

Price \$15.00

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Andy & Andy Jr. Series Dosing Pumps

H.E. Anderson Company

Installation & Operation Manual

Model _____

Serial No. _____

Andy & Andy Jr. Series

Thank you for purchasing the Andy or Andy Jr. Series by H.E. Anderson Company. You have purchased a very accurate and dependable dosing pump that will last you many years.

The Andy and Andy Jr. Series are also called DD and DB Series, respectively. We will refer to them as either DD or DB for the remainder of this manual. The DD/DB Series was designed to be very simple to use and operate. We will go through the installation steps a little later in the manual. Providing you do need to order parts, there are part breakdowns in the rear of this manual.

Let's get started with the installation and we hope you enjoy using your new DD/DB Series dosing pump for many years to come.

1. UNPACKING

First and foremost, check the contents of the shipping box for damaged or missing components. If there is damage to any of the components, you should contact the delivering carrier and report the damage. If there are missing parts, please call your distributor.

Below is a list of the parts you should have received:

- (1) DD/DB Dosing Pump(assembled)
- (1) Check Valves & Injection Ftg.
- (1) Foot Valve or Priming Stick
- (1) 8' Piece of Clear Tubing,1/2"
or
- (1) 13' Piece of Black Tubing,3/8"
- (1) 5' Piece of Red Hose,3/4"
- (1) Owners Manual

2. INSTALLATION

The only pipe connections that should have to be made are the inlet and the

outlet connections. The DD has 1-1/4" NPT pipe connections. The DB has 1" NPT pipe connections. You can use other size of adaptors/bushings if you wish. *The DD/DB should be installed in a bypass to allow you to service it if the need arises.*

BE SURE TO CONNECT THE INLET TO THE INLET AND THE OUTLET TO THE OUTLET !!

Now let's connect the other fittings. Refer to the rear of this manual for proper installation of chemical check valves and tubing, as this manual covers all models.

NOTE: THE CHECK VALVE(S) HAVE A YELLOW ARROW STAMPED ON THEM. THESE ARROWS MUST POINT UP WHEN INSTALLED!!

The foot valve or priming stick goes into the chemical tank.

The only thing left is to connect the plastic tubing.

IMPORTANT: The tubing from the chemical tank connects to the lower hose barb on the lower check valve. There will be a short piece of tubing used on the discharge side of the check valve. This short piece connects to the supplied injection point fitting (IPF).

Connect the 3/4" red hose to the hosebarb on the bottom of the pilot valve. There will be waste water emitted from this hose during the pumping cycle. The volume emitted will be approximately three(3) times that of chemical pumped. The water that is emitted is clear, untreated water. This hose must vent to atmosphere and cannot be elevated or restricted.

Andy & Andy Jr. Series

You are now ready to apply power to your DD/DB Series. *Use a power surge protector to help prevent electrical surges from damaging the unit. Power surges, lightning, and other "acts of God" are not covered under the warranty.* The DD/DB Series uses **12VDC** power to operate. Do not run 120VAC directly into the unit. Always, use the supplied transformer when possible. Once you have applied power, we are ready for the initial system check.

3. INITIAL SYSTEM CHECK

After all fittings and tubing are connected and power has been applied, you should watch the lighted indicators located in the cover. Refer to Form PC0400B in the rear of this manual for the following checks. The power light(red) should be on constantly. The flow light(yellow) should flash when there is water flowing. The cycle light(green) flashes when the DD/DB Series makes a pumping cycle (depending on the volume of water flow, it may take several seconds for this light to flash). If these lights are operating correctly, jump to the "SETTING THE PUMPER" section.

If the lights are not operating correctly, immediately unplug the unit and call your distributor to report the problem.

The flow counter (if ordered) will start to count. This counter is resettable and is equipped with a 10 year battery to retain memory.

The DD/DB Series comes equipped with a "Prime/On/Off" button. This will allow you to turn off the injection of chemical, but still use the meter portion of the DD/DB Series. You can still use the counter/totalizer just as before (if supplied).

To turn the injection "off", simply press the button. Injection will stop. To turn the injection "on", simply press the button. Injection will begin when/if the water is flowing. Also, the valve light will flash one time and the DD/DB Series will make a cycle.

NOTE: YOU MUST HAVE AT LEAST 30 PSI OF BACK PRESSURE IN ORDER FOR THE SYSTEM TO OPERATE CORRECTLY!!

4. SETTING THE PUMPER

Use the adjustment knob to set the pumper to the setting of your desire. The pumper is factory calibrated and tested under actual operating conditions prior to packaging.

Your DD/DB Series should now be fully functional!

5. MAINTENANCE & STORAGE

There is very little maintenance required for your DD/DB Series, however, the sections that follow will cover the part(s) that may need servicing. If a part(s) need serviced and is not covered below, you should contact you local distributor or H.E. Anderson Company. **No lubrication is required.** You should, however, check the calibration of the pumper occasionally. Refer to the "PUMPER CALIBRATION" section.

WARNING: YOUR DD/DB UNIT CAN FREEZE. FREEZE DAMAGE IS NOT COVERED UNDER WARRANTY.

If there is a possibility of your water freezing, you should take the necessary precautions to protect the DD/DB Series from freezing.

Andy & Andy Jr. Series

If you remove your DD/DB Series from the line for the winter, be sure to drain the water from it. You should also remove the pumper from the medicator and drain the water from it.

6. SERVICING THE PUMPER

In the rear of this manual you should find an exploded view parts drawing for the pumper (Form HC4am) included with your DD/DB Series. You should refer to the exploded view drawing(s) during the following procedures.

To service the pumper, first turn off the water pressure upstream from the unit.

CHANGING DIAPHRAGM(S)

To change the ***chemical side*** diaphragm, remove the chemical check valves. Use a pan to catch the chemical which might be spilled when the plastic pump head is removed. NOTE: Use precautions when dangerous chemicals are being pumped. Here you should remove the chemical check valves and wash the pump head to remove any remaining chemical.

Remove the screws and plastic pump head. You may have to insert a thin bladed screwdriver in several places to free the diaphragm from the head and cylinder. Turn the stroke adjusting knob until the dial reads 7 or less. Now unscrew and remove the diaphragm.

When you install the new diaphragm, coat the threads of the threaded stud with a graphite lubricant to prevent sticking to the aluminum diaphragm insert (***NOTE: IF THE THREADED STUD COMES OUT IN THE BAD DIAPHRAGM, REMOVE IT AND SCREW IT INTO THE NEW DIAPHRAGM.***) Screw in the new diaphragm until it seats against the water side diaphragm. If the holes in the diaphragm do not line up with the holes in

the cylinder, unscrew the diaphragm until the holes line up. Set the dial to the 10, align the valve holes in the plastic head so the head is vertical, and reinstall the plastic head. After changing a diaphragm you should check the calibration of the pumper and re-calibrate it if necessary.

Before disassembling the pumper, mark the brass flange and cylinder so you can re-assemble them in the same positions. Refer also to the exploded view parts drawing in the rear of this manual for these procedures.

To change the ***water side*** diaphragm, first remove the chemical side diaphragm (See previous paragraphs). Place the small end of the cylinder face down on your work bench. Remove all but two screws, which should be opposite each other. There is a spring with about thirty pounds force pushing the diaphragm against the flange. Carefully follow the following procedure to remove the flange from the cylinder. Support the flange with your hand as the last screws are removed. This will prevent damage to the threaded holes and also prevent the pieces from flying apart.

To reassemble, place the cylinder, large end up, on your workbench. Place the large end of the spring into the cylinder.

Next, lay the water side diaphragm on the flange. Place all the screws through the flange and diaphragm. Align the marks you made on the cylinder and flange. If you did not mark the pieces, the cylinder has a drain hole which is at the bottom. Match this drain hole to the bottom of the flange. Place the flange/diaphragm assembly onto the spring, push the flange and diaphragm down and start all the screws in their holes. Screw the screws

Andy & Andy Jr. Series

down evenly; take care to be sure the flange goes into position without “cocking”. Then tighten all screws securely. Replace the chemical side diaphragm.

To replace the O-ring shaft seal the flange must be removed from the cylinder. Before disassembling the pumper, mark the brass flange and cylinder so you can reassemble them in the same positions.

Carefully remove the screws from around the edge of the flange. Do not leave the cylinder assembly open after the flange has been removed. Place a weight of at least thirty pounds on the exposed diaphragm to hold it in the cylinder. This will prevent damage to the chemical side diaphragm.

Unscrew the screw holding the pad to the stroke shaft. You may now unscrew the shaft and remove it from the flange. If the seal was leaking, inspect the bore in the flange. If the hole is badly damaged, the flange will have to be replaced. Check the O-ring for tears or nicks. When replacing the O-ring, be very careful when stretching it over the threads. You may find it easier to wrap the threads with tape before sliding the O-ring into position; install the O-ring; then removing the tape.

Lubricate the O-ring, shaft, and hole with a silicone lubricant (such as Dow Corning #111 silicone grease). Reinstall the shaft and replace the pad. Screw the pad retaining screw in just enough to allow the pad to revolve, but have no end play. NOTE: Over tightening the screw may cause the shaft to expand, making it difficult or impossible to adjust the chemical feed. Reassemble the pumper according to the procedure in the last

paragraph in the previous section.

7. PUMPER CALIBRATION RECOMMENDED METHOD

You may check the calibration of your pumpers at any time according to the following simple procedure. You may need to temporarily replace the suction line at the suction valve on the pumper if the foot-valve/strainer has been installed as a bulkhead fitting, or is otherwise inaccessible. If this is necessary, be careful not to inadvertently drain your concentrate tank.

When performing this test you will be inserting and withdrawing the suction line from a graduated cylinder or beaker. For accurate results this must not be done during suction strokes. Therefore, you should always insert or withdraw the suction line just after the pump has wasted water.

With the pumper to be tested fully primed and operational, fill the calibrated beaker with the chemical you are feeding. Submerge the suction line in the beaker and let the pumper make one, or possibly several, suction strokes, depending on the capacity and setting of the pumper. Then withdraw the suction line from the beaker and calculate the amount of solution withdrawn.

Andy & Andy Jr. Series

The following models should draw the following amounts at the maximum setting of 10 for each suction stroke.

Model #	Pumper	Max. mL/Stroke
DB100	P2-HC	20mL
DB200	P2-HC	20mL
DB400	A10-VCP	10mL
DB1000	A3-VCP	3mL
DB1200	P1-BA	10mL
DD100	H4-HD	40mL
DD200	H2-HD	20mL
DD400	A10-VCP	10mL
DD1000	A3-VCP	3mL
DD1200	P1-BA	10ml

If the pumper did not draw the correct amount of solution, you may calibrate it according to this simple procedure. Simply adjust the stroke adjustment knob until the pumper withdraws the correct amount.

Then remove the screw which holds the blue dial cover and remove the cover. Carefully lift out the numbered dial and reposition it in the dial holder with the 10 setting at the top.

Be certain that the teeth on the edge of the numbered dial mesh with the teeth of the gear of the stroke adjustment shaft. If necessary, loosen the screw which holds the dial holder to the flange (the screw is located underneath the dial holder, on the side), and reposition the dial holder so the dial meshes properly.

Once the numbered dial is positioned properly, replace the blue dial scale cover. Carefully line up the line in the window with the 10 setting and replace the screw which holds the cover in place. This completes the calibration procedure; Readjust the pumper to the proper setting.

ALTERNATE CALIBRATION METHOD

In some cases it may not be practical to calibrate a pumper in the above manner. This would be especially true when hazardous chemicals are being pumped. There is an alternate calibration method which is generally much safer and simpler, although not as accurate as the preceding method. With this second method the pumper may be calibrated when in actual operation. It does not require a graduated cylinder or any handling of chemicals.

Using this method, you must first turn the pumper completely off. This is done by turning the control knob clockwise as far as possible. This should be done with the pump in actual operation. You will find that the knob turns with great difficulty when the pumper is making a suction stroke. When the pumper is making a pumping stroke the knob will turn relatively easily. Therefore, you should turn the knob only during the pumping strokes, turning it a little at a time, until the knob will turn no farther. If the pump is stroking slowly, you may need only one pumping stroke to turn the pumper completely off.

Once this is done, remove the screw which holds blue dial cover and remove the cover. Carefully lift out the numbered dial and reposition it in the dial holder with the number 0 at the top.

Be certain that the teeth on the edge of the numbered dial mesh with the teeth of the gear of the stroke adjustment shaft. If necessary, loosen the screw which holds the dial holder to the flange (the screw is located underneath the dial holder, on the side), and reposition the dial holder so the dial gear meshes properly.

Andy & Andy Jr. Series

Once the numbered dial is positioned properly, replace the blue dial scale cover. Carefully line up the line in the window with the mark at number 0 and replace the screw which holds the cover in place. This completes the calibration procedure; Readjust the pumper to the proper setting.

8. SERVICING THE CHEMICAL CHECK VALVES

A complete listing of all the types of check valves, foot valves, priming stick, and IPF's is located in the Pumper/Pilot Valve manual on our website at www.heanderson.com.

8.1. MAINTENANCE

Keep the fittings clean. If your unit will be shut down for extended periods they should be flushed with water.

If the check valve(s) stop working, do not disassemble. Instead, remove the entire valve(s) and immerse in mild acid solution for 5-10 minutes. Rinse well and test by suction to the inlet.

If it fails the suction test, the valve must be disassembled. Refer to the Pumper/Pilot Valve manual on our website for a complete parts breakdown of the check valve(s).

Inspect the ball(s) and O-ring seat(s). Replace if any defects are found and reassemble. Inspect the O-rings and gaskets for nicks, tears, or chemical attack. Replace if necessary. Reassemble the valve(s). Test the valve(s) again using suction. If suction test works, attached the valve(s) to the pumper. If the suction test still does not work, replace the check valve(s) or return

to factory for possible repair.

Start the pump and open the air vent on the injection point fitting to ease priming. Close the vent when chemical appears at the drain vent. Your injector system should now be functional.

9. SERVICING THE PILOT VALVE (P/N 19054)

The pilot valve included with your DD/DB Series should need very little service. If, after troubleshooting, it is determined that the pilot valve is at fault, please refer to the Pumper/Pilot Valve manual on our website, www.heanderson.com.

10. TO CONTACT US

If a need or problem arises concerning your DD/DB Series dosing pump, we urge you to contact your local distributor. If you do need to contact H.E. Anderson Company direct, that information is provided below.

H.E. Anderson Company
P.O. Box 1006 (74402)
2100 Anderson Drive
Muskogee, OK 74403
Tel: 1-800-331-9620
Fax: 1-918-682-3342
Website: www.heanderson.com
E-mail: info@heanderson.com

SERIES D TYPICAL INSTALLATION

BOLD LINES INDICATES WHAT IS INCLUDED IN MODEL NUMBERED UNITS. OBSERVE ALL LOCAL CODES- FOR HYPOCHLORINATION A CONTACT TANK (NOT SHOWN) MUST BE PROVIDED.

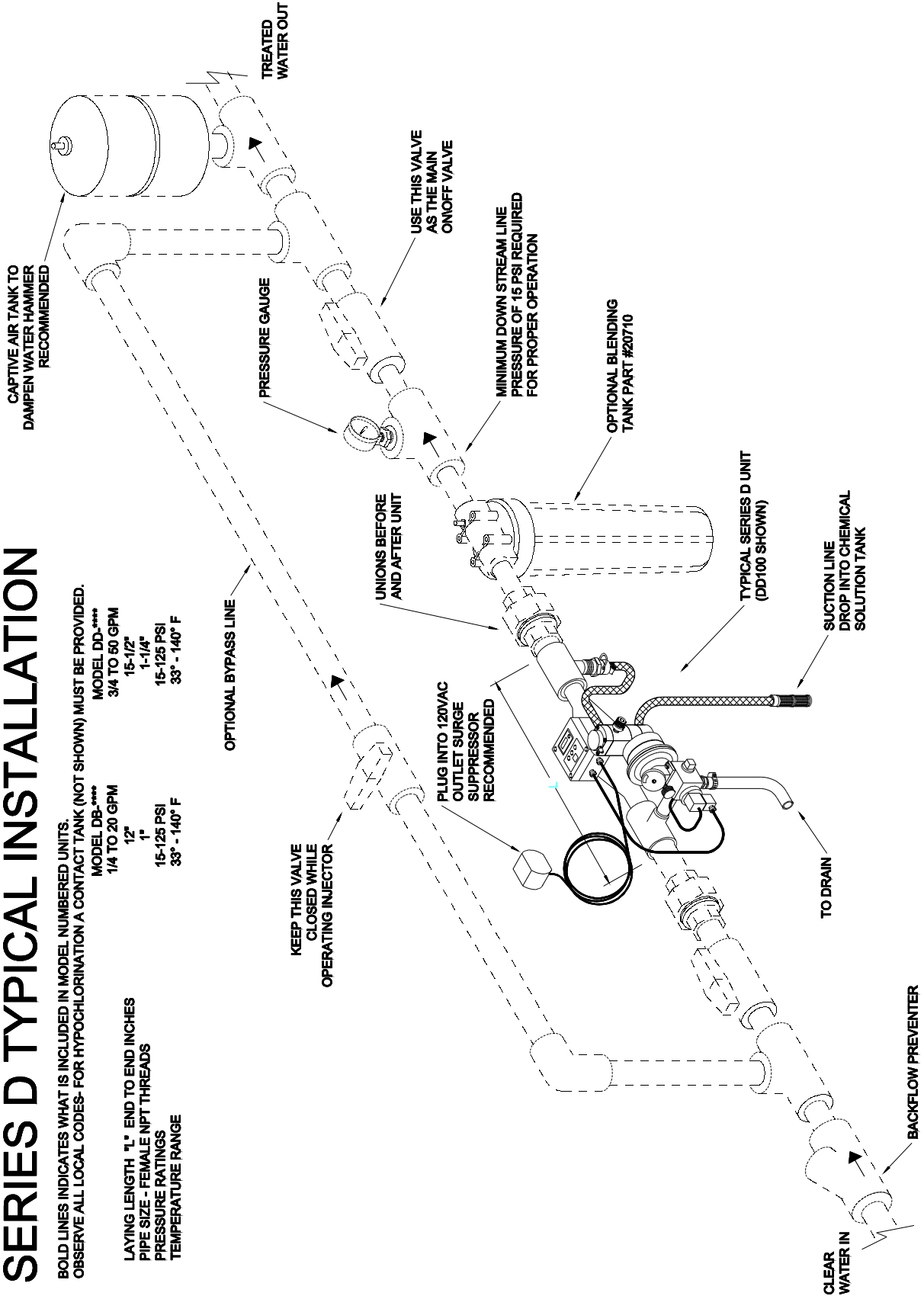
MODEL DB-***
1/4 TO 20 GPM

12"
15-125 PSI
33° - 140° F

MODEL DD-***
3/4 TO 50 GPM

15-1/2"
1-1/4"
15-125 PSI
33° - 140° F

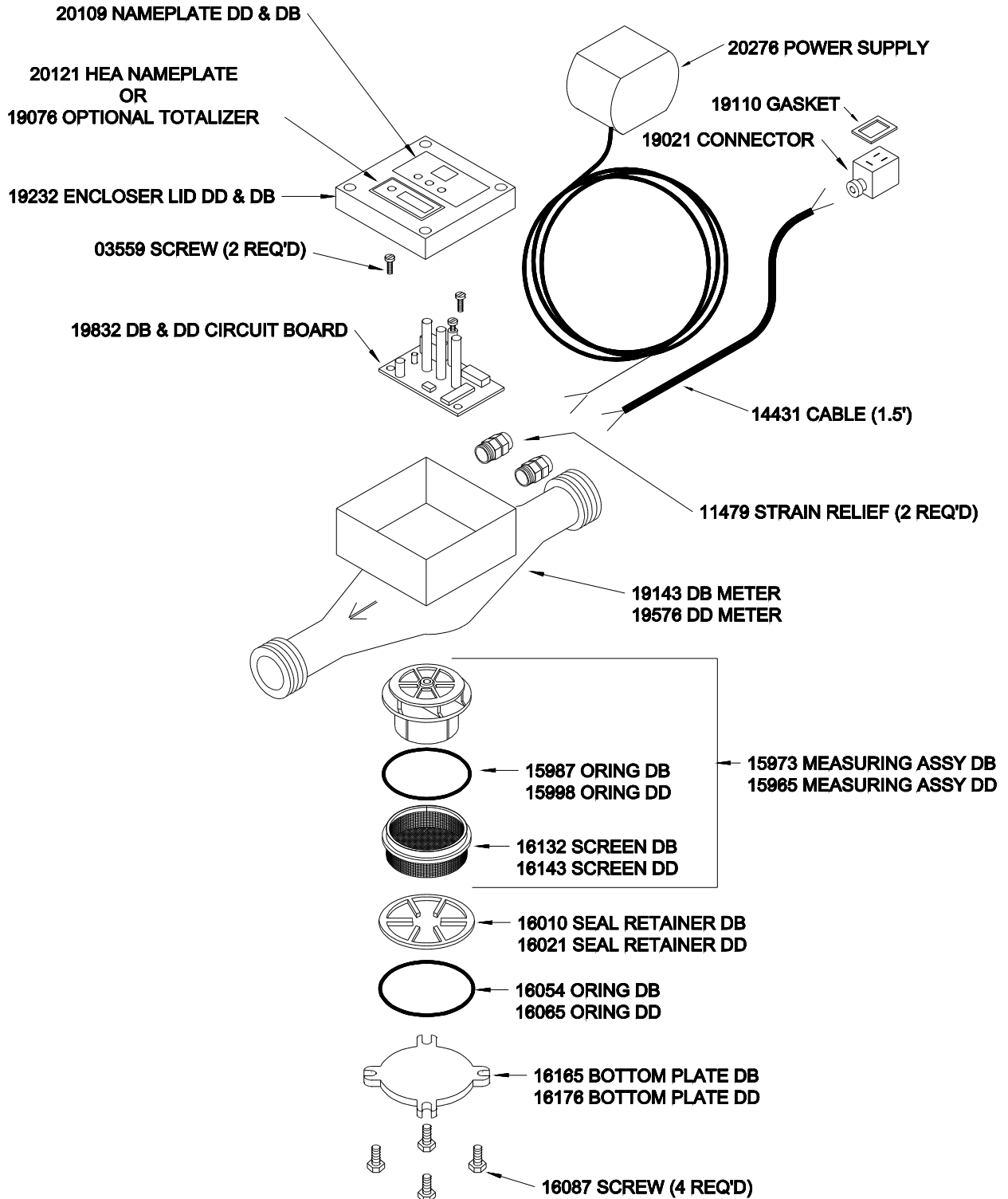
LAYING LENGTH "L" END TO END INCHES
PIPE SIZE - FEMALE NPT THREADS
PRESSURE RATINGS
TEMPERATURE RANGE



Andy & Andy Jr. Series

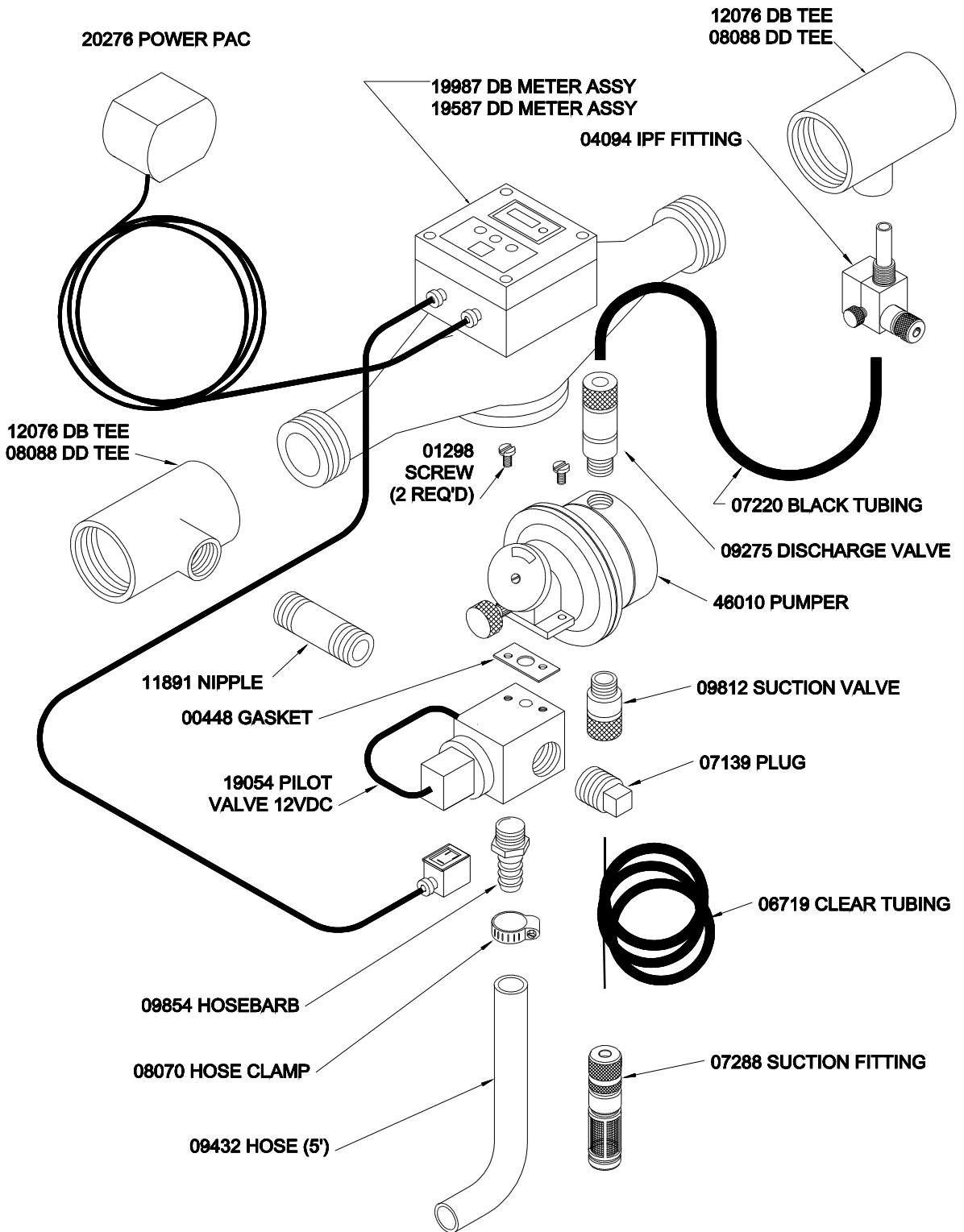
DB & DD SERIES WATER METER BREAKDOWN

PART NUMBER DB = 19987 / DD = 19587



Andy & Andy Jr. Series

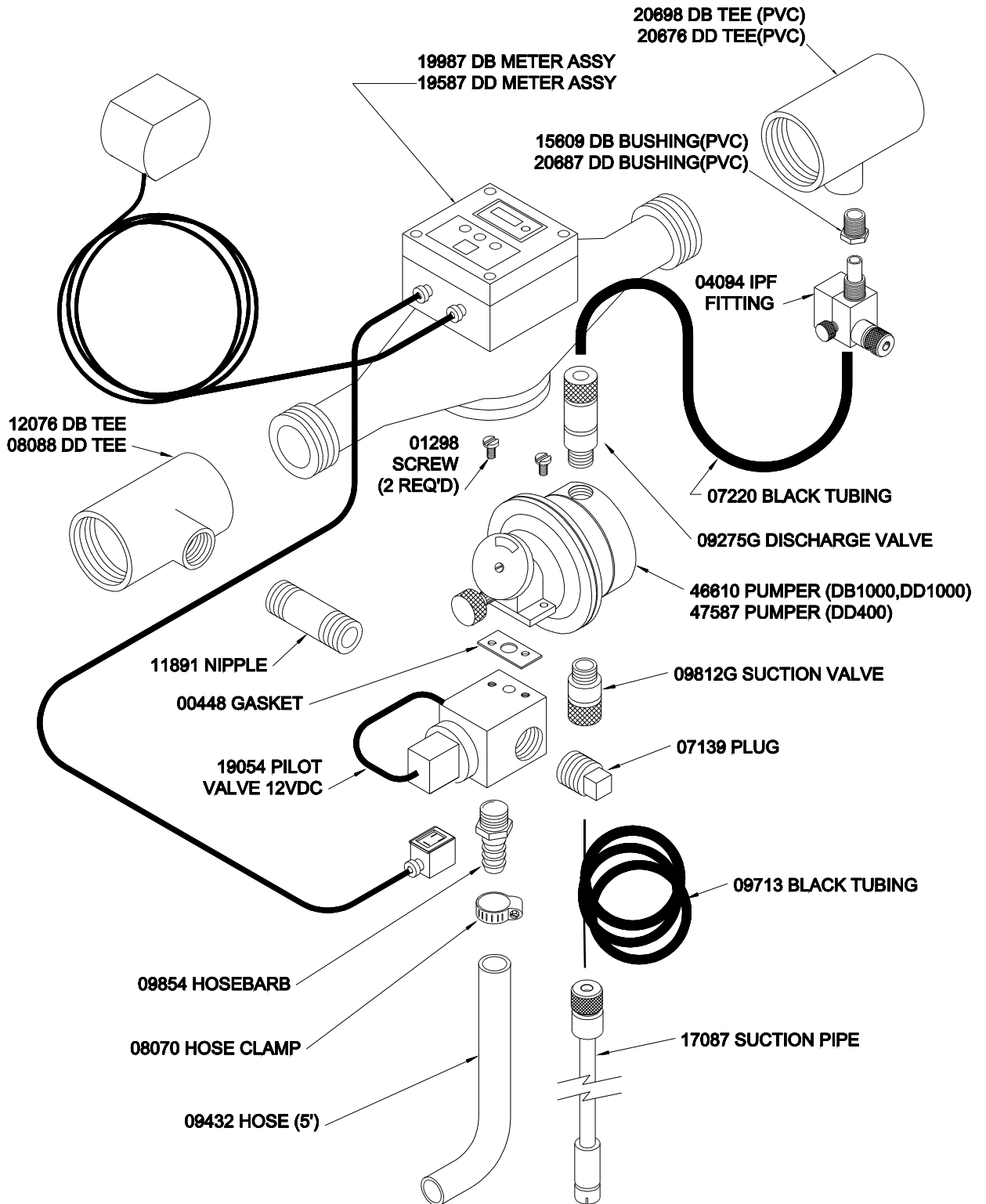
DB UNIT BREAKDOWN MODELS DB100, DB200, & DB400



Andy & Andy Jr. Series

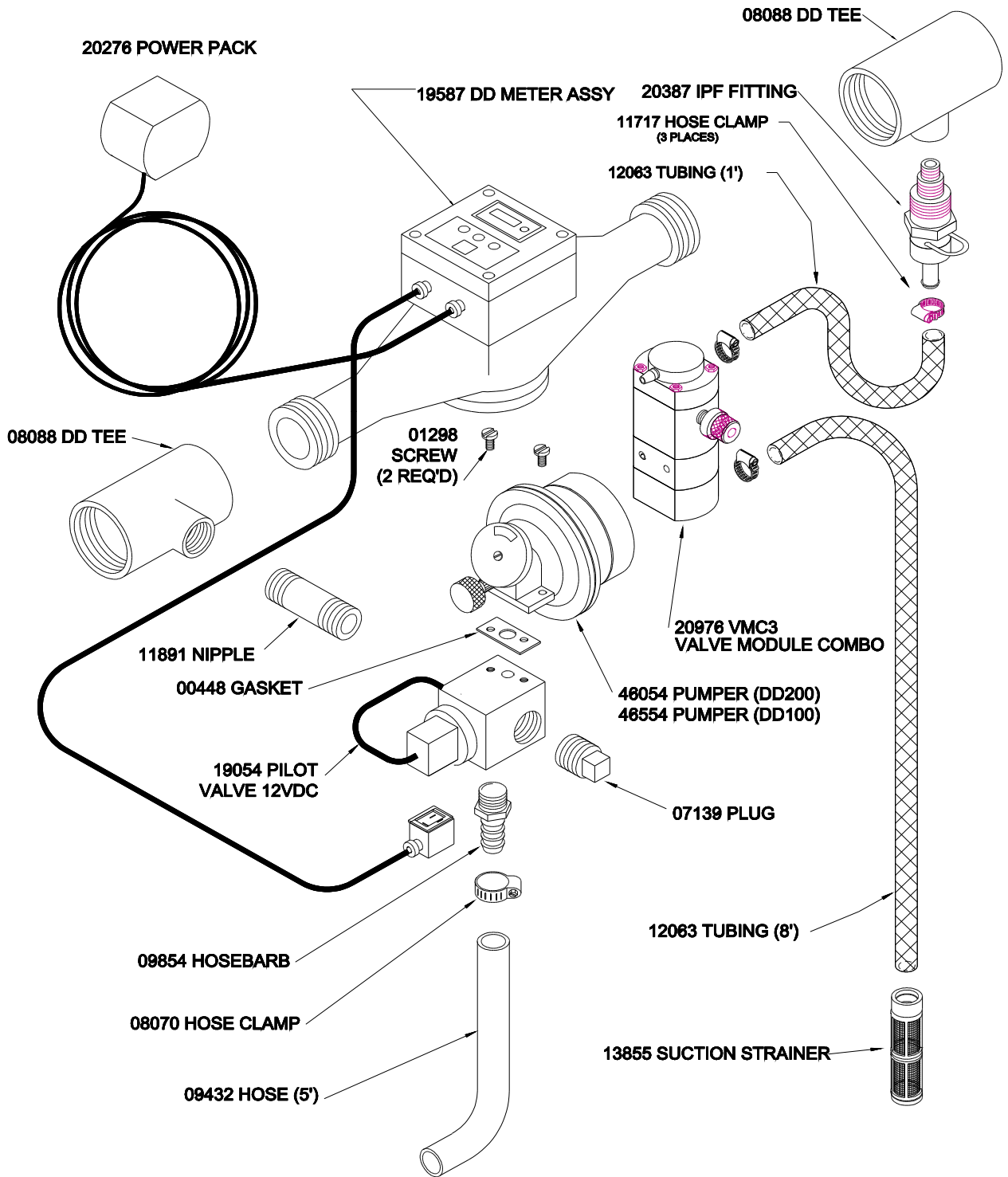
DB & DD UNIT BREAKDOWN

MODELS DB1000, DD400, & DD1000 (ACID UNITS)



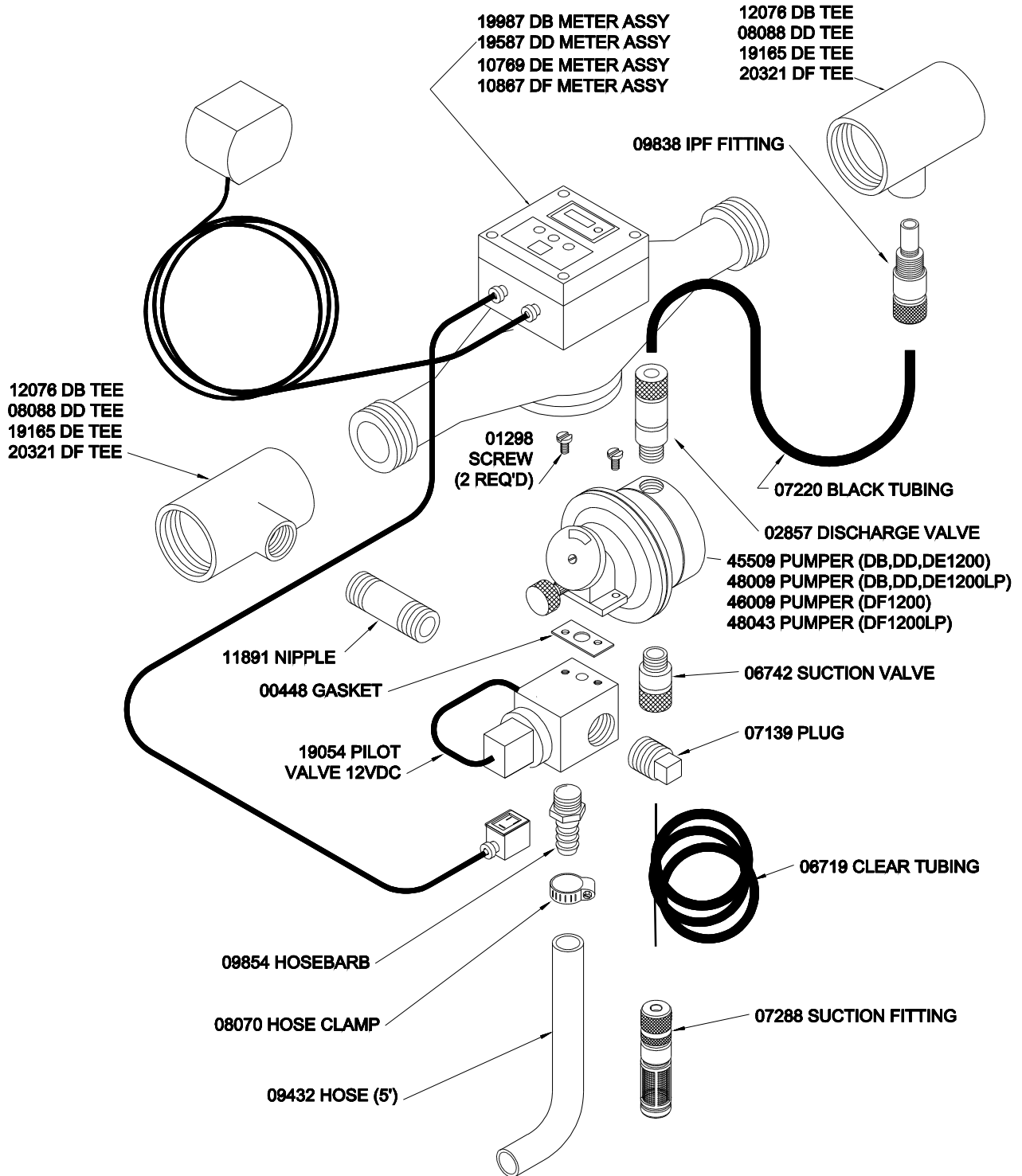
Andy & Andy Jr. Series

DD UNIT BREAKDOWN MODELS DD100 & DD200



Andy & Andy Jr. Series

DB HYPOCHLORINATOR UNIT BREAKDOWN MODELS DB1200, DB1200LP, DD1200, & DD1200LP



PORTA-GRO BATTERY CHARGER - IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS - This document contains important safety and operating instructions for all C-Series battery chargers. Before using the battery charger, please read all instructions and cautionary markings on the battery charger, the battery, and the product using the battery. Some models are plug in type, whilst others are desk top type – the desk top type will have cords.

CAUTION!

To reduce the risk of electric shock:

- Do not expose unit to rain or moisture - use indoors only.
- Do not remove cover. There are no user serviceable parts inside. Refer service to qualified service personnel.
- The plug must be plugged into an outlet that has been properly installed and grounded in accordance with all local and national codes and ordinances.
- Disconnect charger from AC power before attempting any maintenance or cleaning. Turning off controls may not reduce this risk.

WARNING!

- Do not attempt to recharge non-rechargeable batteries. Charge only sealed or valve regulated, lead-acid, non-automotive, maintenance free rechargeable batteries. Attempting to charge other types of batteries may result in personal injury and battery damage.
- The enclosure will become hot during the charge cycle - **DO NOT TOUCH!**
- Connect or disconnect the output connectors only when the unit is disconnected from AC power or arcing and burning may result (due to the possible presence of explosive gases).
- Ensure correct polarity connection: positive (red) to positive, negative (black) to negative.
- Do not leave chargers plugged in when they are not connected to a battery.

DANGER!

- Never make alterations to the charging unit provided. If it will not fit the outlet have a proper outlet installed by a qualified electrician. Improper connection will result in the risk of an electric shock or fire.
- Make sure any cords are located so that they will not be stepped on, tripped over, or otherwise subjected to damage or stress. Do not operate this unit with a damaged cord or plug – replace the complete unit immediately. To reduce the risk of damage to electric plug, pull by plug rather than cord when disconnecting unit.
- Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way. Do not disassemble charger; incorrect reassembly will result in the risk of an electric shock or fire. Refer service to qualified service personnel.

- Recharge batteries in well ventilated areas to prevent build-up of explosive gases. Allow space around the charger and adequate air circulation to reduce internal heat buildup.
- Make sure that the current output of the charger is within recommended parameters for the selected battery as described by the battery manufacturer.
- Always keep children away from charging equipment when it is in use. Do not allow them to handle or play with the chargers when they are not in use.

LED INDICATORS

- **GREEN:** Power On, Float Charge
- **RED:** Fast Charge

GENERAL DESCRIPTION

This unit is designed to automatically switch into a single stage, float charge mode when the battery is charged. This unit is not designed to operate as a standalone power supply. The operating temperature range for C-Series chargers is 32°F - 104°F (0°C - 40°C)

OPERATING INSTRUCTIONS

Before using this battery charger, make sure it is compatible with your battery. Refer to the ratings on the battery charger, the specifications in this manual, and your battery documentation.

The charger (except for PSC-1210000A-C) may be used with input voltages of 110-240 VAC, 50 or 60Hz.

Please note that the PSC-1210000A-C is only available for use with input voltages of 90–132V 60Hz. This charger is ideally suited for batteries from 40-100AH. The charger may also be used for charging batteries from 100-140AH, but the charging time will be increased.

Make sure that the nominal voltage of the charger matches the nominal voltage of the battery.

Plug the charger into the power source before connecting the output leads to the battery. The green LED light indicates that the power is on.

After the battery has been connected to the charger the red LED will light up and the green LED will go off. This indicates that the charger has gone into **Fast Charge** mode.

The green LED will light up again when the charger has switched to **Float** voltage indicating that the battery is close to being fully charged.

CAUTION: TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICE TO QUALIFIED SERVICE

CAUTION: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE UNIT TO RAIN OR MOISTURE.

RATIO:FEEDER® LIMITED WARRANTY

WHAT IS COVERED

The H.E. Anderson Company of Muskogee, Oklahoma, will make any necessary repairs and/or replace any parts of any Ratio:Feeder® product made necessary because of defects in materials or workmanship for fifteen months from date of manufacture. Warranty repairs and/or replacements will be performed without charge to the owner by H.E. Anderson Company within a reasonable time after pre-paid delivery of the defective product to the H.E. Anderson Company, 2100 Anderson Drive, Muskogee, Oklahoma 74403.

WHAT IS NOT COVERED

This warranty specifically excludes failure of any parts or materials caused by chemical attack or damage caused by operation above rated capacity or pressure. Further, this warranty does not cover wear or failure caused by sand or other foreign materials which may be found in water that is passed through our products, or damage caused by freezing or exposure to water temperatures above 60 °C (140 °F).

This warranty does not cover damage caused by failure to follow prescribed installation instructions and limitations issued by H.E. Anderson Company. In addition, this warranty does not cover service adjustments, repairs, or replacements caused by misuse, negligence, alteration, accident, or lack of specified maintenance.

This warranty does not cover components used by, but not manufactured by H.E. Anderson Company, in the manufacture of our products except to the extent of said component manufacturer's warranty.

This warranty specifically excludes liability for consequential damages or for charges for labor or expense in making repairs or adjustments, or losses of time or inconvenience.

This warranty gives you specific legal rights and you may also have other legal rights which may vary from state to state. H.E. Anderson Company does not authorize any person to create for it any other obligation or liability in connection with these products. **ANY IMPLIED WARRANTY APPLICABLE TO THESE PRODUCTS IS LIMITED TO THE DURATION OF THIS WARRANTY.** H.E. Anderson Company shall not be liable for consequential damages resulting from breach of this written warranty.

NOTE: Some states do not allow limitation on how long an implied warranty will last or the exclusion of limitations of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

WHAT TO DO IF THERE IS A QUESTION REGARDING WARRANTY

- (1) Promptly notify the consumer advisor at H.E. Anderson Company by telephone at 800-331-9620 or 918-687-4426.
- (2) Confirm the report in writing (or via FAX at 918-682-3342) to the H.E. Anderson Company, stating the circumstances surrounding the problem.

PURCHASER'S OBLIGATION

- (A) Purchaser must give H.E. Anderson Company immediate written notice on discovery of defect.
- (B) Purchaser must pay for shipment of the defective product to the H.E. Anderson Company, 2100 Anderson Drive, Muskogee, Oklahoma 74403.