

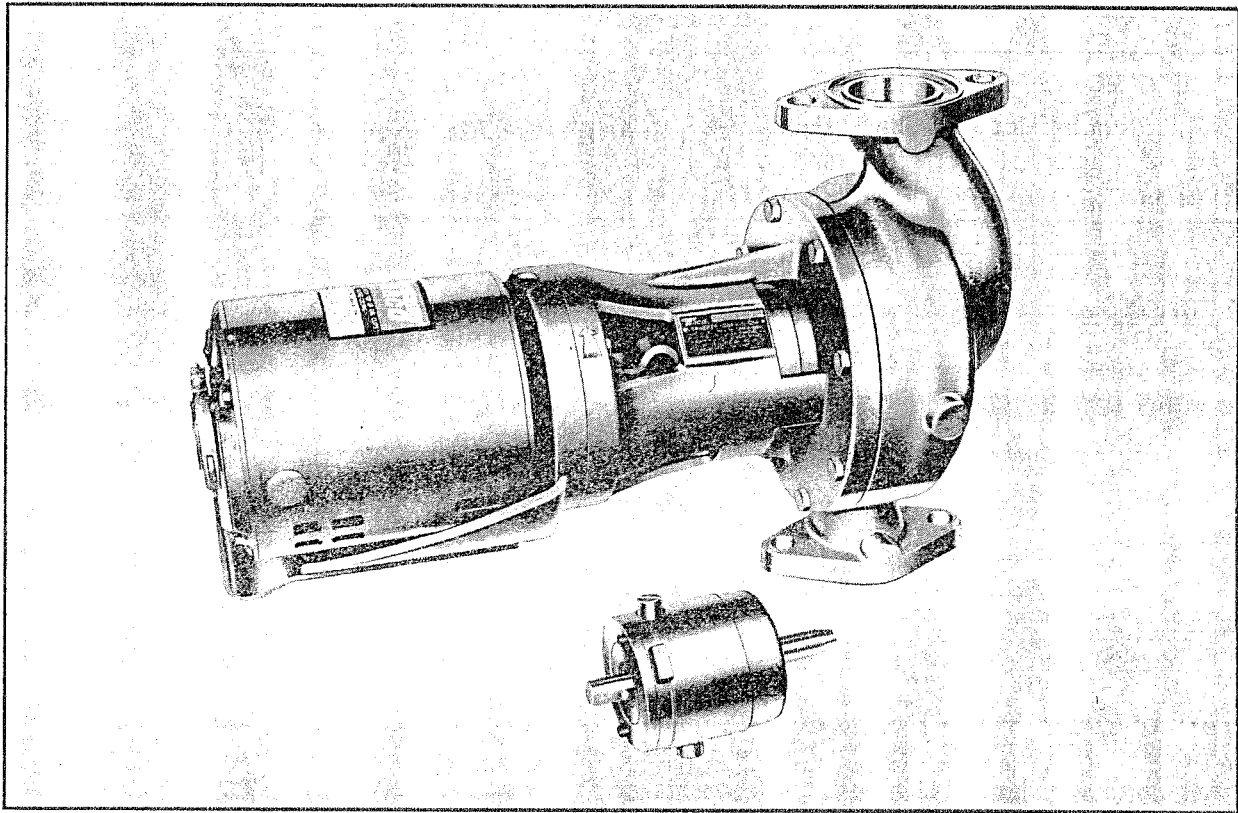
N U M B E R
300-1PL-1

REPLACEMENT PARTS for 1600-1
and CARTRIDGE DESIGN PUMPS

EFFECTIVE: FEBRUARY 11, 1974
SUPERSEDES: 300-1RL-1 dated 4/16/73

No. 1600 SERIES PUMPS CARTRIDGE DESIGN

Old



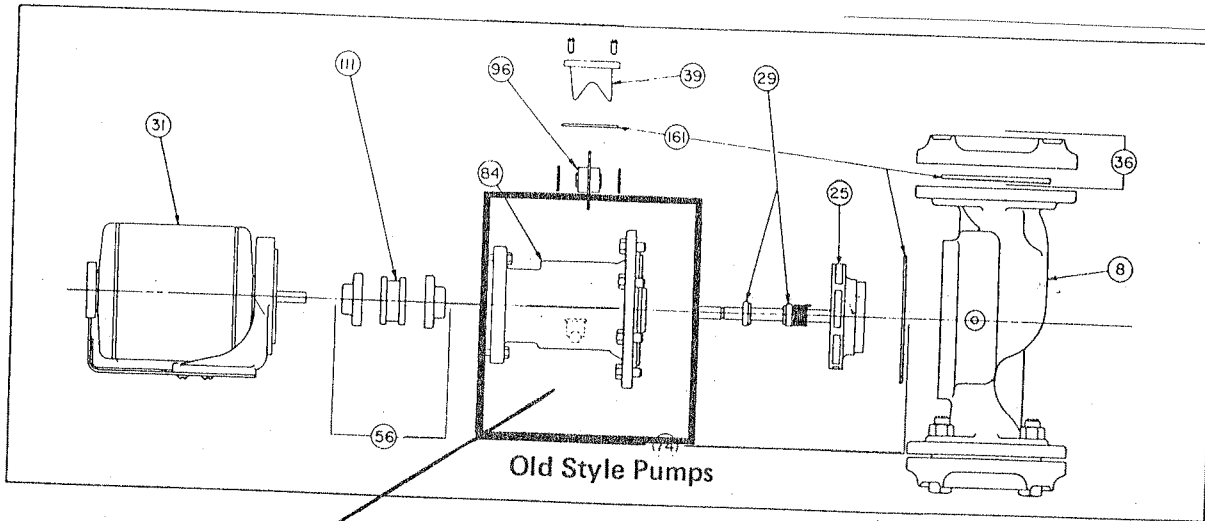
"The pump of the future"

When Ordering, Specify Part Number, Part Name and Complete Model Number of Circulator

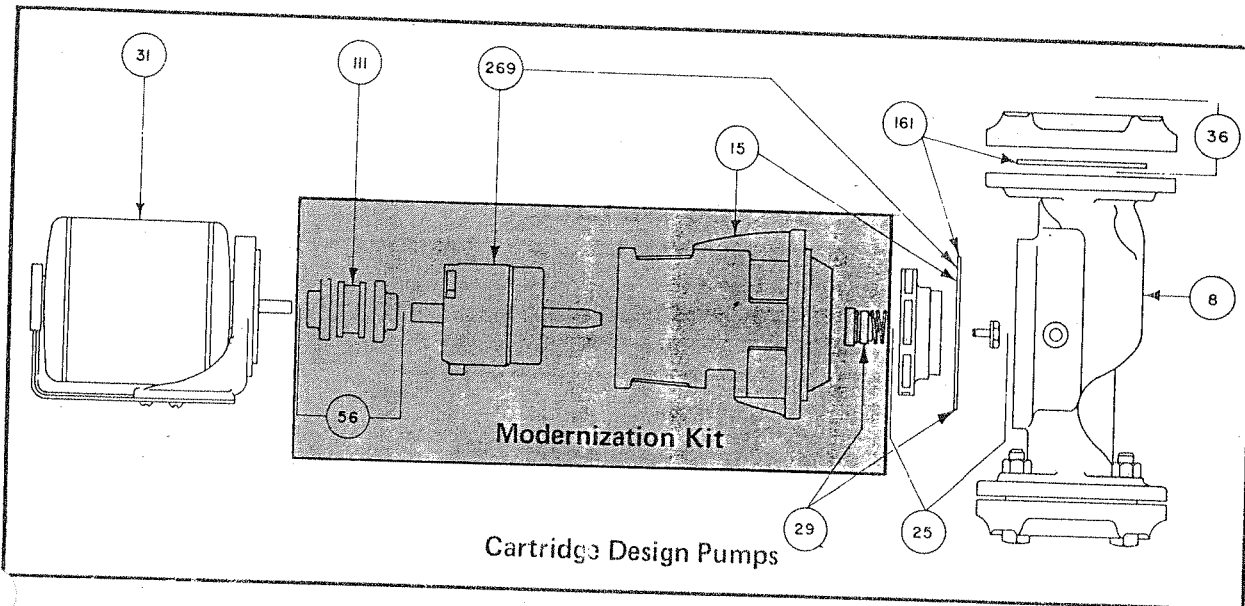
TACO, INC.

1160 Cranston Street, Cranston, Rhode Island 02920

Printed In U.S.A.



Item 84 Not Available. Replace with Modernization Kit shown below.



REPLACEMENT PARTS FOR OLD STYLE (-1) PUMPS 1600-1602-1604-1610-1612-1614

Shaded Area = Mod Kit only - for Mod Kit parts see pages for -9

Item No.	DESCRIPTION	1600 (-1)	1602 (-1)	1604 (-1)	1610 (-1)	1612 (-1)	1614 (-1)
8	Cast Iron Body Assembly, incl. gaskets	1600-001RP	1604-001RP	1604-001RP	1610-001RP	1614-001RP	1614-001RP
8	Bronze Body Assembly, incl. gaskets.	1600-001BRP	1604-001BRP	1604-001BRP	1610-001BRP	1614-001BRP	1614-001BRP
25	Bronze Impeller and Shaft Assembly	1600-020RP	1602-008RP	1604-007RP	1610-007RP	1612-005RP	1614-005RP
29	Water Seal, incl. body gasket.	1600-055RP	1600-055RP	1600-055RP	1600-055RP	1600-055RP	1600-055RP
31	Motor Assembly, Incl. base and latches. PLEASE--Always specify H.P. and Voltage when ordering	1/4 HP 121-151RP 115/60/1	1/3 HP (note 1) 131-143RP 115/60/1	1/2 HP (note 1) 132-096RP 115/230/60/1	1/3 HP (note 1) 131-143RP 115/60/1	1/2 HP (note 1) 132-096RP 115/230/60/1	3/4 HP 133-119RP 115/230/60/1
		121-137RP 230/460/60/3	131-137RP 230/460/60/3	132-097RP 230/460/60/3	131-137RP 230/460/60/3	132-097RP 230/460/60/3	133-134RP 230/460/60/3
		121-148RP 208/60/3	131-115RP 208/60/3	132-066RP 200/60/3	131-115RP 208/60/3	132-066RP 200/60/3	133-140RP 200/60/3
36	Cast Iron Flange Sets, incl. nuts, bolts, gaskets.	1600-030RP	1600-030RP	1600-030RP	1600-031RP	1600-031RP	1600-031RP
36	Bronze Flange Sets, incl. nuts, bolts, gaskets	1600-030BRP	1600-030BRP	1600-030BRP	1600-031BRP	1600-031BRP	1600-031BRP
39	Bracket Cover Plate	1600-005RP	1600-005RP	1600-005RP	1600-005RP	1600-005RP	1600-005RP
56	Coupler Assembly	1624-045RP	1624-045RP	1624-030RP	1624-045RP	1624-030RP	1624-030RP
96	Thrust Collar Assembly	-----NO LONGER AVAILABLE-----					
111	Rubber Insert for Coupler	1624-020RP	1624-020RP	1624-004RP	1624-020RP	1624-004RP	1624-004RP
161	Gasket Kit	1600-050RP	1600-050RP	1600-050RP	1600-050RP	1600-050RP	1600-050RP
THE MODERNIZATION KIT CONTAINS THE NECESSARY BRACKET, WATER SEAL, COUPLER, & CARTRIDGE TO CONVERT OLD STYLE TACO PUMPS TO OUR NEW CARTRIDGE DESIGN. JUST ADD THE APPLICABLE IMPELLER, AND THE CONVERSION IS COMPLETE.							
74	Cast Iron Modernization Kit. See Note under Dwg.	121-154RP	131-144RP	131-144RP	121-154RP	131-144RP	133-147RP
	Impeller Assy. For C.I. Modernization Kit	1600-179RP	1602-025RP	1604-028RP	1610-019RP	1612-019RP	1614-018RP
74	Bronze Modernization Kit. See note under Dwg.	122-002RP	132-145RP	132-145RP	122-002RP	132-145RP	138-153RP
	Impeller Assy. for Bronze Modernization Kit	1600-179RP	1602-025RP	1604-028RP	1610-019RP	1612-019RP	1614-018RP

NOTE 1: When replacing 1/3 or 1/2 HP 56 frame (old) motor with 48 frame (new) motor, 1600-194RP Adapter Kit must be ordered @ \$11.50 List Extra.

NOTE 2: When using 131-144RP or 132-145RP Modernization Kit with 1/3 or 1/2 HP 56 frame (old) motor, 121-079RP motor mount must be ordered @ \$15.35 List Extra.

REPLACEMENT PARTS FOR OLD STYLE (-1) PUMPS 1620-1622-1624-1630-1632- 1634

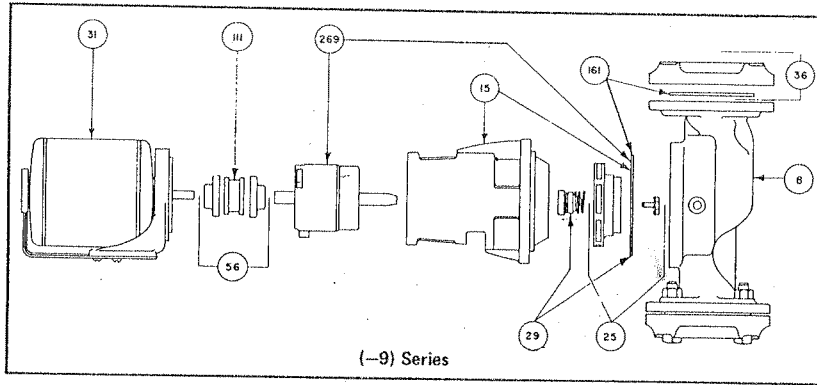
Shaded Area = Mod Kit only - For Mod Kit parts, see pages for -9

Item No.	DESCRIPTION	1620 (-1)	1622 (-1)	1624 (-1)	1630 (-1)	1632 (-1)	1634 (-1)
8	Cast Iron Body Assembly, incl. gaskets	1634-001RP	1634-001RP	1634-001RP	1634-001RP	1634-001RP	1634-001RP
8	Bronze Body Assembly, incl. gaskets.	1634-001BRP	1634-001BRP	1634-001BRP	1634-001BRP	1634-001BRP	1634-001BRP
25	Bronze Impeller and Shaft Assembly	1620-004RP	1622-004RP	1624-010RP	1630-007RP	1632-007RP	1634-008RP
29	Water Seal, incl. body gasket.	1600-055RP	1600-055RP	1600-055RP	1600-055RP	1600-055RP	1600-055RP
31	Motor Assembly, incl. base and latches. PLEASE--Always specify H.P. and Voltage when ordering	1/2 HP (note 1) 132-096RP 115/230/60/1	3/4 HP 133-119RP 115/230/60/1	1 HP 138-119RP 115/230/60/1	1/2 HP (note 1) 132-096RP 115/230/60/1	3/4 HP 133-119RP 115/230/60/1	1 HP 138-119RP 115/230/60/1
		132-097RP 230/460/60/3	133-134RP 230/460/60/3	138-142RP 230/460/60/3	132-097RP 230/460/60/3	133-134RP 230/460/60/3	138-142RP 230/460/60/3
		132-066RP 200/60/3	133-140RP 200/60/3	138-148RP 200/60/3	132-066RP 200/60/3	133-140RP 200/60/3	138-148RP 200/60/3
36	Cast Iron Flange Set, incl. nuts, bolts, gaskets.	1600-032RP	1600-032RP	1600-032RP	1600-032RP	1600-032RP	1600-032RP
36	Bronze Flange Set, incl. nuts, bolts, gaskets.	1600-032BRP	1600-032BRP	1600-032BRP	1600-032BRP	1600-032BRP	1600-032BRP
39	Bracket Cover Plate	1600-005RP	1600-005RP	1600-005RP	1600-005RP	1600-005RP	1600-005RP
56	Coupler Assembly,	1624-030RP	1624-030RP	1624-030RP	1624-030RP	1624-030RP	1624-030RP
96	Thrust Collar Assembly	-----NO LONGER AVAILABLE-----					
111	Rubber Insert for Coupler	1624-004RP	1624-004RP	1624-004RP	1624-004RP	1624-004RP	1624-004RP
161	Gasket Kit	1600-050RP	1600-050RP	1600-050RP	1600-050RP	1600-050RP	1600-050RP
THE MODERNIZATION KIT CONTAINS THE NECESSARY BRACKET, WATER SEAL, COUPLER, AND CARTRIDGE TO CONVERT OLD STYLE TACO PUMPS TO OUR NEW CARTRIDGE DESIGN. JUST ADD THE APPLICABLE IMPELLER, AND THE CONVERSION IS COMPLETE.							
74	Cast Iron Modernization Kit. See note under Dwg.	131-144RP	133-147RP	133-147RP	131-144RP	133-147RP	133-147RP
	Impeller Assy. for C.I. Modernization Kit	1620-022RP	1622-020RP	1624-040RP	1630-022RP	1632-022RP	1634-023RP
74	Bronze Modernization Kit. See note under Dwg.	132-145RP	138-153RP	138-153RP	132-145RP	138-153RP	138-153RP
	Impeller Assy. for Bronze Modernization Kit	1620-022RP	1622-020RP	1624-040RP	1630-022RP	1632-022RP	1634-023RP

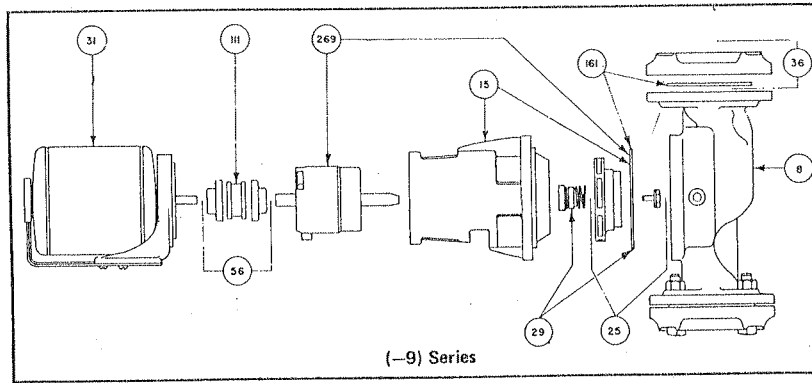
NOTE (1) WHEN REPLACING 1/3 or 1/2 HP 56 FRAME (old) MOTOR WITH 48 FRAME (new) MOTOR, 1600-194RP ADAPTER KIT MUST BE ORDERED

NOTE (2) WHEN USING 131-144RP or 131-145RP MOD KIT WITH 1/3 or 1/2 HP 56 FRAME (old) MOTOR, 121-079RP MOTOR MOUNT MUST BE ORDERED

REPLACEMENT PARTS FOR CARTRIDGE DESIGN (-9) PUMPS 1600-1602-1604-1610-1612-1614

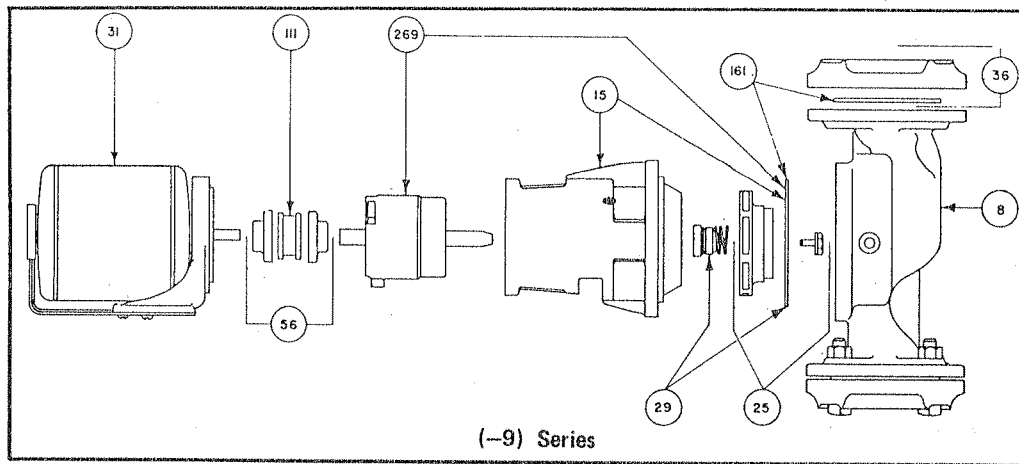


Item No.	DESCRIPTION	1600(-9)	1602 (-9)	1604 (-9)	1610 (-9)	1612 (-9)	1614 (-9)
8	Cast Iron Body Assembly, incl. gaskets.	1600-001RP	1604-001RP	1604-001RP	1610-001RP	1614-001RP	1614-001RP
8	Bronze Body Assembly, incl. gaskets.	1600-001BRP	1604-001BRP	1604-001BRP	1610-001BRP	1614-001BRP	1614-001BRP
15	Cast Iron Bracket only	1600-155RP	1600-175RP	1600-175RP	1600-155RP	1600-175RP	1604-023RP
15	Bronze Bracket only	1600-156RP	1600-176RP	1600-176RP	1600-156RP	1600-176RP	1604-024RP
25	Bronze Impeller Assembly	1600-179RP	1602-025RP	1604-028RP	1610-019RP	1612-019RP	1614-018RP
29	Water Seal, incl. body gasket	1600-170RP	1600-170RP	1600-170RP	1600-170RP	1600-170RP	1600-170RP
29A	Tungsten Carbide Water Seal. Permalife No. 2	1600-170HRP	1600-170HRP	1600-170HRP	1600-170HRP	1600-170HRP	1600-170HRP
29B	Water Seal with Ceramic For use with Bronze Pumps	1600-170ERP	1600-170ERP	1600-170ERP	1600-170ERP	1600-170ERP	1600-170ERP
	Shaft Sleeve	1600-205	1600-205	1600-205	1600-205	1600-205	1600-205
31	Motor Assembly, incl base and latches. PLEASE--Always specify H.P. and Voltage when ordering	1/4 HP 121-151 RP 115/60/1	1/3 HP 131-143 RP 115/60/1	1/2 HP 132-096 RP 115/230/60/1 \$ 97.00	1/3 HP 131-143 RP 115/60/1	1/2 HP 132-096 RP 115/230/60/1	3/4 HP 133-119 RP 115/230/60/1
		121-136RP 230/460/60/3	131-137RP 230/460/60/3	132-097RP 230/460/60/3	131-137RP 230/460/60/3	132-097RP 230/460/60/3	133-134RP 230/460/60/3
		121-148RP 208/60/3	131-115RP 208/60/3	132-066RP 200/60/3	131-115RP 208/60/3	132-066RP 200/60/3	133-140RP 200/60/3
36	Cast Iron Flange Set, incl. nuts, bolts, gaskets	1600-030RP	1600-030RP	1600-030RP	1600-031RP	1600-031RP	1600-031RP
36	Bronze Flange Set, incl. nuts, bolts, gaskets	1600-030BRP	1600-030BRP	1600-030BRP	1600-031BRP	1600-031BRP	1600-031BRP
56	Coupler Assembly,	1624 - 050RP	1624 - 050RP	1624 - 050RP	1624 - 050RP	1624 - 050RP	1624 - 050RP
161	Gasket Kit	1600-050RP	1600-050RP	1600-050RP	1600-050RP	1600-050RP	1600-050RP
269	Cartridge Assembly	1600-160RP	1600-160RP	1600-160RP	1600-160RP	1600-160RP	1600-160RP



Item No.	DESCRIPTION	1620 (-9)	1622 (-9)	1624 (-9)	1630 (-9)	1632 (-9)	1634 (-9)
8	Cast Iron Body Assembly, incl. bolts and gaskets	1634-001RP	1634-001RP	1634-001RP	1634-001RP	1634-001RP	1634-001RP
8	Bronze Body Assembly, incl. bolts and gaskets.	1634-001BRP	1634-001BRP	1634-001BRP	1634-001BRP	1634-001BRP	1634-001BRP
15	Cast Iron Bracket only	1600-175RP	1604-023RP	1604-023RP	1600-175RP	1604-023RP	1604-023RP
15	Bronze Bracket only	1600-176RP	1604-024RP	1604-024RP	1600-176RP	1604-024RP	1604-024RP
25	Bronze Impeller Assembly	1620-022RP	1622-020RP	1624-040RP	1630-022RP	1632-022RP	1634-023RP
29	Water Seal, incl. body gasket.	1600-170RP	1600-170RP	1600-170RP	1600-170RP	1600-170RP	1600-170RP
A	Tungsten Carbide Water Seal, Permalife No. 2	1600-170HRP	1600-170HRP	1600-170HRP	1600-170HRP	1600-170HRP	1600-170HRP
29B	Water Seal with Ceramic Seat. For use with Bronze Pumps	1600-170ERP	1600-170ERP	1600-170ERP	1600-170ERP	1600-170ERP	1600-170ERP
	Shaft Sleeve	1600-205	1600-205	1600-205	1600-205	1600-205	1600-205
31	Motor Assembly, incl. base and latches. PLEASE—Always specify H.P. and Voltage when ordering.	1/2 HP 132-096RP 115/230/60/1	3/4 HP 133-119RP 115/230/60/1	1 HP 138-119RP 115/230/60/1	1/2 HP 132-096RP 115/230/60/1	3/4 HP 133-119RP 115/230/60/1	1 HP 138-119RP 115/230/60/1
		132-097RP 230/460/60/3	133-134RP 230/460/60/3	138-142RP 230/460/60/3	132-097RP 230/460/60/3	133-134RP 230/460/60/3	138-142RP 230/460/60/3
		132-066RP 200/60/3	133-140RP 200/60/3	138-148RP 200/60/3	132-066RP 200/60/3	133-140RP 200/60/3	138-148RP 200/60/3
36	Cast Iron Flange Set, Incl. nuts, bolts, gaskets.	1600-032RP	1600-032RP	1600-032BP	1600-032RP	1600-032RP	1600-032RP
36	Bronze Flange Set, incl. nuts, bolts, gaskets.	1600-032BRP	1600-032BRP	1600-032BRP	1600-032BRP	1600-032BRP	1600-032BRP
56	Coupler Assembly,	1624-050RP	1624-050RP	1624-050RP OS3	1624-050RP	1624-050RP	1624-050RP
161	Gasket Kit	1600-050RP	1600-050RP	1600-050RP	1600-050RP	1600-050RP	1600-050RP
269	Cartridge Assembly	1600-160RP	1600-160RP	1600-160RP	1600-160RP	1600-160RP	1600-160RP

REPLACEMENT PARTS FOR CARTRIDGE DESIGN (-9) PUMPS 1616-1618-1636-1638-1640



Item No.	DESCRIPTION	1616 (-9)	1618 (-9)	1636 (-9)	1638 (-9)	1640 (-9)
8	Cast Iron Body Assembly, incl. bolts and gaskets	1618-004RP	1618-004RP	1640-002RP	1640-002RP	1640-002RP
8	Bronze Body Assembly, incl. bolts and gaskets.	1618-004BRP	1618-004BRP	1640-002BRP	1640-002BRP	1640-002BRP
15	Cast Iron Bracket only	1604-025RP	1604-025RP	1604-025RP	1604-025RP	1604-025RP
15	Bronze Bracket only	1604-026RP	1604-026RP	1604-026RP	1604-026RP	1604-026RP
25	Bronze Impeller Assembly	1616-002RP	1618-001RP	1636-001RP	1638-001RP	1640-001RP
29	Water Seal, incl. body gasket	1600-170RP	1600-170RP	1600-170RP	1600-170RP	1600-170RP
29A	Tungsten Carbide Water Seal. Permalife No. 2	1600-170HRP	1600-170HRP	1600-170HRP	1600-170HRP	1600-170HRP
29B	Water Seal with Ceramic Seat for use with Bronze Pumps	1600-170ERP	1600-170ERP	1600-170ERP	1600-170ERP	1600-170ERP
	Shaft Sleeve	1600-205	1600-205	1600-205	1600-205	1600-205
31	Motor Assembly, incl. base and latches. PLEASE—Always specify H.P. and Voltage when ordering	1 HP 138-119RP 115/230/60/1	1½ HP 1636-013RP 115/230/60/1	1½ HP 1636-013RP 115/230/60/1	2 HP 1638-012RP 115/230/60/1	3 HP N/A 1640-010RP 230/460/60/3
		138-142RP 230/460/60/3	1636-010RP 230/460/60/3	1636-010RP 230/460/60/3	1638-010RP 230/460/60/3	1640-010RP 230/460/60/3
		138-148RP 200/60/3	1636-019RP 200/60/3	1636-019RP 200/60/3	1638-015RP 200/60/3	1640-013RP 200/60/3
36	Cast Iron Flange Set, incl. nuts, bolts, gaskets.	1600-032RP	1600-032RP	1600-174RP	1600-174RP	1600-174RP
36	Bronze Flange Set, incl. nuts, bolts, gaskets.	1600-032BRP	1600-032BRP	1600-174BRP	1600-174BRP	1600-174BRP
56	Coupler Assembly,	1624-050RP	1624-041RP	1624-041RP	1624-041RP	1624-041RP
111	Rubber Insert for Coupler Assembly	Not Required	1624-047RP	1624-047RP	1624-047RP	1624-047RP
161	Gasket Kit	1618-006RP	1618-006RP	1618-006RP	1618-006RP	1618-006RP
269	Cartridge Assembly	1600-160RP	1600-160RP	1600-160RP	1600-160RP	1600-160RP



Instruction Sheet

302-001

2 1/2", 3" & 1600 Series Pumps

SUPERSEDES: 302-001 Dated August 1, 1983

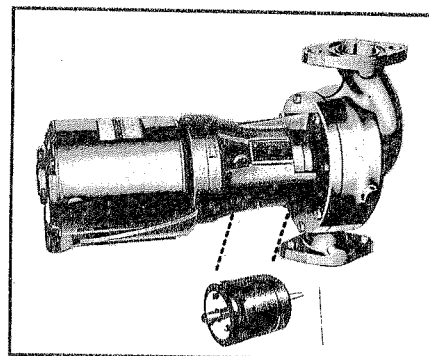
EFFECTIVE: August 1, 1991

Plant I.D. No. 001-972

APPLICATION

All pumps covered by this instruction sheet are designed for pumping water.

Working Pressure: 175 PSIG with cold water and
125 PSIG at rated temperature.
Temperature: 250°F Standard
300°F with Hi-Temp Seal



INSTALLATION:

Install horizontally only and with the two bracket ribs pointing to the ceiling. Do not support, suspend or brace motor and/or bracket. Support provided by casing is sufficient for structural integrity of the pump.

The casing can be rotated relative to the bracket for installation in vertical or horizontal pipe.

The pump must be installed far enough away from ceiling and walls to permit servicing of bracket and motor.

CAUTION: UNDER NO CIRCUMSTANCES SHOULD ANY PART OF BRACKET OR MOTOR BE COVERED WITH INSULATION.

OBSERVE ALL APPLICABLE ELECTRICAL AND MECHANICAL CODES.

START UP:

Before operating the pump for the first time check the following:

1. Is motor correctly wired for voltage in use?
Warranty is void if motor is damaged due to improper electrical hook-up.
2. If a magnetic starter is used, see that the heater element is sized for the Service Factor load of the motor; otherwise, nuisance tripouts may occur.
3. Motors are properly aligned with pump at the factory and normally require no attention. If due to rough handling, the motor base becomes bent, realign by shimming between cast iron and steel section of motor base.
4. Before starting motor, ascertain that pump is filled with water to lubricate the seal. Do not operate pump dry for motor checkout.

LUBRICATION:

Pump is equipped with permanently lubricated ball bearings. Lubricate motor per instruction label attached to motor.

COMPARE. YOU'LL TAKE TACO.

Taco, Inc., 1160 Cranston Street, Cranston, RI 02920. Telephone: 401/942-8000. FAX: 401/942-2360.

Taco (Canada), Ltd., 1310 Airco Blvd., Mississauga, Ontario L4W1B2. Telephone: 416/625-2160. FAX: 416/625-8616.

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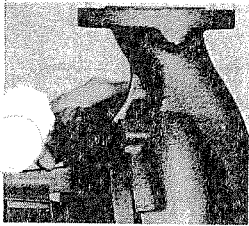


FIGURE 1

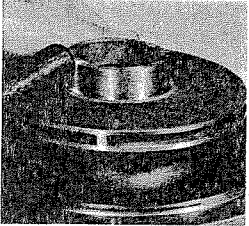


FIGURE 2

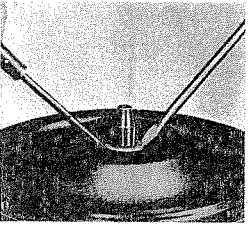


FIGURE 3

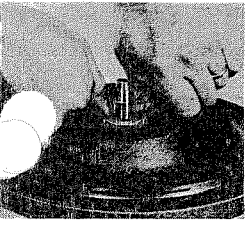


FIGURE 4

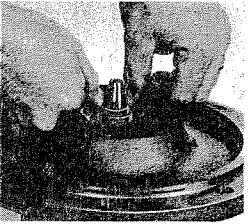


FIGURE 5

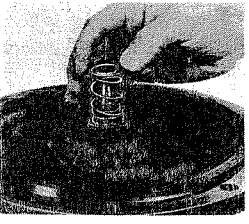


FIGURE 6

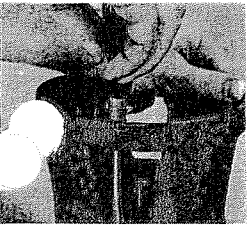


FIGURE 7

SEAL REPLACEMENT:

To replace the water seal, the following steps must be observed:

1. Disconnect electrical connections. Relieve system pressure and drain water from body.
2. Remove motor assembly from bracket and bracket from pump body.
3. Place bracket in vertical position, impeller up and loosen screw at center of impeller two turns. (7/16 Hex Head) This screw has a left-hand thread. Tap impeller at its outside diameter with handle of hammer to free tapered fit between shaft and impeller and completely remove screw, washer, and impeller. (see Figure 2)
4. Remove carbon and seat assemblies by prying them loose with a screwdriver. (see Figure 3)
5. Thoroughly clean shaft and seat cavity.
6. Insert new seal seat. For easy assembly coat OD of seal rubber (either a cup or an O-ring) with special grease provided in small container. Do not use any other oil or grease. Push seat all the way down into cavity. Seat must not be cocked relative to shaft. Be sure face of seal stays absolutely clean – wipe surface with soft, clean cloth if necessary. (see Figure 4)
7. Install new carbon assembly. Coat inside of rubber bellows with special grease provided (do not use any other oil or grease) and slide assembly (carbon first) over shaft until carbon meets seat. Push on rubber insert on very end of assembly and not on outside diameter of carbon retainer. Be sure carbon face stays absolutely clean. (see Figure 5)
8. Install spring and spring retainer with raised face inside spring. (see Figure 6)
9. Replace impeller using new impeller screw and washer provided. Make sure cones of both impeller and shaft are clean.
10. Reassemble bracket into pump casing. Use new gasket provided. Clean gasket surface of both casing and bracket if necessary. Be sure that the longer of the two outside bracket ribs is on top. (see Figure 1)
11. Reinstall coupler and motor.
12. Follow procedure outlined under section Start Up where required.

IMPELLER REPLACEMENT:

Follow steps 1 through 3 and 8 through 12 outlined under section Seal Replacement.

BEARING (CARTRIDGE) REPLACEMENT:

If for some reason the bracket bearings should fail, it is not necessary to replace the entire bracket.

A cartridge containing permanently lubricated ball bearings and shaft is available. To change the cartridge, follow this procedure:

- Follow steps 1 through 4 as outlined under section Seal Replacement.
- Flip bracket around so that motor end is on top.
- Remove the two outermost socket head screws. (see Figure 7)
- Pull out old cartridge. If necessary tap cone end of shaft with a hammer to accomplish this.
- Insert new cartridge and refasten with socket head screws. Make sure shaft sleeve is in place with cone on sleeve resting against cone of shaft.
- Follow steps 5 through 12 outlined under section Seal Replacement.

Note: It is recommended that when changing the cartridge the water seal be replaced also. However, if you plan to re-use the water seal it is not necessary to remove the seal seat. The carbon assembly may be lubricated with water to make reinstallation easy.

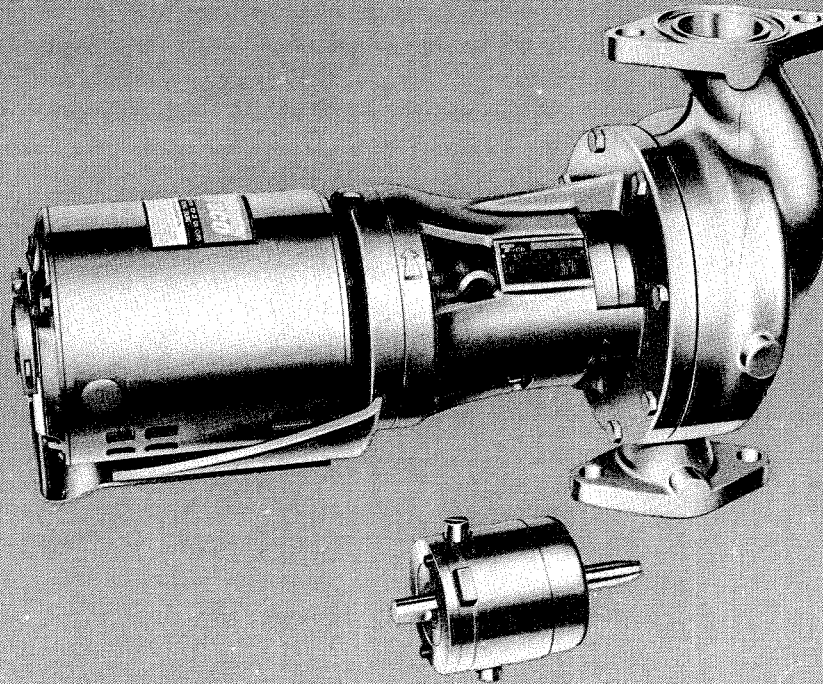


DATE: APRIL, 1971
 SUPERSEDES: 300-1
 Dated March, 1969

CATALOG 300-1

A.I.A. FILE NO. 30-C-5

No. 1600 SERIES PUMPS *refers* CARTRIDGE DESIGN "The pump of the future"



A.I.A. FILE NO. 30-C-5

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TACO, INC.

CRANSTON, RHODE ISLAND, 02920

TACO HEATERS OF CANADA, LTD.

COOKSVILLE, ONTARIO, CANADA





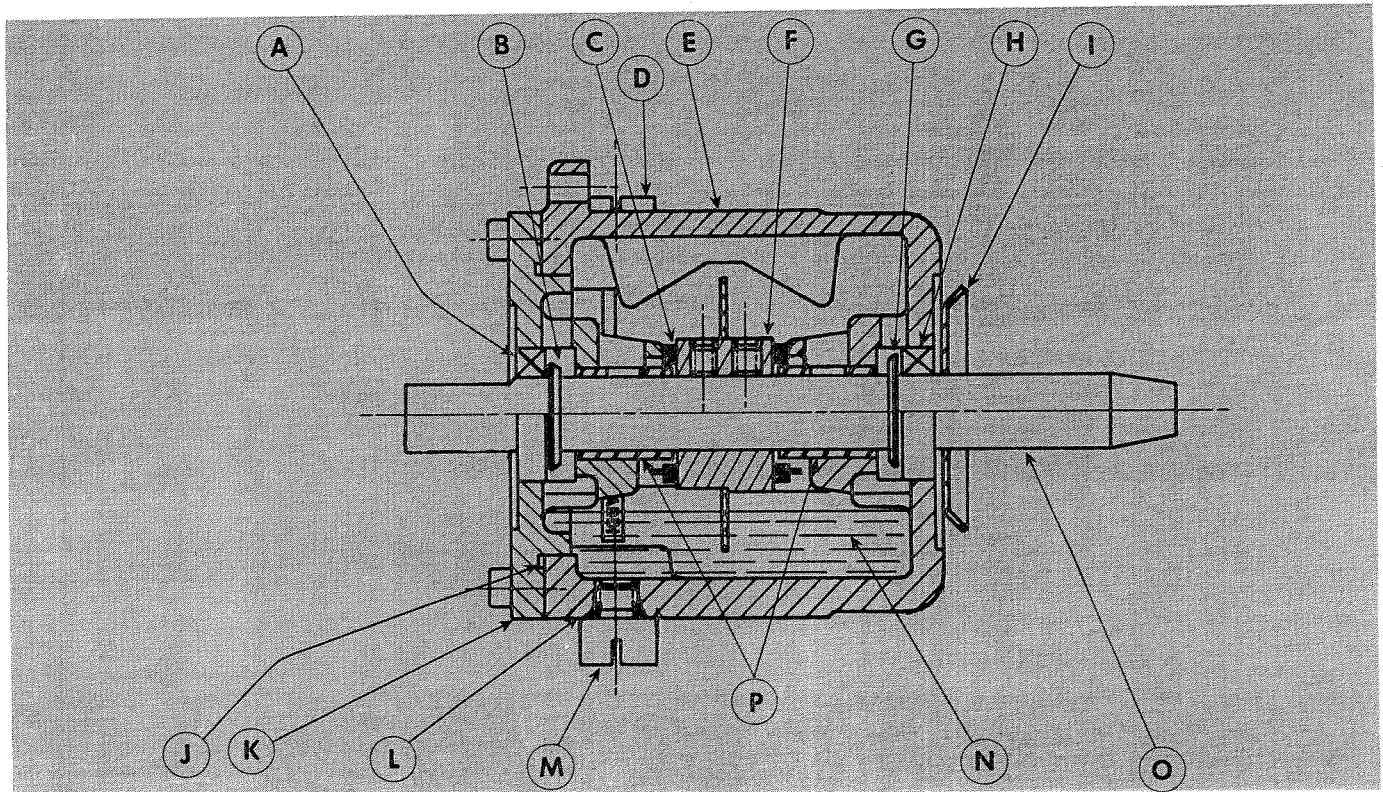
Purpose

The Taco 1600 Series Pump is the only in-line pump in the hydronic industry specifically designed to handle system temperatures from 40° to 300°. Ideal for zoning large installations as well as many diverse service applications.

Revolutionary Design

The lubrication effect of oil is decreased by 50% for every 20°F increase in oil temperature. For example, if a conventional type pump with 250°F oil temperature had a life of 1,000 hours, the Taco cartridge design pump with its 190°F oil temperature would have a life of 8,000 hours. Therefore, Taco's cartridge design pump with its low oil operating temperatures extends the life of the bearings without frequent oil changes. The bearing assembly (a unique self-contained cartridge) consists of bearings, shaft lubricant and housing. The bracket is designed with a heat barrier which isolates the oil in the sump from system temperature. The temperature of the oil when pumping 300°F water is basically the same as pumps of standard design pumping 200°F water. The cartridge containing the oil reservoir is completely air tight preventing oxidation of the lubricant.

1600 Cartridge



- A OIL SEAL
- B OIL SLINGER RING
- C THRUST WASHER
- D DIP STICK
- E HOUSING

- F THRUST COLLAR
- G OIL SLINGER RING
- H OILSEAL
- I WATER SLINGER
- J GASKET
- K BRG. SUPPORT

- L GASKET
- M DRAIN PLUG
- N OIL
- O SHAFT
- P SLEEVE BEARINGS

1600 Series Cartridge Pump Features:

1. Longer Bearing Life



a) Lubrication

- ◆ Cartridge uses an oil bath disc type lubrication system assuring an ample supply of oil from the reservoir to the top of the journal bearing and thrust bearing.
- ◆ Thrust bearings are oil fed independently of the journal bearings, preventing failures due to oil starvation.
- ◆ Four times the load carrying capacity of wick fed bearings.
- ◆ Built in dipstick for checking oil level.

b) Lower oil & bearing temperatures.

- ◆ Bracket design is such that the cartridge temperature is minimally affected by system temperature when pumping either hot or chilled water.
- ◆ With 250°F system water and 90°F ambient, sump oil temperature is 180°F maximum.
- ◆ With 300°F system water and 90°F ambient, sump oil temperature is 190°F. maximum (refer to chart Fig. 4, page 5).
- ◆ Lubricant selected for operation on hot or chilled water systems. No oil change required.
- ◆ Factory filled cartridge has a super refined lubricant that is compatible with other petroleum oils when refilling is required.
- ◆ Extended life on applications where oil temperatures must not exceed 200°F.
- ◆ *No other known inline pump has these low oil operating temperatures.*

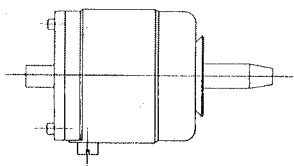
c) No lubricant contamination

- ◆ Oversized water slinger and generous drain openings in bracket prevent water from entering the cartridge.
- ◆ Airtight cartridge prevents oxidation of the lubricant.

d) No Oil Leakage

- ◆ Zero leakage attained by the use of lip type seals and oil slinger.
- ◆ High quality elastomers used on all static seals.

2. One bearing cartridge for all sizes.

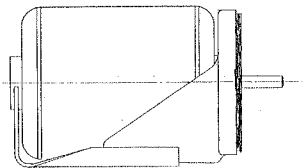
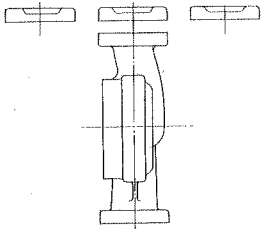
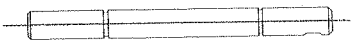
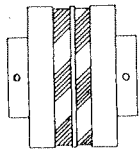
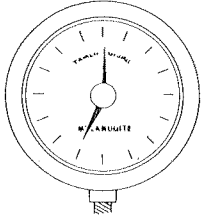


- ◆ A self-contained bearing unit for easy replacement.
- ◆ Cartridge contains bearings, shaft, lubricant and housing.
- ◆ Sleeve bearings
- ◆ Designed to operate with system temperatures ranging from 40°F to 300°F.
- ◆ Minimizes stocking and storage problems. One cartridge for 44 pump models.
- ◆ Easily installed - two screws hold it in place.
- ◆ Water seal can be replaced without disturbing cartridge or shaft coupler.
- ◆ System water cannot get into cartridge oil reservoir.

3. Quiet Operation



- ◆ Pump designed with sleeve bearings.
- ◆ Sleeve bearing motors meeting Taco sound level specifications.



4. High Performance Mechanical Seals

- ▶ For temperatures up to 250°F, use Permalife #1.
- ▶ For temperatures up to 300°F use Permalife #2. Refer to seal selection chart, Fig. 2, page 5.

5. Pressure, Temperature

- ▶ All pumps tested to 275 PSI
- ▶ Temperature to 300°F and pressures to 175 PSI are attainable in accordance with ASA B16. Refer to Fig. 3, page 5 for job rating.

6. Long Coupler Life

- ▶ Non metallic for sound dampening qualities.
- ▶ Tested for 200,000 starts in each direction thereby eliminating the possibility of damage due to improper rotation.

7. Extended shaft life

- ▶ Stainless steel for corrosion protection & extended life.

8. Low Maintenance Cost

- ▶ Low maintenance cost due to parts flexibility.
- ▶ One seal for all sizes from ¼ HP to 3HP.
- ▶ Seals are replaceable without disturbing cartridge or shaft coupler.
- ▶ One cartridge for all sizes form ¼HP to 3 HP.
- ▶ Commercially available petroleum oils are suitable for relubrication.
- ▶ No special tools required.

9. Performance and Testing

- ▶ All models are tested and rated in accordance with the procedures of the Hydraulic Institute.

10. Choice of interchangeable flanges

- ▶ Models 1600 thru 1632 can be furnished with either 1¼", 1½" or 2" flanges.

11. Body

- ▶ Flanged in-line available in cast iron or bronze.

12. Motors

- ▶ Standard motors are sleeve bearing, three phase, 60 cycle, 1750 RPM for either 200V or 230/460V operation. With the exception of the 3 HP rating, single phase motors with overload protection can be furnished.

13. Impeller

- ▶ Enclosed type, dynamically and hydraulically balanced, cast in bronze.

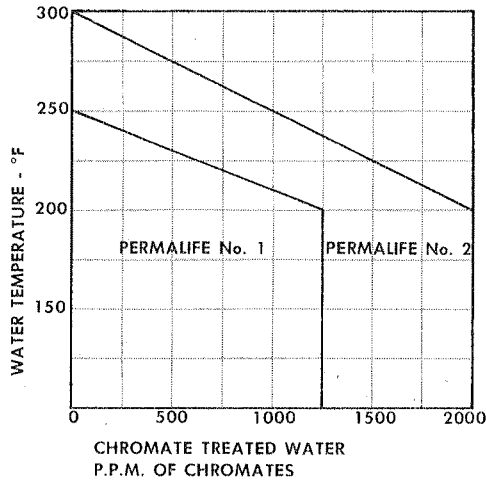
14. Applications

Air Conditioning Systems	Auto Laundries	Bottle Washers
Heating Systems	Cooling Towers	Lawn Sprinklers
Booster Service	Golf Courses	Hot and Cold Water Circulation
Dish Washers	Dry Cleaning Plants	
Laundry Equipment	Livestock Watering	

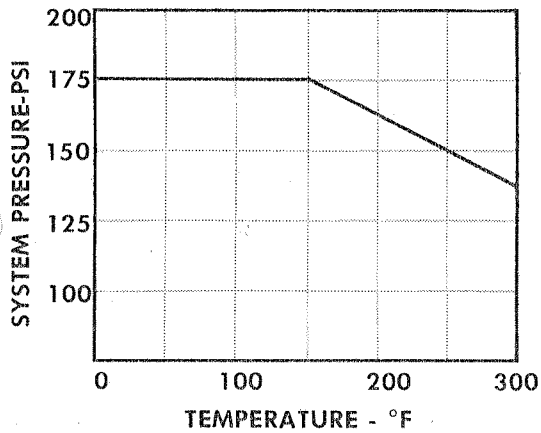
15. Installation

- ▶ The pump may be installed in horizontal or vertical lines, but the motor must be parallel to the floor.

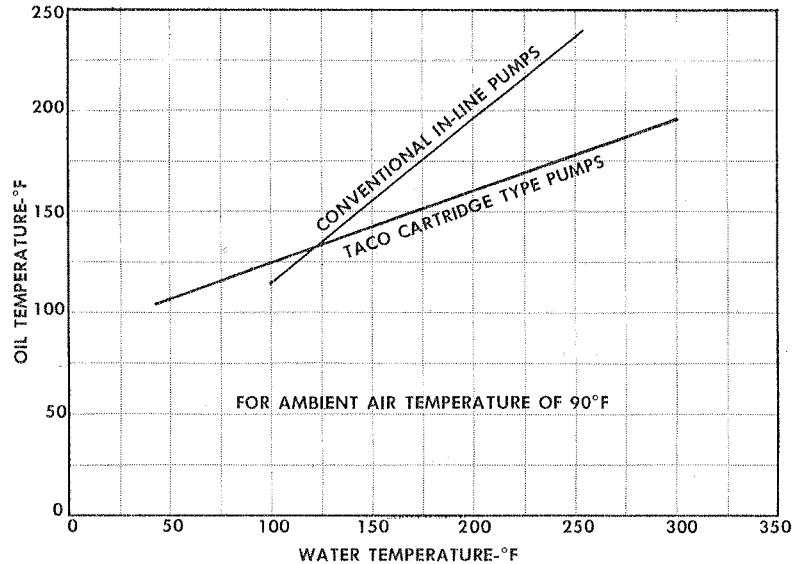
SYSTEM CONDITION
SEAL SELECTION



PRESSURE-TEMPERATURE RATINGS



SUMP OIL TEMPERATURES



Typical Specifications

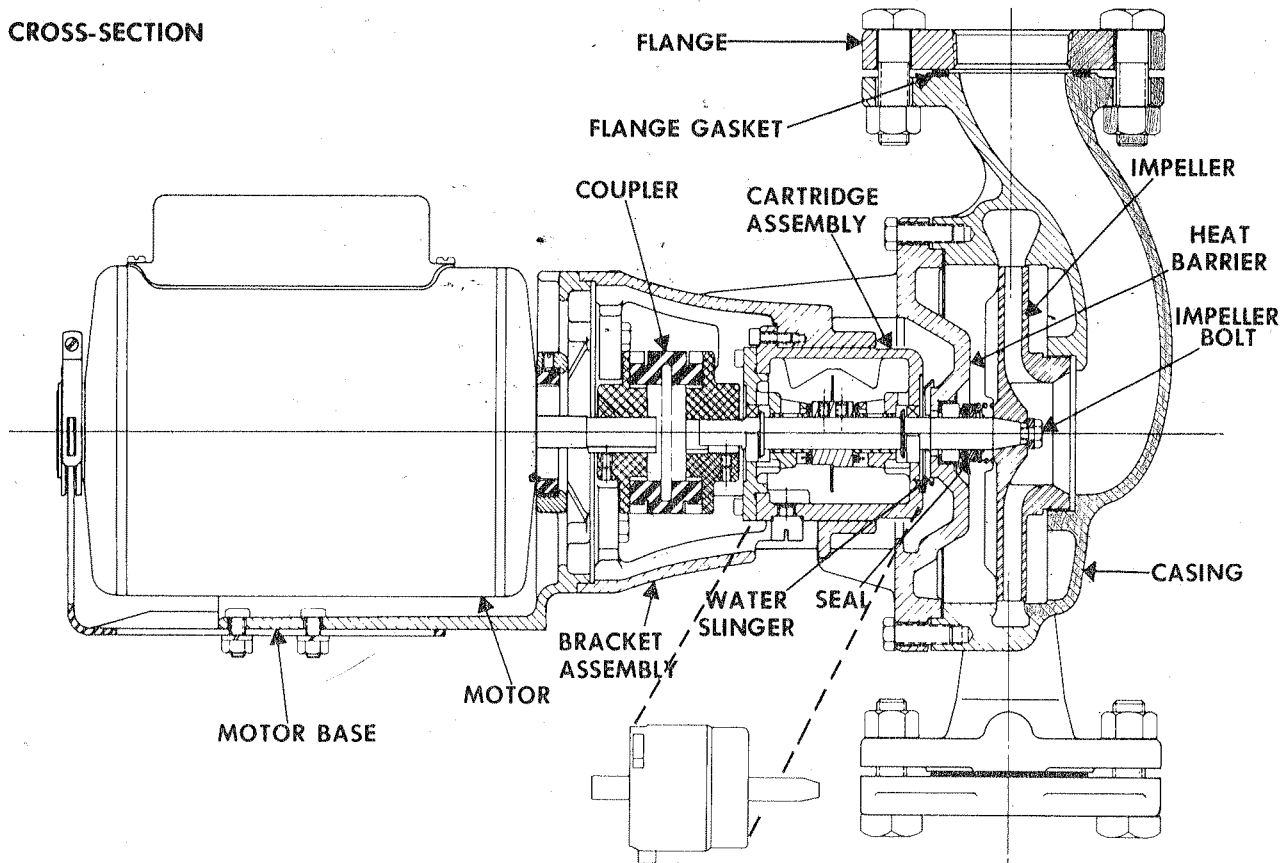
GENERAL REQUIREMENTS. Furnish (cast iron) (bronze) *TACO, INC., 1600 Series Pumps for all in the line pumps ¼ HP and larger. Pump and motor shall be equipped with sleeve bearings for quiet operation. Pumps shall be suitable for up to 175 PSI working pressure and up to 300°F water temperature as per ASA B16.1. Pump rating curves shall be the result of testing and rating in accordance with the procedures of the Hydraulic Institute.

DETAILS. Pumps shall be non-overloading throughout the range of the curves. Pumps shall have center-line discharge for positive venting, flanged bodies, and same size suction and discharge. *Pumps shall incorporate a disc type lubrication system and be so designed that the bearing assembly can be removed in one piece. One bearing assembly shall be suitable for all sizes of the inline pumps furnished. Sump oil temperature may not exceed 180°F when circulating 250°F water with a 90°F ambient. Vent and drain openings at least 3 square inches in area and a water slinger shall be provided between the mechanical seal and bearing area.*

Pump shafts shall be stainless steel and be coupled to the motor shaft by a noiseless non-metallic coupler. Impellers shall be *one piece bronze castings*, dynamically balanced. Pumps shall have a two piece mechanical seal assembly easily replaceable without the use of special tools. Motors shall be resilient mounted, 1750 RPM, and require no external overload protection when used with single phase current.

EMERGENCY REPAIRS. Furnish one bearing assembly and one water seal of each size that would be required for spare parts for emergency repairs.

*Italicized portions of this specification indicate TACO, INC., exclusive features. They may be omitted without affecting the continuity of the specification if an open specification is desired.

CROSS-SECTION

QUICK SELECTION TABLE*

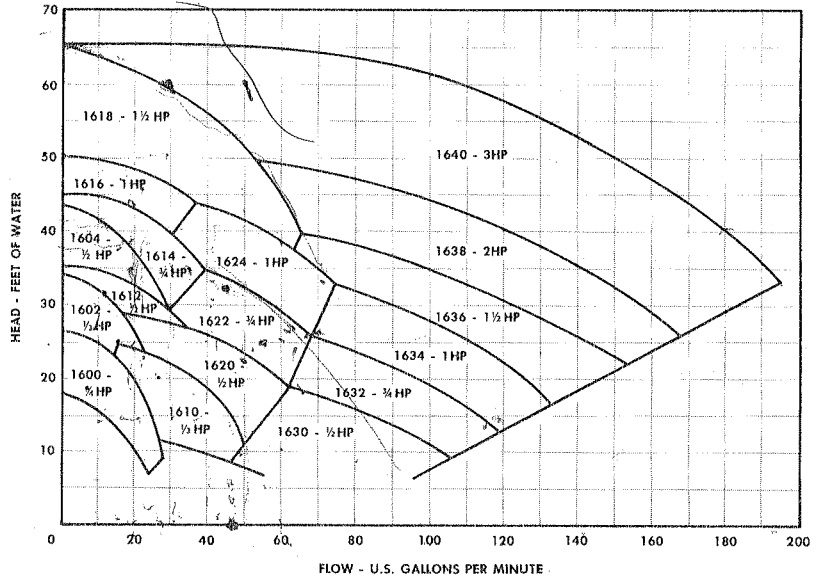
GPM	10 FT.	15 FT.	20 FT.	25 FT.	30 FT.	35 FT.	40 FT.	45 FT.	50 FT.	55 FT.	60 FT.	65 FT.	70 FT.
	Size HP	Size HP	Size HP	Size HP	Size HP	Size HP	Size HP	Size HP	Size HP	Size HP	Size HP	Size HP	Size HP
10	1600 ¼	1600 ¼	1600 ¼	1600 ¼	1602 ⅓	1612 ½	1604 ½	1614 ¾	1616 1	1616 1	1618 ½	1618 ½	1618 ½
20	1600 ¼	1600 ¼	1600 ¼	1602 ⅓	1602 ⅓	1612 ½	1604 ½	1614 ¾	1616 1	1616 1	1618 ½	1618 ½	1618 ½
30	1600 ¼	1610 ⅓	1610 ⅓	1610 ⅓	1612 ½	1614 ¾	1614 ¾	1616 1	1616 1	1618 ½	1618 ½	1618 ½	1640 3
40	1610 ⅓	1610 ⅓	1610 ⅓	1620 ½	1620 ½	1614 ¾	1624 1	1624 1	1618 ½	1618 ½	1618 ½	1640 3	1640 3
50	1610 ⅓	1610 ⅓	1620 ½	1620 ½	1622 ¾	1622 ¾	1624 1	1624 1	1618 ½	1618 ½	1618 ½	1640 3	1640 3
60	1630 ½	1630 ½	1620 ½	1622 ¾	1622 ¾	1624 1	1624 1	1618 ½	1618 ½	1638 2	1640 3	1640 3	1640 3
70	1630 ½	1630 ½	1630 ½	1632 ¾	1622 ¾	1624 1	1636 ½	1638 2	1638 2	1640 3	1640 3	1640 3	1640 3
80	1630 ½	1630 ½	1632 ¾	1632 ¾	1634 1	1634 1	1636 ½	1638 2	1638 2	1640 3	1640 3	1640 3	1640 3
90	1630 ½	1630 ½	1632 ¾	1632 ¾	1634 1	1636 ½	1636 ½	1638 2	1638 2	1640 3	1640 3	1640 3	1640 3
100	1630 ½	1632 ¾	1632 ¾	1634 1	1634 1	1636 ½	1638 2	1638 2	1638 2	1640 3	1640 3	1640 3	1640 3
110	1630 ½	1632 ¾	1632 ¾	1634 1	1636 ½	1636 ½	1638 2	1638 2	1640 3	1640 3	1640 3	1640 3	1640 3
120	1632 ¾	1632 ¾	1634 1	1634 1	1636 ½	1636 ½	1638 2	1638 2	1640 3	1640 3	1640 3	1640 3	1640 3
130		1634 1	1634 1	1636 ½	1636 ½	1638 2	1638 2	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3
140			1636 ½	1636 ½	1636 ½	1638 2	1638 2	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3
150			1636 ½	1636 ½	1638 2	1638 2	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3
160				1638 2	1638 2	1638 2	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3
170				1638 2	1638 2	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3
180					1640 3	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3
190					1640 3	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3
200						1640 3	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3	1640 3

* Recommended Selections for Hydronic Systems.

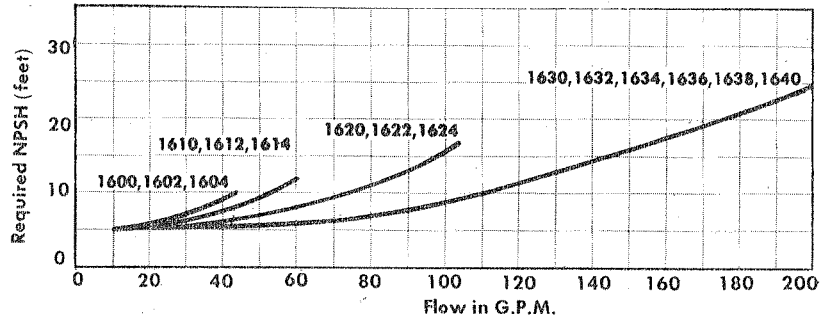
* This table presents recommended pump selections for closed hydronics systems where (1) resistance is due entirely to friction, (2) the system is tolerant of some variation in flow, and (3) quiet system operation is desired.

For applications where resistance includes static head or where a more precise selection is required, the selection must be made from the performance curves.

Composite Performance Curves



Required NPSH at 1750 RPM



Performance Curves

