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# REF: Gears, Sprockets, Belts

## Sub-Documents

\* . . . [Installing Chain-to-Belt Conversion](#)

## Caution: Aluminum Drive Sprockets

Some folks have had a problem with aluminum aftermarket pulleys that wear excessively. It may be an occasional fault in the anodizing or something more prevalent. Simply be aware of this potential problem. <sup>1)</sup>



## Rear Pulley - Replace/Refurb

SuperMax Belt Drives

SuperMax produces belt drives, polyurethane pulleys and parts made to order out of a small facility in Cottonwood, Arizona. In addition to replacement parts, they also offer a refurbishment of rear belt drive pulleys.

Advertising info: SuperMax is proud to offer the worlds only option to repair worn out metal rear wheel

pulleys (as shown on left). SuperMax can replace the teeth on most factory and aftermarket 61, 64, 65 and 70 tooth rear wheel pulleys, increasing their life span . . . indefinitely! SuperMax can remove the old teeth from your old pulley and overlay new proprietary "space age" poly teeth on your pulley to retain your current pulley design. SuperMax also makes many specialty drives, including final drive kits for chain drive FXRs and FLTs, final drives for Sportsters and big twins, as well as super light tranny pulleys.

(Reference from

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/ironhead-sportster-motorcycle-talk-1957-1985/103737-belt-final-drive-anyone?t=912715> - Neal Perez)

Website - [www.supermax.net](http://www.supermax.net) - 928-649-2836

## Chain to Belt Conversion Kits

**40110-89 KIT** - HD offered a 4-speed chain-to-belt conversion kit (1986-1990 models) but stopped offering them in 07/2005 (\$525.95)

40271-89 Front Drive Sprocket is 27-tooth - 19 Internal Splines match 86-90 only

Possibly 40256-89 27-tooth

40258-89 Rear Driven Sprocket is 61-tooth - Kit uses 132T 1-1/8" Belt

Possibly 40258-89A (both have 40246-91 casting number)

Original chain drive is 21/48 (2.286:1) - Belt Conv is 27/61 (2.259:1)

**40111-91A KIT** - HD offered a 5-speed chain-to-belt conversion kit (1991-1992 models) but stopped offering them in 10/2007 (40111-91C \$399.95)

See a chain-to-belt conversion by 'dave76' [HERE](#).

## Belt to Chain Conversion Parts

**PBI Sprockets - Chain Drive Offset Sprocket #280** is compatible with 1991-2006 Sportster models  
Overall width is 0.85" and offset is 0.5" with a Spline Width of 0.5"

Website - <http://www.pbisprockets.com> - See their HD catalog for all options

# Gear Indicator Correction (with Powervision) When Changing Gear Ratios

This example (which should apply more widely) is based on a 2012 883 Superlow that was converted to a 1250 with a different Primary Engine Sprocket and different final drive belt sprocket. These changes altered the calculation required to accurately display the proper gear. The recalculation was entered into a Powervision engine tuning unit.

**Fixing Digital Gear Indicator** - as reported by cliffm of the XLForum<sup>2)</sup> (quoted below with minor editing)

My most recent modification to my 2012 Xl883 superlow was installing V-Twin Power Sta-tor Ring w/encapsulated magnets opting to gear up to xl1200 38-tooth over my factory xl883 34-tooth for improved freeway cruising with my installed 883/1250 kit.

This obviously trashed the ECM's ability to properly interpolate the RPM of any selected gear. Having a mated Dynojet Power Vision I attempted to correct this. After several attempts I succeeded and want to share this, as it's applicable to all ECM controlled Harley's.

First, you must have the bikes "original" ECM configuration settings for reference, specifically what was the "original gearing" Primary & belt and also the "gear" interpolation values as displayed under gear in the PV menu.

Then you need to know the "new" gearing values as you need to calculate the difference in previous to current gearing percent's per gear.

In my case, I had almost the lowest, at 34/57 primary and 29/68 belt with 3.93 overall.

This meant:

- 1st gear was 10.44 and a gear setting of 0.22119
- 2nd gear was 7.463 and a gear setting of 0.31063
- 3th gear was 5.5310 and a gear setting of 0.4168
- 4th gear was 4.5840 and a gear setting of 0.50331
- 5rd gear was 3.9310 and a gear setting of 0.58687

The Primary swap to 38/57 primary and 30/68 belt, the new final is 3.40 A +14% increase. Re-calculating each gear and comparing to original provides the difference to "increase" my gear values for the ECM to interpolate the RPM/Gear selection display.

- 1st gear now 9.004 (+14.7810%) with gear setting "increased" to 0.25388
- 2nd gear now 6.431 (+14.4948%) with gear setting "increased" to 0.35566
- 3th gear now 4.784 (+14.4838%) with gear setting "increased" to 0.47717
- 4th gear now 3.965 (+14.4812%) with gear setting "increased" to 0.57620
- 5rd gear now 3.40 (+14.4864%) with gear setting "increased" to 0.67189

The VSS value in PV menu influences this as well, but I'm assuming you all have already dialed that in to correct for any tire diameter changes you may have performed. My gear selection is now spot on. This

approach works for all Harley's with ecm gear interpolation values.

The reason you can't just copy from you buddies configuration is variances in OEM tire size configurations and primary/belt drive gearing was "burned" to the ECM and power vision does not show this "hidden" multiplier, only the correction factor per gear, based on the OEM settings

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1)

see Scuba10jdl's comments here:

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-drivetrain/sportster-motorcycle-transmission-clutch-primary-secondary-drive/197117-fitment-years-for-transmission-pulley?t=2073711>

2)

posted by cliffm

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/efi-sportster-motorcycle-talk-2007-and-up/200174-fixing-digital-gear-indicator?t=2077145>

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