THORATEC®
CORPORATION

CentriMag

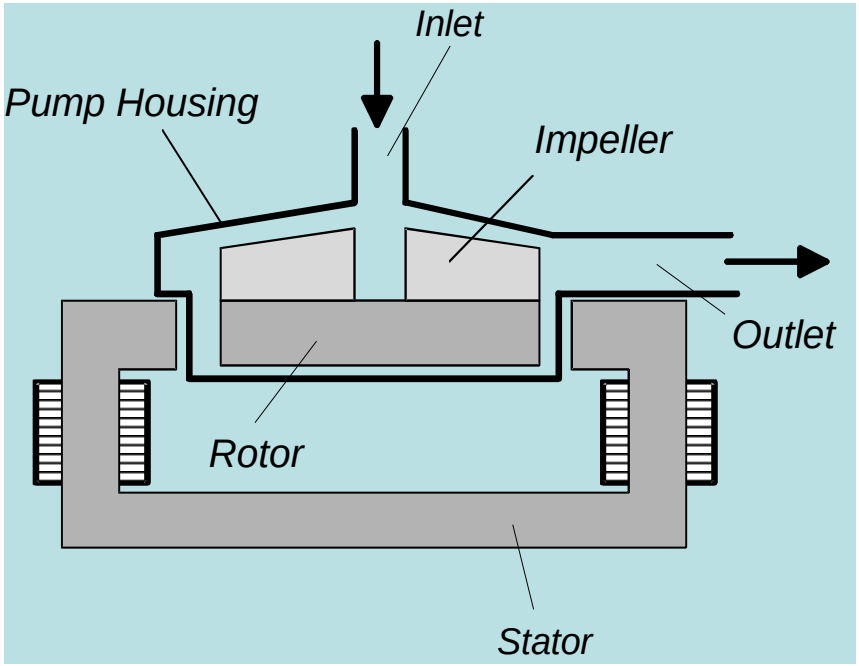
Erin Camenisch, CCP

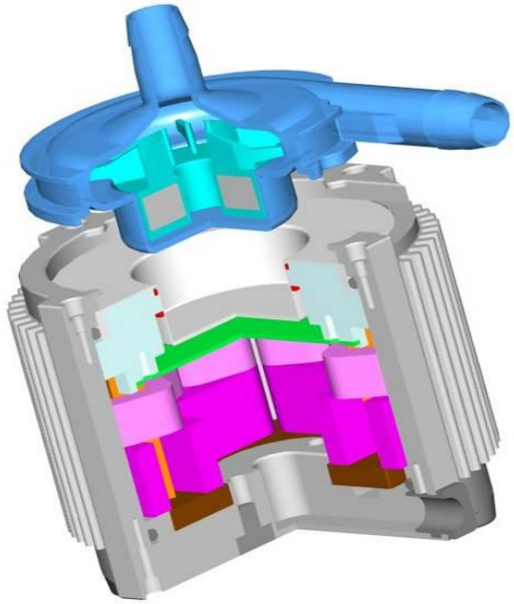
CentriMag

- Temporary extracorporeal support.
- RVAD, LVAD or BiVAD support.
- Used as a VAD or in an ECMO circuit.

THORATEC
CORPORATION

Bearingless Pump & Motor



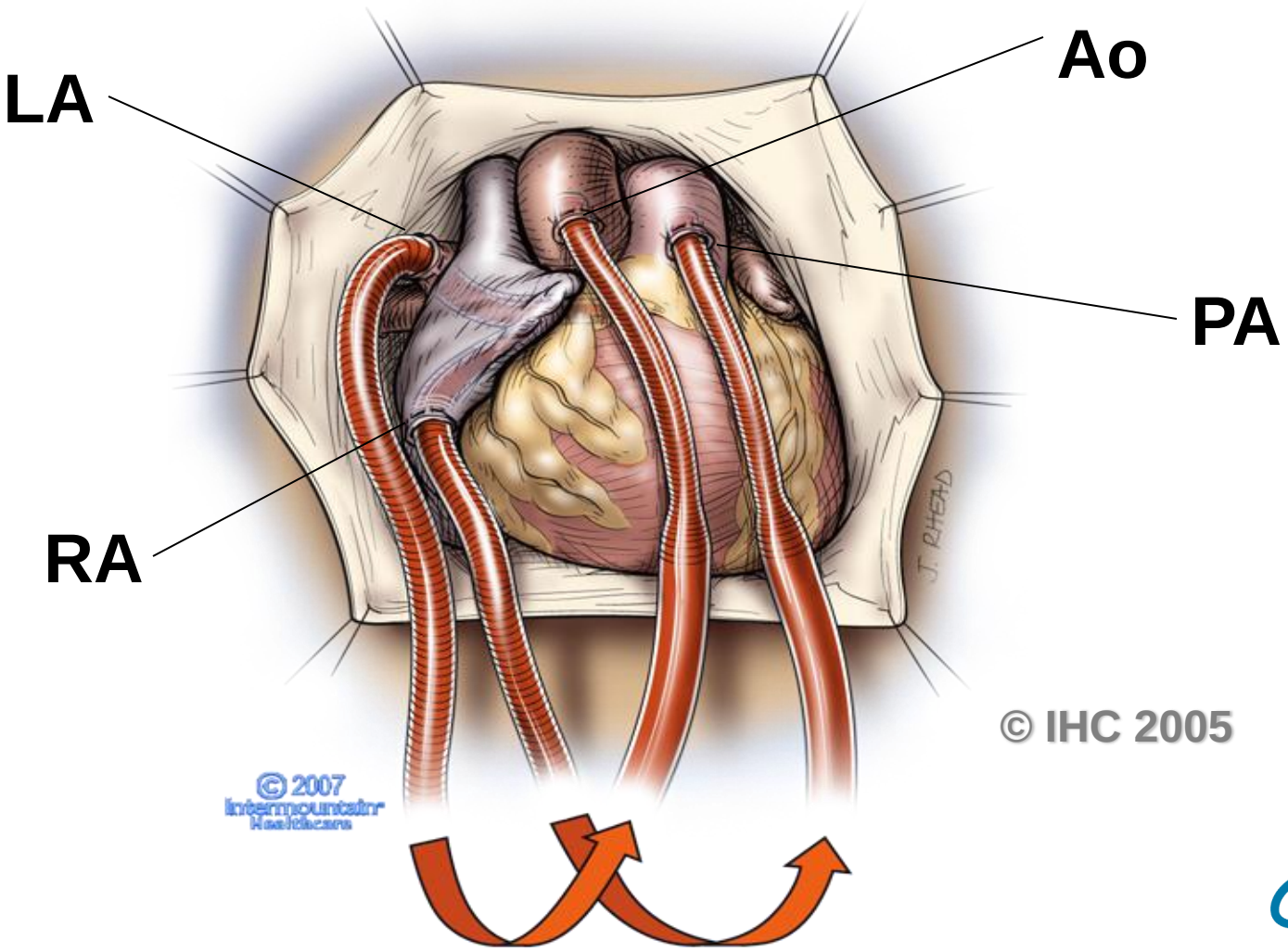


- Active control of position and speed
- No bearing and seals
- Disposable pump head
- 31 cc priming volume
- 3/8 inch barbed inlet and outlet ports

- Max. operating pressure: 600 mmHg
- Max. pump speed: 5500 RPM
- Max. flow: 9.9 LM
- Medical grade polycarbonate
- Rotor has magnetic core

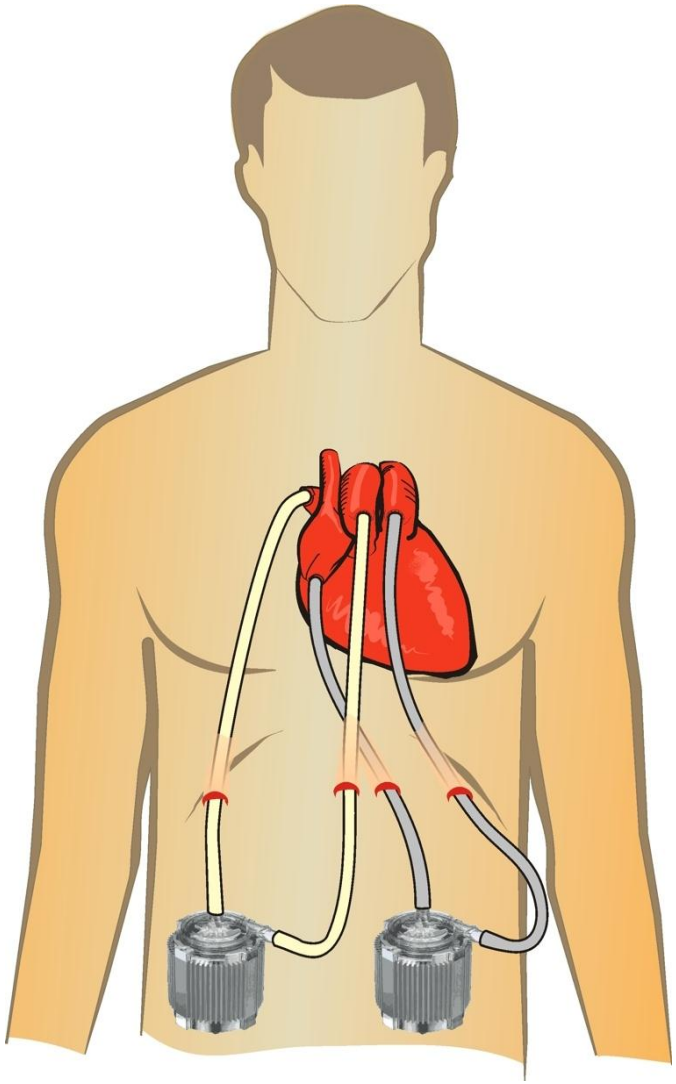
THORATEC CORPORATION

Biventricular Support



THORATEC CORPORATION

SURGICAL CANNULATION



THORATEC
CORPORATION

Primary and Back-Up Console

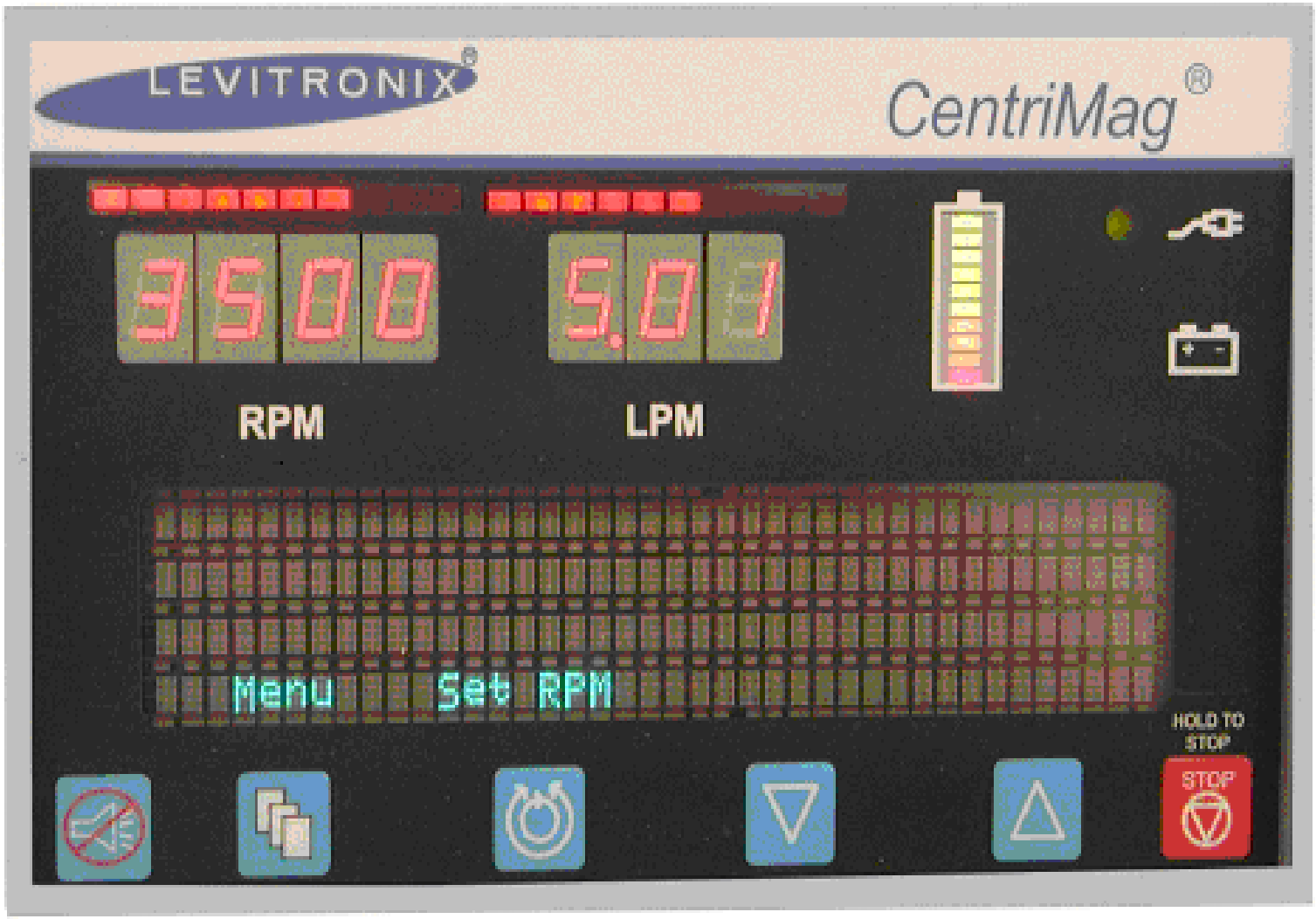
THORATEC
CORPORATION

PRIMARY CONSOLE CONTROL PANEL

Row 1

Row 2

Row 3



Adjust RPM For:

- Low flow with line chatter/ shaking
- Low volume / low pressure (CVP)

THORATEC CORPORATION

Possible Causes of Low Flow

- Hypovolemia (Bleeding, Fluid Balance)
- Interstitial edema
- Cardiac tamponade
- Pulmonary vascular resistance
- Cannulae selection and position
- Operating at too high of an RPM
- Ventricular function/ dysfunction

Normal Operating Conditions

- Pump Speed: 3000-4000 RPM's
- Pump Flows: 4-5 LPM
- RAP/LAP: 10-15mm Hg
- ACT: Above 180 by 4th Post Op Day.
- PTT: 1.5-1.8 times control by 4th Post Op Day.

THORATEC CORPORATION

Adult Anticoagulation Guidelines

- CentriMag flow > 4.0 LPM
- No anticoagulation for 6-12 hours unless no CPB
- Start heparin infusion chest drainage < 50 cc/hr for 2-3 hrs
- Target ACT 160-180 sec initially
- ACT above 180 by 4th post op day
- PTT 1.5-1.8 times normal by 4th post op day
- Add platelet anti-aggregant by the 4th post-op day

  (for example: 81- 325 mg aspirin per day)

THORATEC® CORPORATION

System Checks (Every Shift)

Every 1-2 hours:

- ACT with in target?
- Line chatter or shaking?
- Record pump flow and rpm with vital signs.

Every shift:

- Move flow probe ~1 cm
- Tubing secured to patient?
- Tubing bends wide and smooth?
- On AC power and battery fully charged?
- Air circulation around motor & console?
- Two tubing clamps near each blood pump?
- Backup console ready with battery charged?
- Low flow alarm set 1.0 LPM less than target?
- Review “Emergency Switch to Backup” ref. card
- Practice pump “Switch” with the backup console

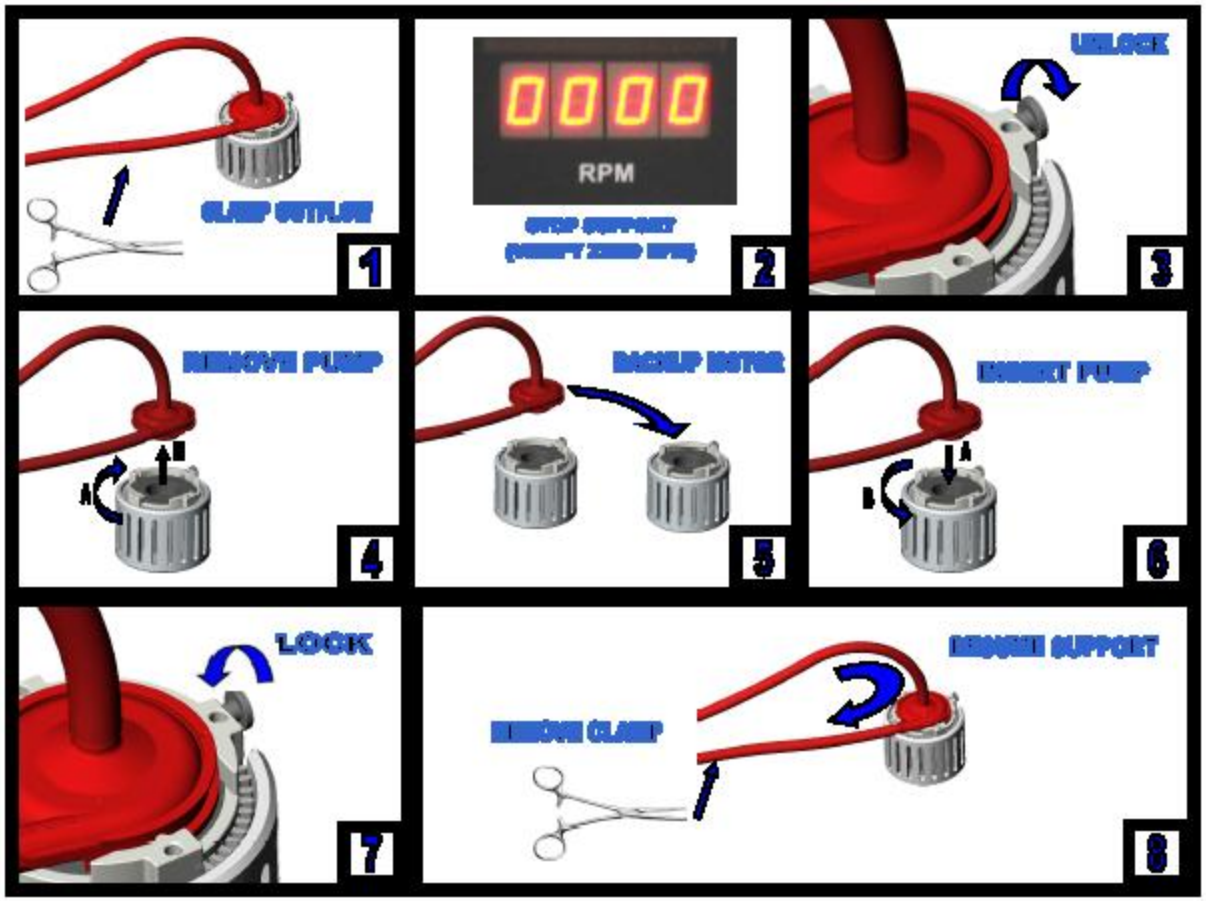
THORATEC CORPORATION

Patient Movement & Transport

- Risk of decannulation is greater during transport of the patient
- Continuously monitor patient's hemodynamics and pump flows
- Assign one individual to monitor consoles and blood pumps
- Place blood pump and motor on the bed between the patients legs
- Insure pumps are not covered
- Backup console and clamps must always be with the patient
- The Primary Console has approximately 1 hr of battery power and a Back Up Console has 2 hrs of battery power

THORATEC CORPORATION

Emergency Switch to Backup

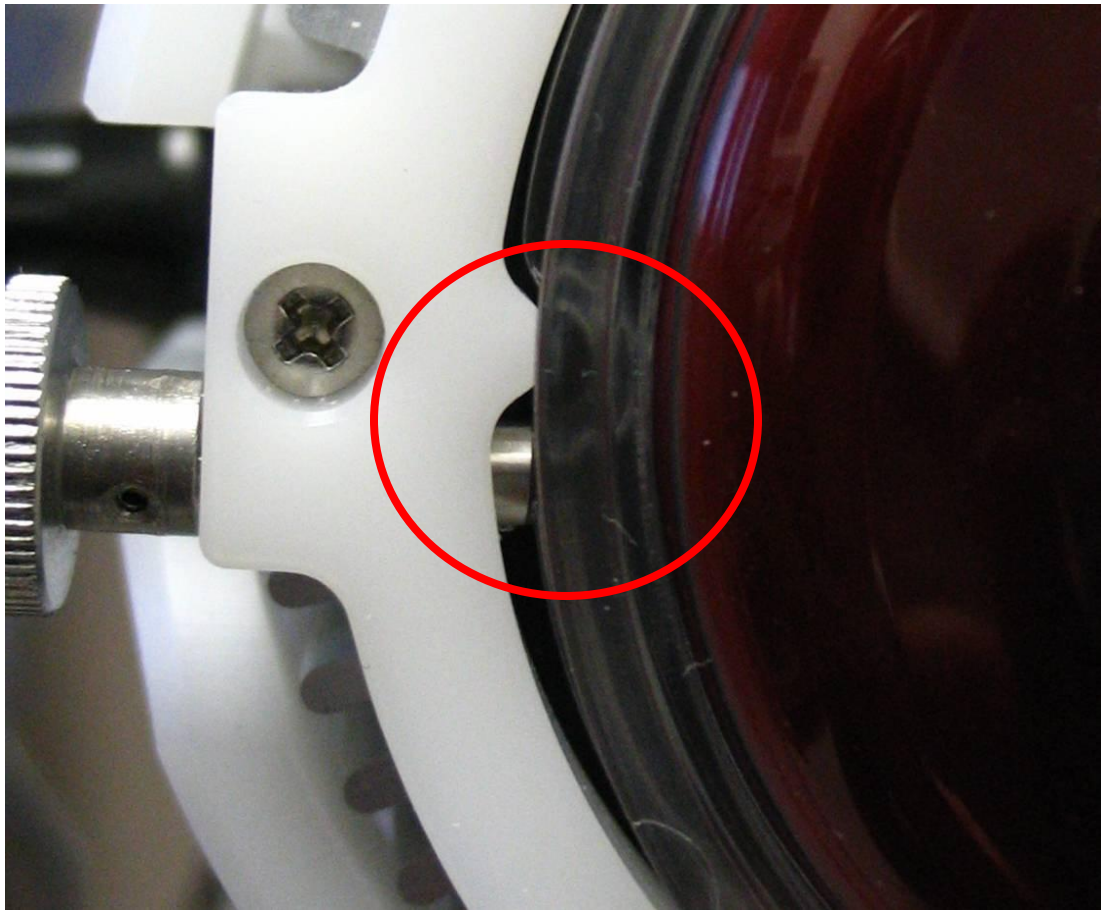


THORATEC
CORPORATION

Incorrectly Mounted Blood Pump

Problem: Pump was <u>not</u> rotated counter-clockwise and the retaining screw was advanced into the side of the pump.

The screw should have been advanced into one of the four notches on the pump.



THORATEC CORPORATION

Thoratec Resources

- HeartLine (24 Hour Clinical & Technical Support)
  - 800-456-1477 (*not for patient use*)
- Published Reference Materials
  - www.thoratec.com
  - www.hearthope.com
- Online Education
  - www.ethoratec.com
- Reimbursement
  - VADReimbursement@thoratec.com

THORATEC® CORPORATION