

SIMFLO

SUBMERSIBLE PUMP INSTALLATION, OPERATION & MAINTENANCE MANUAL



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SIMFLO

TERMS AND CONDITIONS

SIMFLO., is herein referred to as the "SELLER" and the customer or entity purchasing goods (Goods) from the Seller is referred to as the "BUYER". The Terms and Conditions herein set forth and the Seller's Response, hereafter "QUOTATION" to Buyer's purchase order to which a copy of these Terms and Conditions are attached and incorporated in the Quotation constitutes the complete and exclusive statement of the Terms and Conditions upon which Seller is agreeing to sell to Buyer the goods described in the Quotation. Any terms and conditions set forth in Buyer's purchase order which are different or inconsistent with the Quotation, including Seller's Terms and Conditions of the sale, are rejected. Buyer will furnish written confirmation (electronic, computer or other commercially accepted communication) of acceptance of the conditions of the sale as set forth in the Quotation to Seller. Seller reserves the right in its sole discretion to refuse any order.

1. PRICES: Prices for Goods are subject to change without notice based on the following: Any change in price will be adjusted to reflect subsequent changes in the cost to Seller of sub-suppliers materials, supplies or other increases and will be based on prices in effect at the time of the requested shipment date and each shipment will be invoiced at such price. All prices are exclusive of and do not include taxes, transportation or insurance costs; all such costs are the responsibility of and shall be paid by Buyer.

2. TAXES: Any current or future tax or government charge (or increase in same) affecting Seller's costs of production sale, or delivery or shipment, or which seller is otherwise required to pay or collect in connection with the sale, purchase, delivery, storage, processing, use of consumption of Goods, shall be for Buyer's account and shall be added to the price or billed to Buyer separately, at Seller's election.

3. ARBITRATION: Seller And Buyer agree that any controversy or claim, excluding collections and past due accounts, arising out of or relating to the agreement to sell Goods or the breach thereof, shall be submitted to mandatory arbitration in accordance with the Commercial Arbitration Rules of the American Arbitration Association and the arbitration Award or Dispositive Order shall be final and binding and may be entered in any court of competent jurisdiction in the State of Arizona. The exclusive place of arbitration shall be within Cochise County, State of Arizona and the parties submit to such jurisdiction. Collections and past due accounts may be filed in the appropriate court located in Cochise County, Arizona, and Buyer submits to the exclusive venue and jurisdiction of said Cochise County, Arizona.

4. TERMS OF PAYMENT: Unless otherwise specified by Seller, terms are net thirty (30) days from date of Seller's invoice in U.S. currency. Seller may at its option, require copies of pertinent contracts, financial statements and other documents relative to any given sale in order to evaluate Buyer's credit status or the credit status of any third party with whom Buyer has a contractual relationship concerning the Goods to be furnished to Buyer. Failure or delay in delivery of this information will postpone production release and may bring about price escalation. Seller shall have the right, among other remedies, either to terminate this agreement or suspend further performances under this and/or other agreements with Buyer in the event Buyer fails to make any payment when due, which other agreements Buyer and Seller hereby amend accordingly. Buyer shall be liable for all expenses, including attorneys' fees, relating to the collection of past due amounts. If any payment owed to Seller is not paid when due, it shall bear interest, at a rate to be determined by Seller, which shall not exceed the maximum rate permitted by law, from the date on which it is due until it is paid. Should Buyer's financial responsibility become unsatisfactory to Seller, cash payments or security satisfaction to Seller may be required by Seller for future deliveries and for the Goods sold to Buyer by Seller, which security interest shall continue until all such Goods are fully paid for in cash, and Buyer, upon Seller's demand, will execute and deliver to Seller such instruments as Seller requests to protect and perfect such security interest. Payment by Buyer shall not be conditional upon Buyer receiving payment from any third party.

5. SHIPMENT AND DELIVERY: While Seller will use all responsible commercial effort to maintain the delivery date(s) acknowledged or quoted by Seller, all shipping dates are proximate and not guaranteed. Shipment dates are best estimates only at time of proposal and subject to change based on manufacturing load and sub-supplier schedules at Sellers date of order and/or full release to manufacture. Seller reserves the right to make partial shipments. Seller, at its option, shall not be bound to tender delivery of any Goods postponed or delayed by Buyer for any reason. Buyer agrees to reimburse Seller for any and all storage costs and other additional expenses resulting therefrom. Risk of loss and legal title to the Goods shall transfer to Buyer for sales in which the end destination of the Goods is outside the United States immediately after the Goods have passed beyond the territorial limits of the United States. For all other shipments, risk of loss for damage and responsibility shall pass from Seller to Buyer upon delivery to and receipt by carrier at Seller's shipping point. All shipments are F.O.B. Seller's shipping point. Any claims for shortages or damages suffered in transit are the responsibility of the Buyer and shall be submitted by Buyer directly to the carrier. Shortages or damages must be identified and signed for at the time of delivery. Seller is not responsible for any such shortages or loss.

6. LIMITED WARRANTY: Subject to the limitations of Section 7, Seller warrants that the Goods manufactured by Seller will be free from defects in material and workmanship and meet Seller's published specifications at the time of shipment under normal use and regular service and maintenance for a period of eighteen months from the date of shipment of the Goods by Seller, or one year from start-up whichever occurs first, unless otherwise specified by Seller in writing. Products and Special Coating Applications purchased by the Seller from a third party for resale to Buyer ("Resale Products") shall carry only the warranty extended by the original manufacturer or supplier. ANY ITEM OF THE PRODUCT(S) WHICH IS NOT MANUFACTURED OR APPLIED BY SELLER IS NOT WARRANTED BY SELLER and shall be covered only by the express warranty, if any, of the manufacturer or applicator thereof. **THE WARRANTY SET FORTH IN THIS SECTION 6 AND THE WARRANTY SET FORTH IN SECTION 7, ARE THE SOLE AND EXCLUSIVE WARRANTIES GIVEN BY SELLER WITH RESPECT TO THE GOODS AND ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES, EXPRESS OR IMPLIED ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHETHER OR NOT THE PURPOSE OR USE HAD BEEN DISCLOSED TO SELLER IN SPECIFICATIONS, DRAWINGS OR OTHERWISE, AND WHETHER OR NOT SELLER'S PRODUCTS ARE SPECIFICALLY DESIGNED AND/OR MANUFACTURED BY SELLER FOR BUYER'S USE OR PURPOSE.**

This warranty does not extend to any losses or damages due to misuse, accident, abuse, neglect, normal wear and tear, negligence (other than Seller's), unauthorized modification or alteration, use beyond rated capacity, unsuitable power sources or environmental conditions, improper installation, repair, handling, maintenance or application or any other cause not the fault of the Seller. To the extent that Buyer or its agents has supplied specifications, information, representation of operating conditions or other conditions or other data to Seller in the selection or design of the Goods and the preparation of Seller's quotation, or in the event that actual operating conditions or other conditions differ from those represented by Buyer, any warranties or other provisions contained herein which are affected by such conditions shall be null and void. Equipment performance is not warranted unless separately agreed to by the Seller. Seller manufactures engineered to order products based on the design point specified by the buyer. Warranty on performance results will be based on laboratory tests performed at Sellers location. Due to the inaccuracies of field testing, any conflicts between the results of field testing conducted and laboratory tests, laboratory tests will control. No equipment will be furnished on the results of field testing.(See Section 13) If within thirty (30) days after Buyer's discovery of any claimed warranty defects within warranty period, Buyer notifies Seller thereof in writing; Seller shall, at its option and as Buyer's exclusive remedy, repair, correct, replace or refund the purchase price for, that portion of the Goods found by Seller to be defective. Failure by Buyer to give such written notice within the applicable time period shall be deemed absolute and unconditional waiver of Buyer's claims for such defects. Seller shall have the right to require the Buyer to deliver the Goods to Seller's designated repair center or manufacturing facility. All responsibility and expense associated with removal, dismantling, reinstallation and transportation to and from Seller's designated repair center or manufacturing facility and the time and expense of Seller's personnel and representatives for site travel and diagnosis under this warranty shall be borne by the Buyer. Goods repaired or replaced during the warranty period shall be covered by the foregoing warranty for the remainder of the original warranty period or ninety (90) days from the date of shipment, whichever is longer. Buyer assumes all other responsibility for any loss, damage, or injury to persons or property arising out of, connected with, or resulting from the use of Goods, whether alone or in combination with other products/components.

Section 6 & 7 apply to any entity or person, who may buy, acquire or use the Goods, including entity or person who obtain Goods from Buyer and shall be bound by limitations therein. Buyer agrees to provide such subsequent transferee conspicuous, written notice of the provisions of Section 6 and 7.

7. LIMITATION OF REMEDY AND LIABILITY: THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY WARRANTY HEREUNDER SHALL BE LIMITED TO REPAIR, CORRECTION OR REPLACEMENT, OR REFUND OF THE PURCHASE PRICE UNDER SECTION 6. SELLER SHALL NOT BE LIABLE FOR DAMAGES CAUSED BY DELAY IN PERFORMANCE AND THE REMEDIES OF BUYER SET FORTH IN THIS AGREEMENT ARE EXCLUSIVE. IN NO EVENT, REGARDLESS OF THE FORM OF THE CLAIM OR CAUSE OF ACTION (WHETHER BASED IN CONTRACT, INFRINGEMENT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE), SHALL SELLER'S LIABILITY TO BUYER AND/OR

ITS CUSTOMERS EXCEED THE PRICE PAID BY BUYER FOR THE SPECIFIC GOODS PROVIDED BY SELLER GIVING RISE TO THE CLAIM OR CAUSE OF ACTION. BUYER AGREES THAT IN NO EVENT SHALL SELLER'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS EXTEND TO INCLUDE INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES.

The term "consequential damages" shall include but not be limited to, loss of anticipated profits, business interruption, loss of use, revenue, liquidated damages, production impacts, loss of production or progress of construction, reputation and data, cost incurred, included without limitation, for capital fuel power and loss or damage to property or equipment. Its is expressly understood that any technical advice furnished by Seller with respect to the use of the Goods is given without charge, and Seller assumes no obligation or liability for the advice given, or result obtained, all such advice being given and accepted at Buyer's risk.

8. EXCUSE OF PERFORMANCE: Seller shall not be liable for delays in performance or for non-performance due to acts of God; acts of Buyer; war; fire; flood; weather; sabotage; strikes; or labor disputes; civil disturbances or riots; governmental requests, restrictions, allocations, laws, regulations, orders or actions; unavailability of or delays in transportation; default of suppliers; or unforeseen circumstances or any events or causes beyond Seller's reasonable control. Deliveries or other performances may be suspended for an appropriate period of time or canceled by Seller upon notice to Buyer in the event of any occurrence of the foregoing, but the balance of the agreement shall otherwise remain unaffected as a result of the foregoing. If Seller determines that its ability to supply the total demand for the Goods or to obtain material used directly or indirectly in the manufacture of the Goods, is hindered, limited or made impracticable due to causes set forth in the preceding paragraph, Seller may allocate its available supply of the Goods or such material (without obligation to acquire other supplies of any such Goods or material) among itself and its Buyers on such a basis as Seller determines to be equitable without liability for any failure of performance which may result therefore.

9. CANCELLATION: Buyer may cancel orders only upon reasonable advance written notice and upon payment to Seller of Seller's cancellation charges, which include, among other things, all cost and expenses incurred, including cost of commitments made, by the Seller and a reasonable profit thereon. Seller's determination of such termination charges shall be conclusive.

10. CHANGES: Buyer may request changes or additions to the Goods consistent with the Seller's specifications and criteria. In the event Seller accepts such changes or additions, Seller may revise the price and dates of delivery. Seller reserves the right to change design and specifications for the Goods without prior notice to the Buyer, except with respect to Goods being made to-order for Buyer. Seller shall have no obligation to install or make such change in any Goods manufactured prior to the date of such change.

11. NUCLEAR/FIRE/MEDICAL: GOODS SOLD HEREUNDER ARE NOT FOR USE IN CONNECTION WITH ANY NUCLEAR, FIRE SYSTEMS, MEDICAL, LIFE-SUPPORT AND RELATED APPLICATIONS. Buyer accepts Goods with the foregoing understanding, agrees to communicate the same in writing to any subsequent purchasers or users and to defend, indemnify and hold harmless Seller for any claims, losses, suits, judgments and damages, including incidental and consequential damages, arising from such use, whether the cause be based in tort, contract or otherwise, including allegations that the Seller's liability is based on negligence or strict liability.

12. ASSIGNMENT: Buyer shall not assign its rights or delegate its duties hereunder or any interest herein without the prior written consent of Seller, and any such assignment, without such consent, shall be void.

13. INSPECTION/TESTING: Buyer at its option and expense may inspect and observe the testing by Seller of the Goods for compliance with Seller's standard test procedures prior to shipment, which inspection and testing shall be conducted at Seller's plant at such reasonable time as is specified by Seller. Any rejection of the Goods must be made promptly by Buyer before shipment. Test shall be deemed to be satisfactorily completed and the test fully met when the Goods meet Seller's criteria for such procedures. Acceptance by Buyer or Buyer's representative of any witnessed testing or coatings will preclude any future rejection.

14. STANDARD, TOLERANCE: Except in particulars specified by the Buyer expressly agreed to in a writing signed by Seller, the goods furnished hereunder are produced in accordance with the standard manufacturing practices at the country of origin. All materials are subject to mill tolerances and variations, consistent with normal manufacturing practice with respect to dimension, weight, straightness, section, composition and mechanical properties, normal variations in surface and internal conditions and in quality to deviations in tolerances and variations consistent with practical testing and Seller is not responsible for any deterioration in quality.

15. DRAWINGS: Seller's prints and drawings (including without limitation, the underlying technology) furnished by Seller to Buyer in connection with Seller's Quotation are the property of Seller and Seller retains all rights, including without limitation, exclusive rights of use, license, and Buyer shall return all copies (in whatever medium) of such prints or drawings to Seller immediately upon request therefore.

16. EXPORT/IMPORT: Buyer agrees that all applicable import and export control laws, regulations, orders and requirements, including without limitation those of the United States and European Union, and the jurisdictions in which the Seller and Buyer are established or from which the Goods may be supplied, will apply to their receipt and use, in no event shall Buyer use, transfer, release, import, export, Goods in violation of such applicable laws, regulations, orders or requirements.

17. GENERAL PROVISIONS: These terms and conditions supersede all other communications, negotiations, and prior oral or written statements regarding the subject matter of these terms and conditions. No change, modification, rescission, discharge, abandonment, or waiver of these terms and conditions shall be binding upon the Seller unless made in writing and signed on its behalf by a duly authorized officer of Seller. No conditions, usage of trade, course of dealing or performance, understanding or agreement purporting to modify, vary, explain, or supplement these terms and conditions shall be binding unless hereafter made in writing and signed by the party to be bound, and no modification or additional terms shall be applicable to this agreement by Seller's receipt, acknowledgement, or acceptance of purchase orders, shipping instruction forms, or other documentation containing terms at variance with or in addition to those set forth herein. Any such modifications or additional terms are specifically rejected and deemed a material alteration hereof. If this document shall be deemed an acceptance of a prior offer by Buyer, such acceptance is expressly conditional upon Buyer's assent to any additional or different term set forth herein. There is no waiver by either party with respect to any other breach or default or of any other right or remedy, unless such waiver be expressed in writing and signed by the party to be bound. All typographical or clerical errors made by Seller in any quotation, acknowledgement or publication are subject to correction. The validity, performance, and all other matters relating to the interpretation and effect of this agreement shall be governed by the laws of the State of Arizona without regard to its conflicts of law principles. No action, regardless of form, arising out of transactions relating to this contract, may be brought by either party more than two years after the cause of action has accrued. The U.N convention on contracts for the International Sales of Goods shall not apply to this agreement.

18. TITLE AND INSURANCE: Title to the Goods and risk of loss or damage shall pass to Buyer at the f.o.b. point, except that a security interest in the Goods and proceeds and any replacement shall remain in Seller, regardless of method of attachment to realty or other property, until the full price has been paid in cash. Buyer agrees to do all acts necessary to perfect and maintain said security interest, and to protect Seller's interest by adequately insuring the Goods against loss or damage from any external cause with Seller named as insured or co-insured. Seller and Buyer agree to maintain liability insurance in commercially reasonable amounts covering claims of any kind or nature for damage to property or personal injury including death by anyone that may arise from activities performed or facilitated by this contract, whether these activities are performed by that company, its employees, agents, or anyone directly engaged or employed by that party or its agents. Evidence of an in force policy of liability insurance will be exchanged by the parties prior to shipment of the goods.

OPERATION & MAINTENANCE MANUAL

A. OPERATION

Normally a unit has been selected and built to operate for a specific set of conditions (head in feet and capacity in gallons) to give maximum efficiency. Some variation, an increase or decrease of head, will not make an appreciable difference in the efficiency. However, a wide variation in head will not only show up as efficiency loss, but possibly as a horsepower, or thrust bearing overload.

1. When a unit is first started, a new well may produce considerable amounts of sand, despite the fact it had been sand pumped after drilling. The discharge should be throttled back to where this is cut down to a minimum, then gradually opened up to full discharge as the sand disappears. This operation may last from a matter of minutes to several days. If the sand flow shows no signs of stopping, the well must be reworked to screen out the sand or smaller capacity unit installed. Continued sand pumping will result in increased pump wear which in turn will show up as increased efficiency loss. Excessive wear can cause the pump bowls to be un-repairable and seriously affect motor performance and longevity.
2. Some wells will always produce a small amount of sand at start-up. Therefore, depending on the operation, it may then be necessary to bypass or trap out this first flow each time, particularly if a closed piping system is used.
3. If the unit is coupled into a hydro-pneumatic pressure system, the set-up must be so designed that it will not become "water-logged" (loss of air through water absorption, without re- placement) and yet not receive too much air at each start-up.
4. On any system, automatic or manual, the maximum number of starts on a motor should be controlled to six (6) per hour.
5. A time delay relay must be installed when any type of automatic system is used in order to prevent starting of the motor while it is spinning backwards due to column drain- back through the pump. A three minute time delay relay is normally adequate. This provides a safety measure in the event a failure in the automatic control system creates a rapid recycle series. It also provides a time period for the rotating element of pump and motor to stop, after reverse rotation due to vertical discharge column drain-back.
6. A well should always be provided with means for determining the static water level, and pumping level. A good airline, with depth gauge, is generally the most simple and practical, particularly when installed with the unit.
7. When a unit is known to be set near to the bottom of a well, a close check should be kept to make sure that the well does not sand-up (fill in) around the motor. This is entirely possible without any noticeable effect in pumping or motor operation. However, the motor is dependent on adequate cooling from water, and any sanding up around it would eventually create overheating, resulting in at least shortened life, if not a burnout. There are additional pump features that can be added to cover this problem if it cannot be cured by well work.
8. A unit should not be run at closed valve for any long period of time as virtually all the energy created then dissipates in heat in the pump. This condition has been known to have practically "boiled" the water in the well and created an overheating problem for the motor.

B. MAINTENANCE

1. A faithful periodic check test as indicated by the test card will prove beneficial to the prolonged life and satisfactory operation of the unit. Such records will provide the information necessary to determine when preventive maintenance should be undertaken.
2. If the unit has "shut-off" and the reason cannot be traced to a POSITIVE external source, DO NOT attempt to start the unit without first "megging" the motor. Shut off the power at the disconnect switch, disconnect the motor cable leads from the starter and "meg" them to ground (the well casing). This should be done whether just the overload or circuit breaker have "kicked" out, or a fuse has blown. NEVER just reset or replace fuses and attempt to start without FIRST "megging" the unit.

C. INSTALLATION

I. Inspect Shipment For Damage

1. A physical check of all equipment should be made against the packing list and inspect for obvious damage incurred during shipping.
2. Immediately report any damages to carrier and SIMFLO Dealer from whom pump was purchased.

II. Arrange Parts For Orderly Assembly and Installation

1. An orderly arrangement of submersible assemblies will reduce installation time.
 2. The part requiring installation first should be laid out nearest the well and others in their order of installation as follows:
 - A. Motor w/Sub. Wire
 - B. Pump Assembly
 - C. Column Pipe
 - D. Discharge Head
 - E. Pump Panel
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III. Location of Check Valves

1. With pump setting of less than 400 feet, install a check valve 20' above pump bowls; a check valve at the top of the well; and an intermediate check valve halfway between the top and bottom valves.
2. With pump setting of 400 feet or greater, follow instructions as above using additional intermediate check valves to provide valve spacing that does not exceed 200 feet.
3. CAUTION: Be sure that check valves are threaded in place so that the flow is going in the upward position.

IV. Installing Pump Assembly

1. Lift motor vertically and lower into well, resting the motor on the "U" plate.
2. Make temporary electrical connection to motor, bump starter to determine correct rotation (counter clockwise as viewed from above). *If power is not available, DO NOT make drive shaft connections (Step 4) until power is available and correct rotation is determined.*
3. With the motor suspended in the well, on the "U" plate attach an elevator or clamps to pump end, lifting it vertically over the motor.
4. Carefully align the motor coupling with the motor shaft, while lowering the pump end onto the motor.
5. Replace all cap-screws and lock-washers furnished with the pump and bolt up tightly.

V. Lowering Pump Assembly Into Well

1. The submersible wire should be supported by the column pipe, steel bands should be placed at intervals of 10-12 feet, care should be taken not to pinch the submersible wire.
2. The first piece of column should be attached to the bowl assembly and then lowered into the well, placing steel bands on the submersible wire as indicated in Step 1.
3. Be sure that column pipe joints are not cross threaded and are pulled up tight.
4. Care should be taken not to let the submersible cable drag downward over the edge of the well casing.
5. Check valves should be installed as instructed.
6. The discharge head should then be installed after desired depth has been reached. The submersible cable should then be threaded through the cable hole on the discharge head, care being taken not to pinch the cable.

FIELD TESTS

When a field test of the pump's performance is required, make the following readings: Volume, Total Head and Horsepower Measurements, Rotating Speed and Liquid Temperature. Compare the results of the field test with the performance curve for your pump.

All volume, total head and efficiency guarantees are based on shop test when handling clear, cold, fresh water at a temperature not exceeding 85° F. and under specified suction conditions.

(1) Volume (Capacity) Measurement - Measure the rate of flow from the pump discharge in gallons per minute. The volume measurement may be made using any one of the following pieces of equipment: A calibrated Venturi meter, a thin-plate calibrated orifice, a calibrated pilot tube, or an accurately measured reservoir.

(2) Total Head Measurement - The total pumping head consists of: distance from the water level in the sump (when pumping) to the center of the discharge pressure gauge, plus the discharge gauge reading and the velocity head at the discharge. Convert pressure gauge reading to feet of liquid by multiplying the reading times 2.31 times the Specific Gravity of Liquid.

(3) Horsepower Measurement - Measure horsepower consumption of the pump by a direct reading of a wattmeter and applying the reading to the following formula.

$$\text{Horsepower Formula: } \text{BHP} = \frac{\text{KW Input} \times \text{Eff}_1}{0.746}$$

Where:

BHP = brake horsepower delivered
KW Input = real input power (KW)
Eff₁ = motor efficiency

*The motor efficiency can be determined from dynamometer tests or as supplied by motor manufacturer.

Pump Efficiency Formula: $\text{Pump Efficiency} = \frac{\text{GPM} \times \text{TDH} \times \text{Sg}}{3960 \times \text{BHP}}$

Where:

GPM = gallons per minute
TDH = total dynamic head
Sg = specific gravity of liquid
BHP = brake horsepower

SUCTION LIFT - When total suction head is below atmospheric pressure. Suction lift is determined by reading a liquid manometer or gauge in suction line (convert reading to feet of liquid) then subtracting the velocity head at point of gauge attachment.

POSITIVE (TOTAL) SUCTION HEAD - When total suction head is above atmospheric pressure. Total suction head is determined by reading a liquid manometer or gauge at pump suction nozzle (convert reading) then adding the velocity head at point of gauge attachment.

VELOCITY HEAD - Velocity is determined by dividing the flow (express in cubic ft. per second) by actual area of pipe cross section (express in square feet) at point of gauge attachment. Velocity head is the velocity of the liquid squared over 2g.

Formula: $h_v = \frac{V^2}{2g}$

Where:

h_v = velocity head
V = velocity in pipe in ft/sec. = $\frac{409 \times \text{GPM}}{\phi^2}$
 ϕ = pipe inside diameter
g = 32.17 ft/sec²

DRAWDOWN - Is the natural drop in water level after starting pump operation. The amount of drawdown must be known to make sure the pump bowl is completely submerged below the minimum required pumping level of water in the sump.

SEE FOLLOWING PAGE FOR PERIODIC TEST RECORD SHEET

SIMFLO - PERIODIC TEST RECORD

NEXT CHECK DATE										
ACTUAL CHECK DATE										
CHECK PROCEDURE	#1	#2	#3	#4	#5	#6	#7	#8	#9	
A) Standing Water Level - Ft.										
B) Open Circuit A-B v										
Line B-C v										
Voltage C-A v										
C) Meg. Reading COLD M										
D) Running Voltage A-B v										
B-C v										
C-A v										
E) Pumping Level Ft.										
Pressure Gauge Ft.										
Capacity GPM										
F) Running Current A amp										
at Above Duty B amp										
C amp										
G) Shut- off Head Ft.										
H) Shut-off Current A amp										
B amp										
C amp										
I) Meg. Reading HOT										
(Meg. 5 minutes after 30 minutes run at Duty)										
J) TEST NOTES										
Indicate when due for maintenance and/ or any change of service.										

Stage _____ Pump Type _____ HP _____

Depth of Well _____ Ft.

Depth to Top of Pump _____ Ft.

Duty Capacity of Pump _____ GPM

at _____ Ft. tdh

SALES ORDER NO. _____

UNIT _____

USER _____

REF. _____

Date of Original Installation / /