

## **BAKER 4-SPEED N1 SHIFT DRUM KIT**



**PN 4-155N1-K** (N1 Shift Drum Kit For Ratchet Style Top Covers)



# BAKER 4-SPEED N1 SHIFT DRUM KIT OVERVIEW

## FEATURES

Tired of stalling your jockey shift bike while trying to find neutral? Just imagine as you roll up to the stoplight, you tap all the way forward with your left hand and you are guaranteed neutral because it is the last stop on the shift pattern. Little Suzie notices your skill in negotiating your bike to a seamless stop and decides to hop on and leave her boyfriend. The BAKER N1 Shift Drum Kit was designed for the jockey shifter in mind. The kit comes with everything you would need to change your stock shifting 4-Speed into a jockey/hand shift bike; does not come with a jockey shift lever.

## SHIFT PATTERN

N1 Drums were originally developed to prevent miss shifts between 1st and 2<sup>nd</sup> by positioning neutral at the bottom, under 1st. This drag racer trick also eliminates all room for error in finding neutral on a jockey shift bike. The N1 Shift Drum Pattern is N-1-2-3-4; with neutral being in the most forward position when using a hand shift lever. If you are using this kit on forward controls (bottom pull, FL models) the shift pattern would be reversed (reverse shift pattern; 4-3-2-1-N). All the way up on the shift lever would be neutral and all the way down would be 4<sup>th</sup> gear.

## FITMENT

- 1952-79 4-Speed Ratchet Style Top Covers

## TOOLS REQUIRED

- Torque Wrench (reads both in. lbs. and ft. lbs.)
- Common Hand Tools (Allen Wrenches, Sockets, Snap Ring Pliers, Etc.)
- Fork Shifter Gauge
  - H-D® P/N 96384-39
  - JIMS® P/N 16-0641

## SPECIFICATIONS

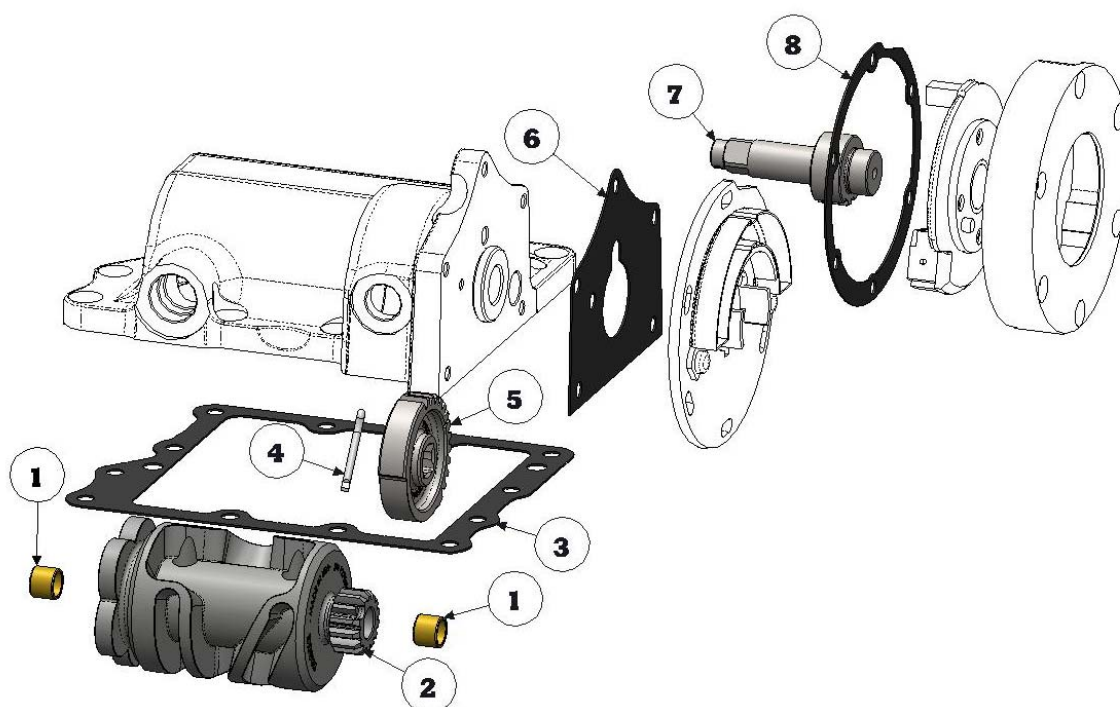
- **TRANSMISSION FLUID CAPACITY:** 20-22 fluid oz. BAKER Recommends: Spectro™ Heavy Duty Platinum 6 Speed Transmission Oil, P/N BD-75140
- **SHIFT DRUM END PLAY:** .0005"-.0065"
- **1<sup>ST</sup> AND 2<sup>ND</sup> GEAR SHIFT FORK DOG TOOTH GAP CLEARANCE:** .080"-.090"  
(Both Sides)
- **3<sup>RD</sup> AND 4<sup>TH</sup> GEAR SHIFT FORK DOG TOOTH GAP CLEARANCE:** .100"-.110"  
(Both Sides)

# **BAKER 4-SPEED N1 SHIFT DRUM KIT**

## **TABLE OF CONTENTS:**

- 2) Overview
- 3) Table Of Contents
- 4) Included Parts Breakdown Figure 1 and Legend
- 5) Prep and Installation
- 6) Installation Continued
- 7) Terms
- 8) Disclaimer

## 4-SPEED N1 SHIFT DRUM KIT DETAIL VIEW



**FIGURE 1**

ITEM	QTY	P/N	DESCRIPTION
1	2	PAPZ0606P10	Teflon Bushings, Shift Drum
2	1	127SN1-4	N1 4-Speed Shift Drum
3	1	156-4GAS	Gasket, Top Cover
4	1	9R100PCO0P	Cotter Pin, 3/32" x 1.000"
5	1	138N1-4	N1 Ratchet Gear
6	1	155-4GAS	Gasket, Backing Plate
7	1	160N1-4	N1 Ratchet Shaft
8	1	158-4GAS	Gasket, Ratchet Cover

## BAKER 4-SPEED N1 SHIFT DRUM KIT

### PREPARATION:

1) Remove the transmission from the motorcycle chassis per your Factory Service Manual.

2) Remove the 12 screws securing the top cover to the transmission, 2 of these screws are about 2" in length located next to the ratchet assembly.



**NOTICE THAT THE SCREW NEAREST TO THE DOWEL PIN ON THE RIGHT SIDE OF THE TRANSMISSION IS VENTED. THIS SCREW MUST BE INSTALLED IN THE SAME POSITION DURING ASSEMBLY. IF NOT TRANSMISSION OIL MAY BE FORCED OUT INTO THE CLUTCH. THE VENTED SCREW RELIEVES GEAR BOX PRESSURE DURING HEAT EXPANSION.**

3) Disassemble the top cover per your Factory Service Manual.

4) Clean all parts except, shift shaft, shifter gear, and drum using grease solvent or equivalent. You will not be reusing the old shaft, gear and drum. Polish both sides of the detent cam follower with a scotch bright pad or equivalent and a hand held drill (cordless preferred) see Figure 2; this will aid in smooth shifting.

5) Inspect fitment of new Ratchet Shaft (pn 160N1-4) in the top cover bushing; per your Factory Service Manual replace bushing if necessary; reference Figure 3.

6) Inspect all components per your Factory Service Manual and replace worn or out of specification parts if necessary.



FIGURE 2; CAM FOLLOWER



FIGURE 3; BUSHING INSPECTION

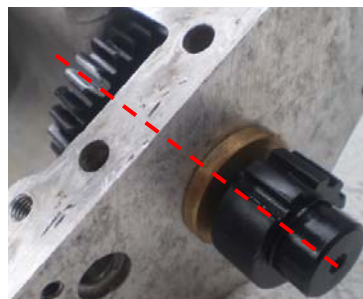


FIGURE 4; SHAFT/GEAR ALIGNMENT

### INSTALLATION:



**IT IS NECESSARY TO TIME THE RATCHET SHAFT TO THE RATCHET GEAR AND THE RATCHET GEAR TO THE SHIFT DRUM. IF THIS IS NOT DONE CORRECTLY, YOU WILL NOT BE ABLE TO SHIFT INTO ALL GEARS.**

1) Re-using the ratchet gear spring; install the new ratchet gear (pn 138N1-4) and old spring into the top cover, so that the counter bore of the gear is facing the backing plate gasket surface.

2) Install the ratchet shaft (pn 160N1-4) supplied in the kit by lining up the timing mark on the gear (painted white) with the edge of the shaft tooth as shown in figure 4. Using a screw driver hold the spring loaded gear toward the backing plate surface and install supplied cotter pin (pn 9R100PC00P) and bend over (Figure 5).



FIGURE 5; COTTER PIN INSTALL

(CONTINUED ON NEXT PAGE)

## BAKER 4-SPEED N1 SHIFT DRUM KIT

3) Install the N1 Shift Drum (pn 127SN1-4) in the cover so the timing mark on the top of the tooth (shorter tooth/painted white) lines up with the timing mark on the ratchet gear (Figure 6). Apply some transmission oil to the drum rod O-ring and rod; install the rod so that the seal side is facing toward the detent end of the top cover. Install the drum rod retaining screw per your Factory Service Manual. Check to make sure shift drum spins freely with no binding.

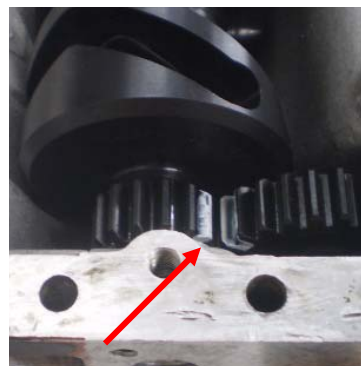


FIGURE 6; DRUM TIMING

4) Install the cam follower making sure the end of the cam follower lands into the detent of the shift drum (Figure 7) and install the neutral switch per your Factory Service Manual.

5) Position the top cover so that the Ratchet Shaft is facing upward; Place the supplied gasket (pn 155-4GAS) onto the top cover and install the Adapter (backing) Plate per your Factory Service Manual.



FIGURE 7; CAM FOLLOWER

6) Time the Ratchet Shaft to the Backing Plate following your Factory Service Manual making sure that the timing mark notch on the backing plate aligns exactly between the two shifter teeth while in gear (Figure 8). Tighten screw with washer to 6-9 ft-lbs (100-110 in-lbs)

7) Following your Factory Service Manual reinstall all ratchet springs, carrier, pawls etc. along with the supplied Ratchet Cover Gasket (pn 158-4GAS). Use Blue Loctite® on all top cover screws; tighten per your Factory Service Manual.

8) Install dust cover/shield and lever per your Factory Service Manual.

9) Check the shift fork dog tooth gap by using the Fork Shifter Gauge; H-D® P/N 96384-39 or equivalent following your Factory Service Manual. Shim shift forks if necessary to get proper dog tooth gaps following your Factory Service Manual.



**YOU MUST CHECK SHIFT FORK DOG TOOTH GAP BY USING THE FORK SHIFTER GAUGE; FAILURE TO CHECK/SHIM SHIFT FORKS TO GET PROPER TOOTH GAP COULD RESULT IN SEVERE INJURY OR EVEN DEATH.**



FIGURE 8; BACKING PLATE TIMING

10) Reinstall your top cover assembly using the supplied top cover gasket (pn 156-4GAS) and using Blue Loctite® on the top cover screws. Install per your Factory Service Manual making sure that the Vented Screw removed (2<sup>nd</sup> step under Prep) is reinstalled in its original position.

11) While the transmission is still on the bench; do a shift check through all the gears to make sure that it is functioning properly.

12) Reinstall your transmission assembly following your Factory Service Manual.

13) Installation is complete; make sure to add the proper fluids following your Factory Service Manual and check fluid levels after initial test ride.

# BAKER 4-SPEED N1 SHIFT DRUM KIT

## **SPECIALORDERS**

A minimum \$500 deposit is required with all special orders. Special orders include unique case finishes, unique side door requests (i.e.; wrinkle black door or no logo).

## **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. transmission accessories 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, swingarm, fender, 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 Wide Tire Kits 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 4-SPEED N1 SHIFT DRUM KIT**

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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.

