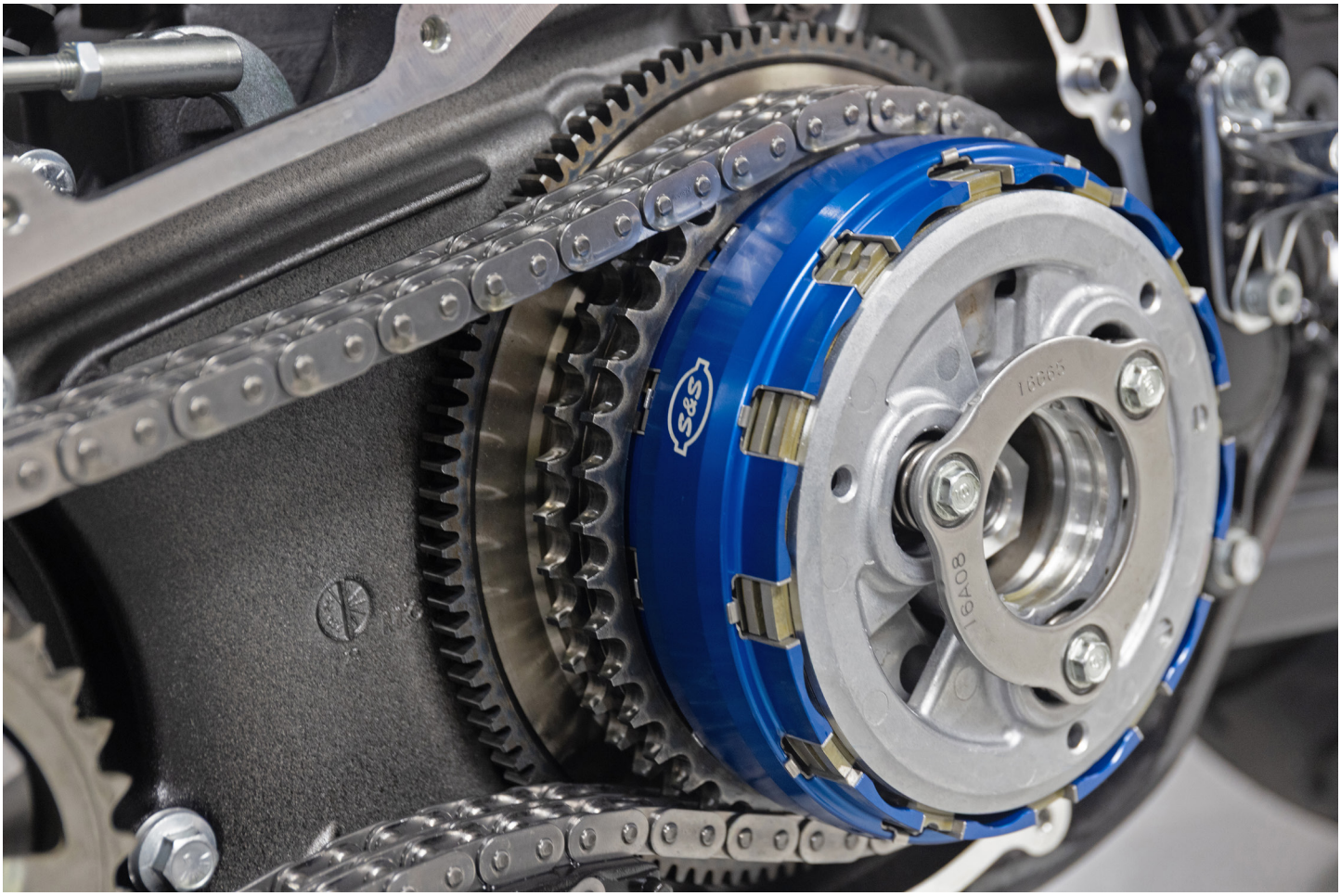
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Installation Instructions:

Billet Clutch Basket for M8 Installation Instructions
Fits 2017-Up M8 Models



The S&S billet aluminum clutch basket is drag-strip proven and made in the U.S.A! Stainless wear liners eliminate clutch notching for smooth, consistent performance, while its 200+ lb-ft torque capacity makes it the ultimate stock replacement for 2017-up M8 Touring and 2018-up M8 Softail® models.

1. Remove the primary drive components (clutch assembly, primary chain and compensating sprocket assembly).Refer to the Harley-Davidson Service Manual for the procedure to do this on your specific model year and model.

2. Separate the clutch assembly from the primary chain. Disassemble, and remove the clutch pack from the clutch assembly. To make life more simple during re-installation–keep the clutch pack in order so that it can be later reinstalled in the correct order. ***(See picture 1)***.



Picture 1

3. Press out the clutch hub. Refer to the Harley-Davidson Service Manual for the procedure to do this on your specific model year and model.

4. After removing the inner hub, clean the shaft of the hub with parts washer solvent or brake parts cleaner and a lint free cloth. Blow dry with compressed air.

5. After cleaning the inner hub's shaft, place the inner hub in a freezer (preferred), or at least a refrigerator if a freezer is not available. The inner hub will be much easier to re-install later on if it is as cold as possible.

6. Remove the clutch hub bearing from the OEM clutch basket.

7. Inspect the clutch hub bearing for damage. If you plan to re-use the bearing instead of replacing (as recommended by H-D service manual)--clean the outer race of the bearing, and place it in a freezer, to facilitate easier re-installation later in this process.

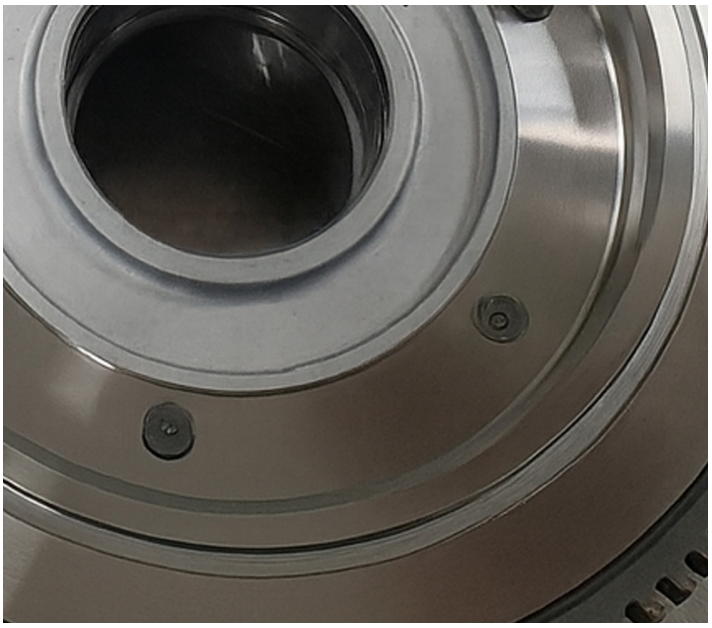
    a. If you choose to purchase a new bearing, be sure to place it in the freezer prior to installing into the S&S clutch basket.

8. Using a sharp center punch and metal hammer, center punch all (6) rivets on the bottom (inboard side) of the clutch assembly as shown in ***pictures 2***.

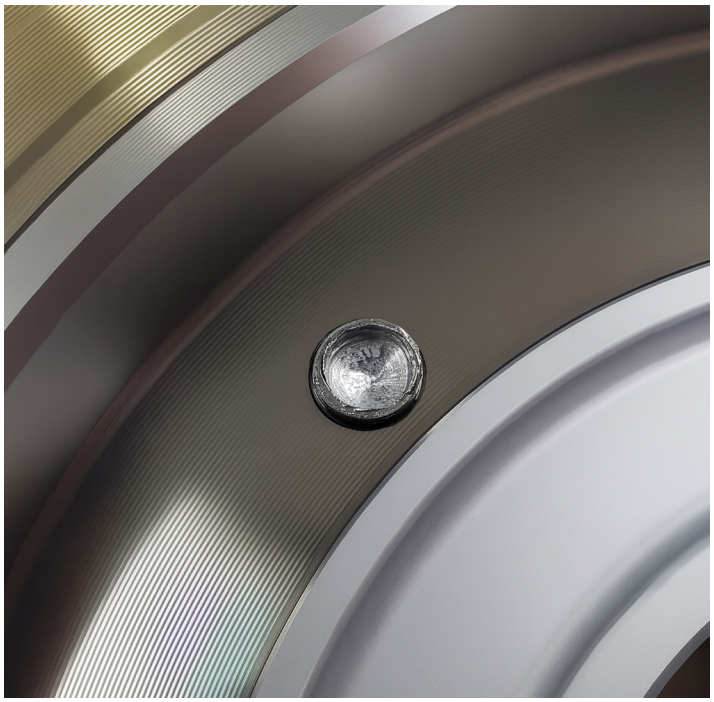


Picture 2

9. Using a ¼ (0.250") drill bit, center the bit using the center punch indentation as a guide, and drill out the head of each rivet ***(See picture 3)***. The drill depth should be just below flush with the ring gear surface ***(See picture 5)***. Apply some cutting fluid (engine oil will work too) to improve the drilling and help preserve your drill bit.



Picture 3



Picture 4

10. Insert a 7⁄32″, or 3⁄16″ drift punch into the drilled hole, and using a metal hammer–drive the rivet completely out of its hole. Repeat for all (6) rivets. ***(See picture 5)***.



Picture 5

11. With all of the rivets removed, separate the ring gear assembly from the OEM clutch basket. ***(See picture 6)***.



Picture 6

Note: At this point, the holes in the ring gear assembly will need to be drilled oversize in order to facilitate fitment of the stronger 3⁄8″ diameter screws that will be used to secure the S&S billet clutch basket to the OEM ring gear assembly.

a. It is highly recommended that a drill press be used to drill the (6) holes oversize. This is safer, and more accurate than using a hand drill, and increases the on-center alignment of the hole, to ensure the result is a properly located, straight hole.

12. Insert a 9⁄32″ (0.281″) diameter drill bit into the drill chuck. Adjust the position of the drill table as well as the ring gear assembly, until the 9⁄32″ drill bit is aligned concentrically with one of the (6) ring gear assembly rivet holes, and will pass through the hole freely when the drill head is run up and down. Lock the position of the drill press table that the ring gear assembly is resting on ring gear.

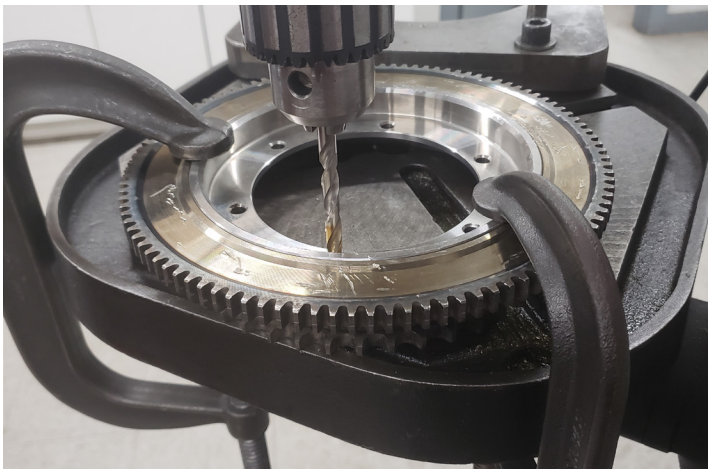
13. With the 9⁄32″ drill bit plunged down through the rivet hole, lock the drill head so that the drill bit can not retract upward out of the rivet hole, and stays plunged down into the hole without holding it there by hand.

Note: At this point the 9⁄32″ drill bit is serving as an alignment dowel, aligning the ring gear assembly rivet hole concentrically with the drill chuck centerline. A 9⁄32″ drill bit was chosen because it is the largest standard drill bit that will fit in the OEM ring gear rivet hole. This tight fitment allows little room for misalignment and helps ensure we are drilling concentrically. If you don't have a 9⁄32″ drill bit, a size "K" (2nd choice) or "J" (3rd choice) drill bit can serve as alternative alignment bits. Another option would be to insert a piece of straight dowel rod that is 0.277″ - 0.282″ in diameter (larger sizes preferential) into the drill chuck to serve as an alignment pin.

14. With the 9⁄32″ drill bit plunged down through the rivet hole and locked in place–clamp the ring gear assembly to the drill press table. ***(See picture 7)***.

a. C-Clamps are a good robust clamping solution for this application. In this case, it was found that two large c-clamps provided sufficient clamp load to hold the ring gear firmly in place while drilling.

b. After tightening each clamp gradually to a moderate pressure, look on the bottom side of the ring gear and ensure that the ring gear is seated flat on the drill press.



Picture 7

15. Drill out the 6 holes with a 25⁄64″ drill bit. ***(Picture 8)***.



Picture 8

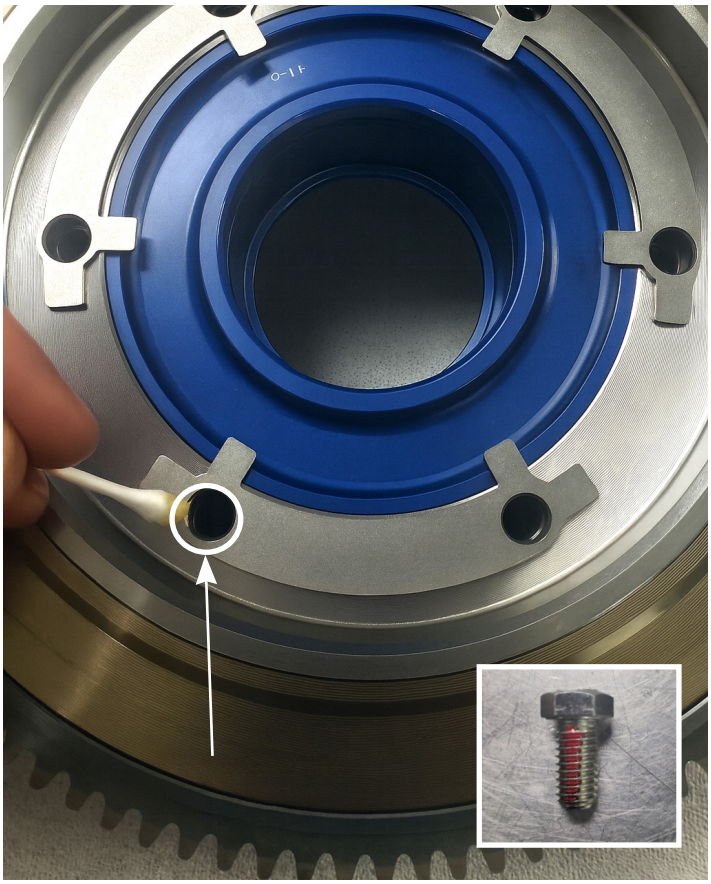
16. De-burr the edge of the hole.

17. De-burr the opposite-side edge of all (6) of the holes.

18. Clean the ring gear of any excess cutting fluid and metal chips / filings. Use compressed air to ensure all of the holes are clear of any metal filings / debris. Place your S&S billet clutch basket face down (over a rag to protect the anodizing from scratches), and carefully set the OEM ring gear assembly onto the clutch basket. Proper orientation is such that the largest gear is furthest outboard (closest to you) when the clutch basket is placed face down.

a. Rotate the ring gear until the (6) drilled holes appear to be aligned concentrically with the threaded holes of the S&S clutch basket.

19. From your included hardware kit–remove the (3) stainless steel locking tab plates, and place them over the ring gear, aligning the holes in the plates to those on the ring gear.***(See picture 9).***

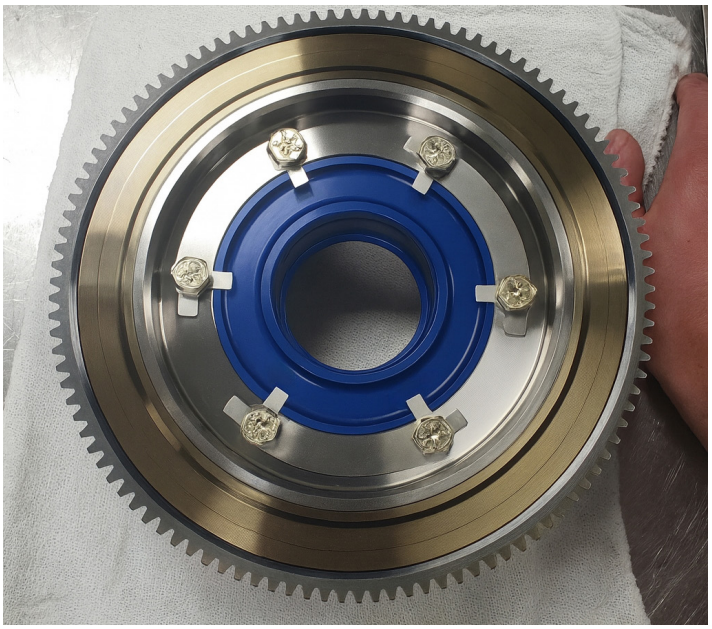


Picture 9

20. Using a Q-tip or your finger–apply only a film of oil to the stainless steel locking tab plates around the perimeter of the holes. Be careful to not get any oil down into the threaded holes of the clutch basket. Use the circled area in picture 26 as a reference as to where the oil film should be applied. ***(See picture 9)***.

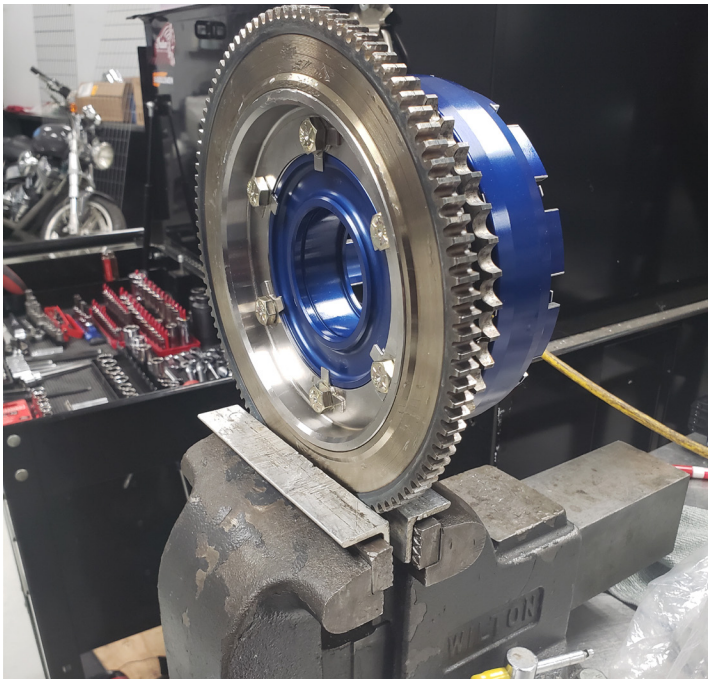
21. Remove the (6) 3⁄8″-16 screws from the supplied hardware kit. Apply an approximate 1⁄8″ wide bead of high strength threadlocker agent (typically red in color) along the full length of the threads. ***(See picture 9).***

22. After applying the threadlocker agent to the screws, start all (6) of the screws into their threaded holes. Tighten until just SNUG. (***See picture 10).***



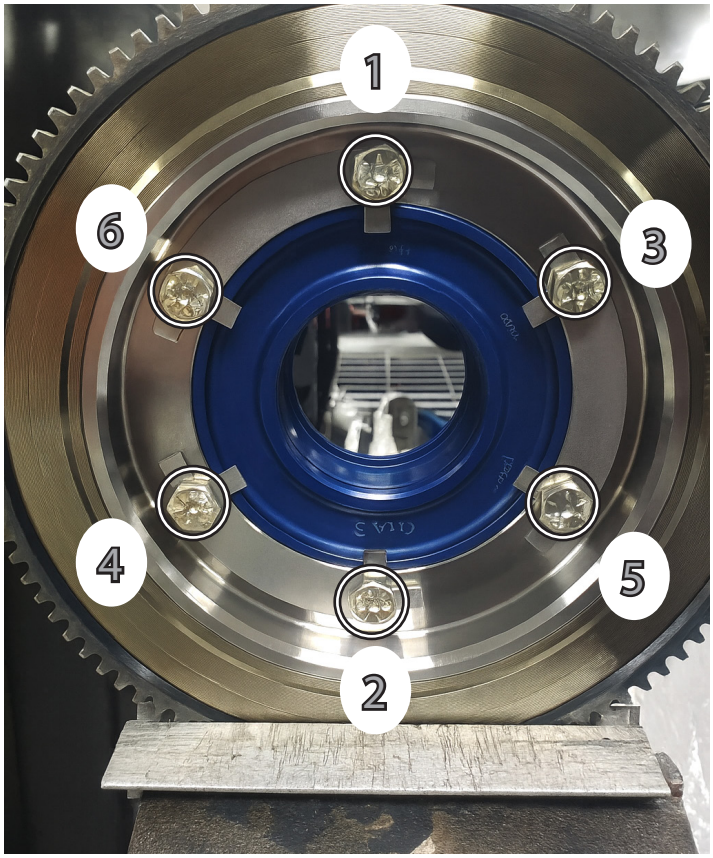
Picture 10

23. Firmly clamp the basket / ring gear assembly in a table vise as shown in pictures 19 and 20. If available, place a flat piece of aluminum, brass, nylon, or other plastic type material on either side of the ring gear to protect the ring gear from being deformed by the steel jaws typically found on a table vise. Notice the aluminum inserts placed between the ring gear and vise jaws in ***picture 19.***



Picture 11

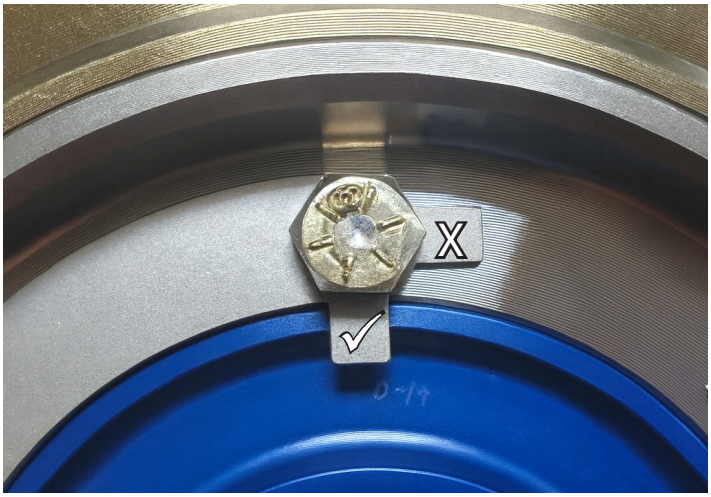
24. Using a torque wrench and (9⁄16") socket, tighten the screws in a criss-cross pattern such as that shown in ***picture 21***. Torque the screws to the following values: 15 lb-ft, 30 lb-ft, 30 lb-ft (again). Failure to follow the appropriate torque steps, and a criss-



Picture 12

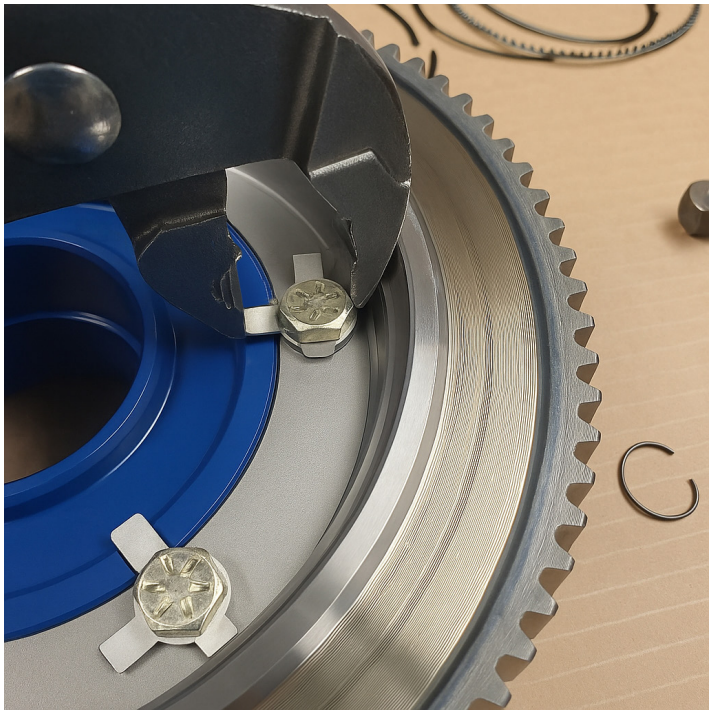
25. Fold the screw head anti-rotation tabs up. Only 1 tab per screw is necessary. Choose the tab that has a more flat / parallel face of the screw head to fold the tab against. ***Picture 13*** demonstrates how you want to choose the tab with a flat screw face to fold up against rather than against a corner of a screw head.

a. There may not be a "perfect" flat in alignment with a tab. **DO NOT** turn the screw in either direction to line-up a flat perfectly with one of the tabs. Instead, pick the tab that has the closest to flat screw face to fold up against, and bend that tap up against the screw head.



Picture 13

Note: A pair of tongue and groove pliers or other types of pliers are a great way to fold the anti-rotation tabs up without scuffing up the blue anodized finish on your S&S billet clutch basket.
(See pictures 14)



Picture 14

26. Place the S&S clutch basket / ring gear assembly into an oven and heat to 250°F.

a. DO NOT expose the clutch basket assembly to temperatures greater than 275°F, to avoid compromising the integrity of the threadlocker compound that was applied to the screw threads.

WARNING: handle the heated clutch basket assembly with gloves, as it will be hot.

27. Install the clutch hub bearing into the S&S clutch basket assembly. Recall from step 9, that your bearing should've been placed in a freezer, and should be installed just shortly after removing from the freezer, and while the clutch basket assembly is hot, in order to ease installation and prevent bearing damage.

a. Typically, due to the temperature differential, the bearing will be able to be "dropped" into its bore without the requirement of a press to drive it in. If a press must be used, it should require very light pressure.

b. The bearing should **ONLY** be driven by its outer race.

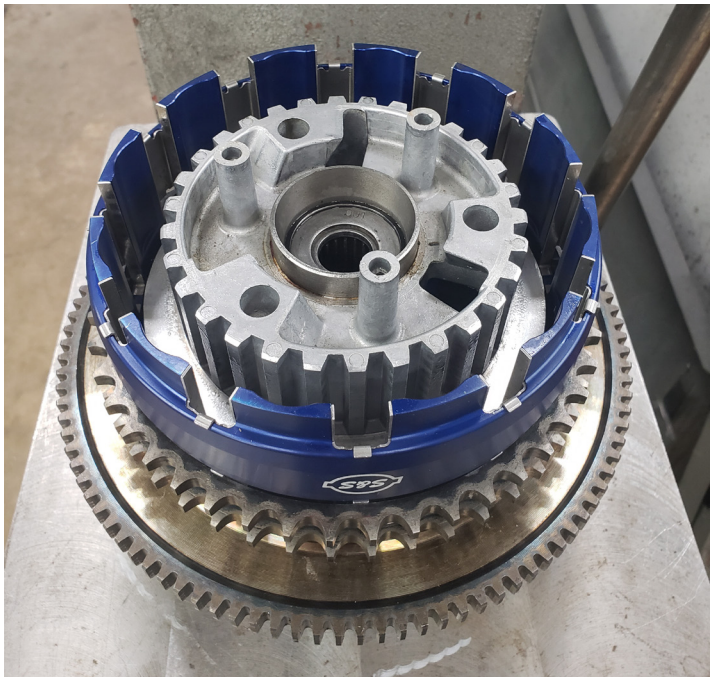
28. With the bearing snap ring in place, place the clutch basket assembly into the oven, and heat to 250°F. Place it in the oven with the ring gear side up, so that the bearing stays seated against its shoulder while the bearing heats up and sets into place. Recall that your clutch inner hub should be in the freezer as indicated in ***step 7***.

a. DO NOT expose the clutch basket assembly to temperatures greater than 275°F, to avoid compromising the integrity of the threadlocker compound that was applied to the screw threads.

WARNING: handle the heated clutch basket assembly with gloves, as it will be hot.

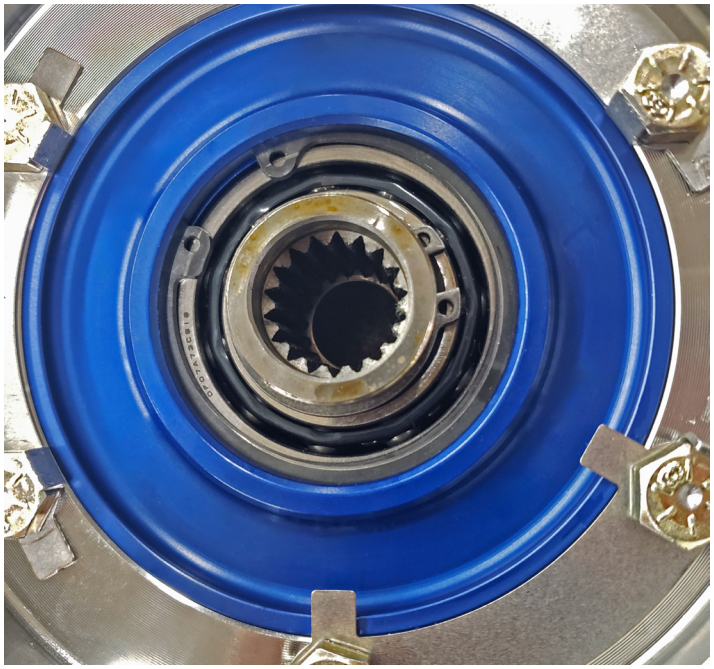
29. Install the clutch hub into the S&S clutch basket assembly. ***(See picture 24)***.

a. It is critical that the bearing inner race be supported from the transmission side while the inner hub is pressed into place. If it is not supported, bearing damage is likely to occur.



Picture 15

30. Ensure that both the clutch hub bearing and inner hub snap rings are installed. ***(See picture 16)***.



Picture 16

31. Re-install the clutch pack into the clutch assembly.



Picture 17

Safety and Warranty Info:

DISCLAIMER:
S&S parts are designed for high performance, closed course, racing applications and are intended for the very experienced rider only. The installation of S&S parts may void or adversely affect your factory warranty. In addition such installation and use may violate certain federal, state, and local laws, rules and ordinances as well as other laws when used on motor vehicles used 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.

The words Harley®, Harley-Davidson®, H-D®, Sportster®, Evolution®, and all H-D part numbers and model designations are used in reference only. S&S Cycle is not associated with Harley-Davidson, Inc.

Exempt from emissions tampering regulations under CARB EO# D-355-XX

SAFE INSTALLATION AND OPERATION RULES:
Before installing your new S&S part it is your responsibility to read and follow the installation and maintenance procedures in these instructions and follow the basic rules below for your personal safety.

- Gasoline is extremely flammable and explosive under certain conditions and toxic when breathed. Do not smoke. Perform installation in a well ventilated area away from open flames or sparks.
- If motorcycle has been running, wait until engine and exhaust pipes have cooled down to avoid getting burned before performing any installation steps.
- Before performing any installation steps disconnect battery to eliminate potential sparks and inadvertent engagement of starter while working on electrical components.
- Read instructions thoroughly and carefully so all procedures are completely understood before performing any installation steps. Contact S&S with any questions you may have if any steps are unclear or any abnormalities occur during installation or operation of motorcycle with a S&S part on it.
- Consult an appropriate service manual for your motorcycle for correct disassembly and reassembly procedures for any parts that need to be removed to facilitate installation.
- Use good judgment when performing installation and operating motorcycle. Good judgment begins with a clear head. Don't let alcohol, drugs or fatigue impair your judgment. Start installation when you are fresh.
- Be sure all federal, state and local laws are obeyed with the installation.
- For optimum performance and safety and to minimize potential damage to carb or other components, use all mounting hardware that is provided and follow all installation instructions.
- Motorcycle exhaust fumes are toxic and poisonous and must not be breathed. Run motorcycle in a well ventilated area where fumes can dissipate.

IMPORTANT NOTICE:

Statements in this instruction sheet preceded by the following words are of special significance.

WARNING

Means there is the possibility of injury to yourself or others.

CAUTION

Means there is the possibility of damage to the part or motorcycle.

NOTE

Other information of particular importance has been placed in italic type.

S&S recommends you take special notice of these items.

WARRANTY:
All S&S parts are guaranteed to the original purchaser to be free of manufacturing defects in materials and workmanship for a period of twelve (12) months from the date of purchase. Merchandise that fails to conform to these conditions will be repaired or replaced at S&S's option if the parts are returned to us by the purchaser within the 12 month warranty period or within 10 days thereafter.
In the event warranty service is required, the original purchaser must call or write S&S immediately with the problem. Some problems can be rectified by a telephone call and need no further course of action.
A part that is suspect of being defective must not be replaced by a Dealer without prior authorization from S&S. If it is deemed necessary for S&S to make an evaluation to determine whether the part was defective, a return authorization number must be obtained from S&S. The parts must be packaged properly so as to not cause further damage and be returned prepaid to S&S with a copy of the original invoice of purchase and a detailed letter outlining the nature of the problem, how the part was used and the circumstances at the time of failure. If after an evaluation has been made by S&S and the part was found to be defective, repair, replacement or refund will be granted.

ADDITIONAL WARRANTY PROVISIONS:
(1) S&S shall have no obligation in the event an S&S part is modified by any other person or organization.
(2) S&S shall have no obligation if an S&S part becomes defective in whole or in part as a result of improper installation, improper maintenance, improper use, abnormal operation, or any other misuse or mistreatment of the S&S part.
(3) S&S shall not be liable for any consequential or incidental damages resulting from the failure of an S&S part, the breach of any warranties, the failure to deliver, delay in delivery, delivery in non-conforming condition, or for any other breach of contract or duty between S&S and a customer.
(4) S&S parts are designed exclusively for use in Harley-Davidson® and other American v-twin motorcycles. S&S shall have no warranty or liability obligation if an S&S part is used in any other application.

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