



**Heed 3  
LSC #578**

**HEED 3  
HELICOPTER EMERGENCY EGRESS DEVICE  
MODELS 175-001, 175-002,  
300-001 & 300-002**

**TECHNICAL / USER MANUAL**



**SUBMERSIBLE SYSTEMS, INC.**

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*THE LEADER IN SELF-RESCUE BREATHING SYSTEMS.*

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### HOW HEED WORKS

Helicopter Emergency Egress Device (HEED) is a complete miniature emergency breathing system all-in-one unit. It is composed of a balanced single stage demand regulator, high pressure tank, check valve (refill port), and pressure indicator (in the form of a dial gauge or pressure indicator with stem).

The system is always on and ready for immediate use. Upon inhalation, the diaphragm depresses the long lever against the short lever pressing the poppet assembly down and away from the poppet seat. This action allows air to flow from the tank into the regulator chamber and out the mouthpiece. On exhalation, the diaphragm is forced upward, closing the poppet assembly, and air exits the regulator chamber through the exhaust ports.

#### **MOUNTING INSTRUCTIONS:**

Optional HEED 3 custom Holster is designed to attach to a modular style vest (MOLLE).

**NOTE:** It is important that the operator be able to grip the regulator having sufficient clearance for a pull of at least 6 inches.

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## PRE USE CHECK:

1. Check Pressure Indicator- The unit is operational for each model as follows:
  - a. Dial Gauge Indicator – Needle is within green zone (range from 2600 to 3000 psi).
  - b. Pin Style Indicator – Top of pin is between the green notch and the top face of the indicator.
2. Check for obvious physical damage, broken or loose parts.

## TO USE THE HEED:

1. Pull D-ring on flap of Holster to open.
2. Grab HEED regulator head and pull out of the Holster. This action will release the Mouthpiece Cover.
3. Place the HEED regulator into user's mouth.
4. If the system is used underwater press purge button or exhale sharply to expel water from the regulator prior to inhalation.
5. Continue to inhale and exhale to a safe and normal rate of ascent.

**NOTE:** The HEED utilizes a balanced regulator which means it will provide air in any orientation including the regulator being upside down or sideways.

## REFILLING HEED FROM AN AIR COMPRESSOR USING #920C ADAPTER:

1. Unscrew black cap from the HEED Check Valve filling port.
2. Screw #920C Adapter onto the Check Valve until finger tight ONLY. Do not over-tighten the Refill Adapter.
3. Attach the yoke from the compressor to the Adapter.

**NOTE:** If line is pressurized over 3000 PSI, adjust the line pressure to 3000 PSI.

4. Turn the valve on your compressor ON.
5. Refill the tank to 3000 PSI. Regulate the flow so that it takes approximately 45-60 seconds to fill the tank. DO NOT OVER-FILL.

**NOTE:** Fill tank slowly and refrain from over-filling to protect the safety burst disc inside the regulator from rupturing. If it ruptures, a new 3300 PSI burst disc must be installed before HEED can be filled.

6. Turn compressor OFF when HEED is full at 3000 PSI.
7. Open bleed knob to release pressure in line. Remove Adapter from compressor yoke.

8. Remove Adapter from HEED and screw the Check Valve Cap onto the Check Valve until finger tight.
9. Check the Pressure Indicator. If the tank is full, the Dial Gauge will read 3000 PSI or if unit has Pressure Indicator the stem will be flush to edge of indicator.

#### **REFILLING HEED FROM A SCUBA TANK USING #910S ADAPTER:**

**CAUTION:** DO NOT stand directly over the top of HEED regulator while filling.

1. Unscrew black cap from the HEED Check Valve filling port.
2. Place the #910S Adapter onto Check Valve and turn the knurled ring of the adapter to the right until finger-tight.

**NOTE:** Filling too fast can result in an inaccurate air reading and can damage the internal components inside the Check Valve.

3. Attach Adapter to SCUBA tank valve.
4. To fill, **open SCUBA valve SLOWLY** (allow 45-60 seconds to fill).
  - a. Dial Gauge Indicator – Unit is full when needle points to 3.
  - b. Pin Style Indicator – The pin will rise while filling and when flush with the top, unit is full at 3000 psi.
5. Close Scuba tank valve.
6. Turn the knurled ring of the Adapter to the left to relieve pressure in the adapter.
7. Remove Adapter from SCUBA tank and HEED.
8. Replace black cap on Check Valve.

**NOTE:** If air is escaping from the adapter during filling, close tank valve, wait for air to stop and re-tighten knurled ring by turning to the right.

**NOTE:** If SCUBA tank WAS NOT FULL at beginning of refill procedure, then the HEED will not be filled to its recommended full capacity, diminishing available air volume.

**WARNING:** If the HEED check valve or adapter threads are damaged or worn these parts will require replacement. Continued use may cause injury.

**NOTE:** If adapter knurled ring does not move freely, soak in 1-1 vinegar and water solution for 3 hours to loosen any corrosion.



## **GENERAL SERVICING INFORMATION**

**NOTE:** If a leak or damage is found at any point the unit should be referred for service! See Service Manual for specific procedures.

### **PRE-USE CHECK:**

1. Visually check dial gauge for needle to be within green zone or pressure indicator stem to be flush to edge of indicator. If unit does not read in those zones then perform the ANNUAL CHECK below to determine if the unit is actually leaking or if it just needs to be filled.
2. Look for obvious physical damage, such as broken or loose parts. Check openings of diaphragm cover for presence of foreign objects or punctures of blue diaphragm. Check that all parts are clean and securely attached.

### **ANNUAL CHECK:**

1. Perform an annual leak test. A leak test consists of completely submerging the unit into a tub of water; shake the unit back and forth several times so that all trapped air is released; hold the unit still and watch for any leaks for 60 seconds (spend 20 seconds at each of the following: mouthpiece opening, side ports, and tank o-ring areas).

**NOTE:** A leak is defined as a continuous bubble at a constant rate.

### **FIVE YEAR SERVICE:**

1. Every five years the regulator should be overhauled with a complete overhaul kit. Refer to our Service Manual for complete instructions. Only personnel certified to repair HEED can perform the repair.
2. The HEED tank has a DOT 3AL 3000 rating. With this rating, HEED tanks ARE REQUIRED to be hydro tested every five years. DOT also requires that any cylinder exposed to fire or heat in excess of 350°F be condemned.

**NOTE:** Any cylinder that shows signs of corrosion, pitting or damage during any service checks should be evaluated further.

### **ROUTINE CARE:**

1. DO NOT immerse in or use solvents, acids or other chemical cleaners on the HEED system. Hot, soapy water may be used for cleaning when necessary.
2. Corrosion resistant materials are used in all parts of HEED. If used in salt water or a chlorinated swimming pool, we recommend that the unit be filled, then rinsed with clean, fresh water and allow to dry before storage for maximum performance and reliability.
3. HEED units should be stored in clean, dry environments.

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## SERIALIZATION:

All HEED systems are identified with individual serial numbers. Serial numbers are located on the regulator to the right of the mouthpiece.

| HEED 3 SPECIFICATIONS    |  |                       |
|--------------------------|--|-----------------------|
| MODEL #                  | 175-001 / 175-002  | 300-001 / 300-002     |
| Length                   | 8.75" / 22.23 cm   | 13.4" / 34 cm         |
| Diameter                 | 2.25" / 5.71 cm  | 2.25" / 5.71 cm       |
| Weight (full)            | 1.51 lb / .687 kg  | 2.17 lb. / .985 kg    |
| Cylinder Pressure Rating | 3000 psi / 200 bar   | 3000 psi / 200 bar    |
| Cylinder Volume          | 1.7 cu ft / 48 liters  | 3.0 cu ft / 85 liters |
| Duration of Air Supply   | 30 breaths at surface  | 57 breaths at surface |
| Cylinder Material        | Aluminum – black anodized  |                       |
| Pressure Relief          | Integrated in Regulator  |                       |
| Regulator Type           | Balanced Single Stage  |                       |
| Operational Temp.        | -22°F (-30°C) to +158°F (+70°C)  |                       |
| Altitude Testing         | 35,000 feet  |                       |
| Burst Disc Rate          | 3300 psi; Bursts between 4500-5000 PSI   |                       |
| Buoyancy                 | Nearly Neutrally buoyant   |                       |
| Cylinder DOT Rating      | DOT 3AL 3000. Due to this tank rating the HEED requires hydro testing every 5 years.   |                       |
| Duration of Breathing    | Approx. 2-5 minutes. Varies upon user's lung capacity, physical exertion, depth of usage in water and several other factors. |                       |

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