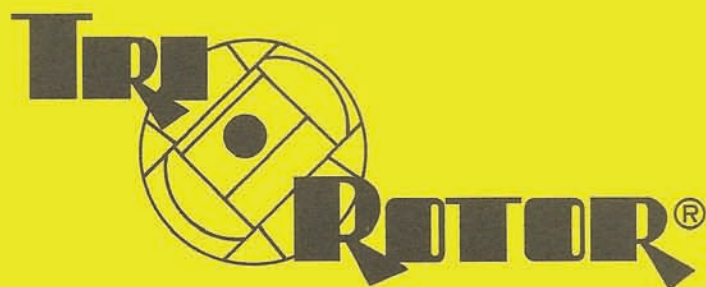
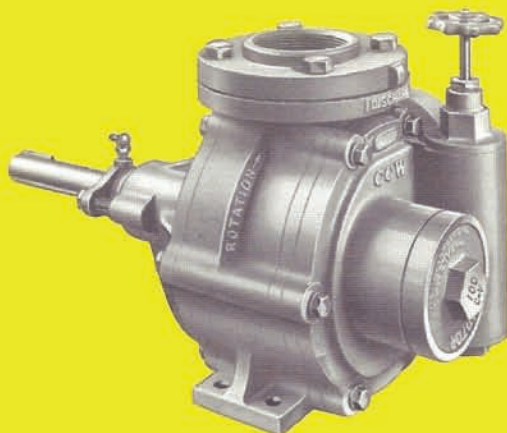


INSTRUCTION MANUAL WITH PICTORIALIZED PARTS LIST



SERIES 100, 120

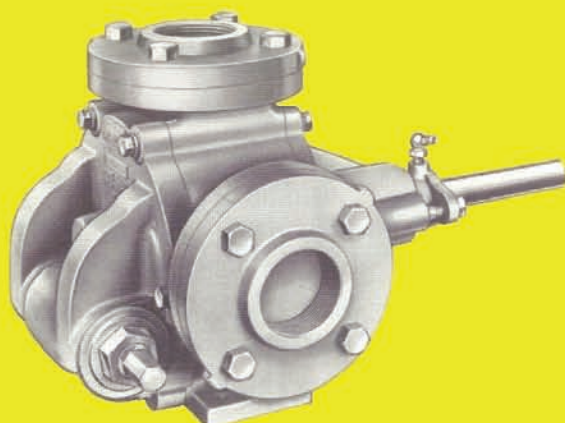
Positive Displacement Rotary Piston Pumps



100CV - VARIABLE CONTROL HEAD PUMP (PAGE 2)



120AV - w/VFC-CW (PAGE 2)



100CX - BYPASS HEAD PUMP (PAGE 3)



120A - SOLID HEAD PUMP (PAGE 3)
(TOP SUCTION)

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PUTTING PUMP INTO SERVICE	1
VISCOSITY - SPEED - GALLONAGE CHART.....	4
SERIES 100 PERFORMANCE CHARTS.....	4

	Page
TROUBLE SHOOTING GUIDE	5
PICTORIALIZED PARTS LIST	6-9
TRI-ROTOR PUMPING PRINCIPLE.....	Back Cover



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PUMP MODELS 100CV - 100CX - 100C



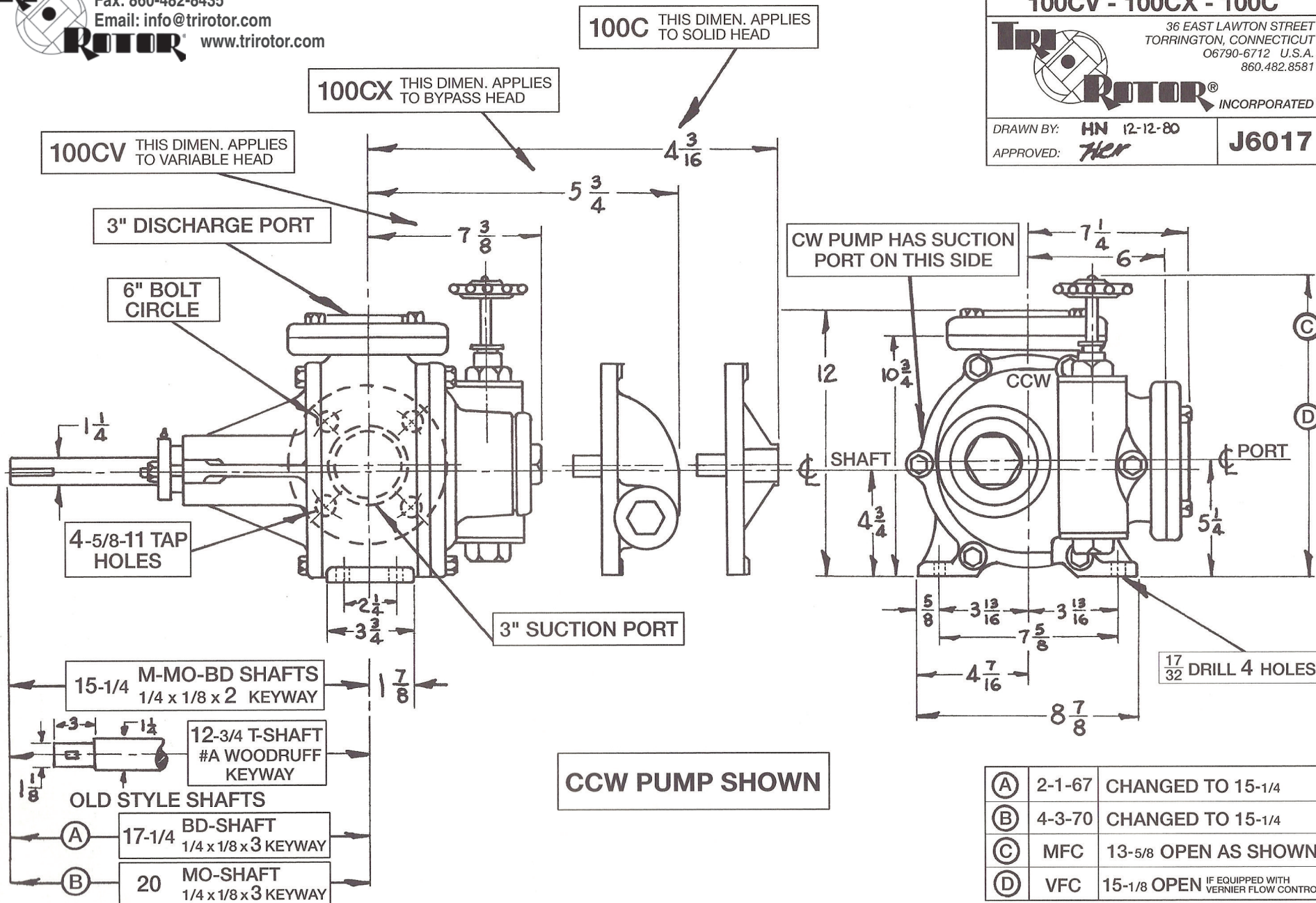
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860.482.8581

TRI-ROTOR® INCORPORATED

DRAWN BY: **HN** 12-12-80

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SERIES 100 AND 120 PUMPS

MODEL 100CV, 120AV VARIABLE VOLUME PUMP – 100CX, 120AX BYPASS HEAD PUMP
100C, 120A SOLID HEAD PUMP

SERIES 100 RATED 100 GPM @ 690 RPM – SERIES 120 RATED 90 GPM @ 600 RPM

PUTTING PUMP INTO SERVICE

CAUTION: When receiving a pump, carefully check for damage, broken port seals, and misalignment incurred during shipping.

CORRECT PIPING HOOK-UP: The series 100 pump comes with two 3" N.P.T. flanged ports designed for use with Schedule 40 steel pipe. Connect piping based on direction of shaft rotation.

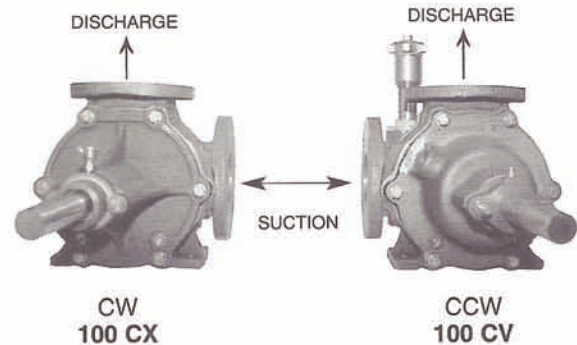
SERIES 100 CW (CLOCKWISE) rotation pump has the suction port on the right side and discharge port on the top (viewed with shaft end towards you), and indicated by arrows cast into the body.

SERIES 120 CW has a 4" top suction and a 3" left side discharge.

SERIES 100 CCW (COUNTER CLOCKWISE) rotation pump has the suction port on the left side and the discharge port on top.

SERIES 120 CCW has a 4" top suction and a 3" right side discharge.

- Any pump may be run in reverse temporarily for such purposes as stripping lines etc.



MOUNTING AND ALIGNMENT

The following will cause misalignment:

- (1) Warped base plate (correct by shimming pump and drive components)
- (2) Pipe strain (correct by using hangers or appropriate pipe supports)

If pump is connected to drive member by couplings, shim components until coupling halves are aligned.

To prevent misalignment of pump and drive components, fasten base securely in place using the foundation bolt holes provided.

- SHAFT SHOULD ALWAYS BE TURNABLE BY HAND**
- As a last check before starting pump: remove gland nuts and slide packing gland out of housing. If gland does not slide back into housing without interference, pump is misaligned.

DIRECT MOTOR DRIVEN UNITS AND GEAR DRIVEN UNITS: Abutting shafts must be at least 1/8 of an inch apart and coupling inserts and/or chains should be loose enough to prevent end thrust on pump shaft.

BELT DRIVEN UNITS: An outboard bearing must be used to prevent side thrust on pump shaft. Pump shaft must be free to slide longitudinally through outboard bearing, so that rotor group will not be forced against pump case components. Align sheaves using straight edge or stretched cord.

OPEN GEAR DRIVEN UNITS: Proper alignment and engagement of gear and pinion can be checked by passing foil or cellophane through them. An outboard bearing should be used to prevent side thrust on pump shaft. Pump shaft must be free to slide longitudinally through outboard bearing, so that rotor group will not be forced against pump case components. **CAUTION:** Use gear and pinion set of same pressure angle such as furnished by factory, otherwise fibre motor pinion life will be short.

PACKING GLAND

The packing gland serves a dual function; first as packing follower and second as a bearing which, with the shaft housing bushing, forms a support for the rotor and shaft. As shipped from the factory, the gland is **LOOSE ENOUGH TO BE ROCKED BY HAND**. At first start-up, **DO NOT** tighten gland until pump has run long enough for packing to expand from absorption of pumpage. Thereafter, to adjust, tighten nuts evenly one quarter turn at a time and adjust enough to reduce leakage - **NO MORE** - a drop or two of the pumpage should normally drip from the gland every few minutes (except, of course, with mechanical seals, zero leak packing, or external scavenging systems). **SHAFT SHOULD ALWAYS BE TURNABLE BY HAND**. Keep shaft well lubricated with appropriate lubrication through fitting provided.



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VARIABLE CONTROL HEAD MODEL 100CV, 120AV

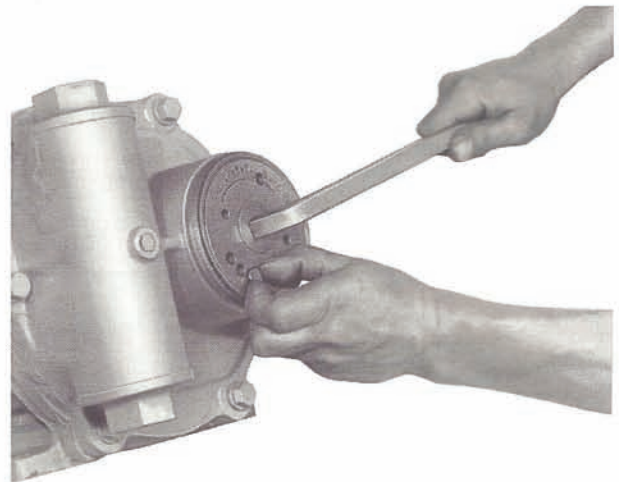
The Variable Volume Control Head mounted on a standard Tri-Rotor pump body allows for both automatic and/or manual changes in the flow rate of the pump. The automatic response occurs with changes in the operating pressure of the system, causing a spring-loaded hydraulic control mechanism to adjust internally, the stroke of the pump. By using flow controls, the operator can make manual adjustments to increase or decrease the discharge rate as desired.

MANUAL AND VERNIER FLOW CONTROLS

Two flow controls are available: the Manual Flow Control (MFC) for rough adjustments, or Vernier Flow Control (VFC) which is graduated for fine setting and metering. These enable the operator to vary the discharge rate infinitely from 100% down to zero without stopping the pump or changing speed. The plunger under the control stem and control lever assembly, fix the stroke length, i.e. displacement of the pistons.

TO ADJUST CONTROL SPRING TENSION (3 STEPS)

STEP 1: STOP PUMP. Unscrew lettered spring cap and insert spring adjusting wrench as shown. Pull wrench toward "increase" and remove pawl pin. DO NOT LET WRENCH GET AWAY. Take note of alignment of holes between pawl plate and underlying top spring plate. Unwind to release spring tension, counting number of top spring plate holes passing hole originally containing pawl pin.



STEP 2: To reset, pull wrench in direction of "increase" (note arrows on plate) until the spring begins to tighten against the control lever assembly. Note first coinciding set of holes thereafter. Continue turning wrench until third top spring plate hole is seen. Insert pawl pin to lock top spring plate in this position. Pump will now develop approximately 35 PSI when running against a closed discharge line.

STEP 3: For greater pressure, turn wrench to higher hole position. With standard spring, each hole represents 10 PSI, DO NOT EXCEED 5 holes. Heavy duty spring gives approximately 15 PSI per hole, DO NOT EXCEED 7 holes.

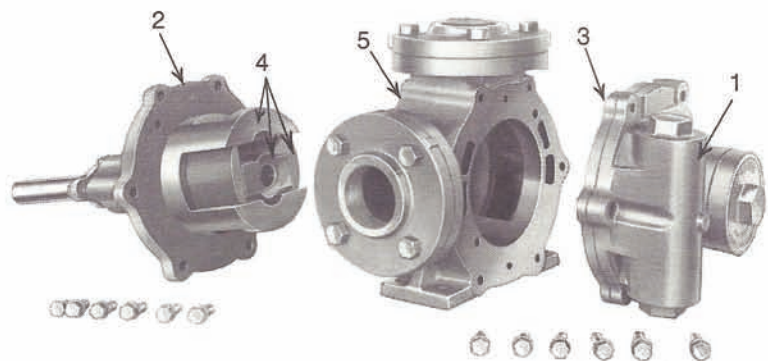
CAUTION: Spring adjusting wrench is designed to bend if operator exceeds the allowable tension.

TO REVERSE DIRECTION OF ROTATION (6 STEPS)

CAUTION: After reversing rotation, Variable head no longer automatically reduces discharge rate. A relief valve should be installed in the discharge line. For automatic operation, order from the factory a head of opposite rotation.

STEP A: Release spring tension as described above.

STEP B: Unbolt control head (1) and remove together with pressure control plate (3) and gaskets as one unit (pictured). Make sure gaskets are not damaged.



STEP C: Unbolt shaft housing (2) and remove together with rotor group (4) and gasket as one unit.

THIS LEAVES PUMP IN THREE SECTIONS AS PICTURED.

STEP D: Turn body (5) "about face" and switch dowel pins.

STEP E: Bolt the three sections back together, making sure the shuttle pin enters the bore of the shuttle.

STEP F: Reverse wiring to run motor in opposite direction.



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BYPASS HEAD MODEL 100CX, 120AX

This Tri-Rotor pump model has an integral dash pot relief valve in head. The standard spring can be set up to 65 PSI at which setting it will bypass full volume; the heavy duty spring can be set up to 100 PSI.

TO ADJUST BYPASS RELIEF PRESSURE

Remove hexagonal cap (A) and loosen locknut. Turn adjusting screw (B) in to increase pressure and out to decrease pressure. With:

Standard Spring, #J324, (Min. 10 PSI/Max. 65 PSI).

Each full turn represents approx. 3 PSI. **Do not exceed 17 total turns.**

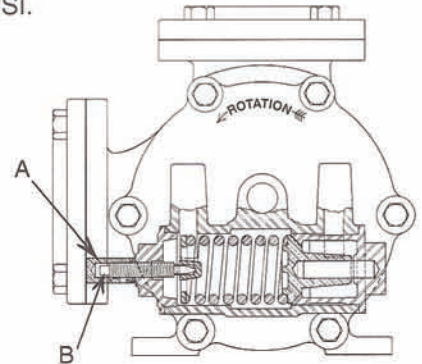
Heavy Duty Spring, #J531, (Min. 20 PSI/Max. 100 PSI).

Each full turn represents approx. 8 PSI. **Do not exceed 12 total turns.**

Extra Heavy Duty Spring, #J6152, (Min. 40 PSI/Max. 145 PSI).

Each full turn represents approx. 15 PSI. **Do not exceed 8 total turns.**

Tighten locknut and replace hexagonal cap, making sure J328 gaskets is in place.



TO REVERSE DIRECTION OR ROTATION 100CX, 120AX (6 STEPS)

STEP 1: Unbolt bypass head and remove with bypass head gasket as one unit, making sure gasket is not damaged.

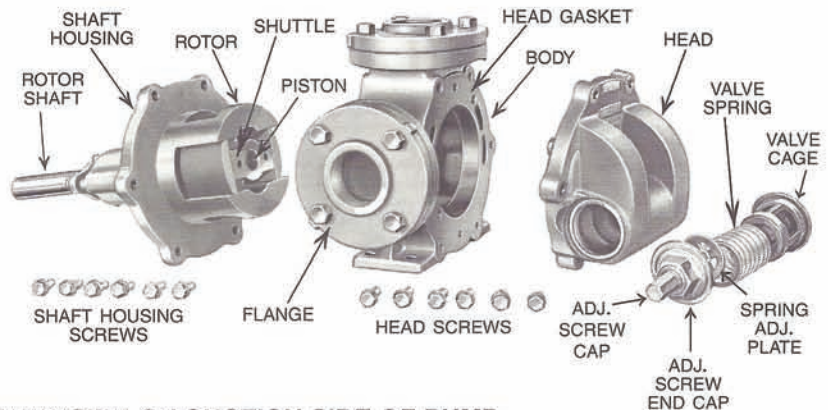
STEP 2: Unbolt shaft housing and remove together with rotor group and gasket as one unit.

THIS LEAVES PUMP IN THREE SECTIONS AS PICTURED.

STEP 3: Turn body "about face" and switch dowel pins.

STEP 4: Bolt the three sections back together, making sure the shuttle pin enters the bore of the shuttle.

STEP 5: To reverse bypass head components – release spring tension as described above. Remove valve cage with valve and remove end cap with spring and adjusting parts. Exchange to opposite sides of head and reassemble.



NOTE: SPRING ADJUSTING SCREW MUST ALWAYS BE ON SUCTION SIDE OF PUMP.

Be sure spring is centered on valve and adjusting plate.

STEP 6: Reverse wiring to run motor in opposite direction.

SOLID HEAD MODEL 100C, 120A

The model **100C, 120A** has a solid head with the shuttle pin set in a fixed position to give constant volume for simple transfer service. A RELIEF VALVE SHOULD BE INSTALLED IN THE DISCHARGE LINE FOR PROTECTION.

TO REVERSE DIRECTION OF ROTATION 100C, 120A (4 STEPS)

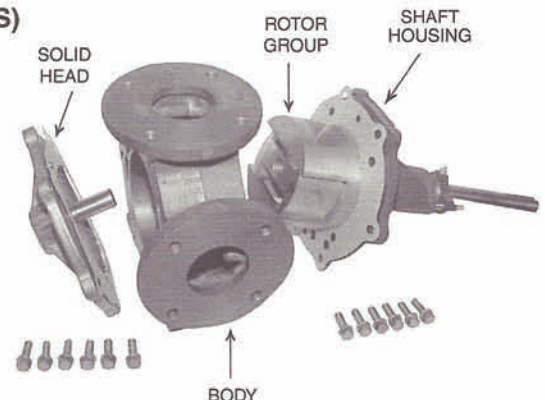
STEP 1: Unbolt solid head and remove with head gasket as one unit, making sure gasket is not damaged.

STEP 2: Unbolt shaft housing and remove together with rotor group and gasket as one unit.

THIS LEAVES PUMP IN THREE SECTIONS AS PICTURED.

STEP 3: Turn body "about face" and switch dower pins.

STEP 4: Bolt the three sections back together, making sure the shuttle pin enters the bore of the shuttle.





SERIES 100 PUMPS

RATED 100 G.P.M.

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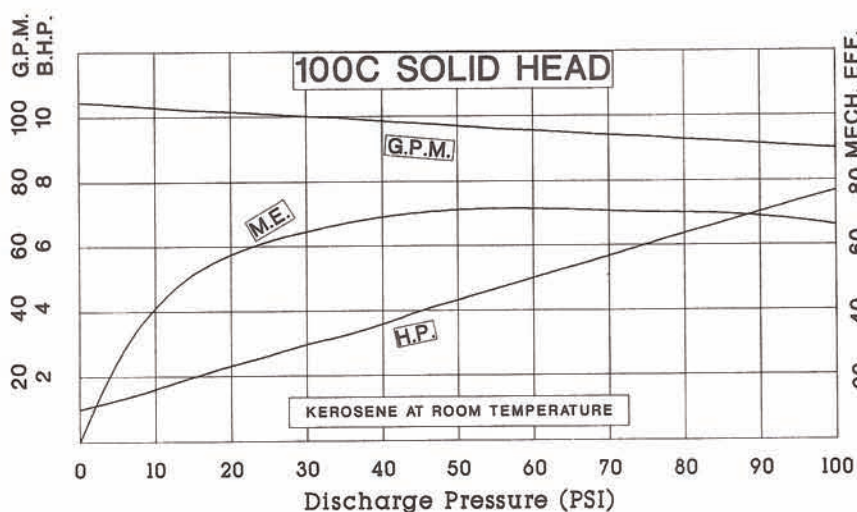
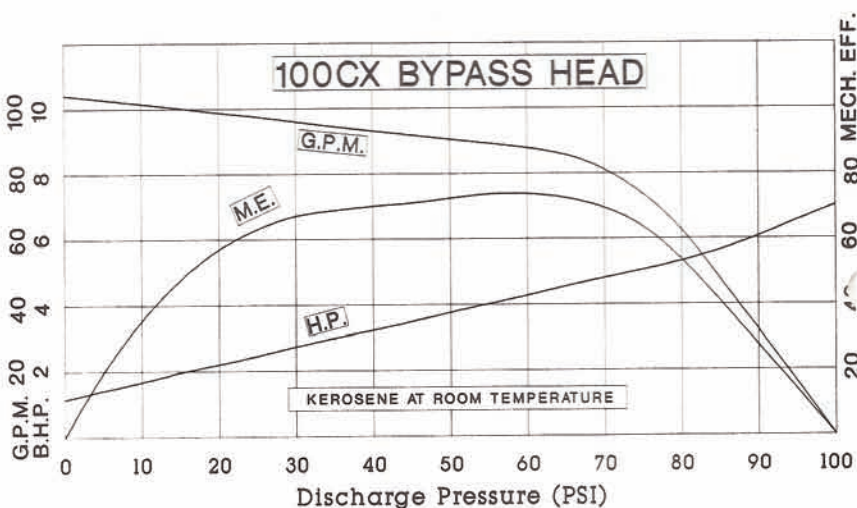
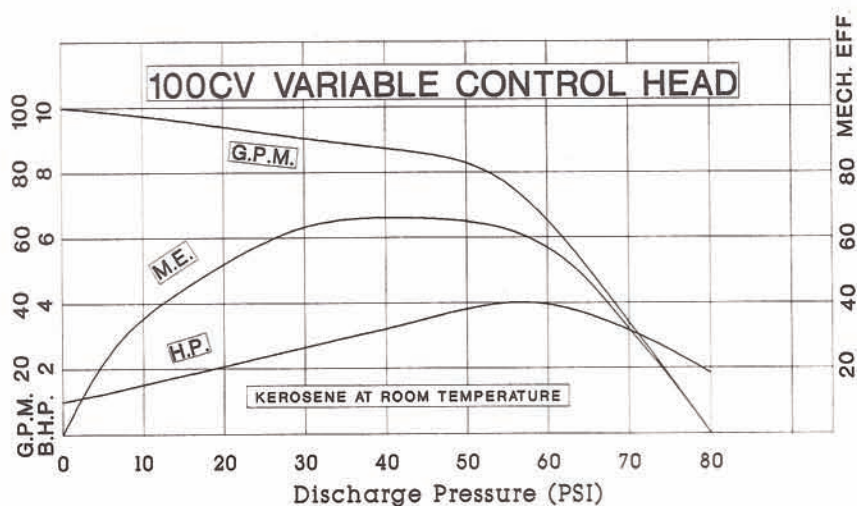
MAXIMUM RECOMMENDED PUMP SPEEDS FOR VARIOUS VISCOSITIES

SERIES 100			
Rating	100 GPM @ 690		
Displacement Factor	14.8 Gals/100 Revs.		
Port Size	3" Flanged		
SSU / CPS	RPM	GPM	Suct.
40 / 4	690	102	3
100 / 20	690	102	3
400 / 78	690	102	3
600 / 125	685	101	3
800 / 165	680	100	3
1,000 / 200	670	99	3
1,600 / 335	650	96	3
2,000 / 410	640	95	3
3,000 / 620	580	85	3
5,000 / 1,060	530	78	3
8,000 / 1,700	470	70	3
9,000 / 1,900	450	67	3

**For Viscosities Below, Pump
Must Have Relieved Rotor Group
(For Sticky, Tacky Fluids)**

Port Size	3" Flanged		
10,000 / 2,150	430	64	3
15,000 / 3,100	410	61	3
20,000 / 4,250	380	56	4
30,000 / 6,500	340	50	4
40,000 / 8,610	300	44	4
50,000 / 10,800	250	37	4
75,000 / 16,210	170	25	4
100,000 / 21,625	125	19	4

GENERAL RULE: Viscous fluids which retain their "slipperiness" or which readily thin out with slight temperature increase or agitation do not require a relieved rotor group.



CAUTION: Suction piping diameter and length must be separately determined, regardless of pump port size, where (1) volatile liquids or (2) viscous pumpages are concerned. The sizes shown in the above chart are for suction lines no longer than 10 feet and containing no more than 2 pipe fittings.



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TROUBLESHOOTING GUIDE

TROUBLE	TYPE OF PUMP			LOOK FOR
	VARIABLE HEAD	BYPASS HEAD	SOLID HEAD	
NO FLOW	●	●	●	CW PUMP RUNNING CCW, OR VICE VERSA (1)* MOTOR WIRING REVERSED PIPING TO WRONG PORTS
	●	●	●	DISCHARGE HEAD TOO HIGH PIPING TOO SMALL, TOO LONG (4) VISCOSITY TOO HIGH (4)
	●			FLOW CONTROL TURNED DOWN TO ZERO
	●			PAWL PIN MISSING (2) CONTROL SPRING (2) - not adjusted - wound backwards - distorted - broken out of top or bottom spring plate
		●		RELIEF VALVE SPRING - not adjusted (3) - not in correct position (3) - spring broken
	●			PLUNGER FROZEN IN BOTTOM POSITION - corroded parts - pumpage shear sensitive - dirt accumulation preventing movement
		●		RELIEF VALVE - not fully seated (3) - stuck on valve guide pin - need lapping into seat - spring adjusting plate missing
	●	●	●	INADEQUATE PRIMING CONDITIONS SUCH AS - suction line air leak - foot valve stuck - lift too great - altitude too high - vapor lock
	●	●	●	ROTOR GROUP WORN / MECHANICAL SEAL WORN OR BROKEN
CAVITATING VIBRATING HIGH AMP. DRAIN	●	●	●	STARVED SUCTION LINE DUE TO - suction line restricted - viscosity too great for piping - RPM too high for viscosity (4)
PUMP RUNNING HOT	●	●	●	PACKING TOO TIGHT (1) MISALIGNED PUMP (1) INSUFFICIENT LUBRICATION OF SHAFT (1)
	●	●		TOO LONG RUNNING IN FULL BYPASS CYCLE OR ZERO STROKE
	●	●	●	OVERSPEEDING (4) CAVITATION
PUMP FROZEN CAN'T TURN SHAFT	●	●	●	PACKING TOO TIGHT (1) MISALIGNMENT (1) OBSTRUCTION IN ROTOR GROUP - rotor group part broken RUSTED PARTS- blush rust causing parts to seize together
	●	●	●	PUMPAGE - shear sensitive - congealed - caramelized - solidified TEMPERATURE OF ALL BRONZE OR BRONZE FITTED PUMP EXCEEDING 140° F ROTOR GROUP NOT RELIEVED
NOISY PUMP	●	●	●	CAVITATION WORN ROTOR GROUP AIR LEAK INTO SUCTION LINE
	●	●		PLUNGER OR VALVE BOUNCING DUE TO - suction line restriction - relief valve in discharge line reacting with pump spring setting - PIPING RESONANCE
EXCESSIVE LEAKAGE FROM PACKING GLAND	●	●	●	PACKING NUTS INCORRECTLY ADJUSTED PACKING WORN MECHANICAL SHAFT SEAL WORN OR BROKEN SHAFT SCORED
REDUCTION OF FLOW OR PRESSURE	●			PAWL PIN BROKEN CONTROL SPRING SETTING INCORRECT (2) CONTROL PLUNGER STUCK (2)
		●		BYPASS SPRING SETTING INCORRECT (3) VALVE UNSEATED OR WORN (3)
	●	●	●	PUMP WORN RESTRICTION OR TOO HIGH VISCOSITY IN SUCTION LINE (4)
PREMATURE WEAR SHORT PUMP LIFE	●	●	●	MISALIGNMENT - end or side thrust on shaft (1) PACKING TOO TIGHT OR ADJUSTED INCORRECTLY DIRTY OR ABRASIVE PUMPAGE RUNNING PUMP DRY - repeated suction lift OVERSPEEDING (4) NON-LUBRICATING PUMPAGE OPERATING ABOVE 50 PSI & 350 RPM
	●			FLOW CONTROL SET BELOW 25% CAPACITY FOR TOO LONG PERIODS SUCTION LINE RESTRICTED CAUSING PLUNGER "BOUNCE"
SCORED OR GOUGED PARTS	●	●	●	MISALIGNMENT (1) - transmittal of end thrust from motor shaft excessive belt tension - PIPE STRAIN - OVER TIGHTENING OF GLAND (1)

* NUMBERS IN PARENTHESIS PERTAIN TO PAGE NUMBERS WHERE MORE INFORMATION CAN BE FOUND.

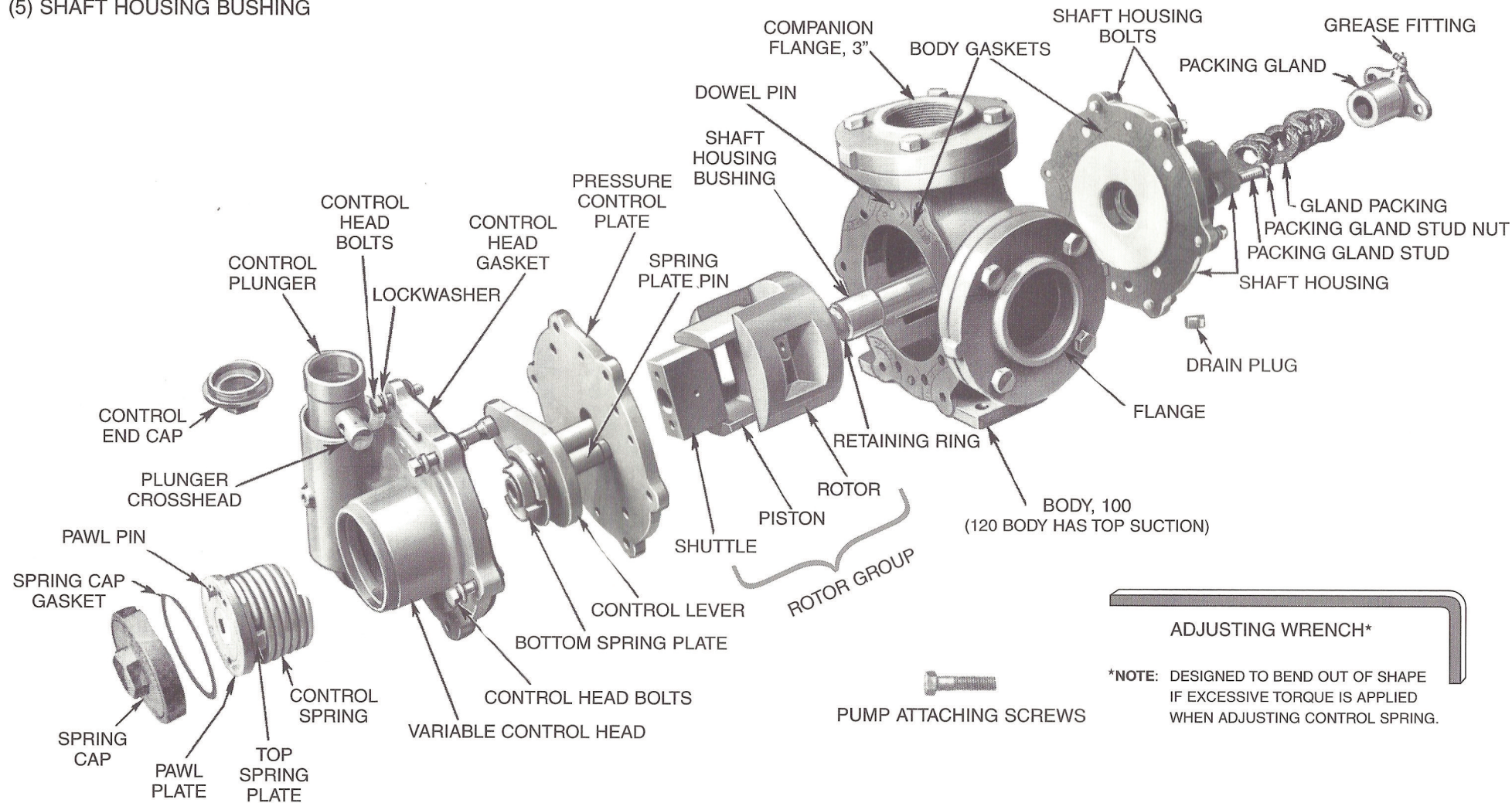
AVOID DOWN TIME!

KEEP ESSENTIAL SPARE PARTS ON HAND

- (1) ROTOR GROUP
- (2) PACKING GLAND
- (3) SET OF ALL GASKETS
- (4) PACKING
- (5) SHAFT HOUSING BUSHING

WHEN ORDERING PARTS ALWAYS GIVE:

- (1) PUMP SERIAL NUMBER
- (2) ROTATION OF PUMP (CW or CCW)
- (3) SHAFT LENGTH (from port centerline)



MODEL 100CV PUMP (EXPLODED VIEW)



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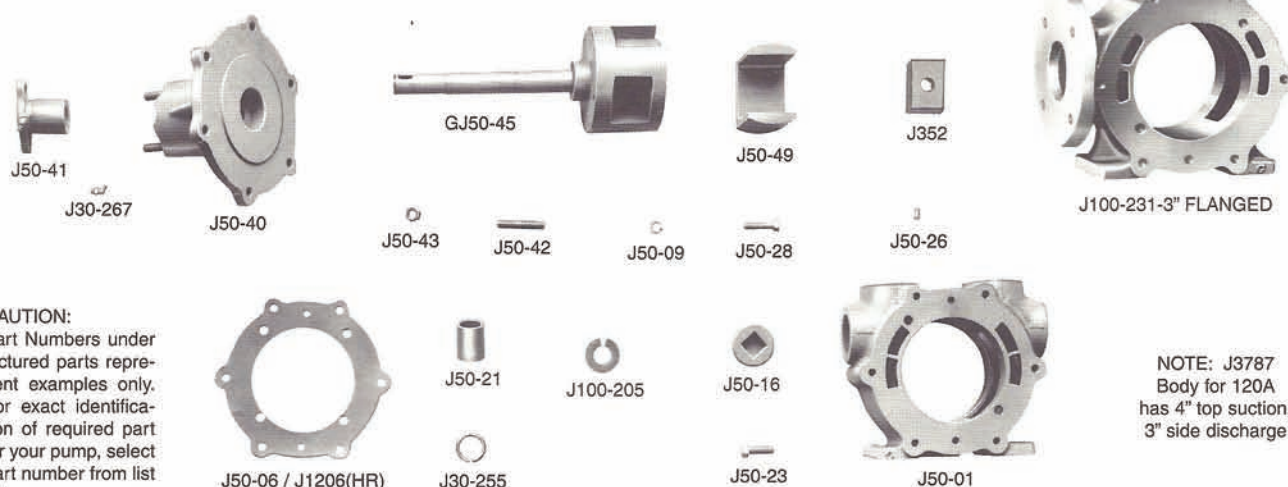
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INTERCHANGEABLE PARTS FOR PUMP SERIES 100 AND 120



BODY PARTS

Part No.	Part Name	
J30-255	Retaining Ring	
J30-267	Alemite Grease Fitting	
J50-01	Body, 80, 2" Ports	
J50-06	Body Gasket	
J50-09	Lockwasher	6/Set
J50-16	Pipe Plug	
J50-21	Shaft Housing Bushing (Bronze)	
J50-23	Attaching Bolt	4/Set
J50-26	Body Dowel	2/Set
J50-28	Bolt	6/Set
GJ50-40	Shaft Housing*	
GJ50-41	Packing Gland Fitting (Bronze)	
J50-42	Gland Stud	2/Set
J50-43	Gland Stud Nut	2/Set
J100-58	Flange Bolts	8/Set
J100-205	Standard Packing	Set
J100-231	Body, 100, 3" Ports, Std.	
J100-232	3" Flange Gasket, 100	2/Set
J100-233	3" Companion Flanges, 100	2/Set
J738	Food Packing	Set
J944	Lantern Ring	
J1719	Drain Plug	
J3787	Body, 120 (Top Suction) 4"x 3" Ports	
J4254	Body, 100 (Bronze) 3" Ports	
J5975	Teflon Packing	Set
J6045	Teflon Composition Bushing	
J6050	Teflon Impregnated Packing	Set
J6114	Body, 80 (Bronze) 2" Ports	
J6262	Zero Leak Packing #3	Set
J6266	Zero Leak Packing #30	Set

ALL IRON PARTS

J50-70	Shaft Housing Bushing (Iron)
GJ2172	Packing Gland/Fitting (Iron)

STEAM JACKETED PARTS

J1206	Body Gasket (HR)	
J1207*	Heat Packing	Set
GJ1851	Shaft Housing*	

ROTOR GROUP PARTS

(See Chart Below for Relieved Parts)

Part No.	Part Name	
J50-49	Piston Iron	
J3451	Piston Bronze	
J4666	Piston Steel	
J100-15	Shuttle Bronze	
J352	Shuttle Iron	
J3619	Shuttle Carbon	
J5713	Formed Shuttle Bronze	
J5831	Formed Shuttle Iron	
J6118	Shuttle Teflon	
J6156	Shuttle Hardened Iron	
GJ50-45	Rotor & Shaft Bronze**	
GJ351	Rotor & Shaft Iron**	
GJAB728	Rotor & Shaft (For All Bronze Pump)**	
GJI-50-33	Rotor Group Iron	T
GJB-50-33	Rotor Group Bronze	12-3/4"
GJI-100-11	Rotor Group Iron	M-MO or BD
GJB-100-11	Rotor Group Bronze	15-1/4"
GJAB-100-11	Rotor Group (For All Bronze Pump)	
GJI-3447	Rotor Group Iron	Old Style
GJB-3447	Rotor Group Bronze	BD 17-1/4"
GJAB-3447	Rotor Group (For All Bronze Pump)	
GJI-87	Rotor Group Iron	Old Style
GJB-87	Rotor Group Bronze	20"

WHEN FOLLOWING PARTS ARE RELIEVED (REL), ADVISE

Shuttle
Piston
Rotor & Shaft
Rotor Group

* Includes Bushing, Retaining Ring and Drain Plug.

+ For temperatures under 500°F, use J6050.

** Furnished with following shaft lengths: T 12-3/4", M-MO or BD 15-1/4", BD 17-1/4", MO 20".

NOTE: ALWAYS GIVE PUMP SERIAL NUMBER WHEN ORDERING PARTS.
ALL PRICES F.O.B. TORRINGTON, CT, SUBJECT TO CHANGE WITHOUT NOTICE.

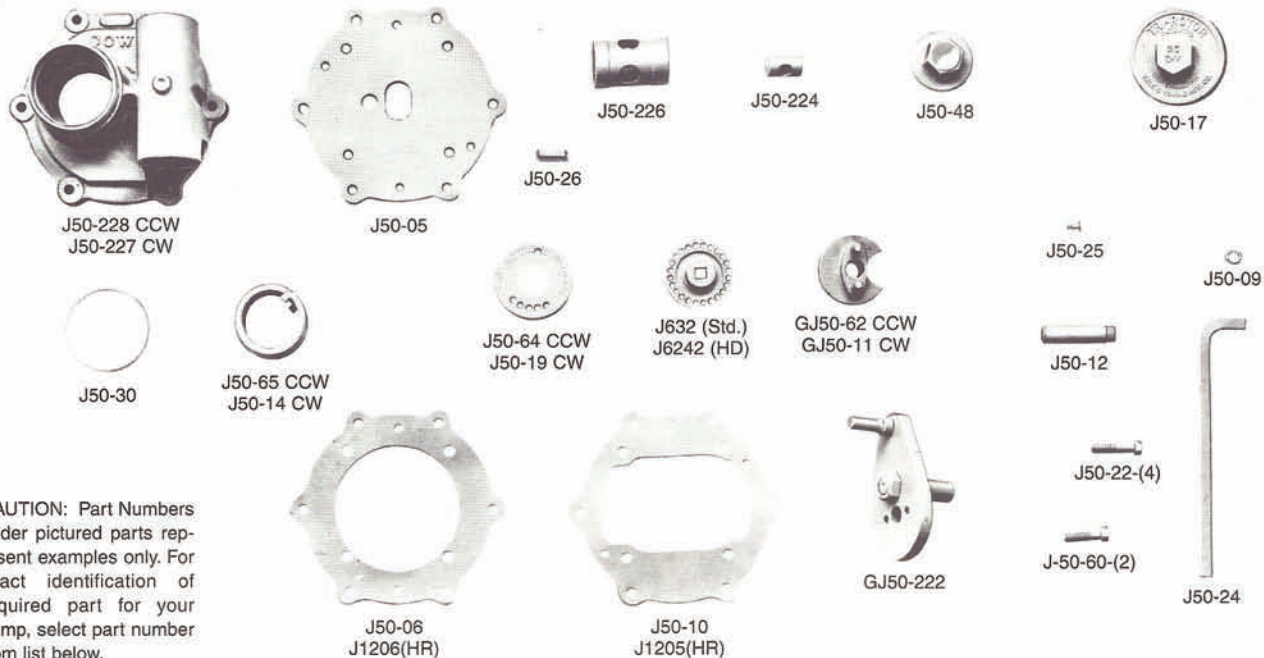


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- 3) SHAFT LENGTH (from port centerline)

100CV, 120AV VARIABLE CONTROL HEAD PARTS



100CV, 120AV VARIABLE CONTROL HEAD PARTS

Part No.	Part Name	Part No.	Part Name
J50-05	Press. Cont. Plate w/J50-12 Pin/Adv. Rot.	GJ50-222	Control Lever Assembly
J50-06	Body Gasket	J50-223	Control Lever Pin
J50-09	Lockwasher	J50-224	Plunger Crosshead
J50-10	Variable Control Head Gasket	J50-226	Control Plunger (Bronze)
GJ50-11	Bottom Spring Plate (Std) CW	J50-227	Control Head CW
J50-12	Spring Plate Pin	J50-228	Control Head CCW
J50-14	Control Spring (Std) CW 50 PSI	JAB50-228	Control Head CCW (Bronze)
J50-17	Spring Cap	J518	Control Spring CCW (HD) 100 PSI
J50-19	Pawl Plate CW	J519	Control Spring CW (HD) 100 PSI
J50-22	Bolt	J523	Control Plunger (Iron) ENP
J50-24	Spring Adjusting Wrench	GJ799	Bottom Spring Plate (HD) CW
J50-25	Pawl Pin	GJ800	Bottom Spring Plate (HD) CCW
J50-30	Spring Cap Gasket	J1031	Long Spring Plate Pin
J50-36	Shuttle Pin Nut	J1206	Body Gasket(HR)
J50-48	Control End Cap	GJ1760	Control Head Complete CW*
J50-60	Bolt	GJ1761	Control Head Complete CCW*
GJ50-62	Bottom Spring Plate (Std) CCW	GJ1762	Control Head Complete CW/MFC*
J50-64	Pawl Plate CCW	GJ1763	Control Head Complete CCW/MFC*
J50-65	Control Spring (Std) CCW 50 PSI	J6232	Top Spring Plate CW/CCW (Std)
J50-67	Shuttle Pin	J6242	Top Spring Plate CW/CCW (HD)

MANUAL FLOW CONTROL PARTS

Part No.	Part Name
J502	Plunger Adjusting Screw
J503	End Cap
J505	Handwheel
GJ788	Manual Flow Control Complete
J1194	Adjusting Screw Packing

STEAM JACKETED PARTS

JHT519	Control Spring CW(HD) High Temp 100 PSI
J1205	Variable Control Head Gasket (HR)
J3701	Control Head, CW only
GJ3701	Control Head Complete, CW only

VERNIER FLOW CONTROL PARTS

J3709	Adjusting Screw Packing
GJ3875	Vernier Flow Control Complete

* Advise if Standard, Heavy Duty or High Temp Spring required.

100
CV
120
AV

NOTE: ALWAYS GIVE PUMP SERIAL NUMBER WHEN ORDERING PARTS.
ALL PRICES F.O.B. TORRINGTON, CT, SUBJECT TO CHANGE WITHOUT NOTICE.

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- 3) SHAFT LENGTH (from port centerline)



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Fax: 860-482-8435

Email: info@trirotor.com

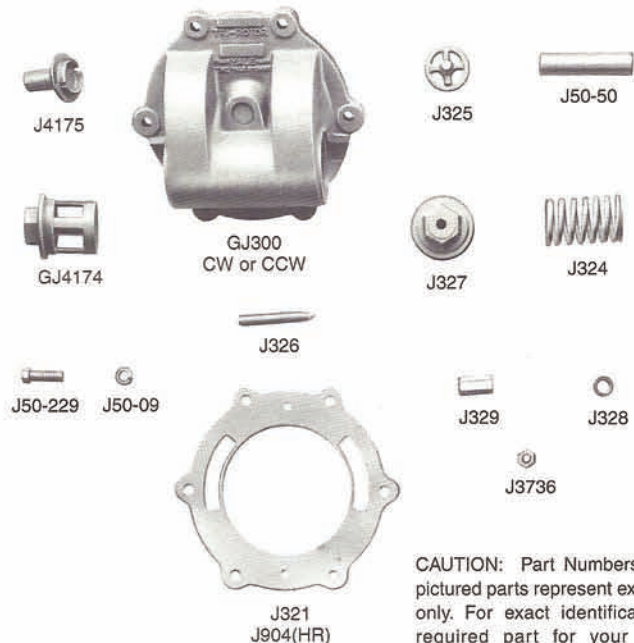
www.trirotor.com

BYPASS HEAD PARTS AND SOLID HEAD PARTS FOR PUMP SERIES 100, 120

CAUTION: Part Numbers under pictured parts represent examples only. For exact identification of required part for your pump, select part number from list below.

100CX, 120AX BYPASS HEAD PARTS

Part No.	Part Name	
J50-09	Lockwasher	6/Set
J50-50	Shuttle Pin	
J50-229	Bolt	6/Set
GJ300	Bypass Head/Pin CW or CCW	
J321	Bypass Head Gasket	
J324	Valve Spring (Std.) 65 PSI	
J325	Spring Adjusting Plate	
J326	Spring Adjusting Screw	
J327	Adjusting Screw End Cap	
J328	Adjusting Screw Gasket	2/Set
J329	Spring Adjusting Screw Cap	
J531	Valve Spring (HD) 100 PSI	
GJ1838	Valve/Cage Pin (Iron) Std.	
J1839	Valve (Iron)	
J3736	Adjusting Screw Locknut	
GJ4174	Valve Cage/Pin (Bronze)	
J4175	Valve (Bronze) Std.	
GJ4253	Bypass Head/Pin (Bze) CW or CCW	
GJ4586	Bypass Head Complete CW or CCW*	
J6152	Valve Spring (EXHD) 145 PSI**	
GJX6222	Bypass Head/Offset Pin CW or CCW*	



STEAM JACKETED PARTS

JHT324	Valve Spring High Temp (Std) 65 PSI
J904	Bypass Head Gasket (HR)
J1701	Bypass Head/Pin CW or CCW
GJ1701	Bypass Head Complete CW or CCW*

CAUTION: Part Numbers under pictured parts represent examples only. For exact identification of required part for your pump, select part number from list below.

100C, 120A SOLID HEAD PARTS

Part No.	Part Name	
J50-06	Solid Head Gasket	
J50-09	Lockwasher	6/Set
J50-28	Bolt	6/Set
GJ50-31	Solid Head/Pin CW or CCW	
J50-50	Shuttle Pin	
GJ726	Solid Head/Pin CW or CCW (Bze)	
GJ6222	Solid Head/Offset Pin CW or CCW*	

STEAM JACKETED PARTS

J1206	Solid Head Gasket (HR)
GJ3360	Solid Head/Pin CW or CCW



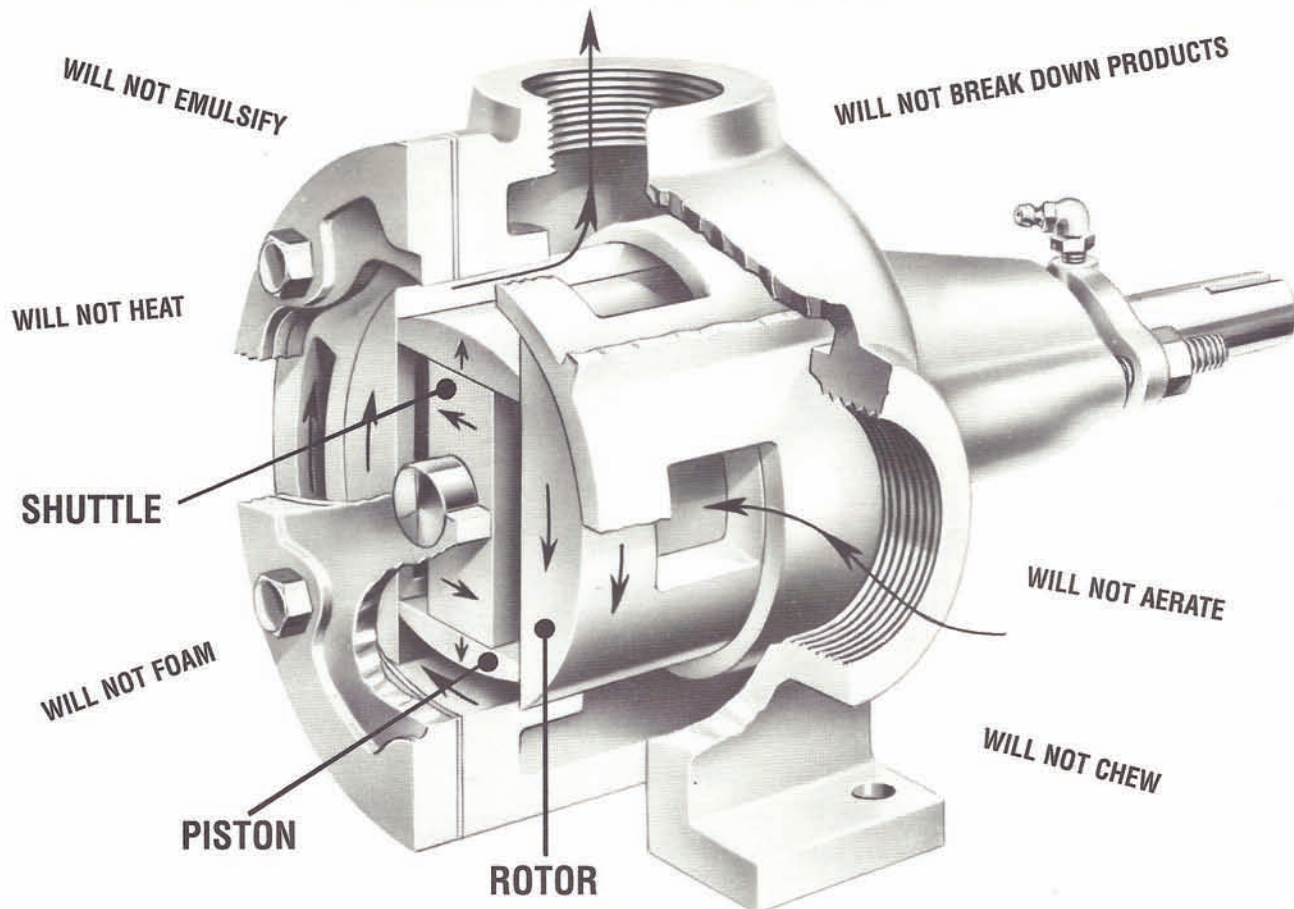
MISCELLANEOUS

Part No.	Part Name
GJ335	Outboard Bearing Complete
GJ2150	Pressure Regulator Assemble
J3997B	Mechanical Seal, Type 1, Buna
J3997V	Mechanical Seal, Type 1, Viton
GJ3998	Mechanical Seal Gland, Type 1
GJ6021	Mechanical Seal Gland, Type 9
GJ6212	Mechanical Seal, Type 9, Teflon

- * Advise if Standard, Heavy Duty, Extra Heavy Duty or High Temp Spring required.
- ** Requires pump to be equipped with counterbored rotor, steel piston and formed shuttle.
- + Specify offset pin position.

NOTE: ALWAYS GIVE PUMP SERIAL NUMBER WHEN ORDERING PARTS.
ALL PRICES F.O.B. TORRINGTON, CT, SUBJECT TO CHANGE WITHOUT NOTICE.

TRI-ROTOR® PUMPING PRINCIPLE



The mechanical principle of the Tri-Rotor Pump is explained as follows and incorporates the pump casing, the rotor, the piston, and the shuttle. The rotor is a liquid-tight fit within the casing, with the piston and shuttle being equally liquid-tight in their fit to each other and to the rotor. In operation, the piston slides back and forth in the rotor slot, drawing liquid from one end of the rotor slot and discharging from the opposite end. At the same time, the shuttle slides back and forth within the piston slot (picture), drawing liquid through one rotor port and discharging through the other. The rotor, which functions as a rotating valve, channels the liquid from the intake port around through the casing and out the discharge port.

This action, while rotary, actually accomplishes the same type of pumping principle as a direct-acting piston pump. There are, therefore, two direct-acting pistons pumping through two cylinders, being valved by the rotary action of the rotor.

The reciprocating piston action is accomplished by the center bearing of the shuttle which rotates on a shuttle pin eccentric to the rotor shaft. Since the rotor is concentric with the shaft and the shuttle bearing is eccentric to the shaft, a reciprocating action of the piston and shuttle within their respective cylinder slots is created by revolving the rotor. Four overlapping strokes of the piston and shuttle for each revolution of the rotor create a smooth discharge with pulsation reduced to a minimum. An extremely high volumetric efficiency is obtained because of the piston-type action and the liquid-tight fit of the moving members.

Highly viscous materials are easily handled with exceptionally high volumetric efficiency while thin, volatile materials are handled with little loss in slippage through the pumping members. Materials critical to agitation are handled with little or no mechanical beating, since the product is carried through the pump by piston action without being subjected to the combination centrifugal and gear or paddle agitation.