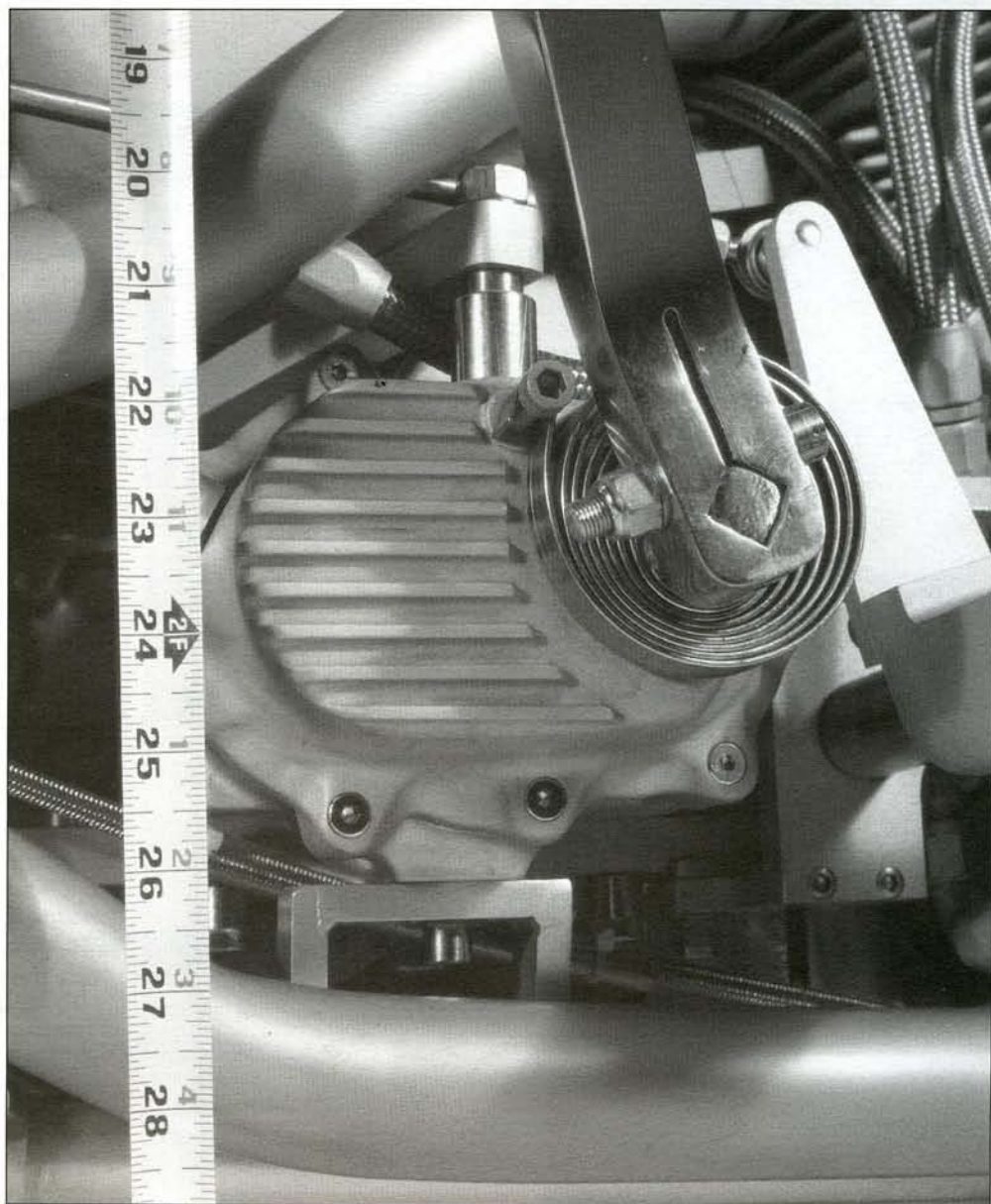

INCHING UP

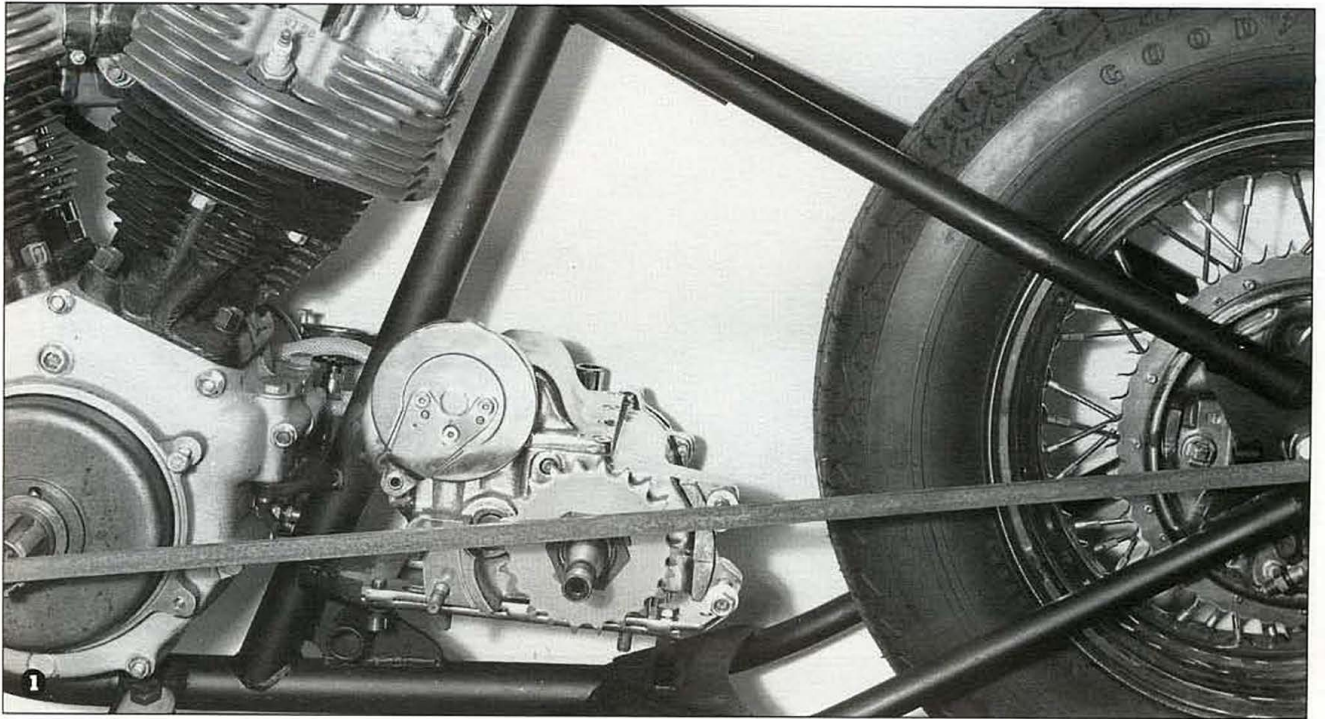
RAISED TRANNNY ADDS RELIABILITY

Whether you want to make that big-incher drivetrain live longer or maximize the mileage of a mild mod-job, here's a transmission trick that helps. It applies to Big Twins with solid mounted (non-rubber) engines/trannies. The modification works most

simply with kickstart gearboxes.

What's it all about? Big benefits accrue from a transmission located an inch above stock. Normally, the axis of the transmission output shaft sits an inch below the centerline of the engine sprocket and the





GEORGE

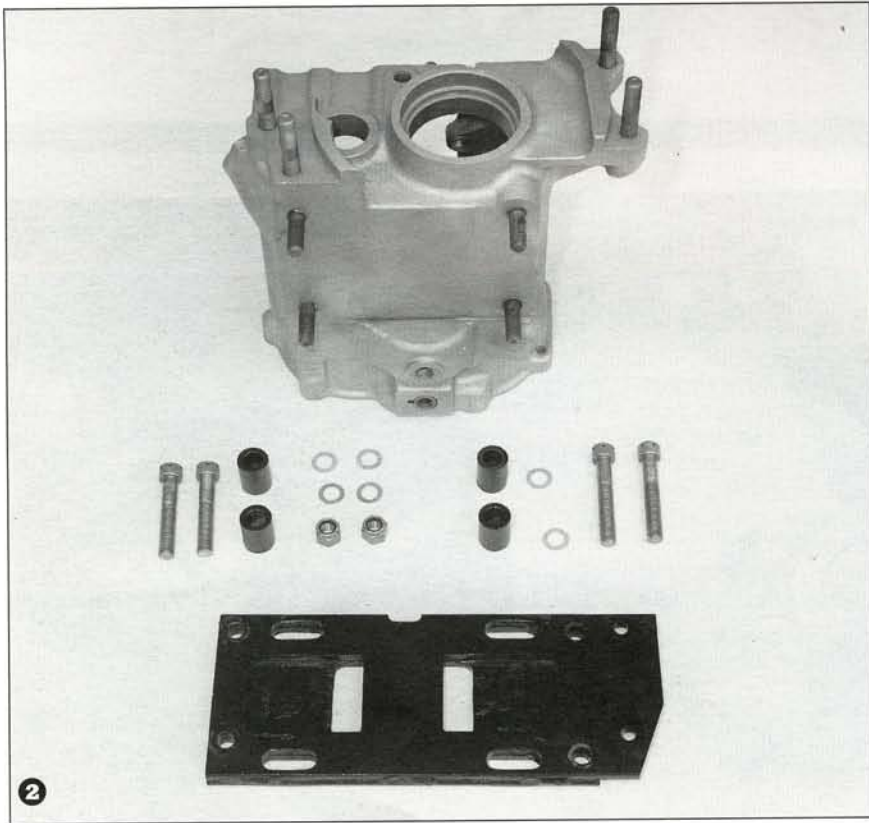
OLD ZEKE SAYS:

TRANNY TIP

Instructions -

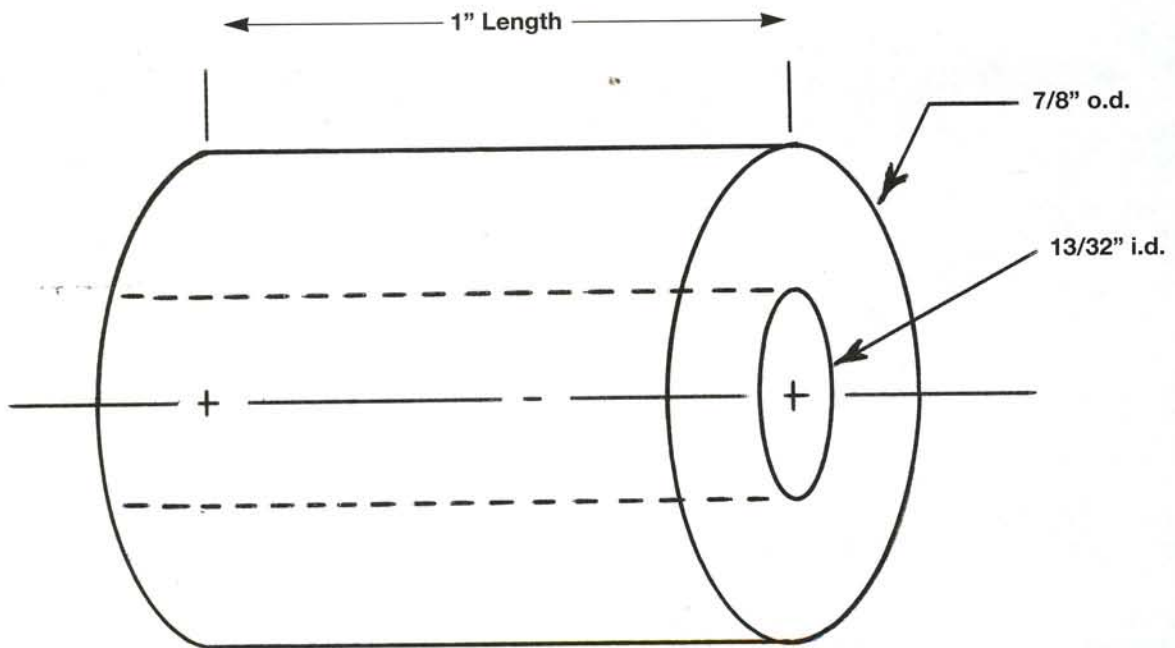
- A. Prop transmission.*
- B. Lower motorcycle.*
- C. Raise headlight.*

A FORMER FACTORY DESIGN ENGINEER, OLD ZEKE IS BEST KNOWN FOR CREATING THE 1928 61 C.I. POLICE MOTOR-KAMAKAZI. HE IS NOW PAISANO'S BASEMENT CUSTODIAN.



rear sprocket (1). Spin your mill tight, drop the clutch, and everything wants to yank the transmission up off its mounting plate. Raising it puts all the centers in one plane. Result? The pull of the primary drive opposes the resistance of the final drive. No more "up forces" on the transmission. With all three sprockets aligned horizontally, bearings last longer; stresses on frame and cases diminish.

It doesn't take radical surgery to fly high. At the bare frame stage, you add one-inch long spacers underneath the stock transmission mounting plate, with longer bolts (2). The spacers are easily machined (3). (Since tolerances vary, mock up your driveline—see photo 1—and adjust spacer length to line up centers exactly.) They raise the entire transmission assembly and plate one inch (4). If your frame accommodates it, we'd also recommend using a fifth spacer under the fifth mount, especially for kick-start motorcycles. The spacers surround through-bolts in front and blind cap screws in back, usually 3/8-24 TPI, but some hell-for-stout set-ups carry 7/16-inch bolts. Once you've fabbed the spacers, get extra-long, industrial strength (grade eight or better)



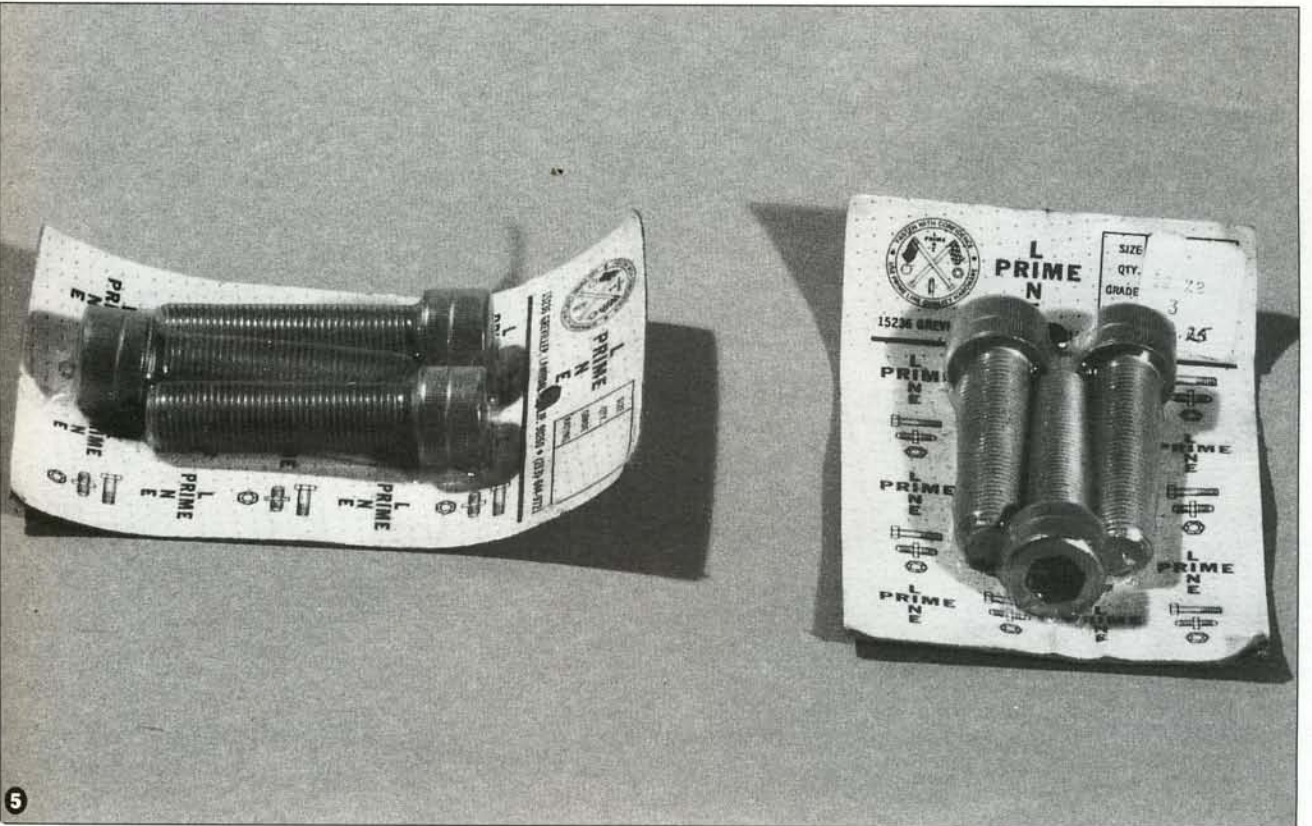
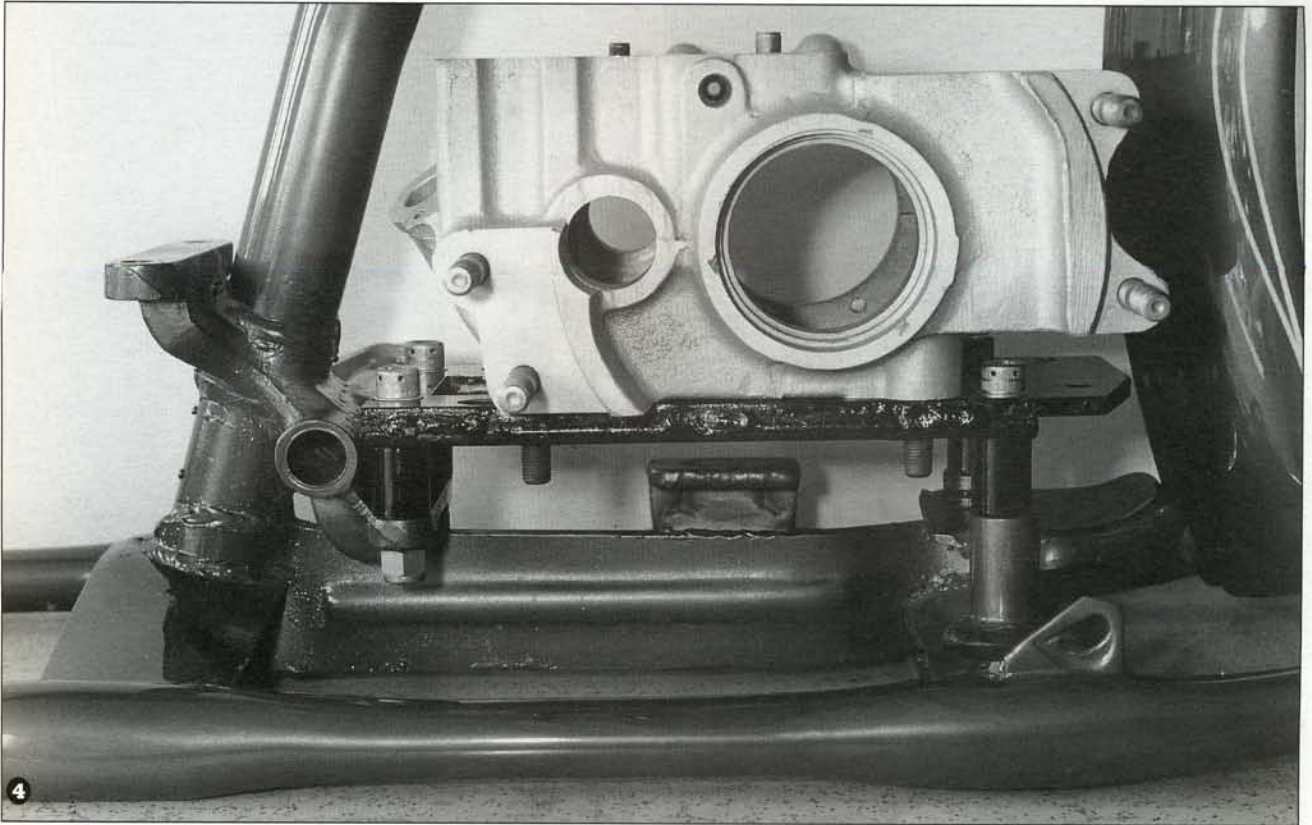
Material: billet/bar stock

cold rolled steel or,
304 stainless or,
6061, 2024 or equivalent aluminum

Notes: not to scale

break all sharp edges
dimensions +/- 1/64 in.
pieces required 4 or 5

3

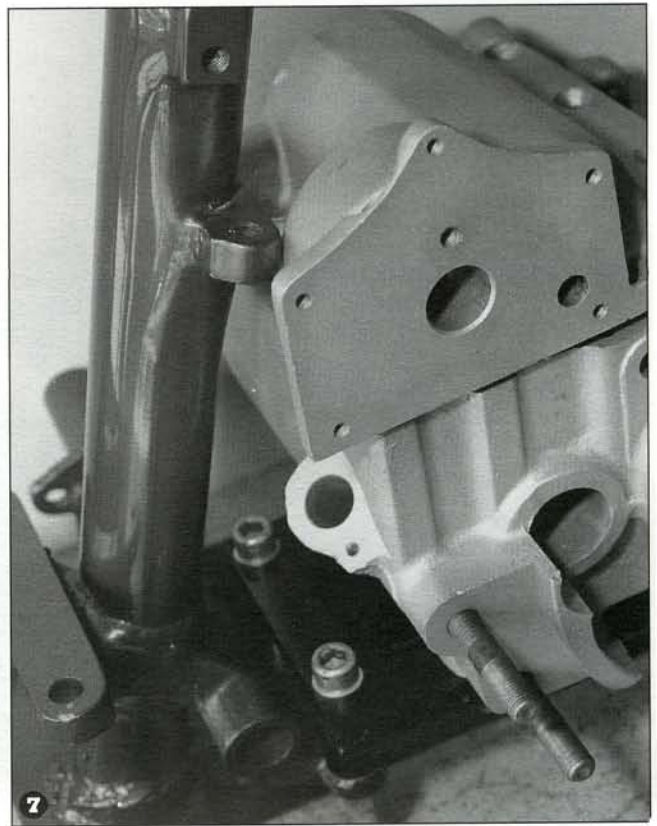
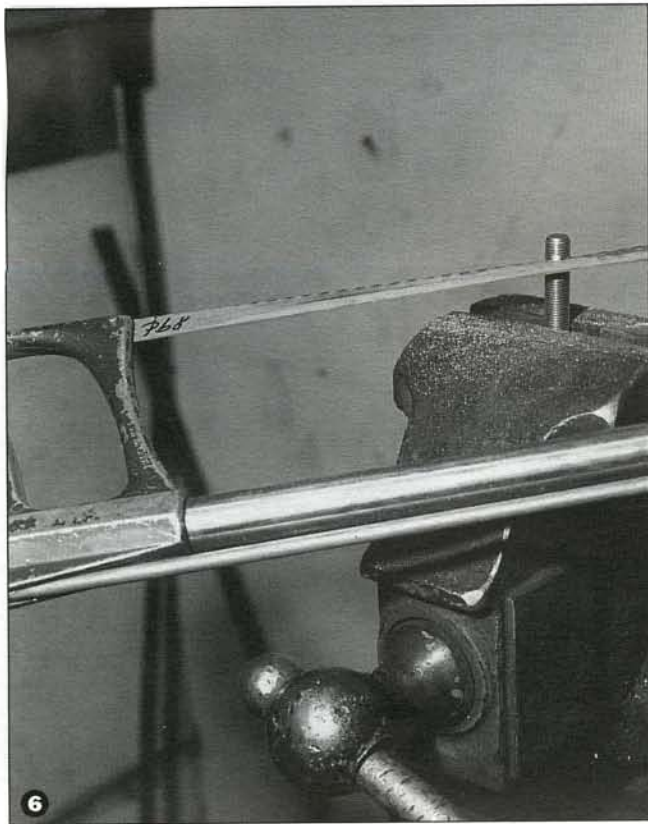


bolts (5), cut to length (6), and deburr ends. The front bolts should protrude amply through self-locking nuts; rear bolts should engage at least 5/8-inch of thread length in the tapped frame bosses. Thread lock or safety wire the rear

bolts.

Since we are dealing with frames having a seat post tube, the front edge of the transmission top may kiss the clutch release cable bracket and/or front oil tank mount, especially with

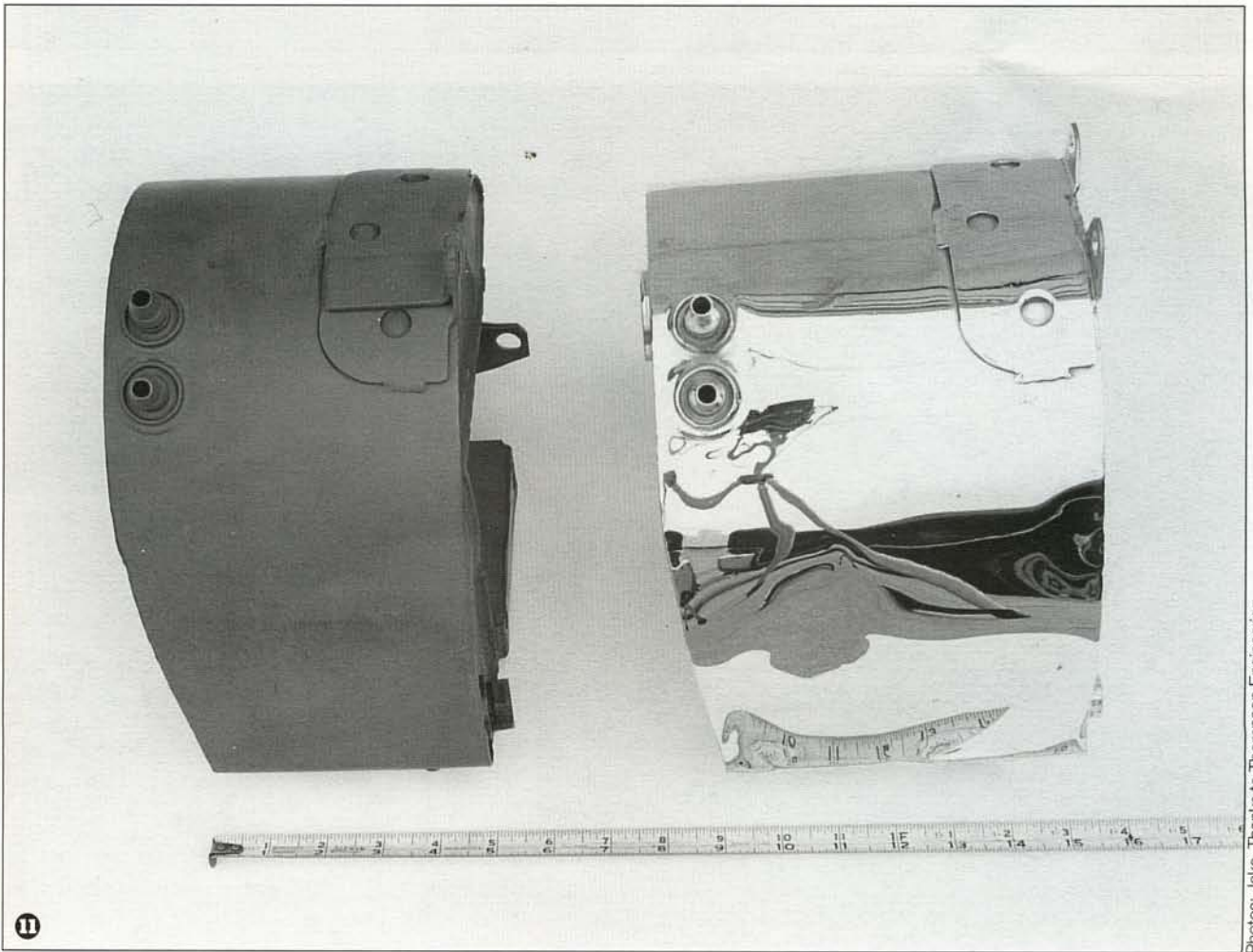
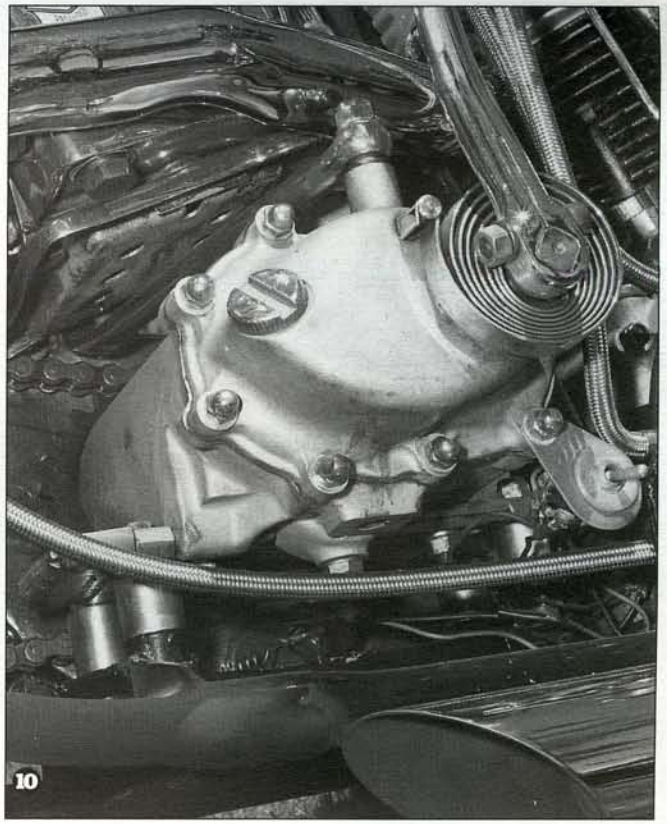
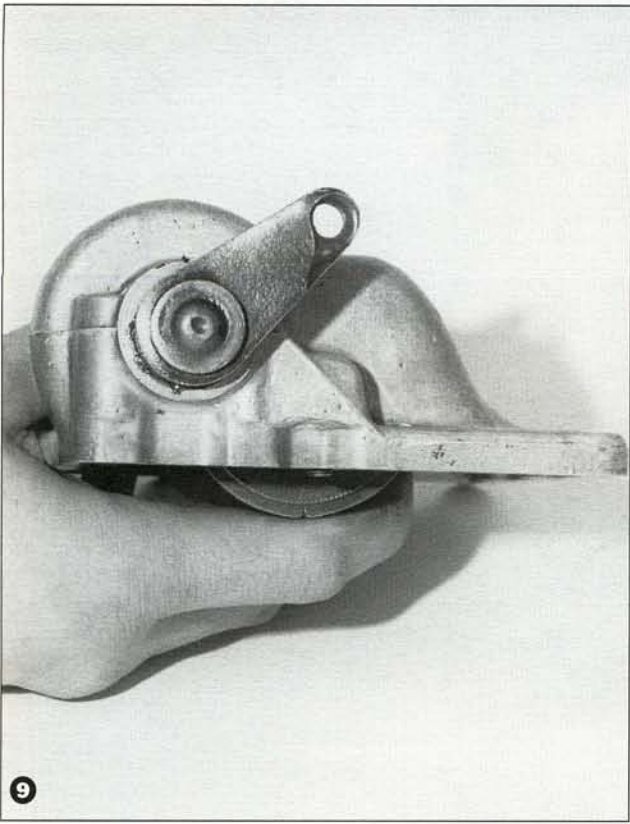
ratchet-tops (7) and some of the thicker billet aftermarket tops. Shave (or dent!) things judiciously, or relocate the frame boss upwards, since the flex in the cable gives some latitude in position. There are a couple of other solutions if



you are building a retro-ride. Run a mousetrap (8)! That completely eliminates the clutch cable and the need for a bracket. (Seriously, though, for a better way, read on.) Or, use a jockey top shifter; it's got a much lower profile top (9).

And, since the entire transmission now flies at a higher altitude, the clutch release arm may near the bottom of some oil tanks (10). (If you have an 1987-up transmission, you're in luck—the clutch is released through the side-

cover.) If necessary, use a slightly more squat tank (11), common with electric start engines. But, you can also eliminate the release arm entirely in many pre-1987 trannies via aftermarket transmission covers that let you





actuate the clutch solely via mechanical cable (e.g., Rodan) or hydraulic line (CCI, ART, etc.).

To retain push-button starting, you'll find that an electric starter gear also gets real friendly with the oil tank (12). Solution? A wide choice of suitably relieved aftermarket tanks, or, going to a kicker (13) eliminates starter issues and also lets you run lightweight tin primaries (14). For five-speed transmissions, select numerous aftermarket kickstarter options from Billet Built, Grannies Trannies, and Vee-Twin Manufacturing, among others.

Finally, since raising the gearbox rotates the entire primary drive around the engine sprocket axis, you'll need to elongate the front mounting holes in the inner primary case (15) to suit and re-mount the rear as well. Frame-mounted primary tensioners (16) and oiler/breather pipes (17) generally have enough travel or clearance to handle the slight rise and rotation without modification, but check it out to be sure.

So, take an inch in altitude, and you'll get long freeway miles in return from your bearings, shafts, cases, and frame welds.

—Jake

