Purpose: The purpose of this lab exercise is to orient you to the operations of the video switcher in TV Studio 2.

Roles: The non-recorded portion can be completed individually or with up to 4 students simultaneously. The recorded portion must be completed individually.

Prep: Read through the lab exercise below to know what is expected. You will want to run through all of the instructions and commands at the switcher at least once before taping the individual portion so that you can determine how to adjust the switcher properties and controls to achieve the desired effects – you don’t want to have to guess!

Equipment Setup:

Lights: Studio fluorescent work lights on; light board channel #70 (green screen back-lit light) ON.

Backdrop: Green Screen; make sure that no other backdrops are down behind it.

Cam 1: Medium shot of news desk/talent/object, with green screen visible.

Cam 2: Wide shot of talent / object at desk.

Cam 3: Medium shot of Talent A standing position (next to/including LCD)

Cam 4: Preset “1”, wide shot of news set

Inscriber: Prepared graphics: #1) slate, #2) lower third, #3) full screen graphic

Globecaster: Prepared item: framestore full screen graphic on GC program

Switcher: Normalized; all buses in black, all fader bars down. Perform the “1” + “Recall Panel” procedure to reset all switcher functions before each student begins the lab.
NON-RECORDED ORIENTATION / PRACTICE – can be done in small groups (4 or less)

**PART 1: SIMPLE CUTS & FADES**

1. Identify/set the switcher to its “normal” position, and reset it for standard operation (1 + Recall Panel).
2. Identify the current program M/E and Bus, and put color bars on program.
3. Identify the current preview, M/E and Bus, and put Cam 4 on preview.
4. Using the Master Fader, set to FADE mode, transition from color bars to Cam 4 on program.
5. Using the M/E now on program, fade from Cam 4 to Cam 2 by presetting Cam 2 on the alternate (non-program) bus, and fade to it using the Mix/Wipe fader in the MIX mode.
6. Cut to Cam 3.
7. Cut to Cam 4.
8. Fade to Cam 1.
10. Use the “AUTO TAKE” button to automatically fade program Cam 1 to Cam 3 (already in preview).
11. Fade to black, without using the “Black Fade” button.
12. Return the switcher to its “normal” position and ensure the Master Fader T-bar is aligned with the M/E program indicator light.

**PART 2: WIPES, BORDERS, AND KEYING GRAPHICS**

1. Build a split screen, or half-wipe, effect on M/E 2 (program), with Cam 1 on Bus A and Cam 2 on Bus B. You may need to change the wipe pattern to the correct one:
   - Push the button “M/E 2 PAT” to enter the M/E 2 wipe pattern memory.
   - Push the “1” key to select the vertical wipe bordering option.
   - Push the “M/E 2 PAT” button again to assign the chosen pattern to be the M/E 2 wipe pattern. Remember to choose the “WIPE” button for the MIX/WIPE fader in M/E 2. Stop the wipe halfway between the two camera shots.
2. Adjust the thickness of the border by twisting the “Border” pot. Set it to be relatively thick.
3. Change the color of the border by adjusting the three pots in “Border Color”.
4. Adjust the softness of the border by rotating the “Soft” pot in the M/E 2 PATTERN control area.
5. Put Cam 3 in Preview.
6. Using the Master Fader, enable the horizontal wipe option and half-wipe Cam 3 onto Program.
7. Bring up a full screen graphic on the Inscriber character generator.
8. Using the Midstream Keyer on M/E 2, key on the graphic fully. Notice how it takes the place of the Cam 1 / Cam 2 split screen, but does not actually appear full-screen on program. Take off the key.
9. Turn on the Downstream Keyer (DSK) and see what happens with the full screen graphic now!
10. Turn off the DSK.
11. Use the “Black Fade” button in the DSK area to fade your 3-way split to black.
12. Return the switcher to its “normal” position and ensure the Master Fader T-bar is aligned with the M/E program indicator light. Ensure that the black fade or black cut option in the DSK is off.
PART 3: CHROMA KEY

1. Set the switcher to its “normal” position, and reset it for standard operation (1 + Recall Panel). Ensure program is set to M/E 2 Bus B.

2. Set up the chroma key by selecting Cam 1 on M/E 2 Bus A (which is the only camera that can have a chroma key feature, based on the hardware/wiring of this switcher).

3. In the Upstream Key control area, click the ON button.

4. Verify that the keying system being used is Chroma Key, by clicking the CUT/SELECT button until “CKey” appears in the switcher status display.

5. Move the MIX/WIPE fader to the Bus A position, thus bringing the Chroma Key ON to program. You should see the Cam 1 shot with the green screen replaced by black, or whatever is currently selected on Bus B.

6. Change the selection on Bus B to another camera or graphic source.

7. Adjust the CLIP and HUE pots to adjust the properties of the chroma key. Try to change the settings so that the blue newscast set is keyed out, instead of the green screen. Leave the chroma controls set so that the green screen is visible and the blue set walls are keyed out.

8. Move the MIX/WIPE fader down to the Bus B position, and turn the keying control off by pushing the ON button to cycle it to the off mode, thus disabling the upstream key and returning the MIX/WIPE fader to true MIX/WIPE functionality only.

9. Move the MIX/WIPE fader up to the Bus A position so you see Cam 1 with the actual green screen.

10. Return the switcher to its “normal” position, and reset it for standard operation (1 + Recall Panel).

11. Perform the Chroma Key again (Steps 2 through 5) and note that the settings have returned to keying out the green screen, and not the blue walls of the newscast set (even though the last time you saw and set the chroma key, you were keying out the blue walls – this is the power of 1 + Recall Panel!).

12. Return the switcher to its “normal” position, and reset it for standard operation (1 + Recall Panel).
RECORDED SWITCHER EXERCISE - individual students only

**BOLD** indicates what should been seen on program, for quick reference…

1. Set the switcher to its “normal” position, and reset it for standard operation (1 + Recall Panel). Also on the Inscriber CG system, ready the slate graphic (the Lab Assistant can get that ready).

2. Make M/E 2, Bus A live on Program – should still be **BLACK**.

3. Ask the Lab Assistant to begin recording. At his/her “zero” count, execute the command in Step 4 and then continue with the instructions until the end.

4. Select CHAR GEN on the Program Bus – this will cut Graphic Slate onto Program. Leave it on for 10 seconds.

5. **Cut to BLACK**.

6. **Fade to Cam 4** using M/E 2, Bus B.

7. Put Cam 2 in Preview (M/E 1, Bus B if nothing else has been changed).

8. **Fade to Cam 2** using the Master Fader.

9. On the Inscriber CG system, ready a Lower Third Graphic (the Lab Assistant can get that ready). 
   - **Fade in the Lower Third Graphic** from Inscriber using the Midstream Key on the Program M/E (1).
   - Hold it on for 5 seconds, then **fade it out**.

10. Put Cam 3 in Preview (M/E 2, Bus B), and **fade to Cam 3** by pushing the “Auto Take” button.

11. On the Program M/E (2), prepare a vertical wipe that stops halfway between Cam 1 and Cam 3, with Cam 1 on the left side of the frame and Cam 3 on the right. You may need to change the M/E 2 PAT to Pattern 01. Once the wipe is visible on screen, create a thick blue border for the wipe that is not soft.

12. Using the DSK, **fade on the Lower Third Graphic** from the Inscriber CG system.
   - When properly set, **DSK-CUT should be “Cgen” and DSK-EXT-FILL should be “CGEN”**

13. While live “on-air”, adjust the wipe border you created in Step 10 so that the **blue border disappears**.
   - This is the same border control near the Mix/Wipe Fader for M/E 2 you adjusted previously.

14. After removing the border, **fade out the Lower Third Graphic** (DSK).

15. Continue the direction of travel of the wipe from Step 10 so you **complete the wipe to show Cam 1 full screen on Program**.

16. On Program, prepare a chroma key (verify correct key adjustments before recording lab to save time):
   - A bus: use **Cam 1**
   - B bus: use a Full Screen Graphic from Inscriber/CHAR GEN (the Lab Asst can get that ready)
   - turn ON the Upstream Key Control and verify that the Cut/Select option is “CKey”
   - Move the Mix/Wipe Fader UP so that the key is visible, if it isn’t already.
   - Adjust the Chroma Key properties if needed to make the cleanest color key possible.
   - The green screen should be removed, and replaced with the graphic from Inscriber.

17. Ready a full screen graphic on the Globecaster (the Lab Asst can get that ready)
   - Change the chroma key background from the Inscriber graphic, to the Globecaster graphic
   - cut to “Digital Effect” on the switcher in Program Bus B.

18. **Fade to Cam 2** (should still be set on M/E 1, Bus B) using the “Auto Take” button.

19. **Fade to BLACK** using the “Black Fade” button – and ask the Lab Assistant to stop recording.

20. Set the switcher to its “normal” position, and reset it for standard operation (1 + Recall Panel).