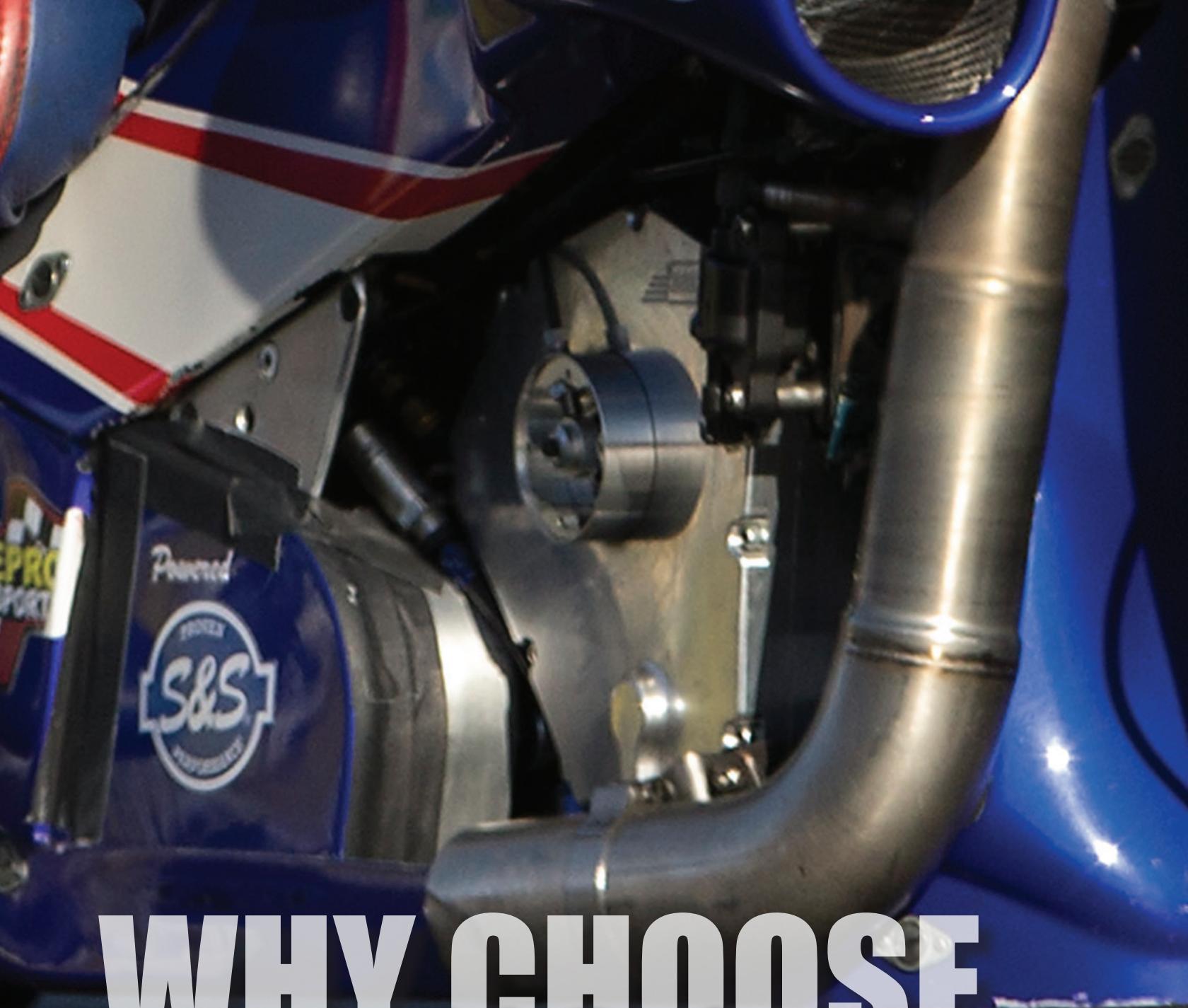




# 2015

## Racing Catalog



# WHY CHOOSE *S&S Cycle* **THE WINNER'S EDGE.**

Say what you will about excitement and the thrill of the chase. Serious racers have but one goal — **to win**. And, as any racer will tell you, winning requires an engine as strong and durable as it is **powerful**, for it is impossible to win without finishing.

**Racing is a difficult game.** Only a select few make it to the **Winner's Circle**, and no one ever got there by using inferior parts... **guaranteed**.



**ENGINES**

**FUEL SYSTEMS**

**LOWER END**

**TOP END**

**VALVE TRAIN**

**ARE YOU FAST ENOUGH?**

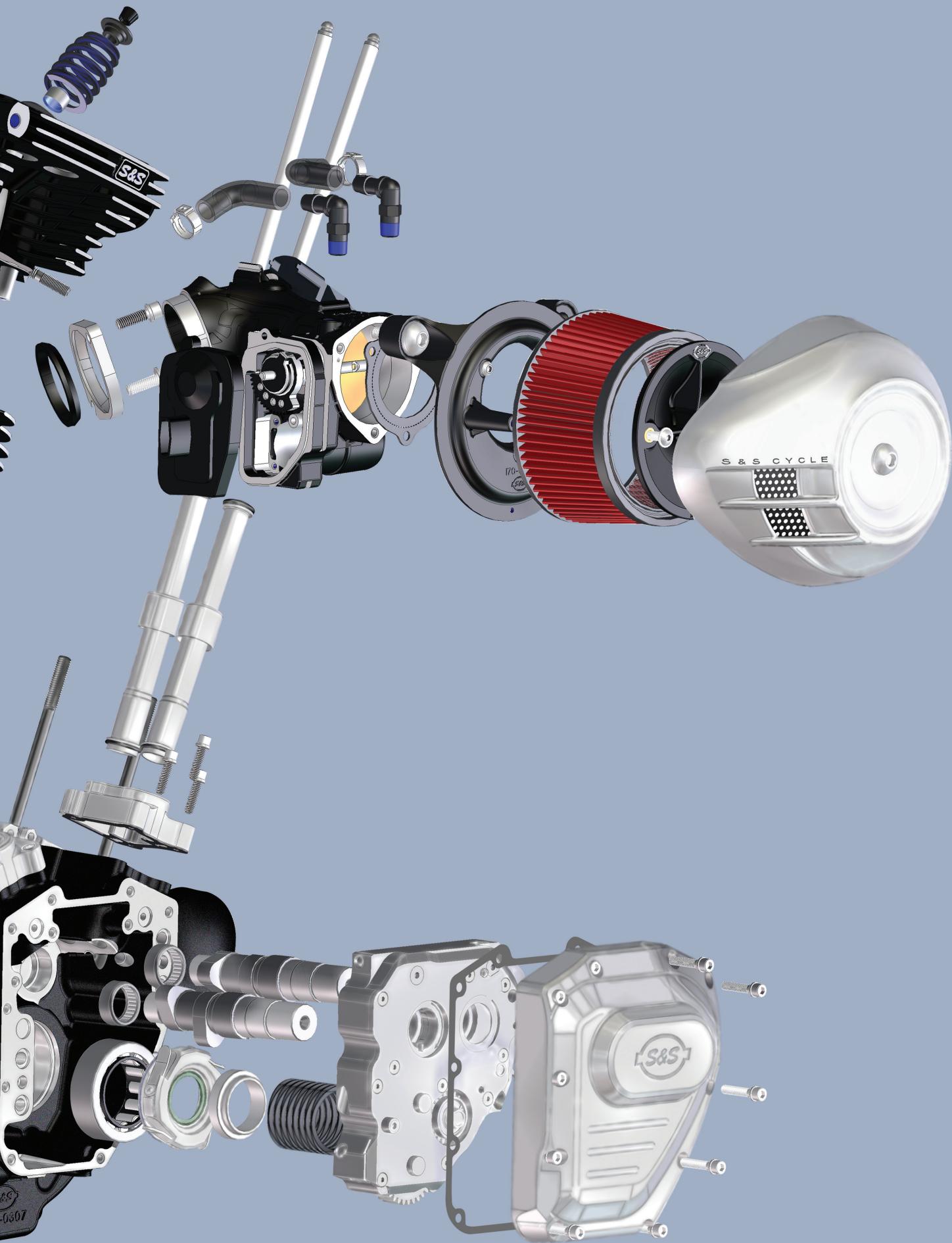
Cover photo by  
Michael Davis  
Moto Lenz Photos  
[mike@motolenzphotos.com](mailto:mike@motolenzphotos.com)



# INNOVATION.

Our rapid prototyping capabilities, multi-cell dynamometer center, and CNC-based manufacturing facility keep us comfortably ***ahead of the competition.*** An extensive list of patents and trademarks reflects our ***continuing pursuit of innovative technology.***

# ENGINES



# ENGINES FOR RACING APPLICATIONS

## S&S® PRO STOCK DOWNDRAFT BILLET ENGINE

**340+ HORSEPOWER, 228+ FT-LB TORQUE**

### NATIONAL CHAMPIONSHIPS IN NHRA PRO STOCK MOTORCYCLE CLASS

- 2007 NHRA Pro Stock Motorcycle Champion Matt Smith
- 2009 NHRA Pro Stock Motorcycle Champion Hector Arana
- 2013 NHRA Pro Stock Motorcycle Champion Matt Smith

### FEATURES AND BENEFITS

- 160" displacement, 60° v-twin pushrod configuration – Allows larger bore sizes, straighter valve train geometry, and optimized intake tracts
- Raised cam chest – Features shorter pushrods for reduced valve train mass and reduced pushrod deflection for more precise valve control at extreme RPM
- Billet aluminum crankcases – With integral primary and transmission housing is the foundation for a robust power train
- 4340 billet crankshaft – aluminum rods with 1.500" crankpin and ceramic roller main bearings to contain the forces generated by massive 5.125" bore pistons at high rpm
- Billet Pro Stock cylinder heads – With massive 2.71" Ø light weight titanium valves designed make peak horsepower at extreme high rpm
- S&S chromemoly cylinders – High tensile strength steel cylinders handle high combustion pressures and piston loads
- Pro Stock VFI manifolds and dual 3 3/8" throttlebodies – Provides plenty of air to feed this 160 cubic inch engine at over 9000 RPM
- Six-speed automatic transmission – optimizes rpm to maximize usable horsepower
- Includes transmission, assembled



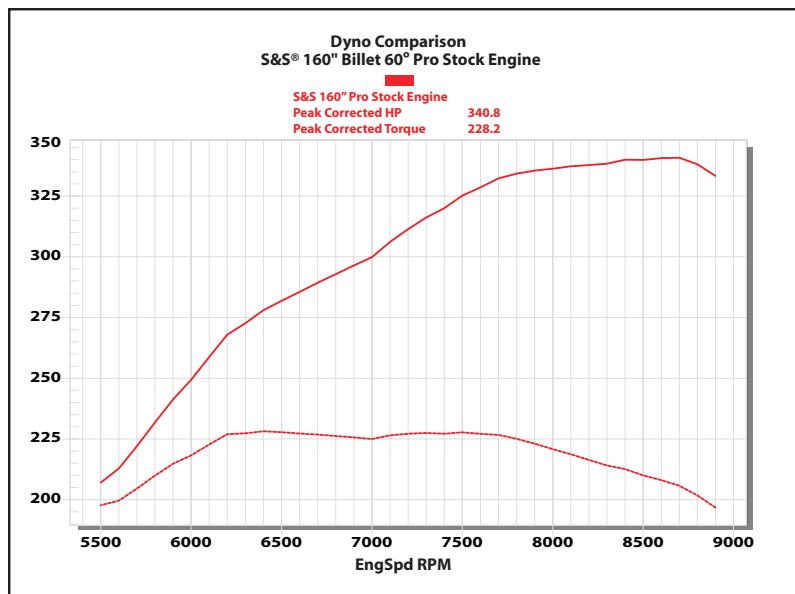
### S&S® PRO STOCK ENGINE SPECIFICATIONS

Engine	Displacement	Bore	Stroke	Cam	Piston Type	Compression Ratio
Pro Stock	160"	5 1/8"	3.875"	1" Lift	Forged Aluminum	14.5:1

### S&S® PRO STOCK ENGINE

Description	Part #	MSRP
Without transmission, clutch, primary, fuel injection, or electronics	<b>31-9625</b>	\$31,944.95
Complete engine package, minus electronics	<b>106-1474</b>	\$44,424.95
Options		
Steel oil pick-up plate (for additional weight, + 6 lbs.)	<b>106-0243</b>	\$519.95
Spare Six-Speed Automatic Transmission	<b>56-1089</b>	\$7,099.95

Only sold to qualified race customers



The S&S Pro Stock engine makes so much power that it can't be measured on a chassis dyno in the normal fashion. The rear tire cannot maintain traction on the dyno drum at this power level, so the drum must be driven directly from the transmission. So don't try this at your local motorcycle shop. Note that this dyno chart begins at 5500 rpm, and no thought is given to how it will perform in stop and go traffic. The only traffic this engine sees is full throttle a quarter mile at a time.

# ENGINES FOR RACING APPLICATIONS

## S&S® STREET PRO RACING ENGINES

**210+ HORSEPOWER, 170+ FT-LB TORQUE**

The S&S Street Pro Engine was first introduced as part of the Tribute 145 finale in August of 2003, at the Broken Spoke Saloon in Sturgis, SD. A Street Pro bike built by S&S, G Squared Motorsports and Gail's Harley-Davidson® was a result of George Smith's desire to build a big bore competition engine for 1999-up big twins.

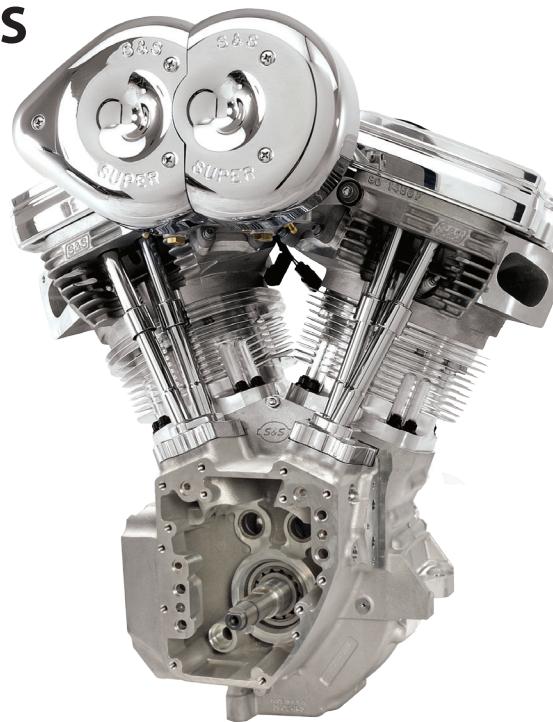
These S&S Street Engines are available with rear motor mounts for either 1984-'99 or for 1999-'06 chassis. Engines with the 1999-'06 style rear motor mount are intended for use with Harley-Davidson® transmission for 1999-'06. Engines with the 1984-'99 style rear motor mount can be installed in any 1984-'99 style frame, providing the frame will accommodate the taller heads and Pro Stock style exhaust location.

### FEATURES AND BENEFITS

- S&S TCSA crankcases
- 1984-'99 or 1999-'06 style rear motor mount
- Machined for 1999-'06 big twin charging system
- S&S press-together style flywheel assembly with 1970-up big twin sprocket shaft
- Billet aluminum rods with 1.500" crankpin
- S&S cast Pro Stock cylinder heads w/electric compression releases
- Dual S&S Super D carburetors sold separately
- Unassembled

#### What's not included:

- Cam cover, cams, gears, oil pump, cam plate, ignition system, fuel system, intake manifold, pushrods, oil filter adapter. *These must be sourced by the engine builder in order to complete the engine.*

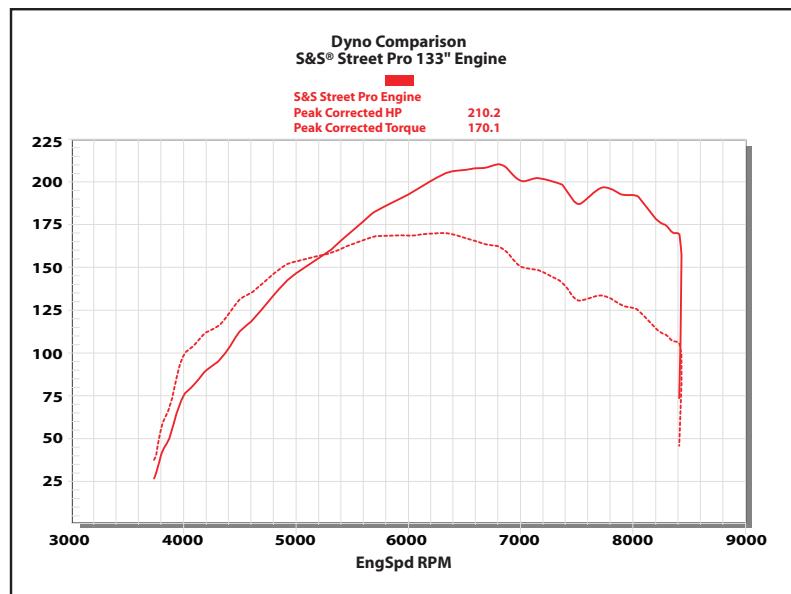


### S&S® STREET PRO ENGINE SPECIFICATIONS

Engine	Displacement	Bore	Stroke	Available Cam	Piston Type	Compression Ratio
Street Pro	139"	4.800"	3.850"	GSI	Forged Aluminum	13+1
	133"	4.600"	4.000"	GSI	Forged Aluminum	13+1
	120"	4.600"	3.600"	GSI	Forged Aluminum	13+1

### S&S® STREET PRO RACING ENGINES

Fitment	139"	MSRP	133"	MSRP	120"	MSRP
1999-'06 Big Twin	<b>31-9421</b>	\$13,465.00	<b>31-9317</b>	\$13,465.00	<b>31-9355</b>	\$13,465.00
1984-'99 Big Twin	<b>31-9420</b>	\$13,465.00	<b>31-9419</b>	\$13,465.00	<b>31-9357</b>	\$13,465.00



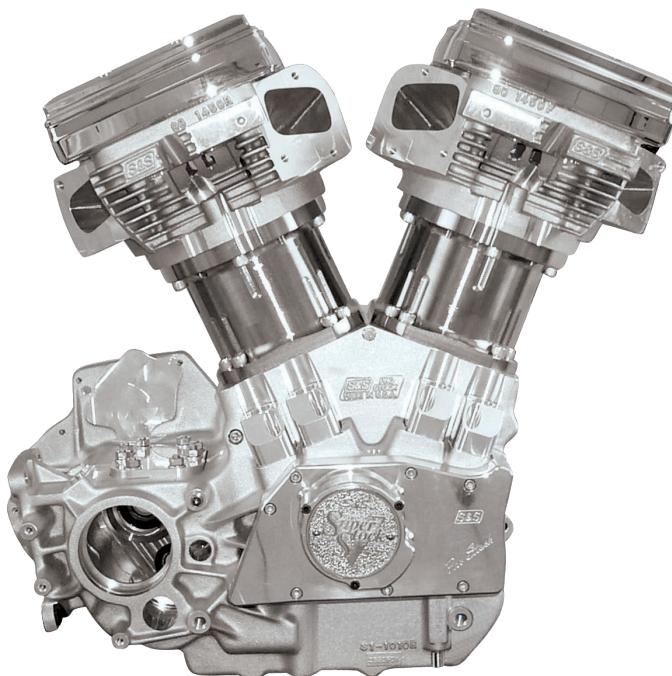
## S&S® 160" CAST 45° PRO STOCK ENGINE KIT

**260+ HORSEPOWER**

**Not for the novice builder!** This version of the S&S 160 cubic inch Pro Stock engine is referred to as the "cast" engine because the crankcases and cylinder heads are manufactured from high strength virgin aluminum castings. The crankcase is a modified 45° four cam design, machined without an oil filter mount, which allows the engine to be mounted as far forward in the frame as possible. This crankcase doesn't have the scavenge side of the oiling system final machined. The engine builder is responsible for the placement of the scavenge ports into the sump cavity of the case. This engine kit must be assembled by an experienced engine builder. Prior to final assembly, the entire engine should be completely mocked up and all of the clearances checked.

### FEATURES AND BENEFITS

- S&S cast square-port Pro Stock heads with 2.450" light weight titanium intake valves and 1.900" exhaust valves and S&S .800" lift valve springs
- S&S 4.800" bore finless 4142 chromoly steel cylinders and pistons (*cylinders are machined and honed for proper piston to wall fitment*)
- Sand Cast Aluminum Crankcase – *With integral primary and transmission housing is the foundation for a robust power train*
- 1.625:1 ratio forged steel rocker arms
- "Pork chop" style S&S Pro Stock press together flywheels with a relatively short 4.375" stroke – *includes 8.500" long S&S billet aluminum connecting rods*
- Billet tappet guides, gearcover and rocker boxes
- The transmission cavity will accept a stock or aftermarket 1991-2003 style 5-speed transmission for a Harley-Davidson® Sportster® (*a special access door is supplied*)
- Set of S&S .800" lift indexable centerline cams (*must be indexed by the engine builder for desired timing, and welded in place*)



### S&S® 160" CAST 45° PRO STOCK ENGINE SPECIFICATIONS

Engine	Displacement	Bore	Stroke	Cam	Piston Type	Compression Ratio
Pro Stock	160"	4.800"	4.375"	.800" Lift	Forged Aluminum	15.0:1

### S&S® 160" CAST 45° PRO STOCK ENGINE

Description	Part #	MSRP
Complete Engine Kit*	<b>31-9227</b>	\$13,449.95

*The 45° Pro Stock engine is primarily intended for use in existing race chassis designed for an engine with a 45° cylinder angle. Check your sanction rules to determine if this engine is legal in your class.*

\*Kit does not include an oil pump, ignition system, fuel delivery, or induction system, pushrods, tappets, primary drive, or transmission components. These must be sourced by the engine builder in order to complete the engine. The S&S Tech/Race Department can help with recommendations and advice.



S&S can provide quality, professional machine shop and engine building service through our S&S® Service & Speed Center®. We can handle any job from fitting a set of pistons in your cylinders, to complete installation of any engine kit. Contact your S&S customer service representative for details.

## S&S® T126 4-3/8" BORE RACING ENGINES

**155+ HORSEPOWER, 150+ FT-LB TORQUE**

**Not for the novice builder!** S&S is offering 4 3/8" bore large displacement engines to racers and custom bike builders. Fuel system options are available and must be purchased separately.

### FEATURES AND BENEFITS

- For 1999-2006 big twins
- 4.375" bore x 4.1875" stroke
- Assembled
- Natural, silver, wrinkle black, and gloss black finishes
- No induction – S&S Super D Carburetor must be ordered separately
- S&S gear drive oil pump with polished or chrome cover
- 625 or 640 cams
- High flow CNC ported B2 heads with 2.2" intake and 1.8" exhaust valves
- Chrome rocker covers
- +.250" taller than stock Twin Cam 88®
- Available the way you want them through CTO



### S&S® T126 ENGINE SPECIFICATIONS

Engine	Displacement	Bore	Stroke	Cam	Piston Type	Compression Ratio
T126	126"	4.375"	4.1875"	625 or 640	Forged Aluminum	10.5:1

### S&S® T126 4-3/8" BORE ENGINES

Description	Part #	MSRP
<b>CTO</b> 1999-'06 big twins	<b>319-0011</b>	<i>Call for Pricing</i>



S&S can provide quality, professional machine shop and engine building service through our S&S® Service & Speed Center®. We can handle any job from fitting a set of pistons in your cylinders, to complete installation of any engine kit. Contact your S&S customer service representative for details.

A man in a white shirt and blue jeans is working on a large, white, cylindrical jug. He is wearing a black cap and a watch on his left wrist. The jug has a white cap and a label that reads "NITRO".

# COMMITMENT.

Aggressive R&D and the industry's most **extensive technical support** program reflect our unwavering commitment to customer satisfaction.

# FUEL SYSTEMS



# FUEL SYSTEMS FOR RACING APPLICATIONS

## RACING CARBURETORS

### GENERAL INFORMATION

Super B carbs measure 1 1/8" (47.6mm) at the throat (manifold inlet) and 1 1/8" (39.6mm) at the venturi. Super D carbs are 2 1/4" (57.2mm) at the throat and are available with venturi sizes of 1.937" (49.3mm) and 2.150" (54.6mm).

### DISCLAIMER

S&S racing carburetors are intended for the very experienced rider to be used in closed course competition use only. The installation of these carburetors may violate certain federal, state, and local laws, rules and ordinances as well as other laws when used on motor vehicles operated on public highways, especially in states where pollution laws may apply. Always check federal, state, and local laws before modifying your motorcycle. It is the sole and exclusive responsibility of the user to determine the suitability of the product for his or her use, and the user shall assume all legal, personal injury risk and liability and all other obligations, duties and risks associated therewith.

**WARNING: All S&S carburetors are designed to be used with a two cable throttle system. Single, braided wire cable throttle mechanisms can not mechanically close throttle. If throttle inadvertently sticks in open position, loss of control of motorcycle and personal injury to you or others may result.**

### NOTES

Some S&S special application fuel carburetors have enlarged internal passageways to accommodate the additional volume of fuel required for alcohol or nitromethane operation. Compared to gasoline, approximately 2 1/2 times the volume of alcohol, and approximately 8 times the volume of nitromethane is required. For this reason there is a machining difference between gasoline and fuel carburetors. This means that it is not practical to modify gasoline carbs to use nitromethane, and fuel carbs are not suited for gasoline applications. Super D gasoline carburetors can be modified to use alcohol only with the Super D alcohol conversion kit. However, if the final goal is to use alcohol, it is recommended that an alcohol carburetor be purchased to begin with.

All S&S carburetors require the use of a two cable, pull open/pull closed throttle assembly. Any chassis including 1980 and earlier stock H-D® models, equipped with a single cable throttle mechanism, requires conversion to a two cable, pull open/pull closed type.

Specific additional features, characteristic of each type of carburetor, are listed in the description of that carburetor.

## SUPER B CARBURETORS

Similar in construction and use many of the same parts found in S&S gasoline carburetors, the S&S carburetors for race engines are designed for applications where a gravity feed fuel delivery system is used. The use of a fuel pump is not recommended as the fuel inlet needle and seat assemblies in these carbs are not capable of handling additional fuel pressure. All S&S racing carburetors are single throat, butterfly type carbs with adjustable idle mixture and idle speed screws and changeable intermediate and high speed jets.

### SUPER B 1 1/8" FUEL AND TURBO GAS CARBURETORS

- Available with standard 1.5625" venturi
- Features an enrichment starting system
- Recommended for use on large displacement racing engines (not recommended for most street applications) – Low rpm throttling and midrange response is poor on stock displacement engines

### FITMENT

- 1966-Up big twin
- 1957-Up Sportster® models

### FUEL CARB KIT CONTENTS

- S&S Super B fuel carburetor
- Assortment of intermediate and main jets (to cover most jetting situations)

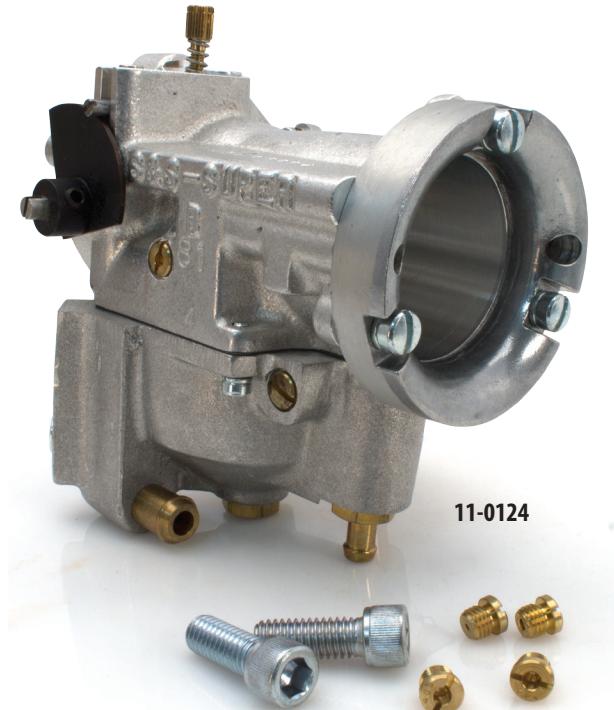
### TURBO GAS KIT CONTENTS

- S&S Super B turbo gas carburetor
- Extra Jets

### S&S® SUPER B CARBURETORS

Description	Part #	MSRP
Super B 1 1/8" Fuel Carb Kit	<b>11-0117</b>	\$1,107.38
Super B 1 1/8" Turbo Gas Carb Kit	<b>11-0124</b>	\$607.35

Order manifolds separately



# FUEL SYSTEMS FOR RACING APPLICATIONS

## SUPER D CARBURETORS

Similar in construction and use many of the same parts found in S&S gasoline carburetors, the S&S carburetors for race engines are designed for applications where a gravity feed fuel delivery system is used. The use of a fuel pump is not recommended as the fuel inlet needle and seat assemblies in these carbs are not capable of handling additional fuel pressure. All S&S racing carburetors are single throat, butterfly type carbs with adjustable idle mixture and idle speed screws and changeable intermediate and high speed jets.

### SUPER D 2 1/4" GAS AND ALCOHOL CARBURETORS

- Available with standard 1.937" venturi or larger 2.150" venturi for gasoline carbs
- Features an enrichment starting system
- Recommended for use on large displacement racing engines (not recommended for most street applications) – Low rpm throttling and midrange response is poor on stock displacement engines

#### FITMENT

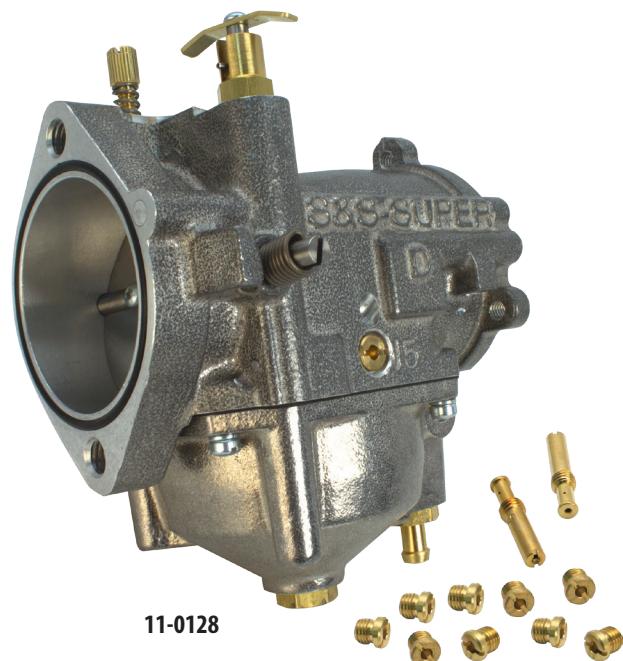
- 1966-Up big twin
- 1957-Up Sportster® models

#### GAS CARB KIT CONTENTS

- S&S Super D gas carburetor
- Assortment of intermediate and main jets (to cover most jetting situations)

#### ALCOHOL CARB KIT CONTENTS

- S&S Super D 2 1/4" alcohol carburetor
- Extra Jets



11-0128

#### S&S® SUPER D CARBURETORS

Description	Part #	MSRP
Super D Gas Carb Only (1.937" Venturi)	<b>11-0112</b>	\$498.95
Super D Gas Carb Only (2.150" Venturi)	<b>11-0128</b>	\$565.95
Super D Alcohol Carb Only	<b>11-0126</b>	\$522.95
Super D 2 1/4" Turbo Alcohol Carb Kit	<b>11-0123</b>	\$875.62
Super D 2 1/4" Turbo Gasoline Carb Kit w/ radiused inlet	<b>11-0125</b>	\$655.86

*Order manifolds separately*

#### SUPER D 2 1/4" ALCOHOL CONVERSION KIT

Description	Part #	MSRP
Converts Super D Gas carburetor for use with alcohol. Kit includes one each; Super D alcohol bowl, float, float retaining pin, bowl plug, alcohol main discharge tube, fuel needle and seat assembly, a full set of main and intermediate jets, and installation instructions.	<b>11-2175</b>	\$342.95



11-2175

#### FOR SPECIAL ORDERS:

Contact the S&S Racing Department with any questions.

#### NOTES

Manifolds must be ordered separately.

An S&S teardrop air cleaner is available for those Super D applications that require an air cleaner. Refer to page 17 for more information.

Once a Super D gasoline carburetor has been converted for use with alcohol, it may not be used with gasoline afterward.

## REPLACEMENT CARBURETOR JETS AND RADIUSED INLETS FOR S&S® SUPER CARBS

### RADIUSED INLETS FOR S&S® SUPER CARBS

Radiused inlets provide a smooth path for air entering the carburetor, thus reducing turbulence and increasing flow. Radiused inlets are available for Super B and D Fuel and Turbo carbs as well as for Super E & G gasoline carbs. Radiused inlets for S&S Super E and G carbs may be used as replacement parts for the G-Extreme dual carb air cleaner set-up, or may be attached directly to the carb for racing applications. Includes mounting hardware. Inlets for B & D carbs do not include mounting hardware.

Super B Fuel and Turbo	<b>17-0081</b>	\$55.95
Super D Fuel and Turbo	<b>17-0183</b>	\$77.95
For Super E & G Carbs	<b>11-2163</b>	\$58.95

### SERIES #145 INTERMEDIATE JETS

Fits all S&S Super alcohol, fuel, and turbo carburetors.

Sold in package of three jets:	1 each .046", .050", .060"	<b>11-7140</b>	\$48.95
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### SERIES #186 SUPER FUEL MAIN JET SELECTION CHART

One part number equals one piece.

Size	Part No.	MSRP									
.120"	<b>11-7150</b>	\$27.95	.170"	<b>11-7160</b>	\$34.95	.220"	<b>11-7170</b>	\$34.95	.270"	<b>11-7180</b>	\$34.95
.125"	<b>11-7151</b>	\$34.95	.175"	<b>11-7161</b>	\$34.95	.225"	<b>11-7171</b>	\$32.95	.275"	<b>11-7181</b>	\$34.95
.130"	<b>11-7152</b>	\$34.95	.180"	<b>11-7162</b>	\$34.95	.230"	<b>11-7172</b>	\$34.95	.280"	<b>11-7182</b>	\$34.95
.135"	<b>11-7153</b>	\$34.95	.185"	<b>11-7163</b>	\$34.95	.235"	<b>11-7173</b>	\$34.95	.285"	<b>11-7183</b>	\$32.95
.140"	<b>11-7154</b>	\$34.95	.190"	<b>11-7164</b>	\$34.95	.240"	<b>11-7174</b>	\$34.95	.290"	<b>11-7184</b>	\$34.95
.145"	<b>11-7155</b>	\$34.95	.195"	<b>11-7165</b>	\$34.95	.245"	<b>11-7175</b>	\$34.95	.295"	<b>11-7185</b>	\$32.95
.150"	<b>11-7156</b>	\$34.95	.200"	<b>11-7166</b>	\$34.95	.250"	<b>11-7176</b>	\$34.95	.300"	<b>11-7186</b>	\$34.95
.155"	<b>11-7157</b>	\$32.95	.205"	<b>11-7167</b>	\$32.95	.255"	<b>11-7177</b>	\$34.95	Blank	<b>11-7187</b>	\$34.95
.160"	<b>11-7158</b>	\$34.95	.210"	<b>11-7168</b>	\$34.95	.260"	<b>11-7178</b>	\$34.95			
.165"	<b>11-7159</b>	\$34.95	.215"	<b>11-7169</b>	\$32.95	.265"	<b>11-7179</b>	\$34.95			

# FUEL SYSTEMS FOR RACING APPLICATIONS

## MANIFOLDS

For high performance competition engines, S&S racing manifolds for 1984-up engines can accommodate throttle bodies of up to 2 $\frac{7}{16}$ " diameter. Round intake port can be ordered for use with either S&S SA cylinder heads or with STD style big port racing cylinder heads. Order your manifold with a special oval intake port for compatibility with "Baisley" style oval port heads. These manifolds are special order and are non-returnable.

### ROUND PORT MANIFOLDS

- Manifold bore diameter must be specified. 2 $\frac{1}{16}$ " (2.063") minimum, 2 $\frac{7}{16}$ " (2.437") maximum.
- Round port may be ordered to fit either S&S SA cylinder heads or STD style large port racing cylinder heads. Port dimensions of manifolds ordered to fit S&S SA cylinder heads are 2.250" outside diameter and 1.875" inside diameter. Ports ordered to fit the STD style big port cylinder heads are machined to 2.312" outside diameter unless it is specified that the ports be left unmachined. The inside diameter of the port must be specified. 1.625" minimum, 2.220" maximum. Manifolds can also be ordered with inside diameter unmachined.
- The larger than stock outside diameter of the manifold ports necessitate the use of special S&S mounting flanges. S&S SA heads require special four-bolt flanges, and the STD style heads require special two-bolt flanges. Uses part #16-0246-S o-ring.



Round port

### OVAL PORT MANIFOLDS

- The inside of the ports are left unmachined. The inside of the manifold ports are cast to an oval shape which may be worked to exactly match the port shape of the cylinder head.
- Port outside diameter is machined to 2.312" unless it is specified that the ports should be left unmachined.
- The larger than stock port outside diameter necessitates the use of special mounting flanges and a larger than stock mounting bolt pattern in the cylinder heads.

#### S&S® RACING MANIFOLD

Description	Part #	MSRP
Special Order	<b>16-3629*</b>	Call for Pricing

\*Special order sheet is required. Download at [www.ssccycle.com/soforms](http://www.ssccycle.com/soforms)

#### NOTES

We will not use engine component dimensions to calculate manifold length for any special order manifold. This is due to the poor success we have had in producing manifolds to the correct length using this method. We prefer to use port-to-port measurements from a mocked up or assembled engine. We have had very good success making manifolds to the correct length using port to port measurements. See the S&S Dealer Catalog for more on port-to-port measuring.

Due to the large size of these manifolds, they will not fit stock style cylinder heads.

## MANIFOLDS FOR ENGINES WITH S&S® B2 HEADS

Due to the unique shape of the intake ports of S&S B2 Big Fin special application cylinder heads, a special manifold is required. In fact there are several manifold styles available for different fuel delivery systems for engines using B2 heads.

#### MANIFOLDS FOR ENGINES WITH S&S® B2 & B3 CYLINDER HEADS & SUPER D CARB

	T124"	MSRP	T126"	MSRP
Part #	<b>16-3595</b>	\$98.95	<b>16-3627</b>	\$109.95
Special Order*	<b>16-3599*</b>	Call for Pricing	<b>16-3599*</b>	Call for Pricing

\*Special order sheet required. Download at [www.ssccycle.com/soforms](http://www.ssccycle.com/soforms)



Super D Carburetor

## MANIFOLD ACCESSORIES

#### MOUNTING FLANGES & O-RINGS

Description		Part #	MSRP
Special STD Style Mounting Flange (for use with 2.312" OD oval manifolds)	Front	<b>16-0472</b>	\$60.95
	Rear	<b>16-0473</b>	\$60.95
Special S&S SA B2 Big Fin Style Mounting Flange	Kit (Front, Rear & O-rings)	<b>16-0250</b>	\$136.95
	Front	<b>16-0247</b>	\$55.95
	Rear	<b>16-0248</b>	\$55.95
Manifold O-ring	each	<b>16-0246-S</b>	\$13.35
	6 pack	<b>16-0246</b>	\$72.95

#### Special S&S Cast Pro Stock Style Three Bolt Mounting Flange

Welded to the Manifold Style	Set (front & rear)	<b>16-0240</b>	\$55.95
Compliance Style (intended for use with 50-8219-S o-ring)	Front only	<b>16-0254F</b>	\$32.92
	Rear only	<b>16-0254R</b>	\$32.92
Pro Stock Style Manifold O-ring (Not Shown)		<b>50-8047</b>	\$17.15
B3 Intake Flange Kit		<b>160-0091</b>	\$179.95



## THROTTLE HOG THROTTLE BODIES

Recommended for engines up to 145" displacement. S&S B2 cylinders heads are required to match the oval port configuration

### FEATURES AND BENEFITS

- Increase in airflow for additional performance gains
- Increased manifold port I.D. 1.780"
- Economically priced compared to competitors

### ADDITIONAL PARTS REQUIRED

- Air cleaner (see chart for recommended air cleaner kit)
- High flow injectors
- Intake Manifold Flange and Seal Kit S&S® PN 16-0250 (70mm B2 heads only)
- A performance motorcycle tuning module. S&S recommends Dynojet® Power Commander®, Dynojet Power Vision®, or Screamin' Eagle Super Tuner

### Sold On Exchange Only – Here's how it works

1. Your S&S® dealer sends your stock throttle body to S&S Cycle, Inc
2. S&S tests your incoming throttle body and its electrical components  
– a non-functional unit cannot be used and will be returned
3. S&S transfers your functional electrical components to your new S&S Throttle Hog
4. The complete Throttle Hog is tested and shipped to your S&S dealer  
(along with your original throttle body)
5. Your new Throttle Hog will typically be shipped within 2–3 days of receipt at S&S.

### S&S® 70MM THROTTLE HOG AND AIR CLEANER KITS

Description	Part #	MSRP
70mm B2 Throttle Body Only	<b>160-0039</b>	\$675.95
70mm B3 Throttle Hog Kit, 2008-up Throttle by Wire (includes Stealth Air Cleaner Kit)	<b>170-0253</b>	\$1,050.95
Stealth Air Cleaner Kit (cover not included)*	<b>170-0166</b>	\$169.95
Backplate only	<b>170-0169 **</b>	\$64.95

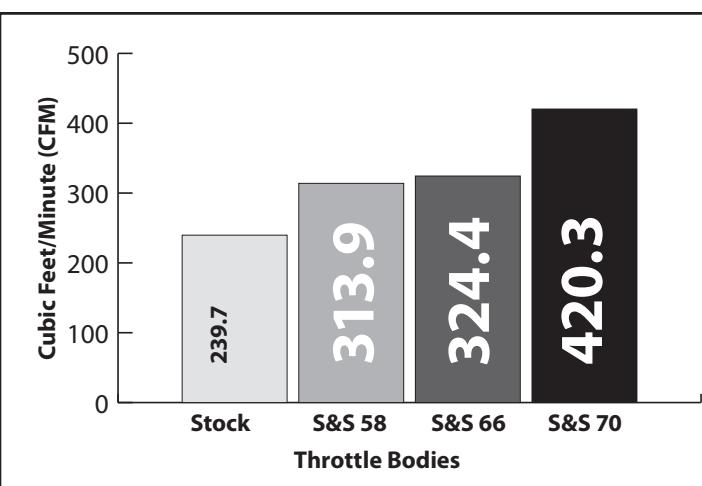
\* Air cleaner cover not included. Fabricate your own cover, or refer to [www.sscycle.com](http://www.sscycle.com) for S&S Stealth covers.

\*\* 70mm B2 backplates do not have mounts to the cylinder head. A bracket must be fabricated to support the throttle body separately. Engine height determines if stock bracket can be used.

Not legal for sale or use on CA or EPA pollution controlled motorcycles.



**170-0165 Stealth Kit**



This chart compares airflow of a stock throttle body to the S&S Throttle Hogs. Tests were performed on a SuperFlow 1020 flow bench at 28 inches of water test pressure. Throttle bodies were tested with backplates only, no air filter or air cleaner cover. It's easy to see the difference. More air, more power.

### WARRANTY: S&S THROTTLE HOG THROTTLE BODIES

S&S® Cycle, Incorporated warrants the S&S components of your S&S Throttle Hog throttle body to be free from defects in material and workmanship for a period of one year from the date of purchase by the original consumer customer. If parts become defective during the warranty coverage period, S&S will, at its option, repair or replace any, or all, defective parts. Repair or replacement of defective parts is the sole and exclusive remedy.

In the event that any OEM component re-utilized in the assembly of the throttle body fails, S&S may service the unit provided the OEM components are supplied to S&S at the time of service.

### NOTE

Not legal for sale or use on CA or EPA pollution controlled motorcycles.

Not legal for sale or use on CA or EPA pollution controlled motorcycles. For closed course competition use only.

# FUEL SYSTEMS FOR RACING APPLICATIONS

## SUPER D AIR CLEANER KITS

In recent years, it is more common to see Super D's used on very large displacement street engines. In many cases, these modern street engines are larger than the race engines that the Super D was originally designed for. To make these engines practical for street riding, an air cleaner is needed to keep air born contaminants out of the engine, but still allow the engine to perform. The high flow S&S Super D air cleaner kit is recommended for any Super D equipped engine where air filtration is required.

### FEATURE AND BENEFITS

- S&S high flow air filter is approx. 1.25" taller than the filter in previous air cleaner kits – more clean air to your engine

### KIT CONTENTS

- S&S teardrop air cleaner cover
- S&S high flow air filter
- Backplate
- All required fasteners

### S&S® SUPER D AIR CLEANER KITS

Description	Part #	MSRP
S&S Super D High Flow Air Cleaner Kit (Slasher cover)	<b>17-0200</b>	\$243.95
Adjustable Support Bracket	<b>16-0471</b>	\$16.60

### NOTES

No carburetor support brackets are included with the kit. Since this air cleaner kit is primarily intended for highly customized performance street bikes, the job of fabricating support brackets is left to the builder.

The billet backplate does not come with any pre-drilled mounting holes. This allows the builder the flexibility to drill mounting holes in any location required to suit the type of mounting hardware used on a particular bike.



## AIR HORNS AND AIR HORN CONVERSION KITS

### SHORT AIR HORNS (2 1/2")

- Fits S&S 1 3/4", 1 7/8" L Series carbs and S&S 1 7/8" Super A & B carbs
- Any stock carburetor with an identical air cleaner/air horn mounting pattern. These include Tilotson®, Bendix® or butterfly type Keihin®
- Available for S&S Super E & G carburetors

### LONG AIR HORNS (4")

- Available for S&S Super E, G, & D carbs

### Air Horn Kit Contents:

- Air Horn
- Three mounting screws

### Air Horn Conversion Kit Contents:

- Air horn
- Three mounting screws
- Adjustable S&S carb support bracket assembly - *required for S&S carb*
- Super E & G air horn conversion kit includes an enrichment device



**11-2084**

Enrichment Device

### S&S® AIR HORN FOR S&S CARBURETORS

Description	Length	Super A & B	MSRP	Super E & G	MSRP	Super D	MSRP
Air Horn Conversion Kits	2 1/2"	<b>17-0043</b>	\$109.95	<b>17-0484</b>	\$119.95	–	–
	4"	–	–	<b>17-0485</b>	\$119.95	–	–
Air Horn Only	2 1/2"	<b>17-0042</b>	\$77.95	<b>17-0331</b>	\$77.95	–	–
	4"	–	–	<b>17-0333</b>	\$77.95	<b>17-0141</b>	\$77.95

### ADJUSTABLE SUPPORT BRACKET ASSEMBLY

Description	Part #	MSRP
Brackets and hardware	<b>16-0471</b>	\$16.60
<b>ENRICHMENT DEVICE</b>		
Description	Part #	MSRP
For Super B or D Carbs	<b>11-2084</b>	\$33.95

### NOTES

S&S recommends that air horns be used in racing applications only, as they do not provide the filtration required to protect the engine on a day-to-day basis. Any installation of an air horn on an S&S carb in place of an air cleaner requires an adjustable S&S carb support bracket assembly, part #16-0471, to securely fasten the carb to the engine. This bracket is included in the air horn conversion kits. S&S recommends that the bowl vent plug at the bottom of carb body be removed when air horn is installed, as air horn may obstruct bowl vent in air cleaner mounting surface of the carb body.



# EXPERIENCE.

A half-century's experience winning at Bonneville and the world's leading dragstrips goes into each and every product. ***S&S Proven Performance Products*** have set more speed records than those of all other aftermarket manufacturers combined. However, ***reliability is never compromised*** for the sake of performance.

LOWER END



# LOWER END FOR RACING APPLICATIONS

## PRO STOCK 45° CRANKCASE

This "race only" crankcase is the foundation for the S&S Cast Pro Stock engines. This crankcase can accommodate cylinder spigot bores of up to 5.335". Cylinder deck heights are available as high as 1.750" taller than stock. This allows the use of 4.800" bore cylinders. Cam chest is a modified 1986-'90 four-speed style and is offset .850" to allow larger bore sizes. Cam chest offset requires the use of special billet four-speed style tappet guides with corrected pushrod angles, which are included with the crankcase. This crankcase requires a special S&S Pro Stock flywheel assembly which features a big twin style sprocket shaft, .850" longer than stock pinion shaft, and special big twin width connecting rods. Must be used with special race frame. Will not fit stock chassis of Harley-Davidson® Sportster® motorcycles.

### PRO STOCK 45° CRANKCASE

Description	Part #	MSRP
S&S 45° Cast Pro Stock Crankcases**	<b>31-1010*</b>	\$3,125.00

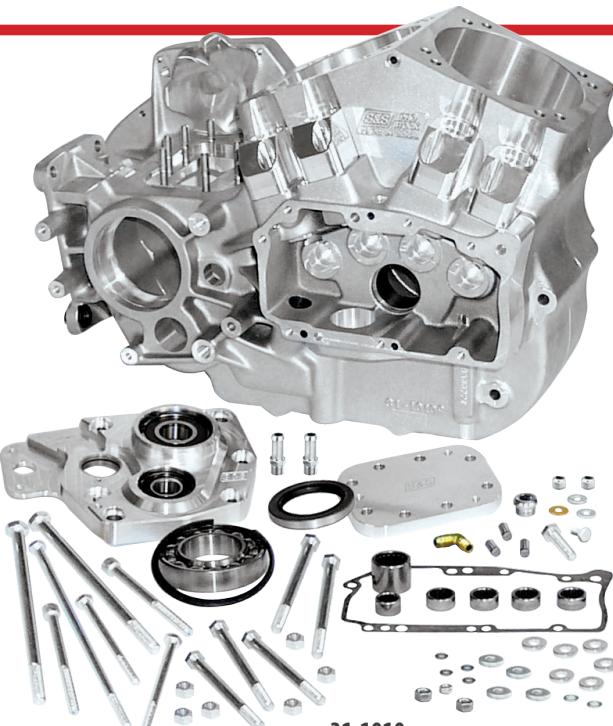
\*\*Designed to use 1991-2003 style transmission and primary components

\*Special order sheet required. Download the order form at [www.sscycle.com/soforms](http://www.sscycle.com/soforms)

### NOTES

These cases do not have the oil return ports final machined into them. The customer is responsible for the configuration of their own return ports to fit the chassis.

Requires adjustable lobe cams for proper cam timing.



**31-1010**

S&S cast crankcase with short cam chest.

## SPECIAL APPLICATION BIG BORE CRANKCASES FOR 1999-'06 BIG TWIN "A" ENGINES

These cases are cast from aircraft grade A206 aluminum, for exceptional strength, and are precision CNC machined to maintain the highest dimensional accuracy. S&S special application (SA) big bore crankcases for 1999-'06 big twins are intended for use in stock Harley-Davidson® chassis and will bolt directly to the stock Harley-Davidson® transmission in place of the stock Twin Cam 88® engine. These crankcases are recommended for any racing or high performance street application. Available in natural aluminum finish only.

### FEATURES AND BENEFITS

- Can be ordered for 4.375" to 4.800" bore engines
- Cam chest on the right side has been offset .375" — requires a special .375" longer pinion shaft
- Deck height can be machined to the stock height of 6.000" or as high as 7.125" from the crank center line — allows for more material and greater strength between the cylinder spigot bores
- Stock cam geometry — allows the engine builder to select from a wide variety of readily available cams
- Optional special rotated S&S cam geometry for 4.600 & 4.800 bore only — improves the pushrod angles for more direct application of force to the rocker arms, hence more accurate valve actuation. (Cases machined for this option require specially ground cams. Cams are available from S&S GSI 33-5184 cams only. No gears.

### KIT CONTENTS

- Crankcase
- S&S crankcase breather valve
- All required hardware for assembly



### S&S® SA BIG BORE CRANKCASES

Description	Part #	MSRP
43/8" Bore — stock geometry	<b>106-0505</b>	\$2,494.95
Special Order*	<b>106-0719</b>	Call for Pricing

Special order options: 4.600" bore, 4.800" bore, stock or rotated tappet geometry

\*Not available for Twin Cam 88B™ engines or 2006 Dyna® or any 2007-up models.

Special order sheet is required. Download the Special Order Sheet from our website [www.sscycle.com/soforms](http://www.sscycle.com/soforms)

### FLYWHEELS FOR S&S SA BIG BORE CRANKCASES

Since the cam chest is offset by .375", a special flywheel assembly with a .375" longer pinion shaft must be used. (See page 22 for more on special order flywheels.)

## SPECIAL APPLICATION ALTERNATOR STYLE CRANKCASE FOR 1984-'99 BIG TWIN ENGINES

S&S Special Application (SA) crankcases can be ordered with spigot bore diameters from stock 3.680" to 4.630", and with crankcase deck heights up to 1.000" taller than stock. This is adequate for cylinder bore size up to 4 3/8". Cam chest is offset .250" to allow for these larger bore sizes. This offset requires the use of S&S Special Application tappet guides with corrected pushrod angles. Tappet guides are not included with crankcases, but can be purchased as an extra cost option. Crankcases can also be ordered without alternator machining for maximum strength in the left case.

### S&S® SA ALTERNATOR STYLE CRANKCASE

Description	Part #	MSRP
S&S Special Application Alternator Style Crankcase	<b>31-0015*</b>	\$1,895.00

\*Special order sheet is required. Download at [www.ssycle.com/soforms](http://www.ssycle.com/soforms)

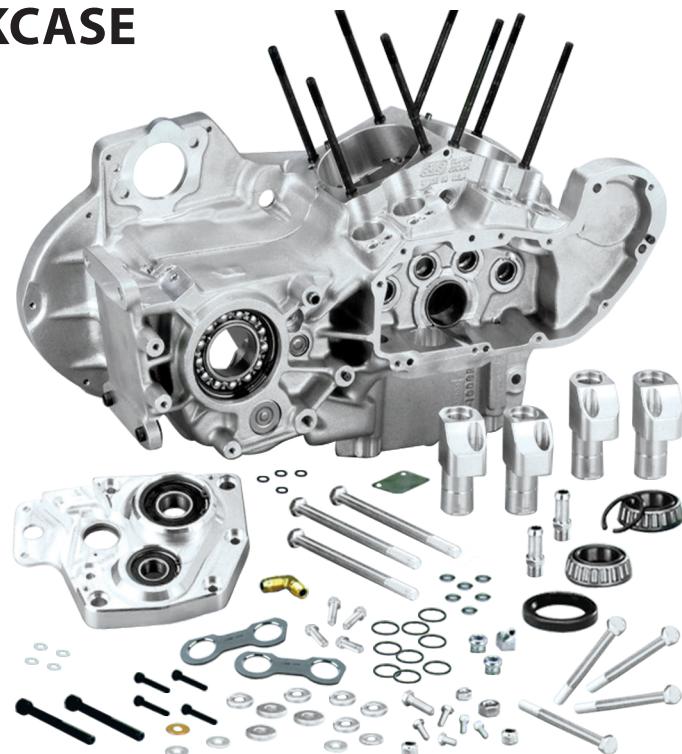


## SPECIAL APPLICATION CRANKCASE FOR SPORTSTER® AND BUELL® MODELS

The S&S Special Application (SA) crankcases for Harley-Davidson® Sportster® and Buell® models can be ordered with spigot bore diameters from stock 3.680" to 4.630", and with crankcase deck heights up to 1.000" taller than stock. This is adequate for cylinder bore size up to 4 3/8". Cam chest is offset .500" to allow for the larger bore sizes. This offset requires the use of S&S special application tappet guides with corrected pushrod angles (included). Cam chest may be machined for either 1986-'90 (four-speed) or 1991-'99 (five-speed) cam geometry. Crankcases have a 1991-'99 (five-speed) drive side case, and require a five speed style primary case, clutch, and transmission. A transmission inspection window is available for racing applications that do not require a stock electric starter to be installed. For maximum strength in the left case, alternator machining is not available when cases are machined for the big twin sprocket shaft.

### S&S® SA CRANKCASE FOR SPORTSTER® AND BUELL® MODELS

Description	Part #	MSRP
S&S SA Crankcases for Sportster and Buell	<b>31-1001</b>	\$2,770.00



### NOTES

Special order sheet required. Download the order form at [www.ssycle.com/soforms](http://www.ssycle.com/soforms)

S&S crankcases for Sportster® models machined with 1991-1999 cam chests require cam covers from 1991-1996. S&S recommends the use of S&S billet cam covers, see page 25 for more information.

See page 37 for S&S SA tappet guide replacements.

S&S special application crankcases for Harley-Davidson® Sportster® and Buell® models include special tappet guides.

# LOWER END FOR RACING APPLICATIONS

## SPECIAL ORDER FLYWHEELS FOR CAST PRO STOCK ENGINES

Special S&S Pro Stock flywheels are designed specifically for use with cast Pro Stock S&S crankcases in S&S 45° cast Pro Stock engines. Stroke is normally 4.375" for S&S 160° Pro Stock engines. However, any stroke may be specified between 3.600" and 5.000", although the very short and long strokes may not be possible with some configurations.

### FEATURES AND BENEFITS

- The special shape of the S&S Pro Stock flywheel results in increased rigidity and allows flywheels to be balanced to very large pistons and rods
- Flywheel diameter may be specified between 7.875" to 8.125" (larger diameters must be used for the longer strokes)
- 1.500" pressed-in crankpin, 1.250" diameter big twin style pressed-in sprocket shaft, and a special pressed-in Pro Stock pinion shaft
- Pinion shaft is .850" longer than stock pinion shaft for a Harley-Davidson® Sportster® models
- Although the S&S Pro Stock flywheels are used in a S&S four-cam crankcase, they are designed to use big twin width connecting rods. Connecting rods typically used for 45° Pro Stock applications are S&S 8.000" or 8.500" billet alloy rods. However, any big twin width connecting rod designed for a 1.500" crankpin may be used. Refer to current special order sheet for options available.



### S&S® SPECIAL ORDER FLYWHEELS FOR CAST PRO STOCK ENGINES

Description	Part #	MSRP
S&S Special Flywheels for Cast Pro Stock Engines	<b>32-3003*</b>	Call for Pricing

\*Special order sheet required. Download the order form at [www.ssycle.com/soforms](http://www.ssycle.com/soforms)

## SPECIAL ORDER FLYWHEELS

S&S racing flywheels are available for many different applications where extra strength and rigidity are essential. These flywheels are designed for engines which are built with big twin crankcases (*includes "four cam" style big twin cases from Delkron, and McClure*) and feature a large number of options. Due to their custom nature, S&S racing flywheels are special order items, and a special order sheet must be filled out before an order can be entered. No returns accepted.

### FEATURES AND BENEFITS

- Machined from special hardened forgings
- Forgings have a heavier counter balance – easier to balance flywheels to big bore pistons and heavy connecting rods
- Flywheel stroke can be specified between 3.500" to 5.250" (very short strokes may not be possible with some configurations)
- Flywheel diameter can be specified between 8.000" to 8.500"
- Flywheels can be machined for 1.250" diameter crankpins in tapered or press in - weld in style
- Sprocket shafts are available in stock or 1.500" diameters

Please note that 1.500" diameter crankpins and sprocket shafts can not be used with short strokes. Appropriate connecting rods and mainshafts may be selected when flywheels are ordered. Refer to current special order sheet for options available.



*S&S racing flywheels with pressed-in and welded style crankpin. Machined area around crankpin represents the rod clearance option for aluminum connecting rods with large cross section areas.*

### S&S® SPECIAL ORDER FLYWHEELS

Description	Part #	MSRP
Big Twin Race Applications	<b>32-2018*</b>	Call for Pricing
Sportster Racing Applications	<b>32-3018 *</b>	Call for Pricing

\*Special order sheet required. Download the order form at [www.ssycle.com/soforms](http://www.ssycle.com/soforms)

## SPECIAL ORDER 3 PIECE FLYWHEELS

### FEATURES AND BENEFITS

- Heat-treated 4140 material is harder and 114% stronger than stock
- New light weight connecting rod forgings
- Available with full width wristpin connecting rods
- Larger 1.671" diameter crankpin – increased contact area and tighter press fit for a stronger joint.
- No welding required!
- Integral mainshafts – eliminates two potential points of weakness
- Consistent balance and precision machining – Truer flywheels and less vibration
- Reduced mainshaft deflection at high rpm – less vibration, reduced piston and rod side thrusting, prevents oil pump damage, fully compatible with gear drive cams
- Capable of higher rpm – More available power!



### S&S® SPECIAL ORDER 3 PIECE FLYWHEELS

Description	Part #	MSRP
1999-up Big Twin Race Applications, SF3	<b>329-0002*</b>	Call for Pricing
1984-up Big Twin Race Applications, SGX3	<b>329-0005*</b>	Call for Pricing

\*Special order sheet required. Download the order form at [www.ssycle.com/soforms](http://www.ssycle.com/soforms)

## CONNECTING RODS

### S&S SUPREME CONNECTING RODS

Description	Part #	MSRP
1941-'81 Big Twin	1.250" Crankpin, 7.440", .892" Wristpin	<b>34-7203</b> \$482.95
1981-'99 Big Twin	1.250" Crankpin, 7.440", .892" Wristpin	<b>34-7211</b> \$482.95
1981-'99 Big Twin	1.250" Crankpin, 7.440", .927" Wristpin	<b>34-7217</b> \$482.95
Sportster® Models	1.250" Crankpin, 7.440", .927" Wristpin	<b>340-0047</b> \$482.95



### S&S PRO STOCK CONNECTING RODS

S&S Billet aluminum connecting rods for S&S Pro Stock engines are machined for 1.500" crankpin and .990" wristpin. Available in 7.500", 8.000", 8.250" and 8.500" lengths.

Description	Part #	MSRP
Rod Set, Billet Aluminum – SA BT/Pro Stock		
1.5" Crankpin, 8", .990" Wristpin	<b>34-7220</b>	\$899.95
1.5" Crankpin, 8.5", .990" Wristpin	<b>34-7221</b>	\$899.95
Special Order 1.5" Crankpin, Billet Aluminum Rods	<b>34-7224*</b>	\$899.95

\*Special order sheet required. Download the order form at [www.sscycle.com/soforms](http://www.sscycle.com/soforms)

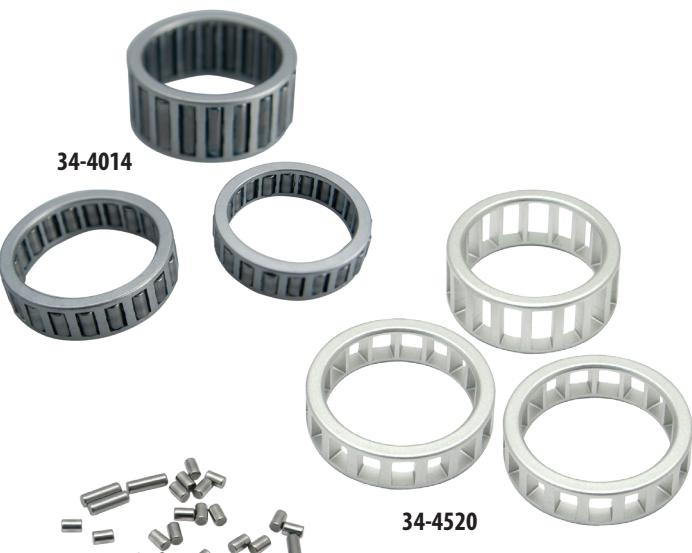
### S&S FORGED STEEL CONNECTING RODS

Description	Part #	MSRP
1.500" Crankpin, 8.250", .927" Wristpin	<b>340-0005</b>	\$835.00

## CONNECTING ROD PARTS

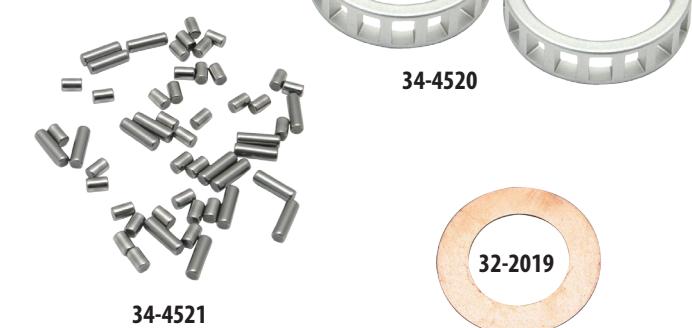
### ROD BEARING ASSEMBLY FOR S&S CONNECTING RODS

Fitment	Diameter	Part #	MSRP
1999-up Big Twin & S&S 4 1/8" Bore V-Series & T-Series	1.500"	<b>340-0028</b>	\$119.95
Big Twin and Pro Stock (Steel Cages)	1.500"	<b>34-4014</b>	\$154.95



### ROD BEARING CAGE SET – ALLOY

Fitment	Diameter	Part #	MSRP
Big Twin	1.250"	<b>34-4020</b>	\$34.95
Sportster® models	1.250"	<b>34-4520</b>	\$28.95
	1.500"	<b>34-4501</b>	\$39.95



### BEARING SET FOR ROD BEARING CAGES

Fitment	Diameter	Part #	MSRP
Sportster® models	1.250"	<b>34-4521</b>	\$47.95
	1.500"	<b>34-4523</b>	\$18.80

### FLYWHEEL THRUST WASHERS

Fitment	Diameter	Part #	MSRP
Big Twin & Sportster® models with S&S Flywheels	1.250"	<b>32-2019</b>	\$22.95
	1.500"	<b>50-7149</b>	\$22.95

# LOWER END FOR RACING APPLICATIONS

## CRANKPINS

### CRANKPIN – PRESS-IN WELD-IN

Description	Diameter	Part #	MSRP
Big Twin	1.500"	<b>34-2170</b>	\$314.95
Sportster® models	1.250"	<b>34-2660</b>	\$229.95

### CRANKPIN – TAPERED

Description	Diameter	Part #	MSRP
Big Twin	1.500"	<b>34-2180</b>	\$319.95

### CRANKPIN – S&S PRO STOCK PRESS-IN

Crankpin, straight, hollow (Includes end plugs.)

Description	Diameter	Part #	MSRP
Standard	1.500"	<b>106-6239</b>	\$114.95
+.002"	1.500"	<b>340-0018</b>	\$114.95
+.003"	1.500"	<b>340-0019</b>	\$114.95

### REPLACEMENT CRANKPIN AND SPROCKET SHAFT NUTS

Description		Part #	MSRP
Big Twin	1.500"	<b>34-2023</b>	\$24.95
	1.250"	<b>34-2104</b>	\$5.50
Sportster® models	1.500"	<b>34-2509</b>	\$27.95
	1.250"	<b>33-2331*</b>	\$6.05

\*NOTE: This nut can be torqued to 350-400 ft/lb – higher than standard crankpin nuts.

### STEEL DRIVE PLUG

For 1.500" straight crankpin

Description		Part #	MSRP
.753" diameter x .750" (2 Pack)		<b>50-8329-2</b>	\$6.65

## SPROCKET & PINION SHAFTS

### SPROCKET SHAFT – PRESS-IN

Description	Diameter	Part #	MSRP
Big Twin 1970-up	1.250"	<b>33-2009</b>	\$108.95
Big Twin 1954-'64 S&S Pro Stock Style	1.250"	<b>33-2010</b>	\$280.95

Includes Key

### SPROCKET SHAFT BEARING SPACER

Description		Part #	MSRP
Must grind to fit		<b>31-4092</b>	\$22.95

### PINION SHAFT FOR S&S SA CRANKCASES

Fitment	Description	Part #	MSRP
1984-'99 big twin	Tapered +.250"	<b>33-2040</b>	\$129.95
	Press-In +.250"	<b>33-2047</b>	\$138.95
1999-up big twin	Press-In +.375"	<b>33-2046</b>	\$251.95
1986-'03 Sportster® models	Tapered +.500"	<b>33-2329</b>	\$232.95

Includes Key

### PINION SHAFT FOR S&S CAST PRO STOCK

Fitment	Description	Part #	MSRP
S&S Cast Pro Stock	Press-In	<b>33-2348</b>	\$450.95



**NOTE** Oversize of pressed in type crankpins refers to the press surface. Oversize of tapered crankpins refers to the bearing surface diameter.



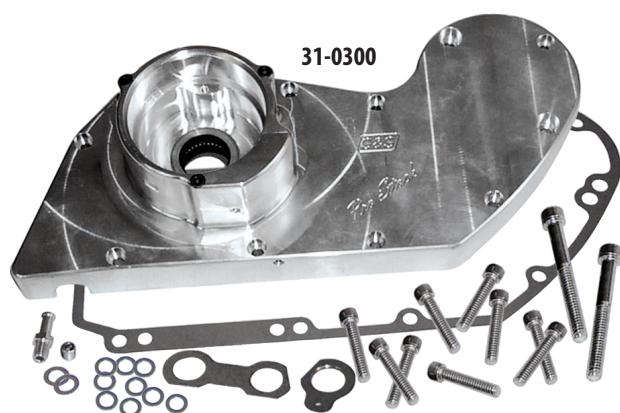
# LOWER END FOR RACING APPLICATIONS

## BILLET GEARCOVERS FOR SPORTSTER® AND BUELL® MODELS

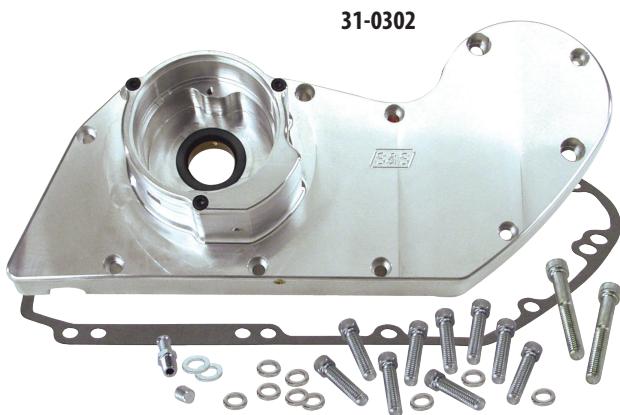
The S&S billet gearcovers for Harley-Davidson® Sportster® and Buell® models are available for 1986-'90 (four-speed) and 1991-'99 (five-speed) cam chests. One gearcover features needle bearings instead of bushings for the outboard ends of the camshafts and one style uses stock style bushings. These gearcovers are not recommended for engines with stock 1986-'90 crankcases as they have no provision for the four speed style crankcase breather. Kits come with hardware and special S&S gearcover gasket.

### S&S BILLET GEARCOVERS – STANDARD

Description	Part #	MSRP
With Needle Bearings		
1986-'90	<b>31-0300</b>	\$499.95
Bushing Style		
1986-'90	<b>31-0303</b>	\$499.95
1991-'99	<b>31-0302</b>	\$499.95
Replacement Gasket	Each	<b>31-2052</b> \$3.65
Replacement Cam Seal		<b>31-4051</b> \$7.90



The standard version, **31-0300** fits S&S crankcases for Sportster® and Buell® models with 1986-'90 style cam chest.



### BUSHINGS

Description	Part #	MSRP
Bushing,Cam,#2,Bronze,1957-'90 xl	<b>31-4036-S</b>	\$19.95
Bushing,Cam,#1/3/4,Bronze,1957-up xl	<b>31-4037-S</b>	\$21.95
Bushing,Pinion Shaft,Stepped,1986-2003 xl	<b>106-2928</b>	\$10.95



# DEDICATION.

From apprentice machinist to graduate engineer, our entire staff is **dedicated** to producing the **most exciting new products** available, while continuing to enhance existing products.



TOP END

# TOP END FOR RACING APPLICATIONS

## RACING CYLINDERS

S&S racing cylinders are designed to withstand the punishment of today's more powerful engines, giving racers a competitive edge with a high degree of safety. S&S racing cylinders are sold in pairs, and do not include pistons, hardware or gaskets. These items must be purchased separately. A number of cylinder bore sizes are available. For each bore size there are a number of head and base bolt patterns that may be used. S&S is familiar with most commonly used bolt patterns, however, if a different pattern is specified, or if we are unsure of the pattern specified, a print of the pattern must be supplied.

### S&S FINLESS STEEL RACING CYLINDERS

- Machined from 4142 chromoly steel – 180,000 psi approx. tensile strength – a higher strength to weight ratio than that of competitive cast iron racing cylinders
- Replaceable sleeve made of ductile iron (superior wear resistance) allows worn or damaged cylinders to be rebuilt and reused



### S&S FINNED ALUMINUM RACING CYLINDERS

- Developed for the S&S Pro Stock engines, but can be used in many other gasoline racing applications
- Machined from solid aluminum billets for maximum strength and improved heat dissipation
- Replaceable sleeve made of ductile iron (superior wear resistance) allows worn or damaged cylinders to be rebuilt and reused

### SPECIAL ORDER OPTIONS

- Steel or aluminum
- Nitro or gas

### S&S 4.600"- 4.800" BORE RACING CYLINDERS

Description	Part #	MSRP
Special Order	<b>91-4020*</b>	Call for Pricing

\* Download the Special Order Form at [sscycle.com/soforms](http://sscycle.com/soforms)

### S&S CAST ALUMINUM RACING CYLINDERS

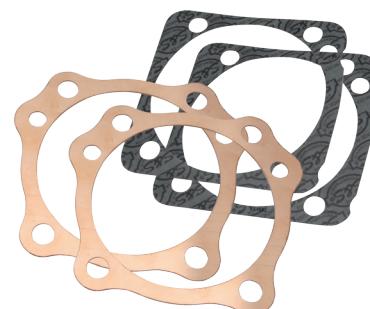
Fitment	Description	Part #	MSRP
1984-1999 bt Available bore sizes: 3.5, 3.625, 4.0, 4.125, 4.375"	Special Order	<b>91-7504*</b>	Call for Pricing
1999-up bt Available bore sizes: 3.875, 3.927, 3.937, 4.0, 4.125, 4.375"	Special Order	<b>91-7506*</b>	Call for Pricing

\* Download the Special Order Form at [sscycle.com/soforms](http://sscycle.com/soforms)



### REPLACEMENT PARTS

Base Gaskets	Part #	MSRP
Gasket,Set,Base,.018",4-3/8",1984-'99 bt (2 pack)	<b>93-1082</b>	\$8.30
Gasket,Set,Head,.045",4-3/8",Copper,1984-up bt (2 pack)	<b>93-1081</b>	\$39.95
<b>Cord Stock</b>		
O-ring,Cord Stock,Cut To Size,.070" OD x 36",Black,Viton®	<b>50-8065</b>	\$17.75



### NOTE

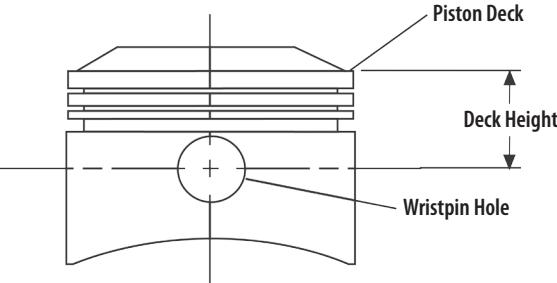
S&S finned aluminum racing cylinders are intended for gasoline engines only and are not recommended for nitromethane powered engines.

## RACING PISTONS

These racing pistons are better suited for racing applications than for the street – this is not to say that some may not have uses in certain high performance street engines – they are for custom applications and may require modifications, clearance checks, and flywheel rebalancing that the average rider may not wish to perform. S&S racing pistons offer a high degree of flexibility to the engine builder, but require fairly sophisticated machining capability in order to make use of them. Compression ratio depends on the engine displacement and cylinder head combustion chamber volume, and are therefore not shown in most cases. All pistons are available only in sets, and come complete with rings and wristpins. Racing pistons will be machined for piston-to-piston and piston-to-flywheel clearance if engine stroke, connecting rod length, and flywheel diameter are known. If this information is not supplied, pistons will be shipped with no clearance machining.

### PISTON TERMS

When describing pistons for custom applications it is helpful for everyone to use the same terms. One common area of confusion is the meaning of the terms "piston deck" and "piston dome." The deck of a piston is the point at which the dome begins. Some pistons have a flat area at this point and some do not. The dome is the very top of the piston, which in some cases extends up into the combustion chamber, and in some cases is flat at the level of the deck or even below. "Deck Height" refers to the distance between the center of the wristpin hole to the deck of the piston. Piston deck height is needed to calculate cylinder length when designing an engine, or when replacing a piston in an existing engine.



## 4 1/8" BORE FORGED PISTON KITS

Piston sets include rings. Rings are available in sets for two pistons only.



### S&S® 4 1/8" BORE FORGED PISTON KITS

Application	Dome	Deck Height	Stroke	Wristpin Diameter	Standard	MSRP	+.010"	MSRP	+.020"	MSRP	+.030"	MSRP
S&S engines for 1984-up bt requiring lower compression ratio such as turbo charged applications	10cc Dished	1.050"	Up To 4 1/8"	.927"	<b>920-0046</b>	\$387.95	<b>920-0047</b>	\$387.95	<b>920-0050</b>	\$387.95	<b>920-0053</b>	\$425.95
	Flat Top	1.050"	Up To 4 1/8"	.927"	<b>106-3491A</b>	\$387.95	<b>106-3872A</b>	\$387.95	<b>106-3964A</b>	\$387.95	<b>920-0094</b>	\$425.95
S&S 124" for 1984-up bt using S&S SA "Big Fin" cylinder heads	22cc Domed	1.050"	4 1/8"	.927"	<b>92-1580</b>	\$430.95	<b>92-1581</b>	\$430.95	–	–	–	–

### REPLACEMENT CHROMOLY FACED PISTON RINGS

Dome	Bore	Deck Height	Standard	MSRP	+.010"	MSRP	+.020"	MSRP	+.030"	MSRP
10cc Dished and Flat Top			<b>940-0014</b>	\$39.95	<b>940-0012</b>	\$39.95	<b>940-0013</b>	\$39.95	<b>940-0017</b>	\$39.95
22cc Domed	4 1/8"	1.050"	<b>94-1400X</b>	\$38.95	<b>94-1401X</b>	\$38.95	<b>94-1402X</b>	\$38.95	<b>94-1403X</b>	\$38.95

### REPLACEMENT PISTON WRISTPINS

Description	Part No.	MSRP
Wristpin For 4 1/8" Pistons .927" x 2.250"	<b>106-1052</b>	\$20.95

### REPLACEMENT PISTON KEEPERS

Description	Part No.	MSRP
each	<b>94-9278-S</b>	\$2.35
2 pack	<b>94-9278-2</b>	\$4.30
4 pack	<b>106-2304</b>	\$4.25

### NOTE

S&S 4 1/8" pistons are machined to such close tolerances that it is not necessary to measure the piston. Additionally, the low friction coating on the piston skirt of early production pistons with out micrometer window makes taking measurements very difficult. Therefore, hone cylinders to nominal diameter +/- 0.0001" for correct clearance. Current production pistons have micrometer windows in the coating on the piston skirts that allow accurate measurements to be taken. These pistons may be installed by honing cylinder to nominal diameter +/- 0.0001" or by measuring piston and honing cylinder to achieve .002" - .0025" close clearance for street applications or .0032" - .0045" loose clearance for immediate competition use.

## 4 3/8" BORE FORGED PISTON KITS

Piston sets include rings and lock spacers. Rings are available in sets for two pistons only.



### S&S® 4 3/8" BORE FORGED PISTON KITS

Application	Dome	Deck Height	Stroke	Wristpin Diameter	Standard	MSRP	+.010"	MSRP	+.020"	MSRP
S&S engines for 1984-up bt Specify stroke and rod length	FlatTop	1.200"	4 1/16" (w/ 8.25" rod)	.927"	<b>92-4990</b>	\$516.95	<b>92-4991A</b>	\$516.95	<b>92-4992A</b>	\$516.95

### REPLACEMENT CHROMOLY FACED PISTON RINGS

Dome	Bore	Deck Height	Standard	MSRP	+.010"	MSRP	+.020"	MSRP
Flat Top	4 3/8"	1.200"	<b>94-4285X</b>	\$43.95	<b>940-0005</b>	\$43.95	<b>940-0015</b>	\$43.95

## 4.800" BORE FORGED PISTON KITS

Piston sets include rings and lock spacers. Rings are available in sets for two pistons only.



### S&S® 4.800" BORE FORGED PISTON KITS

Application	Dome	Deck Height	Stroke	Wristpin Diameter	Standard	MSRP	+.010"	MSRP
S&S Pro Stock cylinder heads	PS Dome	1.200"	All	.990"	<b>92-4962</b>	\$707.95	—	—

### REPLACEMENT CHROMOLY FACED PISTON RINGS

Dome	Bore	Deck Height	Standard	MSRP	+.010"	MSRP
PS Dome	4.800"	1.200"	<b>94-4281X</b>	\$160.95	<b>94-4281X</b>	\$160.95

## PISTON REPLACEMENT PARTS

### WRISTPINS

Bore Size	Diameter	Length	Keeper Type	Wristpin Type	Part #	MSRP
3 1/2" – 3 5/8"	.792"	2.825"	"C" Clip		<b>94-9256</b>	\$14.40
3 3/4" – 4"	.927"	2.825"	"C" Clip or Teflon Button	Taper Ground Tool Steel	<b>94-9277</b>	\$14.40
4 3/8"	.927"	2.950"	"Spiraloc"	Taper Ground Tool Steel	<b>94-9279</b>	\$57.95
4.600" & 4.800" Pro Stock	.990"	2.930"	"Spiraloc" or Teflon Button	Taper Ground Tool Steel	<b>94-9275</b>	\$49.95

### WRISTPIN KEEPERS

Description	Part #	MSRP
.791" O.D. X .339" Teflon Button	<b>94-9252-S</b>	\$8.10
.791" O.D. X .407" Teflon Button	<b>94-9258-S</b>	\$3.05
.791"/.792" O.D. "C" Clip	<b>94-9254-S</b>	\$1.00
.927" O.D. "C" Clip	<b>94-9278-S</b>	\$2.35
.990" O.D. Spiraloc Clip	<b>94-9276</b>	\$2.04
.927" O.D. Spiraloc Clip 2 pack	<b>94-9280-2</b>	\$4.10

# TOP END FOR RACING APPLICATIONS

## CAST PRO STOCK CYLINDER HEADS

S&S Cast Pro Stock cylinder heads are "race only" cylinder heads designed specifically for the S&S cast Pro Stock engine. They are made from A206 grade aluminum alloy and feature 2.450" intake valves, 1.900" exhaust valves, and are available with CNC machined ports and chambers. Minimum cylinder bore size is 4.500".

S&S Pro Stock cylinder heads are available from minimal machined to fully machined versions, depending upon the options selected on the special order form. Minimum machined heads have the rocker box and head gasket surfaces only machined. Due to the complex machining required to complete minimum machined heads, we recommend them only for professional engine builders with extensive machining capabilities. Fully machined cylinder heads are made to customer specifications, and can be machined to fit the pushrod geometry of a number of crankcase styles and with a number of head bolt patterns.

### S&S CAST PRO STOCK CYLINDER HEAD

Description	Part #	MSRP
Special Order	<b>90-1452*</b>	Call for Pricing

\*Special Order: Download the Special Order Form at [sscycle.com/soforms](http://sscycle.com/soforms)



Fully machined cast Pro Stock cylinder heads. These "race only" heads were designed specifically for the S&S cast Pro Stock engines. A variety of head bolt pattern options are available. A special order sheet must accompany orders for Pro Stock heads.

## B2 CYLINDER HEADS FOR S&S 4 1/8" AND 4 3/8" BORE ENGINES

B2 cylinder heads for 4 3/8" bore engines have a slightly different combustion chamber, and a different mounting bolt pattern than the B2 cylinder heads for 4 1/8" bore engines.

B2 head kits come with S&S .660" lift valve springs which is adequate for most high performance street applications. However, S&S .720" lift springs can be substituted if higher lift is required.

**Kits do not include gaskets, hardware, or intake and exhaust flanges.** These parts must be purchased separately.

### S&S® B2 REPLACEMENT HEAD SPECIFICATIONS

Valve Size		Valve Lift	.700" Lift Flow @ 28" H2O	
Intake	Exhaust		Intake	Exhaust
2.200"	1.800"	.660"	340.5	268.2

\*Results: Super Flow 1020 flow bench - S&S Research and Development Dept. Viola, WI



### S&S® B2 REPLACEMENT HEAD KITS FOR 4 1/8" AND 4 3/8" BORE ENGINES

Engine Style	Typical Displacement	Chamber Volume	Finish	Part #	MSRP
1984-up bt	124", 126", 145"	Various	Various	<b>106-6385*</b>	Call for Pricing
1999-up bt	126"	93cc (decked)	Natural	<b>90-1247</b>	\$1,759.95

\*Special Order: Download the Special Order Form at [sscycle.com/soforms](http://sscycle.com/soforms)

### FLANGES AND SEALS REPLACEMENT PARTS FOR S&S B2 CYLINDER HEADS

Description	Part #	MSRP	
Intake Flange and Seal Kit	<b>16-0250</b>	\$136.95	
Intake Flanges (B2 only)	Front	<b>16-0247</b>	\$55.95
	Rear	<b>16-0248</b>	\$55.95
Intake Seals, 2" ID X.062" thick (6 pack)	<b>16-0246</b>	\$72.95	
Exhaust Gaskets (6 pack)	<b>93-1083</b>	\$13.40	
Exhaust Gaskets & Snap Ring, (4-Bolt) (2 Each)	<b>90-1900</b>	\$11.65	
Exhaust Flange (4-bolt style, perpendicular mating face)	<b>55-6021</b>	\$44.95	
Exhaust Pipe Adapter	<b>55-6022</b>	\$31.95	

### REPLACEMENT BRACKET

Description	Part #	MSRP
Bracket,Support,Carb,Super D,B2 Heads,SA	<b>17-0390</b>	\$61.95



### CYLINDER HEAD AND BASE GASKETS

Description	Part #	MSRP
Copper Head Gasket S&S Pattern, .045", 4 3/8" bore, each	<b>93-1081</b>	\$39.95
Base Gasket S&S Pattern, 018", 4 3/8" bore, each	<b>93-1082</b>	\$8.30

## B2 HEADS WITH STOCK BOLT PATTERN

### CNC PORTED B2 SPECIAL APPLICATION CYLINDER HEADS

High performance just got a lot easier and more affordable. In the past, S&S' B2 Special Application heads, that were used on the now legendary Tribute 145 engines, were often hailed as the best choice for very large displacement v-twin engines. S&S Cycle's B2 CNC ported heads are even better, providing added convenience, economy, and performance at the same time. Convenient because they now fit 2008-later bagger front motor mounts and the new two bolt exhaust-mounting flange is a lot easier to work with. Economical because riders can use stock exhaust pipes, or existing 2" header systems. The increased performance comes from the increased flow of the CNC ported intake and exhaust ports.

Kits do not include gaskets, hardware, or intake and exhaust flanges. These parts must be purchased separately.

### FITMENT

- 1999-'15 big twin engines 4 1/8" bore, stock bolt pattern (in stock, off-the-shelf\*)  
*\*S&S only stocks the late model 4 1/8" bore versions as off-the-shelf items, but heads for other applications and individual front or rear replacement heads are available by special order.*
- 1999-'15 big twin engines 4 1/8" bore and larger with S&S or other bolt pattern (special order only)
- 1984-'99 big twin engines 4 1/8" bore and larger (special order only)
- S&S SB-Series 4 1/8" bore and larger engines for 1986-'03 Sportster® models (special order only)
- Old style B2 replacement heads still available by special order
- Not compatible with Twin-Cooled™ models

### FEATURES AND BENEFITS

- 106cc combustion chambers
- Oval intake ports bolt up to S&S Throttle Hog 70mm throttle bodies (2008-up touring applications only)
- Stock style breather system – *compatible with stock and aftermarket air cleaners*
- Large 2.200" intake and 1.800" exhaust valves
- .660" lift S&S valve springs with titanium top collars
- Machined for stock sensors – *EFI ready*
- Available in Wrinkle Black (WBlack) or Silver Powder coat

### OPTIONS BY SPECIAL ORDER

- CNC ported intake and exhaust ports – *more air, more power!*
- Two-bolt exhaust flanges – *Can accommodate stock exhaust headers, existing 2" headers, or build your own 2" exhaust system*
- Machined for 2008-later bagger front motor mount
- Select heads for 1984-'99 or 1999-'15 big twin style, or 1986-'03 XL
- 4 1/8" to 4 3/8" bore sizes
- Stock 1999-up, S&S, or other cylinder stud patterns – *other patterns subject to approval*
- Machined with or without S&S electric compression release
- Choose from a variety of pushrod geometry machining styles
- Choose from a variety of different chamber sizes
- Individual front or rear heads available by special order
- Available in Wrinkle Black (WBlack), Gloss Black, Silver, or Natural

### NOTES

Heads are .230" taller than stock – requires special pushrods and/or frame clearancing or motor mount modifications

Exhaust pipe adaptor kits and other parts must be purchased separately. See "Additional Parts Required" chart.

Not legal for sale or use on CA or EPA pollution controlled motorcycles.



900-0458

### S&S B2 HEADS WITH STOCK BOLT PATTERN

Finish	Part #	MSRP
Silver Powder Coat	<b>900-0450</b>	\$1,749.95
WBlack Powder Coat	<b>900-0458</b>	\$1,749.95
Special Order B2 Cylinder Heads	<b>106-6385*</b>	Call for Pricing

\*Head Kits include valves and valve springs. Head sets w/o valves or springs individual front or rear heads are available by special order.

\*Download the Special Order Form at [sscycle.com/soforms](http://sscycle.com/soforms)

### ADDITIONAL PARTS REQUIRED

Product Description	Part No.	MSRP
Special 4 1/8" Bore Pistons & Ring Set	92-1580	\$430.95
	+.010"	\$430.95
Special Length Pushrods (+.250")	93-5106	\$109.95
	Stock height engines	93-5098
Intake Manifold	16-3629*	Call for Pricing
	EFI engines	160-0039
Intake Manifold Flange Kits	16-0250	\$136.95
Exhaust Adaptor Kit (for 2 bolt design)	550-0217	\$100.95
	550-0216	\$67.95
	550-0218	\$170.95

\*Download the Special Order Form at [sscycle.com/soforms](http://sscycle.com/soforms)



# QUALITY.

We use only the finest raw materials and rely on ***“Made in the USA” craftsmanship.***  
The quality of our parts has earned S&S a customer base whose loyalty is ***second to none.***

VALVE TRAIN



# VALVE TRAIN FOR RACING APPLICATIONS

## RACING CAMSHAFTS

These S&S camshafts are especially designed for the S&S cast Pro Stock engine. The position of the cam lobes can be adjusted on the shaft, allowing the engine builder to customize the timing of the cams. Lobes are meant to be welded in place when set to the desired position. Typical intake center line angle range is 105° to 116°. Typical exhaust centerline angle range is 110° to 116°. Pro Stock camshafts are available for 1986-'90 (four-speed) cam geometry only.

### RACING CAMSHAFTS FOR CAST PRO STOCK ENGINES

Description	Part #	MSRP
S&S racing camshafts for cast Pro Stock engines	<b>33-5085</b>	\$829.95
Tappet adjusters Pro Stock tappets (set of 4) (Some machining may be required on towers to fit into your lifters.)	<b>33-5359</b>	\$161.95



### S&S® PRO STOCK CAMSHAFT SPECIFICATIONS

Valve Timing (Open/Close)		Valve Duration		Valve Lift 1.625:1 Rocker Ratio	Centerline		Lift @ TDC	
Intake	Exhaust	Intake	Exhaust		Intake	Exhaust	Intake	Exhaust
Adjustable	Adjustable	279°	298°	.800"	Adjustable	Adjustable	Adjustable	Adjustable

S&S 675 cams were designed for use with S&S special application cylinder heads, but can be used with other cylinder heads with the appropriate high lift valve springs. S&S 675 cams are intended for large displacement competition engines of 120 cubic inches or more, and 11:1 or greater compression. Available for 1984-'99 and 1999-'06 big twins. This grind is standard equipment in 124 Challenge engines with B2 cylinder heads.

### S&S 675 CAMSHAFTS

Fitment	Part #	MSRP
1984-'99 Big Twin	<b>33-5133</b>	\$189.95
1999-'06 except 2006 Dyna® Models (Complete Kit)	<b>33-5231</b>	\$729.95



### S&S® CAM SPECIFICATIONS 675 CAMS

Cam Name	Application	Valve Timing\$ Open/Close		Valve Duration		Valve Lift	Lift @ TDC†		Spring Spacing Required	Tappet Type Required
		Intake	Exhaust	Intake	Exhaust		Intake	Exhaust		
S&S 675	Engines over 120", 11:1 or greater compression	25°/64°	70°/25°	269°	275°	.675"	.235"	.209"	Yes	Hydraulic

Timing designation is function of zero lash @ .053" off base circle.

Lifts at TDC are measured at the valve and are for reference only. Overlap valve lifts must be checked on assembled motor.

### RACING GSI CAMSHAFTS FOR STREET PRO ENGINES

Fitment	Part #	MSRP
1999-'06 except 2006 Dyna® Models	<b>33-5184</b>	\$374.95

### S&S® RACING CAMSHAFTS FOR STREET PRO ENGINES SPECIFICATIONS

Valve Timing (Open/Close)		Valve Duration		Lobe Lift	Centerline	
Intake	Exhaust	Intake	Exhaust		Intake	Exhaust
28°/72°	33.5°/81.5°	280°	295°	.525"	112°	114°

# VALVE TRAIN FOR RACING APPLICATIONS

## TAPPET GUIDES

Due to the .250" offset in the cam chest of Special Application (SA) S&S crankcases for 1984-'99 big twin engines, special tappet guides with corrected pushrod tube angles must be used to assure a proper pushrod tube seal and prevent oil leaks.

### S&S TAPPET GUIDES FOR SPECIAL APPLICATION CRANKCASES

Fitment	Description	Finish	Part #	MSRP
1984-1999 big twin	Cast	Natural	<b>33-5309</b>	\$199.95
	Billet	Chrome	<b>106-3005</b>	\$374.95
	Cast	Wrinkle Black	<b>33-5325</b>	\$219.95
1999-2015 big twin	Billet - Stock Geometry	Polished	<b>33-5601</b>	\$189.95
1986-'90 xl (4-speed)	Billet	Natural	<b>33-5365</b>	\$277.95
1991-'99 xl (5-speed)	Billet	Natural	<b>33-5369</b>	\$277.95



33-5309      33-5601



33-5379

### S&S PRO STOCK TAPPET GUIDES

Description	Part #	MSRP
Features corrected pushrod tube angles to compensate for .850" cam chest offset in S&S Cast Pro Stock crankcase	<b>33-5379</b>	\$277.95

### S&S STREET PRO TSCA SA STYLE TAPPET COVER SET

Fitment	Description	Finish	Part #	MSRP
1999-2015 big twin	Billet - Rotated geometry	Polished	<b>33-5610</b>	\$209.95
Replacement Gasket			<b>33-5349-S</b>	

### GASKETS FOR 1999-UP TAPPET COVERS

Description	Part #	MSRP
Stock & Standard SA Geometry	<b>33-5303-S</b>	\$2.49

## RACING PUSHRODS

S&S offers special hardened steel pushrods for racing applications that require the utmost strength and rigidity. Available in sets of four non-adjustable pushrods with .375" diameter ball ends. These pushrods can be used in 1966-up big twin engines, Sportster® models, and S&S Pro Stock engines with adjustable solid tappets. Please specify pushrod length and whether you wish the ball ends to be installed. Hardened pushrod tubing is also available in 12" lengths for engine builders who wish to fabricate their own pushrods.



### S&S® HARDENED RACING PUSHRODS

Description	Part #	MSRP
Hardened Pushrod Tubing — 1 Piece 12" Long	<b>50-1069</b>	\$48.95
Pushrod Ball Ends — .375" Diameter	<b>93-5077</b>	\$5.50
Adjustable Hardened Pushrods — Special Order	<b>93-5117*</b>	\$179.95
Non-adjustable Hardened Pushrods	<b>93-5101</b>	\$179.95

\*Special order sheet is required. Download the Special Order Sheet from our website [www.sscycle.com/soforms](http://www.sscycle.com/soforms)

### NOTE

Pushrods in this racing section are special order only. For stock lengths and styles refer to the appropriate section for the application.

# VALVE TRAIN FOR RACING APPLICATIONS

## 1.725:1 RATIO ROCKER ARMS

Stock rocker arms for Harley-Davidson® Evolution® and Twin Cam 88® engines have a rocker ratio of 1.625:1. Theoretically, that means that for every .100" of tappet travel (cam lift), the valve will move .1625". S&S 1.725:1 ratio rocker arms are designed to increase valve lift without increasing lifter travel. For the same .100" of tappet travel, the valve will theoretically move .1725" with 1.725:1 rocker arms. A cam designed for .600" lift with stock rocker arms will produce .637" valve lift with 1.725:1 ratio rocker arms. In practice, however, the valve travel will be slightly less due to deflection of valve train components, such as rocker arms and pushrods. High spring force at maximum lift makes this deflection loss more pronounced. In racing applications where very high lifts are required, a lower cam profile will reduce clearance problems between cam lobes and tappet guides and between tappet rollers and tappet guides.

### FEATURES AND BENEFITS

- Additional valve lift can be obtained without increased tappet travel (cam lift)
- Forged from 8620 steel, then heat treated and shot peened for maximum strength and fatigue resistance
- Superior material and design makes them very strong and rigid – eliminating stress areas that cause other rocker arms to break
- Rocker shaft bushings in S&S rocker arms are  $\frac{3}{4}$ " long compared to the stock  $\frac{1}{2}$ " long bushings – provides 50% more bearing support area to handle high spring loads



**900-4098A**

### 1.725:1 RATIO ROCKER ARMS

Description	Part #	MSRP
1.725:1 Ratio Rocker Arm Set	<b>900-4098A</b>	\$534.95
Front exhaust/Rear Intake <i>each</i>	<b>900-4098FA</b>	\$159.95
Rear exhaust/Front Intake <i>each</i>	<b>900-4098RA</b>	\$115.16
Rocker Arm Shafts		
Set (Includes 4 each of part #90-4006)	<b>90-4036</b>	\$34.95
Each	<b>90-4006</b>	\$10.50

### NOTE

The use of 1.725:1 ratio rocker arms will increase stress on cams, tappets, and pushrods. For this reason they are recommended for racing only and not for street applications.



**90-4036**

## RACING VALVE SPRINGS

### FITMENT

- Modified Harley-Davidson® 1984-up Big Twin and 1986-'03 Sportster® Models

For S&S® Super Stock®, Special Application, or other heads which can accept a larger than stock O.D. outer spring. Stock spring O.D. is approximately 1.400". See descriptions below for outer spring O.D. of specific spring kits. S&S racing valve springs are designed to be used with "no shoulder" style valve guides. Special keepers fit stock  $\frac{5}{16}$ " diameter stemmed valves and S&S collars only. Pro Stock spring kits include keepers for valves with  $1\frac{1}{2}$ " or  $\frac{5}{16}$ " stems. Kits include 4 titanium top collars, 4 bottom collars, 4 outer, 4 middle, and 4 inner valve springs, 8 valve keepers, 4 each .015" shims and .030" shims.

### .660" LIFT TRIPLE VALVE SPRING KIT WITH TITANIUM TOP COLLARS

- These springs can be set up for use with S&S 675 cams
- Typically used with cast iron guides
- 1.900" installed height
- 1.550" O.D. outer spring, middle spring is flat style and serves as a harmonic dampener
- Valve spring seat pressure equals 210 lbs
- Open pressure @ .660" is about 520 lbs
- Coil bind @ 1.175"

### .720" LIFT TRIPLE VALVE SPRING KIT WITH TITANIUM TOP COLLARS

- Typically used with bronze guides
- 1.975" installed height
- 1.570" O.D. outer spring
- Valve spring seat pressure 216 lbs
- Valve spring open pressure @ .720" is 540 lbs
- Coil bind @ 1.130"

### .800" LIFT TRIPLE VALVE SPRING KIT WITH TITANIUM TOP COLLARS

- SA version is for valves with  $\frac{5}{16}$ " stem. Pro Stock valve spring kit accepts S&S  $1\frac{1}{2}$ " valve stem.
- Typically used with bronze guides
- 2.000" installed height
- 1.650" O.D. outer spring
- Valve spring seat pressure 285 lbs
- Valve spring open pressure @ .800" is 790 lbs
- Coil bind @ 1.140"

### S&S RACING VALVE SPRING KITS

Description	Part #	MSRP
.660" Lift Triple Valve Spring	<b>90-2079</b>	\$233.95
.720" Lift Triple Valve Spring	<b>90-2080</b>	\$269.95
.800" Lift Triple Valve Spring	<b>90-2081</b>	\$327.95
	<b>90-2082</b>	\$337.95

With Titanium Top Collars

### NOTE

The .660" lift kit (90-2079) can be used to replace the S&S spring combination installed in early .630" lift S&S heads. Requires the use of S&S .085" longer intake valve 90-2004 and exhaust valve 90-2005.



90-2079



90-2155A



90-2090



90-2153A



90-2087

### REPLACEMENT PARTS

Description	Part #	MSRP
Top collar - titanium .660"/.720" lift	<b>90-2155A</b>	\$38.95
Top collar - titanium all .800" lift	<b>90-2154A</b>	\$34.95
Bottom collar - .660"/.720" lift	each	<b>90-2090</b> \$8.85
Bottom collar - .640"/.800" lift	each	<b>90-2052</b> \$8.60
Valve keeper $\frac{5}{16}$ " valve stem SA	each	<b>90-2153A</b> \$4.40
Valve keeper $1\frac{1}{2}$ " valve stem PS	<b>90-2156A</b>	\$4.15
Shim - .015"	each	<b>90-2086</b> \$1.00
	5 pack	<b>50-7161</b> \$3.75
Shim - .030"	each	<b>90-2087</b> \$1.40
	5 pack	<b>90-2198</b> \$6.45

# DRIVE TRAIN



## VARIABLE PRESSURE CLUTCH

The VP clutch is the most cost effective kit for upgrading your H-D stock clutch without any modifications. Up to 40% more additional pressure to make a stronger clutch engagement.

### FEATURES AND BENEFITS

- Works like a lock up clutch
- Stronger clutch engagement than stock when it revs up
- 10 minute installation
- Fits behind a stock derby cover and primary cover - *No modification required*
- Can be used with cable and hydraulic clutch controls

Does not fit: '13 and later CVO™ and Tri-Glide™, '15 and later Ultra Limited Low and Electra Glide Classic Low Models with New H-D® Assist and Slipper Clutch: 3 Stud Clutch Hub

Non-stock derby cover (including any special or '03 anniversary cover) and 3 hole derby covers may require a derby cover spacer.



### VARIABLE PRESSURE CLUTCH

Description	Part #	MSRP
1998-up Big Twins with 6 Stud Clutch Hub	<b>560-0242</b>	\$284.95

## TRANSMISSION MAINSHAFT BEARING RACE

### FEATURES AND BENEFITS

- Will not "walk" on transmission mainshaft
- Prevents costly damage to mainshaft seal, output gear & output gear bearing
- Simple to install

The tendency of the stock inner primary bearing race on late model big twins to shift on the transmission mainshaft under high torque loads, also known as "walking" of the race, can cause destruction of the transmission mainshaft seal, and ultimately the mainshaft seal, output gear and output gear bearing. The S&S inner primary bearing race features an extra step on the inside diameter that acts as a stop on the transmission mainshaft. When the race is pressed on to the shaft, the step will not allow the race to move inward toward the mainshaft seal. The improved S&S bearing race is a must for any high performance application.



### TRANSMISSION MAINSHAFT BEARING RACE

Description	Part #	MSRP
2006-2007 & 2010 - up Big Twins	<b>560-0241</b>	\$51.95

## HEAVY DUTY DIAPHRAGM SPRING

### FITMENT

- 1998 - up big twin models

### FEATURES AND BENEFITS

- 380 lbs pressure, 25% stronger than stock
- Same pressure as Screamin'Eagle® heavy-duty spring
- Compatible with our VP clutches



### HEAVY DUTY DIAPHRAGM SPRING

Description	Part #	MSRP
1998 - up Big Twins	<b>560-0244</b>	\$32.49



# VISION.

Provide an **unmatched** American V-Twin ownership **experience** through  
**Proven Performance®** products, services, and support.

ARE YOU FAST ENOUGH?



# ARE YOU FAST ENOUGH?

## SPECIAL ORDER INFORMATION

Many of the racing components S&S sells are special order parts, machined to order for a specific application.

### THERE ARE THREE CATEGORIES OF SPECIAL ORDER PARTS:

#### LEVEL 1 SPECIAL ORDER

Level 1 special order parts are parts that do not have special attributes that require additional engineering. An example of a level 1 part would be a special racing cylinder with a head bolt pattern that is in common usage and that S&S offers as a standard option.

#### LEVEL 2 SPECIAL ORDER

Level 2 special order parts are unique parts that S&S has made in the past and has charged the customer for engineering and programming time on the first order. The original customer may order that part again for the cost of the part plus a small fee for loading the NC program. Any other customer who wants a similar part may either buy it from the original customer or may order it directly from S&S as a level three special order part.

#### LEVEL 3 SPECIAL ORDER

Level 3 special order parts are special parts that S&S has never made before. An example of a level 3 part would be a special racing cylinder with a unique head bolt pattern. A customer ordering a level 3 part will be charged for the cost of the part plus any engineering time required to produce machining prints and for NC programming time.

#### ALL SPECIAL ORDER PARTS

All special order parts must be paid for in full before the part will be released for production. In addition the customer must complete a special order sheet and sign a copy of the sales order to verify that the specifications are correct. Once production has started the order cannot be canceled. Special order parts are not returnable if they are machined to the customer's specifications.

### FOR MORE INFORMATION OR TO ORDER S&S RACING PARTS AND ENGINES

Contact the S&S Racing Department:  
Phone: 608-627-1497

## S&S® CYCLE INVITES YOU TO JOIN THE CLUB

ARE YOU FAST ENOUGH?

#### HERE'S HOW YOU CAN JOIN SOME FAST COMPANY.

- First, go fast – after breaking in your engine according to the manufacturer's instructions.
- Next, provide the documentation listed below.
- Then, toss everything in an envelope and send it to S&S®.
- We'll send you an official 9- 10- or 11-Second club patch for your leathers, a certificate authorizing braggin' rights, and a free club t-shirt.

#### HERE'S WHAT WE NEED FROM YOU:

1. Proof that your street-ridden motorcycle (D.O.T. tires, full charging system, no wheelie bars or air shifts) equipped with S&S performance products, has turned an 11.99 or quicker quarter-mile time. We'll need an official timing slip from a sanctioned dragstrip dated after June 1, 2005 and signed by the timekeeper. (A good photocopy will do.) We don't care if you trailer the bike to the track, so long as it sees more action on the street than off. The registered owner must ride the motorcycle for the qualification pass.
2. A photograph of yourself and the motorcycle. Action shots are preferred if sharp and clear.
3. A signed copy of the statement below.

#### PLEASE NOTE:

Tell us a little about yourself and your motorcycle. Include the model and year, a list of all engine and frame modifications, the type of exhaust, and tire brand and model. Be sure to mention all S&S products used!  
Submitted materials may be used for promotional purposes.  
Members will receive a certificate, club patch, and t-shirt, but no payment or other considerations.



[www.sscycle.com/go-fast-showcase/seconds-club](http://www.sscycle.com/go-fast-showcase/seconds-club)

# ARE YOU FAST ENOUGH?

## S&S® RACING APPAREL AND ACCESSORIES

### S&S® RACING LOGO T-SHIRT

Ash. Sizes M-3XL

6.0 oz. 99% Cotton/1% Polyester

M	<b>510-0287</b>	\$19.95
L	<b>510-0288</b>	\$19.95
XL	<b>510-0289</b>	\$19.95
2XL	<b>510-0290</b>	\$21.95
3XL	<b>510-0291</b>	\$24.95



### S&S® DECALS – RACE DESIGN

3"	1 Pack	<b>51-0182</b>	\$1.95
5"	1 Pack	<b>51-0183</b>	\$2.95
12"	1 Pack	<b>51-0184</b>	\$5.95
24"	1 Pack	<b>51-0185</b>	\$10.95

### BANNERS

S&S® Logo (42" x 30")	<b>51-0161</b>	\$21.95
S&S® Racing Logo (30"X42")	<b>510-0292</b>	\$21.95



**51-0161**



**510-0292**

FOR THE FULL LINE OF S&S CYCLE APPAREL, VISIT [WWW.SSCYCLE.COM/APPAREL](http://WWW.SSCYCLE.COM/APPAREL)

# ARE YOU FAST ENOUGH?



# SERVICE & SPEED CENTER®

## MAKE THE S&S SERVICE & SPEED CENTER® YOUR ENGINE SHOP!

Let's face it, any machine, no matter how well it's built, is going to wear out eventually. Fact! Even an S&S engine will need some work someday. The question is: what do you do when the old hog develops a hitch in her giddy-up? Nobody throws an American V-Twin motorcycle away, so chances are, you'll get it fixed. But who you gonna call? Answer – the S&S Service & Speed Center.

### SERVICE!

The S&S Service & Speed Center is ready to take care of your stock rebuilds, performance upgrades, and custom engine building needs. Our professional, experienced, and knowledgeable technicians, working with state of the art equipment and tools, can get the job done for you...guaranteed.

### SPEED!

When it comes to performance, S&S Cycle has been proving it for more than fifty-five years. We've stood the test of time because the v-twin high performance products we offer are the best in the industry, and our service is just as good. So here's the question: who's the best qualified to install those highly-engineered performance products, and offers a warranty on all their work? Answer: the S&S Service & Speed Center.

### ONLY AVAILABLE THROUGH S&S DEALERS

The services of the S&S Service & Speed Center are only available through S&S dealers. Many S&S dealers find it more convenient and cost effective to have S&S do kit installations and engine related machining work. It can be prohibitively expensive to invest in the equipment and talent to do this sort of work, and it can be a pain to find someone local to do it. Other S&S dealers find that they can take on more service and performance work, since they aren't limited to what their own staff can do in house! Then there's the warranty, backed by S&S. All work done by the Speed & Service Center is guaranteed.

### The S&S Service & Speed Center offers the following services:

#### Remanufacturing and Repair

- Remanufacture S&S engines to original factory specs
- Remanufacture S&S Carburetors
- Remanufacture S&S cylinder heads
- Remanufacture S&S flywheel assemblies – Rebuild rods, install thrust washers, rebalance, and replace unserviceable parts
- Stock engine rebuilds 1966 – present big twin
- Rebuild stock flywheels for 1948-'99 big twin and 1957-85 Sportster® models.
- Rebuild stock cylinder heads for 1966-present big twins

#### Performance Upgrades

- Install an S&S Hot Set Up Kit® in stock 1966-present big twin crankcases including late model "A" and "B" big twin engines
- Update stock heads for Harley-Davidson® 883cc Sportster® models to 1200cc size valves
- Compression ratio increase – Machine gasket surfaces of cylinder heads, cylinders, or cases, and installation of high compression pistons

#### Machine Shop Services

- Bore stock engine cases to accept big bore cylinders
- Hone S&S or stock Harley-Davidson cylinders to fit new pistons
- Timken® bearing conversions on 2003 – Up stock Harley-Davidson "A" and "B" crankcases

#### Custom Engine Building

- Non standard configurations – engines we don't offer in the catalog
- Custom cosmetic treatments – powder coating (limited colors only), polishing, diamond cutting, and nonstandard combinations



### REMANUFACTURE? REBUILD? WHAT'S THE DIFFERENCE?

Remanufacturing and rebuilding are two slightly different approaches to repair. This applies to complete engines and component assemblies.

Remanufacturing means that a unit or assembly is restored to as-new, factory specifications, and all service wear parts are replaced. S&S remanufactured engines come with a one year factory warranty.

Rebuilding means that only parts that are outside of specified service wear limits are replaced.

### ATTENTION S&S® DEALERS

You must call S&S to obtain a Return Authorization (RA) number before the parts are sent to S&S for remanufacturing service. The RA number must be visible and clearly written on the container.

Ship remanufacturing orders to:

S&S Cycle Inc.  
322 Causeway Boulevard  
La Crosse, Wisconsin 54603



### WE USE VIOLA V-TWIN® QUALITY SERVICE PARTS!

In addition to the performance work you'd expect from a world-class speed shop, the S&S Service & Speed Center also repairs and rebuilds stock engines and components. In both applications, we use Viola V-Twin service parts, your assurance that your job will be done with only the very highest quality components.

# ARE YOU FAST ENOUGH?

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**Proven Performance® Products**  
FOR AMERICAN V-TWINS



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[www.sscycle.com](http://www.sscycle.com)