

# Factory Pro Tech

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## Bike kicks out of 2nd gear under acceleration?

Typical damage to motorcycle gearboxes, symptom, kicks out of second gear (or any gear).  
This damage is caused by the bike "kicking out" of gear.



Photo credit: [Dean Rachwitz](#)

When the transmission "kicks out" of gear, the gears slip out of dog / slot engagement (because the shift drum hadn't turned fully before the rider let out the clutch and applied the throttle) - the 2 relatively spindly fingers or "tines" of the shift fork get bent and now, the gear drags on the body of the fork. You could bet that the ends of the fork's fingers and the other deep score are probably pretty parallel on their scored surfaces.

This is a 100% definite part to replace.

Now.... how'd it get bent in the first place?



Photo credit: [Dean Rachwitz](#)

It got bent when the rider got back on the throttle before the shift was internally completed.

The gear's dogs and slots only got partially inserted because the shift drum hadn't fully rotated..... a little vibration and force, the dogs bounced back apart with an incredibly large amount of force - enough to bend the above shift fork.

Hmmm..... When the shift fork gets bent, it doesn't slide the gear over as far as it used to... and that makes the dog engagement problem even worse.

With a bent fork, the gear pops out even more often, rounding the dogs and slots and bending the shift fork even more.....

95% of the time, replacing just second gear, the gear it mates with and the corresponding shift fork will get you back to the starting line.

But!! (see next picture)

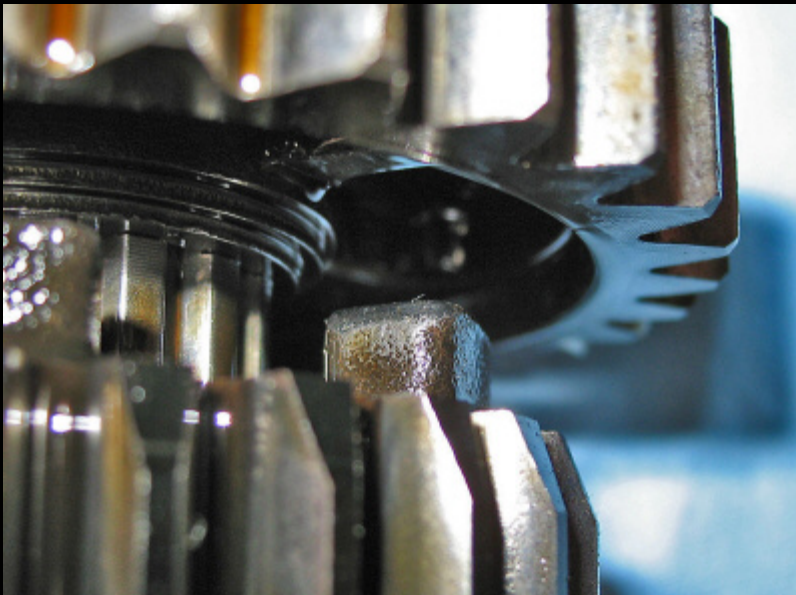


Photo credit: [Dean Rachwitz](#)



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If the bike has been kicking out of second gear (or whatever gear gave a problem) for a long enough time, you'll get shift drum damage, too.

Just to the left of the round hole, you'll see that the left aimed "point" of the slot's path has been hammered away.

In this cbr900's case, the fork was bent and not pushing the gear far enough into it's mating gear, the dogs and slots were worn rounded, wanting to spread apart, the drum was worn and not pushing the fork far enough over.

Second gear was essentially "gone" at any amount of throttle...

Always inspect the shift drum pathways for damage.

That's pretty much it - a shift fork, 2 gears, some transmission clips (never reuse old clips and MAYBE a shift drum, plus gaskets and seals.

This is the first drum I've seen with damage to TWO different gear locations.

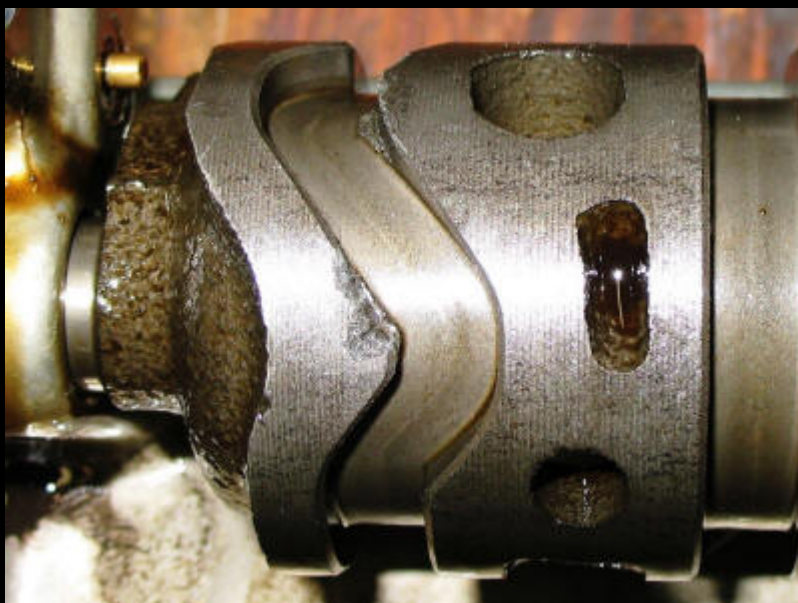


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How to prevent?

Simple, all this damage is caused by missed shifts.

Don't miss shifts.

The [Factory Pro Shift STAR Kits](#) don't require engine case splitting and virtually eliminate missed shifts, quicker upshifts and quicker downshifts and are easier than stock to shift.