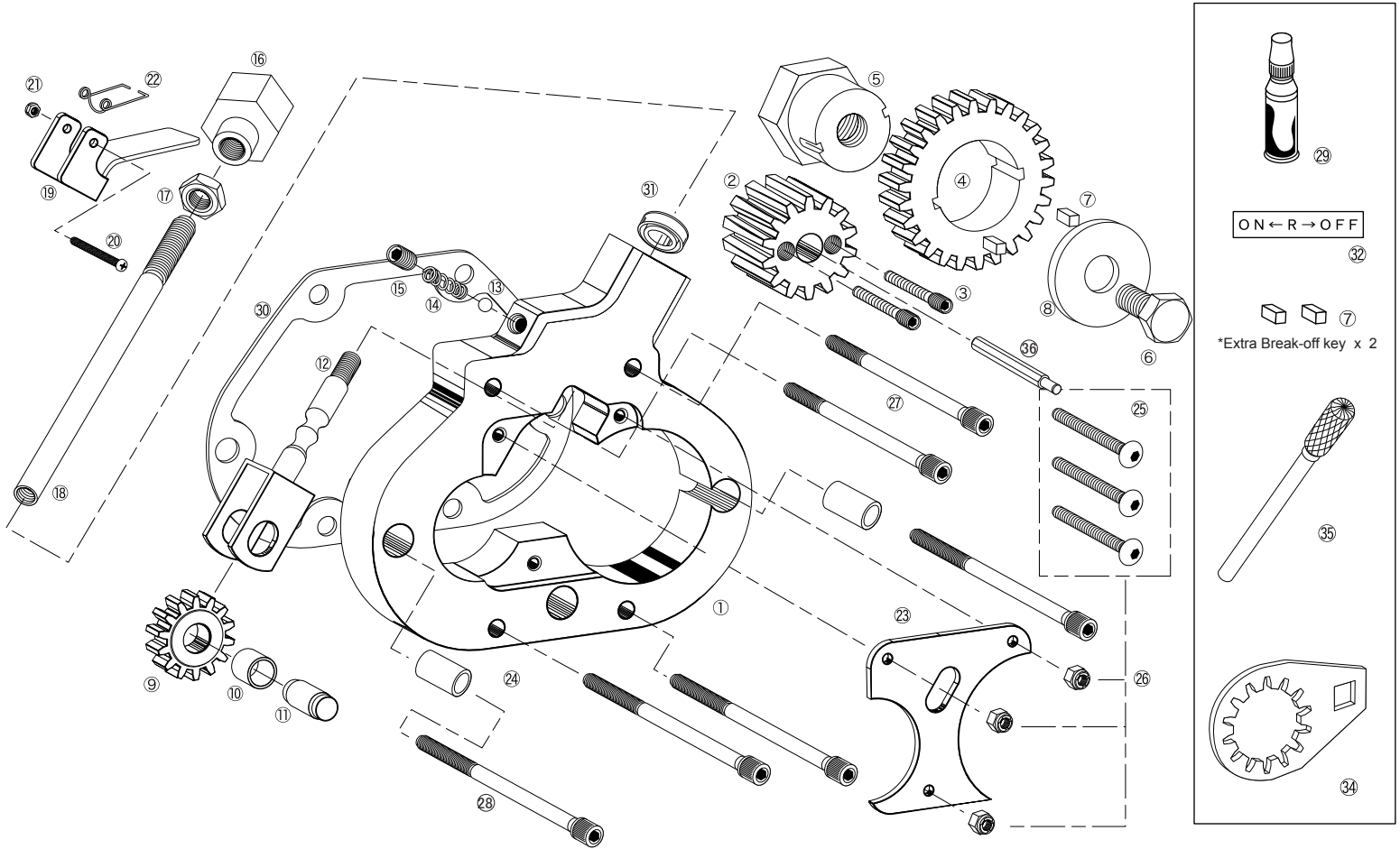




Parts list

**Two Piece/ Push Ultima Trans., Screamin Eagle 6 Speed (Parts#MB006-002)**



Parts#	Name	Q
① PMB001-097	Gear housing (Chrome)	1
② PMB001-002	Main gear	1
③ PMB001-003	Lock pin screw	2
④ PMB001-004	Counter gear	1
⑤ PMB001-005	Counter nut	1
⑥ PMB001-006	Bolt M10x10	1
⑦ PMB001-007	Break-off key	4
⑧ PMB001-008	Washer 11mm x 32mm	1
⑨ PMB001-009	Idler gear	1
⑩ PMB001-010	Idler bushing	1
⑪ PMB001-011	Idler pin	1
⑫ PMB001-064	Reverse shifter	1
⑬ PMB001-013	Ball bearing 8mm	1
⑭ PMB001-014	Detent spring	1
⑮ PMB001-015	Detent set screw	1
⑯ PMB001-016	Shift knob	1
⑰ PMB001-017	Nut 10mm	1
⑱ PMB001-044	Shift lever	1
⑲ PMB001-045	Safety trigger	1
⑳ PMB001-046	Screw M3x22	1

Parts#	Name	Q
㉑ PMB001-047	Nut M3	1
㉒ PMB001-048	Lever spring	1
㉓ PMB001-049	Side plate	1
㉔ PMB001-091	Dowel pin	2
㉕ PMB001-071	Flat head Bolt M6x30	3
㉖ PMB001-052	Nut M6	3
㉗ PMB001-072	Bolt 1/4"-20x 3 1/2"	6
㉘ PMB001-073	Bolt 1/4"-20x 3 1/4"	3
㉙ PMB001-029	LockTite #620(Green)	1
⑳ PMB001-075	Gasket	3
㉑ PMB001-056	Oil seal	1
㉒ PMB001-057	Decal	1
㉓ PMB001-089	Plate wrench	1
㉔ PMB001-078	5mm bur	1
㉕ PMB001-092	30mm Extension rod	1



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# AIM PERFORMANCE PRODUCTS

Parts#MB006-002

• Reverse Gear MAMBA (Cable operated TM)

For Ultima Transmissions, Screamin Eagle 6 Speed

## Installation Instructions 1/3

Read and become familiar with these installation instructions before start.

### ⚠ WARNING!!

**To prevent accidental vehicle start-up, which could cause serious injury, disconnect negative(-) battery cable before proceeding.**

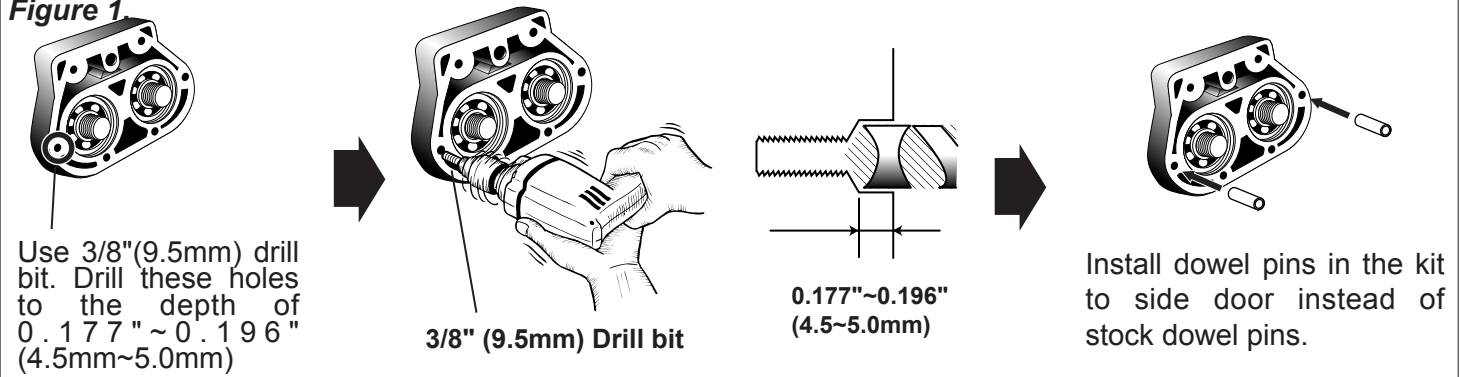
### Note

**Touring models:** Require the True dual pipe (Parts#FS001-001) or changing full exhaust system due to clearance issue.

**Softail, Dyna models and some aftermarket exhaust pipes:** May be required pipe modifications or changing exhaust pipe due to clearance issue.

1. Drain the transmission oil. Remove exhaust pipe if it is necessary.
2. Remove the Rightside transmission side cover and oil slinger assembly (only Cable style).
3. Remove two nuts from the mainshaft and countershaft.
4. **See Figure 1.** If there is not counter bore for dowel pin on left side. Drill that hole with 3/8" drill bit to make counter bore.

Figure 1

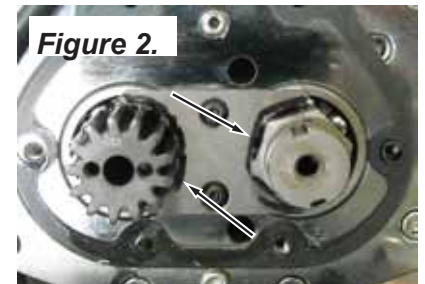


5. **For Only Ultima 6 Speed Transmission**

### Caution

**Do not tighten Main gear and Counter nut at this time.**

See **Figure 2.** Install Main gear and Counter nut by hand. Mark the Bearing retainer plate where need to grind to clear the Main gear and Counter nut.



6. **For Only Ultima 6 Speed Transmission. See Figure 3.** Remove Bearing retainer plate. Grind Retainer plate to clear the Main gear and Counter nut.

Figure 3.



7. **For Only Ultima 6 Speed Transmission.** Install Bearing retainer plate. Apply LockTite (Blue). Tighten screws.



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Parts#MB006-002

# Reverse Gear MAMBA (Cable and Hydraulic operated TM)

For Ultima 6 speed Transmission, Screamin Eagle 6 Speed

## Installation Instructions 2/3

8. Clean threads of mainshaft and countershaft using a parts cleaner to remove oil. Apply plenty of supplied LockTite# 620 (Green)<sup>29</sup> to thread of mainshaft.

9. **Caution**  
**Do not use impact wrench (Power tool) to tighten the main gear<sup>2</sup> which causes breaking mainshaft.**

**Note**  
To prevent rotating mainshaft during tightening main gear. Shift into 1st gear and apply rear brake.

See Figure 4. Tighten the main gear<sup>2</sup> to **80ft-lbs (109Nm)** using the supplied Plate wrench<sup>34</sup>.

10. **Caution**  
**Use Regular Drill which is less than 3000rpm. Do not use high speed air grinder and push the supplied 5mm bur very hard which causes breaking the bur.**

**Caution**  
**Do not grind more than 0.945" (24mm) depth which causes damaging bearing inner race and bur.**

See Figure 5. Using the drill and supplied 5mm bur<sup>35</sup>, grind the mainshaft straight (This is for Lock pin) to the depth of **0.945"(24mm)** from the main gear surface through two holes of the main gear.

11. Completely clean the drilled holes. Use care to ensure debris does not enter transmission.

12. **Caution**  
**Do not apply any LockTite to lock pin screw<sup>3</sup> It will be very hard to remove lock pin screw when it is necessary.**

See Figure 6. Install Lock pin screws into the main gear. Tighten the lock pin screw to **8 ft-lbs**.

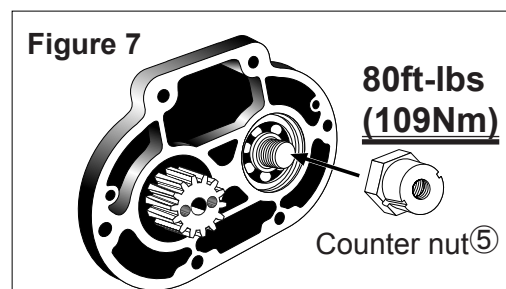
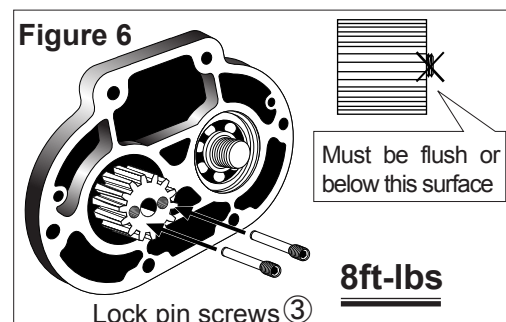
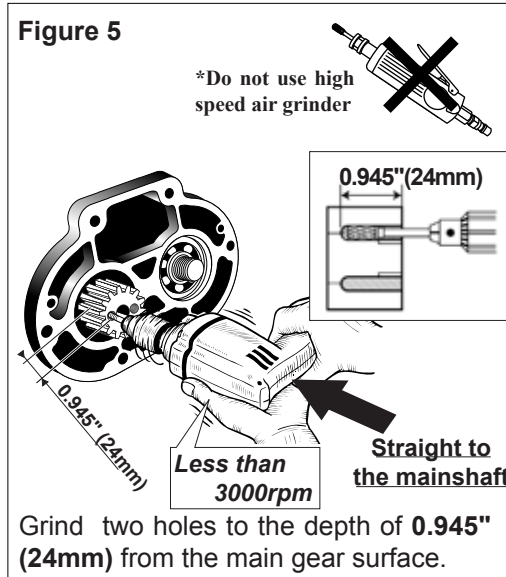
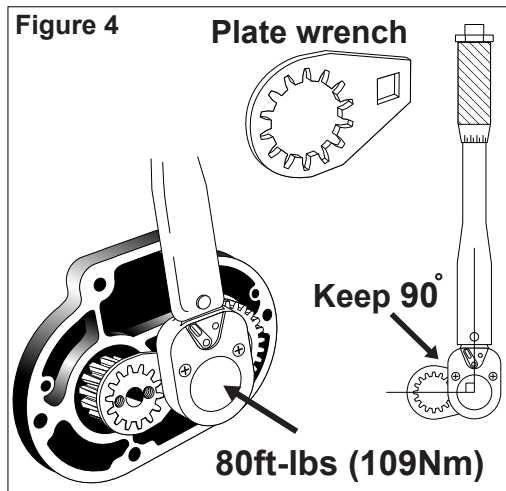
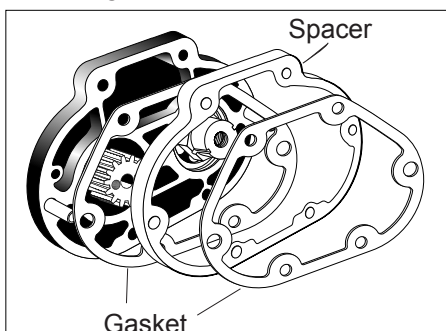
13. Clean thread of the counter nut<sup>5</sup> using parts cleaner to remove oil. Apply plenty of supplied LockTite#620 (Green)<sup>29</sup> to thread of countershaft.

14. **Caution**  
**Do not use impact wrench (Power tool) to tighten the counter nut which causes breaking countershaft.**

**Note**  
To prevent rotating countershaft during tightening main gear. Shift into 1st gear and apply rear brake.

See Figure 7. Tighten the counter nut<sup>5</sup> to **80ft-lbs (109Nm)** using the 32mm socket.

15. Install side cover gasket, spacer and side cover gasket.





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# AIM PERFORMANCE PRODUCTS

Parts#MB006-002

•Reverse Gear MAMBA (Cable operated TM)

For Ultima Transmissions, Screamin Eagle 6 Speed

## Installation Instructions 3/3

16. See Figure 8. Install Reverse gear housing.

17. See Figure 9. Apply grease between the counter nut and counter gear. Install the counter gear<sup>4</sup> on to the counter nut.

18. Align key grooves on the counter nut and counter gear. Install two break-off keys<sup>7</sup> into the grooves.

19. **Note**

To prevent rotating countershaft during tightening main gear. Shift into 1st gear and apply rear brake.

See Figure 10. Apply LockTite#271 (Red) to the thread of bolt<sup>6</sup>. Install bolt with the washer to the counter nut. Tighten the bolt<sup>6</sup> to **56ft-lbs (75Nm)**.

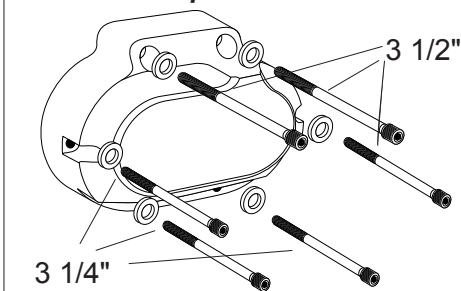
20. Install the side cover gasket.

21. See Figure 11. Remove the thrust bearing from stock oil slinger rod. Install thrust bearing to the supplied 30mm Extension rod <sup>36</sup>. Install the ball bearing<sup>33</sup> and Extension rod <sup>36</sup>.

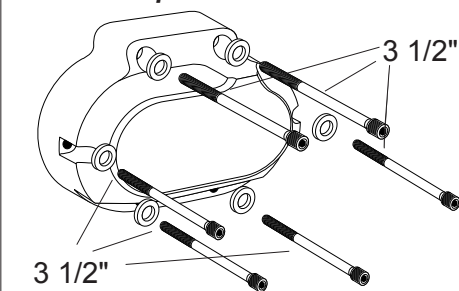
22. See Figure 12. Install two dowel pins to the side cover.

23. Install the side cover using supplied two different length bolts and washers. Tighten the bolts to **9ft-lbs (12Nm)**.

**For Ultima 6 Speed Transmission**



**For S.E. 6 Speed Conversion Kit**



24. Fill the transmission with transmission lubricant. See Harley-Davidson service manual.

25. Install the exhaust pipe if it is necessary.

26. Adjust clutch. Turn clutch cable adjuster until there is a large amount of free play at clutch lever. Loosen locknut on clutch adjuster screw. To take up all free play, turn screw inward (clockwise) until lightly seated. Activate the clutch lever to verify the ball and ramp are completely seated. Back out adjusting screw 1/4 to 1/2 turn. Tighten locknut while holding adjusting screw with an Allen wrench. Adjust the clutch cable. Ensure free play of 1/8in or more at the clutch lever pivot between the clutch holder and lever without pulling the cable.

27. Connect the battery.

Figure 8

Reverse Gear housing

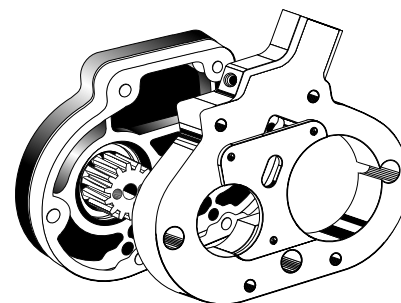


Figure 9

Apply grease between the counter boss and counter gear.

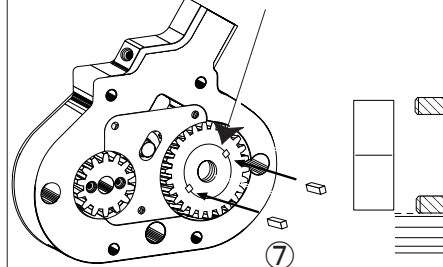


Figure 10

**56ft-lbs**

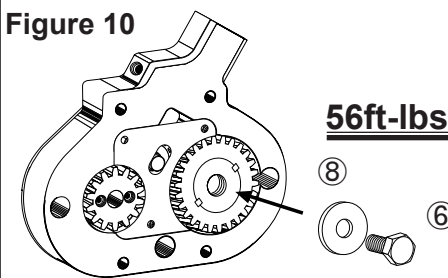


Figure 11

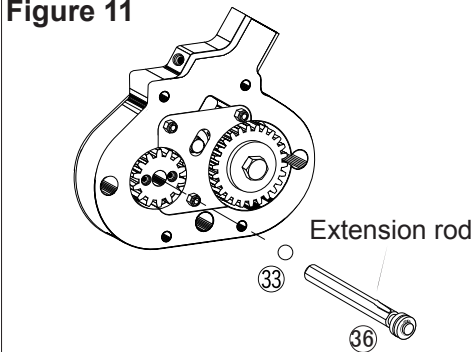


Figure 12

Dowel pin







# AIM PERFORMANCE PRODUCTS

Parts#MB002-001, MB002-002, MB002-004, MB002-005,

MB003-001, MB003-002, MB006-001, MB006-002,

• Reverse Gear MAMBA (Two Piece)

Reverse gear operation

## Reverse gear operation

### To engage reverse gear:

#### ⚠ WARNING

- Do not shift into the reverse gear before shift into 1st gear to stop spinning all gears in the transmission.
- Use reverse gear in Neutral. Transmission must be in Neutral when engaging or using reverse gear.
- Reverse gear is intended for light duty use only.

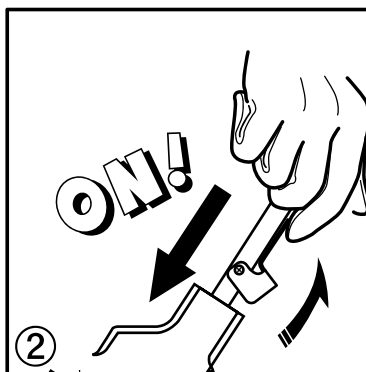
Failure to do so may result in breaking brake-off keys, damaged transmission or serious injury.

#### Note

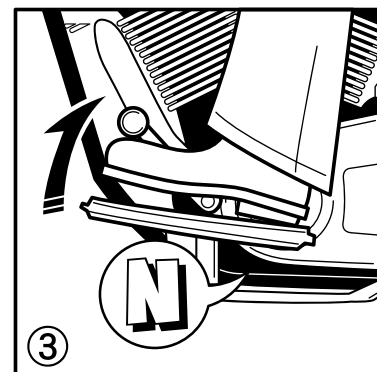
No throttle, just release (engine idle speed) the clutch lever until you are accustomed with motorcycle going reverse.



Disengage the clutch. Shift into the first gear to stop spinning all gears in the transmission to prevent damaged transmission when put into the reverse gear.

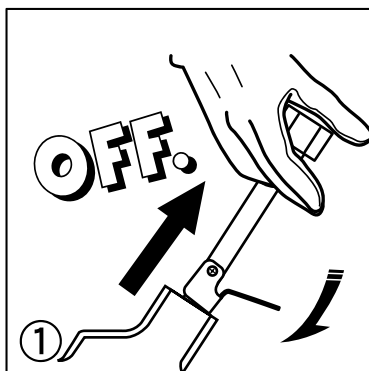


Pull the safety trigger and push the shift lever down to shift into reverse gear. **Do not engage the clutch at this time.**



Shift transmission in Neutral. Engage the clutch to reverse motorcycle.

### To disengage reverse gear:



#### ⚠ WARNING

Disengage the reverse gear before engaging any forward gears. Failure to do so may result in breaking brake-off keys, damaged transmission or serious injury.

Lift the shift lever up to disengage the reverse gear.



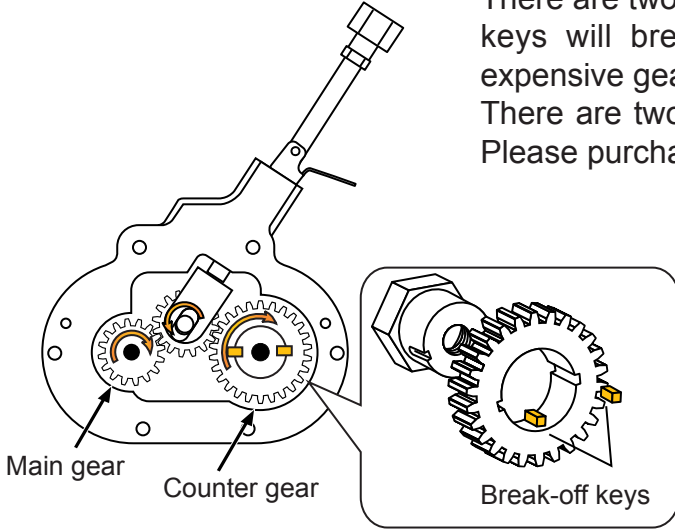
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Supplement

•Reverse Gear MAMBA (All models)

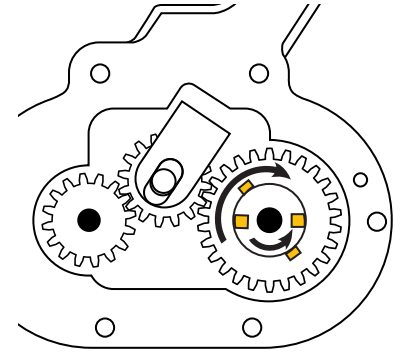
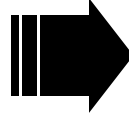
Read and become familiar with these installation instructions before start.

## Break-off key replacement

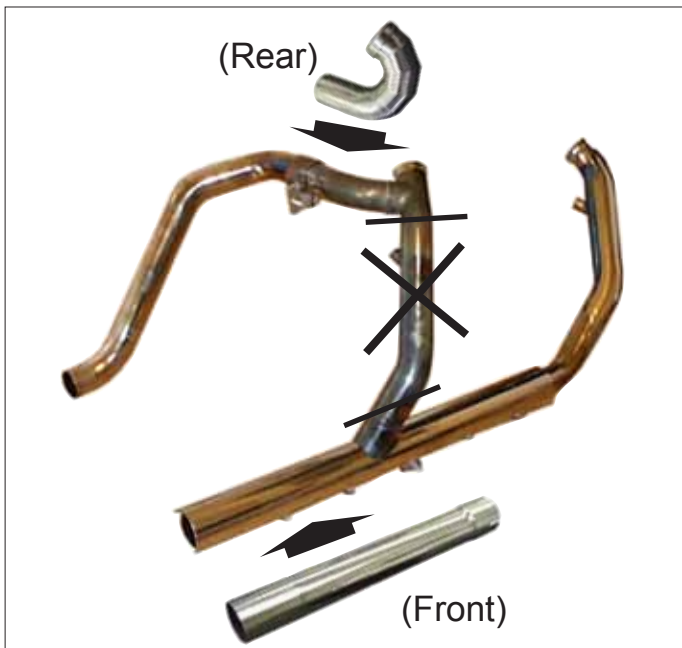


There are two break-off keys between the counter nut and gear. These keys will break when excessive load was applied to save more expensive gears than break-off keys. There are two of extra keys in the kit. If you break all keys in the kit. Please purchase new Break-off keys (Parts#PMB001-007).

*Excessive load!!*



## True Dual Pipe



## True Dual Pipe

*For '87-'08 Touring model's stock exhaust pipe*

- Eliminate cross over pipe to clear our Reverse gear kit for Touring models
- O2 sensor fitting for '07-'08 models
- Kit comes with O2 sensor plug for '87-'06 models

Parts#FS001-001 \$225.00



Advanced Innovative Machinery

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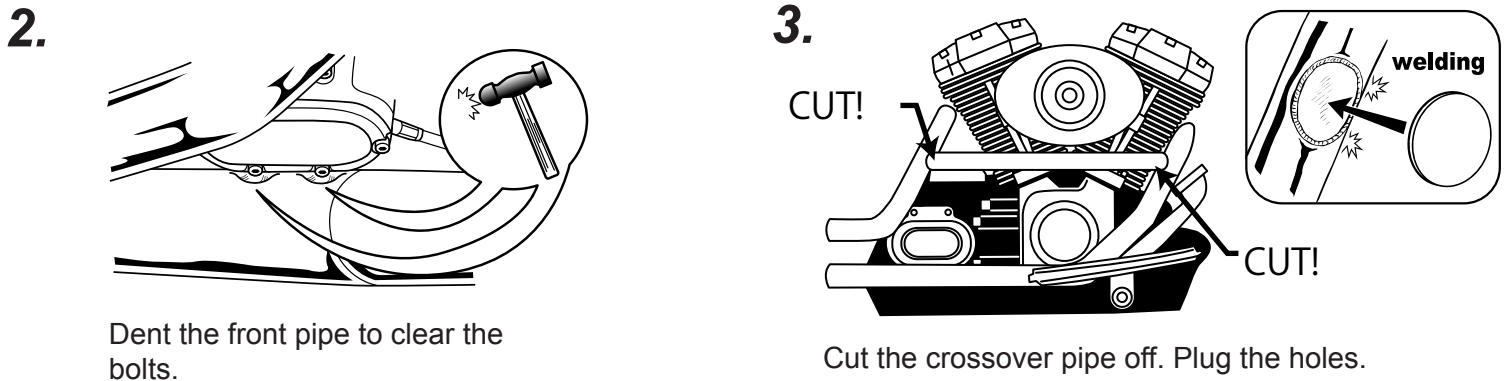
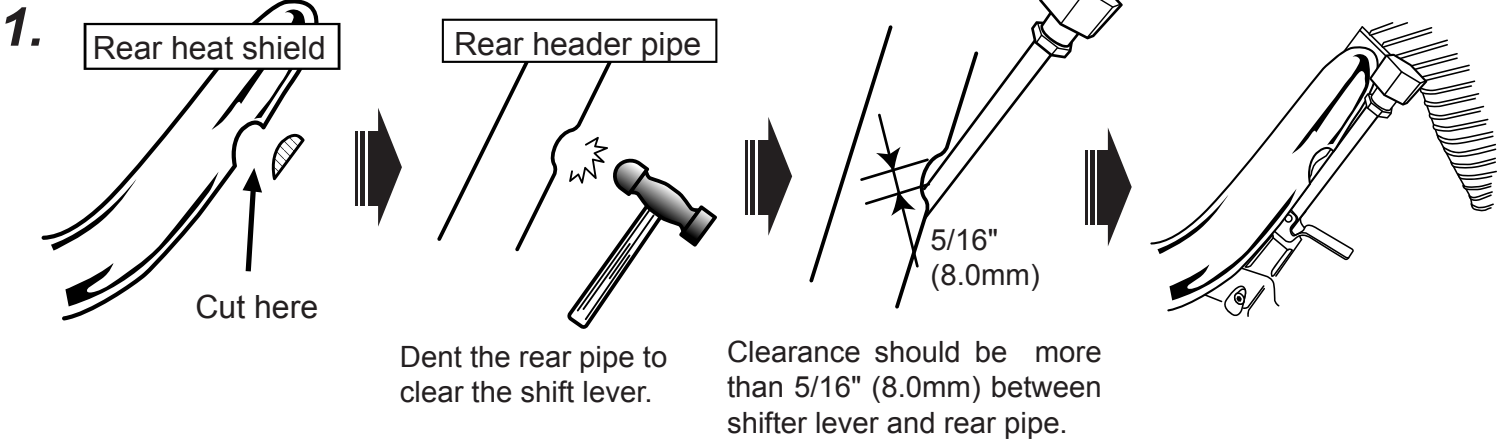


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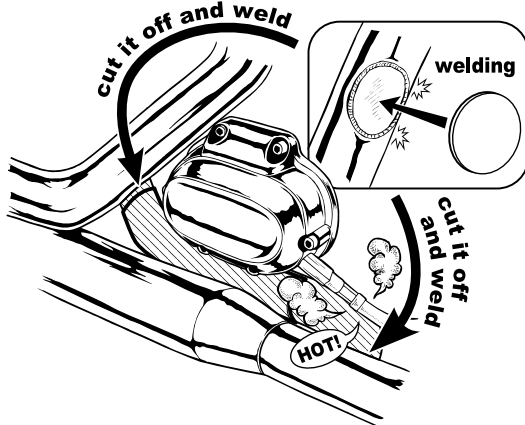
Read and become familiar with these installation instructions before start.

## Softtail models

Some Softtail models may be required following pipe modifications



## Dyna models



Some Dyna models may be required to cut the crossover pipe off and plug the holes to clear the side cover and gear housing.



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# Installation update note 1.

Counter nut for Reverse Gear kit, 5 speed transmission  
(Parts#MB003-001, MB003-002, MB006-001, MB006-002)

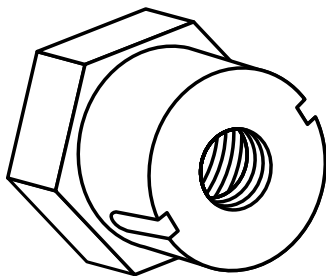
Read and become familiar with these installation instructions before start.

## Installation update note 1.

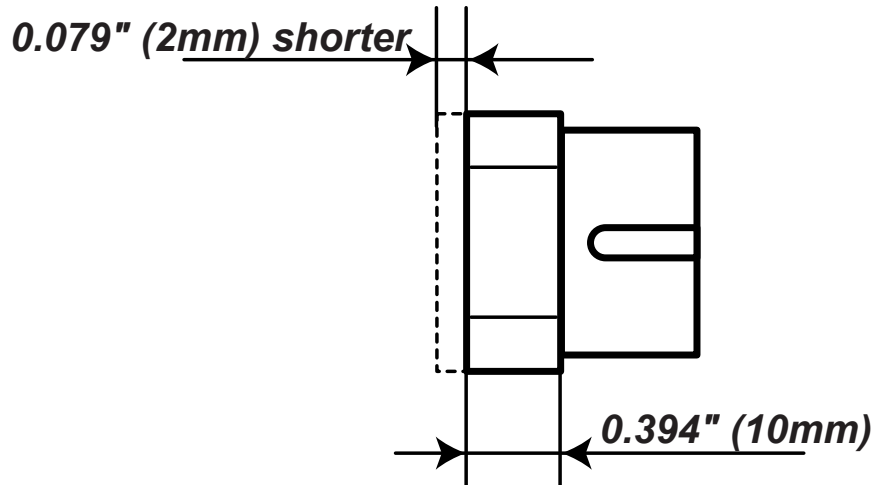
Counter nut for Reverse Gear kit, 5 speed transmission  
(Parts#MB003-001, MB003-002, MB006-001, MB006-002)

We have changed the counter nut height from 0.472" (12mm) to 0.394" (10mm).

**Please don't modify the counter nut !!**



Counter nut



Install the stock spacer on the Countershaft only, **Do not install the spacer on the mainshaft.** If there is no spacer on the countershaft, the counter gear will hit the transmission side door.

