



INSTRUCTION SHEET FOR JIMS FAT6



JIMS® FAT 6 Transmission Gear Sets

The JIMS FAT 6 transmission is a rock solid, "bolt-in" performance upgrade for the stock, O.E.M. 6-speed transmission. Starting with our raw material, JIMS designed FAT 6 gears to be manufactured from the best aerospace grade 9310 American steel available. 9310 steel is known for it's high core strength, toughness, hardenability and high fatigue strength. The gear teeth are straight cut and have been increased up to 53% in width, when compared to stock gears, for additional load capacity and strength.

These transmissions utilize JIMS quick shift ring technology minimizing the annoying "clunk" when shifting. A lightened, 1-piece, steel shift drum, combined with shift ring dog's and gear pockets that are back cut, will ensure that gears stay engaged, and do not pop out of gear, causing a premature failure or sheering of gear teeth. The teeth are ground to a precise mating profile, resulting in a smooth ride with zero gear whine. JIMS chose gear ratio's very similar to stock, with the final drive ratio remaining 1:1. The shafts and gears are assembled into a JIMS 6061 billet aluminum BIG bearing trap door that reduces flex in high performance applications. These bolt in transmissions are compatible with your stock gear selector, both Twin Cam® and Milwaukee Eight®, and require no modifications to the case or exhaust mount.

The JIMS FAT 6 is clearly the right choice, whether you are simply looking for a performance replacement, racing or hitting the salt flats. Backed by a 2-year warranty against manufacturers' defects, the JIMS FAT 6 transmission check's all the right boxes which include strength, reliability, precise shifting, quiet running and no modifications.

WARNING!

Handling motor vehicle parts or tools can expose you to chemicals and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, service the vehicle in a well-ventilated area, wear gloves and wash your hands. For more information go to www.P65Warnings.ca.gov

READ ALL INSTRUCTIONS BEFORE PERFORMING WORK!
IF YOU DO NOT KNOW WHAT YOU ARE DOING, DO NOT DO IT!

JIMS® IS NOT RESPONSIBLE FOR THE QUALITY AND SAFETY OF YOUR WORK!

If you are not sure about any of the procedures in these instructions, have a reputable H-D repair shop perform these procedures for you.

WARNING: Always disconnect the Battery Ground Cable (at the battery) to prevent injury. Your work area should be well lit. Wear safety glasses (over your eyes) and protective clothing when working around power tools and compressed air. Be careful with chemicals when cleaning parts. Protect your skin from solvents and use only in a well-ventilated area. Degreasers are flammable and are a fire hazard. Just use common sense and exercise good judgement.

CAUTION: WEAR SAFETY GLASSES. EXCESSIVE FORCE MAY DAMAGE PARTS!
 SEE JIMS® CATALOG FOR HUNDREDS OF TOP QUALITY PROFESSIONAL TOOLS.
 THE LAST TOOLS YOU WILL EVER NEED TO BUY.

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TOOLS AND SUPPLIES RECOMMENDED FOR INSTALLING THE FAT6.

Hand Tools (Tools **FIG A**)

Specialty Tools (Tools **FIG B**)

Disconnect Batteries / Starter

A- RUBBER DEAD BLOW Mallet

B- SEAL REMOVER

C- 3/8 WRENCH

D- 15/16 WRENCH

E- 3/4 WRENCH

F- 3/8 EXTENSIONS

G- 1/4 ALLEN SOCKET

H- 3/16 ALLEN SOCKET

I- 3/4 SOCKET

J- 3/8 RATCHET

K- 3/8 TORQUE WRENCH

L- 1/2 TORQUE WRENCH

M- SCREWDRIVERS

N- SMALL OD SNAP RING PLIERS

O- LARGE ID SNAP RING PLIERS
(PREFERABLY RATCHETING)

P- HOOK/PICK

Q- 1/4 ALLEN T HANDLE

R- 3/16 ALLEN T HANDLE

S- 3/16 STUBBY ALLEN KEY



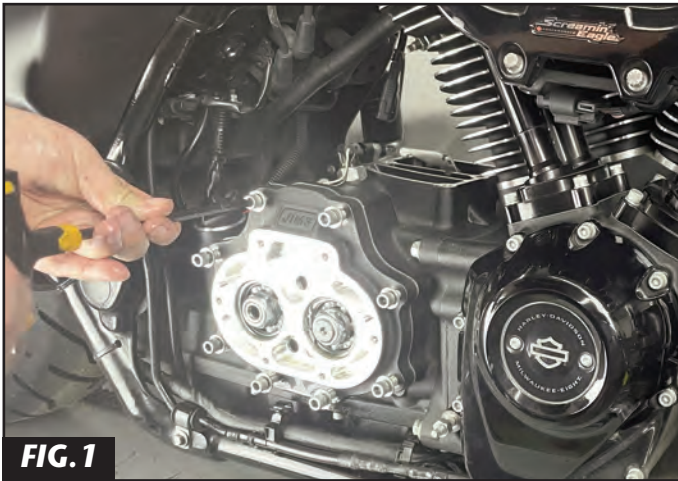
FIG.A



FIG.B

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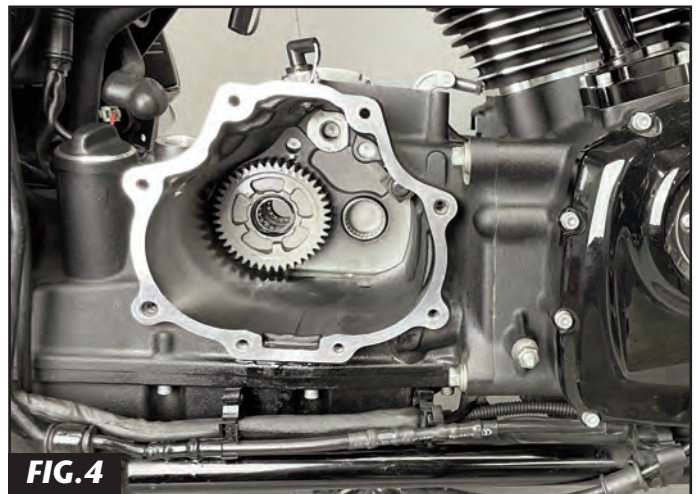
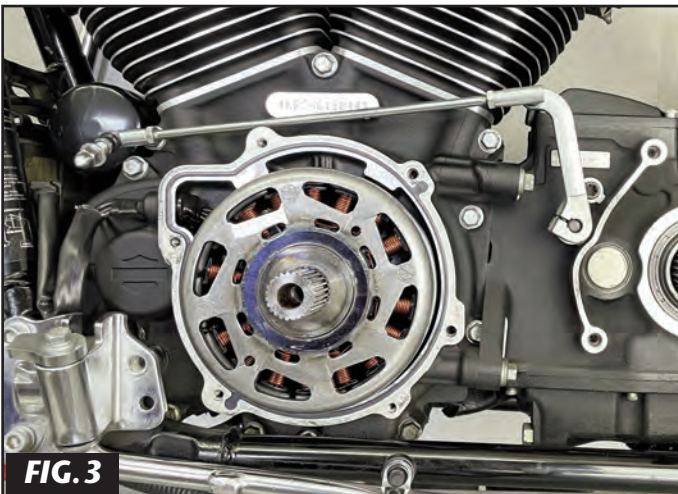
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REMOVAL

Remove Primary, Exhaust, etc... via Service Manual. Remove the Mainshaft Race using JIMS Tool No.34902-84 or equivalent via Service Manual. Remove pulley Nut / pulley via Service Manual. Before continuing, remove the dipstick and speedo sensor. Lift the shifter pawl so that it is resting on the top surface of the transmission case. Use a rag to prevent any marring of the surface. Now is a good time to inspect the speedo sensor.

Step 1 – Remove existing transmission: Fig 1 & Fig 2



BEFORE INSTALLATION

The primary side of the motorcycle should look like this: **Fig 3**

The cam cover side of the motorcycle should look like this: **Fig 4**

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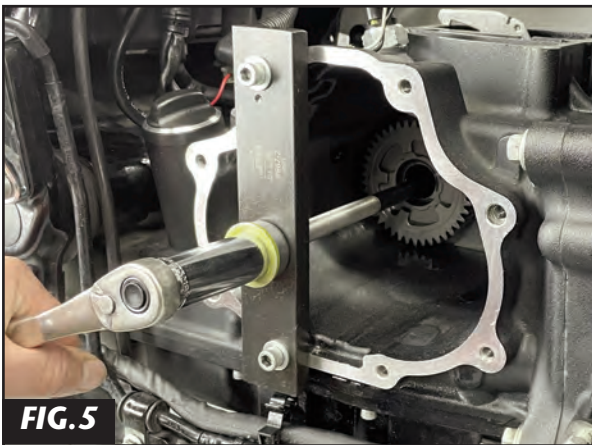
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FAT6 INSTALLATION

Once you have fully removed the OEM transmission from the case, it is time to install your new JIMS Fat 6 transmission. Carefully read and understand each step before attempting to install the new transmission.

- Step 1** – Remove the main drive gear seal using a standard seal puller.
- Step 2** – Remove the main drive gear using JIMS Tool No.900 or equivalent following the instruction sheet included with tool set. Discard the stock main drive gear. **Fig 5**
- Step 3** – Careful to not damage the bearing bore, remove the retaining ring (HD No. 11161) using snap ring pliers.
- Step 4** – Remove the main drive gear bearing using JIMS Tool No.900 or equivalent following the instruction sheet included with tool set. Discard the stock main drive gear bearing. **Fig 6** At this step the main drive gear and bearing have been removed. Take a moment to inspect the bearing bore for any potential damage.
- Step 5** – Install new main bearing following the installation section provided with JIMS Tool No.900 or per HD service manual. Install new countershaft bearing with JIMS Tool No.739.

(**CAUTION:** Do NOT allow any reinstallation tools used to hit the bearing bore.)



- Step 6** – Install the new retaining ring with the flat side against the bearing. Make sure the ring is seated 100% in its groove and the opening is at the 3:00 o'clock position with one end at the 2:00 o'clock and the other end at 4:00 o'clock.

Fig 6B

Note: It should not require more than 35 ft lbs. of torque to install the new main drive gear. Ensure the main drive gear registers (stops) on the face of the case bearing.

Fig 6



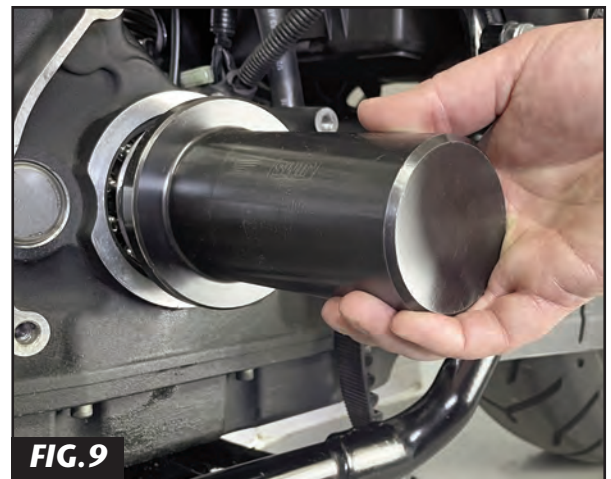
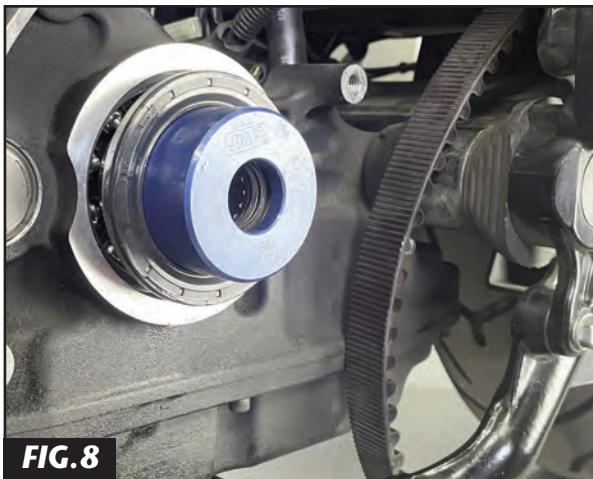
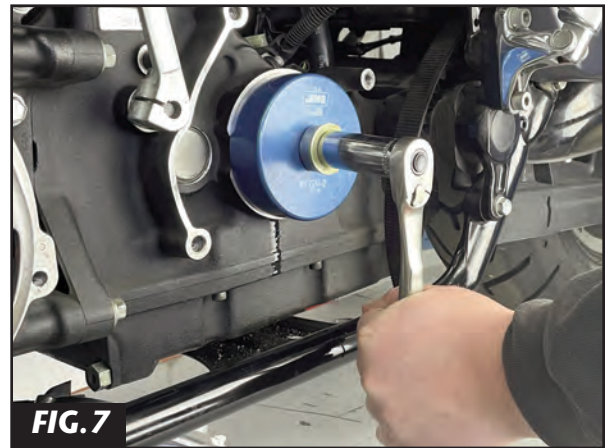
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Step 7 – Prior to installing, ensure the external O-ring is correctly installed on the main drive gear. Lubricate the O-ring and the I.D. of the newly installed bearing with clean engine oil per the HD service manual. Using the JIMS Tool No.900 or equivalent, install the new FAT6 main drive gear.

Step 8 – Install the main drive gear seal using JIMS tool No.786 or equivalent following the instruction sheet included with tool set. **Fig 8 & 9**

*****Steps 9-11 below are optional*****



Note: You are not required to change or replace the shift mechanism to install the FAT6 transmission. If the bushing is worn, if there is play in the mechanism or if a rattle is felt or heard – replace with new parts via Service Manual and JIMS specialty tools.

Step 9 – Remove the shift lever, along with washer and snap ring per HD Service Manual.

Step 10 – Remove the old shifter shaft seal (HD No. 11000101) with a small pick or screwdriver. Discard this seal after removal.

Step 11 - Install the new shifter shaft seal (supplied) with JIMS tool No.767 or equivalent following the instruction sheet included with tool set. **Fig 10**



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Step 12 - Remove the JIMS FAT6 gear set from box and lay in a clear and clutter free area. Keep the protective cover on the end of the main shaft during this step to protect the threads. Slide the trap door gasket over the assembly being sure not to damage or bend the gasket. Lightly lube the end of the main shaft and counter shaft with assembly lube to assist the shafts when sliding into the case. **Fig 11**

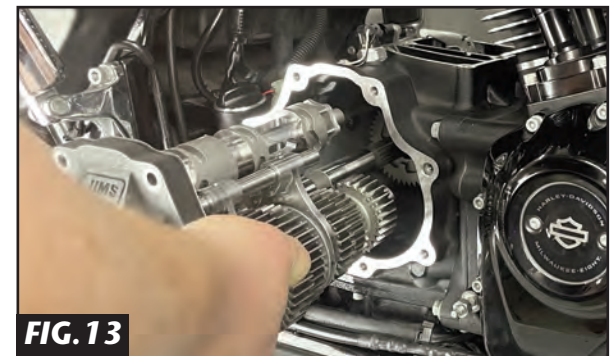


Step 13 - Prior to sliding the Gear Kit into the transmission case, check the following:

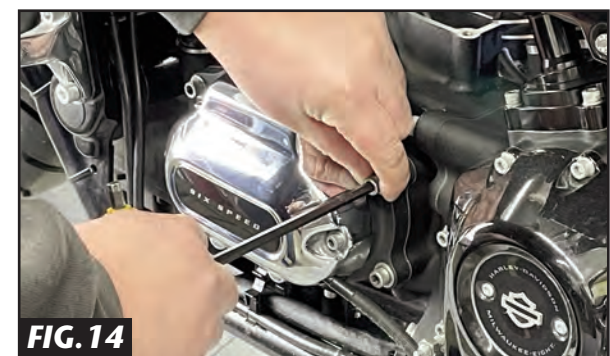
- Case is clean (spotless) of any and ALL debris from prior transmission.
- Dipstick is NOT installed.
- Shifter pawl is out of the case resting on the top surface. See **Fig 12** (Shifter hook is out of the way).



Step 14 - Carefully, guide the gear kit into the case. Be careful not to damage threads or mating bores when installing the gear kit. A non-marring hammer is helpful to tap the trap door assembly over the dowel pins without risking damage to the aluminum/chrome of the trap door assembly. **Fig 13**



Step 15 - Secure the trap door kit by installing the existing OEM screws (HD No. 3249). If not present apply a small amount of Blue Loctite before installing. Once in place, tighten per HD service manual. **Fig 14**



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Step 16 – Install the mainshaft race with JIMS tool No.34902-84 following the instruction sheet included with tool set.

Step 17 – Place belt pulley & sprocket over main shaft with the rear belt wrapped around the sprocket teeth.

Note: JIMS recommends using a JIMS “Mega Nut” to secure the sprocket in place. This is not required, and it is up to the technician / customer preference on which nut to use. For reference, JIMS “Mega Nut” Part No.1733.

Step 18 – Install the pulley & sprocket nut of choice per HD service manual. It is important not to get any oil on the threads of the sprocket nut.

Fig 16



Step 19 – Install shifter pawl back onto the shift drum. **Fig 17**

Step 20 – Install top lid back on transmission. Torque to specification listed in HD service manual. A new gasket is supplied if needed.

Step 21 – Re-install speedo sensor and dipstick.

Step 22 – Insert clutch pushrod into center of main shaft. (Picture is hydraulic clutch actuation) – Refer to service manual for cable actuation pushrod and assembly. **Fig 18**



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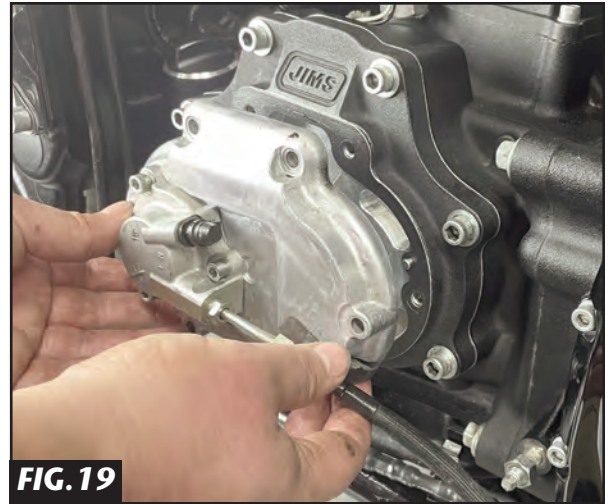
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Step 23 – Install the clutch release cover following the sequence and torque values found in HD service manual. **Fig 19**

YOUR NEW JIMS FAT6 IS INSTALLED!

Note: Be sure to fill oil with your preferred transmission oil and dipstick is installed. JIMS has done durability testing using HD Formula Plus transmission oil.
Fig 20

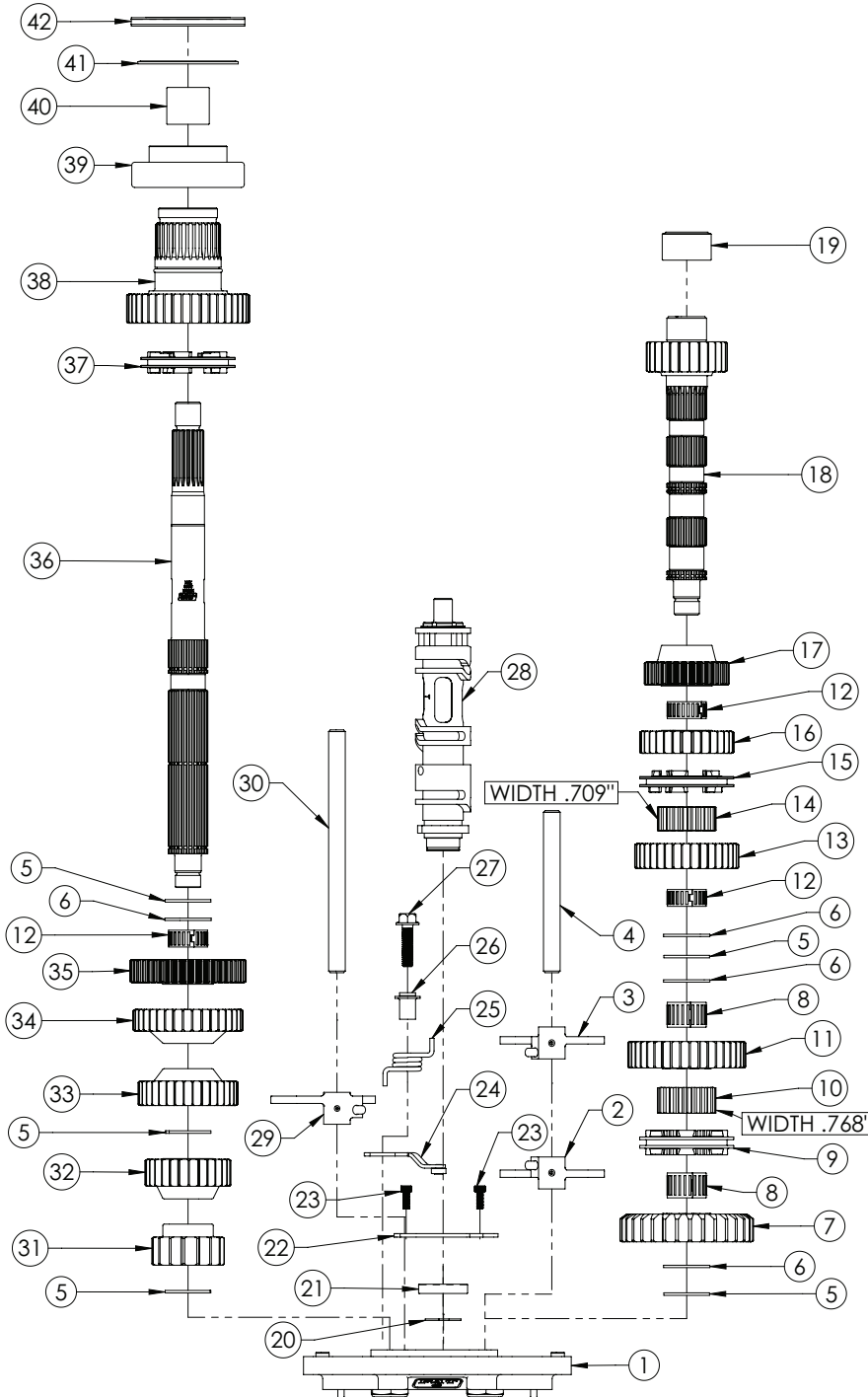
**BACKED BY A
2-YEAR MANUFACTURER DEFECT WARRANTY**
Thank you for choosing JIMS, and supporting American
Made Design and Manufacturing

**FIG.19****FIG.20**

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PARTS AVAILABLE SEPARATELY

NO.	QTY.	DESCRIPTION	PART NUMBER
1	1	TRAPDOR, WD BEARING, BLK POWDER CT	2336
1	1	TRAPDOR, WD BEARING, POLISHED	2350
2	1	SHIFT FORK, 1-2, FAT6	8664
3	1	SHIFT FORK, 3-4, FAT6	8665
4	1	SHIFTER SHAFT, SHORT	2336-4
5	5	RETAINING RING	1186-1036
6	4	THRUST WASHER	1186-2020
7	1	GEAR, 1ST COUNTER, FAT 6	8653
8	2	SPLIT ROLLER BEARING	8353-2
9	1	SHIFT RING, 1-2, FAT6	8669
10	1	SPLINE SLEEVE (WIDTH .768)	8343-1
11	1	GEAR, 2ND COUNTER, FAT6	8655
12	3	SPLIT CAGE, BEARING	8876A
13	1	GEAR, 3RD COUNTER, FAT 6	8657
14	1	SPLINE SLEEVE (WIDTH .709)	1103-2020
15	1	SHIFT RING, 3-4, FAT 6	8668
16	1	GEAR, 4TH COUNTER, FAT 6	8659
17	1	GEAR, 5TH COUNTER, FAT 6	8661
18	1	COUNTERSHAFT, FAT6	8651
19	1	NEEDLE BEARING, DRAWN-CUP	8963
20	1	RETAINING RING, DRUM BEARING	11575
21	1	BALL BEARING	8672
22	1	PLATE, DRUM RETAINER	35249-06A
23	2	THREAD-LOCKING SOCKET HEAD SCREW	8671
24	1	ARM, DETENT, ASSEMBLY	33409-06B
25	1	TORSION, SPRING, DETENT LEVER	33389-07
26	1	SHAFT, DETENT LEVER	35243-06
27	1	HEX HEAD SCREW	8670
28	1	SHIFT DRUM, TC, FAT 6	8652-1
28	1	SHIFT DRUM, M8, FAT 6	8652-2
29	1	SHIFT FORK, 5-6, FAT6	8666
30	1	SHIFTER SHAFT, LONG	2336-3
31	1	GEAR, 1ST MAIN, FAT 6	8654
32	1	GEAR, 2ND MAIN, FAT 6	8656
33	1	GEAR, 3RD MAIN, FAT 6	8658
34	1	GEAR, 4TH MAIN, FAT 6	8660
35	1	GEAR, 5TH MAIN, FAT 6	8662
36	1	MAINSHAFT, FAT 6	8650
37	1	SHIFT RING, 5-6, FAT 6	8667
38	1	GEAR, MAIN DRIVE SUBASSEMBLY	8663
39	1	CASE BEARING	8967A
40	1	BEARING, INNER RACE	34091-08
41	1	SNAP RING	11161
42	1	MAIN DRIVE CASE SEAL	12074
43	1	INSTRUCTION SHEET	8600-IS

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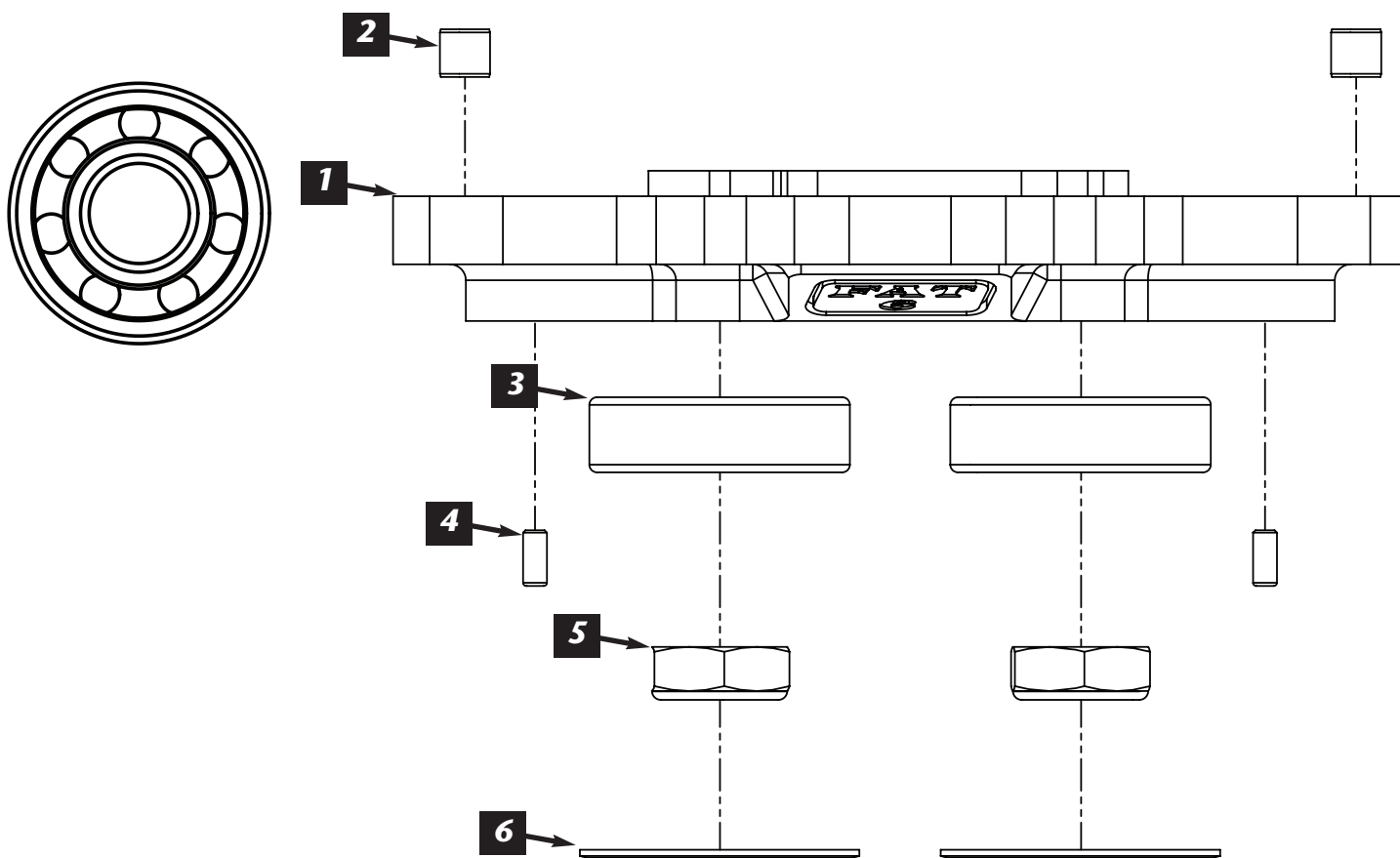


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PARTS AVAILABLE SEPARATELY

QTY	NO.	DESCRIPTION	PART NUMBER
1	1	TRAPDOOR, WIDE BEARING, CRZ DR. BLK POWDER COAT	2336
2	2	DOWEL, BALANCE SHAFT	1486-1828
2	3	ALL BEARING, 5-SPD, DOOR, T/C 88 (WIDE)	8992A
2	4	DOWEL PIN	221
2	5	CS/MS, JAM LOCKNUT	1186-1025
2	6	RETAINING RING, 5 SPD, DOOR, T/C 88	35087-99



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