



O.E.M. Triplex Plunger Pump

**Standard
Direct-Drive Gas Model**

2X30GS

**Vertical
Direct-Drive Gas Models**

2X20GSV 2X28GSV

PUMP FEATURES

- Triplex plunger design provides a smooth fluid flow.
- Specially formulated Hi-Pressure Seal and ENP precisioned machined plungers assure maximum seal life.
- Ultimate compact, direct-drive unit for maximum portability.
- Modular Regulating Unloader with built-in by-pass standard on all units to assure system pressure control and pump protection.
- Built-in chemical injector standard on all units offers cleaning flexibility.

COMMON PUMP SPECIFICATIONS

Inlet Pressure	Flooded to 60 PSI	(Flooded to 5.25 BAR)
Bore	0.630"	(16 mm)
Max. Fluid Temperature	140°F	(60°C)
Crankcase Capacity	8.5 oz.	(0.25 L)
Vertical	12.0 oz.	(0.36 L)
Inlet Ports	3/4" GH	(3/4" GH)
(1)	3/8" NPT	(3/8" NPT)
(1)	3/8" NPT	(3/8" NPT)
Discharge Ports (2)	3/8" NPT	(3/8" NPT)
Chemical Injection Port	3/8" NPT	(3/8" NPT)
(3/8" NPT)		
Weight	11.7 lbs.	(5.3 kg)
Vertical	11.83 lbs.	(5.6 kg)
Dimensions	7.91" x 7.83" x 6.42"	(201 x 199 x 163 mm)
Vertical	8.31" x 7.83" x 6.46"	(211 x 199 x 164 mm)

Refer to pump Service Manual for important Inlet Condition Check-List, Start-up Procedure, Tech Bulletins and Pump Maintenance information.

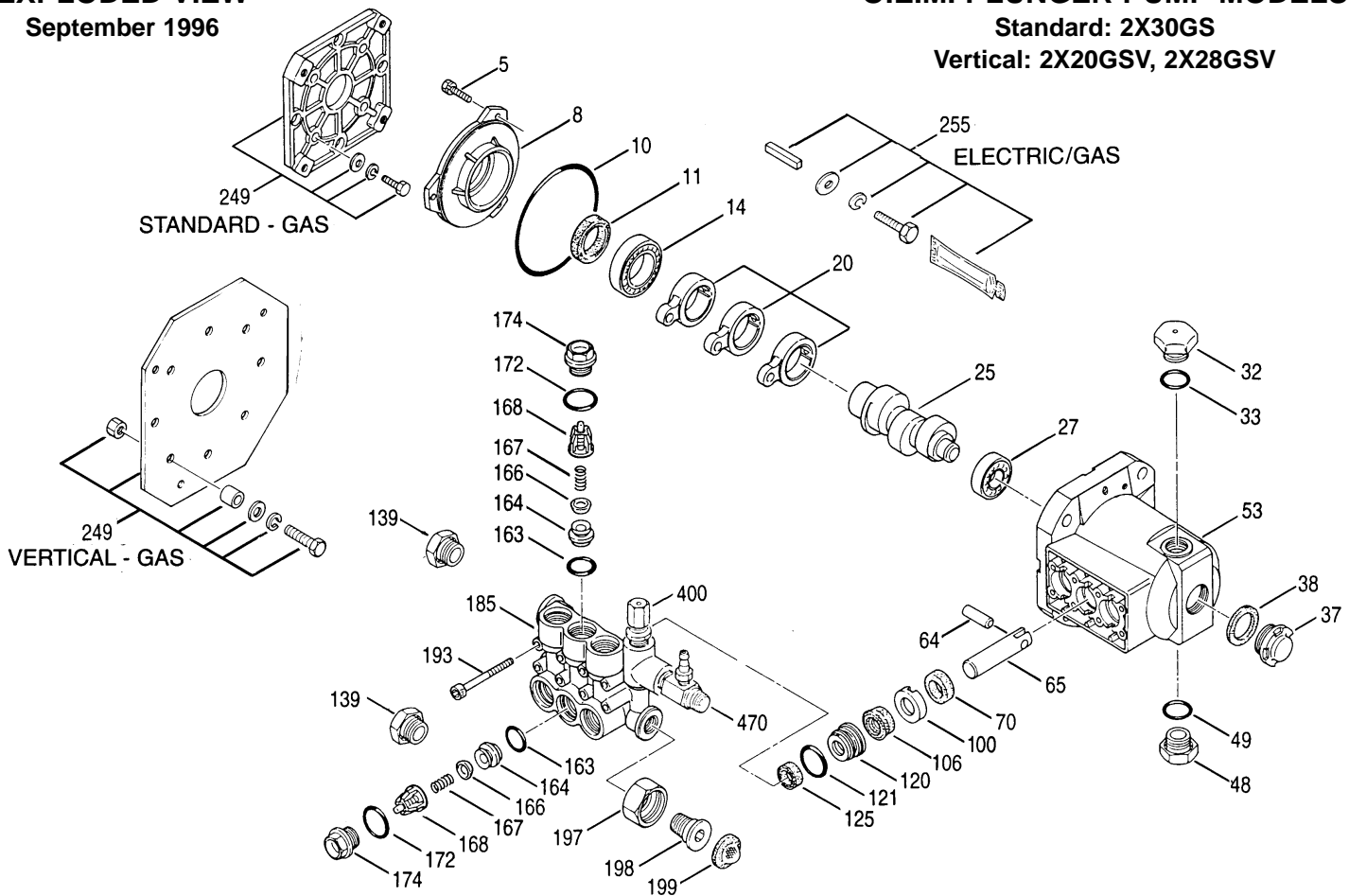
SPECIFICATIONS

	U.S. Measure	Metric Measure
MODEL 2X30GS		
Volume	3.0 GPM	(11.0 L/M)
Max. Discharge Pressure	2000 PSI	(140 BAR)
Max. RPM	3200 RPM	(3200 RPM)
Stroke	0.266"	(6.75 mm)
Shaft Dimensions	3/4"	(3/4")
MODEL 2X20GSV		
Volume	2.0 GPM	(7.6 L/M)
Max. Discharge Pressure	2000 PSI	(140 BAR)
Max. RPM	3100 RPM	(3100 RPM)
Stroke	0.189"	(4.8 mm)
Shaft Dimensions	7/8"	(7/8")
MODEL 2X28GSV		
Volume	2.8 GPM	(10.6 L/M)
Max. Discharge Pressure	2000 PSI	(140 BAR)
Max. RPM	3300 RPM	(3300 RPM)
Stroke	0.244"	(6.2 mm)
Shaft Dimensions	7/8"	(7/8")

“Customer confidence is our greatest asset”

EXPLODED VIEW

September 1996



O.E.M. PLUNGER PUMP MODELS

Standard: 2X30GS

Vertical: 2X20GSV, 2X28GSV

PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
5	817003 Z	Hex Head Screw w/SW (M6x12)	3	166	43723 S	Valve	6
8	46225 A	Bearing Case - 2X20E, 2X30GS	1	167	43750 S	Valve Spring	6
	46707	Bearing Case - 2X20GSV, 2X28GSV	1	168	46583 P	Spring Retainer	6
10	14041 B	O-Ring, Bearing Case	1	172	14179 B	O-Ring, Plug	6
11	55337 B	Oil Seal	1	174	46243 BB	Valve Plug (M22x1.5)	6
	162188 B	Oil Seal - 2X20GSV, 2X28GSV	1	185	46375 BB	Manifold Head w/Modular Unloader Body	1
14	14488	Bearing, Inner	1	193	89953 Z	Hex Socket Head Screw (M6x55)	8
	14551	Bearing, Inner - 2X20GSV, 2X28GSV	1	197	46488 BB	Garden Hose Fitting (3/8")	1
20	46228	Connecting Rod - "H"	3	198	46487 BB	Swivel Nut (3/4")	1
25	46483	Crankshaft (6.75mm) - 2X30GS	1	199	46489 SS	Screen	1
	46778	Crankshaft (4.80mm) - 2X20GSV	1	249	30520	Adapter Mount Kit - STANDARD - GAS	1
	46709	Crankshaft (6.20mm) - 2X28GSV	1		46789	Flange	1
27	13832	Bearing, Outer	1		44843	Hex Bolt (5/16"-24UNF x 20)	4
32	45690 P	Oil Filler Cap - 2X20GSV	1		15845	Spring Washer (5/16")	4
	44842	Oil Filler Cap - 2X20GSV, 2X28GSV	1		12489	Washer (5/16")	4
33	14179 B	O-Ring, Oil Filler Cap	1	249	30523	Adapter Mount Kit - VERTICAL - GAS	1
37	43987 P	Bubble Oil Gauge	1		33097	Adapter Plate	1
38	44428 B	Gasket, Flat Flex	1		30912	Nut (3/8")	4
48	44842 BBZ	Drain Plug (1/2")	1		30980	Flat Washer	1
49	14179 B	O-Ring, Drain Plug	1		30921	Lock Washer	1
53	46575 A	Crankcase	1		33095	Retaining Bolt (3/8")	1
64	46229 ST	Piston Pin	3		46790	Spacer	3
65	46628 BBE	Plunger	3	255	30516	Bolt Mount Kit - ELECTRIC/GAS	1
70	47215 B	Oil Seal	3		34100	Hex Bolt (3/8"-16UNC x 1-3/8")	4
100	46233	Seal Retainer	3		30980	Washer (3/8")	4
106	46435 B	Lo-Pressure Seal	3		30921	Spring Washer (3/8")	4
120	46436 BB	Seal Case	3		6106	Anti-Seize Lubricant	1
121	13976 B	O-Ring, Seal Case	3		*34050	Key (3/16 x 3/16 x 27 HD)	1
125	46240 B	Hi-Pressure Seal	3		33053	Seal Kit (Incls: 106,121,125)	1
139	46690 BB	Plug (3/8")	2		33056	Valve Kit (Incls: 163,164,166,167,168,172)	2
163	17547 B	O-Ring, Valve Seat	6	400		Modular Unloader - See Individual Parts	1
164	46473 BB	Valve Seat	6	470		Chemical Injector - See Individual Parts	1

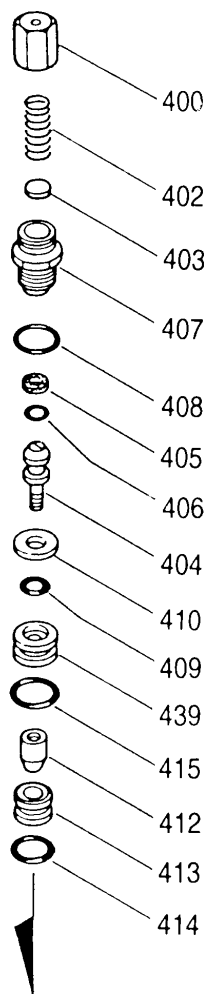
MATERIAL CODES (Not Part of Part Number): A=Aluminum B=Buna-N BB=Brass E=Electroless Nickel Plated P=Nylon S=304SS T=Teflon Z=Zinc Plated

* Discard Key which may come standard with most motors and engines and use only the key included in this kit.

Center raised pilot guide on the **Adapter Plate** assures proper alignment of pump and engine. Before mounting pump onto engine inspect engine for **recessed seal and bearing guide** to permit adapter to completely seat into recess and four bosses to be flush with engine face.

UNLOADER SPECIFICATIONS

	U.S. Measure	Metric Measure
GPM.....	3.0 GPM	(11.0 L/M)
PSI.....	100-1500 PSI	(1-105 BAR)
Discharge Port w/Injector.....	3/8" NPT	(3/8" NPT)



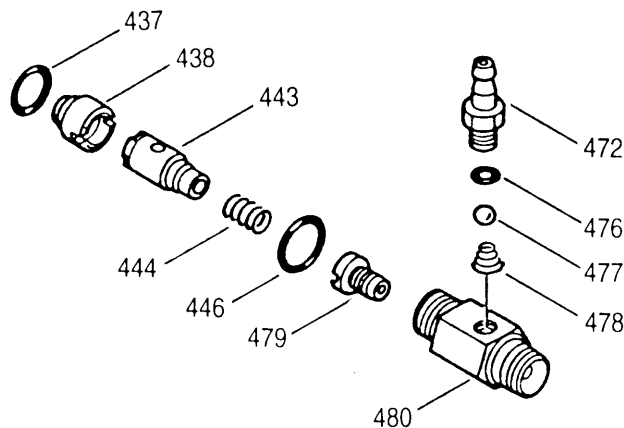
ITEM	PART NO.	DESCRIPTION	QTY.
400	46570 BB	Adjusting Cap	1
402	33094	Coil Spring - 2000 PSI	1
403	45862 BB	Spring Retainer	1
404	46251 BB	Piston Stem	1
405	28338 T	Back-Up Ring	1
406	22056 B	O-Ring, Piston Stem	1
407	46248 BB	Piston Retainer	1
408	13969 B	O-Ring, Piston Retainer	1
409	17399 B	O-Ring, Retainer - Inner	1
410	46250 T	Washer	1
412	46733 S	Valve	1
413	46253 S	Valve Seat	1
414	13963 B	O-Ring, Valve Seat	1
415	13966 B	O-Ring, Retainer - Outer	1
439	46249 BB	Valve Retainer	1
468	33099	O-Ring Kit (Incls: 405,406,408,409,414,415)	1

The modular Regulating Unloader with built-in by-pass is part of the discharge manifold and is very easily serviced from the top. Remove Hex Adjusting Cap and lift parts from body.

If unit is INFREQUENTLY USED OR PERIODICALLY STORED, seals may become dry. System should be PURGED OF AIR BEFORE OPERATION (system fluid must flow through the pump without discharge restriction) to assure full system pressure is reached.

CHEMICAL INJECTOR SPECIFICATIONS

Model 7231	U.S. Measure	Metric Measure
GPM.....	2.0 GPM	(7.6 L/M)
Nozzle Orifice.....	1.8 mm	(1.8 mm)
Model 7232		
GPM.....	3.0 GPM	(11.0 L/M)
Nozzle Orifice.....	2.1 mm	(2.1 mm)
Common Specifications		
Hose Barb.....	1/4"	(1/4")
Tapped Barb.....	8/32 UNF	(8/32 UNF)
Inlet Port.....	M18 x 1.0	(M18 x 1.0)
Discharge Port.....	3/8" NPTM	(3/8" NPTM)
Weight.....	5.3 oz.	(0.15 kg)
Dimensions.....	2" x 1" x 1.75"	(52 x 25 x 45 mm)



ITEM	PART NO.	DESCRIPTION	QTY.
437	13963 B	O-Ring, Valve Seat	1
438	46254 P	Valve Seat	1
443	541060 BB	Check Valve	1
444	45924 S	Spring, Flow Balancer	1
446	13969 B	O-Ring, Adapter	1
470	7231	Fixed Injector (1.8 mm)	1
	7233	Fixed Injector (2.1 mm)	1
472	46630 BB	Barb, Tapped	1
476	14187 B	O-Ring, Injector Valve	1
477	46259 S	Ball	1
478	46260 S	Spring, Injector Valve	1
479	46531 BB	Orifice (2.1 mm)	1
	46257 BB	Orifice (1.8 mm)	1
480	46256 BB	Body	1

CHEMICAL INJECTOR PERFORMANCE CHART					
Optional Special Ported Chemical Injector for Unloader Mounting					
Standard Pump Model	Injector Orifice Size	Injector Model	Lo-Pressure Nozzle Rating (Max. Downstream) (Press for Injector)	Max. Chem. Draw (0 PSI) (Downstream)	Hi-Press Nozzle "Deduction" (Press drop across Inj.)
2X20GSV	1.8 mm	7231	100 PSI	52 oz/min	100 PSI
2X30GS, 2X28GSV	2.1 mm	7232	150 PSI	50 oz/min	125 PSI

Optimum performance of chemical injector occurs with a 35 ft. high pressure hose and a minimum 3/8" I.D. The type of hose, extended lengths, reduced I.D. and fittings may create back pressures in excess of the low pressure nozzle rating and prevent the injector from drawing chemical. See Hose Friction Loss Chart in High Pressure Guide. **Deduct hose friction loss from above low PSI Nozzle. Consult factory for assistance with other options.**

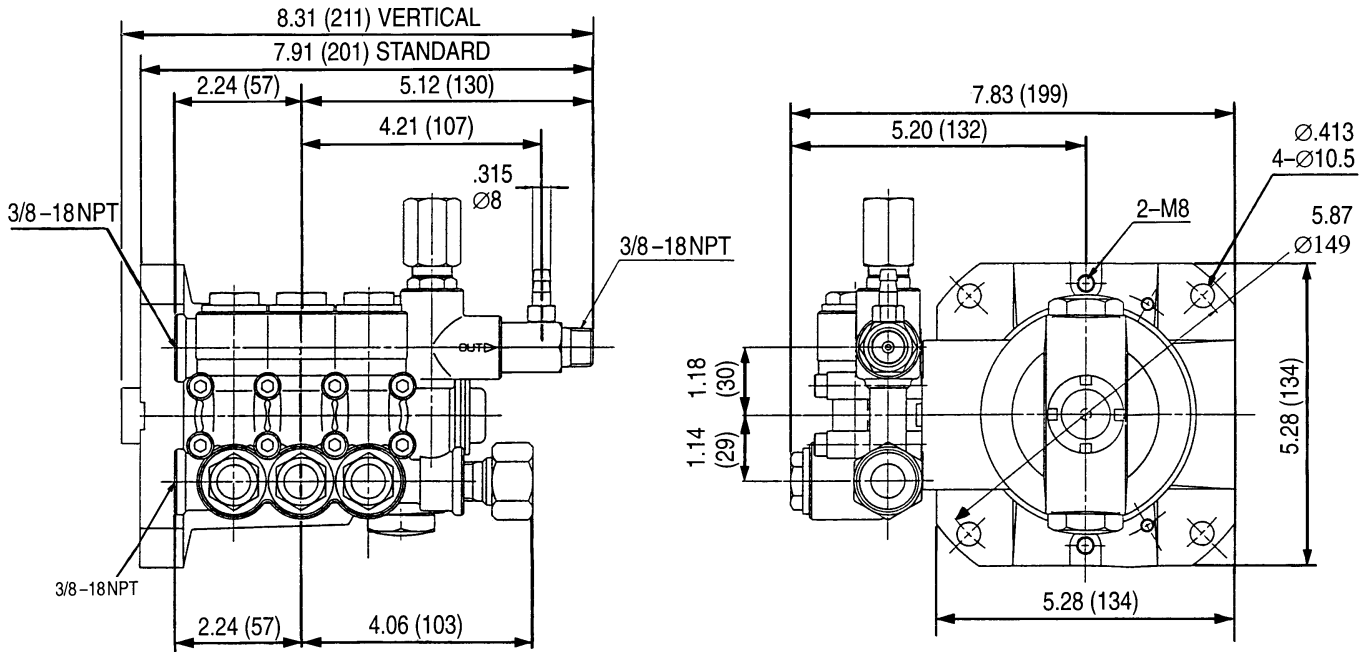
CAUTION:

Deduct the pressure drop shown in the performance chart from your desired system pressure to arrive at the maximum high pressure nozzle rating. This is essential to avoid over-pressurizing the pump.

The Chemical Injector is mounted directly to the discharge of the unloader. **Chemical draw occurs under low pressure.** Select the Dual Nozzle (32149), Adjustable Nozzle (32151), or Vari-Nozzle (36666-72) to permit the adjustment from low to high pressure

For correct nozzle selection, **read system pressure at the pump. DO NOT READ SYSTEM PRESSURE AT THE HIGH PRESSURE GUN.** Incorrect pressure reading may result in: pump operation at excessive pressures, inconsistent chemical draw or possible damage to the pump or unloader.

DIMENSIONAL DRAWING



DETERMINING THE REQUIRED H.P.

$$\frac{\text{GPM} \times \text{PSI}}{1460} = \text{Electric Brake H.P. Required}$$

HORSEPOWER REQUIREMENTS

Flow		Pressure				Pump RPM
		PSI 1000	PSI 1200	PSI 1500	PSI 2000	
GPM	L/M	BAR 70	BAR 85	BAR 105	BAR 140	
2.0	7.6	1.4	1.6	2.1	2.7	3100
2.8	10.6	1.9	2.3	2.9	3.9	3300
3.0	11.0	2.1	2.5	3.1	4.2	3200

Products described hereon are covered by one or more of the following U.S. patents 3558244, 3652188, 3809508, 3920356, 3930756 and 5035580

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