BE CONDUCTED IN THE LAB)

END-OF-LESSON TEST: NONE

PERFORMANCE TEST: NONE

MATERIALS: NONE

OTHER PERTINENT INFORMATION: NONE

☞ *NOTE: As you prepare for this lesson, recall and be prepared to talk about examples and personal experiences that illustrate or explain the teaching points in the lesson.*

☞ *NOTE: Exercise 2, Using SVSCS Equipment, is conducted in the lab with the assistance of extra instructors.* ***Be sure to give the assigned extra instructors a copy of the exercise in advance.***

INTRODUCTION

Gain
Attention

Initial En Route Qualification Training

Lesson 44
Simulated Voice Switching and Control System (SVSCS) Equipment

V.2022-02
Presented by
FAA Academy
Air Traffic Division
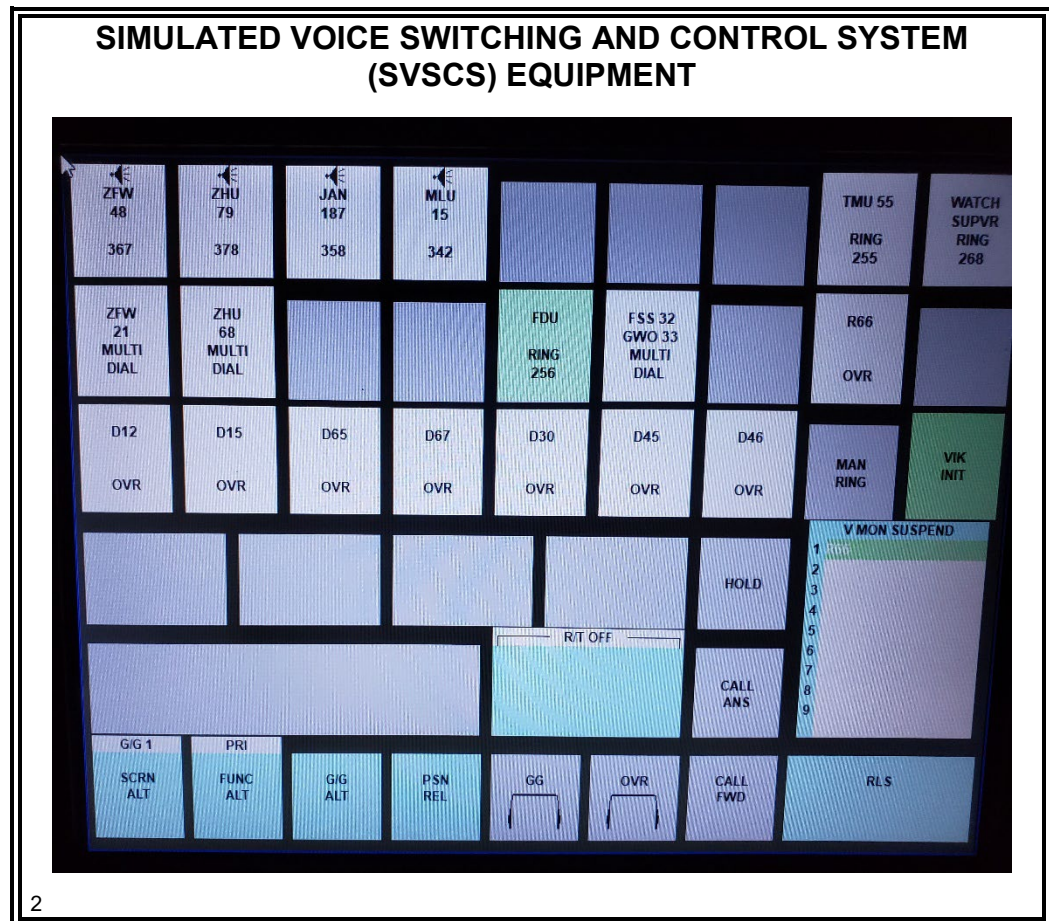
Federal Aviation Administration

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To separate and coordinate, you must first be able to communicate. The ability to communicate with pilots and controllers is the most fundamental aspect of air traffic control.

INTRODUCTION *(Continued)*

Opening Scenario

SIMULATED VOICE SWITCHING AND CONTROL SYSTEM (SVSCS) EQUIPMENT

In en route facilities, the Voice Switching and Control System (VSCS) provides air traffic controllers with Air-to-Ground (A/G) and Ground-to-Ground (G/G) voice communication capability. VSCS interfaces with remote radio equipment and facilitates voice connectivity between controllers within the same facility as well as separate facilities. Knowledge of the VSCS is vital for your progression to Certified Professional Controller (CPC).

Purpose
This lesson covers the components, functions, and operation of the Simulated VSCS (SVSCS) located at control positions at the Academy.

INTRODUCTION *(Continued)*

Lesson Objectives

> ### LESSON OBJECTIVES
> ## Given classroom instruction, you will become familiar with:
> – Push-to-Talk (PTT) and the priority of parallel headset/handset (HS) jacks
> – SVSCS Display Module (VDM) components and functions
> – Components and functions of Air-to-Ground (A/G), Ground-to-Ground (G/G), and Utility (UTIL) screens
> – SVSCS Indirect Access Keypad (VIK) functions
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☞ **NOTE:** *Teach from graphic.*

Performance Objectives
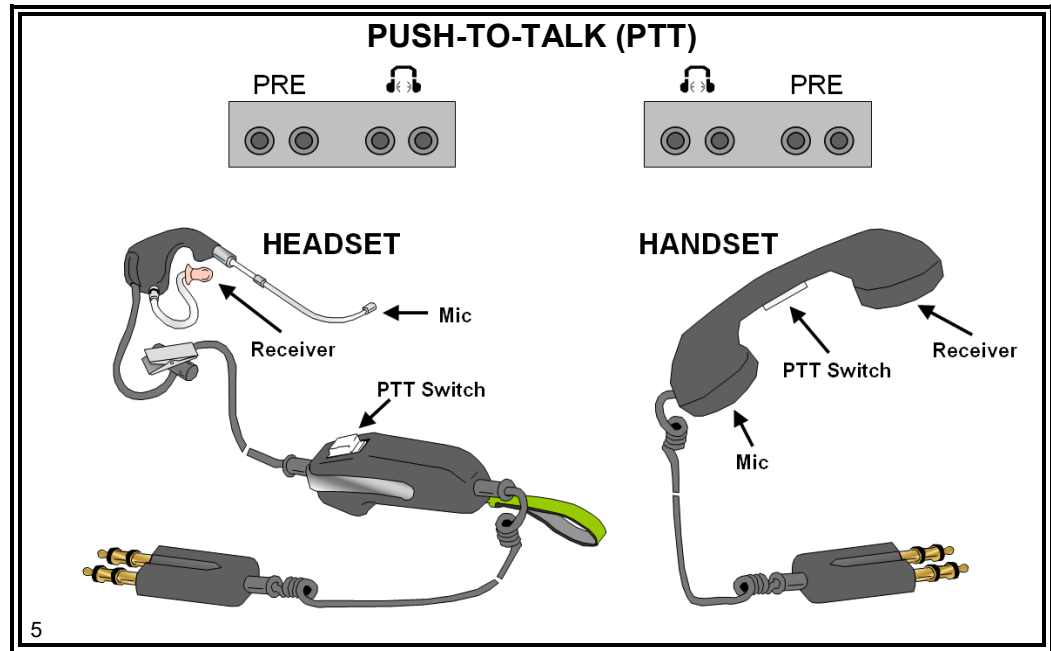
> ### PERFORMANCE OBJECTIVES
>
> ## Given SVSCS equipment in the lab and in accordance with TI 6690.17, you will place and receive calls and navigate the screens using either the VDM buttons, the VIK, or both as appropriate.
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☞ **NOTE:** *Teach from graphic.*

PUSH-TO-TALK (PTT)

PUSH-TO-TALK (PTT)

PRE   🎧   🎧   PRE

HEADSET   HANDSET

Mic

Receiver   Receiver

PTT Switch   PTT Switch

Mic
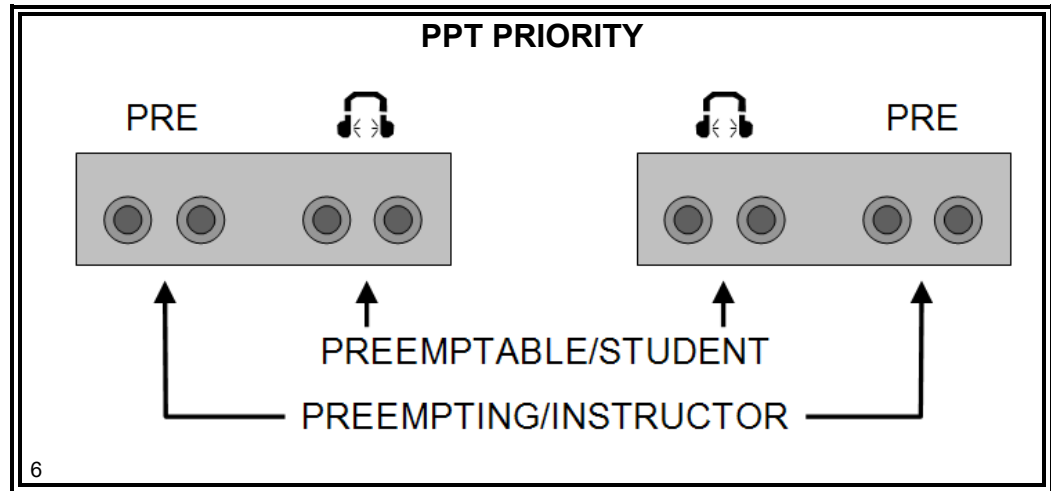
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- ⊙ Push-to-Talk (PTT) activates outgoing A/G or G/G communication once a transmitter is enabled or an active G/G call is established.

- ⊙ PTT is performed on a(n):

  - HS PTT switch
  - PTT footswitch
  - Emergency PTT button
  - Nonlatching Direct Access (DA) button

PUSH-TO-TALK (PTT) *(Continued)*

PTT Priority

⊙ When multiple headsets/handsets (HSs) are plugged in, other operators at the position are affected by the local PTT priority rules for HS PTT switches and PTT footswitches.

- The following HS jacks have equal priority when paired:

  – Preemptable and preemptable

  – Preempting and preempting

- The student is preemptable. The instructor is preempting.

- When preempting and preemptable HS jacks are paired, the preempting jack has priority.

SVSCS DISPLAY MODULE (VDM)

Alternate Screen (SCRN ALT) Button
TI 6690.17, par. 4.3

☞ ***NOTE:*** *Use the SIGNAL computer to run "COMM SIMULATOR LESSON" program to display and demonstrate features covered in the lesson. Do not use school view to send the power point to the students. Students will navigate through the course using the trackball mouse and SIGNAL program.*

☞ ***NOTE:*** *Have the students display the A/G 1 screen on the students' monitors and point out the SCRN ALT button.*

⊙ The Alternate Screen (SCRN ALT) button displays any one of six different screens by selecting the appropriate button:

- A/G 1
- A/G 2
- A/G STAT (Status)
- G/G 1
- G/G 2
- UTIL (Utility)

☞ ***NOTE:*** *Have students select the SCRN ALT button to display these six screen buttons on the bottom row.*

⊙ The SCRN ALT button is available on the primary and alternate function button sets of all VDM screens.

A/G ALT and G/G ALT Buttons and Functions

⊙ The A/G ALT and G/G ALT buttons appear on the A/G and G/G screens respectively.

☞ ***NOTE:*** *Select the A/G 1 button to display the A/G ALT button.*

- The A/G ALT button allows you to toggle between the A/G 1 and A/G 2 screens.

☞ ***NOTE:*** *Select the A/G ALT button to display the A/G 2 screen and demonstrate how the screens can be toggled. Then select SCRN ALT and G/G 1 to display the G/G ALT button.*

- The G/G ALT button allows you to toggle between the G/G 1 and G/G 2 screens.

☞ ***NOTE:*** *Select the G/G ALT button to display the G/G 2 screen and demonstrate how the screens can be toggled.*

AIR-TO-GROUND (A/G) SCREENS

Screen Functions and Buttons

⊙ Two A/G operations screens, A/G 1 and A/G 2, enable operators to access A/G communications resources (VHF and UHF frequencies).

☞ **NOTE:** *Display the A/G 1 screen and point out the following buttons.*

⊙ Buttons specific to the A/G screens are:

- A/G function buttons
- Frequency buttons

  – When an unselected frequency button is touched, it becomes three separate buttons.

☞ **NOTE:** *Select and deselect a frequency button to demonstrate this.*

  – Operators touch frequency buttons to select and control transmitter and receiver states.

☞ **NOTE:** *Students should **not** select frequencies at the RA position in the lab. They may monitor the frequency by selecting the R66 Monitor (R66 MON) DA button as discussed later in this lesson.*

- Emergency frequency buttons
- Emergency Push-to-Talk (PTT) non-latching buttons

  – These buttons are used by the Radar Controller

    → At ZAE, the D-side does **not** select frequencies

GROUND-TO-GROUND (G/G) SCREENS

Screen Function and Guidelines

- ⊙ Two G/G screens enable operators to access G/G communications resources (landlines).

- ⊙ One call may be active at a time.

  - • Highlighted when selected

- ⊙ Identify your position (D66/JAN LO) to answer all lines.

G/G 1 - Interphone (IP) Call
TI 6690.17, par. 6.4.3

☞ **NOTE:** *Display the G/G 1 screen.*

NOTE: G/G 1 is the most important screen as it allows you to communicate with other controllers.

- ⊙ Used to call other controllers/facilities.

- ⊙ May be of three types:

  - • Ring - Ringing state is displayed at the called position(s)
  - • Holler - Loudspeaker paging is active at positions receiving the call
  - • Dial - "DIAL CODE #" is displayed on the VIK

SVSCS Indirect Access Keypad (VIK) Functions

☞ **NOTE:** *Select a dial line to display the VIK.*

- ⊙ Is used for G/G communications and for controlling equipment at the ATC position.

- ⊙ Operates similarly to a common telephone keypad.

NOTE: The VIK display will automatically disappear after a set amount of time.

GROUND-TO-GROUND (G/G) SCREENS *(Continued)*

G/G 1 - Button Functions

BUTTONS	FUNCTIONS
Top row	• Holler lines to the facility • Dial lines to TMU and the watch supervisor − Used primarily for handoffs, point outs, and APREQs → The mic is keyed to talk
Second row	• Dial lines using the VIK − Used for FP information → The mic is keyed to talk
Third row	• Override lines − Use R/T ON when receiving a call on these lines − Toggle to R/T OFF to return to monitoring frequencies − If receiving an override call, the sector's button that is calling you will be red. → The mic is keyed when initiating a call → The mic is "hot" when receiving a call

☞ **NOTE:** *Point out these buttons to students.*

GROUND-TO-GROUND (G/G) SCREENS *(Continued)*

G/G 1 - Radio Transfer (R/T) Switch/ Auxiliary Message Area
TI 6690.17, par. 6.2.8

☞ ***NOTE:*** *Display the G/G 1 screen and point out the R/T ON/OFF area. Explain to students that this feature pertains to receiving calls, which **will** be simulated and practiced in the lab during exercise two.*

⊙ When enabled (R/T ON), this feature:

- Is used when receiving an override call so frequencies are **not** heard in the headset in addition to the caller

- Routes all incoming A/G voice at a position to the position's A/G loudspeaker (LS)

- Suspends all current voice monitors (i.e., no longer monitoring frequencies)

- Is activated by touching the Auxiliary Message area

G/G 1 - Override Call

⊙ When a position is overridden:

- The overriding position's ID is displayed in the Auxiliary Message (R/T ON/OFF) area

- An override tone is received in the HS or LS of the overridden position

- The mic changes to an open state ("hot" mic) and **cannot** release the override call

- The overridden controller's voice is transmitted to the overriding position **without** keying PTT

- R/T ON should be selected at the overridden position in order to suspend voice monitors (as well as to route A/G frequencies to the LS)

☞ ***NOTE:*** *Emphasize the use of R/T ON when receiving override calls.*

☞ ***NOTE:*** *Discuss interphone procedures with override calls (i.e., the caller should wait for the overridden controller to acknowledge the call).*

GROUND-TO-GROUND (G/G) SCREENS *(Continued)*

**G/G 1
Function
Buttons**
TI 6690.17,
pars. 3.6.4, 6.2.1,
6.2.6

☞ **NOTE:** *Point out the bottom row of buttons (particularly the G/G ALT and PSN REL buttons) on the G/G 1 screen.*

⊙ These buttons control G/G communications equipment and screen selection and include:

- Ground-to-Ground Alternate (G/G ALT) button

    – Displays the alternate G/G screen

- Position Relief (PSN REL) button

    – Is used during the position relief briefing

    – Enables or disables an open microphone condition while simultaneously enabling or disabling the recording of all operator voice transmissions

        → At least two HSs must be plugged into the HS jacks to make position relief available

**G/G 2 - Voice
Monitor
(VOICE MON)
Index**
TI 6690.17,
par. 3.6.2

☞ **NOTE:** *Display the G/G 2 screen and select the R66 MON button. Return to the G/G 1 screen and point out "R66" displayed in the VOICE MON box. Explain to students that "R66" appears in the VOICE MON box after selecting the R66 MON button.*

⊙ The rectangle on the right-hand side of the G/G 2 screen indicates the voice monitor status.

- It lists the positions you are listening to

    – The RA Controller selects to hear the Radar Controller, who is monitoring the frequency

UTILITY (UTIL) SCREEN

Functions

☞ ***NOTE:*** *Select SCRN ALT and UTIL to display the Utility screen.*

⊙ Use this screen to control the volume of the headset and loudspeaker.

☞ ***NOTE:*** *Point out the volume control buttons. Explain to students that the volume control feature can be changed in the classroom and will be demonstrated in the in the lab during exercise two.*

⊙ Use either the SCRN ALT or GG RETURN button to go back to the desired screen (G/G 1).

☞ ***NOTE:*** *Select GG RETURN to display the G/G 1 screen.*

EXERCISE: USING SVSCS EQUIPMENT

Exercise

	USING SVSCS EQUIPMENT EXERCISE
	Purpose: to practice using SVSCS equipment
	Directions: complete the actions listed in the SVSCS Lap Prompt handout.

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Directions

☞ *NOTE: Take students to the lab to complete Exercise.*

Sitting at the Radar Associate (RA) position in the lab, complete the actions listed in the SVSCS Lab Prompt handout. An instructor will be available to answer questions or provide assistance as necessary.

IN CONCLUSION

Lesson Review

LESSON REVIEW
The following topics were covered in this lesson:

– Push-to-Talk (PTT)
– SVSCS Display Module (VDM)
– Air-to-Ground (A/G) screens
– Ground-to-Ground (G/G) screens
– Utility (UTIL) screen

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☞ ***NOTE:*** *Teach from graphic. Review and elaborate briefly on the topics covered in this lesson.*

End-of-Lesson Test

⊙ There is **no** End-of-Lesson Test.