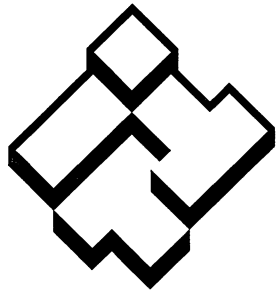


A-C Pump



ITT Industries

I N S T R U C T I O N S

Installation
Operation
Maintenance

**1500 SERIES
IN-LINE PUMPS**

SINGLE STAGE SINGLE SUCTION

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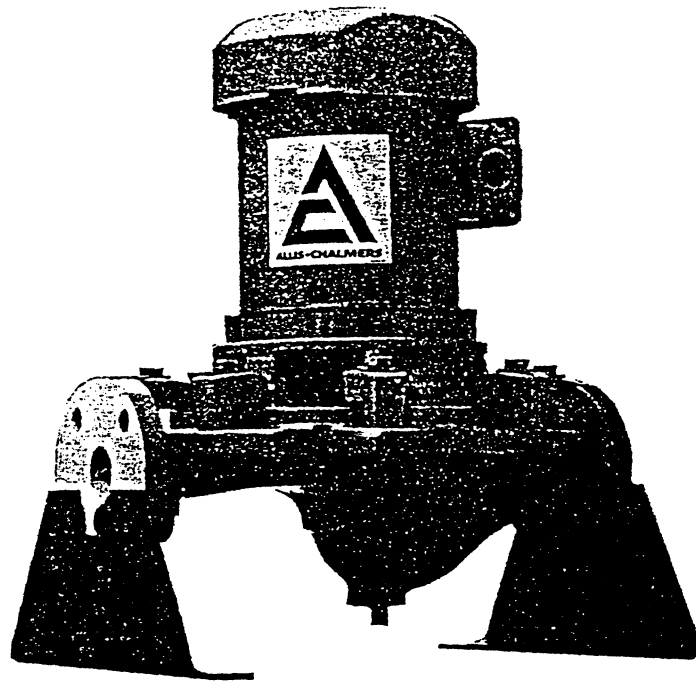
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General Pump Instruction

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1500 SERIES IN-LINE PUMPS

SINGLE STAGE SINGLE SUCTION



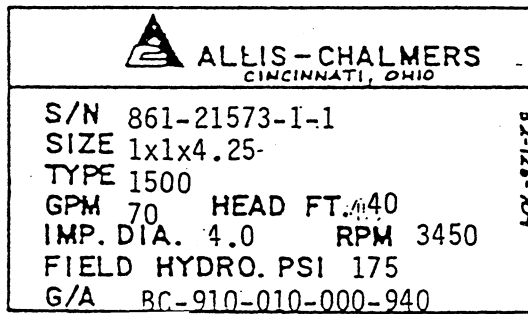
NOTE

The information contained in this book is intended to assist operating personnel by providing information on the characteristics of the purchased equipment.

It does not relieve the user of the responsibility of using accepted engineering practices in the installation, operation and maintenance of this equipment.

PUMP IDENTIFICATION

Allis-Chalmers pumps are designated by a pump type, such as 1500 Series. The pump nameplate gives identification and rating information. A sample nameplate is shown below, followed by an explanation of the information provided on it. Permanent records for this pump are kept by the serial number and; therefore, must be used with all correspondence and spare parts orders. The last digit indicates the specific pump on orders of more than one pump. For example if the order below called for six pumps, all pumps would have the same first three digits and the last digit would change to identify each of the six pumps.

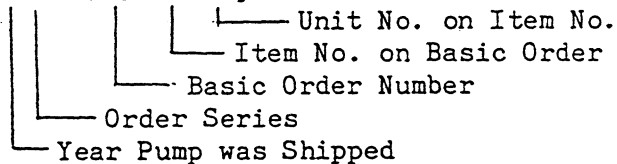


SAMPLE NAMEPLATE

EXPLANATION OF NAMEPLATE INFORMATION:

SERIAL NUMBER: Composed of certain groups of numbers. All groups are necessary for identification.

[Example S/N: 861-21573-01-01]



SIZE: Composed of three groups of numbers. Example: 1x1x4 1/4 First Group, "1", is the Suction Size in inches. Second Group, "1", is the Discharge size in inches. Third Group, "4 1/4", is the Nominal Maximum Impeller Diameter in inches.

TYPE: Refers to a particular product line of pumps. Example: "1500" is the Allis-Chalmers product line for Fractional HP Inline Pumps.

FIELD HYDROTEST PRESSURE: This is the Maximum Pressure, in psig., Allis-Chalmers recommends the pump be subjected to when installed. Isolate the pump when exceeding this pressure.

IMPELLER DIAMETER: This number is the actual impeller diameter in the pump in inches. Example: 4.0 inches means that this particular pump has a 4.0 inch impeller installed in it.

G/A: General Assembly Number

Example: BC-910-010-000-910 describes to Allis-Chalmers a particular size and type of pump, as well as a Bill of Material for the pump. It does not; however, define the proper impeller diameter. This number will describe a great deal about a particular pump, which is useful when ordering replacement parts.

DISASSEMBLY AND REASSEMBLY PROCEDURES

The procedures outlined in this section cover the dismantling and reassembly of 1500 Series pumps.

When working on the pump, use accepted mechanical practices to avoid unnecessary damage to parts. Check the condition of all pump parts when the pump is dismantled and replace if necessary. Steps should usually be taken to restore the impeller and casing running clearance when it exceeds twice the original diametrial clearance of .015"-.018" inclusive.

GENERAL DISMANTLING INSTRUCTIONS (Refer to Explosion View Page 6 for part identification and catalog numbers contained in these procedures)

1. Disconnect the power source to the driver.
2. Close the suction and discharge valves to isolate the pump from the system. Turn off liquid supply.

DISMANTLING PROCEDURE

I. INITIAL DIS-ASSEMBLY

1. Drain the pump by removing the casing drain plug (2-910-0) and adapter/stuffbox vent plug (1-910-0).
2. Unbolt the motor and adapter/stuffbox (0-242-0) & (1-140-0) from the casing (2-001-0) by removing 8 capscrews (0-902-0) and 8 clamping lugs (0-937-0) and washers (0-909-9). Pull the entire rotating assembly, including the motor from the casing.
3. Remove the "O-Ring" (2-914-0) from between the casing (2-001-0) and adapter/stuffbox (1-140-0) and inspect for damage. Replace if necessary.
4. Inspect casing (2-001-0) interior for excessive wear or damage or foreign material build. Replace or clean out if necessary.

II. IMPELLER REMOVAL

1. Hold impeller (4-002-0) by the outside diameter.
2. Remove impeller nut (4-023-0). Do this by turning, the impeller nut counter-clockwise as viewed from the impeller suction inlet. Also remove "D" Lockwasher (0-917-0). (An alternate method is to remove the endplate snap plug from motor outboard end to expose the end of the motor shaft. Hold the shaft with a screwdriver on the outboard end of shaft, while turning the impeller nut counter-clockwise).
3. Remove impeller (4-002-0) by turning counter-clockwise, while holding the shaft with a screwdriver on the outboard end of shaft.
4. Measure impeller wear ring turn and casing wear ring bore. If clearances are more than twice the original, they should be restored by replacing or resurfacing casing or impeller or both.

III. DISMANTLING THE ADAPTER/STUFFBOX

1. Remove the 4 capscrews (0-904-0) holding the motor to the adapter/stuffbox (1-140-0). Slide adapter/stuffbox over motor shaft, this will also remove mechanical seal (6-400-0) from motor shaft. Note: Mechanical Seal Head has taken a permanent set on the shaft so some force will have to be exerted on adapter/stuffbox to press off seal head.
2. After removing the Mechanical seal (6-400-0) from the adapter/stuffbox (1-140-0) examine for excessive wear or damage, and if necessary replace.
3. Remove the deflector (1-136-0). Inspect for wear or damage. Replace if necessary.
4. Inspect motor (0-242-0). Repair or replace if necessary.

ASSEMBLY PROCEDURES

I. MECHANICAL SEAL

1. Install mechanical seal stationary seat (6-400-0) into adapter/stuffbox (1-140-0) counter-bore. CAUTION: Do not use petroleum based lubricant on Ethylene Propylene Rubber Elastomer. Use Glycerin or Propylene Glycol or Equal. Take care to keep seal face free of foreign materials. Do not use any sort of grease to install mechanical seal parts.

II. ADAPTER/STUFFBOX

1. Slide the deflector (1-136-0) on motor shaft.
2. Assemble the adapter/stuffbox (1-140-0) to motor, using 4 cap screws (0-904-0). Alternately torque cap screws to 25 Ft./Lbs.
3. Slide mechanical seal head (6-400-0) on shaft until mating face touches mechanical seal seat. CAUTION: Do Not use petroleum based lubricant on Ethylene. Use Glycerin or Propylene Glycol or Equal. Take care to keep seal face free of foreign materials. Do not use any sort of grease to install mechanical seal parts.

III. IMPELLER

1. Start the impeller (4-002-0) threads onto motor shaft turning clockwise rotation viewed from the suction inlet. Hold shaft from outboard end of motor with screwdriver placed in shaft slot, and hand tighten impeller.
2. Install impeller "D" lockwasher (0-917-0) on motor shaft over flat. Also, install impeller nut (4-023-0). (Note: If a new motor is being installed, file a flat on motor shaft to accept the "D" lockwasher. Filed flat should be .062" deep and extend back .44" from shaft end).
3. Hold shaft from outboard end of motor with screwdriver and tighten impeller nut (4-023-0) to 15 Ft/Lbs.
4. Apply Bakerseal or equal to pipe plug threads in casing (2-001-0), and in adapter/stuffbox (1-140-0). Install 3 pipe plugs (2-910-0) in casing and one pipe plug in adapter/stuffbox (1-910-0).

5. Install O-Ring (2-914-0) in casing O-Ring groove. CAUTION: Do not use petroleum based lubricant on Ethylene Propylene Rubber (EPR) Elastomer. Use glycerin or propylene glycol.
6. Seat rotating assembly including motor into casing (2-001-0).
7. Assemble 8 clamp lugs (0-937-0), washers (0-909-0), and cap screws (0-902-0) to casing. Align clamp lugs and alternately tighten to 35 Ft/Lbs. (Tighten diagonally opposite cap screws, progressing around the adapter/stuffbox until it has been drawn up evenly into the casing fit). Verify that shaft turns free with no rubbing, by using a screwdriver in the outboard end of shaft to rotate.
8. Install snap plug in outboard end of motor.

ORDERING PARTS

The pumps covered by this manual have been designed and built with certain replaceable wearing parts. The recommended inventory of spare parts depends upon the installation and the importance of continued operation.

For critical service requiring minimum of "down time" a complete or "quick change" rotating element is recommended.

For normal service, with repairs to be made in the field, the following parts are recommended for stock.

- 1 set of motor bearings
- 1 casing "O"-ring
- 1 mechanical seal (complete)

Parts should be ordered as far in advance of their use as possible since circumstances beyond the control of the company may reduce existing stock. Not all parts are stocked and must be manufactured for each order.

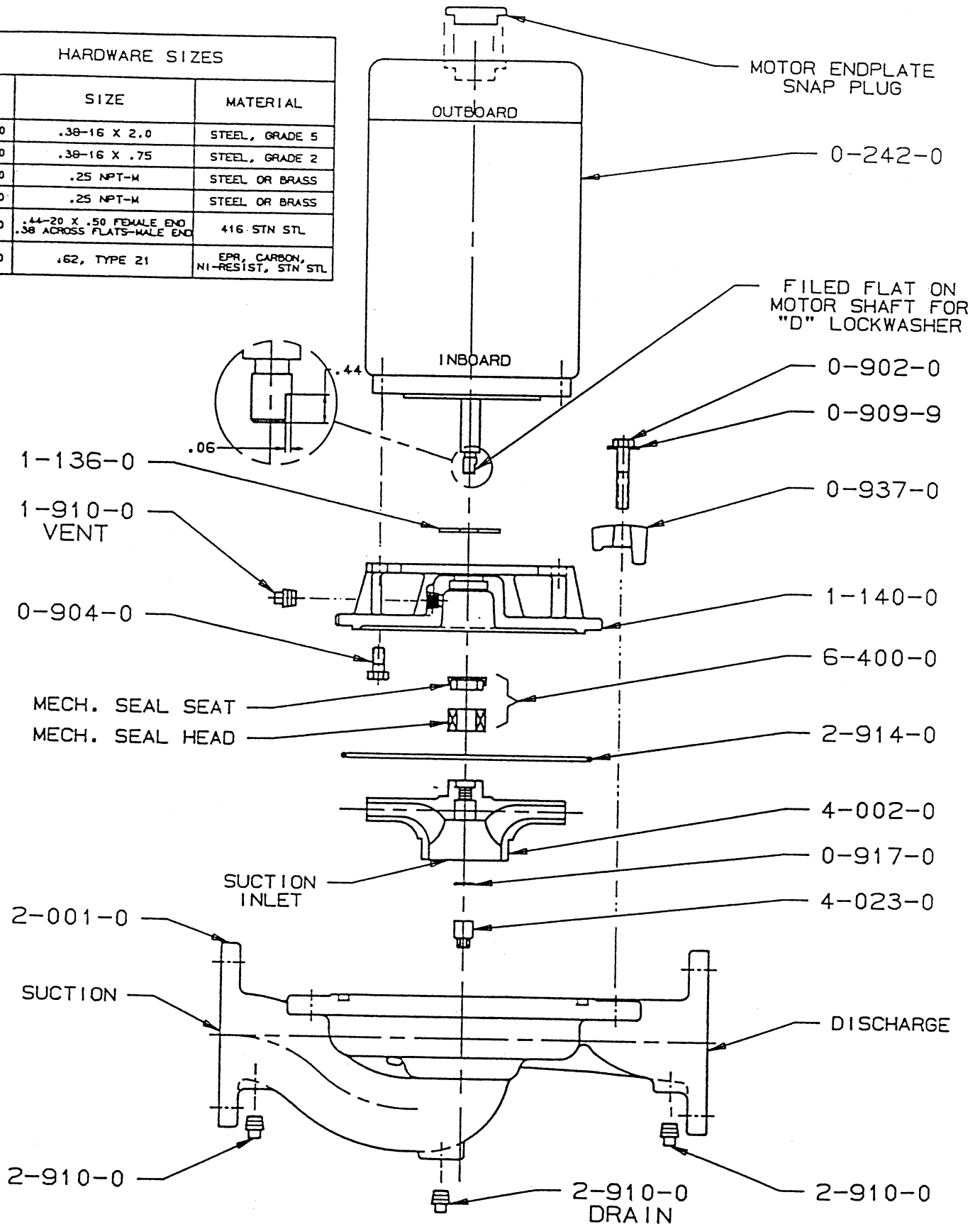
To facilitate rapid handling of your order for spare parts, be sure to include the following information:

1. Serial number
2. Quantity of each part
3. Catalog number of the part.
4. Name of the part.
5. Material desired. (Parts will be furnished in original materials unless specified as a material change. All material substitutions should be discussed with the factory).

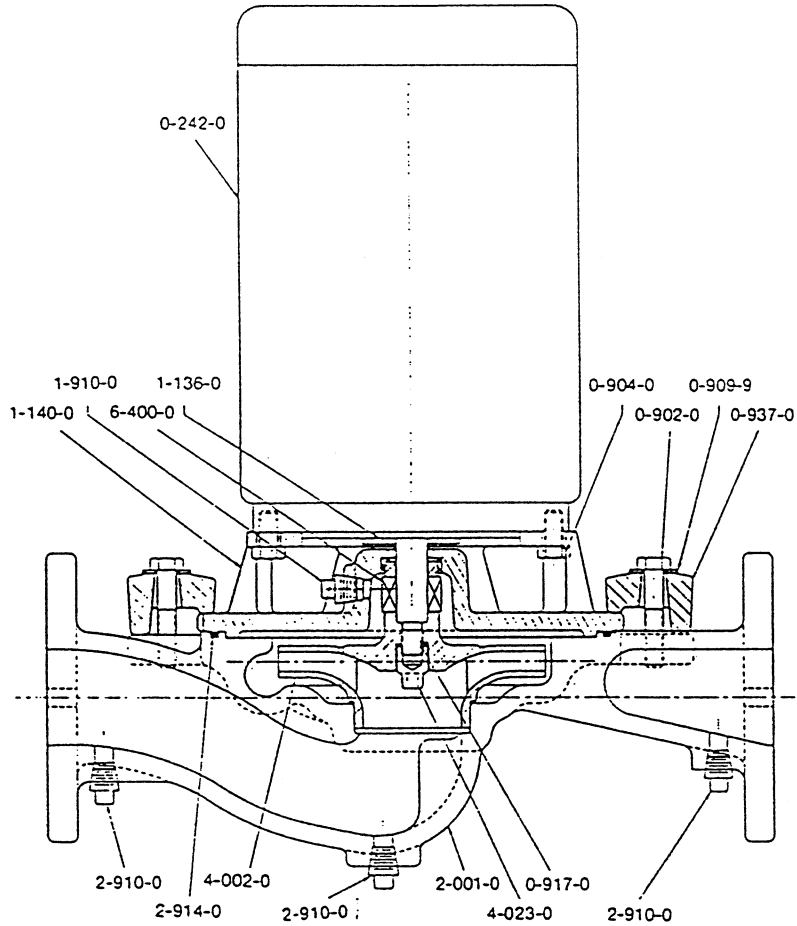
1500 SERIES IN-LINE PUMPS

EXPLODED VIEW

HARDWARE SIZES		
CAT. NO.	SIZE	MATERIAL
0-902-0	.38-16 X 2.0	STEEL, GRADE 5
0-904-0	.38-16 X .75	STEEL, GRADE 2
1-910-0	.25 NPT-M	STEEL OR BRASS
2-910-0	.25 NPT-M	STEEL OR BRASS
4-023-0	.44-20 X .50 FEMALE END .38 ACROSS FLATS-MALE END	416 STN STL
6-400-0	.62, TYPE 21	EPR, CARBON, NI-RESIST, STN STL



IN-LINE PUMPS
 Single Stage End Suction
 1500 SERIES CONFIGURATION 600
 Parts and Materials



MATERIAL OPTION			940	909
Catalog No.	Req.	Part Name	Cast Iron Bronze Fitted	All Bronze
0-242-0	1	Motor	Standard Motor Shaft Material is 416 St. Stl.	
0-902-0	8	Screw, Adapter to Casing	Steel (S.A.E. Grade 5)	
0-904-0	4	Screw, Adapter to Motor	Steel (S.A.E. Grade 2)	
0-909-9	8	Washer	Mild Steel	
0-917-0	1	"D" Lockwasher, Impeller	Stainless Steel (AISI 316)	
0-937-0	8	Clamp Lug	Ductile Iron (ASTM A-536 80-55-6)	
1-136-0	1	Deflector	Buna-N	
1-140-0	1	Adapter/Stuffbox	Cast Iron (ASTM A-48 Class 35)	Silicone Bronze (ASTM B-584 Alloy 875)
1-910-0	1	.25 Pipe Plug, Adapter	Mild Steel	Brass
2-001-0	1	Casing	Cast Iron (ASTM A-48 Class 35)	Silicone Bronze (ASTM B-584 Alloy 875)
2-910-0	3	.25 Pipe Plug, Casing	Mild Steel	Brass
2-914-0	1	O-Ring, Casing Joint	Ethylene Propylene Rubber	
4-002-0	1	Impeller	Silicone Bronze (ASTM B-584 Alloy 875)	
4-023-0	1	Nut, Impeller	Stainless Steel (AISI 416)	
6-400-0	1	Mechanical Seal	John Crane Type 21 or Equal Carbon, NI Resist, St. Stl.	

A-C Pump

