

South 09 degrees 04 minutes 36 seconds East 47.83 ft. with the Northwest line of Lot 66 to a 3/8 inch iron rod at the Northwest corner of Lot 66,

South 10 degrees 56 minutes 23 seconds East with the Northwest line of Lot 65 a distance of 48.04 ft. to another 3/8 inch iron rod at the Northwest corner of Lot 65 and the Northeast corner of Lot 64 and

South 23 degrees 19 minutes 10 seconds East 48.04 ft. to a 3/8 inch iron rod at the Westerly corner of Lot 64 and marking the South corner of the herein described tract;

THENCE South 66 degrees 45 minutes 24 seconds West with the Northerly boundary line of Lot 63 a distance of 40.84 ft. to a 3/8 inch iron rod at the Westerly corner of Lot 63 in the Southwest line of said Sugarberry Place and the Southwest line of said 64.893 acre tract;

THENCE North 43 degrees 55 minutes 22 seconds West with the Southwest boundary line of Sugarberry Place a distance of 467.42 ft. to the PLACE OF BEGINNING and containing 1.0704 acre of land, MORE OR LESS.

Note: The Company is prohibited from insuring the area or quantity of the Land. Any statement in the legal description contained in Schedule A as to area or quantity of land is not a representation that such area or quantity is correct but is for informal identification purposes and does not override Item 2 of Schedule B hereof.

TRACT II:

Lot Twenty Two (22), in Block Fourteen (14), of SUGARBERRY PLACE, PHASE TWO (2), a subdivision of 93.5773 acres located in the Elizabeth Smith Survey, Abstract No. 70, of Harris County, Texas, according to the map or plat thereof recorded under Film Code No. 476139, of the Map Records of Harris County, Texas.

RP-2016-229129
Pages 6
05/31/2016 12:28 PM
e-Filed & e-Recorded in the
Official Public Records of
HARRIS COUNTY
STAN STANART
COUNTY CLERK
Fees \$32.00

RECORDERS MEMORANDUM
This instrument was received and recorded electronically
and any blackouts, additions or changes were present
at the time the instrument was filed and recorded.

Any provision herein which restricts the sale, rental, or
use of the described real property because of color or
race is invalid and unenforceable under federal law.
THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in
File Number Sequence on the date and at the time stamped
hereon by me; and was duly RECORDED in the Official
Public Records of Real Property of Harris County, Texas.



Stan Stanart
COUNTY CLERK
HARRIS COUNTY, TEXAS

PHOTOGRAPHIC EXHIBITS





IMG_2174 SUGARBERRY PLACE SECTION 1 SANITARY SEWER LIFT STATION

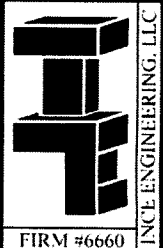


IMG_0864 SUGARBERRY PLACE SECTION 1 SANITARY SEWER LIFT STATION

EXHIBITS
WWTP SITE PHOTOS
IMG 0864

WATER AND SEWER EXHIBITS
INLINE UTILITIES, LLC
HARRIS COUNTY, TX

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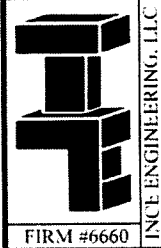


IMG_0870 WASTEWATER TREATMENT PLANT - METAL BUILDING EXTERIOR

EXHIBITS
WWTP SITE PHOTOS
IMG 0870

WATER AND SEWER EXHIBITS
INLINE UTILITIES, LLC
HARRIS COUNTY, TX

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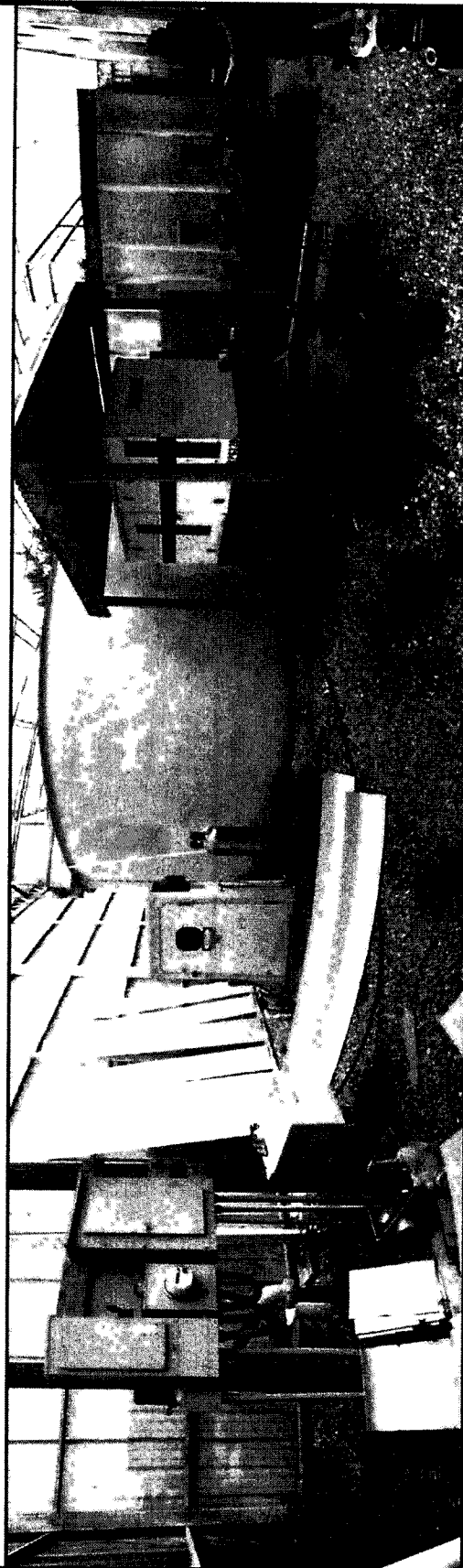


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IMG_0872 WASTEWATER TREATMENT PLANT - METAL BUILDING INTERIOR

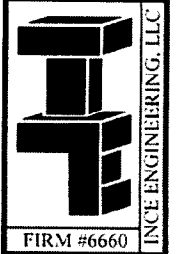


IMG_0873 WASTEWATER TREATMENT PLANT - ELECTRICAL TAKEOFF PANEL, CHLORINE FACILITIES, EMERGENCY GENERATOR, BLOWER MOTOR CONTROLLERS, AND BLOWER MOTORS

WATER AND SEWER EXHIBITS
 INLINE UTILITIES, LLC
 HARRIS COUNTY, TX

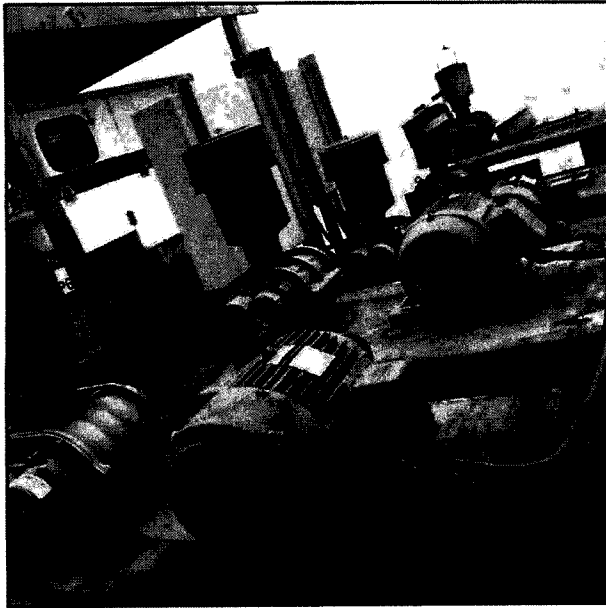
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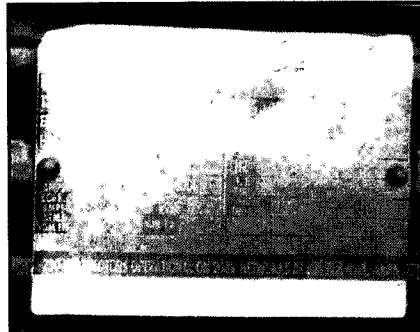
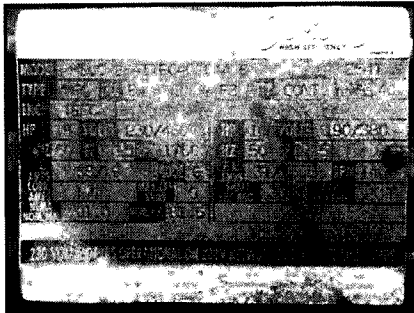
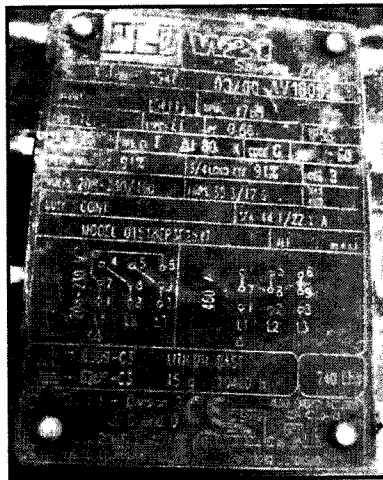


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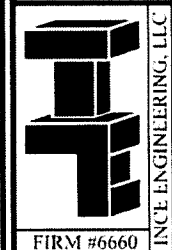
IMG_0874 WASTEWATER TREATMENT PLANT - BLOWER MOTORS



EXHIBITS
WWTP SITE PHOTOS
IMG 0874

WATER AND SEWER EXHIBITS
INLINE UTILITIES, LLC
HARRIS COUNTY, TX

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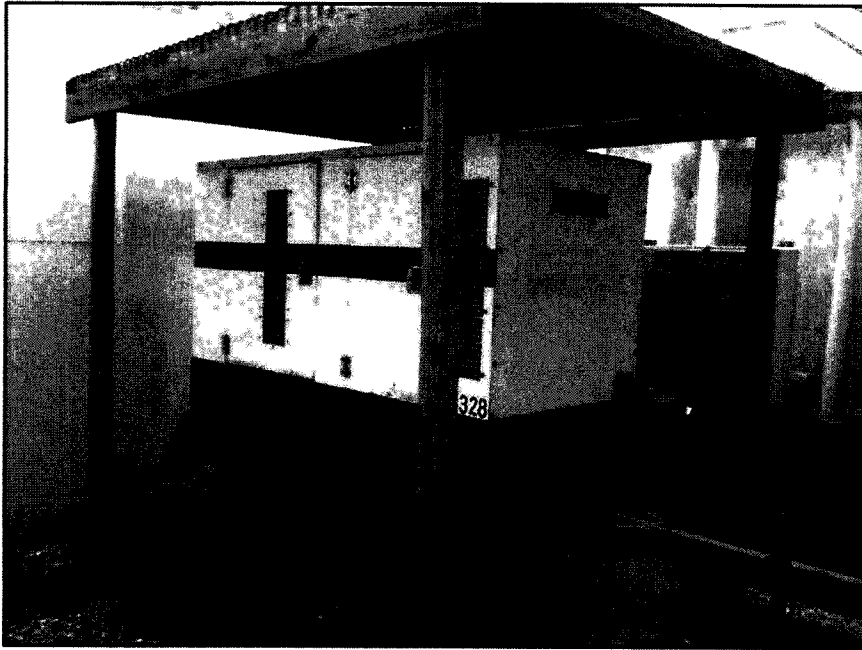


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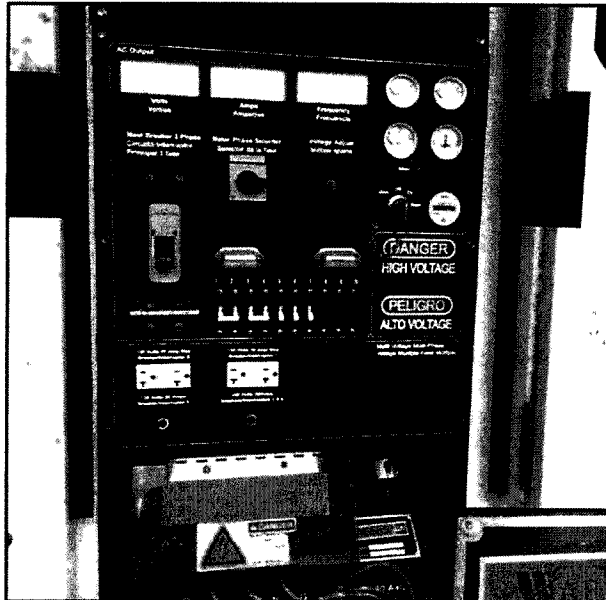
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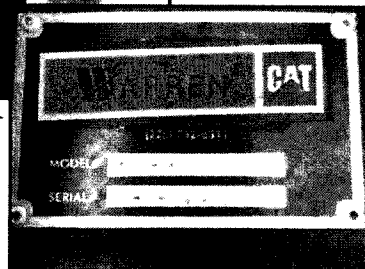
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IMG_277 WASTEWATER TREATMENT PLANT 80KW EMERGENCY GENERATOR



IMG_0878 80KW EMERGENCY GENERATOR CONTROL PANEL

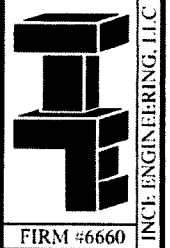


IMG_0879 80KW EMERGENCY GENERATOR MODEL NO

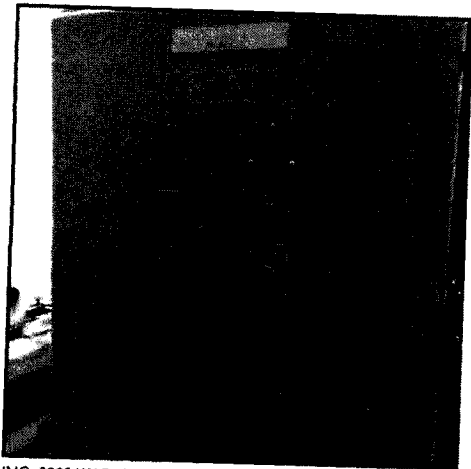
EXHIBITS
WWTP SITE PHOTOS
IMG 0878

WATER AND SEWER EXHIBITS
INLINE UTILITIES, LLC
HARRIS COUNTY, TX

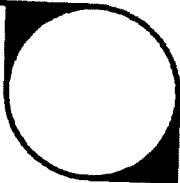
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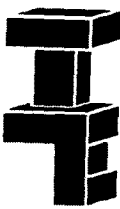
IMG_0880 WASTEWATER TREATMENT PLANT - BLOWER MOTOR CONTROL PANELS



EXHIBITS
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IMG 0881

WATER AND SEWER EXHIBITS
INLINE UTILITIES, LLC
HARRIS COUNTY, TX

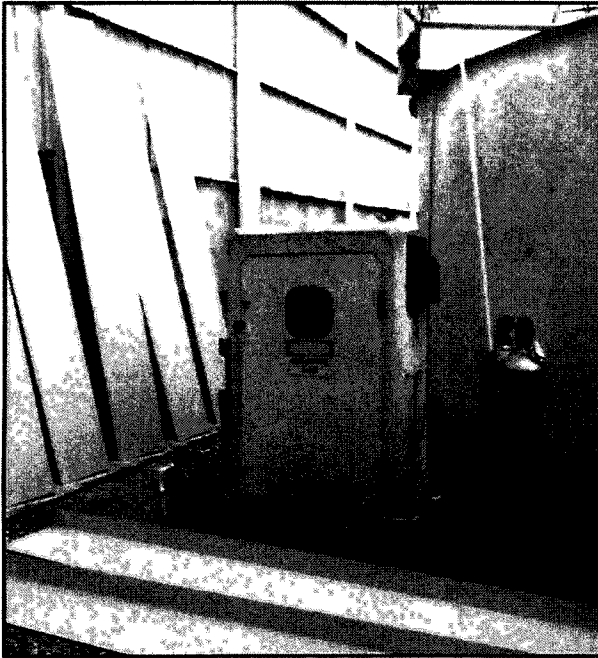
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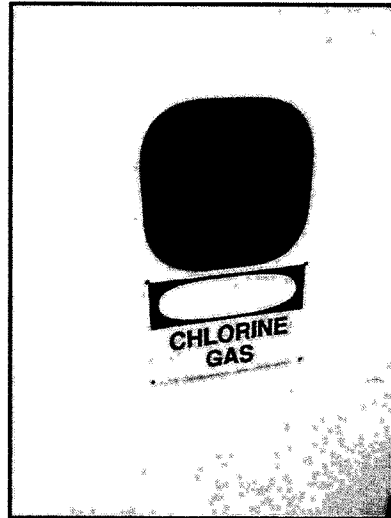
INCE ENGINEERING, LLC

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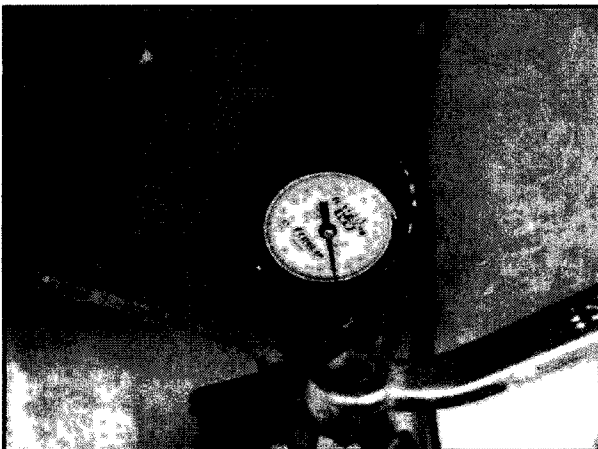
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IMG_2176 WWTP - CHLORINE BUILDING EXTERIOR



IMG_2182 WWTP - 150LB CHLORINE GAS CYLINDERS



IMG_2185 WWTP - CHLORINE SCALE



IMG_2183 WWTP - CHLORINE GAS CHLORINATOR

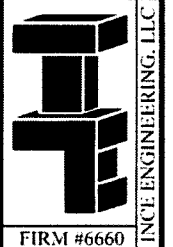


IMG_2187 WWTP - VENTILATION FAN SAFETY SWITCH

EXHIBITS
WWTP SITE PHOTOS
IMG 0864

WATER AND SEWER EXHIBITS
INLINE UTILITIES, LLC
HARRIS COUNTY, TX

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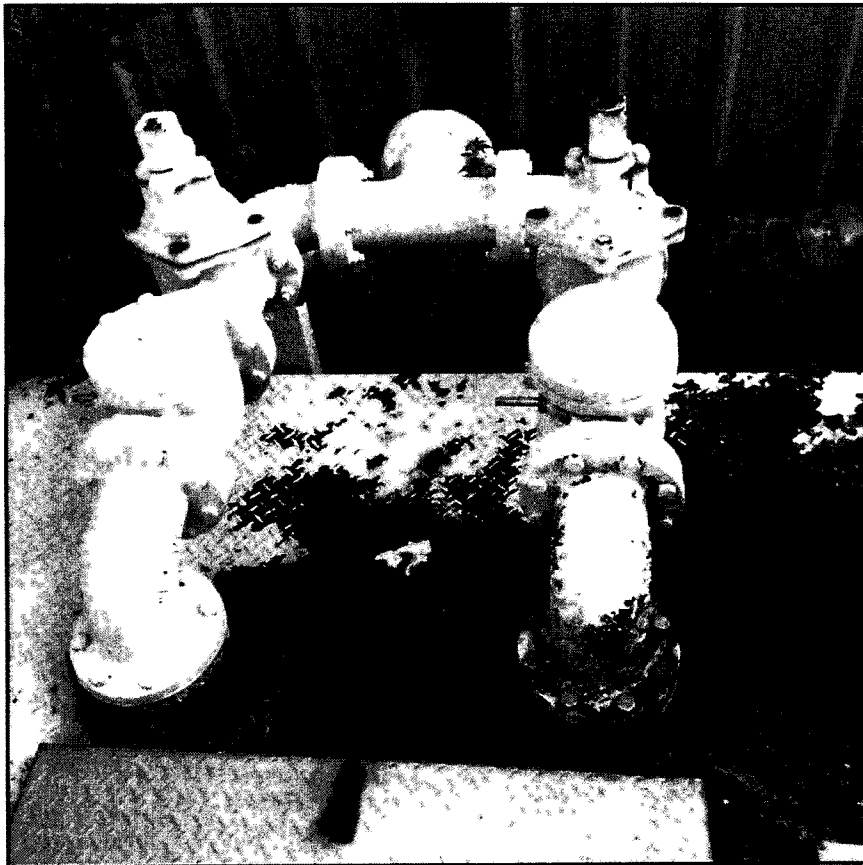


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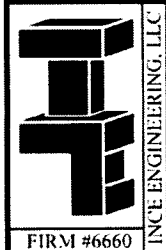


IMG_0891 SUGARBERRY PLACE SECTION 2 SANITARY SEWER LIFT STATION

EXHIBITS
WWTP SITE PHOTOS
IMG 0891

WATER AND SEWER EXHIBITS
INLINE UTILITIES, LLC
HARRIS COUNTY, TX

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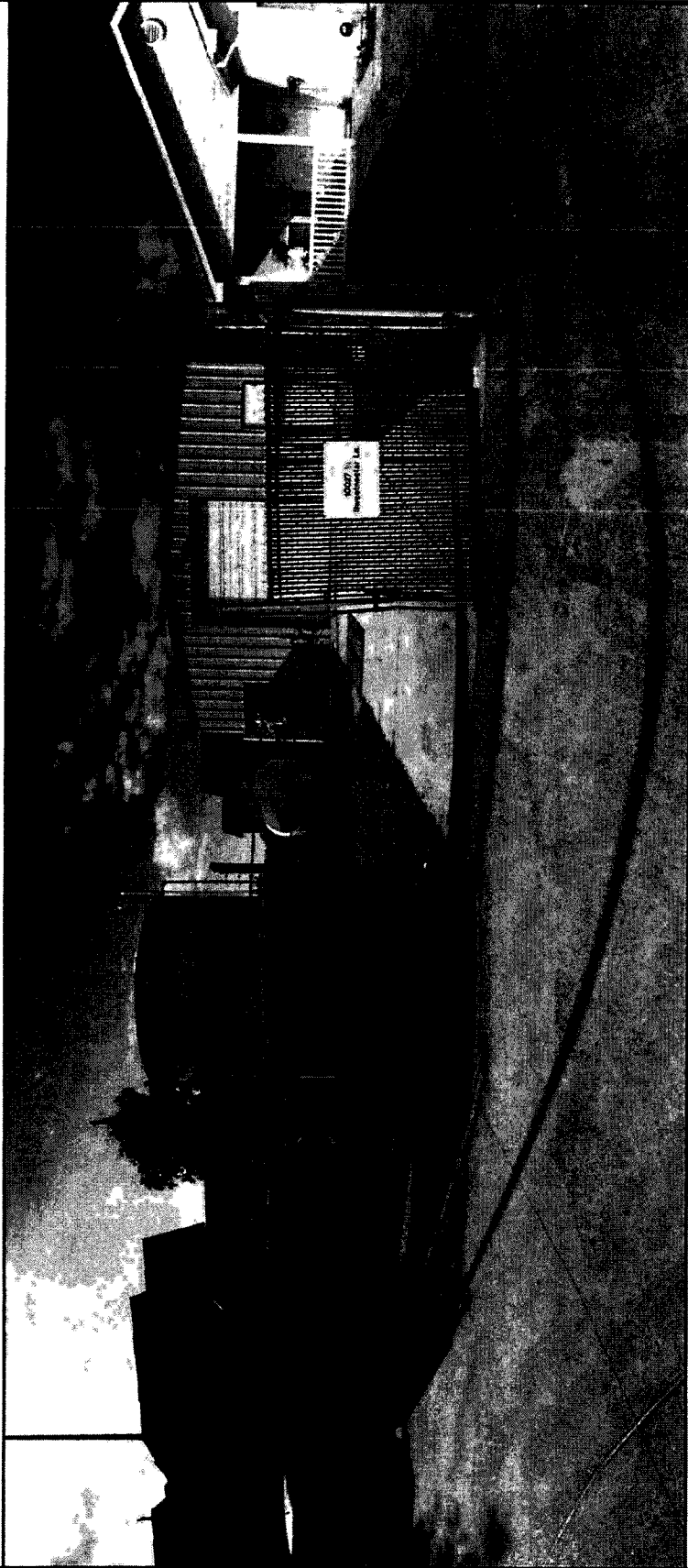
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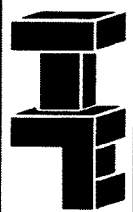


IMG_0896 PUBLIC WATER SYSTEM 1013271 - WATER PLANT EXTERIOR VIEW FROM ROAD

EXHIBITS
PWS SITE PHOTOS
IMG 0896

WATER AND SEWER EXHIBITS
INLINE UTILITIES, LLC
HARRIS COUNTY, TX

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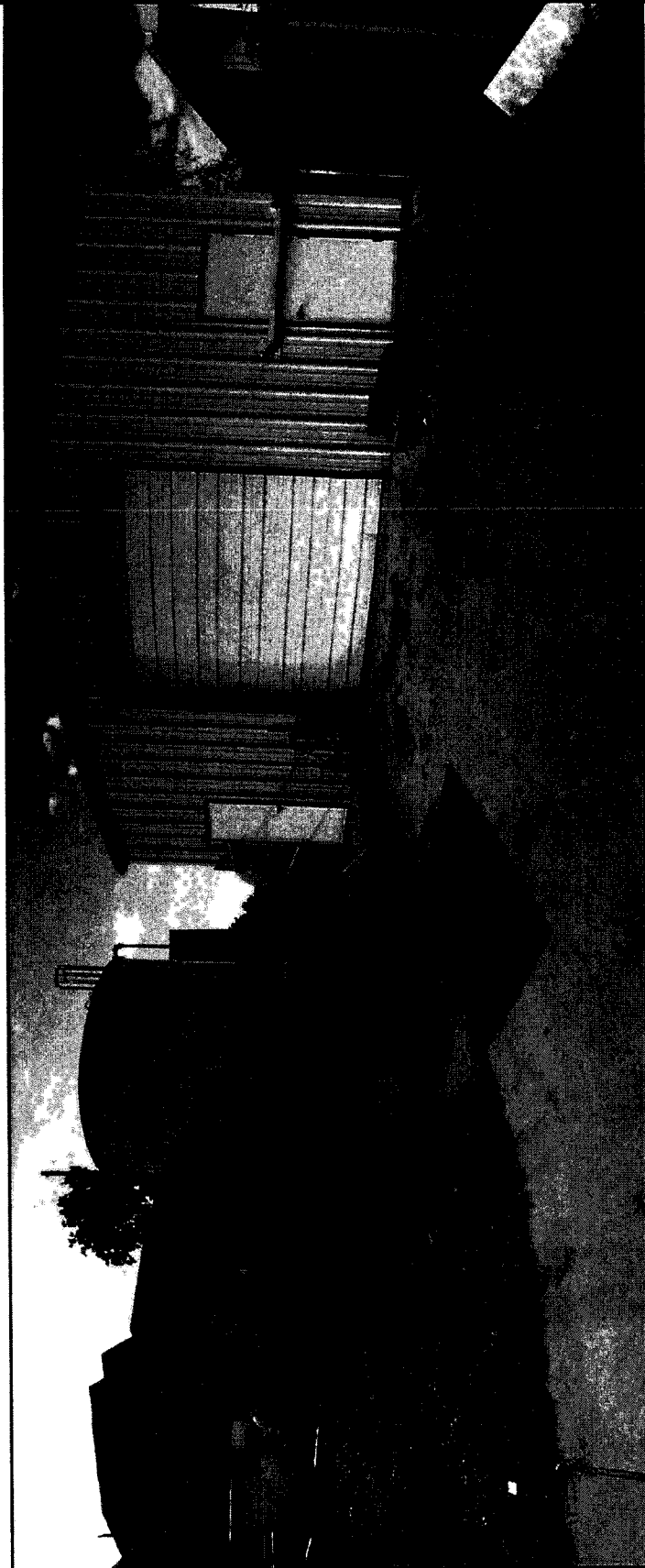
INCE ENGINEERING, LLC

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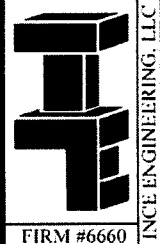


IMG_0898 PWS 1013271 WATER PLANT - WOODEN BOOSTER PUMP BUILDING, BOLTED STEEL GROUND STORAGE TANK, AND METAL MAINTENANCE BUILDING

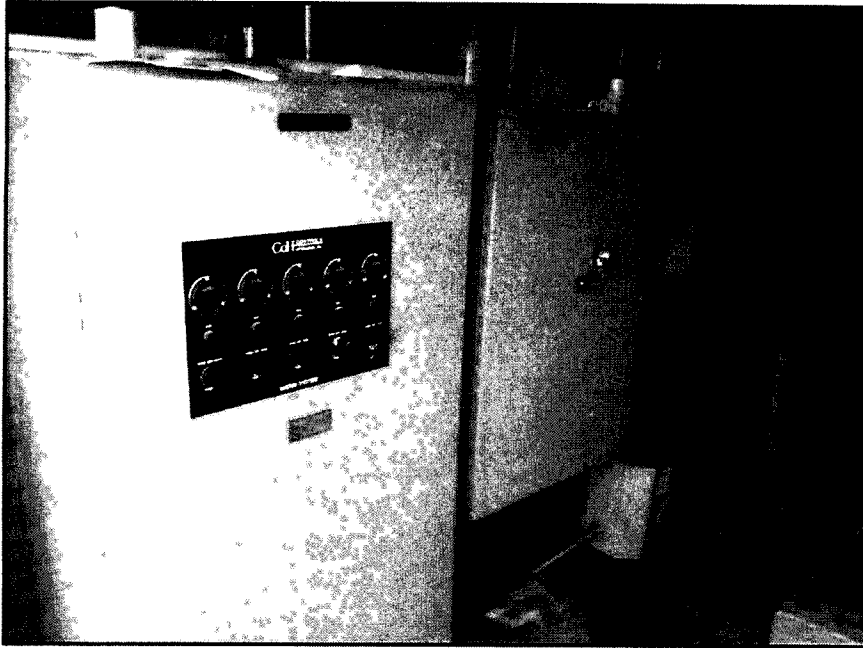
WATER AND SEWER EXHIBITS
INLINE UTILITIES, LLC
HARRIS COUNTY, TX

EXHIBITS
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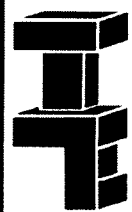


IMG_2196 PWS 1013271 - WELL AND BOOSTER PUMP CONTROL SYSTEM

EXHIBITS
PWS SITE PHOTOS
IMG 0899

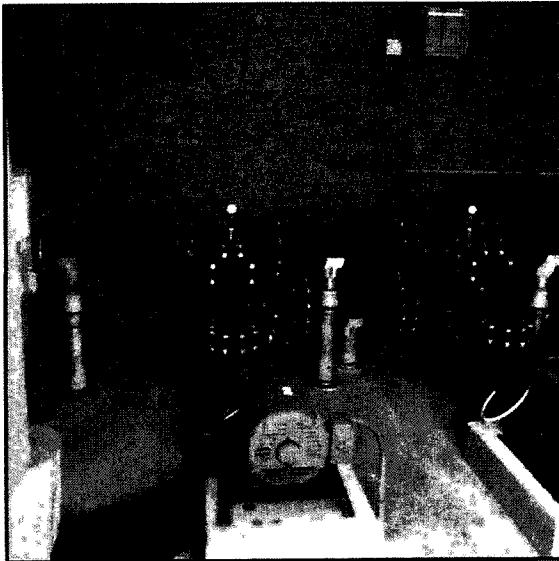
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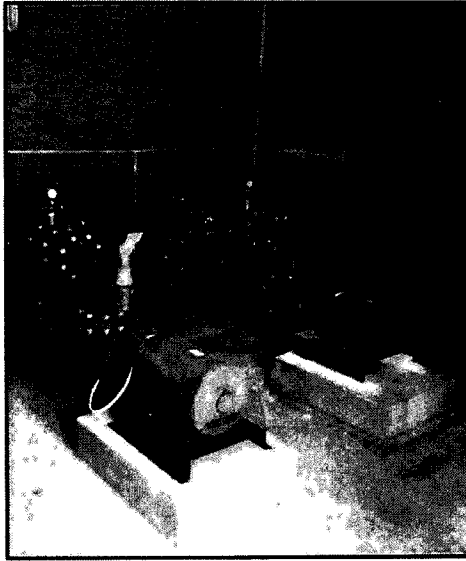


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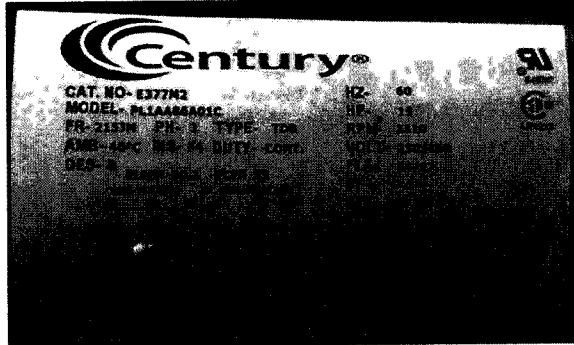
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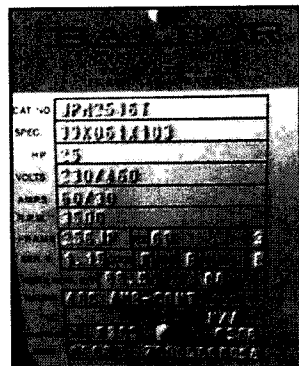
IMG_0901 PWS 1013271 - 2x 25HP BOOSTER PUMPS 1x 15HP BOOSTER PUMP, AND BOOSTER PUMP INTAKE/DISCHARGE MANIFOLD



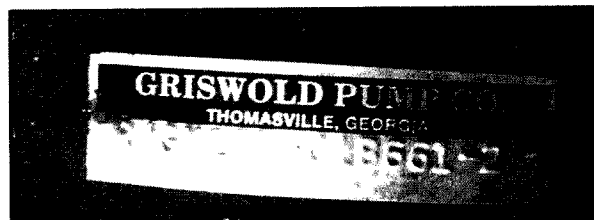
IMG_2191 PWS 1013271 - BOOSTER PUMP SERIAL NO



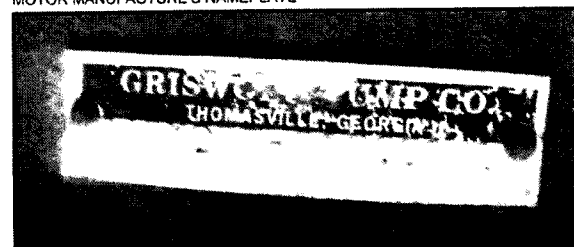
IMG_0907 PWS 1013271 - BOOSTER MOTOR MANUFACTURE'S NAMEPLATE



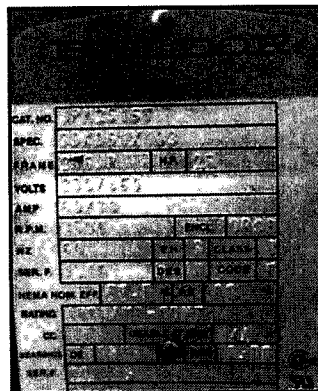
IMG_0909 PWS 1013271 - BOOSTER PUMP MOTOR MANUFACTURE'S NAMEPLATE



IMG_2192 PWS 1013271 - BOOSTER PUMP SERIAL NO



IMG_2193 PWS 1013271 - BOOSTER PUMP SERIAL NO

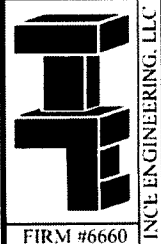


IMG_0908 PWS 1013271 - BOOSTER PUMP MOTOR MANUFACTURE'S NAMEPLATE

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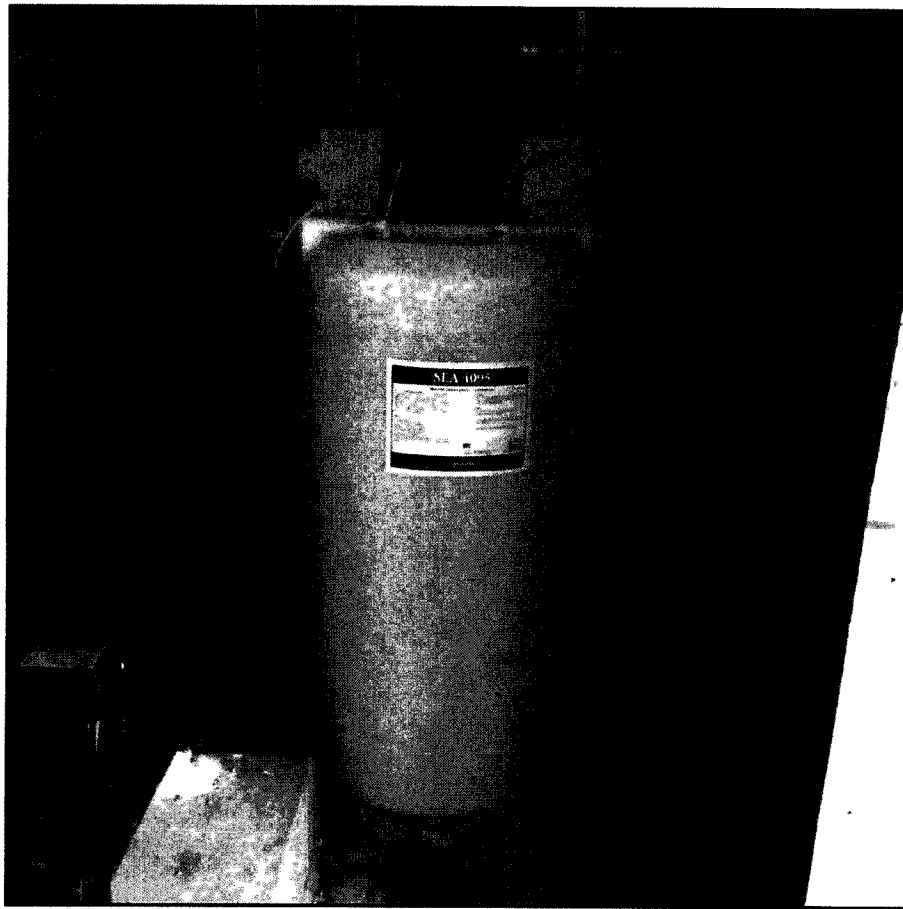
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INLINE UTILITIES, LLC
HARRIS COUNTY, TX

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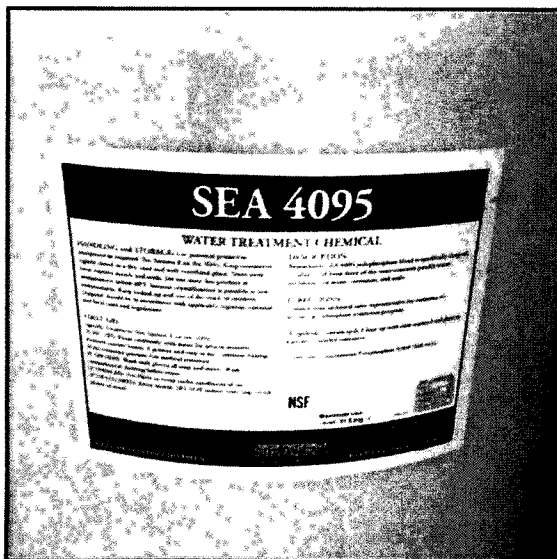


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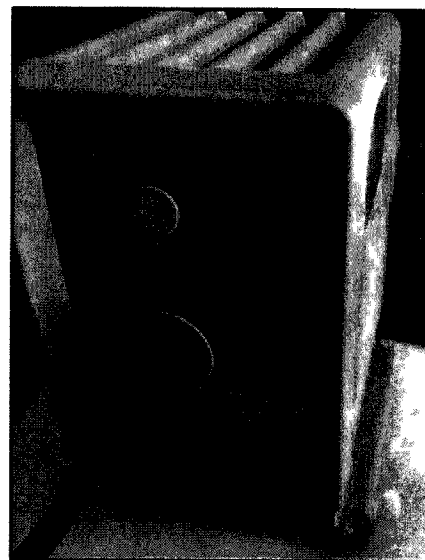
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IMG_0903 PWS 1013271 - POLYPHOSPHATE TREATMENT SYSTEM



IMG_0904 PWS 1013271 - POLYPHOSPHATE CHEMICAL STORAGE TANK

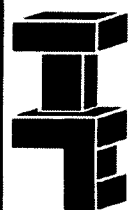


IMG_0905 PWS 1013271 - PERISTALTIC PULSE PUMP

EXHIBITS
PWS SITE PHOTOS
IMG 0903

WATER AND SEWER EXHIBITS
INLINE UTILITIES, LLC
HARRIS COUNTY, TX

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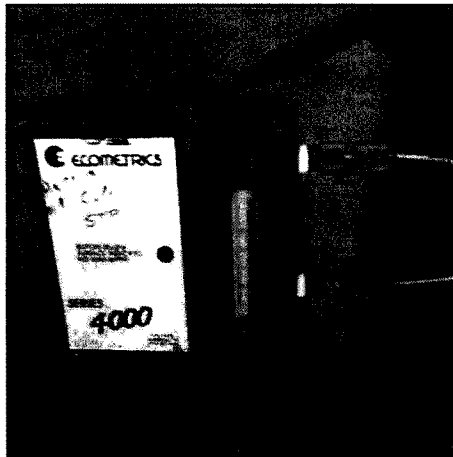
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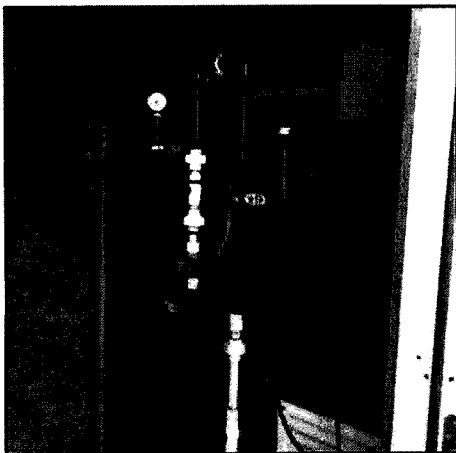
IMG_0910 PWS 1013271 - CHLORINE GAS STORAGE ROOM & 150LB CYLINDERS



IMG_0911 PWS 1013271 CHLORINE GAS SCALE



IMG_0912 PWS 1013271 - CHLORINATOR



IMG_0913 PWS 1013271 CHLORINE GAS INJECTION SYSTEM

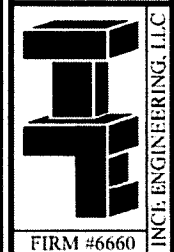


IMG_0914 PWS 1013271 - CHLORINE GAS ROOM VENTILATION FAN

EXHIBITS
PWS SITE PHOTOS
IMG 0910

WATER AND SEWER EXHIBITS
INLINE UTILITIES, LLC
HARRIS COUNTY, TX

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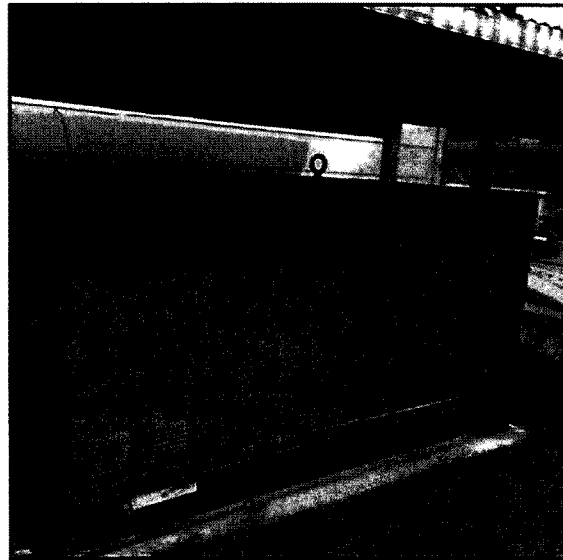
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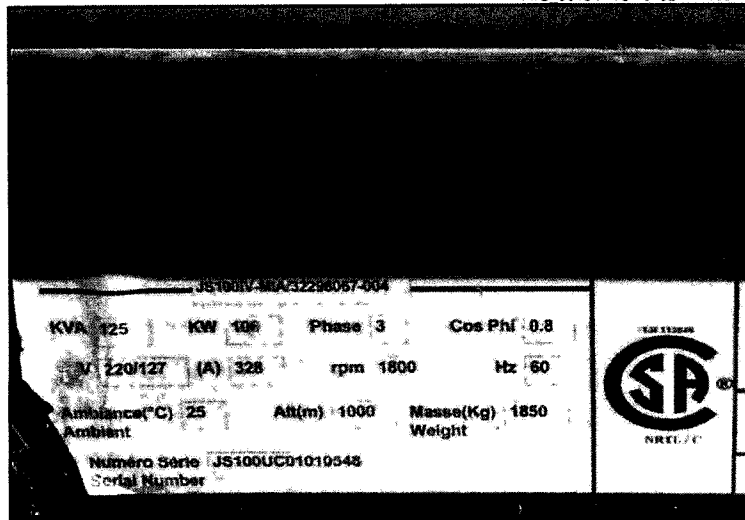
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IMG_0915 PWS 1013271 - 100 KW EMERGENCY GENERATOR



IMG_0916 PWS 1013271 - 100KW EMERGENCY GENERATOR

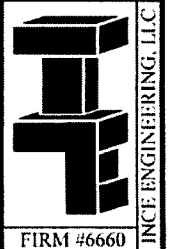


IMG_0917 PWS 1013271 - 100KW EMERGENCY GENERATOR INFORMATION PANEL

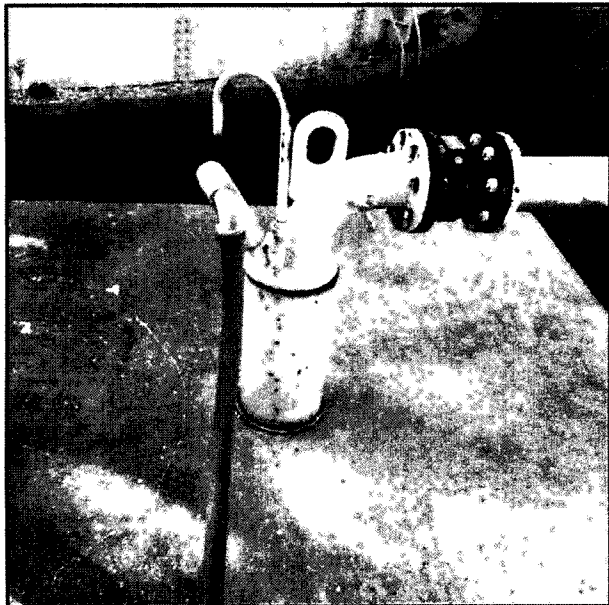
EXHIBITS
PWS SITE PHOTOS
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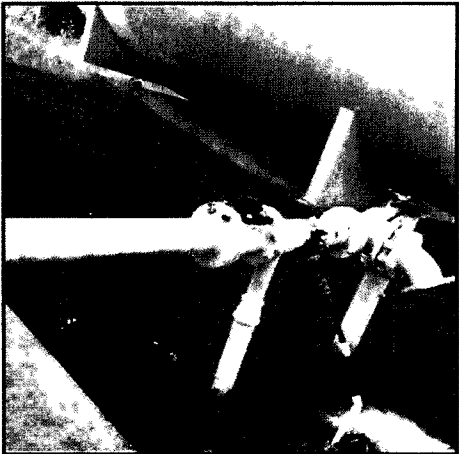
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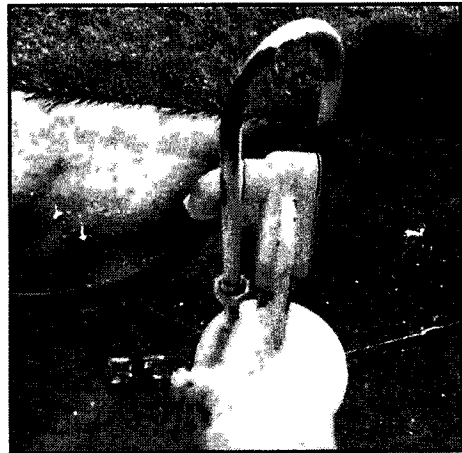
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IMG_0929 PWS 1013271 - WELL NO. 2 TOTALIZING FLOW METER



IMG_0920 PWS 1013271 - WELL NO. 2 DISCHARGE PIPING



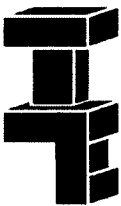
IMG_0931 PWS 1013271 - WELL NO. 2 VENT AND SAMPLE TAP

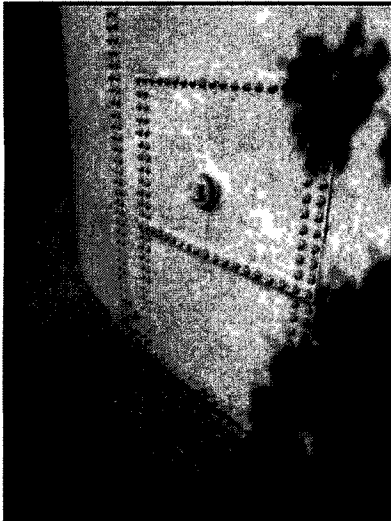


IMG_0930 PWS 1013271 - WELL NO. 2 POLYPHOSPHATE INJECTION POINT

EXHIBITS
PWS SITE PHOTOS
IMG 0919

WATER AND SEWER EXHIBITS
INLINE UTILITIES, LLC
HARRIS COUNTY, TX

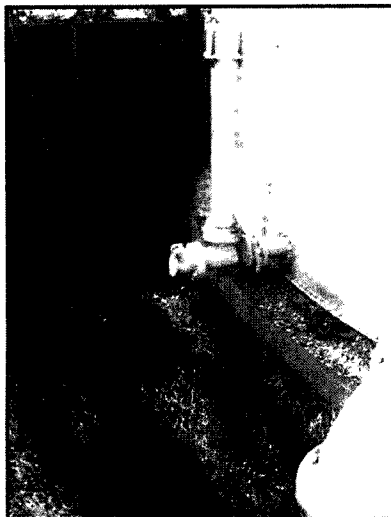
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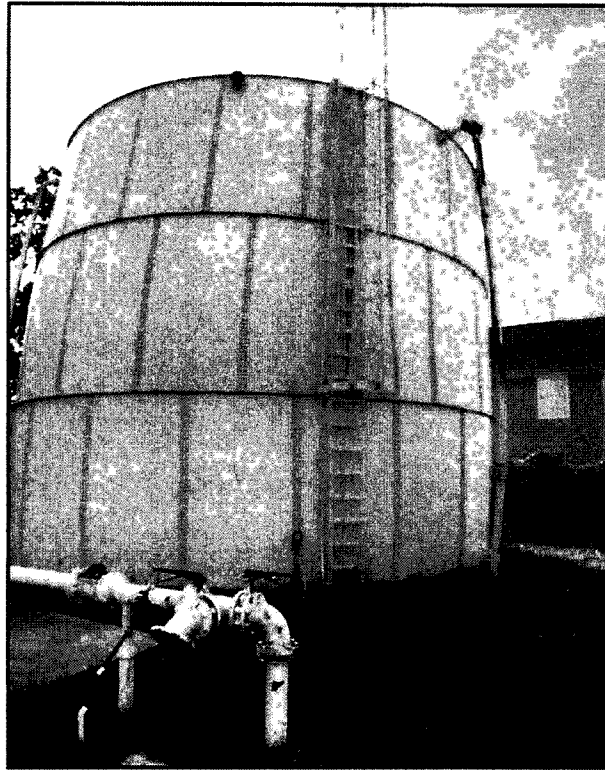
IMG_2216 PWS 1013271 - GST LOWER ACCESS MANWAY



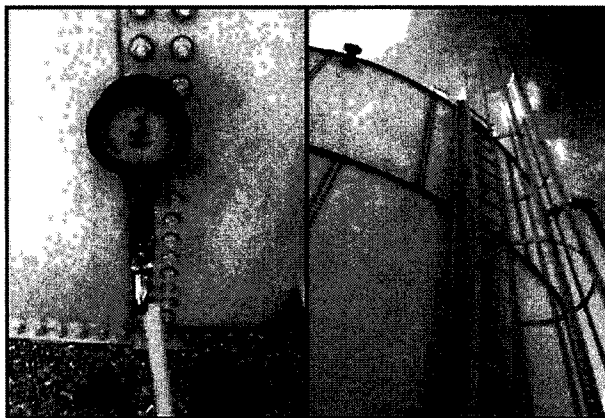
IMG_2216 PWS 1013271 - GST OVERFLOW DOWNSPOUT



IMG_2214 PWS 1013271 - GST OVERFLOW FLAPGATE



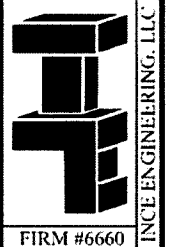
IMG_0921 PWS 1013271 - 126,000 ABOVEGROUND STORAGE TANK



EXHIBITS
PWS SITE PHOTOS
IMG 0921

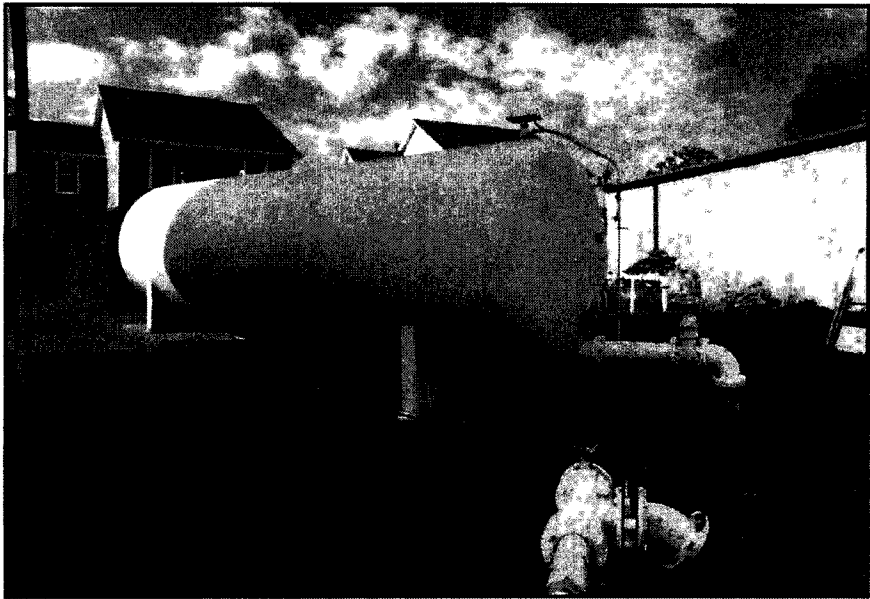
WATER AND SEWER EXHIBITS
INLINE UTILITIES, LLC
HARRIS COUNTY, TX

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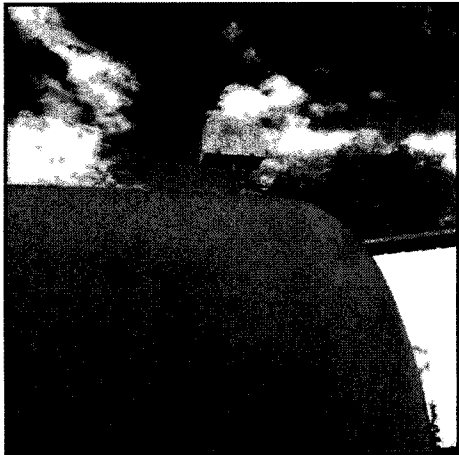


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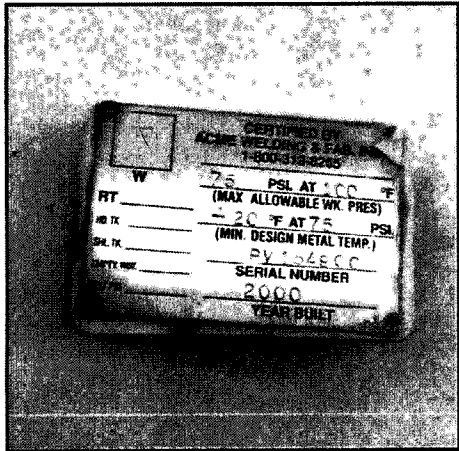
IMG_0922 PWS 1013271 - 12,000 GALLON HYDROPNEUMATIC PRESSURE TANK



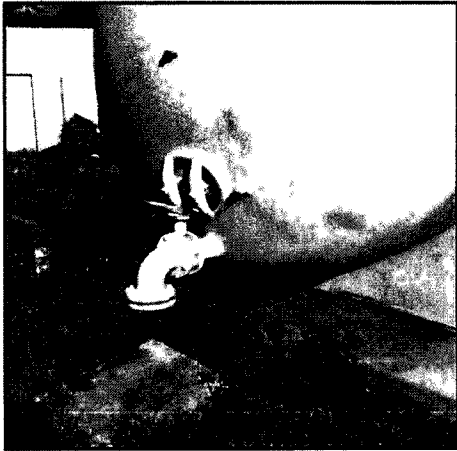
IMG_0926 PWS 1013271 - HPT AIR COMPRESSOR



IMG_0925 PWS 1013271 - HPT MANWAY SIGHTGLASS AND DISTRIBUTION SYSTEM CONNECTION



IMG_0924 PWS 1013271 - HPT MANUFACTURER NAMEPLATE



IMG_0927 PWS 1013271 - HPT MANWAY AND FLUSH VALVE

EXHIBITS

PWS SITE PHOTOS

IMG 0922, 0925 & 0927

WATER AND SEWER EXHIBITS

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HARRIS COUNTY, TX

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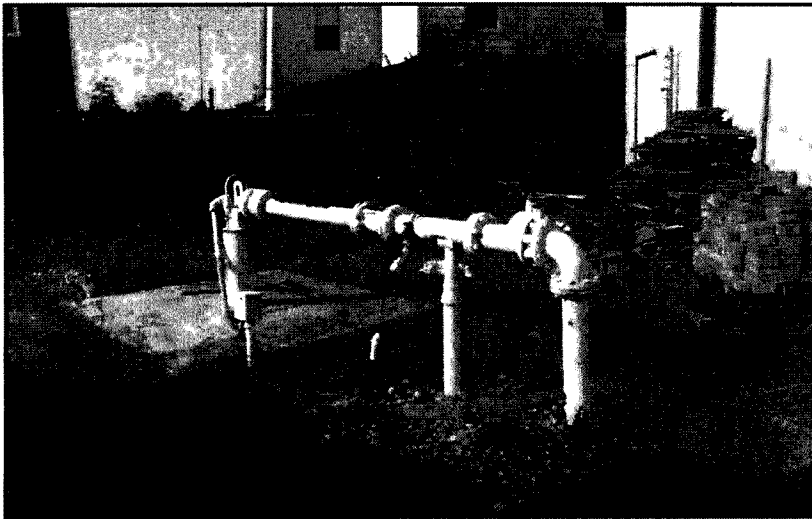
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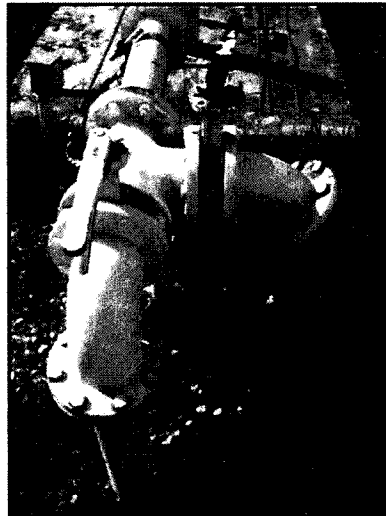
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IMG_0923 PWS 1013271 - PUBLIC WATER SUPPLY WELL NO 1 (G1013271A)



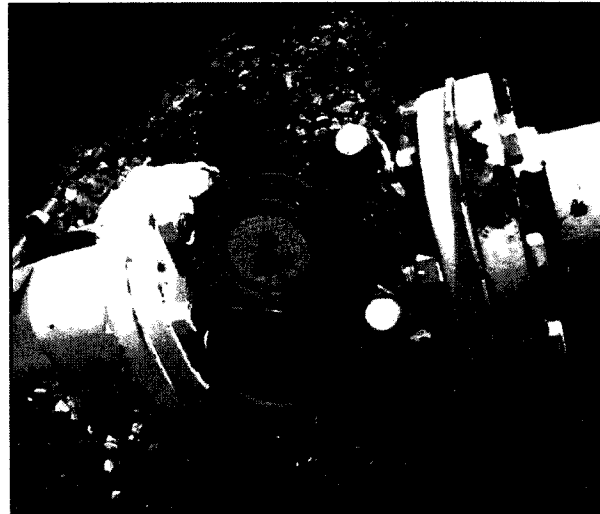
IMG_2223 PWS 1013271 - WELL NO 1
POLYPHOSPHATE CHEMICAL INJECTION POINT



IMG_2224 PWS 1013271 - WELL NO 1 DISCHARGE
PIPING FLUSH VALVE, AND SHUTOFF VALVE



IMG_2221 PWS 1013271 - WELL NO. 1 VENT SAMPLE
TAP AND CHECK VALVE

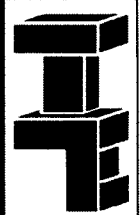


IMG_2222 PWS 1013271 - WELL NO 1 TOTALIZING FLOW METER

EXHIBITS
PWS SITE PHOTOS
IMG 0923

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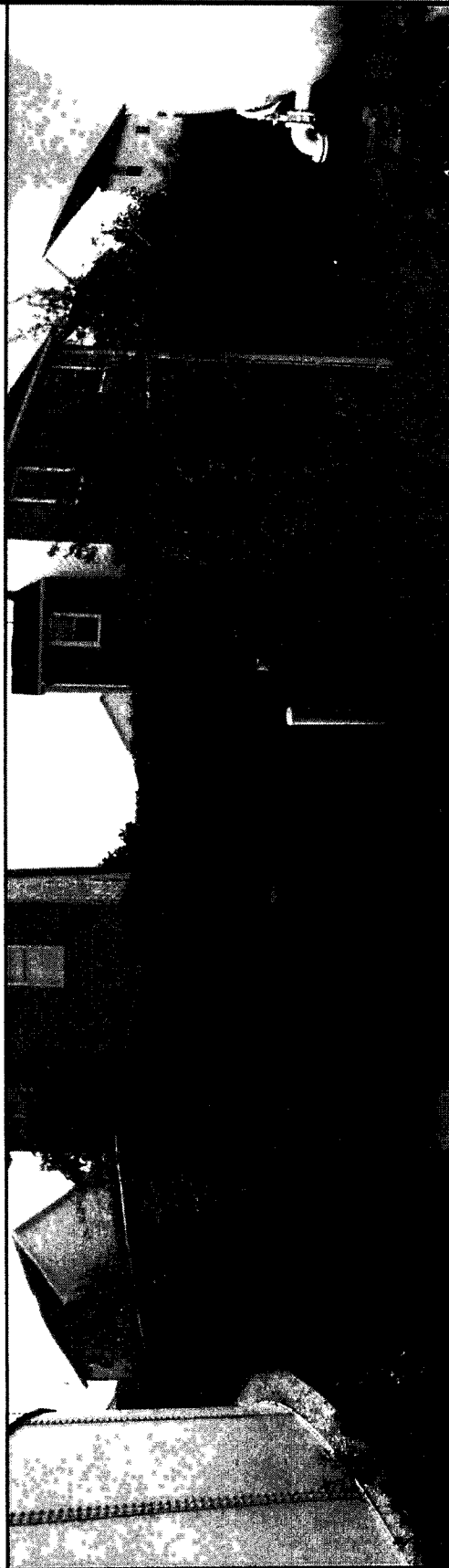
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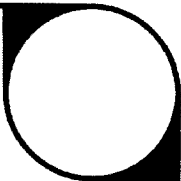
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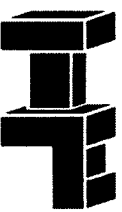
IMG_0934 PWS 1013271 - WATER PLANT SOUTHERN BOUNDARY CHAINLINK INTRUDER RESISTANT FENCE, GROUND STORAGE TANK, HYDROPNEUMATIC PRESSURE TANK, AND PRIMARY SHUTOFF VALVES TO DISTRIBUTION



EXHIBITS
PWS SITE PHOTOS
IMG 0934

WATER AND SEWER EXHIBITS
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HARRIS COUNTY, TX

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IMG_0935 PWS 1013271 - WOODEN BOOSTER PUMP BUILDING AND EMERGENCY GENERATOR



IMG_2226 PWS 1013271 - BOOSTER PUMP BUILDING ELECTRICAL SERVICE RACK



IMG_2225 PWS 1013271 - BOOSTER PUMP BUILDING DISCHARGE PIPING

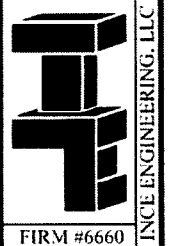


IMG_2217 PWS 1013271 - BOOSTER PUMP BUILDING SUCTION PIPING FROM GROUND STORAGE TANK

EXHIBITS
PWS SITE PHOTOS
IMG 0935

WATER AND SEWER EXHIBITS
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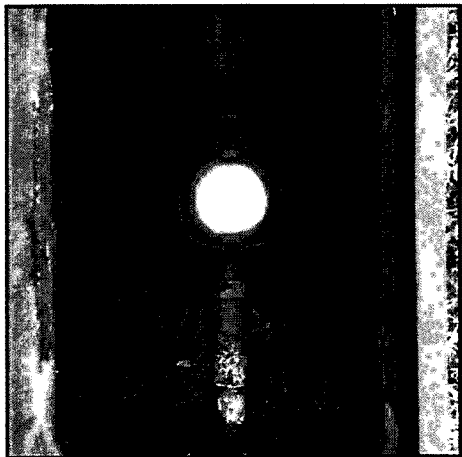
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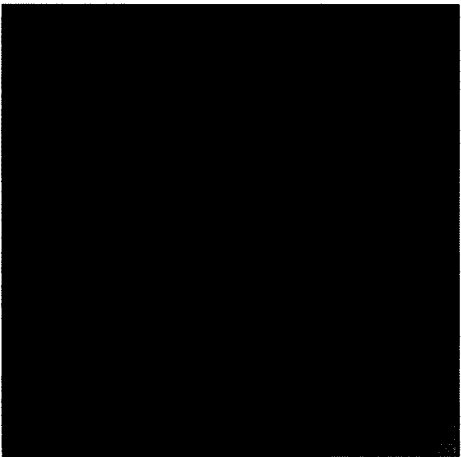
IMG_0932 PWS 1013271 - WATER SERVICE METER BOX



IMG_0948 PWS 1013271 - WATER DISTRIBUTION SHUTOFF VALVE BOX



IMG_0933 PWS 1013271 - WATER SERVICE METER



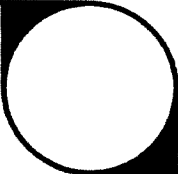
IMG_0945 PWS 1013271 - WATER DISTRIBUTION SHUTOFF VALVE



IMG_2230 PWS 1013271 - FIRE/FLUSHING HYDRANT



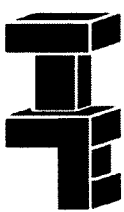
IMG_2231 PWS 1013271 - FIRE/FLUSHING HYDRANT



EXHIBITS
DIST. SYSTEM PHOTOS
IMG 0932, IMG 0946

WATER AND SEWER EXHIBITS
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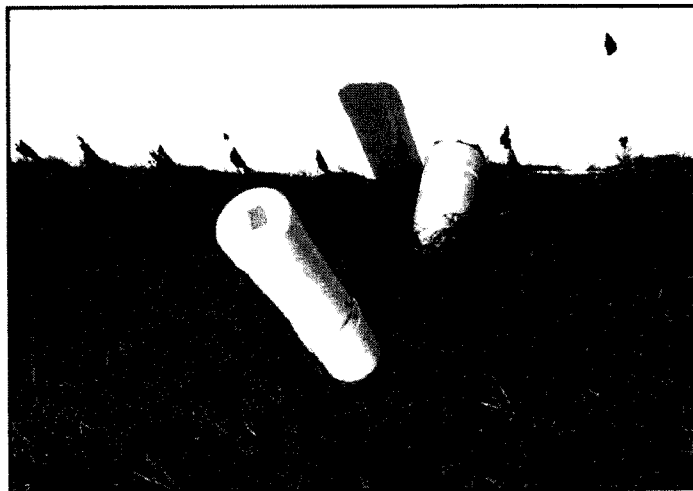
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IMG_2227 SUGARBERRY PLACE SECTION 2 (COTTAGE GARDENS) - SANITARY SEWER MANHOLE LID



IMG_2228 SUGARBERRY PLACE SECTION 2 (COTTAGE GARDENS) CONCRETE SANITARY SEWER MANHOLE INTERIOR

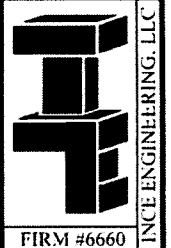


IMG_0895 SANITARY SEWER COLLECTION SYSTEM - SERVICE CONNECT / CLEANOUT

EXHIBITS
COLLECTION SYSTEM
IMG 2227

WATER AND SEWER EXHIBITS
INLINE UTILITIES, LLC
HARRIS COUNTY, TX

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Response to comment: Staff 2-1(e)(i) & Staff 201(e)(ii)

HYDROPNEUMATIC PRESSURE TANK TECHNICAL SPECIFICATIONS



FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
 (Alternative Form for Single Chamber, Completely Shop-Fabricated Vessels Only)
 As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by ACME WELDING & FABRICATING, INC., FRIENDSWOOD, TEXAS
(Name and address of manufacturer)

2. Manufactured for AQUA SOURCE, HOUSTON, TEXAS
(Name and address of purchaser)

3. Location of installation UNKNOWN
(Name and address)

4. Type HORIZONTAL TANK PV-154900 NONE 99-406 NONE 2000
(Horiz. or vert. tank) (Mfr's serial No.) (CRN) (Drawing No.) (Mat'l. Bd. No.) (Year built)

5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction, and workmanship conform to ASME Rules, Section VIII, Division 1 1998
Year

to A-00 NONE NONE
Addenda (Date) Code Case Nos. Special Service per UG-129(d)

6. Shell: SA-36 .3125 8' 24'
Mat'l. (Spec. No., Grade) Nom. Thk. (in.) Corr. Allow. (in.) Diam. I.D. (ft. & in.) Length (overall) (ft. & in.)

7. Seams: Type 1 .70 Type 1 0 3
Long. (Welded, Dbl., Single Lap, Butt) R.T. (Spot or Full) EN (%) H.T. Temp. (°F) Time (hr) Girth (Welded, Dbl., Single Lap, Butt) R.T. (Spot, Partial, or Full) No. of Courses

8. Heads: (a) Mat'l. SA516-70 (b) Mat'l. SA516-70
(Spec. No., Grade) (Spec. No., Grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	END	.3125				2 to 1				Concave
(b)	End	.3125				2 to 1				Concave

If removable, bolts used (describe other fastenings) _____
(Mat'l., Spec. No., Gr., Size, No.)

9. MAWP 75 psi at max. temp. 100 °F
 Min. design metal temp. +20 °F at 75 psi. Hydro., pneu., or comb. test pressure 113 psi.

Nozzles, inspection and safety valve openings: Per UG 125

Purpose (Inlet, Outlet, Drain)	No.	Diam. or Size	Type	Mat'l.	Nom. Thk.	Reinforcement Mat'l.	How Attached	Location
				See U4 Data Report On		Back		

11. Supports: Skirt No Lugs 2 Legs Other Saddles Attached Detached
(Yes or no) (No.) (No.) (Describe) (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report: _____
(Name of part, item number, Mfr's name and identifying stamp)

Exempt From Impact Test Per UG 20 (f) 1-5

CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1. "U" Certificate of Authorization No. 20326 expires 6/25/03, 19 ____.

Date 10-19-00 Co. name ACME WELDING & FABRICATING, INC. at FRIENDSWOOD, TEXAS
(Manufacturer) (Representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by ACME WELDING & FABRICATING, INC. at FRIENDSWOOD, TEXAS

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of TEXAS and employed by IB&M Inc

have inspected the component described in this Manufacturer's Data Report on 10-6-2000 and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME Code, Section VIII, Division 1. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 10-20-2000 Signed [Signature] Commissions TX 1366
(Authorized Inspector) (National Board (ind. endorsement), State, Prov. and No.)

4. Type: <u>HORIZONATAL TANK</u>	<u>PV-154900</u>	<u>NONE</u>	<u>99-406</u>	<u>NONE</u>	<u>2000</u>
(Horiz. or Vert. tank)	(Mfg's serial no.)	(CRN)	(Drawing No.)	(Nat'l Board No.)	(Year Built)

REMARKS:

[illegible]

Date: 10-19-00 Co. Name: ACME WELDING & FABRICATING, INC. Signed: [Signature]
(Representative)
CERTIFICATE OF AUTHORIZATION TYPE U NO. 20326 EXPIRES 6-24-2003
Date: 10-20-2000 Signed: [Signature] Commissions: Tx 1366
(Authorized Inspector) (Nat'l Bd., State, Prov. & No.)

A Unit of **INX** Corporation

OPERATION & MAINTENANCE TECHNICAL MANUAL

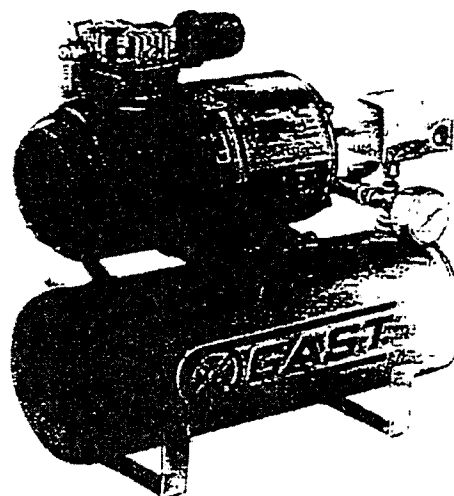
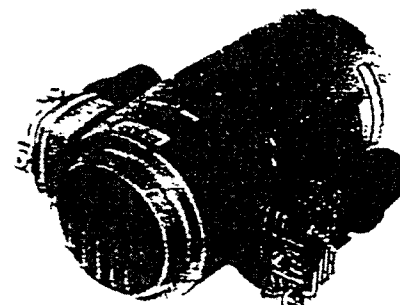
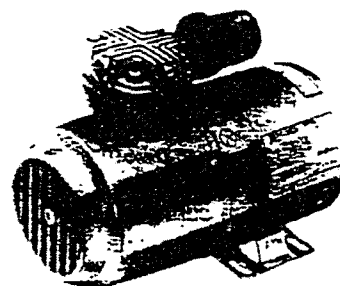
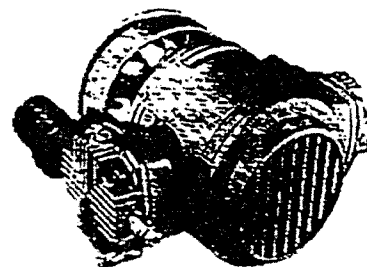
OILLESS PISTON SERIES

VACUUM PUMPS & COMPRESSORS



CONTENTS:

General Information, Installation, and Wiring.....	2
Grounding, Motor Information, and Operation.....	3
Maintenance Inspection, and Service Kit Installation.....	4
Separate Drive Exploded View and Parts Ordering Information.....	5
Twin and Single Cylinder Exploded View and Parts Ordering Information.....	6-7
Four Cylinder Exploded View and Parts Ordering Information.....	3
Troubleshooting Guide.....	9
Authorized Service Facilities.....	10



This is the hazard/alert symbol. When you see this symbol, be aware that personal injury or property damage is possible. The hazard is explained in the text following the symbol. Read the information carefully before proceeding.

The following is an explanation of the three different types of hazards:

- ⚠ **WARNING** Severe personal injury or death will occur if hazard is ignored.
- ⚠ **DANGER** Severe personal injury or death can occur if hazard is ignored.
- ⚠ **CAUTION** Minor injury or property damage can occur if hazard is ignored.

GENERAL INFORMATION

This pump is only to be used for the purpose of pumping air and under no circumstances be used with any other gases. The pump must not be used for the pumping of fluids, particles, solids, or any substance mixed with air, particularly combustible substances (likely to cause explosions).

- ⚠ **DANGER** Do not pump flammable or explosive gases or operate the unit in an atmosphere containing them.
- ⚠ **CAUTION** The exhaust air of this pump can become very hot. Do not direct exhaust air towards property that is temperature sensitive.
- ⚠ **CAUTION** The pump is designed for air only. Do not allow corrosive gases or particulate material to enter the pump. Water vapor, oil-based contaminants, or other fluids must be filtered out.

Ambient temperature should not exceed 40°C (104°F). For operation at high temperatures, consult the factory.

Performance is reduced by low atmospheric pressure found at high altitudes. Consult a Gast distributor for details.

Never lubricate this oil-less piston pump. The teflon-filled rings are self-lubricating and require no oil. The motor bearings are grease-packed for the life of the bearing.

INSTALLATION

- ⚠ **CAUTION** Do not lift the unit by the shroud or filters or mufflers.
- ⚠ **WARNING** To avoid risk of electrocution do not use this product in an area where it could come in contact with water or other liquids. If exposed to the elements it must be weather protected.

⚠ **WARNING** Beware of any exposed and/or

movable parts. Proper guards should be in place to prevent personal and/or property damage.

- ⚠ **CAUTION** Do not block the flow of cooling air over the pump in any way.
- ⚠ **CAUTION** Remove plastic plugs.



MOUNTING THE PUMP

The pump may be installed in any orientation as long as the flow of cool, ambient air over the pump is not blocked. To reduce noise and vibration, use shock mounts and affix unit to a stable, rigid operating surface.

If this compressor is being installed in a system where it will be periodically required to start against any form of system back pressure, a positive sealing one way check valve should be installed in the air line between the system and the compressor.

Check valves are provided as standard equipment on all Gast tank mounted compressor assemblies.

PLUMBING

To prevent air flow restriction, use pipe and fittings that are the same size or larger than the threaded ports of the pump. **NOTE:** Be sure to connect the intake and exhaust plumbing to the correct inlet and outlet ports.

ACCESSORIES

Intake and exhaust filters are standard on most pumps and will provide adequate filtration for most applications. Check filters periodically and replace when necessary. Consult a Gast Representative for additional filter recommendations. Install relief valves and gauges at the inlet or outlet, or both, to monitor performance. Check valves may be required to prevent backstreaming through the pump.

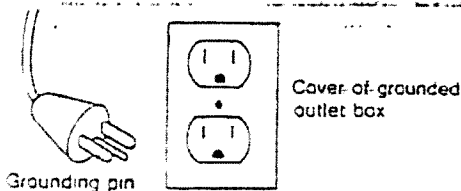
WIRING

- ⚠ **WARNING** Incorrect wiring can result in electric shock. Wiring must conform to all required safety codes and be installed by a qualified person. Grounding is required. All power to the motor must be de-energized and disconnected when servicing.
- ⚠ **CAUTION** Failure to properly ground can cause personal and/or property damage.

GROUNDING INSTRUCTIONS

Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the product is properly grounded. Do not modify the plug provided; if it will not fit

the outlet, have the proper outlet installed by a qualified electrician.



FOR ALL GROUNDED, CORD-CONNECTED PRODUCTS:

This product should be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. Some units are equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

⚠ DANGER Improper installation of the grounding plug can result in a risk of electric shock. If repair or replacement of the cord or plug is necessary, do not connect the grounding wire to either flat blade terminal. The wire with insulation having an outer surface that is green, with or without yellow stripes, is the grounding wire.

FOR A GROUNDED, CORD-CONNECTED PRODUCT RATED LESS THAN 15 AMPERES AND INTENDED FOR USE ON A NOMINAL 120v, or 220-240 VOLT SUPPLY CIRCUIT:

This product is for use on a nominal 120v, or 220-240 volt circuit, and has a grounding plug. Make sure that the product is connected to an outlet having the same configuration as the plug. No adapter should be used with the product.

FOR PERMANENTLY CONNECTED PRODUCT:

This product should be connected to a grounded, metallic, permanent wiring system, or an equipment-grounding terminal or lead on the product (refer to wiring diagram).

EXTENSION CORDS:

Use only a 3-wire extension cord that has a 3-blade grounding plug, and a 3-slot receptacle that will accept the plug on the product. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current that your product will draw. For lengths less than 50 feet, 16 AWG extension cords should be used. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating.

ELECTRIC MOTOR CONTROL

The motor must be protected against short circuit, overload and excessive temperature rise. Fuses, motor protective switches and thermal protective switches provide the necessary protection in these circumstances. Fuses only serve as a short circuit protection of the motor (wiring fault), not as a protection against

overload. Fuses in the incoming line should be chosen so as to be able to withstand the starting current of the motor. Motor starters, incorporating thermal magnetic overload or circuit breakers protect the motor from overload or reduced voltage conditions. Selection of the correct overload setting is required to provide the best possible protection. Refer to the motor starter manufacturer's recommendations.

ELECTRIC MOTOR CONNECTION

Refer to the motor nameplate for wiring diagram. All dual-voltage motors are shipped from the factory wired for high voltage. If the motor fails to start or slows down under load, shut the pump off and unplug. Check that the supply voltage agrees with the motor nameplate. Be sure the three phase motor turns in the proper direction of rotation after installation. Turning in the wrong direction will result in overheating.

RELIEF VALVE

⚠ WARNING The relief valve may become very hot during operation. Do not touch the valve until the pump has been turned off and allowed to cool.

A safety relief valve is provided on standard compressors and is preset at the factory. (See technical data sheet). Do not exceed or adjust safety relief to pressures other than those preset at the factory.

⚠ WARNING Do not unscrew relief valve head entirely off while the pump is operating. Ejection of valve parts could cause severe injury.

OPERATION

⚠ WARNING Solid or liquid material exiting the unit can cause eye or skin damage. Keep away from air stream.

⚠ WARNING Always disconnect the power before servicing. The motor may be thermally protected and will restart automatically when it cools if the thermal protection switch is tripped.

⚠ WARNING Beware of any exposed movable parts. Proper guards should be in place to prevent severe personal injury or death.

⚠ CAUTION Do not operate units above recommended pressures or vacuum duties. To do so will damage the unit.

⚠ WARNING Pump surfaces can become very hot during operation. Do not touch these surfaces until unit has been shut off and allowed to cool.

STARTING

If the pump is extremely cold, let it warm up to room temperature before starting. If the pump does not operate properly, see the troubleshooting guide. Do not start against a vacuum or pressure load. **NOTE:** Some of these models may exceed 70 dB(A). When in close proximity to these models hearing protection is required. Refer to Technical Data Sheet for your specific model.

MAINTENANCE AND INSPECTION

Regular inspection can prevent unnecessary damage and repairs. The rider ring thickness can be an indication of when rings need replacing. If a rider ring measures .055" or less in thickness, a change of all rings should be made.

For a unit operated at sea level in fairly clean air at an ambient of 65-75° F., relative humidity of approximately 35%, and at maximum advertised duties, it is suggested that 4,000 hours of operation be used as an initial inspection point. As operating conditions on your particular application improve or worsen, your own experience can be used to determine whether this 4,000 hour figure can be lengthened or should be shortened.

FILTER INSPECTION AND REPLACEMENT

The intake filters and exhaust mufflers require periodic inspection and replacement. Initial inspection is suggested at 500 hours, then the user should determine the frequency. Most problems can be prevented by keeping filters and mufflers clean. Dirty filters and mufflers decrease pump performance and can decrease pump service life.

WARNING The pump cylinders and heads may become very hot during operation. Do not touch these parts until the pump has been turned off and allowed to cool.

Refer to the proper exploded view during the following procedure. Make sure the pump is turned off and isolated from power supply, and all pressure and vacuum is released from the pump.

Remove filter cover and inspect filter felt. If the felt is completely covered with contamination or has indicated an increase in differential pressure, it must be replaced. Replace felt and install filter cover. Before putting the pump back into service, ensure that any external accessories such as relief valves and gauges have not been damaged.

SERVICE KIT INSTALLATION

NOTE: Gast will not guarantee the performance of a field rebuilt pump. You can return the pump to a Gast Authorized Service facility, or perform the rebuild procedures described.

Kits contain most or all of the following: Head gasket, valves, Cylinder gasket, Piston Ring, Piston Seal, Rider Ring, and Felts. Kits are used for several models and may contain extra parts not applicable for your specific model. Refer to exploded view.

PUMP DISASSEMBLY

Disconnect the pump from the electrical power.

WARNING You must disconnect the pump from electrical power before servicing it. Failure to do so can result in severe personal injury or death.

-Vent all air lines to the pump to remove pressure.

WARNING You must vent all air lines to the pump to remove pressure before servicing it. Failure to do so can result in severe personal injury.

-Remove the shroud, cylinder head, and valve components. **DO NOT** re-arrange the valve components.

-Remove the cylinder and rings. Make sure all parts are clean before reassembling. **DO NOT** use any chlorinated solvents to clean valves, or any liquids to flush units. **THE STAINLESS STEEL VALVES MAY BE CLEANED WITH WATER.** All parts, except the valves, can be cleaned with any industrial, non-flammable, non-toxic, non-petroleum based cleaning solvent.

ASSEMBLY:

-Install piston seals, piston rings, and rider rings on the piston.

-Locate ring joints approximately opposite each other.

-Attach cylinder to bracket with the cylinder screws and washers.

-Tighten screws finger tight. Move pistons to top dead center position.

-Adjust each cylinder flush with top of piston and torque cylinder screws to 150-160 inch lbs. Retorque second time.

-Stack the valve components in order as originally assembled.

-Install the cylinder head and head screws.

NOTE: The exhaust ports in the cylinder heads have been marked by omitting the ends of two of the fins.

-Do not tighten heads screws at this time. Install manifold nuts and seals on the manifold and assemble into the other cylinder head and manifold.

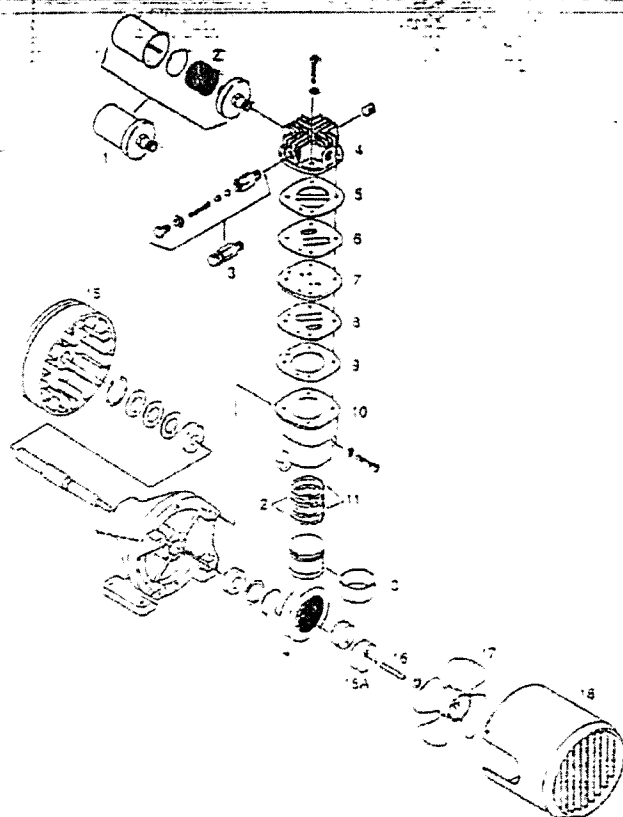
-Torque all head screws to 150-160 inch lbs.

-Turn fan by hand at this point to ensure that the rod assembly is not hitting the head.

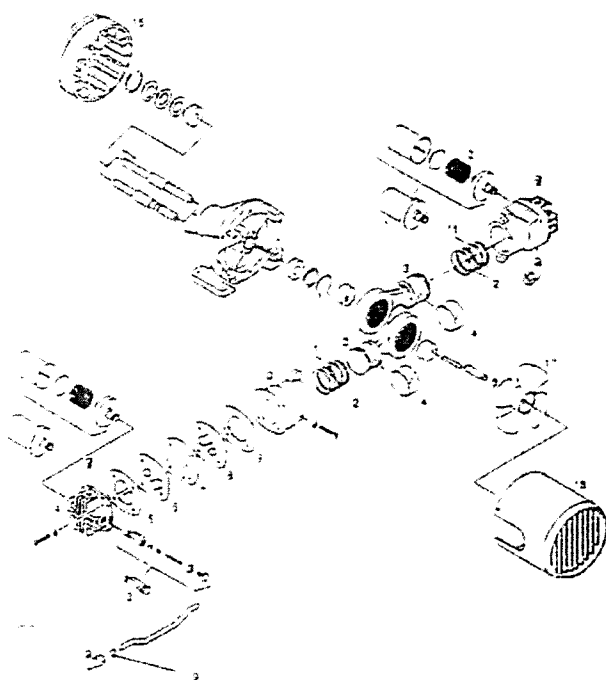
NOTE: If rod assembly does hit head, loosen cylinders and re-adjust.

-Position manifold and tighten manifold nut 1/2 to 3/4 turns beyond hand tight.

-Retorque head screws again after running for 10 minutes.

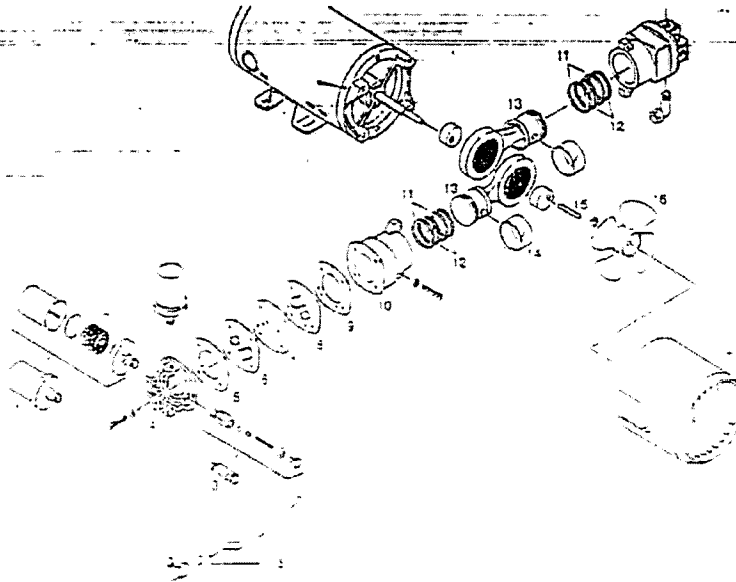


Ref. No.	Description	Part Qty	PAB	VAB
1	Filter Assembly	1	B300A	B300A
2	Felt	1	B344A	B344A
3	Safety Valve	1	AT517	
4	Cylinder Head	1	AF508	AF508
5	Head Gasket	1	AF518	AF518
6	Valve, Outlet	1	AF531	AF531
7	Valve Plate	1	AF529	AF529
8	Valve, Inlet	1	AF530	AF530
9	Cylinder Gasket	1	AF519	AF519
10	Cylinder	1	AF510	AF510
11	Piston Ring	2	AF527	AF527
12	Piston Seal	2	AF526	AF526
13	Rider Ring	1	AF594	AF594
14	Piston Rod Assembly	1	AF560B	AF560B
15	Pulley	1	AB140C	AB140C
15A	Counter Weight	1	AF517B	AF517B
16	Flat Key	1	AF524	AF524
17	Fan	1	AF533	AF533
18	Shroud	1	AF534	AF534
	Service Kit	1	K264	K264



Ref. No.	Description	Part Qty	VSB	VCO	PBB	PCA-10
1	Filter Assembly	1	B300A	B300A	B300A	B300F
2	Felt	1	B344A	B344A	B344A	
3	Safety Valve	1			AF570S	AF570S
4	Cylinder Head	1	AF508	AF507	AF508	AF507
5	Head Gasket	1	AF518	AF520A	AF518	AF520A
6	Valve, Outlet	1	AF531	AF545	AF531	AF545
7	Valve Plate	1	AF529	AF543	AF529	AF543
8	Valve, Inlet	1	AF530	AF544	AF530	AF544
9	Cylinder Gasket	1	AF519	AF521	AF519	AF521
10	Cylinder	1	AF510	AF509	AF510	AF509
11	Piston Ring	2	AF527	AF541	AF527	AF541
12	Piston Seal	2	AF526	AF540	AF526	AF540
13	Piston Rod Assembly	1	AF560B	AF5610	AF560B	AF561A
14	Rider Ring	1	AF594	AF595	AF594	AF595
15	Pulley	1	AB140C	AK670	AB140C	AK670
16	Key	1	AF524	AB136	AF524	AB136
17	Fan	1	AF533	AF547	AF533	AF561
18	Shroud	1	AF535	AF549	AF535	AF566
19	Manifold Sleeve	2	AF567A	AF567A	AF567A	AF567A
	Service Kit	1	K260	K263	K260	K263

*Denotes parts included in the Service Kit.
Parts listed are for stock models. For specific OEM models consult the factory.
When corresponding or ordering parts please give complete model and serial numbers.



PARTS ORDERING INFORMATION

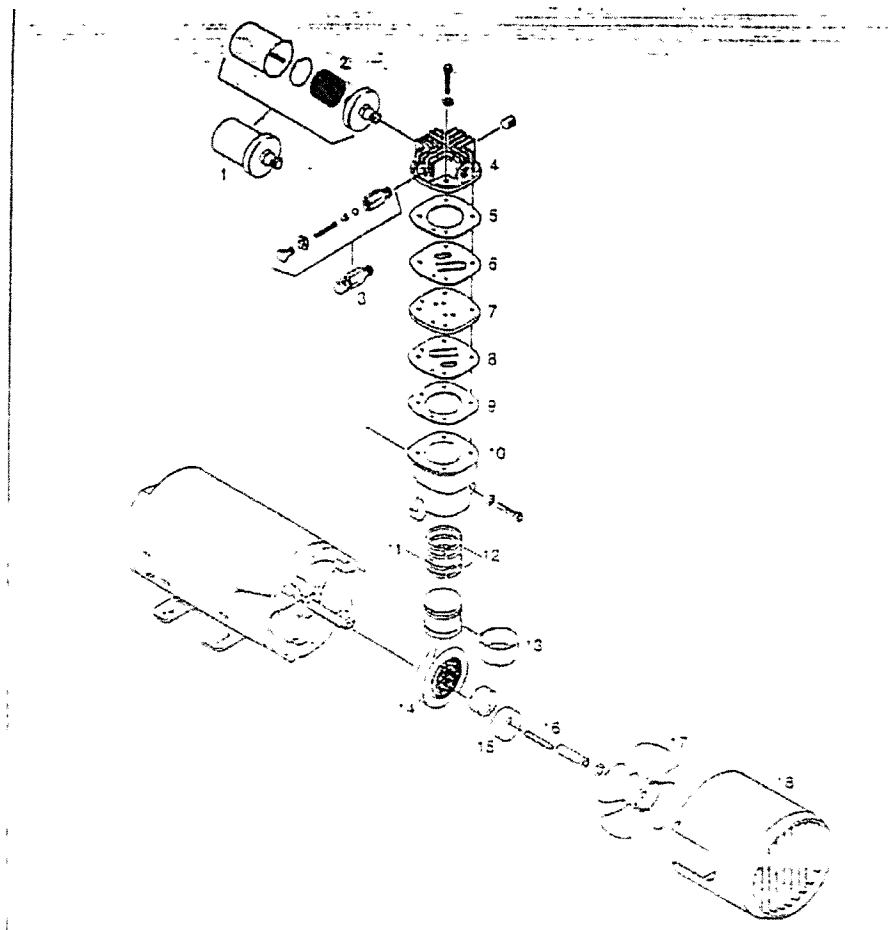
Ref. No.	Description	Part Qty	4V5F	4V5F	4LBB	4H5C	5HBB	5LBA	4VCF	4V5F
1	Inlet Filter Assembly	2	B300A	B300A	B300A	B300A	B300A	B300A	B300A	B300F
2	Ball	2	B344A	B344A	B344A	B344A	B344A	B344A	B344A	B344A
3	Safety Valve	1	—	—	AT517C	AT517	AT517	AT517D	—	—
4	Cylinder Head	2	AF508	AF508	AF508	AF508	AF508	AF508	AF507	AF507
5	Head Gasket	2	AF518	AF518	AF518	AF518	AF518	AF518	AF520A	AF520A
6	Valve Cutter	2	AF531	AF531	AF531	AF531	AF531	AF531	AF545	AF545
7	Valve Plate	2	AF529	AF529	AF529	AF529	AF529	AF529	AF543	AF543
8	Valve Inlet	2	AF530	AF530	AF530	AF530	AF530	AF530	AF544	AF544
9	Gasket Cylinder	2	AF519	AF519	AF519	AF519	AF519	AF519	AF521	AF521
10	Cylinder	2	AF510	AF510	AF510	AF510	AF510	AF510	AF509	AF509
11	Piston Ring	4	AF527	AF527	AF527	AF527	AF527	AF527	AF541	AF541
12	Piston Seal	4	AF526	AF526	AF526	AF526	AF526	AF526	AF540	AF540
13	Piston Rod	2	AF560F	AF560F	AF560B	AF560C	AF560B	AF560A	AF561F	AF561F
14	Piston Ring	2	AF594	AF594	AF594	AF594	AF594	AF594	AF595	AF595
15	Flat Key	1	AF524	AF524	AF524	AF524	AF524	AF524	AB136D	AB136D
16	Fan/Pan Assembly	1	AF533	AF533	AF533	AF533	AF533	AF533	AF547	AF547
17	Shroud	1	AF535	AF535	AF535	AF535	AF535	AF535	AF549	AF549
18	Manifold Sleeve	2	AF567A	AF567A	AF567A	AF567A	AF567A	AF567A	AF567A	AF567A
19	Service Kit	1	K250	K250	K250	K250	K250	K250	K253	K253

Ref. No.	Description	Part Qty	4HCJ	4LCB	4HCC	5LCA	5HCD	5HCE	6HCN	6HCA
1	Inlet Filter Assembly	2	B300A	B300A	B300A	B300F	B300A	B300A	B300F	B300F
2	Ball	2	B344A	B344A	B344A	B344A	B344A	B344A	B344A	B344A
3	Safety Valve	1	AF517A	AT517E	AT517A	AT517F	AT517E	AT517B	AT517C	AT517C
4	Cylinder Head	2	AF507	AF507	AF507	AF507	AF507	AF507	AF507	AF507
5	Head Gasket	2	AF520A	AF520A	AF520A	AF520A	AF520A	AF520A	AF520A	AF520A
6	Valve Cutter	2	AF545	AF545	AF545	AF545	AF545	AF545	AF545	AF545
7	Valve Plate	2	AF543	AF543	AF543	AF543	AF543	AF543	AF543	AF543
8	Valve Inlet	2	AF544	AF544	AF544	AF544	AF544	AF544	AF544	AF544
9	Gasket Cylinder	2	AF521	AF521	AF521	AF521	AF521	AF521	AF521	AF521
10	Cylinder	2	AF509	AF509	AF509	AF509	AF509	AF509	AF509	AF509
11	Piston Ring	4	AF541	AF541	AF541	AF541	AF541	AF541	AF541	AF541
12	Piston Seal	4	AF540	AF540	AF540	AF540	AF540	AF540	AF540	AF540
13	Piston Rod Assembly	2	AF561J	AF561B	AF561C	AF561A	AF561D	AF561E	AF561N	AF561A
14	Piston Ring	2	AF595	AF595	AF595	AF595	AF595	AF595	AF595	AF595
15	Flat Key	1	AB136D	AB136D	AB136D	AB136D	AB136D	AB136D	AB136F	AB136F
16	Fan/Pan Assembly	1	AF547	AF547	AF547	AF547	AF547	AF547	AF547	AF547
17	Shroud	1	AF549	AF549	AF549	AF549	AF549	AF549	AF549	AF549
18	Manifold Sleeve	2	AF567A	AF567A	AF567A	AF567A	AF567A	AF567A	AF567A	AF567A
19	Service Kit	1	K253	K253	K253	K253	K253	K253	K253	K253

† Denotes parts included in the Service Kit.

Parts listed are for stock models. For specific OEM models consult the factory.

When corresponding or ordering parts please give complete model and serial numbers.



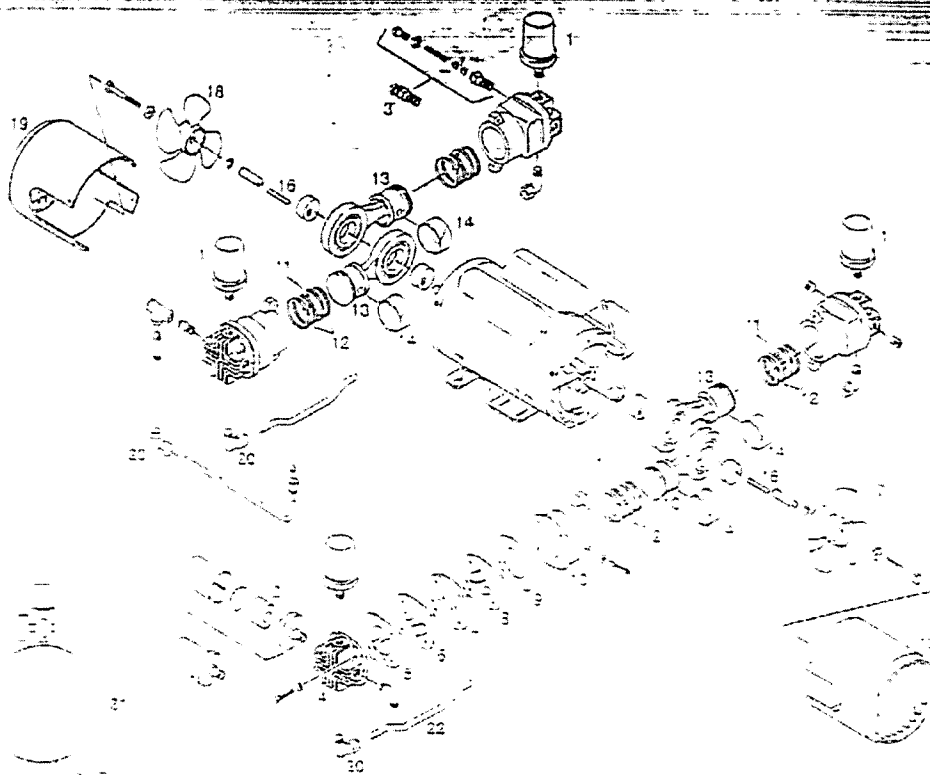
PARTS ORDERING INFORMATION

Ref. No.	Description	Part Qty	1HAB	1LAA	1VAF	2HAH	2LAF	3HEB	3HEE	3LEM
1	Inlet Filter Assembly	1	B300A	B300A	B300A	B300A	B300F	B300F	B300F	B300F
2	Ball	1	B344A	B344A	B344A	B344A	B344A	B344A	B344A	B344A
3	Safety Valve	1	AF517	AF517D	-	AF517	AF517D	AF517	AF517	AF517D
4	Cylinder Head	1	AF508	AF508	AF508	AF508	AF508	AF691	AF691	AF691
5	Head Gasket	1	AF518	AF518	AF518	AF518	AF518	AF520A	AF520A	AF520A
6	Valve, Outlet	1	AF531	AF531	AF531	AF531	AF531	AF545	AF545	AF545
7	Valve Plate	1	AF529	AF529	AF529	AF529	AF529	AK779	AK779	AK779
8	Valve, Inlet	1	AF530	AF530	AF530	AF530	AF530	AF544	AF544	AF544
9	Cylinder Gasket	1	AF519	AF519	AF519A	AF519	AF519A	AF521	AF521	AF521
10	Cylinder	1	AF510	AF510	AF510	AF510	AF510	AF509	AF509	AF509
11	Piston Ring	2	AF527	AF527	AF527	AF527	AF527	AF541M	AF541	AF541
12	Piston Seal	2	AF526	AF526	AF526	AF526	AF526	AF540	AF540	AF540
13	Piston Ring	1	AF594	AF594	AF594	AF594	AF594	AF595	AF595	AF595
14	Piston Rod Assembly	1	AF560B	AF560A	AF560F	AF560H	AF560F	AF561B	AK893E	AK393M
15	Counter Weight	1	AF517B	AF517A	AF517D	AF517C	AF517D	AT345	AK730E	AK730A
16	Flat Key	1	AF524	AF524	AF524	AF524	AF524	AB136	AB136	AB136
17	Fan	1	AF533	AF533	AF533	AF547	AF547	AF547	AF547	AF547
18	Shroud	1	AF534	AF534	AF534	AF534	AF534	AT343	AT343	AT343
	Tank Assembly	1	AF599-1	AK329-1	-	AF599-1	-	-	-	-
	Service Kit	1	K264	K264	K264	K264	K264	K577	K514A	K514A

* Denotes parts included in the Service Kit.

Parts listed are for stock models. For Specific OEM models consult the factory.

When corresponding or ordering parts please give complete model and serial



PARTS ORDERING INFORMATION

Ref. No.	Description	Part Qty	SVDF	SVSF	SLCF*	SHDX	7LDE	7HDD	7HDE	3HDM	3HDM	3LDF
1	Fan Assembly	1	B300F	B300F	B300F	B300F	B300F	B300F	B300A	B300F	B300F	B300F
2	Fan	1	B344A	B344A	B344A	B344A	B344A	B344A	B344A	B344A	B344A	B344A
3	Safety Valve	1	-	-	AF720	AF720A	AF720A	AF720A	AF720A	AF720A	AF720A	AF720
4	Cylinder Head	1/2	AF507	AF507	AF507	AF507	AF507	AF507	AF507	AF507	AF507	AF507
5	Head Gasket	1/2	AF520A	AF520A	AF520A	AF520A	AF520A	AF520A	AF520A	AF520A	AF520A	AF520A
6	Valve Outlet	1/2	AF545	AF545	AF545	AF545	AF545	AF545	AF545	AF545	AF545	AF545
7	Valve Plate	1/2	AF543	AF543	AF543	AF543	AF543	AF543	AF543	AF543	AF543	AF543
8	Valve Inlet	1/2	AF544	AF544	AF544	AF544	AF544	AF544	AF544	AF544	AF544	AF544
9	Cylinder Gasket	1/2	AF521	AF521	AF521	AF521	AF521	AF521	AF521	AF521	AF521	AF521
10	Cylinder	1/2	AF509	AF509	AF509	AF509	AF509	AF509	AF509	AF509	AF509	AF509
11	Piston Ring	3/4	AF541	AF541	AF541	AF541	AF541	AF541	AF541	AF541	AF541	AF541
12	Piston Seal	3/4	AF540	AF540	AF540	AF540	AF540	AF540	AF540	AF540	AF540	AF540
13	Piston Rod Assembly	1/2	AF561F	AF561F	AF561F	AF561K	AF561E	AF561D	AF561E	AF561M	AF561N	AF561F
14	Rider Ring	1/2	AF595	AF595	AF595	AF595	AF595	AF595	AF595	AF595	AF595	AF595
15	Manifold	1	AF559	AF559	-	AF559	AF559	AF559	AF559	AF559	AF559	AF559
16	Square Key	2.1	AB136F	AB136F	AB136F	AB136F	AB136F	AB136F	AB136F	AB136F	AB136F	AB136F
17	Fan Assembly	1	AF748	AF748	-	AF748	AF748	AF748	AF748	AF748	AF748	AF748
18	Fan Assembly	1	AF747	AF747	AF747	AF747	AF747	AF747	AF747	AF747	AF747	AF747
19	Shroud	2.1	AF556	AF556	AF556	AF556	AF556	AF556	AF556	AF556	AF556	AF556
20	Manifold Sleeve	2	-	-	AF567A	-	-	-	-	-	-	-
21	Manifold Sleeve	5	AF567A	AF567A	-	AF567A	AF567A	AF567A	AF567A	AF567A	AF567A	AF567A
22	Manifold Assembly	1	-	-	AF506-1	AF506-1	AF506-1	AF506-1	-	AF506-1	AF506-1	-
23	Manifold	2.1	AF550E	AF550E	AF550C	AF550H	AF550D	AF550B	AF550C	AF550A	AF550A	AF550A
24	Service Kit	1	K303	K303	K303	K303	K303	K303	K303	K303	K303	K303

*SLCF is a two cylinder unit.

*Denotes parts included in the Service Kit.

Parts listed are for stock models. For Specific OEM models consult the factory.

When corresponding or ordering parts please give complete model and serial numbers.

REASON FOR PROBLEM	LOW PRESSURE	HIGH PRESSURE	LOW VACUUM	EXCESSIVE NOISE	OVER HEATING	WON'T START
Dirty Filters	x			x	x	
Dirty Muffler			x	x	x	
Dirty Valves	x		x	x		
Damaged/Worn Rings	x		x	x		
Improper Cylinder Alignment	x			x	x	x
Leaky Hose	x		x			
Leaky Check Valve						x
Plugged Vacuum or Pressure Line		x	x	x	x	x
Low Voltage	x		x		x	x
Leaky Relief Valve	x				x	
Damaged Valves	x		x	x		

MAINTENANCE AND TROUBLESHOOTING FOR PRESSURE OR VACUUM TANK SYSTEMS

MAINTENANCE

Maintain a clean air filter cartridge to insure best flow and performance. The location and the quality of air being ingested indicates the frequency for inspection and replacement. A dirty filter restricts air flow, and causes the pump to run hotter and results in longer operating cycles.

Drain air receiver regularly. The amount of moisture and how quickly it accumulates inside the air receiver is proportional to the amount of humidity in the air and how long the pump is in operation. If not drained, the air receiver will fill with water.

Clean the pump/motor regularly. A film of oil, dirt, etc., build up on the outer shell of the pump or motor will reduce the unit's ability to dissipate heat. This unit has been designed to operate between 72 to 100 °F.

TROUBLESHOOTING

Pump Stalls After Vacuum or Pressure Starts Building Up in Receiver:

Shut unit off, disconnect power. Motor incorrectly wired for high voltage instead of low voltage. Check motor nameplate for voltage compatibility and/or correct wiring configuration. Single voltage motors will only operate on the designated voltage specified on the motor nameplate.

Motor Won't Start:

Nothing happens after power is turned on. Gauge reads 0 psi. (atmospheric pressure):

1. Shut unit off, disconnect power. Check that supply voltage is the same as motor nameplate voltage. If the motor has multiple voltage capability, confirm that the motor is properly wired for the supply voltage.

2. Motor has power. Check that power is on and that electrical cord is not heating up because of being undersized. If electrical cord is longer than approximately 15 feet, contact your local electrician. Let him know motor nameplate data: hp, voltage, phase, and motor amperes. If there is power and it is the correct voltage and phase, contact your local Gas Distributor or a Gas Authorized Service Facility.

Motor Starts When Gauge Reads 0 Psi. But, Won't Restart When Under Pressure:

This symptom results from a bad check valve, allowing the pressure in the receiver to leak back to the pump, forcing the pump to start under load. When the motor can't start, a high torque condition will:

1. Trip the thermal overload in the motor (which shuts the motor off).
2. Damage a non-thermally protected motor.

Starts Intermittently:

Disconnect power source to unit. Inspect points in pressure or vacuum switch which may be worn or dirty. Visually inspect for build up or uneven wear. If necessary, contact your local distributor for replacement parts.

Pump Cycles On-Off More Often Than When First Installed:

Air receiver properly filled with water. Drain receiver. The receiver is being used to store condensed water instead of allowing it to fill with compressed air.

Pump/Motor is On (Running) More Often Than When Originally Installed:

1. The air requirement has increased through the use of new or different pneumatic equipment or the system has developed air leaks.
2. Filters are dirty - restricted air flow to pump results in decreased discharge.
3. Inspect head, valves, and rings. Under normal operating conditions (clean, dry air at recommended ambient and operating pressures), installation of a service kit should be considered at approximately 4,000 hours to maintain peak performance.

Air Receiver Loses Pressure:

1. Check for system (pipe, fitting and seat) leaks.
2. The leak is at the pump. Probable cause is, the check valve is allowing the air pressure to leak back from the receiver to the pump.
 - a. On pressure pumps it is common to see bubbles around the head assembly when the pump is in operation. Check for air leaks at the pump after it has been shut off for a few minutes. This will allow the initial pressure between the pump and check valve to bleed off to atmosphere.
 - b. On vacuum systems, the check valve is even more likely to hang up than on pressure systems. Unfortunately, the bubble test cannot be used to test for leak locations. This being the case, remove and perform a visual inspection of the check valve. If necessary, use the AV460 filter prior to the tank to eliminate contaminants.

A Leak is Determined at the Pump:

Relieve all pressure inside of air receiver (until gauge reads 0 psi). Inspect check valve. It must be free from foreign material, wear, and operates freely. Replace if necessary (not serviceable).

AUTHORIZED SERVICE FACILITIES

Gast Manufacturing Inc.
9970 Red Arrow Highway
Bridgman, MI 49106
TEL: 616-926-6171
FAX: 616-465-4600

Gast Manufacturing Inc.
505 Washington Ave
Carlstadt, NJ 07072
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FAX: 201-933-5545

Brenner Fiedler & Assoc.
13824 Bentley Place
Carritos, CA 90701
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TEL: 310-404-2721
FAX: 310-404-7975

Gast Manufacturing Co., Ltd.
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Business Centre, Loudwater
High Wycombe, Bucks HP10 9SD
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TEL: 44 628 532600
FAX: 44 628 532470

Waindree Limited
215 Brunswick Blvd.
Pointe Claire, Quebec
Canada H9R 4R7
TEL: 514-697-8810
FAX: 514-697-8070

Waindree Limited
5769 Coopers Avenue
Mississauga, Ontario
Canada L4Z 3S6
TEL: 416-213-7200
FAX: 416-213-7207

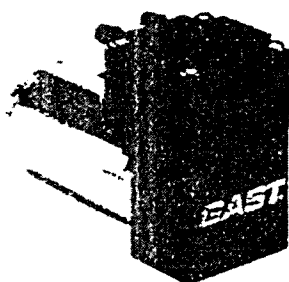
Japan Machinery Co., Ltd.
Central PO Box 1451
Tokyo, 100-91 Japan
TEL: 31-3-3573-5421
FAX: 31-3-3571-7865
Or: 31-3-3571-7896

NOTE: General Correspondence
should be sent to:-
Gast Mfg. Inc./A Unit of DEK Corporation
P.O. Box 37
Benton Harbor, MI 49022-0037



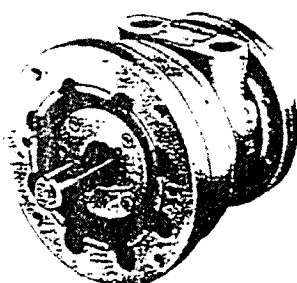
A Unit of **IMX** Corporation

Air Technology Working For People



Micro Diaphragm 10D Series Compressors and Vacuum Pumps

Oilless, motor-mounted, use as compressor or vacuum pump (same code). Pressures to 15 PSi; up to 4.3 cfm OPEN FLOW. Vacuums to 13" HG MAX. VACUUM, 4.3 cfm OPEN FLOW.



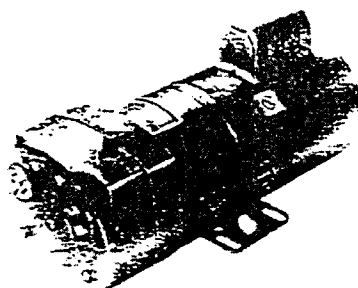
Air Motors

Seven basic models. Sizes from .05hp to 9hp. Choice of five mounting; hub, foot, face, NEMA C-flange, and metric D series interface. Rotation options include clockwise, counter-clockwise and reversible. Four-vane and eight-vane models available. Non-lubricated series up to 1/2 hp available also.



Piston Compressors and Vacuum Pumps

Oilless, motor-mounted and separate-drive models. Pressures to 125 psig; up to 11 cfm free air. Vacuums to 29.5" Hg; up to 10.5 cfm free air.



Rotary Vane Compressors and Vacuum Pumps

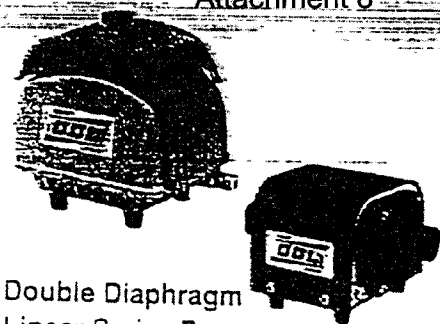
Oilless or lubricated. Motor-mounted or separate-drive models. Open flows to 55 cfm free air. Pressures to 30 psig, vacuums to 29.5" Hg.



Regenerative Blowers

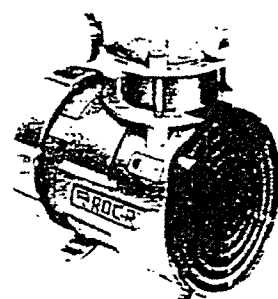
Oilless, motor-mounted and separate-drive models. Twin-ended models available. Pressures to 170" H₂O and vacuums to 135" H₂O; 810 cfm free air. Special models available for soil vapor extraction applications.

Attachment 8



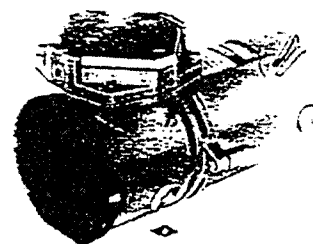
Double Diaphragm Linear Series Pumps

Small, medium, and large capacity pumps. Designed for OEM applications. Offering small, light weight pumps, with a minimum of 35,000 hours service-free life.



Rocking Piston Compressors and Vacuum Pumps

Oilless, motor-mounted, mini, standard and twin models. Pressures to 100 psig; up to 3.25 cfm free air. Vacuums to 29" Hg; up to 2.7 cfm free air.



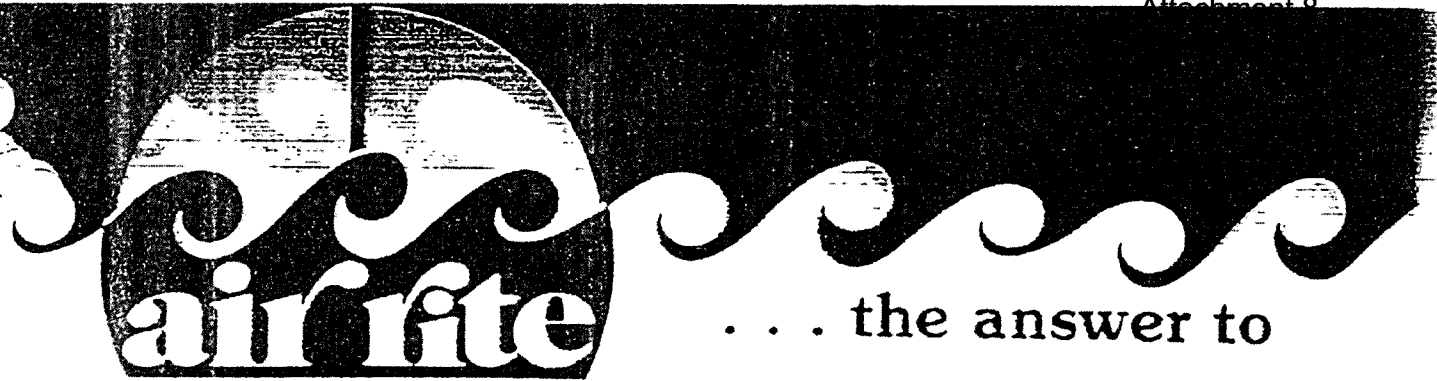
Diaphragm Compressors and Vacuum Pumps

Oilless, motor-mounted, mini, standard and twin models. Pressures to 60 psig; up to 3.3 cfm free air. Vacuums to 29" Hg; up to 3.6 cfm free air.



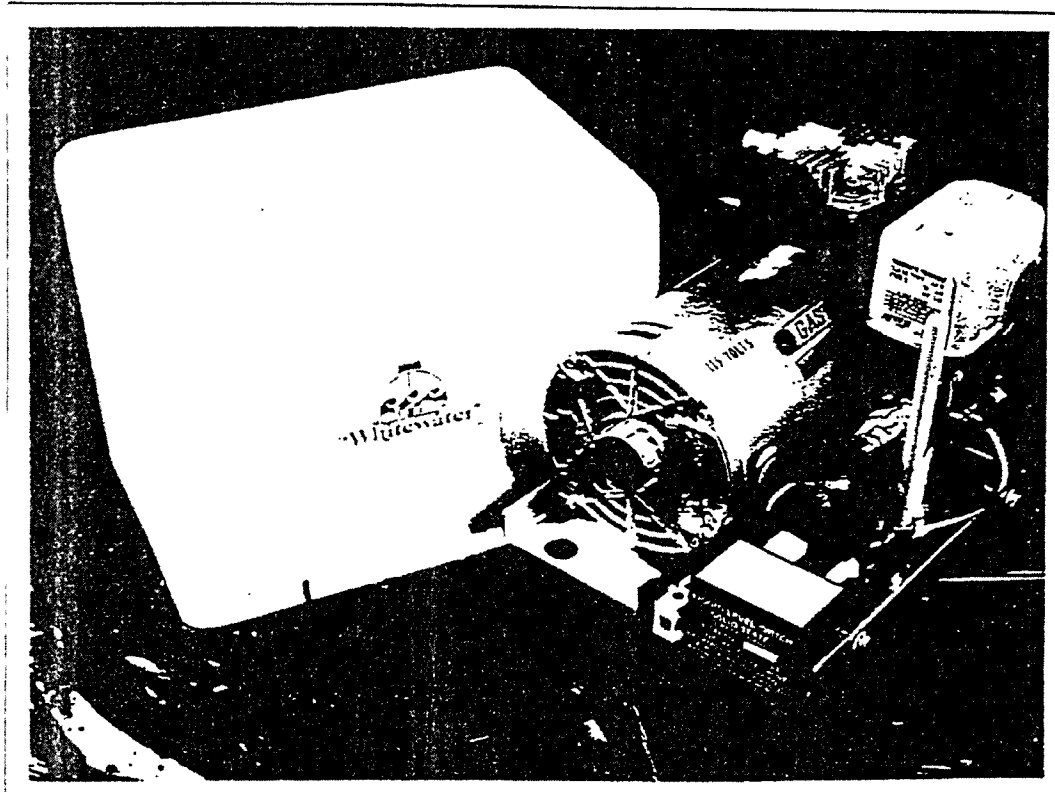
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for Hydropneumatic Tanks!

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Long Life Oil-less Compressor - Adjustable Pressure Switch
Fast Simple Installation - One Year Warranty
Backed by technical advice
from our trained management staff

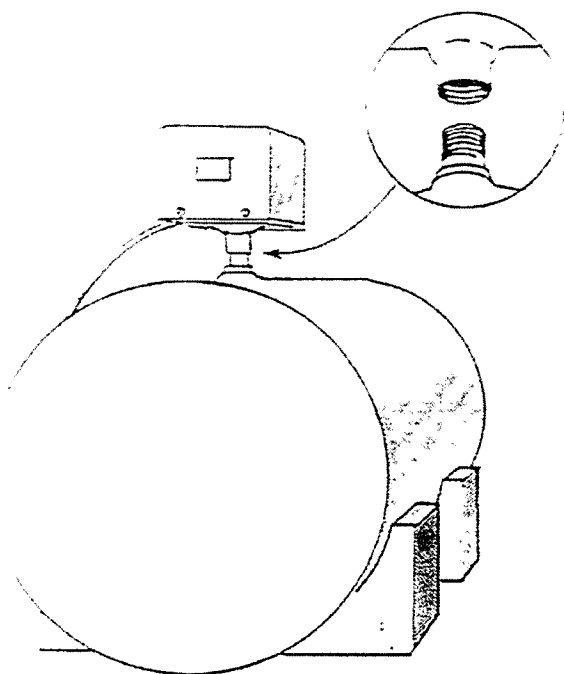


Whitewater MFG. Co., P.O. Box 148, Whitewater, WI 53190 (414) 473-3100 FAX (414) 473-4324

Easy to install, maintenance free . . .

Important Features . . .

The Air Rite Air Volume Control is a completely self contained air charging system. The control has only three basic components: an oil-less air compressor, an encapsulated solid state liquid level switch (with isolated electrode circuit and time delay), and a pressure switch. All of the components are enclosed in a fiberglass cover rendering the entire unit weather-proof. This patented design makes it possible to install the control in a fraction of the time that it takes to install an air volume control system utilizing a separate air compressor. Water containing minerals creates no special problem for the control because the only contact with the water is via the stainless steel, corrosion resistant electrode. The control requires very little maintenance, providing years of trouble-free service.



Operating Principle . . .

The control is composed of three primary elements: the liquid level switch, the pressure switch, and the compressor. The liquid level switch senses the water level in the tank via the electrode suspended into

the tank from the controls base. At the same time the pressure switch monitors the air pressure in the tank. If the water level begins to rise above the electrode and the air pressure in the tank is below the setting on the pressure switch the compressor will begin to pump air into the tank. The compressor will continue to pump air until an adequate air pressure is reached or until the water level falls below the electrode. A time delay in the liquid level switch prevents waves in the tank from causing rapid cycling of the compressor. Since the air in the tank is lost rather slowly by absorption into the water, the control is continuously monitoring the air charge in the tank and the optimum air charge is maintained. Continual monitoring of tank pressure is very important because pressure changes result from both air to water absorption and changing water levels.

Advantages over other types of Air Charging Systems . . .

Experienced water supply system designers agree that no type of air volume control is better than a motor driven air compressor controlled by an electrode that senses the water level in a hydro-pneumatic tank. One obvious advantage to the Air Rite Air Volume Control is that it attaches directly to the hydro-pneumatic tank. No need to worry about long cumbersome pressure hoses or electrode wires. The patented Air Rite design provides a complete motor driven air compressor (good for approx. 4000 working hours) integrated in an air volume control system all in one easy to install enclosure. No additional parts are needed other than a 2" pipe nipple and an electrical supply line. Lastly, the controls are completely protected from the elements - rain, hail, snow, ice or wind - that may be encountered by a hydro-pneumatic tank. Any pump installer or maintenance man can install an Air Rite Control in minutes.

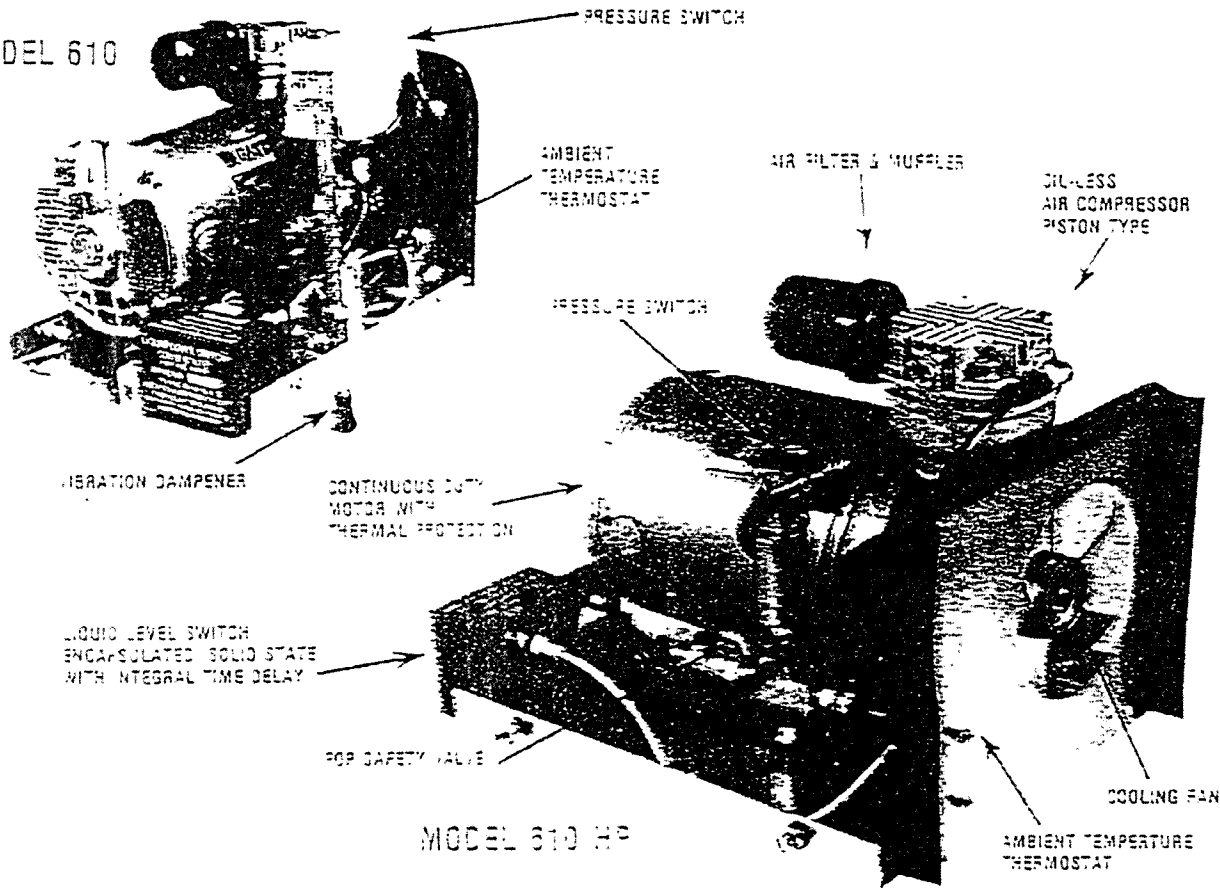
Warranty . . .

All Air Rite parts carry a one year limited warranty on all parts and workmanship.

*Depending on the operating conditions of your unit.

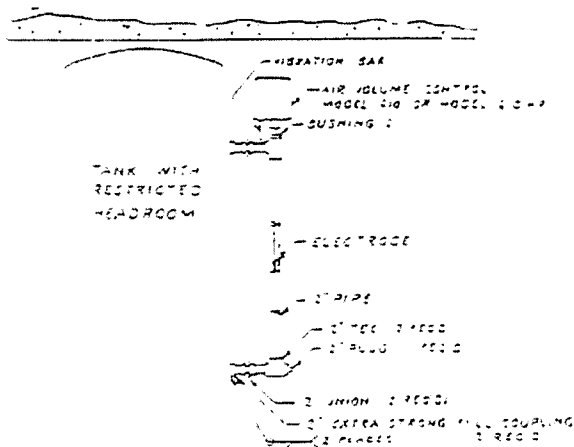
*For tanks larger than 15,000 gallons or pressures up to 175 PSI--Request information on Model 625 or 900.

MODEL 610

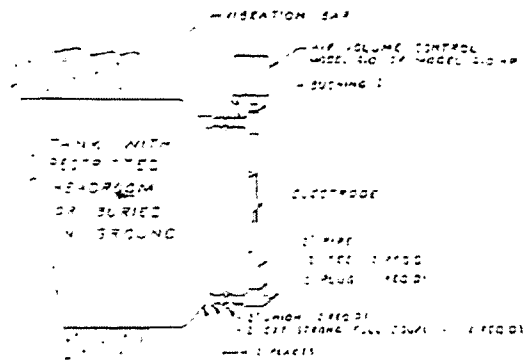


MODEL 610 HP

SIDE MOUNTING ON VERTICAL TANK



END MOUNTING ON HORIZONTAL TANK



TECHNICAL DATA

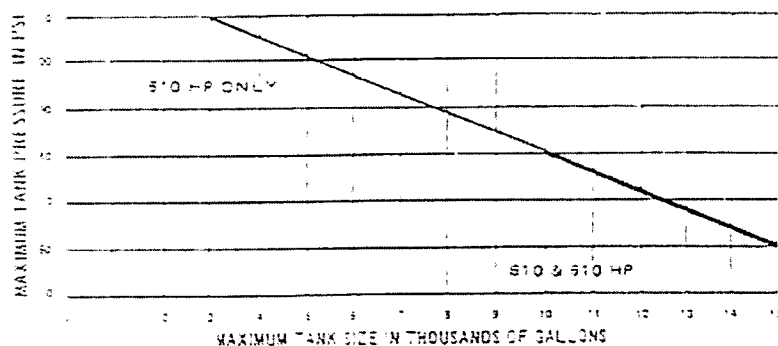
Air Rite Control Model Number	610	610 HP
Maximum Tank Size in Gallons	15,000*	15,000*
Maximum Tank Pressure in PSI	80*	110*
Operating current in amperes for 115 volt rating	3.4	3.4
Operating current in amperes for 230** volt rating	2	2
Control pressure switch factory setting in PSI (shut off)	50 adjust	30/81 adjust
Tank connector size	2" NPT	2" NPT
Space required over top of tank. Length x Width x Height in inches (Note)		
Fiberglass cover must be in place at all times - inside and out - for air movement	10x14x17	10x14x17
Shipping wt. in lbs	35	35

See trade-off graph for maximum tank pressure which can be used with a particular tank size.
Min. Pressure 40 PSI For 610 HP

Model 610 and 610 HP rated for 100 volts may also be operated at 208 volts.

***When ordering specify model number and voltage required, 115 volts or 230 volts. The compressors have single voltage motors. All models are single phase.

**Available 50-60 hertz, 230 volt only



TRADE OFF GRAPH

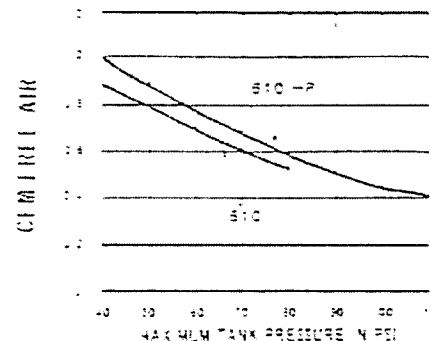
EXAMPLE 1: If the water pump capacity is greater than 10% of the Tank capacity you must use a 610 HP.

EXAMPLE 2: A 610 can be used on a 0,000-10,000 gallon tank with a maximum working pressure of 50 PSI.

EXAMPLE 3: A 10,000 gallon tank could be operated at a pressure of up to 70 PSI either the 610 or 610 HP would work.

EXAMPLE 4: If the pump must operate in the range of 50-100 PSI maximum tank size is 5,000 gallons and only the 610 HP would work.

SPECIFY: Air Rite and save time, money and worry. Procurement, installation and maintenance are reduced to an absolute minimum when you use Air Rite Air Volume Controls.



COMPRESSOR DELIVERY

THIS DATA IS BASED UPON A DIFFERENTIAL OF 10 PSI BETWEEN WATER PUMP "START" AND "STOP" PRESSURE.

MODEL 610 has a pumping differential of 14 PSI between stop and start.

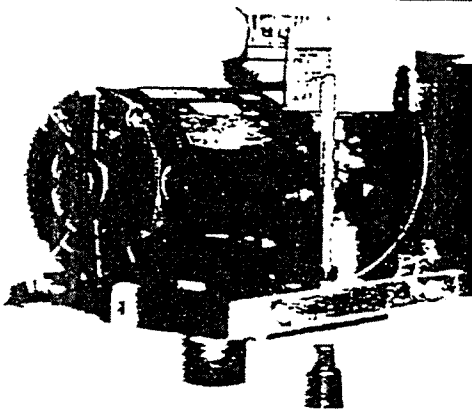
MODEL 610 HP has a pumping differential of 9 PSI between stop and start.

DISTRIBUTED BY:

Whitewater

MFG. Co.

78 EAST MILWAUKEE STREET • P.O. BOX 148 • WHITEWATER, WISCONSIN 53190 • 414/473-3100



Air-Rite Control Model Number	510	510HP
Maximum tank size in gallons	15,000	15,000
Maximum tank pressure in PSI	50	110
Operating current in amperes for 115 volt rating	3.4	3.4
Operating current in amperes for 200 volt rating	2	2
Control pressure switch factory setting in PSI	50	90
	adjustable	adjustable
Tank connection size	1" NPT	1" NPT
Spools provided over 100 ft. tank	Optional	Optional
Shipping weight in pounds	25	25

AIR-RITE AIR VOLUME CONTROL

DRAWDOWN

GALLONS

LARGE HYDRO-PNEUMATIC TANKS

Water/Air Pump Out-Out	Pump Pressure Switch Setting		TANK SIZE GALLONS							
	On	Off	500	750	1,000	2,000	3,000	5,000	10,000	15,000
50% Water 50% Air	20	40	144	216	288	576	864	1,440	2,880	4,320
	30	50	112	168	224	448	672	1,120	2,240	3,360
	40	60	91	137	182	364	546	910	1,820	2,730
	40	55	114	171	228	456	684	1,140	2,280	3,420
	50	70	77	116	154	308	462	770	1,540	2,310
	50	75	97	145	193	384	579	965	1,930	2,895
	50	80	118	176	235	470	705	1,175	2,350	3,525
	50	90	101	151	201	402	603	1,005	2,010	3,015
	70	100	90	135	180	360	540	900	1,800	2,700
65% Water 35% Air	90	120	71	107	142	284	426	710	1,420	2,130
	20	40	160	239	319	638	957	1,595	3,190	4,785
	30	50	124	186	248	496	743	1,240	2,480	3,720
	40	60	101	152	202	404	606	1,010	2,020	3,030
	40	55	132	190	253	506	759	1,265	2,530	3,795
	50	70	85	128	170	340	510	850	1,700	2,550
	50	75	102	155	212	424	636	1,060	2,120	3,180
	50	80	120	185	250	520	780	1,300	2,600	3,900
	50	90	113	169	225	450	675	1,125	2,250	3,375
40% Water 60% Air	70	100	100	150	200	400	600	1,000	2,000	3,000
	90	120	79	118	157	314	471	785	1,570	2,355
	20	50	124	201	268	536	804	1,340	2,680	4,020
	40	60	111	167	222	444	666	1,110	2,220	3,330
	40	55	104	209	278	556	834	1,390	2,780	4,170
	50	70	99	149	198	396	594	990	1,980	2,970
	50	75	116	174	232	464	696	1,160	2,320	3,480
	50	80	141	212	282	564	846	1,410	2,820	4,230
	50	90	123	184	245	490	735	1,225	2,450	3,675
	70	100	109	164	218	436	654	1,090	2,180	3,270
	90	120	85	129	170	340	510	850	1,700	2,550

MODEL 610 and MODEL 610HP AIR VOLUME CONTROLS

1. CUT ELECTRODE WIRE TO THE PROPER LENGTH AS SHOWN IN FIGURE 1.
2. CONNECT ELECTRODE WIRE TO CONTROL BASE CONNECTOR AND INSTALL ELECTRODE ON WIRE END. PULL ON ELECTRODE TO INSURE THAT CONNECTIONS ARE TIGHT. DO NOT APPLY EXCESSIVE TORQUE TO BASE CONNECTOR SCREW OR IT WILL SHEAR THE WIRE.
3. ATTACH CONTROL TO TOP OF TANK USING A 2" NIPPLE 3" LONG. THREADS MUST BE SEALED AIR TIGHT. VIBRATION DAMPER BAR MUST LINE UP WITH TANK CENTERLINE.
4. REMOVE CONTROL COVER. SECURE VIBRATION DAMPER BAR AGAINST TANK AND INSTALL POWER LINE TO THE CONTROL. THE AIR RITE MUST BE WIRED INDEPENDENTLY FROM THE WATER PUMP. NO WAY SHOULD IT BE CONNECTED ELECTRICALLY TO THE WATER PUMP.
5. TURN ON THE POWER TO BOTH THE WATER PUMP AND CONTROL AND ADJUST THE CONTROLS PRESSURE SWITCH TO OPEN (SHUT OFF) 5 LBS. BEFORE THE WATER PUMP OPENS (SHUTS OFF). I.E. IF THE WATER PUMP IS SET ON A 40-60 SETTING THE AIR RITE MUST BE ADJUSTED TO SHUT OFF AT 55 LBS. THE AIR RITE MUST SHUT OFF 5 LBS. BEFORE THE WATER PUMP SHUTS OFF.

ADDITIONAL INFORMATION

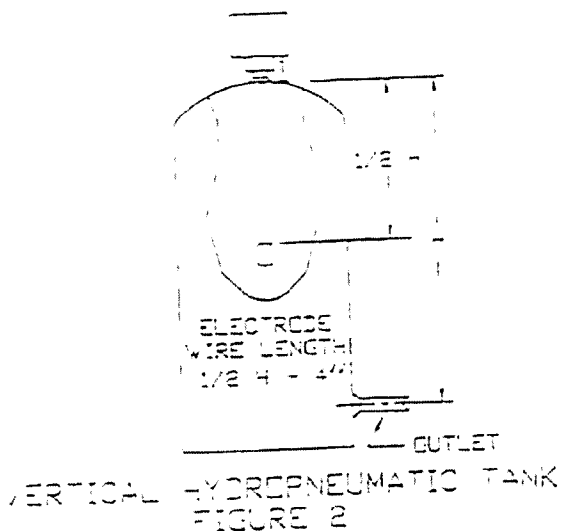
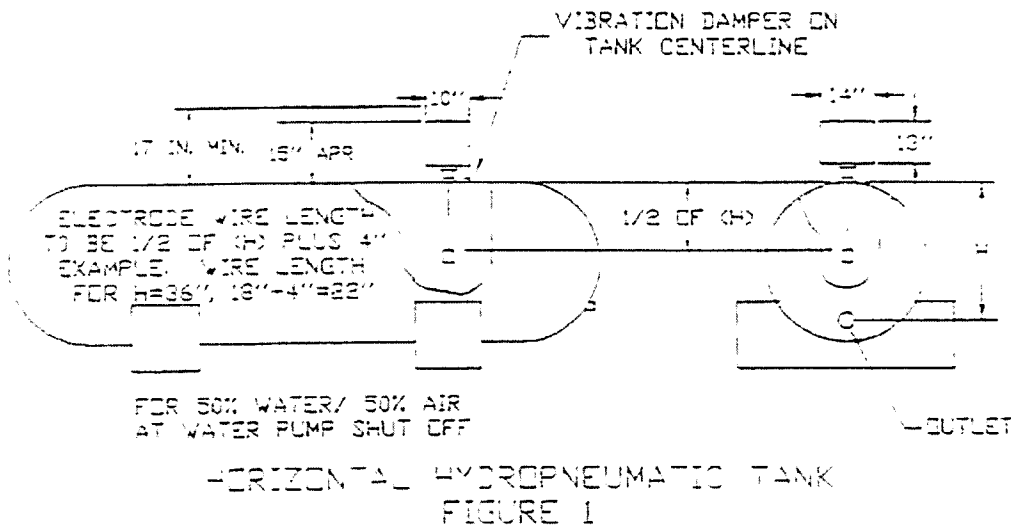
- A. LOCATION
THE CONTROL SHOULD BE LOCATED NEAR THE END OF THE TANK IF POSSIBLE AND SHOULD NOT BE LOCATED OVER THE IN LET PIPE.
- B. PIPE NIPPLE
USE A 3" PIPE NIPPLE 1" IN DIAMETER TO ATTACH UNIT TO TANK.
- C. THREAD SEAL
SEAL PIPE THREADS WITH LOCKTITE "PIPE SEALANT WITH TEFLON" OR TEFLON TAPE. ORDINARY PIPE DOPE WILL WORK, BUT DOESN'T SEAL AIR AS WELL AND MAKES FUTURE DISASSEMBLY DIFFICULT. CHECK FOR AIR LEAKS WITH LIQUID LEAK DETECTOR.
- D. PRESSURE SWITCH PRESET
THE CONTROLS PRESSURE SWITCH IS PRE-SET AT THE FACTORY. MODEL 610 IS SET TO SHUT OFF (OPEN). IT WILL ONLY WORK WITH A WATER PUMP SET ON A 35-55 LB. DIFFERENTIAL. IF YOUR WATER PUMP OPERATES ON ANYTHING OTHER THAN A 35-55 LB. SETTING YOU MUST RE-ADJUST THE AIR RITE PRESSURE SWITCH TO SHUT OFF 5 LBS. BEFORE THE WATER PUMP SHUTS OFF. THE 610HP ON THE OTHER HAND IS ADJUSTED TO SHUT OFF AT 30 PSI. IT WILL ONLY WORK WITH A WATER PUMP SET ON A 65-85 LB. SETTING. IF YOUR WATER PUMP OPERATES ON ANYTHING OTHER THAN A 65-85 LB. SETTING YOU MUST READJUST YOUR AIR RITE PRESSURE SWITCH TO SHUT OFF 5 LBS. BEFORE THE WATER PUMP SHUTS OFF. IN BOTH THE 610 AND 610HP YOU MUST TURN THE ADJUSTMENT KNOB TO CHANGE THE PRESSURE SETTING. ONCE AGAIN, THE AIR RITE MUST SHUT OFF 5 LBS. BEFORE THE WATER PUMP SHUTS OFF.
- E. PRESSURE SWITCH MODEL 610HP
THE ONLY DIFFERENCE BETWEEN THE 610 HP AND THE 610 PRESSURE SWITCH IS THAT THE HP HAS ONLY A 9 LB. DIFFERENTIAL, WHEREAS THE 610 HAS A 14 LB. DIFFERENTIAL. BY THIS WE MEAN THAT THE HP PRESSURE SWITCH (WHEN SET TO SHUT OFF AT 30 LBS.) WILL COME ON AT ABOUT 71 LBS. REMEMBER THERE IS A 15 TO 20 SECOND TIME DELAY BUILT INTO THE SYSTEM. HOWEVER, A 9 LB. PRESSURE DROP IN THE TANK WILL CAUSE THE 610HP TO COME ON WHEREAS A DROP OF 14 LBS. IS REQUIRED TO TURN ON THE MODEL 610 AIR RITE.

F. THERMOSTAT

THE CONTROL CONTAINS A THERMOSTAT WHICH WILL PREVENT THE COMPRESSOR FROM RUNNING WHEN THE TEMPERATURE IS HIGH. IF HIGH TEMPERATURE PREVENTS THE COMPRESSOR FROM RUNNING WHEN POWER IS TURNED ON, THE THERMOSTAT MAY BE OVERRIDDEN BY SHORTING ACROSS ITS TERMINALS. ALLOW TIME FOR THE LIQUID LEVEL SWITCH TIME DELAY TO WORK AFTER SHORTING THE THERMOSTAT. DO NOT FORCE THE COMPRESSOR TO RUN MORE THAN ABOUT A MINUTE AT A TIME WHEN HOT.

G.

IT IS IMPORTANT THAT THE CONTROL HAS ITS OWN POWER LINE FROM THE MAIN ENTRANCE SWITCH. NEVER WIRE THE CONTROL IN PARALLEL TO A MOTOR BECAUSE THE SURGE VOLTAGE PRODUCED WHEN THE MOTOR IS TURNED OFF WILL RUIN THE CONTROLS LIQUID LEVEL SWITCH.



WHITEWATER MFG. CO.

1103 E. MILWAUKEE ST.

P.O. BOX 148

WHITEWATER, WI 53190

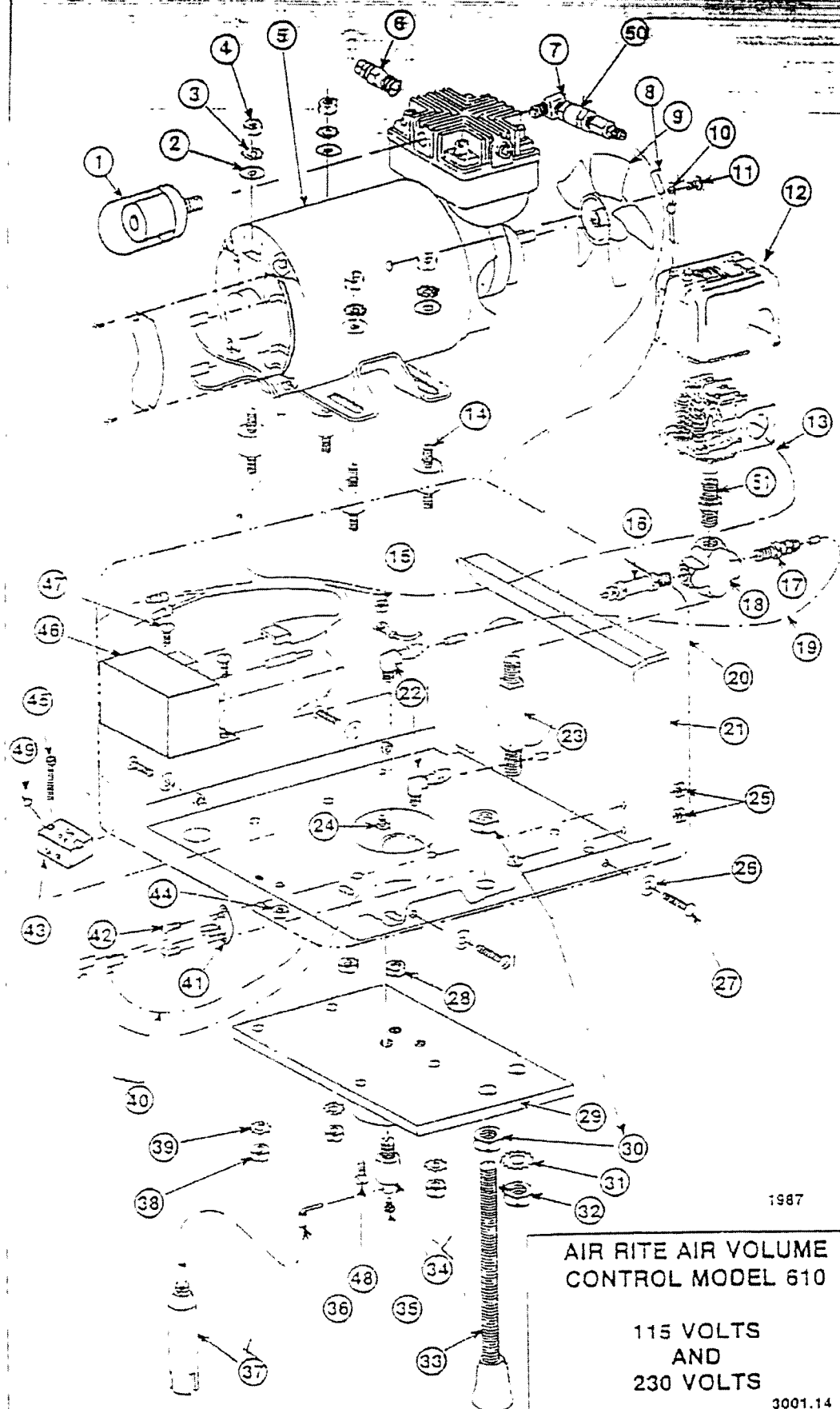
PHONE: 1-414-473-31

FAX: 1-414-473-4324

Parts List

Attachment 8

- 40732 Filter Assy.
E30953 Washer
E30924 Lockwasher
40918 Nut
— for Assy.
5 115V
50683 230 230V
40791 Valve, Pool Safety
40718 Elbow, Male
40797 Tubing, Upper
40790 Fan
50632 Ground Strip Assy.
E30922 Screw
40003 Switch, Pressure
A. 50679 Harness Assy. 115V
B. 50680 Harness Assy. 230V
40040 Mount, Motor
E30908 Nut
40055 Valve, Pool Safety
40705 Connector, Male
40709 Cross
40795 Tubing, Lower
Cover
40871 115V
40872 230V
40895 Chassis
40706 Elbow, Male
4442 Standard
— for
30906 Nut
30963 Washer
30964 Screw
30962 Nut
3534 P Base
30945 Nut
30947 Washer
30945 Nut
3544 Vibration Bar Assy.
3057 Feed Thru Connector
30906 Screw
3636 Electrode Wire
3021A Electrode Assy
30916 Nut
30924 Lockwasher
3637 Thermostat Wire Assy.
3007 Thermostat
30906 Screw
3699 Terminal Block
30908 Nut
30907 Screw
50660 Liquid Level Switch 115V
30660 Liquid Level Switch 230V
30959 Grd. Screw
775 Grd. Lug
625 Check Valve Assy.
1712 Nipple, Hex



1987

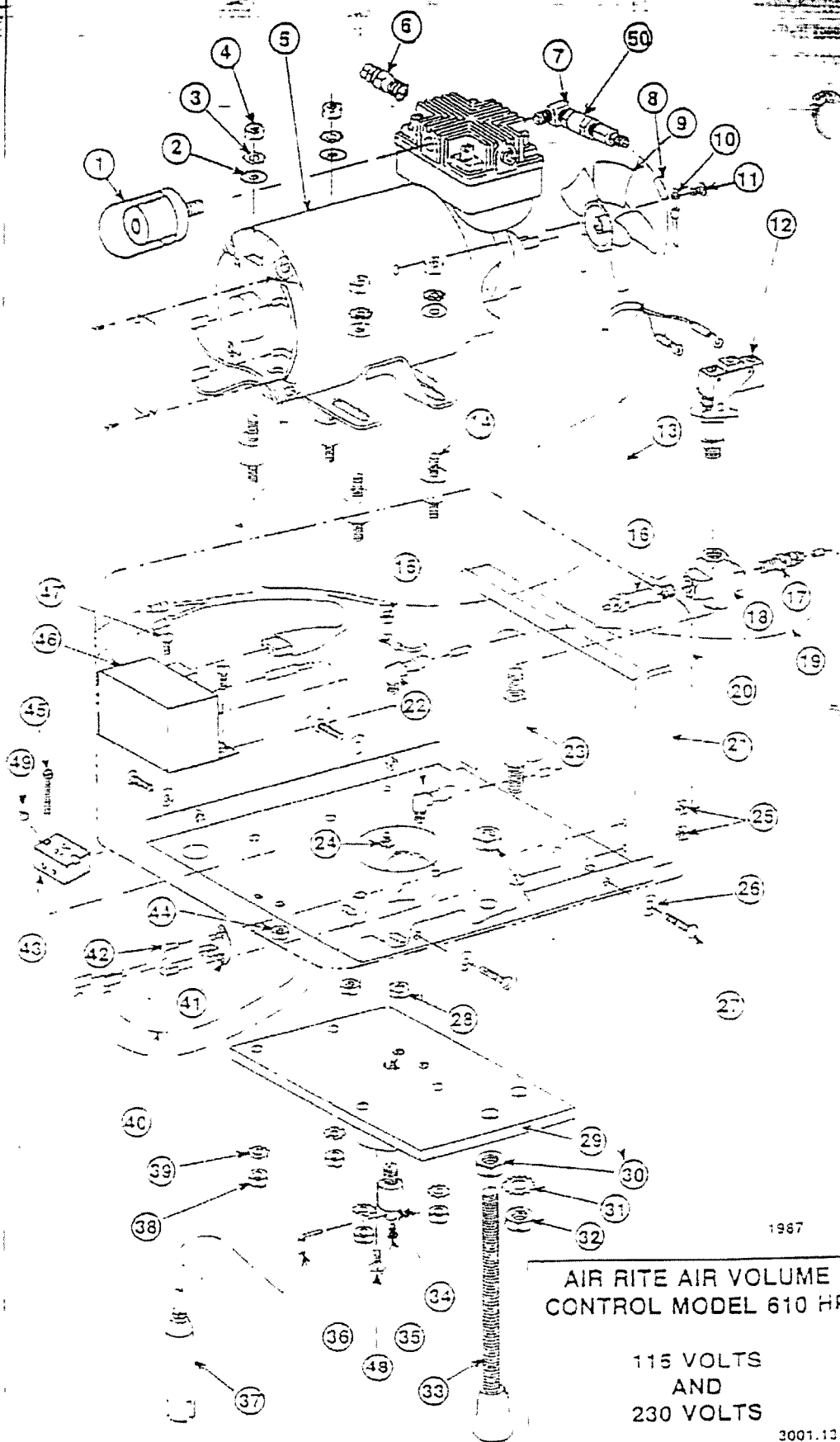
AIR RITE AIR VOLUME
CONTROL MODEL 610

115 VOLTS
AND
230 VOLTS

3001.14

Parts List

- ① 40792 Filter Assy.
- ② E30953 Washer
- ③ E30924 Lockwasher
- ④ E30916 Nut
- ⑤ Compressor Assy.
50633 115 115V
50633 230 230V
- ⑥ 40791 Valve, Pop Safety
- ⑦ 40718 Elbow, Male
- ⑧ 40797 Tubing, Upper
- ⑨ 40720 Fan
- ⑩ 50632 Ground Strap Assy.
- ⑪ E30922 Screw
- ⑫ 40004 Switch, Pressure
- ⑬ A. 50679 Harness Assy. 115V
B. 50680 Harness Assy. 230V
- ⑭ 40040 Mount, Motor
- ⑮ E30908 Nut
- ⑯ 40056 Valve, Pop Safety
- ⑰ 40795 Connector, Male
- ⑱ 40799 Cross
- ⑲ 40796 Tubing, Lower
- ⑳ Cover
506872 115V
506871 230V
- ㉑ 50695 Chassis
- ㉒ 40706 Elbow, Male
- ㉓ 50642 Standard
- ㉔ E30906 Screw
- ㉕ E30908 Nut
- ㉖ E30963 Washer
- ㉗ E30964 Screw
- ㉘ E30962 Nut
- ㉙ 50654 P. Base
- ㉚ E30945 Nut
- ㉛ E30947 Washer
- ㉜ E30946 Nut
- ㉝ 50644 Vibration Bar Assy.
- ㉞ 50057 Feed Thru Connector
- ㉟ E30906 Screw
- ㊱ 50656 Electrode Wire
- ㊲ 40021A Electrode Assy
- ㊳ E30915 Nut
- ㊴ E30924 Lockwasher
- ㊵ 50637 Thermostat Wire Assy
- ㊶ 40007 Thermostat
- ㊷ E30906 Screw
- ㊸ 50699 Terminal Block
- ㊹ E30908 Nut
- ㊺ E30907 Screw
- ㊻ A. 50660 Liquid Level Switch 115V
B. 50660 Liquid Level Switch 230V
- ㊼ E30960 Screw
- ㊽ E30959 Grd. Screw
- ㊾ 40775 Grd. Lug
- ㊿ 50625 Check Valve Assy.



1987

AIR RITE AIR VOLUME
CONTROL MODEL 610 HP

115 VOLTS
AND
230 VOLTS

3001.13



Urban Development LLC
4747 Research Forest Dr, Ste 180-307
The Woodlands, Texas 77381

PROJECT:

Cottage Gardens WTP Pumphouse

Building

Prepared for: Inline Utilities

Prepared by: Justin J Baca

Project Summary:

Foundation:

- 16 ft x 16 ft monolithic slab

\$4,100.00

Building:

- Framing 2 x 4 construction
- Siding Hardi
- Roofing 25 year composite shingle
- Paint (Exterior only)

\$5,300.00

Electrical:

- 120/ 240 Service
- Exterior motion detection
- Security

\$3,100.00

Total Project Amount

\$12,500.00

Acceptance of Proposal

Owners Signature: _____

Date: _____