

*Electric Motor or Gas Engine must be purchased separately.*

## Direct-Drive Plunger Pumps

# Model 2SFX

### PUMP FEATURES

- Triplex design provides smoother liquid flow.
- Ultimate portability—less than 12 pounds—less than 10" long.
- Your choice of motorized unit or hollow shaft pump only for direct mounting to gas or electric motor.
- Regulating Unloader with By-pass Hose is standard on each 2SFX pump to assure system pressure control and pump protection.
- Optional Thermo Valve mounts directly into by-pass hose for optimum heat protection while in by-pass.

### COMMON PUMP SPECIFICATIONS

Inlet Pressure Range.....	Flooded to 75 PSI	(Flooded to 5.25 BAR)
Bore .....	0.708"	(18 mm)
Max. Liquid Temperature .....	160°F	(71°C)
Above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations.		
Crankcase Capacity .....	11.83 oz.	(.35 L)
Inlet Ports (1) .....	3/8" NPTF	(3/8" NPTF)
Discharge Ports (2).....	3/8" NPTF	(3/8" NPTF)
By-pass Port .....	1/4" NPTF	(1/4" NPTF)
Weight (Pump Only) .....	11.83 lbs.	(4.8 kg)
Dimensions (Pump Only).....	9.13 x 6.65 x 6.50"	(232 x169 x165mm)

#### **⚠ WARNING**

All systems require both a primary pressure regulating device (i.e., regulator, unloader) and a secondary pressure safety relief device (i.e., pop-off valve, safety valve). Failure to install such relief devices could result in personal injury or damage to the pump or to system components. CAT PUMPS does not assume any liability or responsibility for the operation of a customer's high pressure system.

### SPECIFICATIONS

	U.S. Measure	Metric Measure	U.S. Measure	Metric Measure
<b>MODEL</b>	<b>2SFX20ES</b>		<b>2SFX22ES</b>	
Flow .....	2.0 GPM	(7.6 L/M)	2.2 GPM	(8.3 L/M)
Max. Discharge Pressure .....	2000 PSI	(140 BAR)	2000 PSI	(140 BAR)
Max. RPM .....	3450 RPM	(3450 RPM)	3450 RPM	(3450 RPM)
Stroke.....	0.122"	(3.1 mm)	0.132"	(3.35 mm)

<b>MODEL</b>	<b>2SFX22GS</b>			
Flow .....	2.2 GPM		(8.3 L/M)	
Max. Discharge Pressure .....	2000 PSI		(140 BAR)	
Max. RPM .....	3450 RPM		(3450 RPM)	
Stroke .....	0.132"		(3.35 mm)	
Optional Electric-3/4" Shaft - 2SFX22GES				

<b>MODEL</b>	<b>2SFX25ES</b>		<b>2SFX25GZ</b>	
Flow .....	2.5 GPM	(9.5 L/M)	2.5 GPM	(9.5 L/M)
Max. Discharge Pressure .....	1500 PSI	(105 BAR)	<b>2500 PSI</b>	<b>(175 BAR)</b>
Max. RPM .....	3450 RPM	(3450 RPM)	<b>3450 RPM</b>	<b>(3450 RPM)</b>
Stroke.....	0.150"	(3.8 mm)	0.169"	(4.3 mm)

<b>MODEL</b>	<b>2SFX29ELS</b>			
Flow .....	2.85 GPM		(10.8 L/M)	
Max. Discharge Pressure.....	1500 PSI		(105 BAR)	
Max. RPM .....	1725 RPM		(1725 RPM)	
Stroke.....	0.335"		(8.5 mm)	

<b>MODEL</b>	<b>2SFX30GS</b>		<b>2SFX30GZ</b>	
Flow .....	3.0 GPM	(11.4 L/M)	3.0 GPM	(11.4 L/M)
Max. Discharge Pressure .....	2000 PSI	(140 BAR)	<b>2500 PSI</b>	<b>(175 BAR)</b>
Max. RPM .....	3450 RPM	(3450 RPM)	<b>3450 RPM</b>	<b>(3450 RPM)</b>
Stroke.....	0.189"	(4.8 mm)	0.189"	(4.8 mm)
Optional Electric-3/4" Shaft - 2SFX30GES				

<b>MODEL</b>	<b>2SFX35GS</b>			
Flow .....	3.5 GPM		(13.2 L/M)	
Max. Discharge Pressure.....	2000 PSI		(140 BAR)	
Max. RPM.....	3450 RPM		(3450 RPM)	
Stroke.....	0.220"		(5.6 mm)	
Optional Electric-3/4" Shaft - 2SFX35GES				

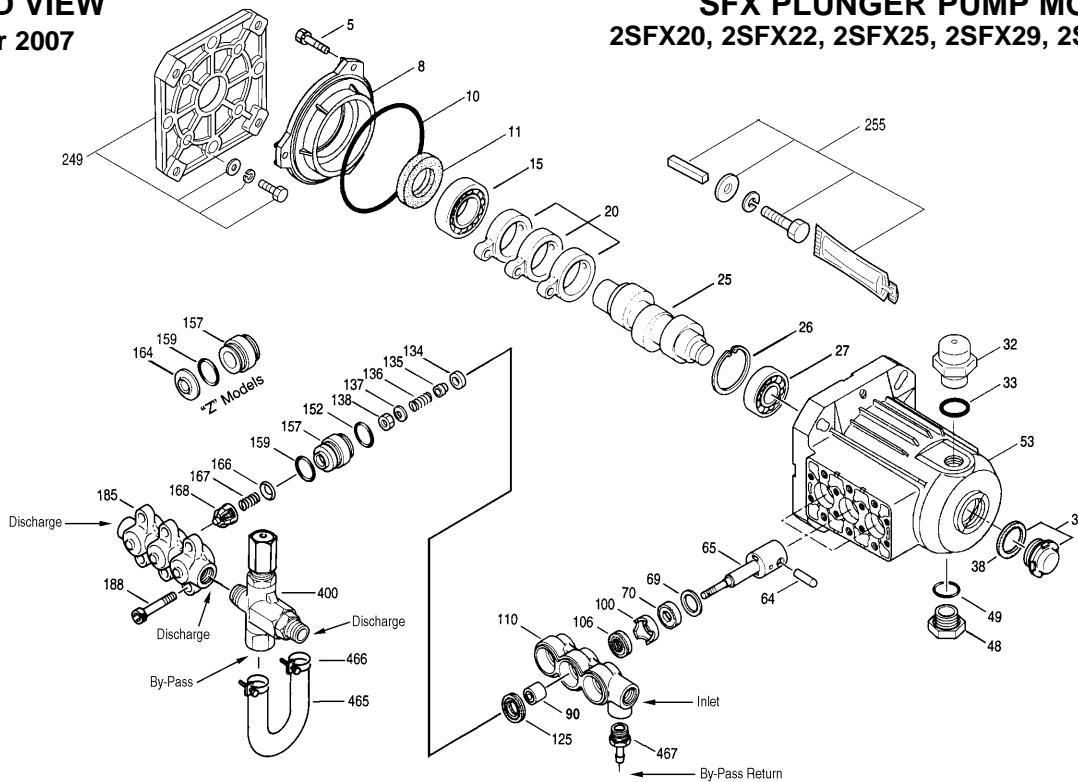
ES = **Electric 5/8"** hollow shaft with bolt mount.  
 GES = **Electric 3/4"** hollow shaft with bolt mount.  
 GS, GZ = **Gas 3/4"** hollow shaft with bolt mount and adapter.  
 Add "3" to Part Number for Hi-Temp version.

Refer to pump **Service Manual** for repair procedures, additional technical information and **pump warranty**.

*"Customer confidence is our greatest asset"*

# EXPLODED VIEW

September 2007



# SFX PLUNGER PUMP MODELS

2SFX20, 2SFX22, 2SFX25, 2SFX29, 2SFX30, 2SFX35

## PARTS LIST

ITEM	P/N	MATL	DESCRIPTION	MODEL USED	QTY	ITEM	P/N	MATL	DESCRIPTION	MODEL USED	QTY
5	547161	STCP	Screw, HH (M6x14) [3/03]	All Models	3	152	† 26089	NBR	O-Ring, Adapter - 80D	All Models	3
	549360	STCP R	Screw, HH (M6x14) [3/03]	All Models	3		11377	FPM	O-Ring, Adapter - 80D	All Models	3
8	547153	AL	Cover, Bearing, Inner [3/03]	All Models	1	157	45859	BB	Adapter, Discharge, Seat	All Models	3
10	14041	NBR	O-Ring, Bearing Cover-70D [3/03]	All Models	1	546938	BB	Adapter, Discharge, Seat w/O-Rings	2SFX29ELS	3	
11	55337	NBR	Seal, Oil - 70D [3/03]	All Models	1	44878	BB	Spacer, Discharge, Valve	2SFX25GZ, 30GZ	3	
15	14488	STL	Bearing, Ball, Inner	All Models	1	159	† 26089	NBR	O-Ring, Adapter - 80D	All Models	3
20	547046	TNM	Rod, Connecting	All Models	3		11377	FPM	O-Ring, Adapter - 80D	All Models	3
25	46109	FCM	Crankshaft, 3450 RPM, 5/8", 3.1mm	2SFX20ES	1	164	44881	S	Seat	2SFX25GZ, 30GZ	3
	44929	FCM	Crankshaft, 3450 RPM, 5/8", 3.35mm	2SFX22ES	1	166	43723	S	Valve	All Models	3
	46074	FCM	Crankshaft, 3450 RPM, 3/4", 3.35mm	2SFX22GS	1	167	541062	S	Spring	All Models	3
	45844	FCM	Crankshaft, 3450 RPM, 5/8", 3.8mm	2SFX25ES	1	168	44565	PVDF	Retainer, Spring	All Models	3
	542967	FCM	Crankshaft, 3450 RPM, 3/4", 4.3mm	2SFX25GZ	1	185	44879	BB	Manifold, Discharge	All Models	1
	45426	FCM	Crankshaft, 1725 RPM, 5/8", 8.5mm	2SFX29ELS	1	188	87859	STZP	Screw, HSH (M8x75)	All Models	6
	44931	FCM	Crankshaft, 3450 RPM, 5/8", 4.5mm	2SFX30ES	1		126762	STCP R	Screw, HSH (M8x75)	All Models	6
	546334	FCM	Crankshaft, 3450 RPM, 3/4", 4.8mm [12/01]	2SFX30GS,GZ	1	249	30520	—	Assy, Adapter Mount, Gas	All Gas Models	1
	46017	FCM	Crankshaft, 3450 RPM, 3/4", 5.6mm	2SFX35GS	1		46271	AL	Flange		1
26	12385	STL	Ring, Retaining	All Models	1	549351	STCP R	Screw, HH (5/16-24x20)		4	
27	15710	STL	Bearing, Ball, Outer	All Models	1	15845	STZP	Lockwasher (M8)		4	
32	547961	RTP	Cap, Oil Filler w/O-Ring	All Models	1		126232	STCP R	Lockwasher (M8)		4
33	14179	NBR	O-Ring, Oil Filler Cap - 70D	All Models	1		126573	STCP R	Washer, Flat (M8)		4
37	92241	—	Gauge, Oil, Bubble w/Gasket	All Models	1	255	30517	STZP	Assy, Bolt Mount	All Models	1
38	44428	NBR	Gasket, Oil Gauge - 80D	All Models	1		30980	STZP R	Washer, Flat (3/8")		4
48	44842	NY	Plug, Drain (1/2" NPT)	All Models	1		30921	STZP R	Lockwasher, Split (3/8")		4
49	14179	NBR	O-Ring, Drain Plug - 70D	All Models	1		34100	STZP	Screw, HH (3/8"-16x1-3/8")		4
53	547285	AL	Crankcase [3/03]	All Models	1		126543	STCP R	Screw, HH (3/8"-16x1-3/8")		4
64	16948	CM	Pin, Crosshead	All Models	3		6106	—	Lubricant, Antiseize		1
65	540073	SZZ	Rod, Plunger, Unchromed	2SFX20,22,25,30,35	3		30050	STL	Key (3/16x3/16x1-1/4" HD)		1
	540089	SZZ	Rod, Plunger, Unchromed	2SFX29ELS	3	285	80228	STL	Screw (M8-1.25x80) (Motor Removal)	All Models	2
	542958	SHS	Rod, Plunger	2SFX25GZ,30GZ	3	300	34053	NBR	Kit, Seal (Incls: 106,125,152,159)	All Models	1
69	126259	STCP R	Washer (M24)	All Models	3		33953	HT	Kit, Seal, Hi-Temp (Incls: 106,125,134,152,159)	All Models	1
70	25461	NBR	Seal, Oil	All Models	3		33453	FPM	Kit, Seal (Incls: 106,125,152,159)	All Models	1
90	45847	CC	Plunger (M18x14)	All Models	3	310	34056	NBR	Kit, Valve (Incls: 152,157,159,166,167,168)	All except 29ELS, GZ	1
	45429	CC	Plunger (M18x16)	2SFX29ELS	3		34052	NBR	Kit, Valve (Incls: 152,159,164,166,167,168)	2SFX25GZ, 30GZ	1
100	44869	PVDF	Retainer, Seal	All Models	3		31642	NBR	Kit, Valve (Incls: 157,166,167,168)	2SFX29ELS	1
106	† 44876	NBR	Seal, LPS w/S-Spg	All Models	3	311	34668	NBR	Kit, Inlet Valve (Incls: 134-137,152,159)	All Models	1
	545192	FPM	Seal, LPS w/SS-Spg	All Models	3	352	44050	STZP	Gauge, Oil, Removal Tool	All Models	1
110	44874	BB	Manifold, Inlet	All Models	1	400	7500XS	BB	Unloader, Regulating	Std. 2SFX Models	1
125	43245	SNG	Seal, HPS w/S	All Models	3		7625	BB	Unloader, Regulating	2SFX25GZ, 30GZ	1
	46652	HT	Seal, HPS, "Hi-Temp", 2-Pc w/S-Support	All Models except GZ	3	467	45868	BB	Barb, Pump Inlet (1/4" Hose x 1/4" NPT)	All Models	1
134	45854	S	Valve, Inlet	All Models	3		34455	—	Assembly, Pulsator	All Models	1
	33873	NY	Valve, Inlet, Hi-Temp	All Models	3		6575	—	Plunger Pump Service DVD		1
135	549520	S	Spacer	All Models	3		6107	—	Oil, Bottle (21 oz) ISO 68 Multi-Viscosity Hydraulic	All Models	1
136	44872	S	Spring, Inlet	All Models	3				(Fill to specified crankcase capacity prior to start-up)		
137	88575	S	Washer, Conical (M6)	All Models	3						
138	81240	SS	Nut, Hex (M6)	All Models	3						

*Italics are optional items. [ ] Date of latest production change. † Production parts are different than service parts.*

R Components comply with RoHS Directive. See Tech Bulletins 002, 024, 036, 043, 055, 064, 065, 070, 073, 074, 083, 91 and 92 for additional information.

Effective with 1/90 Mfg. date 45853, 14036, 44861, 92519 have been replaced with new one piece crankcase. †Production parts are different than service parts.

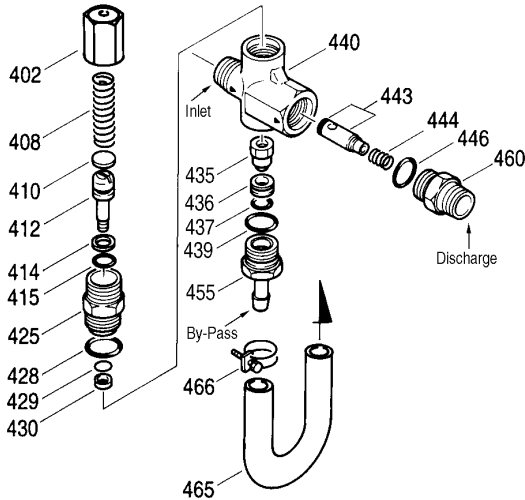
Note: Discard Key which may come standard with most motors and engines and **use only the key included in this kit.**

MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass CC=Ceramic CM=Chrome-moly FCM=Forged Chrome-moly FPM=Fluorocarbon HT=Hi-Temp (EPDM Alternative) NBR=Medium Nitrile (Buna-N) NY=Nylon PVDF=Polyvinylidene Fluoride RTP=Reinforced Composite S=304SS SHS=304SS/High Strength SNG=Special Blend (Buna) SS=316SS STL=Steel STCP=Steel/ Chrome-Plated STZP=Steel/Zinc Plated SZZ=304SS/Zamak TNM=Special High Strength

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.

## 7500XS UNLOADER FOR "ELS, ES, GS" PUMP MODELS

Specifications	U.S. Measure	Metric Measure
Flow .....	0.5-6.0 GPM	(2-23 L/M)
PSI Range.....	100-2000 PSI	(7-140 BAR)
Max. Temperature .....	190°F	(88°C)
Inlet Port - Rear .....	3/8" NPTM	(3/8" NPTM)
Discharge Port - Front .....	3/8" NPTM	(3/8" NPTM)
By-pass Port - Barb .....	1/4" NPT	(1/4" NPT)
Weight.....	14 oz.	(0.40 kg)
Dimensions .....	3.0 x 1.0 x 4.25"	(76 x 25 x 108 mm)



### PARTS LIST

ITEM	P/N	MATL	DESCRIPTION	QTY
402	540081	BB	Cap, Adjusting	1
404	31047	BB	Nut, Lock	1
408	32094	STZP R	Spring, Pressure	1
410	107672	BB	Retainer, Spring	1
412	45694	S	Stem, Piston (M5)	1
414	20184	PTFE	Back-up-Ring, Piston Stem	1
415	14190	NBR	O-Ring, Piston Stem - 70D	1
	14161	FPM	O-Ring, Piston Stem - 70D	1
425	107673	BB	Retainer, Piston	1
428	13969	NBR	O-Ring, Retainer- 70D	1
	14320	FPM	O-Ring, Retainer - 70D	1
429	14759	NBR	O-Ring, Body	1
	14160	FPM	O-Ring, Body - 70D	1
430	107675	PTFE	Back-up-Ring, Body	1
435	45696	BB	Valve and Ball Assembly (M5)	1
436	107680	S	Seat	1
437	13963	NBR	O-Ring, Seat - 70D	1
	14303	FPM	O-Ring, Seat - 70D	1
439	13969	NBR	O-Ring, By-pass Fitting- 70D	1
	14320	FPM	O-Ring, By-pass Fitting - 70D	1
440	—	BB	Body	1
443	541060	BB	Valve, Check w/O-Ring	1
444	45924	S	Spring	1
446	13969	NBR	O-Ring, Discharge Fitting - 70D	1
	14320	FPM	O-Ring, Discharge Fitting - 70D	1
455	45865	BB	Barb, By-pass Fitting	1
460	107681	BB	Fitting, Discharge (3/8" NPTM)	1
465	46140	—	By-pass Hose (5-1/2"x1/4")	1
	45983	—	By-pass Hose (8-1/2"x1/4") (UMS)	1
466	—	STZP	Clamp, Hose	2
468	32097	NBR	Kit, O-Ring	1
			(Incls: 414,415,428,429,430,437,439,446)	
	31627	FPM	Kit, O-Ring	1
			(Incls: 414,415,428,429,430,437,439,446)	
485	7140	BB	Valve, Thermo	1
	7135	RTP	Valve, Thermo	1
486	—	BB	Tee, T.V. Mount	1
487	—	BB	Nipple, T.V. Mount	1

*Italics are optional items.* R Components comply with RoHS Directive.

MATERIAL CODES (Not Part of Part Number): BB=Brass FPM=Fluorocarbon  
NBR=Medium Nitrile (Buna-N) PTFE=Pure Polytetrafluoroethylene  
RTP=Reinforced Composite S=304SS STZP=Steel/Zinc Plated

## OPERATION

A Regulating Unloader comes with each 2SFX pump to provide system pressure regulation and pump protection.

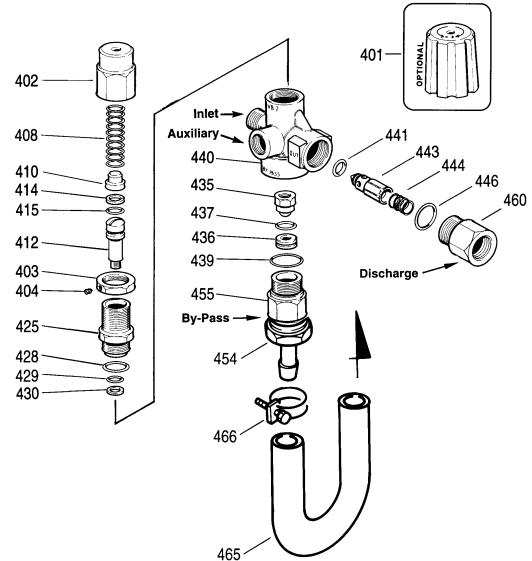
**For MAXIMUM SUCTION capability, Regulating Unloader should be remounted on discharge manifold, OPPOSITE from pump inlet port.**

**Standard Units** with return of by-pass back to the inlet of the pump should have a **Thermo Valve** in the by-pass line.

**By-pass HOSE ASSEMBLY** is designed for cold water or ambient temperature operation. **DO NOT EXCEED 6 MINUTES** in by-pass

## 7625 UNLOADER FOR "GZ" PUMP MODELS

Specifications	U.S. Measure	Metric Measure
Flow .....	0.5-7.8 GPM	(2-30 L/M)
PSI Range.....	100-2500 PSI	(7-175 BAR)
Max. Temperature .....	194°F	(90°C)
Inlet Port.....	3/8" BSPM	(3/8" BSPM)
Discharge Port .....	3/8" BSPF	(3/8" BSPF)
By-pass Port .....	3/8" BSPF	(3/8" BSPF)
Auxiliary Port.....	1/4" BSPF	(1/4" BSPF)
Weight.....	19.5 oz.	(0.55 kg)
Dimensions .....	3.2 x 1.5 x 4.7"	(81 x 38 x 119.4 mm)



### PARTS LIST

ITEM	P/N	MATL	DESCRIPTION	QTY
401	32088	NY	Handle, Black	1
402	33859	BB	Cap, Adjusting	1
403	33857	BB	Nut, Lock (M18x1)	1
404	33061	STZP	Screw, Set (M4x4)	1
408	32094	STZP R	Spring, Pressure	1
410	32819	STZP	Retainer, Spring	1
412	33860	S	Stem, Valve	1
414	33278	PTFE	Back-up-Ring, Stem	1
415	—	NBR	O-Ring, Stem	1
425	33861	BB	Retainer, Piston	1
428	33043	NBR	O-Ring, Retainer	1
429	—	NBR	O-Ring, Body	1
430	33276	PTFE	Back-up-Ring, Body	1
435	33853	SSS	Valve and Ball Assembly (M6)	1
436	33806	NBR	Seat, w/O-Ring	1
437	—	NBR	O-Ring, Seat	1
439	—	NBR	O-Ring, By-pass Fitting - 85D	1
440	—	BB	Valve Body	1
441	—	NBR	O-Ring, Flow Balancer	1
443	33852	BB	Valve, Check	1
444	33843	S	Spring	1
446	—	NBR	O-Ring, Discharge Fitting	1
454	33865	BB	Barb, By-pass (3/8" NPTx1/4)	1
455	33846	BB	Fitting, By-pass (3/8" BSP)	1
460	33847	BB	Fitting, Discharge (3/8" BSP)	1
465	46140	—	By-pass Hose (5-1/2"x1/4")	1
466	—	STZP	Clamp, Hose	2
468	33098	NBR	Kit, O-Ring	1
			(Incls: 414,415,428,429,430,437,439,441)	

*Italics are optional items.* R Components comply with RoHS Directive.

MATERIAL CODES (Not Part of Part Number): BB=Brass  
NBR=Medium Nitrile (Buna-N) NY=Nylon PTFE=Pure Polytetrafluoroethylene  
S=304SS SSS=416SS STZP=Steel/Zinc Plated

**operation. Excessive temperatures will cause premature wear or damage to the pump and VOID THE WARRANTY.**

**Hi-Temp Units** with special Hi-Temp seals do not use the Thermo Valve. Use optional Dual Pressure Switches and Mechanical Relay in Auto Shut Off Kits 34870 and 34871.

If unit is INFREQUENTLY USED OR PERIODICALLY STORED, seals may become dry. **UNDER SUCTION FEED**, system must be **PURGED BEFORE OPERATION** (system liquid must flow through the pump without discharge restriction) to assure full system pressure is reached.

# OPTIONAL CHEMICAL INJECTORS

## 7192 - 7193 Adjustable CHEMICAL INJECTOR FOR 7500XS UNLOADER MODELS

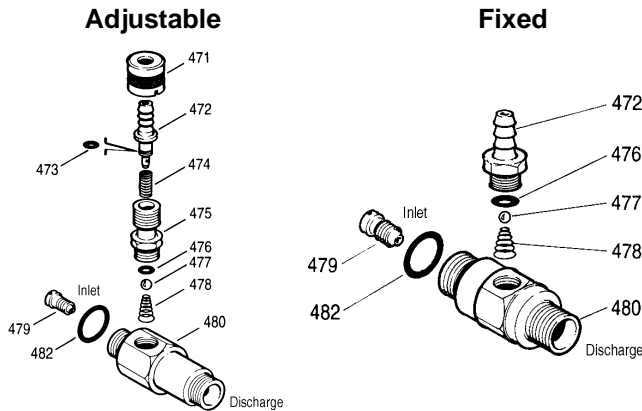
Specifications	U.S. Measure	Metric Measure
Flow .....	2.0-3.5 GPM	(7.6-13.2 L/M)
Nozzle Orifice.....	1.8 / 2.1 mm	(1.8 / 2.1 mm)
Hose Barb .....	1/4"	(1/4")
Inlet Port.....	M18 x 1.0"	(M18 x 1.0")
Discharge Port.....	3/8" NPTM	(3/8" NPTM)
Weight.....	6.3 oz.	(0.18 kg)
Dimensions .....	2.0 x 1.0 x 3.0"	(51 x 25 x 76 mm)

## 7224 Adjustable CHEMICAL INJECTOR FOR 7625 UNLOADER MODEL - GZ

Specifications	U.S. Measure	Metric Measure
Flow .....	2.0-3.5 GPM	(7.6-13.2 L/M)
Nozzle Orifice.....	2.3 mm	(2.3 mm)
Hose Barb .....	1/4"	(1/4")
Inlet Port.....	M22 x 1.5	(M22 x 1.5)
Discharge Port.....	3/8" NPTM	(3/8" NPTM)
Weight.....	6.3 oz.	(0.18 kg)
Dimensions .....	2.0 x 1.0 x 3.0"	(51 x 25 x 76 mm)

## 7233 - 7235 Fixed CHEMICAL INJECTOR FOR 7625 UNLOADER MODEL - GZ

Specifications	U.S. Measure	Metric Measure
Flow .....	2.0-3.5 GPM	(7.6-13.2 L/M)
Nozzle Orifice.....	1.8 / 2.1 mm	(1.8 / 2.1 mm)
Hose Barb - Exterior .....	1/4"	(1/4")
Hose Barb - Interior .....	8/32" UNCF	(8/32" UNCF)
Inlet Port.....	M22 x 1.5	(M22 x 1.5)
Discharge Port.....	3/8" NPTM	(3/8" NPTM)
Weight.....	6.3 oz.	(0.18 kg)
Dimensions .....	2.25 x 1.0 x 2.63"	(57 x 25 x 67 mm)



### 7192 - 7193 PARTS LIST

ITEM	P/N	MATL	DESCRIPTION	MODEL USED	QTY.
471	—	BB	Collar, Adjustment	All Models	1
472	—	BB	Barb, Hose	All Models	1
473	—	NBR	O-Ring, Hose Barb	All models	1
474	33500	S	Spring	All Models	1
475	—	BB	Retainer, Ball Seat	All Models	1
476	33504	FPM	O-Ring, Retainer	All Models	1
477	34620	SS	Ball (1/4")	All Models	1
478	33501	SS	Spring	All Models	1
479	32372	S	Orifice, Injector (1.8mm)	7192	1
	32373	S	Orifice, Injector (2.1mm)	7193	1
480	—	BB	Body-Unloader Mount	All Models	1
481	33481	BBNY	Adjustable Barb Assy (Incls: 471-478)	All Models	1
482	13969	NBR	O-Ring, Body -70D	All Models	1

MATERIAL CODES (Not Part of Part Number): BB=Brass BBNY= Brass/Nylon FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N) S=304SS SS=316SS

### 7233 - 7235 PARTS LIST

ITEM	P/N	MATL	DESCRIPTION	MODEL USED	QTY.
472	33505	BB	Barb, Hose	All Models	1
476	33504	FPM	O-Ring, Retainer	All Models	1
477	34620	SS	Ball (1/4")	All Models	1
478	33501	SS	Spring	All Models	1
479	32073	SSS	Orifice, Injector (2.1 mm)	7233	1
	32072	SSS	Orifice, Injector (1.8 mm)	7235	1
480	—	BB	Body-Unloader Mount	—	1
481	33480	BB	Fixed Barb Assembly (Incls: 472,476,477,478)	All Models	1
482	13969	NBR	O-Ring, Body -70D	All Models	1

*Italics are optional items*

MATERIAL CODES (Not Part of Part Number): BB=Brass FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N) SS=316SS SSS=416SS

## CHEMICAL INJECTOR PERFORMANCE CHART

Optional Special Ported Chemical Injector for Unloader Mounting

Pump Flow	Injector Orifice Size	Lo-Pressure Nozzle Rating (Max. Downstream) (Press for Injector)	Max. Chem. Draw (0 PSI) (Downstream)	Hi-Press Nozzle "Deduction" (Press drop across Inj.)
2.0	1.8/2.1 mm	255/100 PSI	60/52 oz/min	150/100 PSI
2.2	1.8/2.1 mm	240/110 PSI	60/52 oz/min	175/110 PSI
3.0	1.8/2.1 mm	275/225 PSI	60/54 oz/min	300/150 PSI
3.5	1.8/2.1 mm	350/300 PSI	56/50 oz/min	350/200 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. **Deduct hose friction loss from above low PSI Nozzle. Contact CAT PUMPS for assistance with other options.** Refer to Hose Friction Loss Chart in the Service Manual for pressure loss with longer hose.

An optional, **specially ported chemical injector** may be mounted directly to the discharge of the unloader. Remove o-ring, check valve and spring from discharge fitting of unloader; insert into injector and thread into unloader discharge port. **Discard o-ring and discharge fitting.** Refer to the performance chart to determine the orifice size best suited to the system flow. **Chemical draw occurs under low pressure.** Select the Change Over Nozzle (32149), Adjustable Nozzle (32151), or Vari-Nozzle (7930-7980) to permit the adjustment from low to high pressure.

For optimum performance when using a chemical injector, use a **single wire braid hose** on the discharge line. Too flexible a hose will prevent the unloader from receiving the full pressure signal to activate the by-pass mode.

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.

## TORQUE CHART

Pump Item	Thread	Tool Size [Part No.]	Torque		
			in. lbs.	ft. lbs.	Nm
<b>Outer Bearing Case Screw</b>	M6	M10 Hex/Phil. [25082]	50	4.0	5.4
<b>Inner Bearing Case Screw</b>	M6	M10 Hex/Phil. [25082]	50	4.0	5.4
<b>Manifold Screw</b>	M8	M6 Allen [30941]	115	9.58	13
<b>Plunger Rod Nut</b>	M6	M10 Hex [25082]	55	4.6	6.2
<b>Bubble Oil Gauge</b>	M28	Oil Gauge Tool [44050]	45	3.6	5
<b>Mounting Screws</b>					
Adapter Plate to Gas Engine	5/16-24	1/2" Hex	90	7.2	10
Pump to Adapter Plate	3/8-16	9/16" Hex	110	9.0	12
Pump to Electric Motor	3/8-16	9/16" Hex	110	9.0	12

# MOTOR SPECIFICATIONS

## Model 8050

Horsepower.....	1.5
Shaft Diameter.....	5/8"
Max. Volts.....	<b>115/230</b>
FULL LOAD AMPS.....	12.1
RPM.....	3450
Weight.....	32.1 lbs.
Phase.....	Single
Frame Size.....	56-C TEFC
Service Factor.....	1.15

## ★ Model 8052

Horsepower.....	2.0
Shaft Diameter.....	5/8"
Max. Volts.....	<b>115/230</b>
FULL LOAD AMPS.....	17.0/9.2-8.5
RPM.....	3450
Weight.....	32.5 lbs.
Phase.....	Single
Frame Size.....	56-C TEFC
Hertz.....	60
Service Factor.....	1.15

## Model 8055

Horsepower.....	3.0
Shaft Diameter.....	● 3/4"
Max. Volts.....	<b>208/230</b>
FULL LOAD AMPS.....	15.2/13.6
RPM.....	3450
Weight.....	46.3 lbs.
Phase.....	Single
Frame Size.....	56-C TEFC
Service Factor.....	1.15

● Use 3/4" shaft size motor with GES Pumps.

## Model 8057

Horsepower.....	5.0
Shaft Diameter.....	● 3/4"
Max. Volts.....	<b>230</b>
FULL LOAD AMPS.....	22.0
RPM.....	3450
Weight.....	40 lbs.
Phase.....	Single
Frame Size.....	56-C OPEN DRIP
Service Factor.....	1.15

● Use 3/4" shaft size motor with GES Pumps.

## ★ Model 8060

Horsepower.....	1.5
Shaft Diameter.....	5/8"
Max. Volts.....	<b>115/230</b>
FULL LOAD AMPS.....	14.0/7.0
RPM.....	<b>1725</b>
Weight.....	40 lbs.
Phase.....	Single
Frame Size.....	56-C TEFC
Service Factor.....	1.2

## ★ Model 8062

Horsepower.....	2.0
Shaft Diameter.....	5/8"
Max. Volts.....	<b>115/230</b>
FULL LOAD AMPS.....	17.0/8.5
RPM.....	<b>1725</b>
Weight.....	43.7 lbs.
Phase.....	Single
Frame Size.....	56-C TEFC
Service Factor.....	1.15

## Common Motor Specifications

Max. Ambient Temp.....	104°F
Hertz.....	60 Hz
Capacitor Start.....	Yes
Thermal Overload-Manual Reset.....	Yes
U.L. Construction Reference (8050,8055).....	E49747
(8052, 8057, 8060, 8062).....	E44549
U.L. Insulation Reference (All) ...	E37878
CSA Reference (8050).....	LR45148
(8052, 8057, 8060, 8062).....	LR4642
(8055).....	LR2025

Note: Motor Start-Up AMPS may vary, then settle within FULL LOAD AMPS rating after initial run in time.

- ★ ★ Before mounting pump on motor, apply P.N. 6106 Antiseize Lubricant to pump shaft.
- ★ ★ Refer to Tech Bulletin 055 for instructions on removing pump from gas engine or electric motor.

For warranty consideration contact CAT PUMPS for the local Authorized Service Center. If you are uncertain as to the cause of failure (Pump or Motor), secure Returned Goods Authorization number and return complete assembly PREPAID to CAT PUMPS for evaluation.

## ELECTRIC HORSEPOWER REQUIREMENTS

ES, ELS, GES Flow		Pressure				Pump RPM
		PSI 1000	PSI 1200	PSI 1500	PSI 2000	
GPM	L/M	BAR 70	BAR 85	BAR 105	BAR 140	
2.2	8.3	1.5	1.8	2.3	3.0	3450
2.85	10.8	2.0	2.3	2.9	—	1725
3.0	11.4	2.1	2.5	3.1	4.2	3450
3.5	13.2	2.4	2.9	3.6	4.8	3450
GS, GZ Flow		PSI 1200	PSI 1500	PSI 2000	PSI 2500	Pump RPM
GPM	L/M	BAR 85	BAR 105	BAR 140	BAR 175	
2.5	9.5	2.1	2.6	3.4	4.3	3450
3.0	11.4	2.5	3.1	4.2	5.2	3450

## DETERMINING THE REQUIRED H.P.

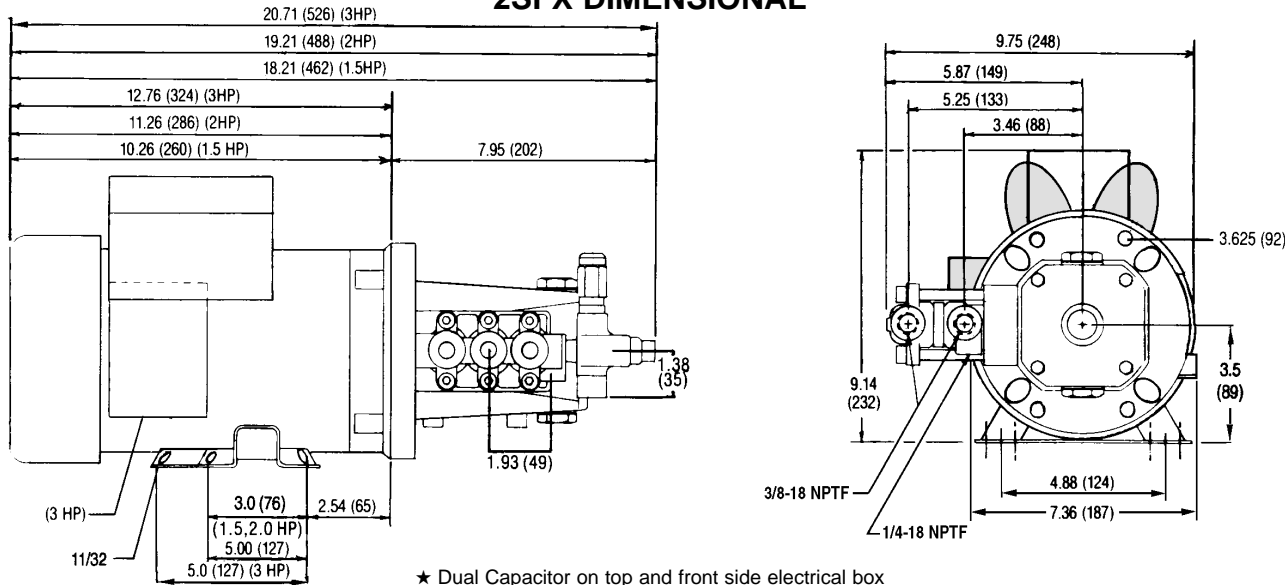
$$\frac{\text{GPM} \times \text{PSI}}{1460} = \text{Electric Brake H.P. Required}$$

Consult your engine supplier for proper gas or diesel engine selection.

## MOTORIZED PUMPING UNITS

Model.....	2SFX20ESD	2SFX22ESD2	2SFX29ELSD2	2SFX30GESD3
Weight....	43.9 lbs.	44.3 lbs.	55.5 lbs.	58.1 lbs.
Dimensions				
Length....	18.21"	19.21"	19.21"	20.71"
Width....	7.36"	7.36"	7.36"	7.36"
Height....	9.14"	9.14"	9.14"	9.14"

## 2SFX DIMENSIONAL



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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