

## BAKER SPLINED SHOVEL CLUTCH



**PN 9P400\*** (CLUTCH ASSEMBLY)

**PN 9P401\*** (CLUTCH ASSEMBLY W/SPLINED 4 SPEED MAINSHAFT)

\*- Specify clutch sprocket by adding "-35", "-36", "-37" or "-38" suffix to part number then "-K" for kick only or "-S" for starter ring gear version. Example 9P401-36-S

# BAKER SPLINED SHOVEL CLUTCH OVERVIEW

## FEATURES

You know the sad story. The torque on the clutch nut backs off a hair and the key on the transmission mainshaft shears off. This usually happens at the most inconvenient time and place. And the probability of this sad story playing out is greater with performance applications. The splined Shovel clutch kit retrofits and upgrades the stock tapered mainshaft and clutch to a modern 18 tooth spline configuration. Kit includes a fully assembled clutch and splined 4-speed mainshaft to retrofit stock 1970-E84 Big Twins with stock primaries.

The clutch is based off of our 9-plate clutch used on 1990-up applications and fits in the stock primary housing and TTP. We offer 35, 36, 37, and 38 tooth clutch sprockets with our clutches to dial in your overall gear ratio. 18 tooth splined mainshaft installs into the stock 4-speed transmission just like stock.

## FITMENT

- 1970-E84 Shovelhead® 4 Speeds
- Custom Applications

## TOOLS, RESOURCES, REQUIRED PARTS

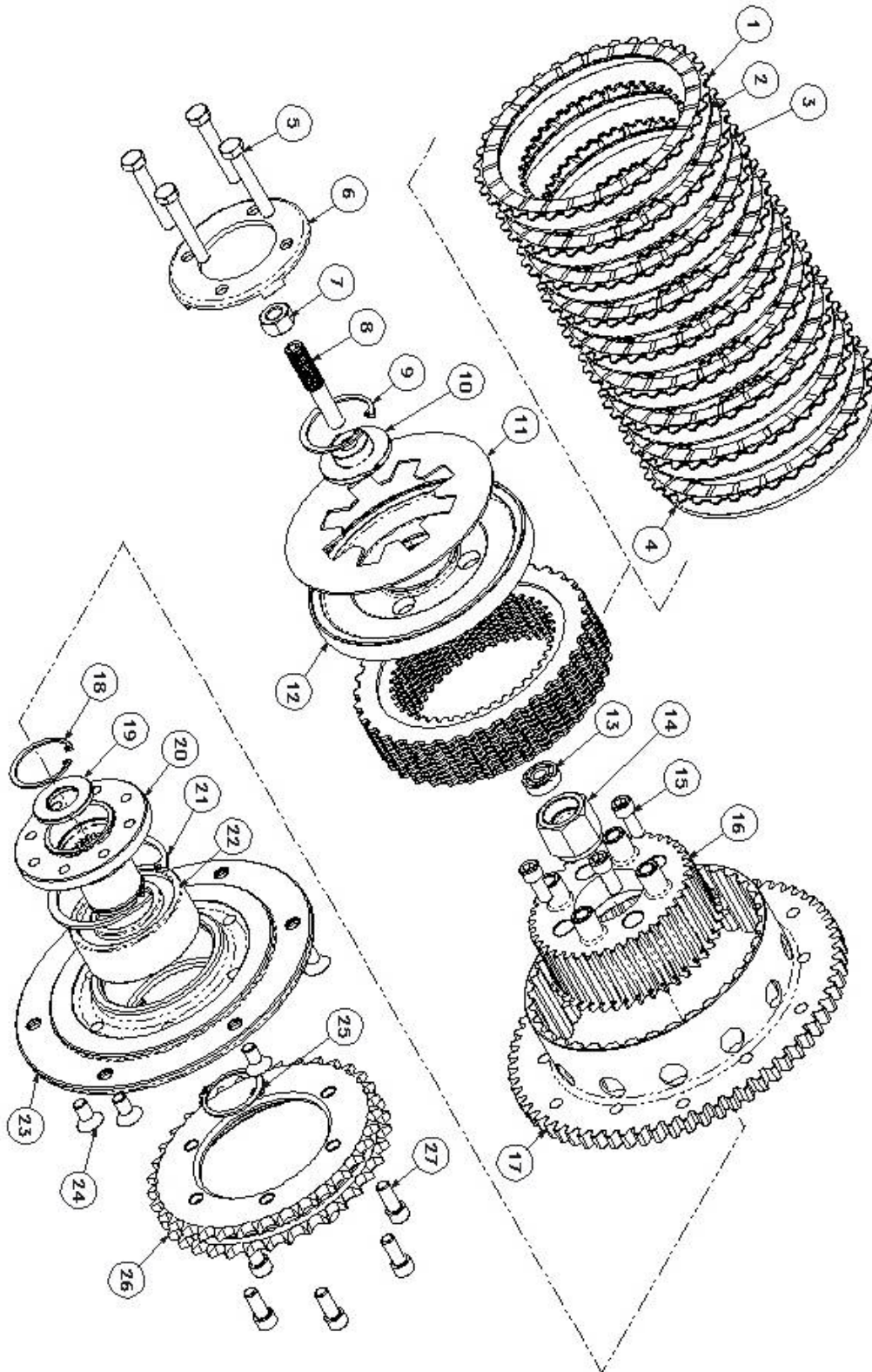
- Factory Service Manual For Your Motorcycle
- Factory Parts Manual For Your Motorcycle
- Common Hand Tools (allens, sockets, screwdrivers etc.)
- Torque Wrench (ft-lbs. and in-lbs.)
- Dial Calipers or Equivalent (Chain Alignment)
- Straight Edge (Chain Alignment)
- Blue Loctite® (242 Removable) or Equivalent
- Red Loctite® (271 Permanent) or Equivalent
- Modern Style, 18 Tooth Splined Mainshaft Installed; applies only if you did not purchase the complete clutch retrofit kit, pn 9P400\*
- 4 Speed Transmission Rebuild Kit (applies only if you purchased the complete clutch retrofit kit pn 9P401\*; comes with splined mainshaft pn MS-4-SPLINE.

# **BAKER SPLINED SHOVEL CLUTCH**

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# BAKER SHOVEL CLUTCH EXPLODED VIEW



STARTER VERSION SHOWN; FIGURE 1

## BAKER SPLINED SHOVEL CLUTCH LEGEND

ITEM	QTY	PN	DESCRIPTION
1	9	3223-DSSC	Friction Plate, .095" Thick
2	1	5579	Steel Plate, .079" Thick
3	7	3113-DSSC	Steel Plate, .059" Thick
4	1	3123-DSSC	Steel Plate, .121" Thick
5	4	13061	5/16-18 X 2.000" Hex Bolts, Grade 8
6	1	3073A-DSSC	Clutch Pivot Plate
7	1	36258	7/16-20 Jam Nut
8	1	37091-4SS	Adjuster Screw
9	1	1308-175PP	Snap Ring, Keyhole Fitting
10	1	9P219-56A	Keyhole Fitting
11	1	3083C-DSSC	Diaphragm Spring, .072" Thick
12	1	3063B-DSSC	Pressure Plate, Hard Anodized
13	1	.3125 X .875 X .250	Seal, Adjuster Screw
14	1	9P215-4SS	Clutch Nut, Left Hand Thread
15	4	23253	5/16-18 X .750" SHCS Black
16	1	9P234-56	Inner Hub, Friction Plates
17	*	3023-DSSC-4SS	Clutch Basket
17	*	K3023-DSSC-4S	Clutch Basket
18	1	1301-150PP	2" Internal Beveled Snap Ring
19	1	9P218-56	Washer, Clutch Seat
20	1	9P233-56	Flanged Hub
21	1	35258	Snap Ring, Bearing Retainer
22	1	3207	Double Row Bearing
23	1	2020-4SS-R	Clutch Carrier, Raw Finish
24	6	31F62KFC	5/16-24 X .625" FHCS Black
25	1	1460-137PP	Snap Ring, Flanged Hub
26	*	D40A35HX3.270	35 Tooth Chain Sprocket
26	*	D40A36HX3.270	36 Tooth Chain Sprocket
26	*	D40A37HX3.270	37 Tooth Chain Sprocket
26	*	D40A38HX3.270	38 Tooth Chain Sprocket
27	6	23253	5/16-18 X .750" SHCS Black

\* = Customer preference on basket version (kick only or starter ring gear) and chain sprocket tooth count.

**NOTE:** Mainshaft (pn MS-4-SPLINE) will be included only if you ordered kit part number 9P401\* (the legend and exploded view do not show the mainshaft).

## CLUTCH PREP / MAINSHAFT INSTALLATION

### DISSASSEMBLY:

1. For your safety, DISCONNECT BOTH BATTERY TERMINALS (FAILURE TO DO SO COULD RESULT IN PERSONAL INJURY).
2. Remove primary drain plug located at the bottom of your primary, drain fluid.
3. On some models it is necessary to remove foot pegs / floor boards in order to remove the outer primary.
4. Remove the outer primary cover.
5. Refer to your Factory Service Manual to remove your stock clutch assembly and related primary components using the proper safety precautions and tools.



**IF YOU ARE INSTALLING THIS CLUTCH ASSEMBLY INTO A 4-SPEED TRANSMISSION THAT HAS A TAPERED SHAFT YOU MUST FIRST INSTALL A MODERN 18 TOOTH SPLINED MAINSHAFT (BAKER pn MS-4-SPLINE).**

### SPLINED MAINSHAFT INSTALLATION:

1. If you are installing this clutch assembly in a custom application and the transmission already has a 18 tooth splined mainshaft, skip to page 7 for clutch installation.
2. With clutch assembly and primary components out of the way utilizing the Factory Service Manual for proper disassembly. Remove the inner primary assembly and 4 speed transmission.
3. With your transmission removed from the motorcycle, disassemble your transmission following your Factory Service Manual.
4. Replace the tapered mainshaft with the BAKER™ splined mainshaft provided in the kit (pn 9P401\*).



**BAKER DRIVETRIAN DOES NOT SUPPLY THE SNAP RINGS, BEARINGS OR RELATED COMPONENTS FOR THE MAINSHAFT INSTALLATION. PLEASE REFER TO THE FACTORY SERVICE MANUAL AND AFTERMARKET PARTS CATALOG FOR THESE ITEMS. DO NOT REUSE YOUR OLD MAINSHAFT SNAP RINGS OR BEARINGS AFTER DISSASSEMBLY AS THIS MIGHT CAUSE FAILURE TO COMPONENTS, INJURY OR DEATH.**

5. Once the splined mainshaft is installed follow your Factory Service Manual for installing the rest of the transmission components, installation of the transmission and installation of the inner primary.



**BAKER HIGHLY RECOMMENDS THAT WHILE REBUILDING YOUR 4 SPEED THAT YOU REPLACE ANY WORN OUT ITEMS OR COMPONENTS THAT YOU MAY FIND DURING THE REASSEMBLY PROCESS. REFER TO YOUR FACTORY SERVICE MANUAL FOR SPECIFICATIONS AND COMPONENT TOLERANCES.**



## SPLINED SHOVEL CLUTCH INSTALLATION

**BAKER DRIVETRIAN CLUTCH ASSEMBLIES ALL COME READY FOR INSTALLATION. FRICTION PLATES ARE PRESOAKED AT OUR FACILITY AND READY TO RUN, NO DISASSEMBLY REQUIRED.**

### CLUTCH INSTALLATION:

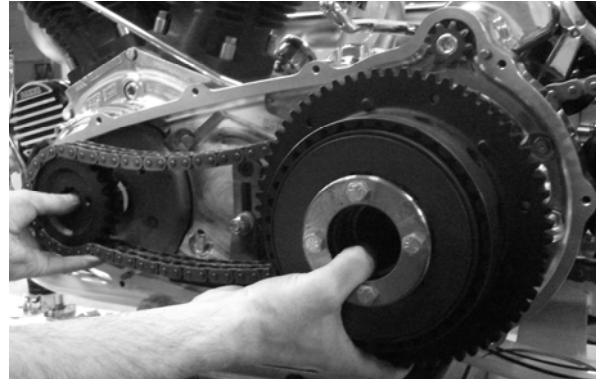
1. Install your new clutch assembly with primary chain and motor sprocket components following the Factory Service Manual. Figure 2



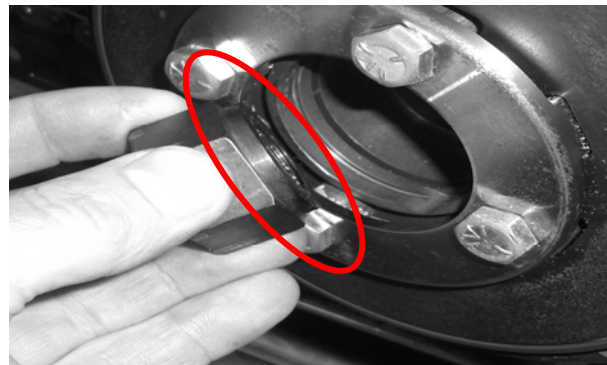
**CHECK THE PRIMARY CHAIN ALIGNMENT TO INSURE CHAIN LIFE AND PREVENT COMPONENT FAILURE. CHAIN ALIGNMENT MUST BE WITHIN .030" (0.76MM) FOR PROPER ALIGNMENT.**

### CHAIN ALIGNMENT:

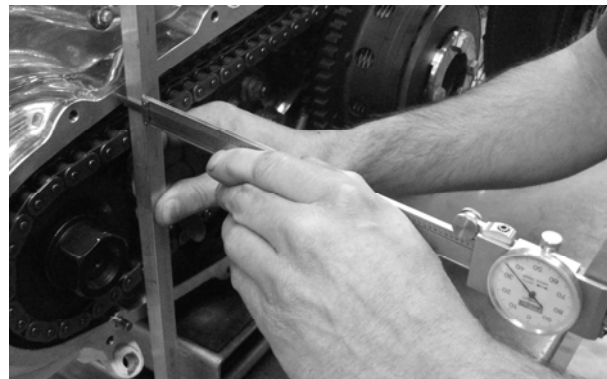
- With the clutch, chain and sprocket installed; install the clutch nut (with the machined relief facing toward the clutch; figure 3) and motor sprocket nut; snug at this time.
- Snug the chain adjustment so that the chain is taut.
- Place a straightedge across the gasket surface.
- With a dial caliper, measure the distance from the straightedge to the chain sideplates inside the inner primary. When taking the measurement, measure as close to the motor sprocket as possible. Record this measurement. Figure 4
- Repeat the procedure near the clutch sprocket.



INSTALLING THE CLUTCH | FIGURE 2



MACHINED STEP ON NUT | FIGURE 3



CHECKING CHAIN ALIGNMENT | FIGURE 4

The two measurements taken will be the spacer thickness needed or subtracted (if required). H-D® offers a wide range of motor sprocket spacers to accommodate your needs.

- If you are within the .030" of chain alignment, loosen your chain, remove the motor sprocket nut and clutch nut.

## SPLINED SHOVEL CLUTCH INSTALLATION CONT.

- Clean and install the clutch nut as indicated in the chain alignment procedure referencing figure 3 using Red Loctite®.



**FOR STOCK APPLICATIONS THE CLUTCH MAINSHAFT NUT COMES SUPPLIED WITH THE ADJUSTER SCREW SEAL INSTALLED TO ENSURE THE STOCK PRIMARY HOLDS VACUUM. IF YOU ARE RUNNING A MODERN PRIMARY THAT NEEDS TO BE VENTED AND IS SEALED OFF FROM YOUR OIL PUMP; REMOVE THE SEAL (PN .3125 X .875 X .250) FROM THE CLUTCH NUT. USE FIGURE 1 FOR REFERENCE.**

- Clean and install motor sprocket nut using Red Loctite®.
- Torque to Factory specifications following your Factory Service Manual.
- Adjust primary chain following steps listed in your Factory Service Manual.
- Install clutch adjuster Key Hole Fitting and snap ring provided. Figure 5



INSTALLING KEYHOLE FITTING| FIGURE 5



**ALWAYS WEAR PROPER EYE PROTECTION WHEN REMOVING AND INSTALLING SNAP RINGS. SLIPPAGE MAY PROPEL THE SNAP RING INTO THE AIR.**

- Adjust the clutch following steps listed in your Factory Service Manual.
- Install outer primary and fill primary with proper fluid / amount through the derby cover opening (clutch inspection opening). Fluid recommendation and level found in your Factory Service Manual.
- Install derby cover (clutch inspection cover) with new gasket. Torque to Factory Service Manual specifications.
- If floor boards or pegs were removed to install your clutch reinstall them as time per Factory Service Manual.

**TO PROLONG THE LIFE OF YOUR NEW BAKER SPLINED SHOVEL CLUTCH ALWAYS RE-ADJUST THE CLUTCH AFTER THE INITIAL "BREAK IN" PERIOD. THIS CAN VARY DEPENDING ON YOUR RIDING STYLE; BETWEEN 500-3000 MILES.**



# BAKER SPLINED SHOVEL CLUTCH TERMS

## **SPECIAL ORDERS**

A minimum \$500 deposit is required with all special orders. Special orders include unique finishes.

## **ALL OTHER ORDERS**

Orders can be pre-paid using VISA, MasterCard or American Express.

Prices shown are F.O.B. Haslett, MI. BAKER™ provides free UPS ground shipping on all retail orders for complete transmissions or transmission kit. UPS air shipment is available upon request. Customer is responsible for air shipment premiums.

## **LIMITED WARRANTY**

BAKER™ Inc. clutches are guaranteed to the original purchaser to be free of manufacturing defects in materials and workmanship for a period of 2 years from the date of purchase or up to 24,000 miles - whichever is sooner.

If the product is found by BAKER™ to be defective, such products will, at the option of BAKER™, be replaced or repaired at cost to BAKER™.

In the event warranty service is required, the original purchaser must call or write BAKER™ immediately with the problem. If it is deemed necessary for BAKER™ to make an evaluation to determine whether the transmission assembly or transmission kit is defective, the entire transmission assembly, whether originally purchased as an assembly or kit, must be properly packaged and returned prepaid to BAKER™ with a copy of the original invoice of purchase.

If after an evaluation has been made by BAKER™ and a defect in materials and/or workmanship is found, BAKER™ will, at BAKER™ option, repair or replace the defective part of the assembly. Warranty card must be returned within 45 days of purchase to be valid.

## **ADDITIONAL WARRANTY PROVISIONS**

This limited warranty does not cover labor or other costs or expenses incidental to the repair and or replacement of BAKER™ products. This warranty does not apply if one or more of the following situations is judged by BAKER™ to be relevant: improper installation, accident, modification (including but not limited to use of unauthorized parts), racing, high performance application, mishandling, misapplication, neglect (including but not limited to improper maintenance), or improper repair.

BAKER™ shall not be liable for any consequential or incidental damages arising out of or in connection with a BAKER™ transmission assembly, transmission kit, component or part. Consequential damages shall include without limitation, loss of use, income or profit, or losses sustained as the result of injury (including death) to any person or loss of or damage to property.

BAKER™ transmissions, transmission kits and components are designed exclusively for use in Harley-Davidson® motorcycles. BAKER™ shall have no warranty or liability obligation if a BAKER™ part is used in any other application.

If it is determined that a BAKER™ transmission assembly has been disassembled during the warranty period for any reason, this limited warranty will no longer apply.

## **BAKER SPLINED SHOVEL CLUTCH DISCLAIMER**

The words Harley Davidson and H-D are registered trademarks and are for reference only. Use of H-D model designations and part numbers are for reference only. BAKER Drivetrain has no association with, and makes no claim against, these words, trademarks, or companies.

It is the sole responsibility of the user to determine the suitability of this product for his or her use, and the user shall assume all legal, personal injury risk and liability and all other as well as all other obligations, duties and risks associated therewith.

### **CUSTOMER SUPPORT**

For any installation or service questions, please contact our BAKER technical department toll free: 1-877-640-2004.

