



# EMS System for Metropolitan Oklahoma City and Tulsa 2026 Medical Control Board Treatment Protocols



DRAFT for Approved 3/4/26, Effective 4/1/26, replaces all prior versions

## 5H – SYNCHRONIZED CARDIOVERSION ADULT & PEDIATRIC

### PARAMEDIC

#### Indication:

Unstable, symptomatic tachycardia (adult heart rate > 150 beats per minute; afebrile pediatric heart rate > 180 beats per minute) AND hemodynamic compromise adult systolic blood pressure < 100 mmHg; pediatric systolic blood pressure < (70 + 2x age in years) mmHg.

#### Contraindications:

1. Stable tachycardia (Treatment per Protocol 5F – Stable Tachycardia)
2. Normal sinus rhythm
3. Bradycardia
4. Ventricular fibrillation/pulseless ventricular tachycardia

#### Technique

##### (STYKER LifePak® 15):

1. Power **ON**. (Figure 1)
2. Attach patient ECG cable and ECG electrodes. ECG electrodes and cable must be used to monitor the ECG when paddles are used for synchronized cardioversion.
3. Select lead with the greatest QRS complex amplitude positive or negative deflection. (Figure 2)
4. Press **SYNC**. The **SYNC MODE** message appears in the message area when **SYNC** is active. (Figure 3)
  - a. **NOTE:** To deactivate **SYNC MODE** when not synchronized cardioverting, press **SYNC** again.



Figure 1

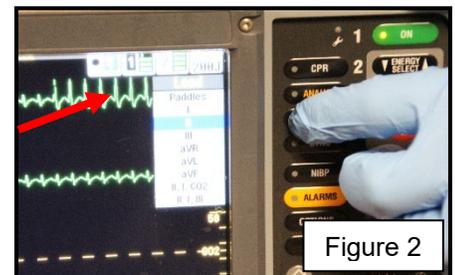


Figure 2

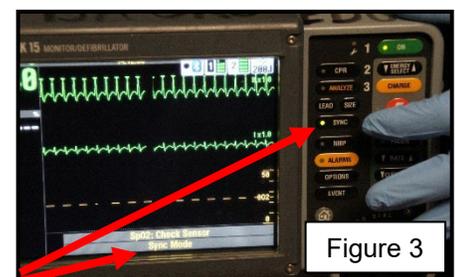


Figure 3



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### Protocol 5H: Synchronized Cardioversion, Adult & Pediatric, cont.

Technique (cont):

5. Observe the ECG rhythm. Confirm that a triangle sense marker (▼) appears near the MIDDLE of each QRS complex. (Figure 4)
  - a. If the sense markers **DO NOT** appear or are displayed in the wrong location (**for example on the T – wave**) adjust **ECG SIZE** or select another lead. It is normal for the sense marker location to vary *slightly* on each QRS.
6. Connect the therapy electrodes to the therapy cable and confirm cable connection to the monitor/defibrillator. (Figure 5)
7. Prepare the patient's skin and apply therapy electrodes to the patient in the anterior-posterior chest wall position. (Figure 6)
8. Press **ENERGY SELECT** or rotate the **SPEED DIAL** to select the desired energy. (Figure 7) Per Protocol 5G – Tachycardia – Unstable, for adult synchronized cardioversion, begin at 100 joules energy. If unstable tachydysrhythmia persists, repeat synchronized cardioversion at escalating energy settings of 200 joules, 300 joules, 360 joules. For pediatric synchronized cardioversion, consult on-line medical control for treatment plan and energy settings.
9. Press **CHARGE**. While the monitor/defibrillator is charging a charging bar appears and a ramping tone sounds, indicating the charging energy level. When the monitor/defibrillator is fully charged, the screen displays available energy. (Figure 8)

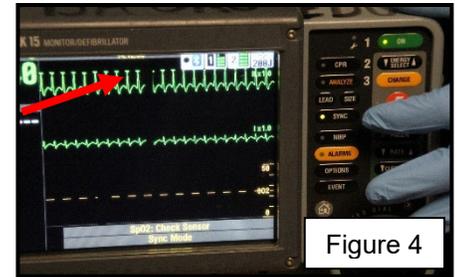


Figure 4



Figure 5

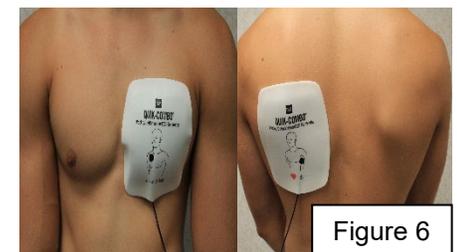


Figure 6



Figure 7

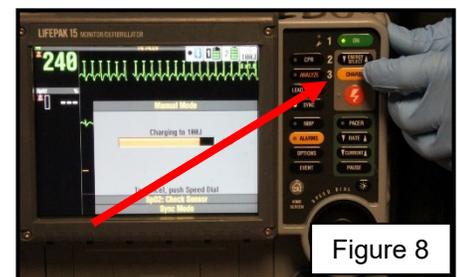


Figure 8



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### Protocol 5H: Synchronized Cardioversion, Adult & Pediatric, cont.

Technique (cont):

10. Make certain all personnel, including the operator, stand clear of the patient, bed, and any equipment connected to the patient.
11. Confirm ECG rhythm. Confirm available energy. Prior to delivering synchronized cardioversion, it is paramount to ensure that the SYNC MODE message continues to appear. Failure to deliver a "synchronized" cardioversion in this setting could cause ventricular fibrillation cardiac arrest in the patient. (Figure 9)
12. Press and hold the ⚡ (shock) button on the monitor/defibrillator until the **ENERGY DELIVERED** message appears on the screen. (Figure 10)
  - a. **NOTE:** To disarm (cancel the charge), press the SPEED DIAL. The energy disarms automatically if shock buttons are not pressed within 60 seconds, or if the energy selection after charging begins.
13. Observe patient and ECG rhythm. Repeat procedure starting from Step 4, if necessary.

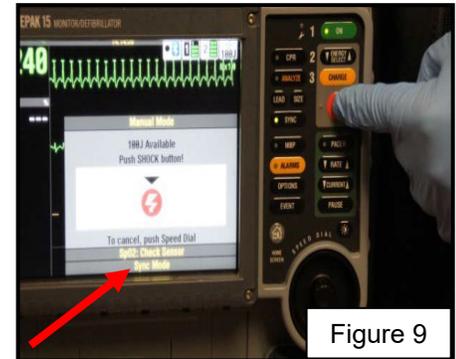


Figure 9

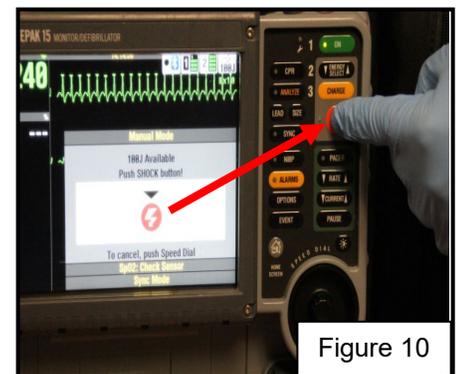


Figure 10



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### Technique

#### (STYKER LifePak® 35):

1. Power **ON**. (Figure 1)
2. Attach patient ECG cable and ECG electrodes. ECG electrodes and cable must be used to monitor the ECG when paddles are used for synchronized cardioversion.
3. Use the touch screen to select the lead with the greatest QRS complex amplitude positive or negative deflection. (Figure 2). Press the **GREEN** lead channel selector on the top right hand corner of the screen to select the appropriate lead.
4. If cardioversion is indicated, connect the therapy electrodes (defibrillation pads) to the therapy cable and confirm cable connection to the monitor/defibrillator. (Figure 3).
5. Prepare the patient's skin and apply therapy electrodes to the patient in the anterior left chest and posterior left chest position. (Figure 4)
6. Use the **GREEN** lead channel selector on the top right hand corner of the screen to select PADS to monitor the ECG with the therapy electrodes (defibrillation pads) as previously discussed in step 3 (Figure 2).
7. Use the touch screen to select **THERAPY** on the lower right hand corner on the screen. (Figure 5)



Figure 1



Figure 2



Figure 3

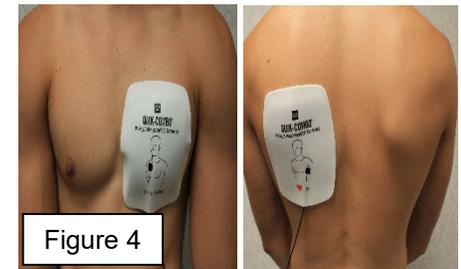


Figure 4



Figure 5

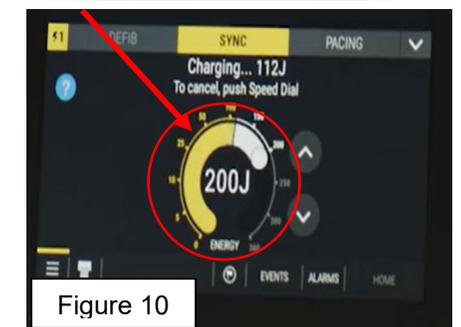


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8. Select **SYNC** on the **THERAPY** menu, located in the middle portion of the screen. The **SYNC** box will be shaded yellow when SYNC mode is selected and active. (Figure 6)
  - a. **NOTE:** To deactivate **SYNC MODE** when not synchronized cardioverting, exit **THERAPY**.
9. Observe the ECG rhythm. Confirm that a R Wave triangle sense marker (▼) appears near the MIDDLE of each QRS complex.
  - a. The R Wave triangle sense markers will automatically appear in the top ECG channel. (Figure 7)
  - b. If the sense markers **DO NOT** appear or are displayed in the wrong location (for example on the T – wave) adjust **ECG SIZE** or select another lead. It is normal for the sense marker location to vary *slightly* on each QRS.
  - c. If care providers need support, abbreviated instructions are available by pressing the **BLUE Circle** with a question mark in the **THERAPY** box on the left hand side of the screen.
10. Utilize the touch screen by pressing the **ENERGY SELECT UP/DOWN ARROWS**, **ENERGY DIAL**, or rotate the physical **SPEED DIAL** knob to select the desired energy. (Figure 8) Per Protocol 5G – Tachycardia – Unstable, for adult synchronized cardioversion, begin at 100 joules energy. If unstable tachydysrhythmia persists, repeat synchronized cardioversion at escalating energy settings of 200 joules, 300 joules, 360 joules. For pediatric synchronized cardioversion, consult on-line medical control for treatment plan and energy settings.
11. Press **CHARGE** on the keypad (Figure 9). While the monitor/defibrillator is charging, yellow shading appears in the energy dial, and a ramping tone sounds, indicating the charging energy level. When the monitor/defibrillator is fully charged, the screen displays available energy. (Figure 10)





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### Protocol 5H: Synchronized Cardioversion, Adult & Pediatric, cont.

Technique (cont):

12. Make certain all personnel, including the operator, stand clear of the patient, stretcher, and any equipment connected to the patient.
13. Confirm ECG rhythm. Confirm available energy. **Prior to delivering synchronized cardioversion, it is paramount to ensure that the "SYNC" box is shaded yellow and R Wave triangle sense markers continue to appear. Failure to deliver a "synchronized" cardioversion in this setting could cause ventricular fibrillation cardiac arrest in the patient.** (Figure 11)

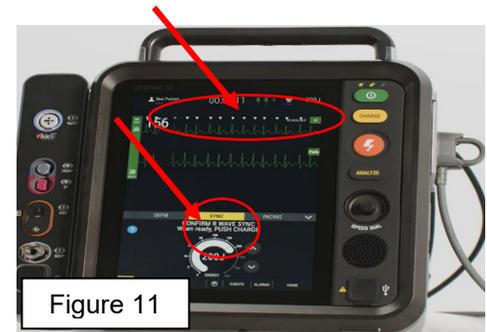


Figure 11

14. The SHOCK button will illuminate **RED** when prepared for energy delivery. Press and hold the  (shock) button on the monitor/defibrillator until the **ENERGY DELIVERED** message appears on the screen. (Figure 12)
  - a. **NOTE:** To disarm (cancel the charge), press the **SPEED DIAL**. The energy disarms automatically if shock buttons are not pressed within 60 seconds, or if the energy selection after charging begins.



Figure 12

15. A select option menu will appear. In the event that additional synchronized cardioversion is indicated, press the **"SYNC"** icon to return to the Sync Cardioversion window (Figure 13), repeating the procedure starting from Step 9, if necessary. If no additional synchronized cardioversions are indicated, press the **"HOME"** icon to return to the main monitoring screen. If defibrillation is indicated, press the **"DEFIB"** icon to be taken to the Defibrillation window, and refer to Protocol 4D – Manual Defibrillation.



Figure 14

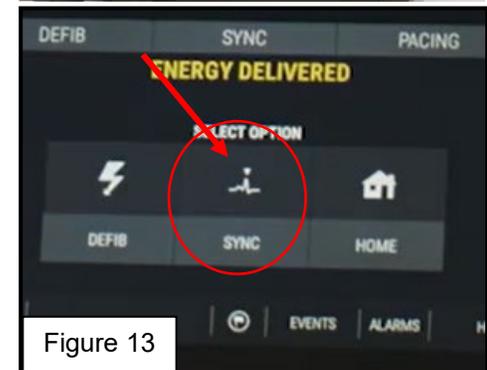


Figure 13