



Air Starters

ST500 Series



For engine displacement of: Diesel—300 to 6,000 CID (5 to 100 liters)
Carburated—600 to 12,000 CID (10 to 200 liters)

Features/Benefits

- Powerful 44 hp turbine motor uses no external lubrication
- Splined output shaft allows for smooth torque transmission
- Sealed for air and gas applications
- Steel insert at inlet ensures a solid connection
- Smooth pre-engagement piston minimizes ring gear wear

Versatile

- Left- or right-hand rotation available
- 30-150 (2.1-10.3 bars) psi operation
- Optional pinions and flanges for any engine



Industry applications ideal for the ST500 Series starters: oil and gas, marine, power-gen, and transportation.

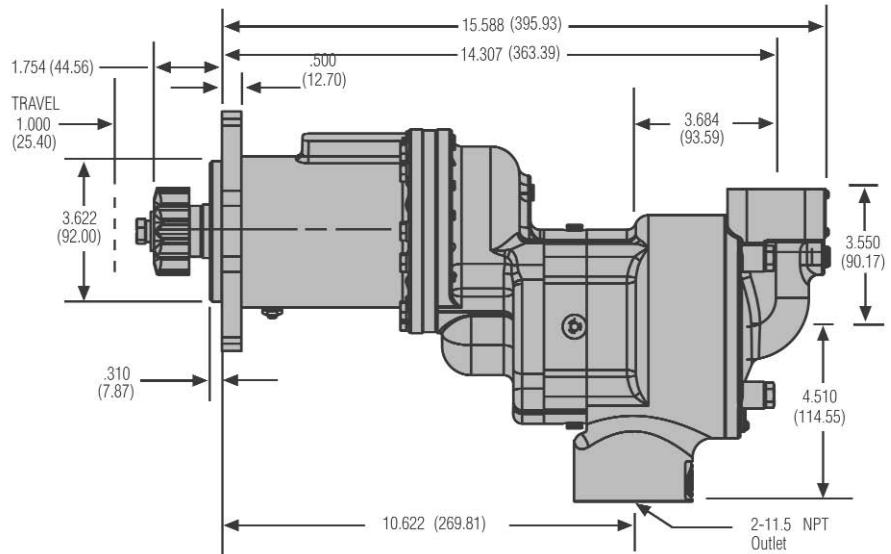
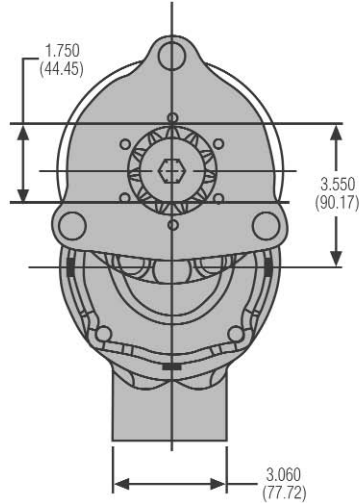


ST500 Series DIMENSIONS

Weight lbs (kg)

ST500	38 (17.2)
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Note: All dimensions shown are for reference only. Specifications subject to change without notice.



ST544 Performance Information

Pressure PSI (bar)	Breakaway Torque ft-lb (Nm)	Speed @ Max HP RPM	Max Power HP (kW)	Flow @ Max HP SCFM (L/s)
60 (4.1)	74 (100)	1296	9 (7)	310 (146)
90 (6.2)	113 (153)	1480	16 (12)	430 (203)
120 (8.3)	147 (200)	1580	22 (17)	570 (269)
150 (10.3)	182 (247)	1620	28 (21)	710 (335)

ST599 Performance Information

Pressure PSI (bar)	Breakaway Torque ft-lb (Nm)	Speed @ Max HP RPM	Max Power HP (kW)	Flow @ Max HP SCFM (L/s)
30 (2.1)	72 (98)	1185	8 (6)	340 (160)
60 (4.1)	132 (179)	1500	19 (14)	580 (274)
90 (6.2)	206 (280)	1530	30 (23)	780 (368)
120 (8.3)	247 (336)	1540	36 (46)	1000 (475)
150 (10.3)	295 (400)	1560	44 (58)	1240 (585)

ST500 Series



Engine Starting Systems

Bold Model Numbers indicate that a remanufactured model is available with the same part number (add an "R" to the number).

Most Obsolete Units ▶

ST500 Series Crossover Model Numbers

ST500 Current Product	ST400 Crossovers	ST600* Crossovers	ST700* Crossovers	ST900* Crossovers	ST800* Crossovers
ST599F03R95		ST699BP03R95			
ST599F03R77	ST400IC03R77				
ST599F03R51			ST775GCDP03R51	ST999CP03R51	
ST599F03R31		ST650BP03R31	ST750GBDP03R31	ST950BP03R31	SS815GB03R31
ST599F03R25	ST499C03R25		ST799GCDP03R25	ST999CP03R25	
ST599F03R25			ST750GCDP03R25	ST950CP03R25	
ST599F03L95		ST699BP03L95			
ST599F03L51		ST699BP03L51	ST799GCDP03L52		
ST599F03L31	ST499C03L32	ST650BP03L31		ST950BP03L32	SS815GB03L32
ST599F01R895	ST499C01R895				
ST544F06R31	ST400C06R31				
ST544F03R893	ST400C03R893				
ST544F03R85	ST400C03R85				
ST544F03R77	ST400C03R77				
ST544F03R31	ST400C03R31				
ST544F03R31	ST455C03R31				
ST544F03R31	ST400IC03R31				
ST544F03R31	ST455IC03R31				
ST544F03R29	ST400C03R29				
ST544F03R29	ST400IC03R29				
ST544F03R25	ST400C03R25				
ST544F01R85	ST400C01R85				
ST544F01R85	ST400IC01R85				
ST544F01R77	ST400C01R77				
ST544F01R29	ST400C01R29				
ST544F01R071	ST400C01R071				
ST544F01L32	ST400C01L32				

ST500 SERIES MODEL CODING

ST544 F 03 R 25 0 2 F J

SIZE STARTER	FLANGE
GEAR RATIO	DRIVE HOUSING
FLANGE	EXHAUST
"01" = SAE 01"	INLET
"03" = SAE 03"	
24 = MITSUBISHI	
26 = MITSUBISHI	
ROTATION	
TYPE OF PINION	

* Large frame starter crossovers are dependent on the available air pressure and the size of the engine being started. Please consult your local IR representative.

ST599 Number of Starts per Tank

(Assuming 2-Second Crank Time @ 90 PSI)

300	6	7	9	10	12	13	15	16	20
270	5	7	8	9	10	12	13	14	18
240	4	6	7	8	9	10	11	12	16
210	4	5	6	7	7	8	9	10	14
180	3	4	4	5	6	7	7	8	12
150	2	3	3	4	4	5	6	6	10
120	1	2	2	3	3	3	4	4	8
90	1	1	1	1	1	2	2	2	6
	80	100	120	140	160	180	200	220	
	302	378	454	529	605	680	756	832	

Max
Tank
Pressure
(psi)

Max
Tank
Pressure
(bar)

Gallons
Liters

Tank Size

ST500 Genuine Ingersoll-Rand Replacement Kits

Tune Up Kit Part Number

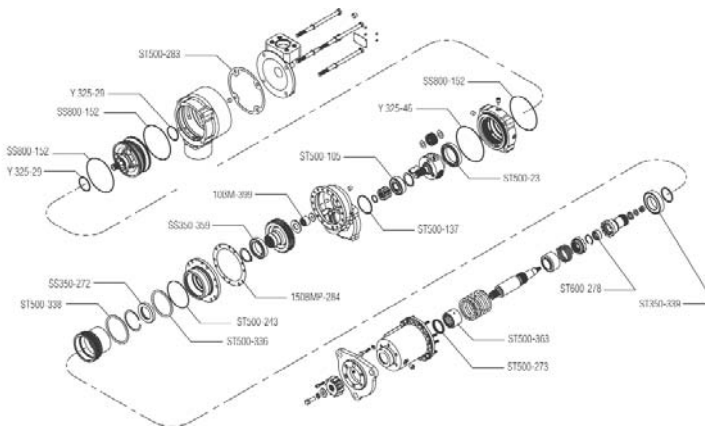
ST500-TK1

ST500-SK1

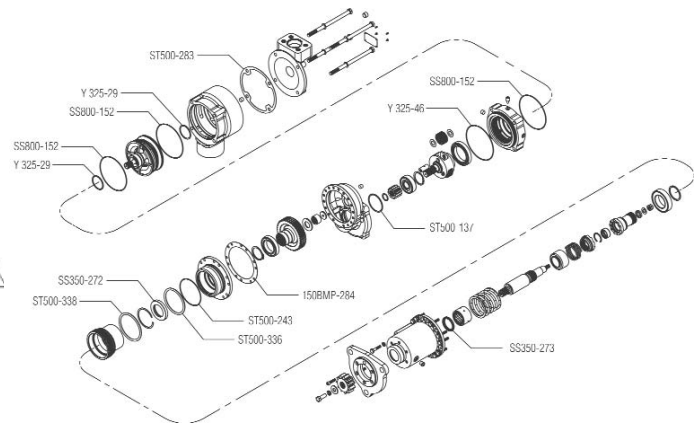
Description

ST500 Starter Tune Up Kit

ST500 Seal Kit



Exploded View of ST500-TK1 Part Location



Exploded View of ST500-SK1 Part Location

ST500 Series Accessories

See catalog pages J-1 to J-18 for detailed Accessory information.

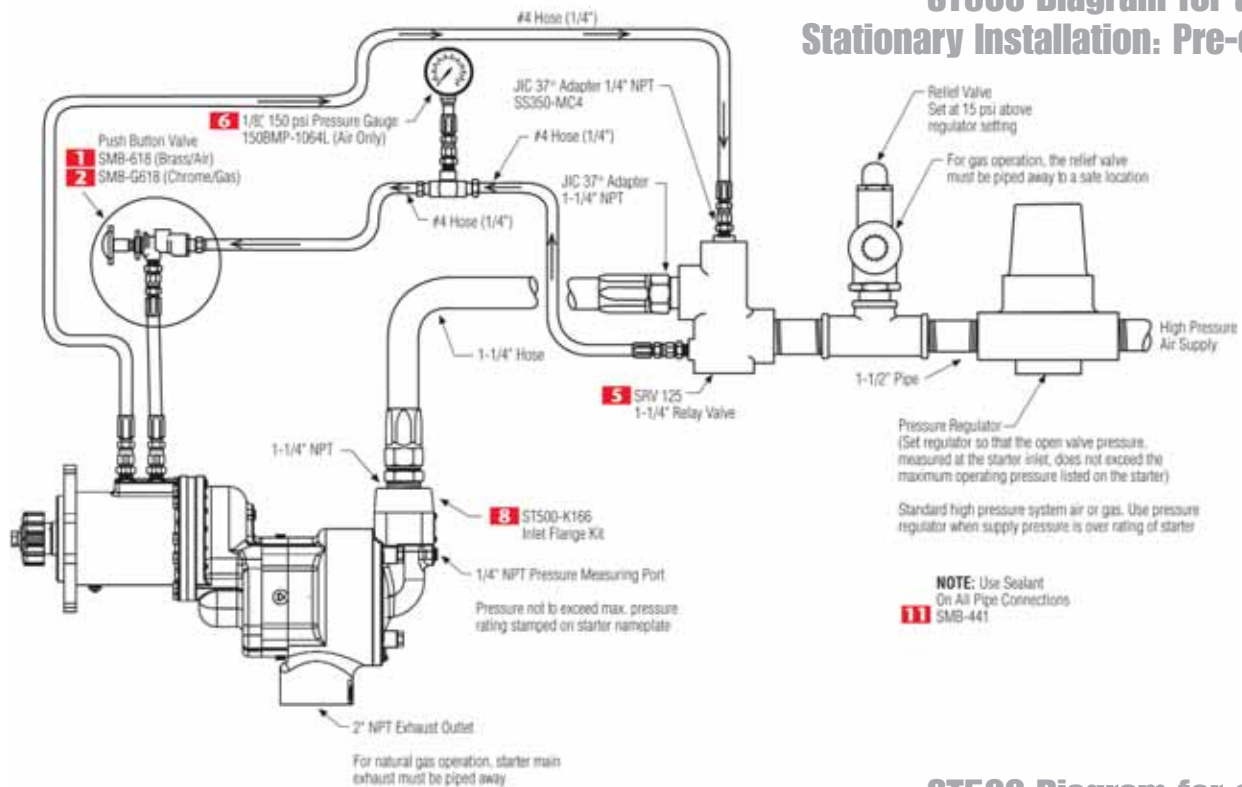
IR Part #	Description	Picture
1 SMB-618	Push Button Valve	
2 SMB-G618	Gas Rated Push Button Valve	
3 150BMP-1051B	1/4" 12 V Solenoid Valve	
4 SRV125T	1-1/4" Relay Valve For Transit Aftermarket	
5 SRV125	1-1/4" Relay Valve For Stationary Air	

IR Part #	Description	Picture
6 150BMP-1064L	1/8", 150 psi Pressure Gauge	
7 ST500-A735	2" Road Splash Deflector	
8 ST500-K166	SAE J518 Split Flange	
9 150BMP-1056	1/2" Check Valve	
10 150BMP-1067	1/2" Drain Valve	
11 SMB-441	Liquid Sealant	

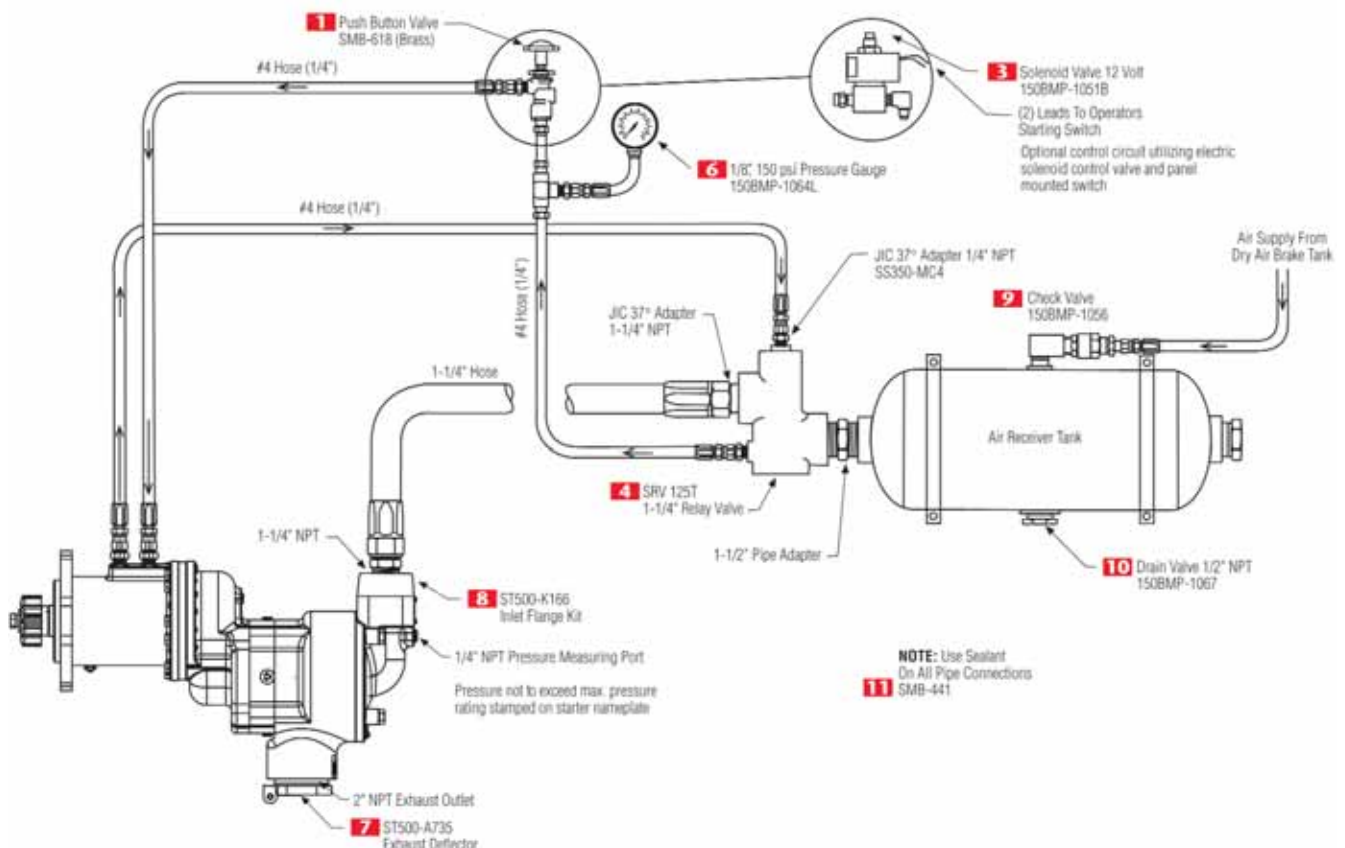
Red item numbers correspond to numbers in diagrams on page B-5.

ST500 Series

ST500 Diagram for a Typical Stationary Installation: Pre-engaged



ST500 Diagram for a Typical Vehicular Installation: Pre-engaged





ST500 Series Air Starters

*This chart is a condensed list of engines that can be cranked with an IR starter.
For a complete list, please contact IR.*

ST500 Series Engine Selection Guide

Manufacturer	Engine	CID	Liter	CYL	Type	Turbine Starter
CATERPILLAR	3126	439		6	Diesel	ST544F01R29
	3208	626	10.4	8	Diesel	ST544F03R29
	3306	638	10.5	6	Diesel	ST544F03R29
	3408	1099	18.0	8	Diesel	ST544F03R31
	3512	3158	51.8	12	Diesel	ST599F03R31
	3516	4210	69.0	16	Diesel	ST599F03R31
	C-10	620	10.3		Diesel	ST544F03R31
	C-12	732	12.0		Diesel	ST544F03R31
	G3306	638	10.5	6	Gas	ST544F03R31
	G3516	4210	69.0	16	Gas	ST599F03R31
CUMMINS	6C-8.3 SERIES	506	8.3	6	Diesel	ST544F03R29
	K19 SERIES	1150	18.8	6	Diesel	ST544F03R31
	K38 SERIES	2300	37.7	12	Diesel	ST599F03R31
	K50 SERIES	3067	50.3	16	Diesel	ST599F03R31
	QSK19	1150	19.0	6	Diesel	ST599F03R31
	QSK45	2746	45.0	12	Diesel	ST599F03R31
	QSK60	3660	60.0	16	Diesel	ST599F03R31
	QST30	1861	30.0	12	Diesel	ST599F03R31
DETROIT DIESEL	12V-149	1788	29.3	12	Diesel	ST544F03R31
	12V-71	851	13.9	12	Diesel	ST544F03R31
	12V-92	1104	18.1	12	Diesel	ST544F03R31
	16V-149	2384	39.1	16	Diesel	ST599F03R31
	16V-2000	1952	32.0	16	Diesel	ST599F03R31
EMD GM	8-645	5051	82.8	8	Diesel	ST599F03R31
	8-710	5160	84.6	8	Diesel	ST599F03R31
MAN	D 2565M	580	9.5	5	Diesel	ST544F03R77
	D2842	1338	21.9	12	Diesel	ST544F03R77
MITSUBISHI	S12A2(1)	2070	33.9	12V		ST544F24R893
	S12H	2265	37.1	12	Diesel	ST544F26R493
	S12R	2992	49.0	12V	Diesel	ST544F26R493
	S6A3	1133	18.6	6	Diesel	ST544F26R87
WARTSILA	8L20	4294	70.4	8		ST544C03R942
	2895G (SI/L)	2894	47.0	6L	Gas	ST599F03R31
	3512GL	3520	58.0	6L	Gas	ST599F03R31
	6AT25D	5392	88.4	6	Diesel	ST599F03R31
	6LAT25GL	5392	88.4	6	Diesel	ST599F03R31
	F1197G	1197	19.6	6	Gas	ST544F03R31
	F2895G (SI)	2894	47.4	6	Gas	ST599F03R31
	F3521G (SI)	3520	58.0	6L	Gas	ST599F03R31
	L36GL (D)	2193	36.0	12V	Gas	ST599F03R31
	L7042GL	7040	115.4	12V	Gas	ST599F03R31
YANMAR	6N18L	2608	42.8	6	Diesel	ST599C03R31
	8N21L	4904	80.4	8	Diesel	ST599C03R31