



Patent Pending
EXTENDED-DUTY PISTON PUMP

Operation & Installation Manual

P/N 95222 Rev. 9-29-09



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Safety has been a prime consideration when designing the Iron Horse™ system. We have also listed some possible hazards involved when applying this system to site remediation. Nothing will protect you as much as understanding the system, the site at which it is being used, and the careful handling of all the equipment and fluids. So it is very important that you read and understand the safety warnings and operation instructions in this manual before proceeding. If you have any questions, please contact the QED Service department (800-624-2026) for guidance

A Partial List of Safety Procedures

Warning: *The air compressor and other electrical equipment used with this system must be positioned outside any area considered hazardous because of possible combustible materials.*

These safety procedures should be followed at all times when operating QED equipment on or off site, and should be considered as warnings:

- Wear safety goggles when working with the Iron Horse system to protect eyes from any splashing or pressure release.
- Wear chemically resistant rubber gloves, boots, and clothing when handling the Iron Horse fluid discharge hose to avoid skin contact with the fluid being pumped.
- Point all hoses away from personnel and equipment when connecting or disconnecting.
- Always ensure that fluid discharge lines are connected before air lines to prevent accidental discharge.
- Gloves and safety goggles should be worn whenever handling the fiberglass rod to protect against small glass fibers.
- The fiberglass rod is under extreme compression when coiled. Out-of-control rod can whip around and cause damage to personnel or property. Use care when cutting the plastic ties that are used to fasten the rod bundle. The end of the coiled rod is extremely dangerous if released. Wear a hard hat to protect the head and safety goggles (ANSI Standard Z87.1) to protect eyes and face.
- Whenever raising or lowering equipment in the well, always be careful to keep fingers out of possible pinch points.



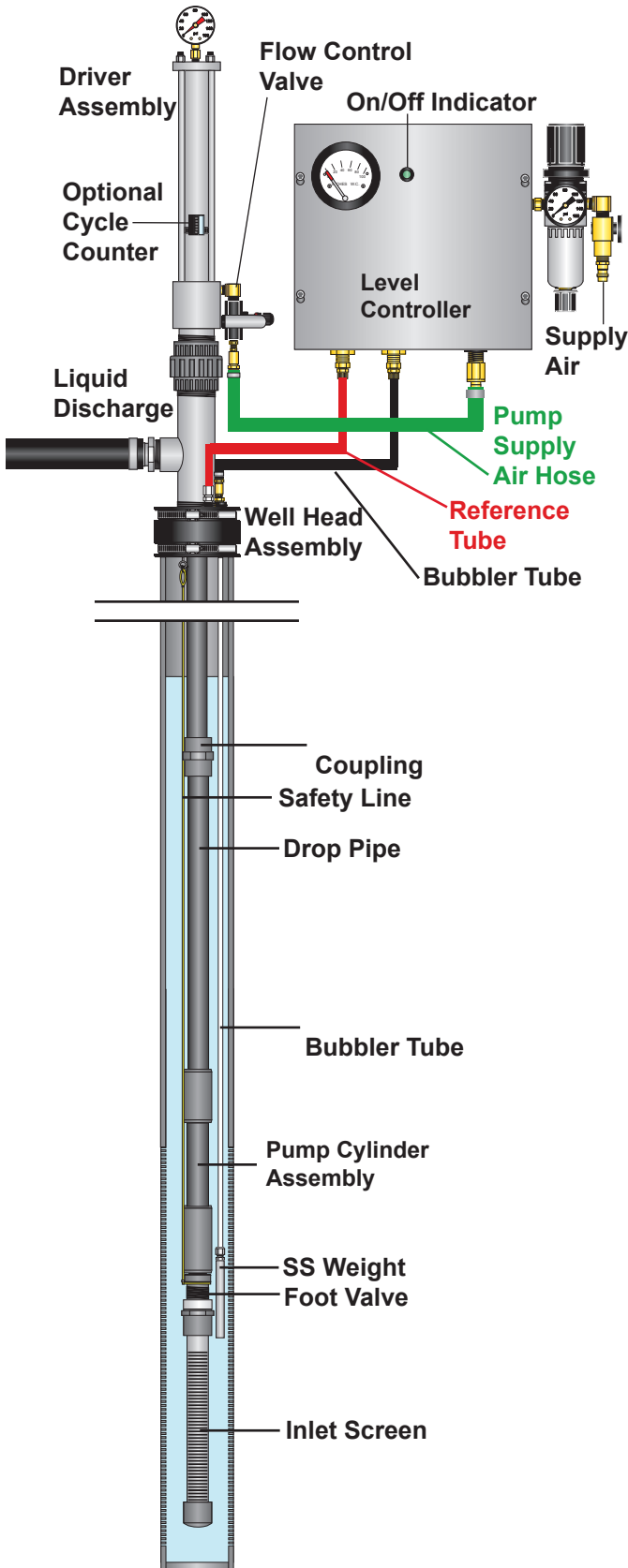


Figure 1

Driver Assembly

The driver assembly contains a serviceable air cylinder and reverser piston. When compressed air is applied to the driver assembly, the piston shaft on the lower end of the driver assembly moves up and down (cycles) in a reciprocating motion.

Pump Cylinder Assembly

The pump cylinder assembly consists of a stainless steel cylinder inside a CPVC housing and a stainless steel, serviceable foot valve.

Pump Piston

The pump piston is located inside the stainless steel pump cylinder and is connected to the driver assembly via a plastic coated 3/8" fiberglass rod which runs down through the inside of the drop pipe. As the driver assembly's shaft moves up and down, the pump piston moves up and down. *During the downstroke*, the pump piston's ball check is unseated, allowing the piston to move downward freely. Also during the down stroke, the foot valve's ball check is seated, preventing water from flowing from the drop pipe back into the well.

During the upstroke, the pump piston's ball check is seated, forcing water up through the drop pipe and out the liquid discharge at the wellhead assembly. Also during the upstroke, the foot valve's ball check is unseated, allowing water to be drawn up through the inlet screen and foot valve, and into the pump cylinder.

Flow Control Valve

The cycling rate of the driver assembly is dependent on the inflow of compressed air, which is controlled by the flow control valve. Turning the knob counterclockwise increases the flow of compressed air to the driver assembly, thereby increasing the cycling rate.

Cycle Counter

The optional cycle counters are actuated magnetically and record the number of times that the driver assembly has cycled. Two types of cycle counters are available; direct read-out, and remote readout for use with a QED Retriever (web-based) or other data acquisition device.

Level Controller

It is important that the pump not be allowed to pump dry for an extended period. The level controller prevents the pump from pumping dry by shutting off the compressed air supply to the driver assembly before the well level drops below the top of the inlet screen.

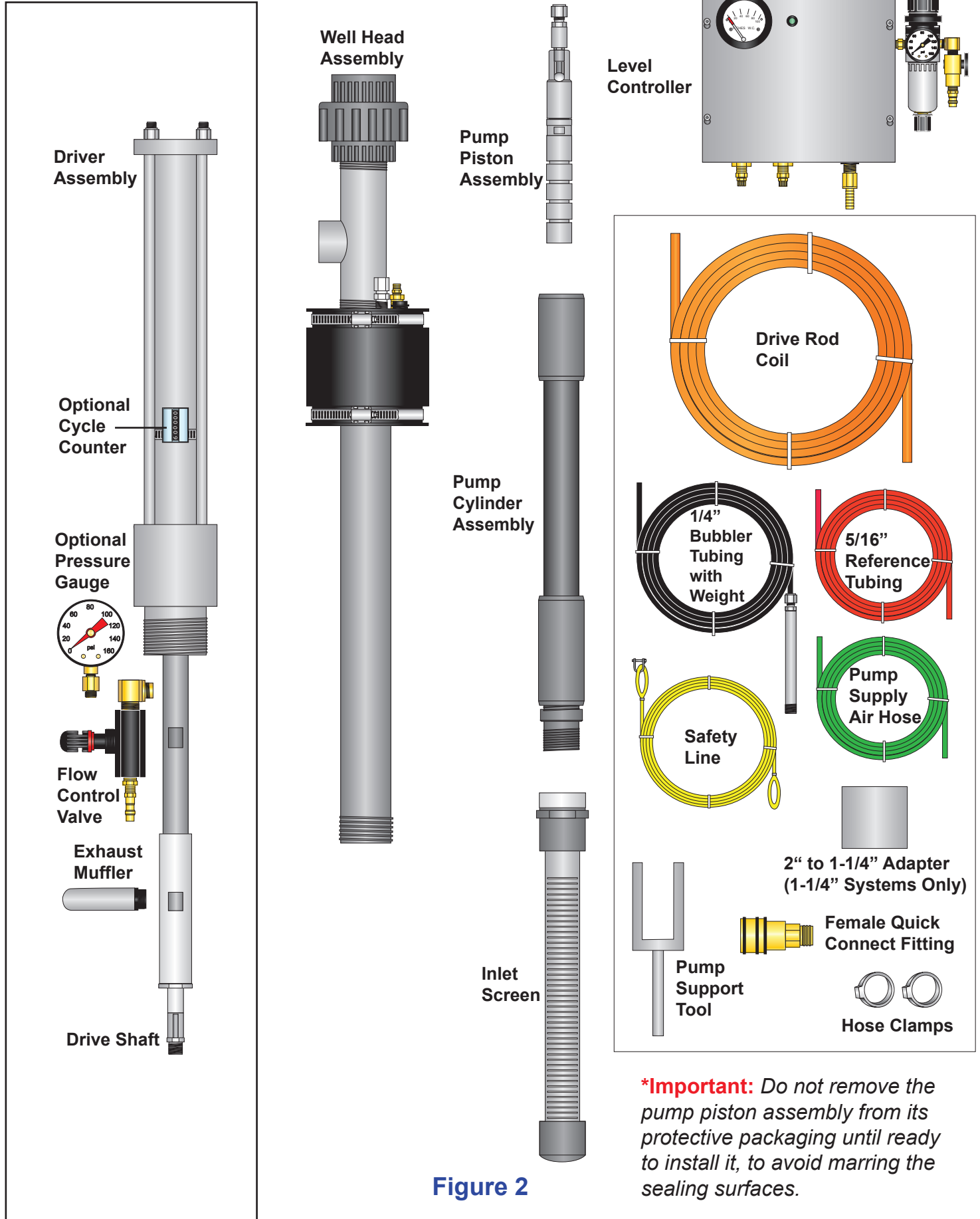


Figure 2

***Important:** Do not remove the pump piston assembly from its protective packaging until ready to install it, to avoid marring the sealing surfaces.



How to determine the length of the Drop Pipe:

(In this discussion well depth is always measured from the top of the well casing)

Does QED provide the drop pipe for my Iron Horse system?

No. You must provide the drop pipe for your installation. QED recommends that you purchase the drop pipe locally, in 10 ft, pre-threaded sections. The sections are screwed together with plastic couplings & sealed with Teflon tape (**Figure 3**). CPVC pipe and couplings are recommended for landfill gas recovery wells, or any application where temperatures could exceed 140° F.

Can I buy 20-foot long pipe sections, cut them in half, and thread the ends on site?

Yes, if you have the proper equipment.

Should I have pipe threading equipment on site during the installation?

Yes, it may be helpful. A simple hand threader and bench mounted pipe vise will allow you to cut and thread the last pipe in the drop string to whatever length you want, rather than be restricted to 10 ft increments.

How long should the assembled drop pipe be?

The following questions and answers will help you determine the length of your assembled drop pipe.

How long can the maximum assembled length of the drop pipe be?

The short answer is: “the depth of the well minus 92 inches” is too long.

For the 2” pump system, with the pump assembly at the very bottom, subtract 92” from the depth of the well to get the maximum length of the assembled drop pipe. Since the whole assembly must not touch the bottom of the well, the drop pipe must be shorter than this length (**Figure 4**).

Example: for a 120 ft deep well (measured from top of casing):

To determine the drop pipe length, subtract 92” from 120 ft.

$120 \text{ ft} - 92" = 112' 4"$ (this is the maximum drop pipe length)

Make sure your drop pipe is shorter than this maximum calculated length.

For this example of a 120 ft deep well, any convenient length of drop pipe is OK, if it is shorter than 112' 4”.

Note: The above calculation assumes that a standard QED wellhead assembly (with slip-fit seal only) is being used. The standard wellhead assembly extends 33” below the top of the well casing. If a custom wellhead assembly with a flange adaptor is being used, the length of the flange adaptor will need to be added to the assembled drop pipe length calculated above.

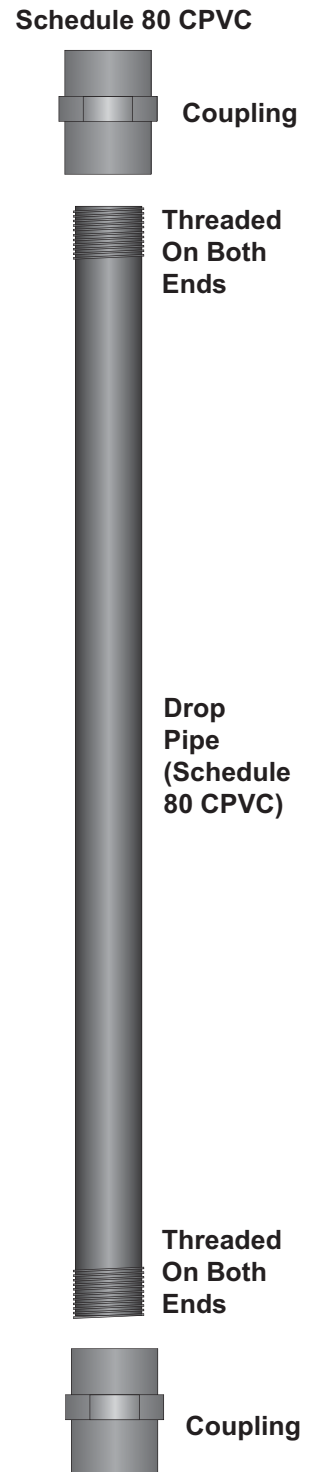


Figure 3



Should the drop pipe be long enough that the QED pump assembly rests on the bottom of the well?

No. As was mentioned above the pump and drop pipe assembly should be suspended from the cap. So, make sure that the length of the assembled drop pipe is less than the above calculation, so that it hangs freely and does not touch the bottom of the well.

If my drop pipe sections are exactly 10 ft long, will simply multiplying 10 ft by the total number of drop pipe sections give me the exact length of total assembled drop pipe?

No. The pipe couplings must also be taken into consideration if exact measurements are required. Depending on the size and type of couplings used, each coupling will add approximately 1" to the total length of assembled drop pipe.

I know the depth to which I want to draw the liquid level down. How long should I make the drop pipe relative to my desired draw-down depth?

The length of the assembled drop pipe is equal to the desired draw-down depth minus 56".

Note: This is the depth where a typically installed pump will shut off (measured from the top of the well casing). In the recommended installation, this will be about 18" above the top of the pump inlet screen.

Example: I want to draw the liquid level down to 75 ft and then I want the pump to shut off (until the well recharges).

$$75 \text{ ft} - 56" = 70' 2"$$

I will make my assembled drop pipe length = 70' 2".

Note: The above calculation assumes that a standard QED wellhead assembly (with slip-fit seal only) is being used. The standard wellhead assembly extends 33" below the top of the well casing. If a custom wellhead assembly with a flange adaptor is being used, the length of the flange adaptor will need to be added to the assembled drop pipe length calculated above.

Note: The above calculation assumes that the end of the bubbler tube is correctly positioned. QED recommends that the end of the bubbler tube be placed 12" above the top of the inlet screen. In that case the pump will shut off when the water depth is 5" above the bottom of the bubbler tube and 17" above the top of the inlet screen.

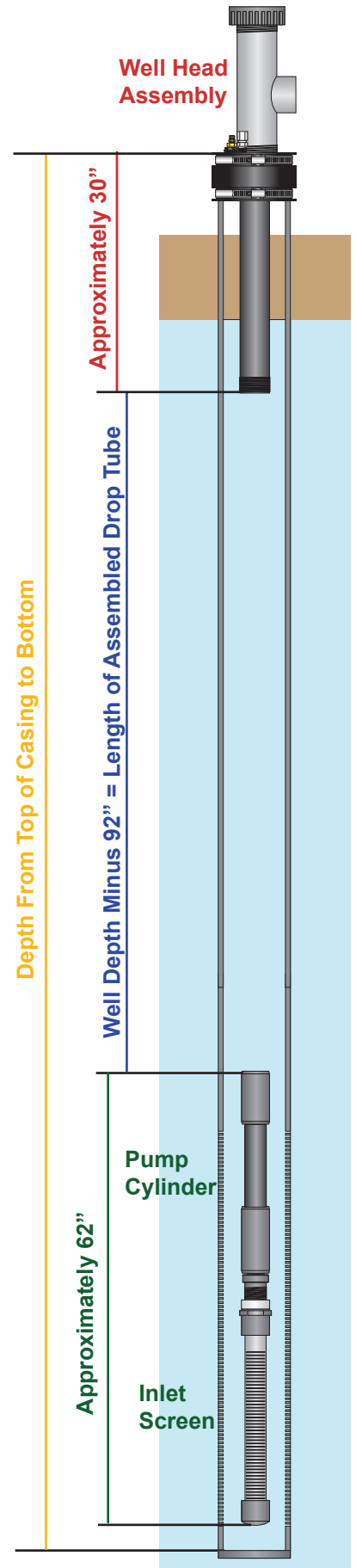


Figure 4



Can I place my bubbler tube lower, so that the pump shuts off closer to the “top of the inlet screen” depth?

Yes, but you should not place it so low that it allows the water level to fall below the top of the inlet screen. If this happens, the pump will draw in air and run dry, which could reduce its service life.

Note: The Level control turns the pump “on” when the end of the bubbler tube is submerged 10” or more. The Level control turns the pump “off” when fluid depth above the tube end drops to 5” or less.

Note: It is important to keep all drop pipe and coupling threads free of dirt and debris before and during installation. Teflon tape should be used to seal all threads.

Well Casing Preparation

Important: *The driver seals and bushings suffer the least wear when the driver is pointed directly at the downwell piston.*

Before installing the Iron Horse system, make sure that the existing wellhead completion is cut square (within two degrees) with the well casing (not necessarily with the ground) to insure that the Driver Assembly is installed squarely with the well casing (**Figure 5**). Failure to install the Driver Assembly squarely with the well casing will cause accelerated wear to the driver seals and bushings, and will void the product warranty.

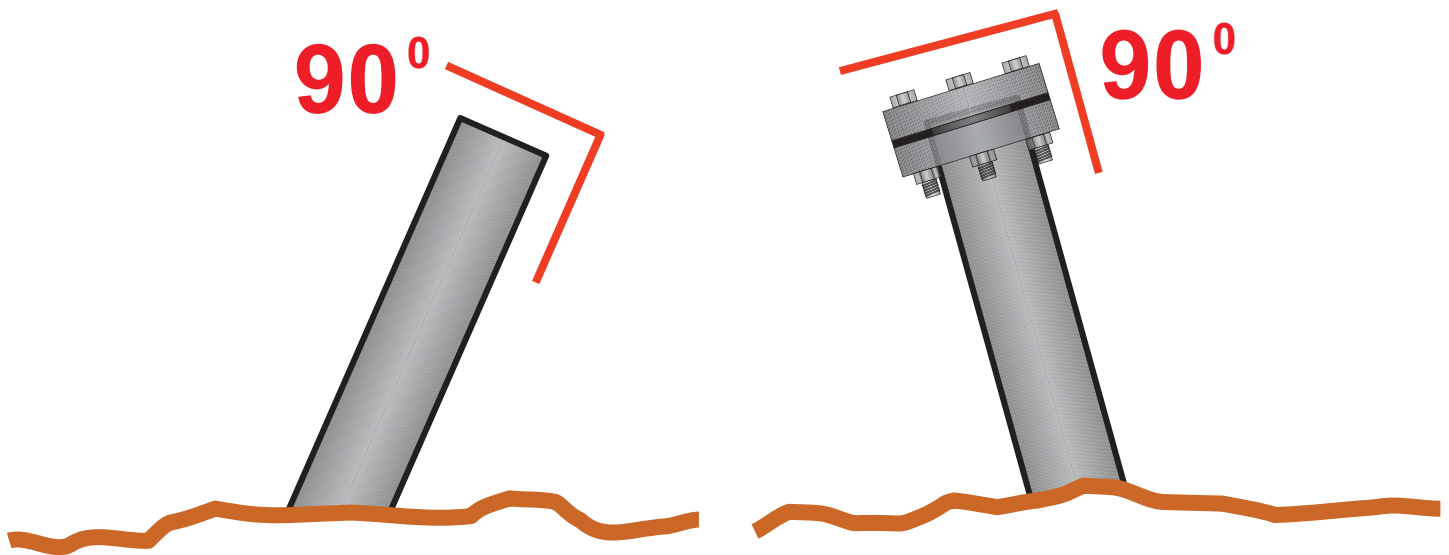


Figure 5



Driver Assembly Preparation

1. Unscrew top half (with collar) of 2" union from wellhead assembly (**Figure 6 A**) and screw it onto driver assembly (**Figure 6 B & C**), using Teflon tape.
2. Screw pressure gauge into port on top of driver, using Teflon tape (**Figure 7**).
3. Screw flow control valve and muffler into driver side ports (**Figure 7**), using Teflon tape. Set driver aside.

Important: As with any air cylinder, the Iron Horse driver should be handled with care. Never use a wrench on the air cylinder or tie rods. When laying the driver on its side be careful not to drop it, as denting of the air cylinder tube can render the unit inoperable.

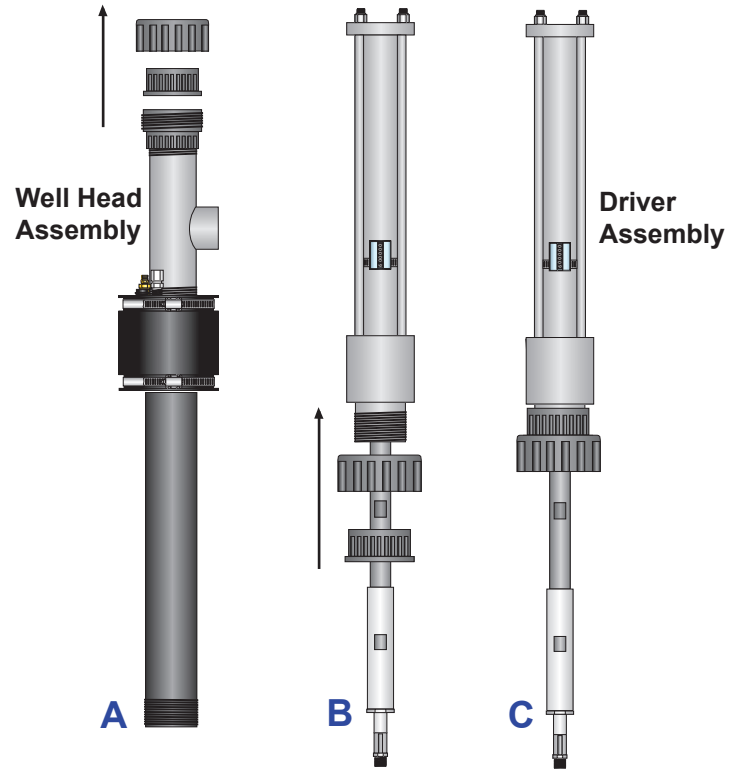


Figure 6

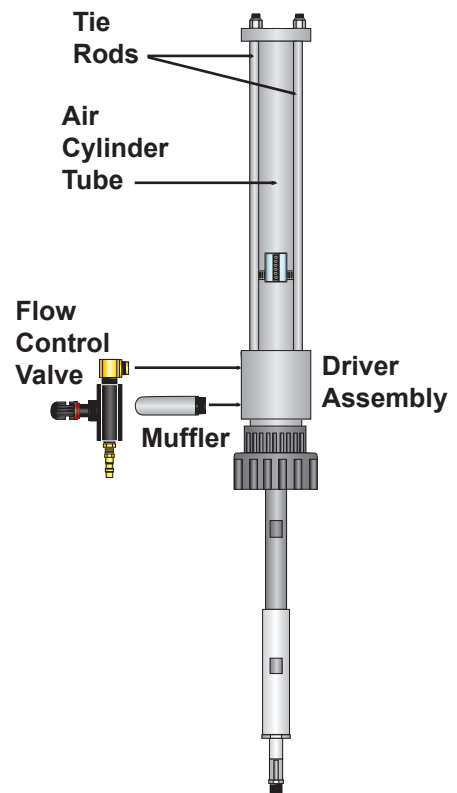


Figure 7



Downwell Component Preparation

4. Insert bottom of pump cylinder assembly through the loop on the safety line (**Figure 8**). On one end of the safety line is a loop that fits 2" pipe and on the other end is a loop that fits 1-1/4" pipe. Use the appropriate end, depending on the diameter of the pump being used.
5. Screw inlet screen onto bottom of pump cylinder assembly (**Figure 8**), using Teflon tape. Tighten firmly with pipe wrenches.
6. Screw top of pump cylinder assembly into bottom of first drop pipe section (**Figure 9**), using Teflon tape. Tighten firmly with pipe wrenches.
7. Temporarily secure the loose end of the safety line to the top of the well casing. It will be attached to the wellhead assembly later.
8. Screw a coupling onto the top of the first section of drop pipe (10 foot maximum is recommended for drop pipe sections), using Teflon tape. Tighten firmly with pipe wrenches.

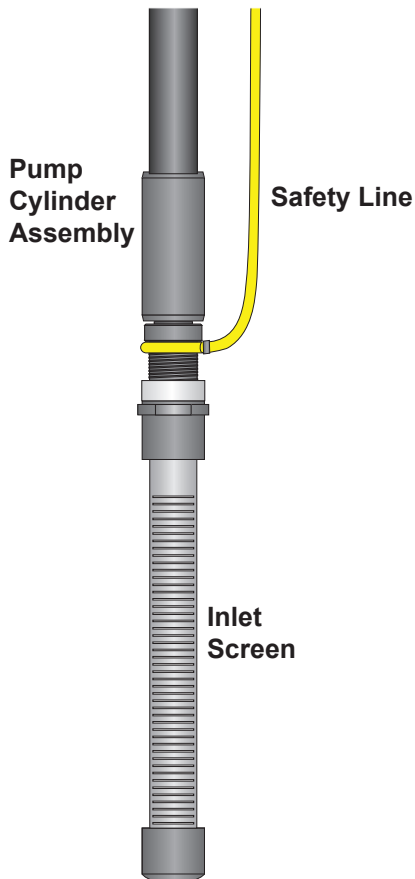


Figure 8

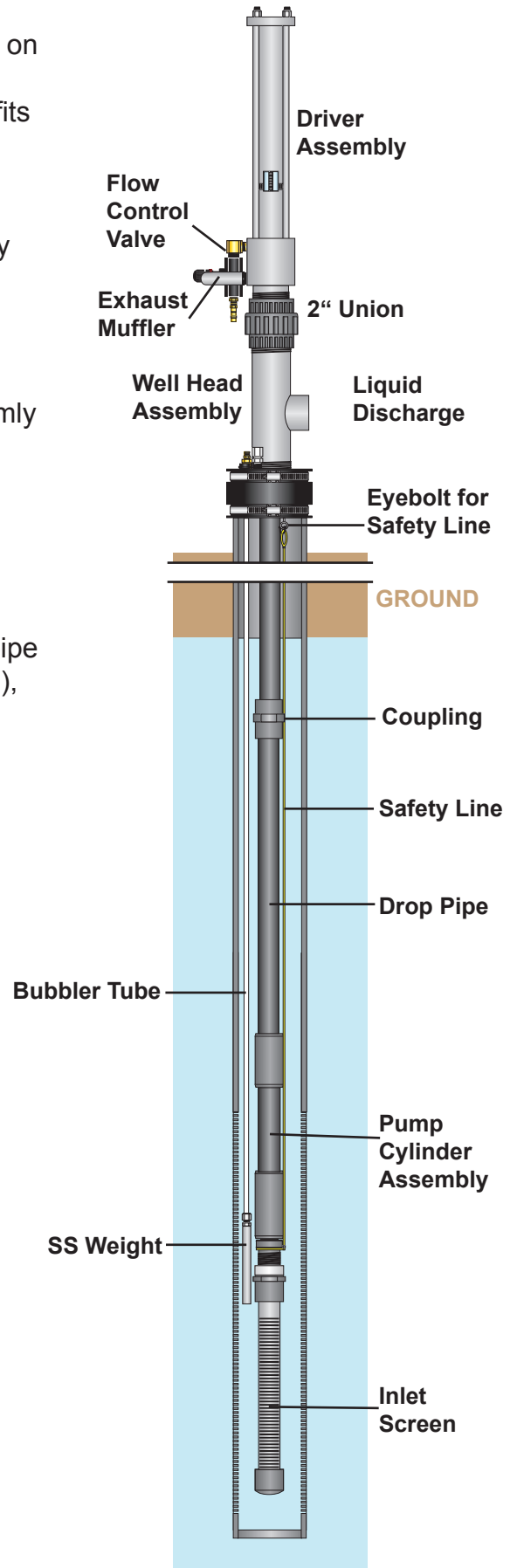


Figure 9



Downwell Component Preparation

Note: It is important to keep all drop pipe and coupling threads free of dirt and debris before and during installation. Teflon tape should be used to seal all threads.

9. Suspend the first drop pipe and pump cylinder assembly in the well, placing the screen end in first. Use the pipe support tool to suspend the pipe across the top of the well casing. The coupling will act as a stop to prevent the pipe from sliding through the pipe support tool (**Figure 10**).

WARNING: *At this stage of the installation, it is extremely important to keep your fingers out of potential pinch points.*

10. Add a pipe coupling to a new section of drop pipe, using Teflon tape, and tighten with pipe wrenches. Screw the end of the pipe without the coupling into the top of the coupling that is being supported by the pipe support tool at the top of the well casing (**Figure 10**). Insert a second pipe support tool above this pipe coupling so that there are pipe support tools both above and below this pipe coupling. Raise the section of drop pipe just enough so that the pipe coupling is not resting on the lower pipe support tool. Remove the lower pipe support tool and lower the new section of drop pipe until the new pipe coupling is resting on the other pipe support tool. Using the same procedure, continue adding drop pipe sections and threaded pipe couplings until pump inlet is approximately at the desired depth (**Figure 9**). While lowering pipe sections, keep the safety line tight and feed it out as the riser pipe assembly gets lower in the well.

Caution: *When lowering pipe sections, always insert the second pipe support tool before removing the first to ensure that the drop pipe is protected at all times from being lost down the well.*

11. Screw wellhead assembly onto top section of drop pipe (**Figure 11**), using Teflon tape. Tighten firmly with pipe wrenches.

Note: For 1-1/4" systems, a 2" x 1-1/4" stainless steel adapter is provided to adapt the well head assembly to the top section of 1-1/4" drop pipe.

12. Attach safety line to eyebolt on bottom of well cap (**Figure 9**) using the supplied shackle.

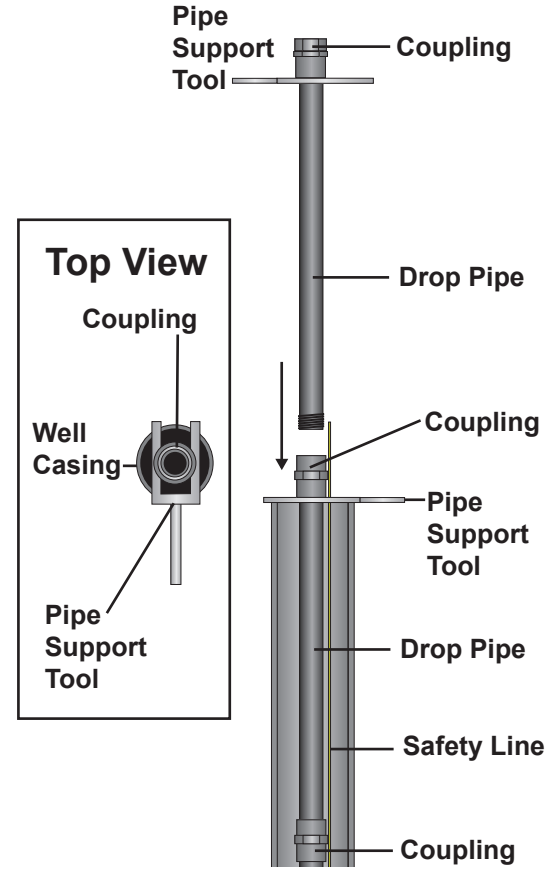


Figure 10

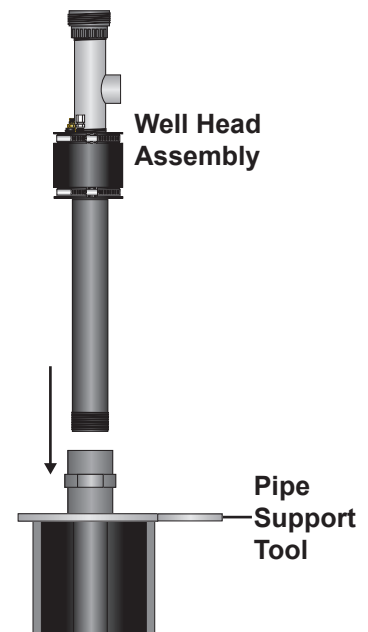


Figure 11



13. Insert one end of the 1/4" OD nylon bubbler tubing fully into the bubbler tubing weight's compression fitting (Figure 12) and tighten the compression fitting firmly, using two 8" wrenches.

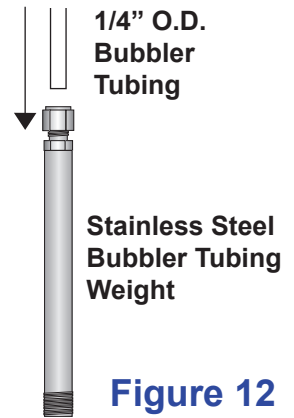


Figure 12

14. Lower the weighted end of the bubbler tubing down into the annular space between the well casing and the drop pipe, to the desired depth (the level controller will turn the pump supply air on and off as needed to maintain well's liquid level between 5" and 10" above the lower end of the bubbler tubing weight). Insert the upper end of the bubbler tubing through the bubbler tubing compression fitting from the underside of the wellhead assembly (Figure 13) and push the tubing up through the fitting, leaving the desired length of tubing below the wellhead assembly. Tighten the bubbler tubing compression fitting, using two wrenches, tight enough that the bubbler tubing cannot be moved up or down.

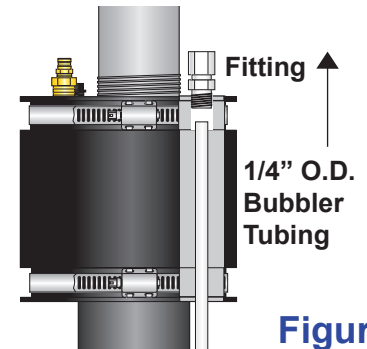


Figure 13

15. Remove pipe support tool and lower the wellhead assembly onto the well casing (Figure 14).

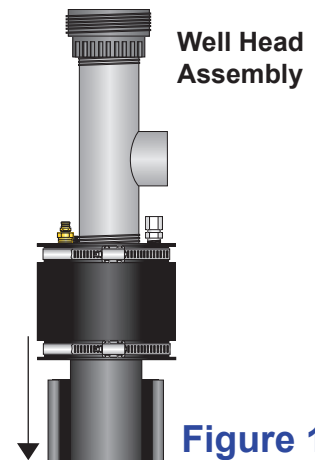


Figure 14

16. Uncoil fiberglass drive rod by attaching one end of the drive rod to a stationary object and carefully unrolling the coil along a flat level surface.

Warning: Risk of Injury! The coil is under compression and will unwind with great force if not handled properly.

17. Using a utility knife, shave off two inches of the plastic coating from one end of the fiberglass drive rod, being careful not to mar the surface of the fiberglass drive rod. Insert the drive rod into the piston's compression fitting (Figure 15). While keeping the drive rod fully inserted into the compression fitting, tighten the fitting firmly using two 8" wrenches.

Important: Never use a pipe wrench on the sealing surfaces of the piston, to avoid marring the surfaces which could result in reduction of service life.

18. Lower the piston end of the drive rod down into the drop pipe until it stops at the bottom of the pump (Figure 16A).

Note: It is possible for the piston to catch and stop at the drop pipe couplings on the way down. Before proceeding to the next step, be sure that the piston is actually at the bottom of the pump cylinder by gently raising it up and down and applying a twisting motion to the drive rod.

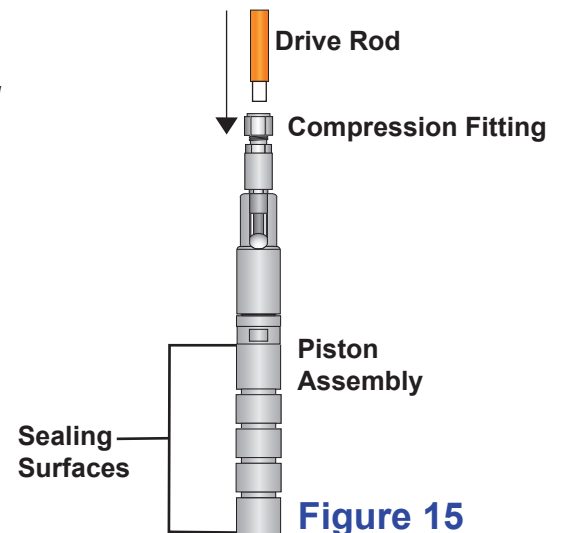


Figure 15



19. With the piston resting at the bottom of the pump cylinder, using a marker, mark the drive rod at the center of the wellhead assembly union (Figure 16 A & B). Raise the drive rod up 20 feet and lay the top end of the drive rod flat on the ground. Hold the drive rod at the wellhead so it will not fall back in the well. From the mark, measure 42.5" toward the well. Using a hack saw, cut the drive rod at this point (Figure 16 C).

Caution: Be careful not to drop the drive rod back into the well.

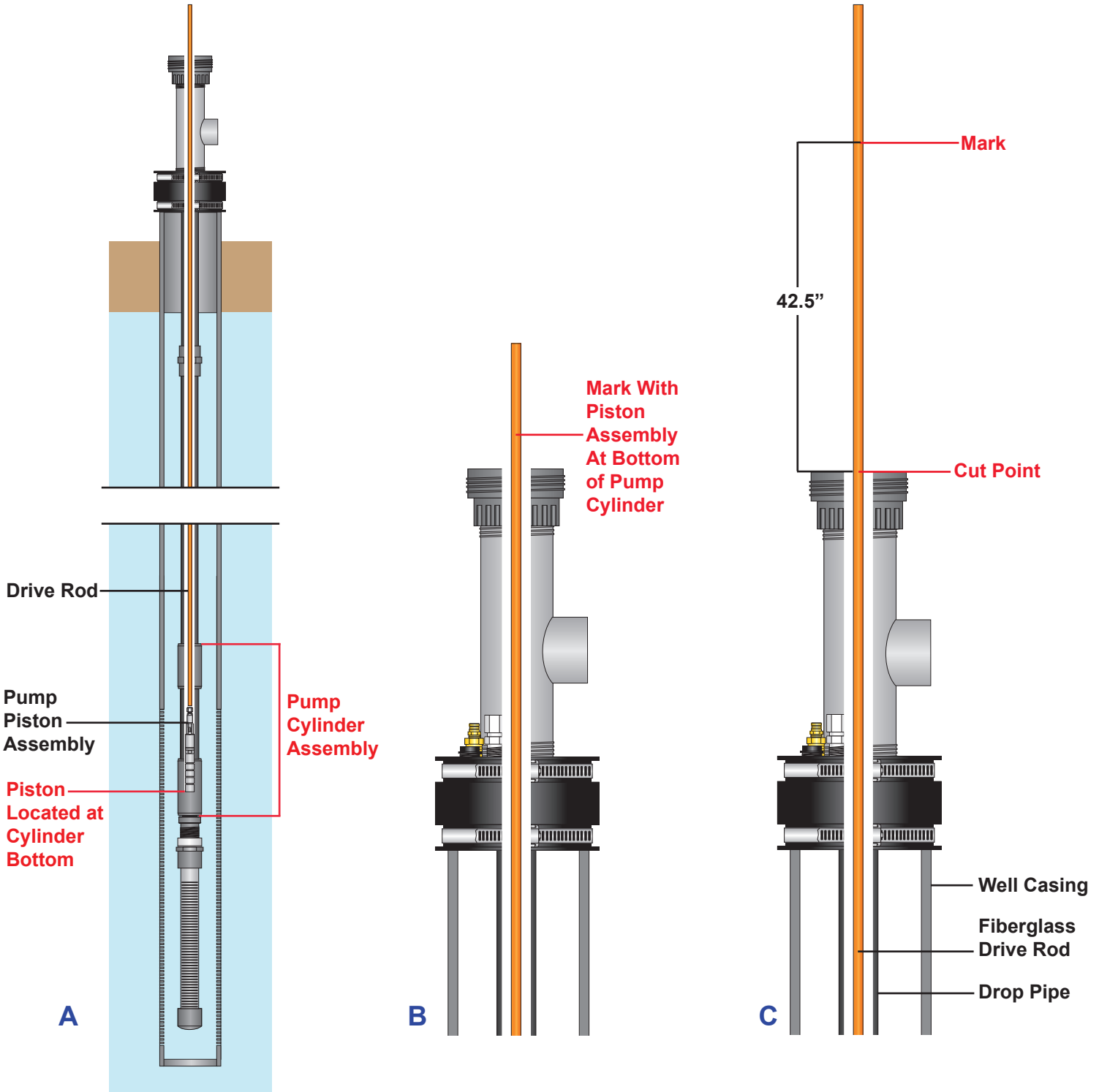


Figure 16



22. Using a utility knife, carefully shave off two inches of the plastic coating from the end of the fiberglass drive rod and insert the drive rod into the compression fitting on the driver assembly (**Figure 17**). While keeping the drive rod fully inserted into the compression fitting, tighten the fitting firmly using two 8" wrenches.
23. Lower the drive rod back down into the well, holding the driver high enough so the drive rod does not kink as it is fed back in. As the driver gets closer to the well, position it as vertically as possible so the driver shaft feeds straight down in the drop pipe. Attach the driver assembly onto the well-head assembly by screwing the 2" pipe union hand tight (**Figure 18**).

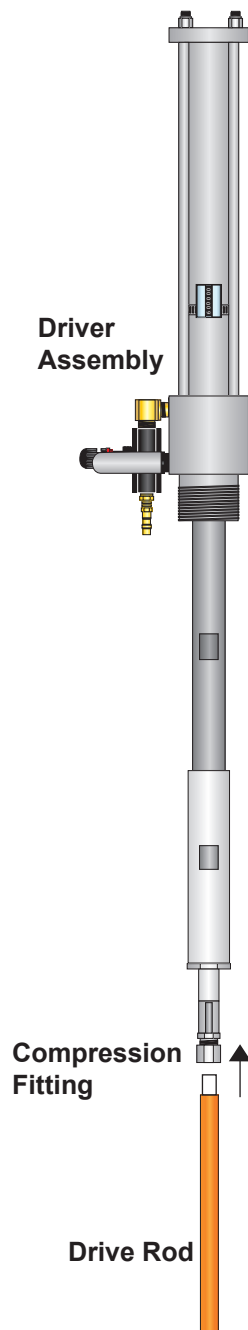


Figure 17

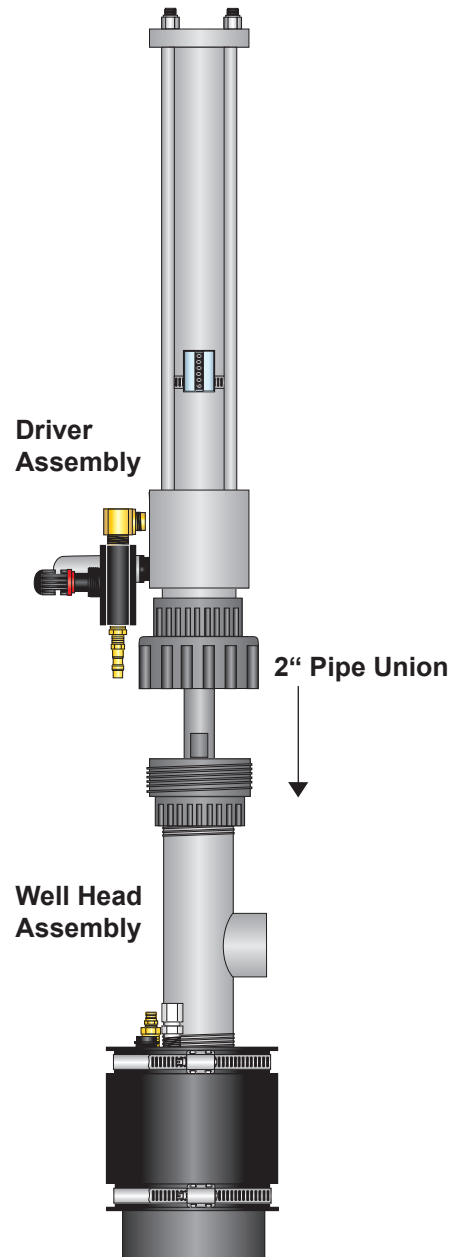


Figure 18



22. Mount the level controller to the well casing or at another nearby location if desired (Figure 19).
23. Insert the end of the 1/4" O.D. bubbler tubing fully into the bubbler tubing compression fitting on the level controller and tighten the compression fitting, using two 6" wrenches (Figure 19).
24. Insert one end of the 5/16" OD reference tubing into the reference tubing compression fitting on the well-head assembly and tighten the compression fitting, using two 6" wrenches (Figure 19).
25. Insert the other end of the 5/16" OD reference tubing into the reference tubing compression fitting on the level controller and tighten the compression fitting, using two 6" wrenches (Figure 19).
26. Attach supply air to the supply air inlet on the level controller (Figure 19).
27. Attach one end of the pump supply air hose to the level controller barb and clamp the hose over the barb. Clamp the other end of the pump supply air hose over the barb on the female quick connect fitting. Attach the female quick connect fitting on the pump supply air hose to the male quick connect fitting on the driver (Figure 19).

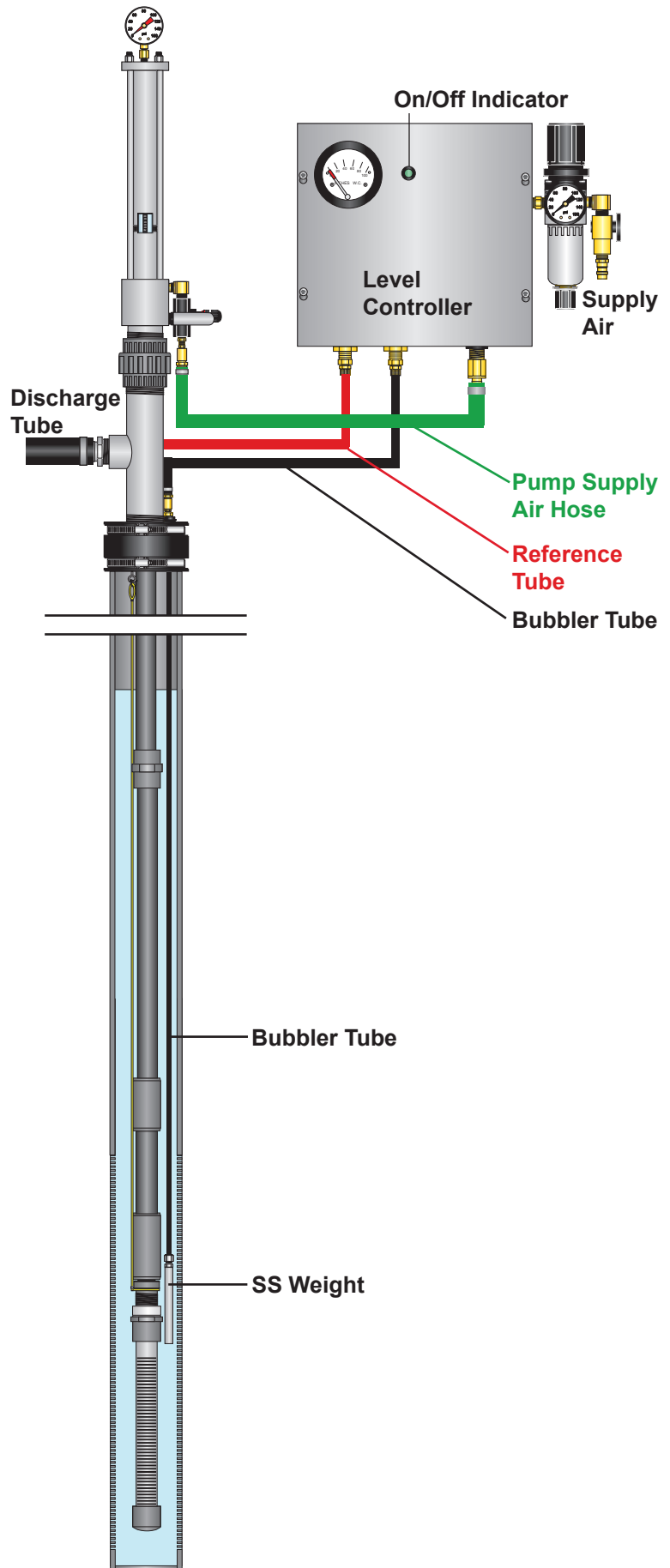


Figure 19



Startup

1. If the fluid discharged from the pump during startup must be captured, attach a temporary hose to the liquid discharge barb on the well head assembly. Close the flow control valve (**Figure 9**) by turning the black knob clockwise. If the knob is locked, pull the red lock ring out, away from the valve body, to unlock. Open the air inlet ball valve on the level controller. Set the pressure regulator on the level controller at approximately 100 psi by adjusting the black knob. Direct the hose to a barrel or other suitable container.
2. Start the pump at a low rate of flow (5-20 cycles per minute) by slowly opening (counterclockwise) the flow control valve (see **Figure 9, Page 8**). Turning the knob counterclockwise increases the pump cycling rate.
3. Allow the pump to cycle until the discharged fluid is clear of sand and silt.
4. Gradually increase the flow rate to the desired rate and verify that the discharged fluid is still clear before turning the pump off.
5. Turn the pump off by closing the Level Controller's "Supply Air" ball valve (see **Figure 19, Page 13**).

Caution: *Never attempt to stop the discharge flow by closing valves on the liquid discharge line while the pump is operating (i.e. do not "deadhead" the pump) as this can result in reduced service life.*

6. Remove the temporary fluid discharge hose and connect the permanent discharge piping.
7. Turn the pump on by opening the ball valve on the Level Controller.

Normal Operation

The pump will continue to cycle as long as the liquid level in the well is approximately 5" – 10" above the lower end of the downwell bubbler tube assembly (as indicated on the level controller's level gauge). When the liquid level is drawn down below 5", the pump will stop cycling until the level rises back up to 10". When the Level Controller's "On/Off Indicator" (see **Figure 19, Page 13**) is green, the liquid level is > 5", and the pump should be cycling. When the "On/Off Indicator" is black, the level is < 5", and the pump should not be cycling

Whenever the end of the bubbler tube is submerged more than 100", the level gauge will "peg" at the 100" mark. This will not damage the gauge. The gauge will indicate the actual water depth above the end of the bubbler tube when the water level drops to 100" or lower.

Caution: *Allowing the pump to run dry will result in reduced service life. For this reason do not attempt to run the pump without the level controller.*



IH 200 System (2" Drop Pipe)

Maximum Flow Rate:	5 gpm (18.9 lpm)	
Approximate Pump Volume/Cycle:	0.120 gal (.454 L)	
Maximum Cycle Rate:	40 cpm	
*Maximum Depth:	180 feet (54.8 m),	*Consult factory for depths greater than 180 ft.
Minimum Liquid Pumping Level Above Bottom:	Standard Screen 18 in. (45.7 cm) Short Screen 6 in. (15.2 cm)	
Maximum Air Pressure:	120 psi (8.4 kg/cm ²)	
Air Usage:	(See Figure 20/Page 16)	
Minimum Well Casing Inside Diameter:	5 in. (12.7 cm)	
**Temperature Range:	Max 180° F (82.2° C), (Downhole) Min -20° F (-28.9° C), (Surface)	**Assumes dry supply air - a properly sized dessicant air dryer is recommended for winter use in cold climates.

Model IHD-Driver Assembly

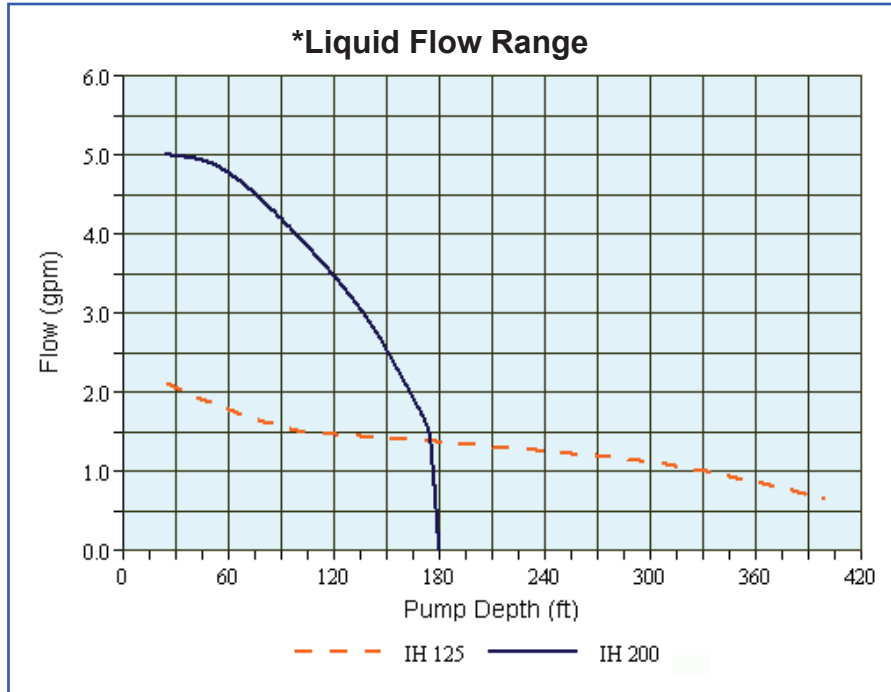
Weight:	22 lb. (9.97 kg)
Length:	50 in. (1.27 m) without gauge
Maximum Diameter:	4 in. (10.2 cm)
Drive Piston Diameter:	2 in. (5.08 cm)

IH 125 System (1-1/4" Drop Pipe)

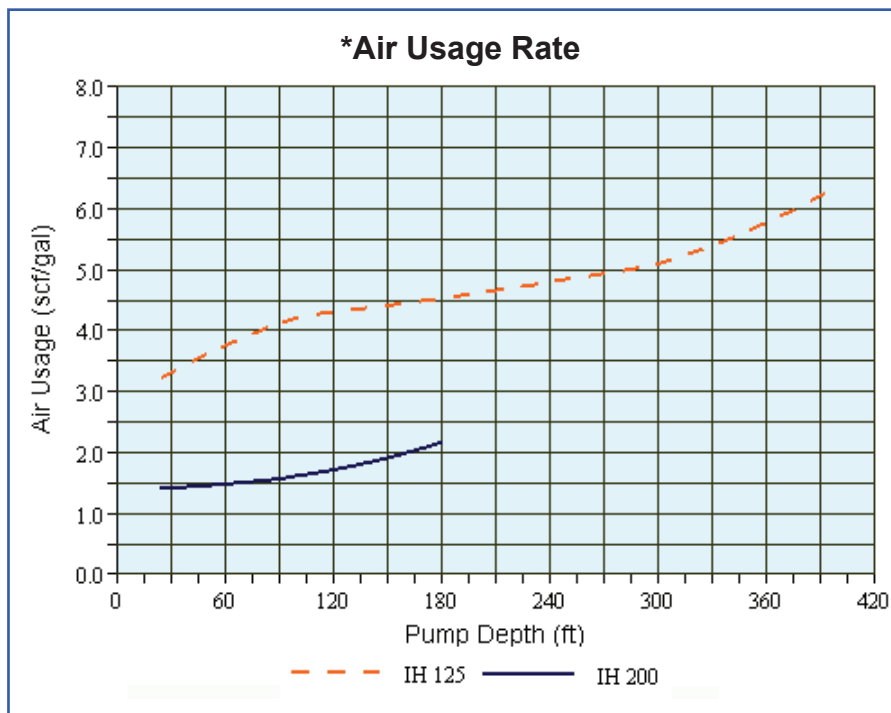
Maximum Flow Rate:	2 gpm (7.5 lpm)	
Approximate Pump Volume/Cycle:	0.045 gal (.170 L)	
Maximum Cycle Rate:	40 cpm	
*Maximum Depth:	400 feet (121.9 m),	*Consult factory for depths greater than 400 ft.
Minimum Liquid Pumping Level Above Bottom:	Standard Screen 12 in. (30.5 cm) Short Screen 6 in. (15.2 cm)	
Maximum Air Pressure:	120 psi (8.4 kg/cm ²)	
Air Usage:	(See Figure 20/Page 16)	
Minimum Well Casing Inside Diameter:	4 in. (10.2 cm)	
**Temperature Range:	Max 180° F (82.2° C), (Downhole) Min -20° F (-20° C), (Surface)	**Assumes dry supply air - a properly sized dessicant air dryer is recommended for winter use in cold climates.

Model IHD-Driver Assembly

Weight:	22 lb. (9.97 kg)
Length:	50 in. (1.27 m) without gauge
Maximum Diameter:	4 in. (10.2 cm)
Drive Piston Diameter:	2 in. (5.08 cm)



*Consult factory for depths greater than 400 ft.



*Consult factory for depths greater than 400 ft.

Figure 20



If you have questions or problems installing or operating your Iron Horse™ system, **QED's 24-hour hot-line** will help.

Call toll-free (in U.S. and Canada) **1-800-272-9559** for expert assistance with installation, adjustment, or field service.



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QED Environmental Systems, Inc. (QED) warrants to the original purchaser of its products that, subject to the limitations and conditions provided below, the products, materials and/or workmanship shall reasonably conform to descriptions of the products and shall be free of defects in materials and workmanship. Any failure of the products to conform to this warranty will be remedied by QED in the manner provided herein

This warranty shall be limited to the duration and the conditions set forth below. All warranty durations are calculated from the original date of purchase.

1. Iron Horse pumping systems: pumps, pistons, drivers, wellheads and level controllers are warranted for 12 months: 100% material and 100% workmanship.

2. Parts and Repairs warranted for ninety (90) days: 100% material and 100% workmanship; when repairs are performed by QED or its appointed agent; from date of repair or for the full term of the original warranty, whichever is longer. Separately sold parts are warranted for ninety (90) days: 100% materials and 100% workmanship.

Buyer's Remedy

Buyer's exclusive remedy for breach of said warranty shall be as follows: if, and only if, QED is notified in writing within the applicable warranty period of the existence of any such defects in the said products, and QED upon examination of any such defects, shall find the same to be within the term of and covered by the warranty running from QED to buyer, QED will, at its option, as soon as reasonably possible, replace or repair any such product, without charge to the buyer. If QED for any reason, cannot repair a product covered hereby then QED's sole responsibility shall be, at its option, either replace the defective product with a comparable new unit at no charge to the buyer, or to refund the full purchase price. If the product proves not to be defective within the terms of this warranty, then all costs and expenses in connection with the processing of the purchaser's claim and all costs for repair, parts and labor as authorized by owner here under shall be borne by the Purchaser.

WARRANTY CLAIMS PROCEDURE (RESPONSIBILITY OF PURCHASER)

The original purchaser's sole responsibility in the instance of a warranty claim shall be to notify QED or its appointed agent, of the defect, malfunction, or other manner in which the terms of this warranty are believed to be violated. The purchaser may secure performance of obligations hereunder by contacting the Customer Service Department of QED or its appointed agent, and:

1. Identifying the product involved by model or serial number, or other sufficient description, that will allow QED, or its appointed agent, to determine which product is defective.
2. Specifying where, when, and from whom the product was purchased.
3. Describing the nature of the defect or malfunction covered by this warranty.
4. After obtaining authorization from QED, sending the malfunctioning component via a RMA# (Return Material Authorization number) to the address provided at that time.

In no event shall such allegedly defective products be returned to QED without its consent, and QED's obligations of repair, replacement or refund are conditioned upon the Buyer's return of the defective product to QED

QED shall be released from all obligations under all warranties if any product covered hereby is repaired or modified by persons other than QED's service personnel unless such repair by others is made with the written consent of QED

The foregoing warranty does not apply to major subassemblies and other equipment, accessories, and other parts manufactured by others, and such other parts, accessories, and equipment are subject only to the warranties, if any, supplied by their respective manufacturers. QED makes no warranty concerning products or accessories not manufactured by QED. In the event of failure of any such product or accessory, QED will give reasonable assistance to Buyer in obtaining from the respective manufacturer whatever adjustment is reasonable in light of the manufacturer's own warranty.

THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY (INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE), WHICH OTHER WARRANTIES ARE EXPRESSLY EXCLUDED HEREBY, and of any other obligations or liabilities on the part of QED, and QED neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with said products, materials and/or workmanship. It is understood and agreed that QED shall in no event be liable for incidental or consequential damages resulting from its breach of any of the terms of this agreement, nor for special damages, nor for improper selection of any product described or referred to for a particular application.

This warranty will be void in the event of unauthorized disassembly of component assemblies. Defects in any equipment that result from abuse, operation in any manner outside the recommended specification procedures, use and applications other than for intended use, or exposure to chemical or physical environment beyond the designated limits of materials and construction will also void this warranty.



Defects in any equipment that result from failure to install it in accordance with the Operation & Installation Manual will also void this warranty

Chemical attack of liquid contacting equipment and supplies shall not be covered by this warranty. A range of materials is available from QED and it is the Buyer's responsibility to select materials to fit the Buyer's application. QED will only warrant that the supplied liquid contacting materials will conform to published QED specifications and generally accepted standards for that particular material.

Exposure of equipment to temperatures in excess of 180⁰ degrees F shall void this warranty

ILLUSTRATIONS AND DRAWINGS

Reasonable Effort has been made to have all illustrations and drawings accurately represent the product(s) as it actually was at the time of doing the illustrations and drawings.

However, products may change to meet user requirements and therefore may not be reflected in the literature. In addition, literature may be up-dated to reflect the most recent equipment revision(s). Changes to either or both equipment and/or literature can be made without notice.

CHANGES WITHOUT NOTICE

Prices and Specifications are subject to change without notice.

SHIPPING DATES

Shipping dates are approximate and are subject to delays beyond our control.

F.O.B. POINT AND TITLE

All material is sold F.O.B. factory. Title to all merchandise sold shall pass to Buyer upon delivery by Seller to carrier at factory. All freight insurance is the responsibility of the Buyer and shall be charged to the Buyer on the invoice unless directed in writing. All Freight claims are the Buyer's responsibility.

TERMS

Payment terms are net 30 days; 1.5% per month past due.

STATE AND LOCAL TAXES

Any taxes, duties or fees which the seller may be required to pay or collect upon or with respect to the sale, purchase, delivery, use or consumption of any of the material covered hereby shall be for the account of the Buyer and shall be added to the purchase price.

ACCEPTANCE

All orders shall be subject to the terms and conditions contained or referred to in the Seller's quotation, acknowledgments, and to those listed here and to no others whatsoever. No waiver, alteration or modification of these terms and conditions shall be binding unless in writing and signed by an executive officer of the Seller. All orders subject to written acceptance by QED Environmental Systems Inc., Ann Arbor, MI, U.S.A.

QED ENVIRONMENTAL SYSTEMS INC.
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Ann Arbor, MI 48103
USA

(800) 624-2026 Toll-Free in North America
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