ZOLL. R Series ALS In-service Guide
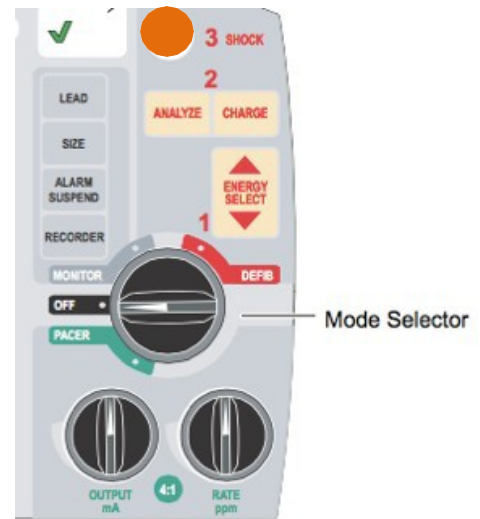
OVERVIEW

Color Coded Operating System:
- Review with the Mode Selector *dial.*
  - **RED** for Defibrillation
  - **GREEN** for Pacing
  - **GREY** for Monitoring.

Power Indicators
- Battery Indicator
  - **GREEN** = Charged
  - **AMBER** = Charging
  - **FLASHING** = Problem (check battery)
  - Indicator lights on battery show 30 min. increments for a total of 4 hours of runtime.
  - If orange light appears on "?"of battery, call BioMed to reset.
- A/C Power Indicator
  - **GREEN** = Device is plugged in
  - No light = Device is NOT plugged in

Test & Code Readiness Indicator
- Every 24 hours, the device will do a 100 point test and will display a
  - ✓ Green check in window = Device is ready for use
  - ✗ Red x in window = Failed a part of the test. Device is NOT ready for use.
    - The device will display "Readiness Test Failed" on the screen and will highlight what needs to be fixed. These are usually easily fixable problems (No pads plugged in, no battery, no A/C power, etc).
    - After fixing any easily fixable problems, perform a **manual test** at 30J with pads plugged in. "30J Test OK." "Defib Pad Short." and green check in window indicates pass.
    - If the device reads "DEFIB FAILURE", call BioMed.

Setup
- A OneStep CPR Electrode should *ALWAYS* be connected to the therapy cable.
  - Ensures "Code-Readiness"
  - Allows the device to pass its Automated Daily Test.

Checks
- **Daily Check:** 2 lights, a green check mark, the cap snugly on the back
- **Weekly Check:** Follow the "Weekly Test" instructions in your Code Log books

Recorder Tray
- Press button to open door
- Insert the paper with the black arrow facing towards the back of the device
- Pull a strip or two forward and let paper drop
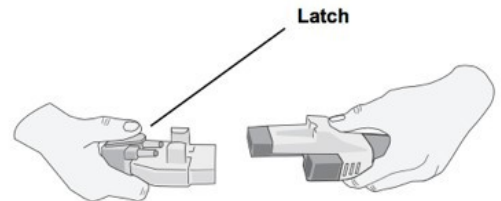- Close the door on top of the strip.

Cables/Caps

1. Electrotherapy Cable (Is bolted down)
2. SpO2 (Blue/If Applicable)
3. 3 Lead EKG and/or the cap in place for pacing
4. EtCO2 (Yellow)
5. NIBP- Non-Invasive Blood Pressure (Black)
6. Cable Compartment for all cables attached

One-Step Cable: Comes out the side and is 8 feet in length.
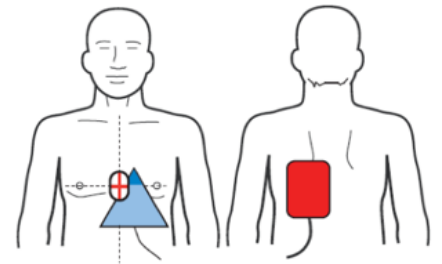
ONESTEP PAD

Connecting and Disconnecting

☐ Locking lever holds pads and cable in place. Press on the far end of the lever to release.
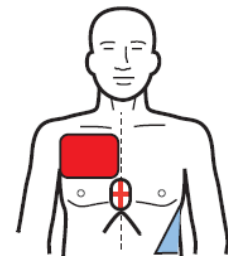
Latch

Placement

- **Do good skin prep!** – Remove sweat, lotions, excess hair.
- ☐ **Posterior Pad** (**RED**)
  - o Goes on first
  - o Placed sub scapular to the left
- ☐ **Anterior Pad** (**BLUE**)
  - o *CPR sensor Mid Sternal/Mid Nipple* center of the sternum (where you do compressions)
  - o Pad should be off-right of the sensor.
- "***Press and Roll"*** the pad into place

Alternate Placement (If A/P is not applicable)

- **Posterior Pad (RED)**
  - o Placed on upper right chest
- **Anterior Pad (BLUE)**
  - o Placed on left anterior-lateral, remove CPR sensor and place in center of chest for compressions.
- **Add 3-lead**

Pediatric Pads

- Smaller and more suitable.
- Any defibrillation that is done will be adjusted by the device. (50J, 70J, 85J)
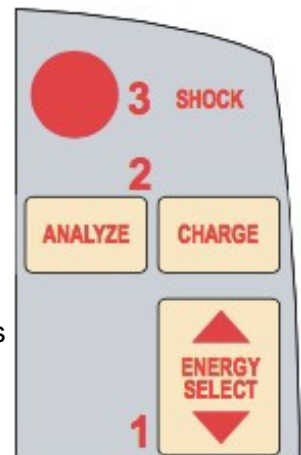
Integrated 3-Lead ECG

- OneStep Adult pads have a built in 3-lead for pacing patients without an extra 3 lead cable.
- If attempting to pace with alternate OneStep pad placement (A/A), it is recommended to attach a separate 3-Lead. Inverting the pad will invert the ECG.

DEFIBRILLATION (Red Zone)

Put rhythm simulator on "VT HI"

AED (Automated External Defibrillator)
1. Turn to *DEFIB* mode
2. Press *ANALYZE*
   - Stand clear, analyzing
   - If shockable rhythm, shock button will illuminate red
3. **"All clear!",** then press *SHOCK*.

Auto Escalation
- The device will increase the energy automatically
- Energy will start at *120J*, then to *150J*, then to *200J* for Adult Patients
- Energy for Pediatrics starts at *50J*, *70J, 85J*

Manual Defibrillation
1. Turn to *DEFIB* mode
2. Press *ENERGY SELECT* arrows to change the energy level
3. Press *CHARGE*
4. **"All clear",** then press *SHOCK*

CPR SENSOR

CPR Sensor
- Is built right in to the pad
- Enables CPR Feedback based on **RATE, DEPTH, RECOIL**

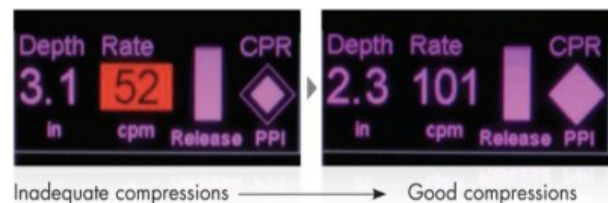**Idle Timer:** Displayed on monitor after 3 seconds of inactivity.
Rate and Depth Numerical Values: Displayed once you start compressions.
Release Bar: Indicates release and recoil off the chest. Full Bar = Great!
Diamond/PPI (Perfusion Performance Index): Mimics perfusion pressure and will begin to fill up.

Goal
1. Depth: 2.0-2.4" for adults
2. Rate 100-120 CPM
3. Recoil: Release Bar needs to be full

Practice

- **Scenario 1** - Not doing fast enough compressions. Metronome sound will begin. Match the metronome to get back to the right rate of 100cpm.
- **Scenario 2** - Not going deep enough.
  - The device will say "*Push harder.*" to get you above 2 inches in depth.
  - Once you have sufficient depth, the device will say "*Good compressions.*"
- **Pediatric Feedback** - Will only display Rate and Depth- you will not hear the "Push Harder" voice prompt

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BLS USERS ARE NOW EXCUSED FROM TRAINING

See-Thru CPR

Put rhythm simulator on "VF Artifact"

Two Wave Forms
- *Raw EKG* - Waveform with artifact
- *Filtered EKG* - Internal algorithm filters out artifact allowing you to see the underlying rhythm.
  - You can see the underlying rhythm without stopping compressions.
  - Someone can press charge while you continue doing compressions.
  - Once the red Charge button lights up and you hear the tone…
    - Stop compressions and evaluate the rhythm to make sure it is shockable
    - Then, shock and get back on the chest in less than 10 seconds to meet guidelines

PACING (Green Zone)

Put rhythm simulator on "3rd"

Leads
- Built into OneStep Complete and Pacing Pads
- Apply 3 lead if you are not using OnStep or Pacing Pads.
- Apply 3 lead if you use alternate placement of OneStep Pads

Dials
1. Rate
2. Output

Default Settings
- ☐ 0mA and 70PPM

Output
- ☐ 40-80mA. (Good starting point)

Pacing
- ☐ Confirmed with downward pacing markers

Capture
- ☐ Widened QRS after each pacer marker
- ☐ Set output 10% above threshold
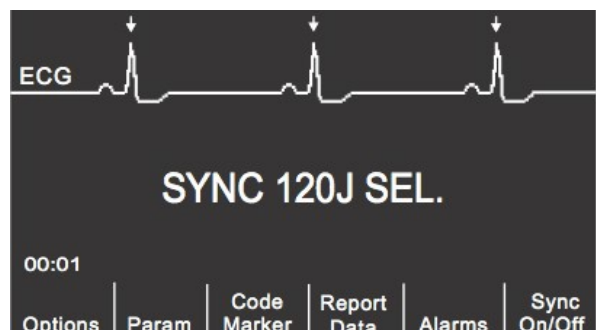- ☐ Confirm by checking patient pulse

Underlying Rhythm
- ☐ Press and hold the 4:1 button at the button of the screen to see underlying rhythm

CARDIOVERSION (Red Zone)

Put rhythm simulator on "AFIB"

1. Turn to *DEFIB* mode
2. Press **Sync On/Off** button on the bottom right (soft key)
3. Confirm arrow markers on every "R" wave telling the defib where to shock.
4. Press *CHARGE*
5. **"All clear!",** then press and hold *SHOCK* until the device fires.

MONITOR MODE (Grey Zone)

LEAD - Change pressing lead. Circulates through Lead I-III and PADS
SIZE - Change to make the waveform tracing bigger or smaller
ALARM SUSPEND
- ☐ **Default alarm volume is Off**
- • **Alarms On** – Press Alarm Suspend button to turn the alarms on
- ☐ **Temporary Silence -** Press again and it will be temporarily disabled the alarms (15 sec for lethal and 90 sec for non-lethal rhythms)
- ☐ **Alarms Off -** Press and hold for 3-4 seconds and the alarms will be SILENCED until otherwise activated by the user. (an x will appear next to alarm icons)
- ☐ If the patient is in VFib, Vtac, or Asystole, the alarms will automatically sound after 5 seconds.

RECORDER - Starts or stops the paper recorder at any time

SOFT KEYS

NIBP (the button with the picture of an arm, bottom left)
- ☐ Press once for one (1) NIBP reading. Press again to abort reading.
- ☐ Press and hold for 2 Seconds for **STAT** mode (as many NIBP measurements as possible in 5 minutes)

Options
- ☐ **QRS Vol On** - Turns tone on or off
- ☐ **Low Bright** - Adjust Screen Brightness
- • **Traces** - Waveforms you can bring up. (Options——Traces——Trace 2,3)
- • **More** - Reveals **"Clock Set"** to change time on display

Param
- ☐ **EtCO2 Setup** (**ONLY DONE ONCE** when a new sensor is connected to this R Series)
  1. Insert EtCO2 Single Patient Airway Adapter
  2. Press the "Param" Key
  3. Press the "EtCO2" Key.
  4. Press the "Zero" key. This will take about 10 seconds and will display "Zeroed" when done.
- ☐ **NIBP Setup**
  1. Press the "Param" Key
  2. Press the "Setting" Key
  3. Press Auto Interval
  4. Set time for Auto Interval (default 5 minutes)

Code Marker
- ☐ Varies with where the dial is positioned (Defib, Pacer, Monitor)
- ☐ Allows you to time stamp different clinical actions and retrieve later on

Report Data (Printing and Data Transfer)
- ☐ **PRINT**
  - o **Print Chart:** ECG strips for a specific time or all activated events
  - o **Print Range:** Select and print specific event
  - o **Print Log**: Chronological list of all interventions since the device has been on for the current code and previous codes that are stored
- • **TEST LOG** – Log of up to the last 1000 tests performed.
- • **TRANSFER MODE** – Print to WiFi

Alarms
- ☐ Set highs and lows for different parameters.
- ☐ The alarms will be defaulted back once the device is off for 10 Seconds.