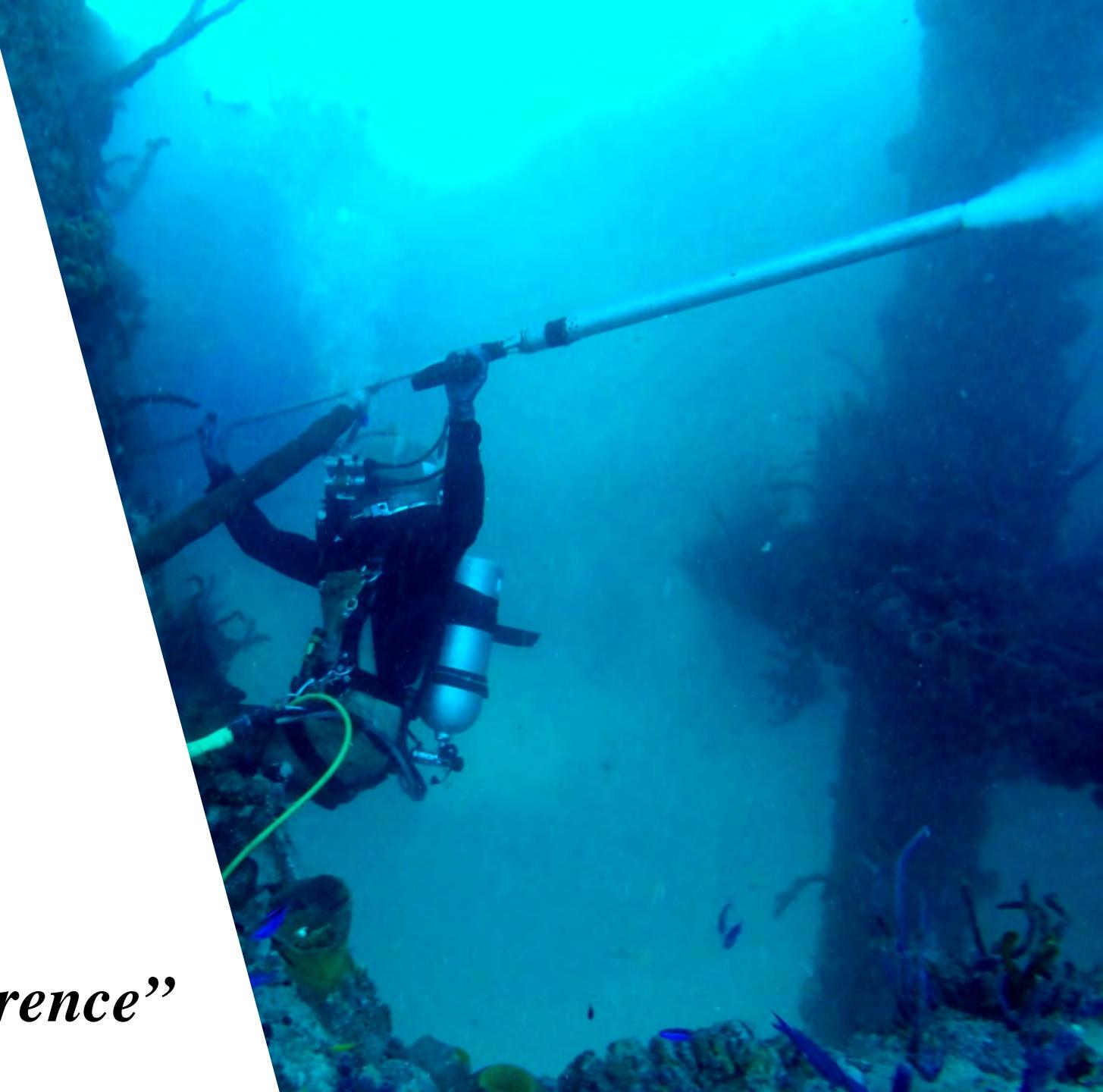




Water Blasting – Safe Practices and Procedures

“Our Effort Makes the Difference”



Important

Recommended Practices and Procedures do not replace proper training and experience necessary to operate high pressure water blasting systems.

Injuries caused by water blasters are highly susceptible to infection and should be given immediate treatment.

Anyone who suffers an injection should IMMEDIATELY stop working and report it to their supervisors and get medical advice on treatment.



Planning Ahead for Water Blaster Safety

Be A Good Observer

Look out for yourself and others. Review what to look for and act on what you see. It is your right and obligation to shut down an unsafe activity

JSA

Unsafe work conditions and unsafe behaviors are the main reasons for injuries and accidents. The best way to avoid them is to Plan your Work and Work your Plan with the JSA process. Identify and minimize risk, then assign responsibilities to produce a safe working environment .

Stop Work Authority

Every worker has the responsibility to stop an unsafe act or task. Shut down the job and reassess the potential problem and redo the JSA and continue the job safely.

Report all Incidents

Reporting incidents no matter how minor is the key to injury prevention. Properly report all incidents, document the event, and obtain medical care if needed, then share the event with others.



Diesel Powered Water Blasting Units

Gardner Denver/ Partek

10,000 PSI @ 10 GPM

20,000 PSI @ 11 GPM

20,000 PSI @ 20 GPM



20,000 PSI @ 11.1 GPM Diesel Water Blaster Unit

- Powered by John Deere Diesel engine with PTO
- Poly Chain Drive- Electric Start
- Gardner Denver Model TY-375 fluid end (20 mm plunger diameter)
- Single discharge outlet with 25K primary and 27K secondary rupture discs
- 1" air diaphragm feeder pump (a minimum of 50 psi water pressure is required to prime pump or unit will shut down)
- Idle pressure 4500 psi – 5000 psi
- MAX outlet pressure 20,000 lbs.
- **Use only Tungston Carbide tip (Gardner Denver Part No. 77133009 with a .032 straight orifice and 1.6 fan orifice)**
- 100 gallon fuel tank
- Dimension – 64" wide x 120" long x 82" High Weight – 8600 lbs.
- NOTE – Always use Straight Tip in rear of Underwater Gun



20,000 PSI @ 20 GPM Diesel Water Blaster Unit

Powered by 8V-71 Detroit Diesel Engine with PTO Belt Driven- Air Start

Fluid End Gardner Denver Model TF-450H 27 mm plunger diameter 4.5" stroke 20K / 1379 bar

Single discharge outlet with 25K primary and 27K secondary rupture disc

2" air diaphragm feeder pump
Idle pressure 4500 psi – 5000 psi MAX Pressure 20,000 lbs.

Use on Tungston Carbide tip No. 3400 (Gardner Denver Part no. 133015 with a .052 orifice) straight or 3404 (Gardner Denver Part no. 133062 with a .062) fan tip in Zero Thrust Gun (Model 777000656) rear tip

Dimension – 8'2" wide x 10'2" long weight – 13000 lbs.

Note – Always use straight tip in rear of underwater gun



10,000 PSI Diesel Water Blaster Unit



10,000 PSI @ 10 GPM Partek Diesel Water Blaster Unit

- Belt Driven- Air Start
- Under Water Tip (.1502 fan and .0002 straight)
- Top Side Gun (.1504 fan and .0004 straight)
- Comes with 100 foot of $\frac{1}{2}$ " high pressure blast hose and "O" Thrust Underwater Gun (Top Side Gun)



10,000 PSI @ 10 GPM Gardner Denver Diesel Water Blaster Unit

- Belt Driven- Air Start
- Under Water Tip (.1503 fan and .0003 straight)
- Top Side Gun (.1506 fan and .0006 straight)
- Comes with 100 foot of $\frac{1}{2}$ " high pressure blast hose and "O" Thrust Underwater Gun (Top Side Gun)



High Pressure Hose & Underwater Gun



Spir Star 20,000 psi Ultra High Pressure Water Jetting Hose, Series 694 with reinforcement of 4 Spiral layers and 1 Wire Braid with 4' burst shield and Stainless Steel High Pressure Type M connector fitting. Working Pressure is 20,000 psi with burst at 50,000 psi. It has a bend radius of 8".

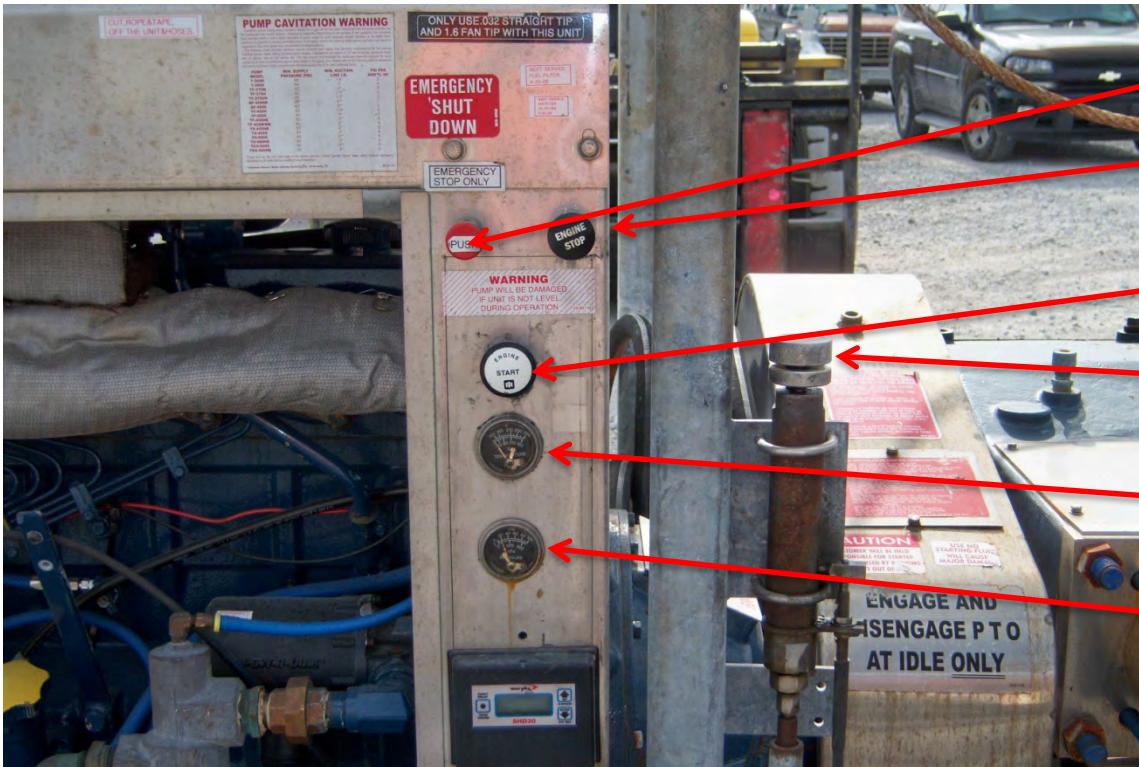
20,000 psi high pressure Water Blast hose has maximum rental life of 3 years once used in subsea environment. As part of Morgan City Rentals' QC procedure, hoses are pressure test certified, yearly by a third party source and is inspected and tested within MCR, bi-annually.



20,000 psi Water Blast Zero Thrust Gun with Safety Shroud. Safety Shroud features a 6' nitrile outer cover. Inner material consists of 6' of woven Kevlar and is rated for 51,000 psi.



Engine Start/Stop and Control Panel



Emergency
Shut Down

Engine Stop

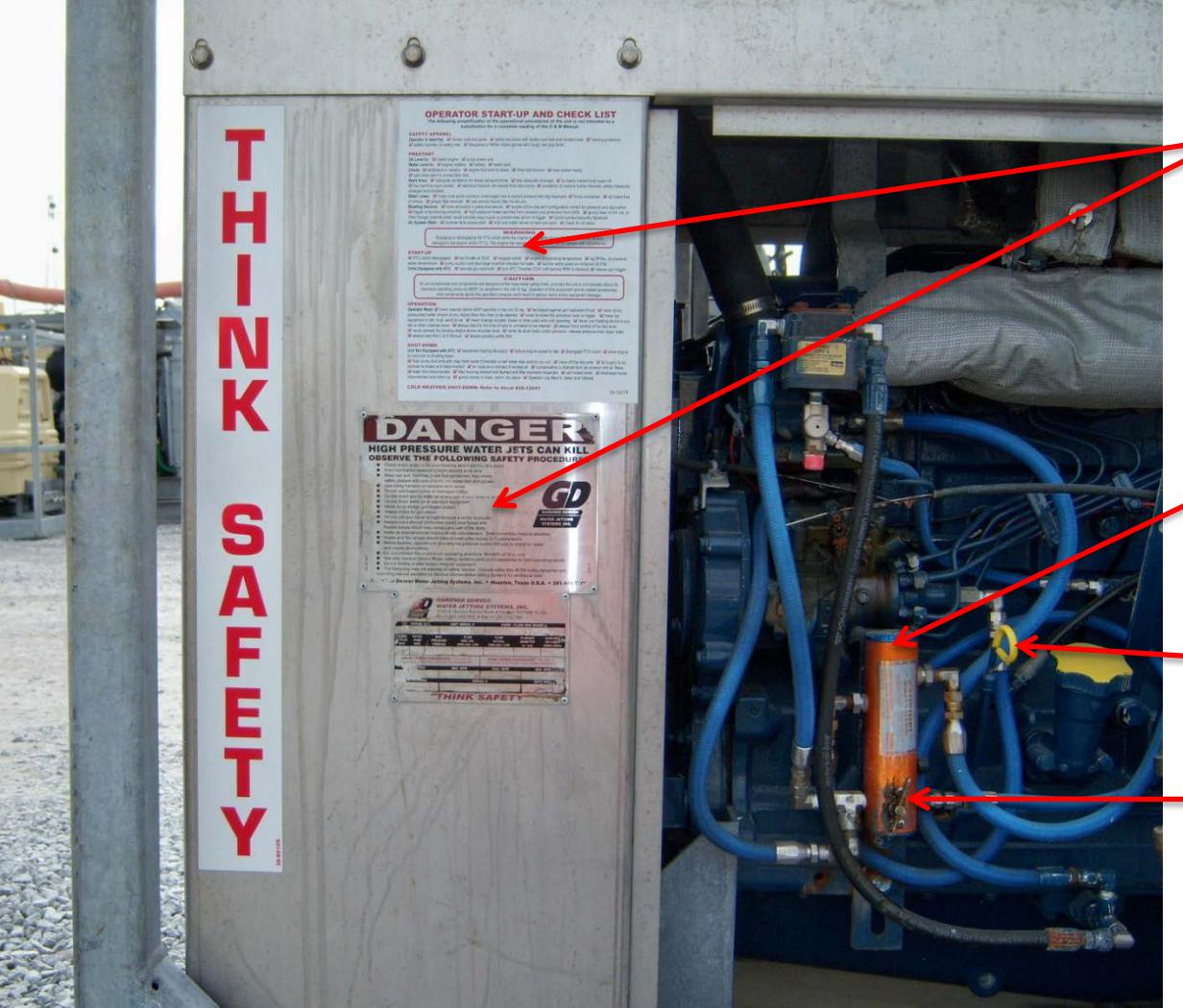
Engine Start

Auto Throttle Valve
Regulates water pressure

Engine Temperature

Engine Oil Pressure





Operation & Warning Instructions

Sentinel Valve
Engine
Oil Shut Down
Over Heat Shut Down

Oil Check

**Turn Lever
Down to Start**

Water Supply & Filtration Pot



Water Filter Pot

- Contains sock type filter
- Clean once a day
- Replace if sock is torn

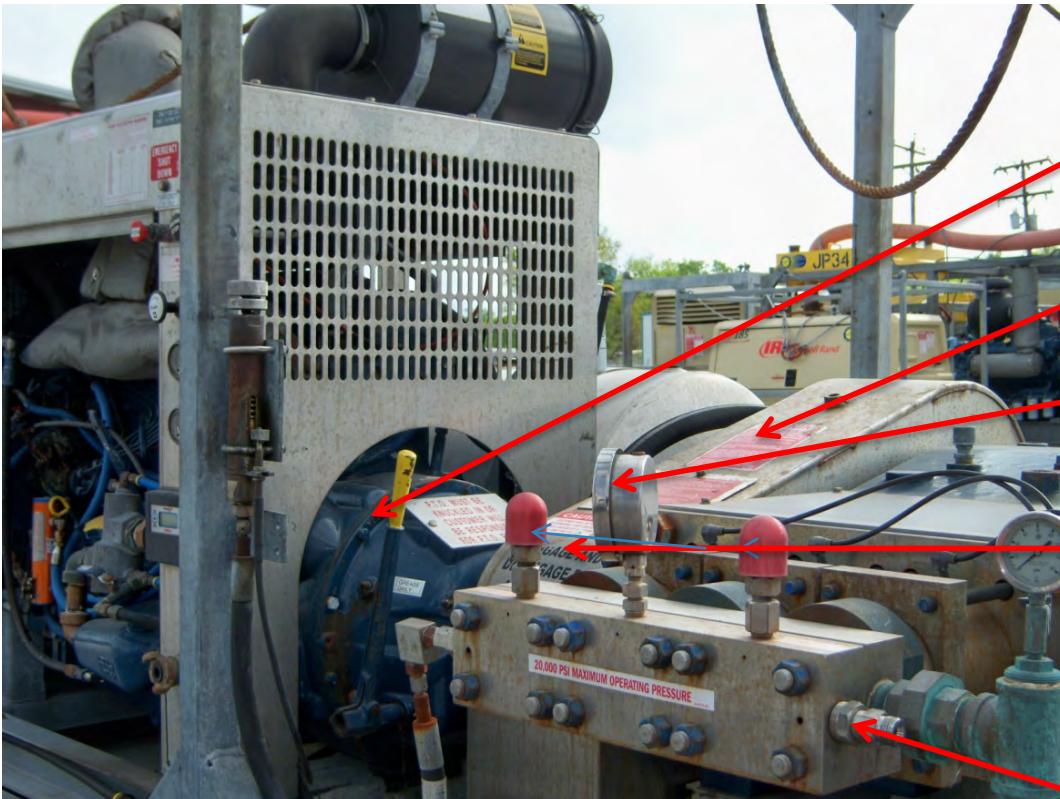
Water Blaster Parts Box

- Rupture Disc
- Spare Tips
- Gun Kit
- Extra Sock Filter
- Coupling Connectors
- Fuel Filter

1" Air Diaphragm Feeder Pump



Pump Components



Power Take Off (PTO)
•Knuckle Lever in gear

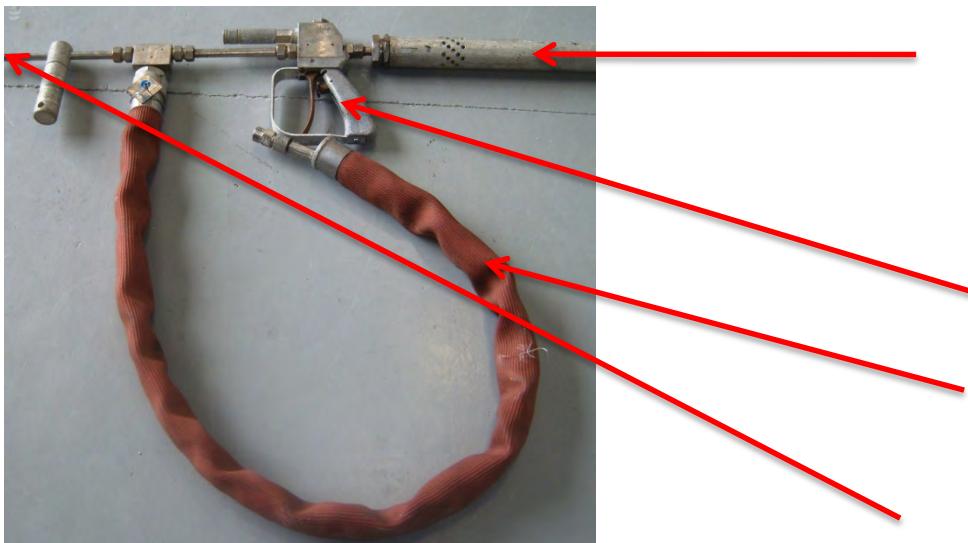
Instructions / Warnings

Discharge Pressure Gauge

Rupture Disc
•10K rupture disc burst at 12,500 PSI
•20K rupture disc burst at 25, 000 and 27,000 PSI

Discharge Hose Connector

20K Water Blaster Underwater "O" Thrust Gun



Rear Baffle Tube

Trigger Assembly Block Housing
Contains Gun Kit

Trigger and Gun Handle

Kevlar Protective Safety Shroud

Front Barrel



20K Water Blaster Starting/Operating Instructions

1. Inspect unit skid, bolts, plugs, engine components, pump components, filter system
2. Connect hoses and gun to the unit
3. Connect air and suction hose to the diaphragm pump. Open ball valve, open pet-cock at the top of the water filter housing and allow water to flow until all air is removed from system. Close pet-cock on filter housing. This process must be done before every use.
4. Open gate valve on suction manifold to lubricate lines. Check that each plunger lubricator is flowing water.
5. Check oil and coolant levels on the engine.
6. Make sure PTO is disengaged.
7. Turn sentinel lever to the start position
8. Push start button to start engine
9. Sentinel lever will automatically turn to the run position.
10. Screw the handle on the throttle valve clockwise completely before the PTO is engaged
11. Engage PTO
12. Hold trigger of the WB gun and turn the handle on the throttle valve counter clockwise while monitoring the pressure on the gauge mounted on top of the pump. Adjust pressure to desired level. (DO NOT EXCEED 20,000 psi of pressure).
13. Begin water blasting.
14. Whenever tips or gun kit is changed turn the throttle handle clockwise completely before re-engaging the PTO, if not, rupture disc will blow.



Water Blaster – Potential Hazards

- The safety point for water blasters is the rupture disc. Do not use coins to replace disc. There are reasons that cause disc to rupture (wrong tip or blockage)
- Using the wrong tips in the underwater gun- will blow rupture disc or lower discharge pressure
- Diver inadvertently directs the front pressure stream onto himself, his umbilical, or equipment.
- The baffle tube comes loose from the control valve block and exposes the “retro” nozzle assembly. Unaware of the situation, the diver continues blasting and inadvertently direct the stream from the exposed “retro” nozzle onto himself.
- A hose or fitting failure allows leaking pressure stream to contact and injure topside personnel or diver.
- Topside personnel inadvertently directs the front or retro pressure stream onto themselves or others when preparing, testing, or using the system.
- Airborne debris created when using the WATER BLASTER topside causes persons in the area to have particles carried by mist into their eyes.
- Topside personnel strain their backs while handling hose.
- Water supply to the pump is used up, shut off, or blocked and the pump overheats and damages occur. (The water cools and lubricates the pump machinery and if the pump is operated dry it will quickly heat up and seize.)
- Tools or items of equipment fall or are dropped and cause injury to personnel or damage to the pump.



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**Underwater “O” Thrust water blast gun triggers should NEVER be tied
or wedged in the flow position under any circumstances**

**Morgan City Rentals does not recommend any mismatching of high
pressure hoses, water blast guns, and any high pressure connections
between different rental companies**





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Hydraulic Equipment

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