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JANUARY 2008

VOLUME 11, ISSUE 1



Four-Speed Indeed

REBUILDING YOUR 1964-'81 FACTORY SHIFTER FOR LIKE-NEW PERFORMANCE

BY JOHN HINCKLEY

If your Corvette's four-speed shifter has 40 years of use on it and is beginning to feel a little sloppy and gritty, it's no wonder, it's been down there exposed to dirt, mud, water, and who knows what else, and has probably had zero maintenance. It was a precision device, manufactured to close tolerances when new, and most of the parts were case-hardened and moly-lubricated for wear resistance.

This month, we're rebuilding a neglected old Muncie shifter to its original precision—you can too—with only a vise, basic hand tools, and a major rebuild kit from Volunteer Vette Products. Thanks go to Werner Meier, owner of Master Works Automotive Services, for leading us through the rebuild process.

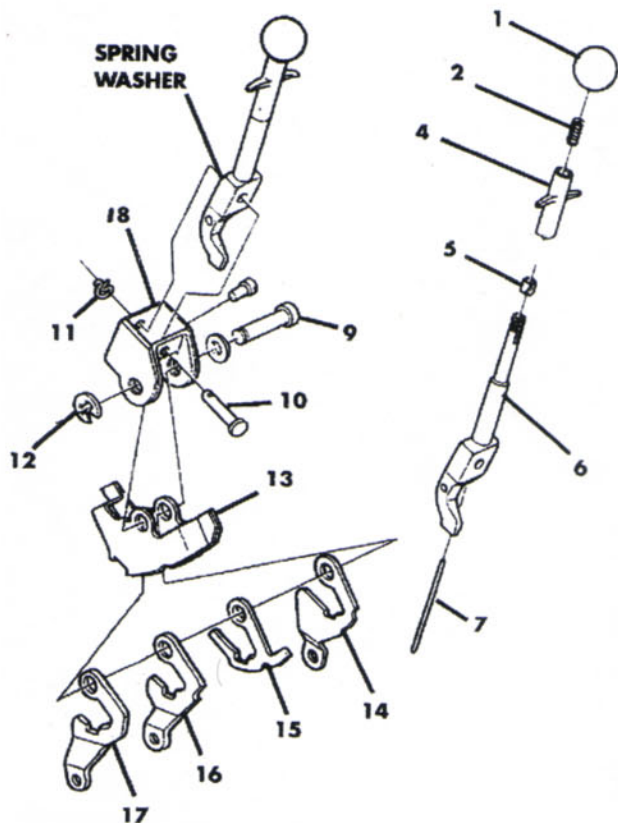
HOW IT WORKS: The upper lever pivots sideways on a pin through the upper

bracket, and the bottom foot on the lever moves sideways through notches in the 3-4, 1-2, interlock, and reverse levers; a reverse lockout feature is provided via a pin connected to the "T"-handle on the upper lever.

When the upper lever is moved fore-aft, the upper bracket pivots on its shaft, the foot on the bottom of the upper lever engages the notch in whatever lower lever it's aligned with and moves

that lever fore-aft, moving the linkage rods to select 1st or 2nd, 3rd or 4th, or reverse via the shift levers on the transmission side cover. The interlock lever, located between the 1-2 lever and the reverse lever, prevents the foot from engaging the reverse lever unless the T-handle is raised.

DISASSEMBLY: Unscrew the knob and remove the spring and T-handle; the lockout rod will come off with the T-handle. Remove the C-clip retainer and drive out the pivot shaft with a punch, and separate the upper bracket and lever from the lower bracket. Remove the "pretzel" clip from the end of the upper lever pivot pin, and remove the pin with a punch; separate the upper lever from



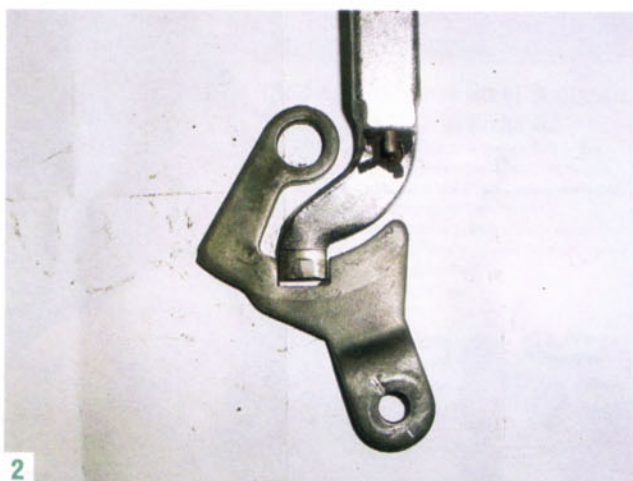
1 Exploded diagram of the components common to 1964-'81 Muncie four-speed shifters.

2 The "foot" of the upper lever engages the notch in the lower levers to move them fore-aft.

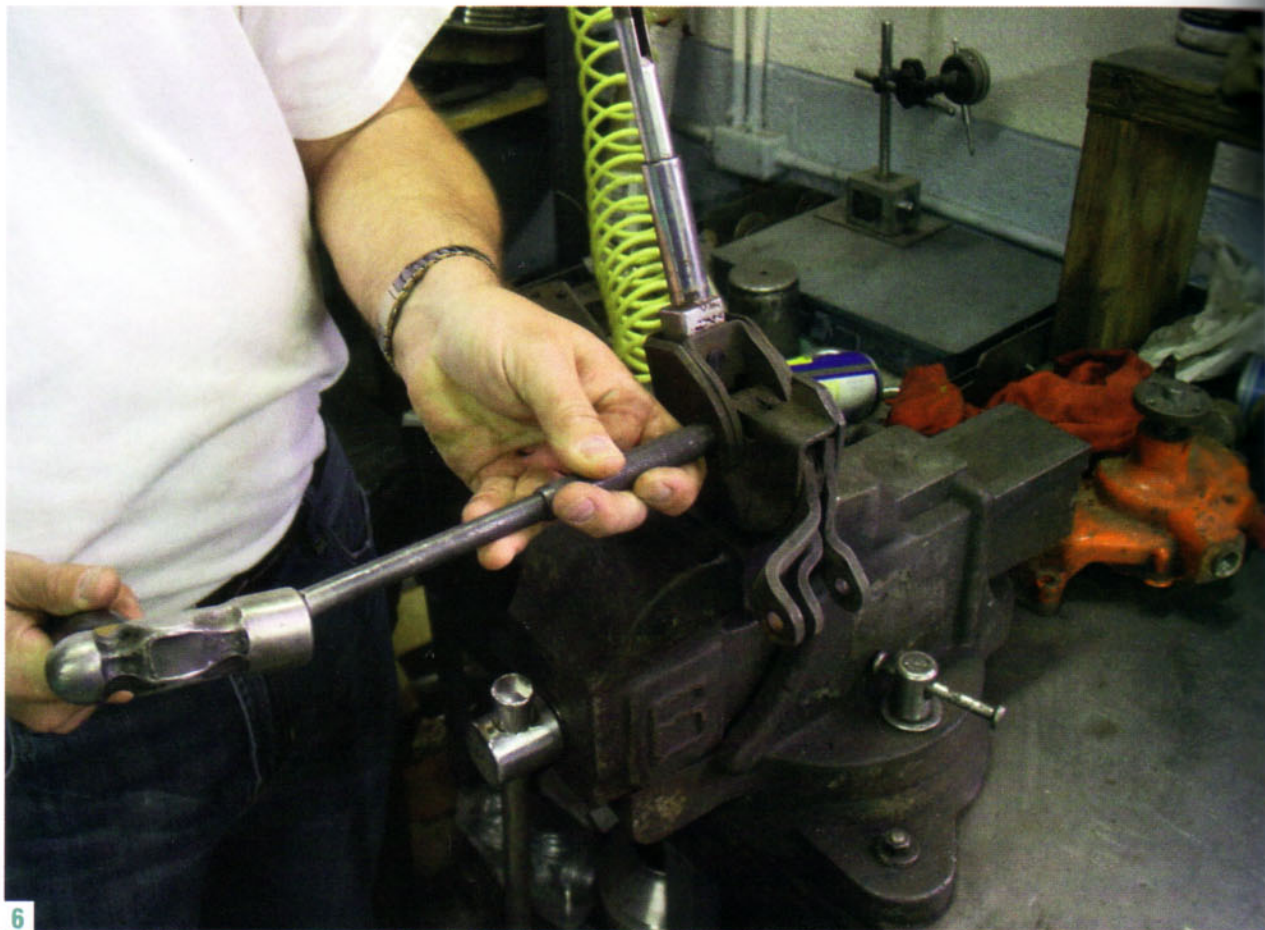
3 The foot of the upper lever and the "stack" of lower shift levers. The closest lever is 3-4, the middle lever is 1-2, and the far lever is for reverse.

4 The reverse lockout pin at the bottom end of the T-handle; the adjustment screw on the left was welded in position when the shifter was made.

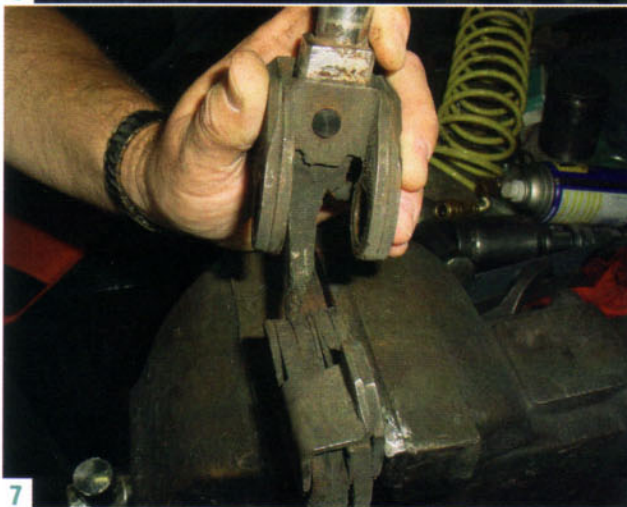
5 Here's what we started with—a typical cruddy old shifter in need of a rebuild. Note the accumulation of dirt and grit in the levers and pivots.



TECHNICAL FOUR-SPEED INDEED



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6 Use a punch to remove the hollow pivot shaft that ties the brackets and levers together.

7 Separate the upper and lower brackets after removing the hollow pivot shaft.

8 Use a punch to remove the upper lever pivot pin.

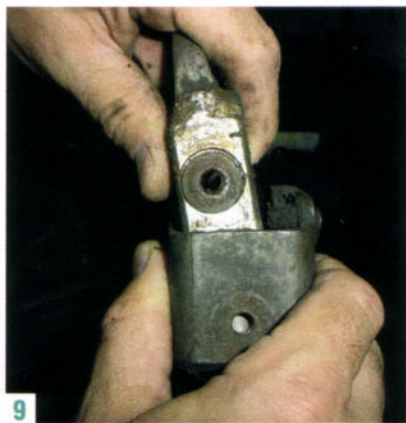
the upper bracket. You'll find a circular spring washer on the front side of the lever—remove it too. Remove the three lower shift levers and the interlock lever from the lower bracket.

CLEANING AND INSPECTION: Clean the upper and lower brackets, upper

lever and lower shift and interlock levers thoroughly with solvents or brake cleaner and a wire wheel if necessary, and inspect them all closely for wear or damage.

The hollow pivot shaft through the top holes in the lower shift levers, which also connects the upper and

lower brackets, is a common wear item, as is the fixed interlock lever and the pivot pin for the upper lever in the upper bracket. All three are included in the rebuild kit, with new retainer clips for the pivot pin and pivot shaft. The lower shift levers are case-hardened and seldom show appreciable wear unless



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9 The spring steel tension washer in its recess on the front face of the upper lever.

10 Removing the spring steel washer; a new one is included in the rebuild kit.

11 All the lower levers separated from the lower bracket after removing the pivot shaft. Note the dried-up lubricant, dirt and grit.

the shifter is in really bad shape; chances are you can reuse them.

Check the point where the round portion of the upper lever is pressed into the square section just above the edge of the upper bracket. This is a press fit; if it's loose, a spot of MIG weld is appropriate as a permanent fix.

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12 The scored, galled, and pitted surface of the hollow pivot shaft; a new one is included in the rebuild kit.

13 The major rebuild kit from Volunteer Vette Products; in addition to the T-handle, ball, and spring, it contains a new pivot shaft, pivot pin, retainers, spring washer, and two thicknesses of interlock levers.

ASSEMBLY: Lubricate the front and rear surfaces of the upper lever and upper bracket, insert the new spring steel washer in its recess on the lever, and insert the lever into the bracket. Line up the holes with a drift, and lubricate and install the pivot pin and its pretzel retainer clip.

The upper lever should be a tight fit fore-aft in the upper bracket and should move smoothly from side to side. If it's sloppy fore-aft in the bracket, you can add a Belleville spring washer from the hardware store, or you can tighten the fit by compressing the bracket's fore-aft dimension slightly with a piece of steel stock in a vise.

The original shifters were lubricated

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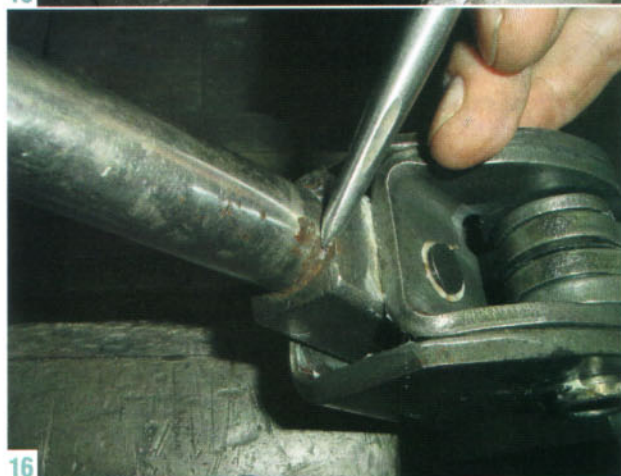
Athens, AL



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14 Lubricating and assembling the upper lever, bracket, and pivot pin.

15 A piece of steel stock and a vise can be used to tighten the fore-aft fit of the upper lever in the upper bracket if necessary, or a Belleville washer can be added.

16 Check this press-fit joint between the upper lever shaft and base. If it's loose, a spot of MIG weld is a permanent fix.

with gray moly grease but chassis grease or white Lubriplate "A" will work equally well. Lubing the parts thoroughly while you're mating them is essential, as there's no good way to get lube to the wear surfaces after the shifter is assembled.

Lubricate the three lower shift levers and the (thin) new interlock lever supplied in the kit and load them all into the

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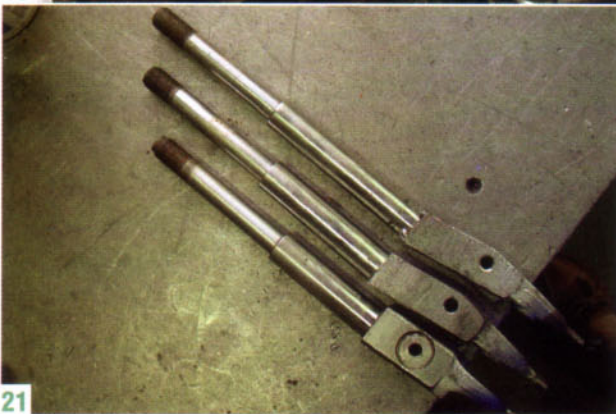
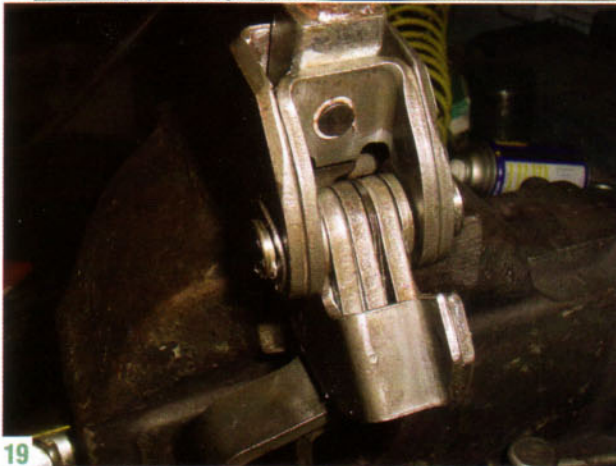
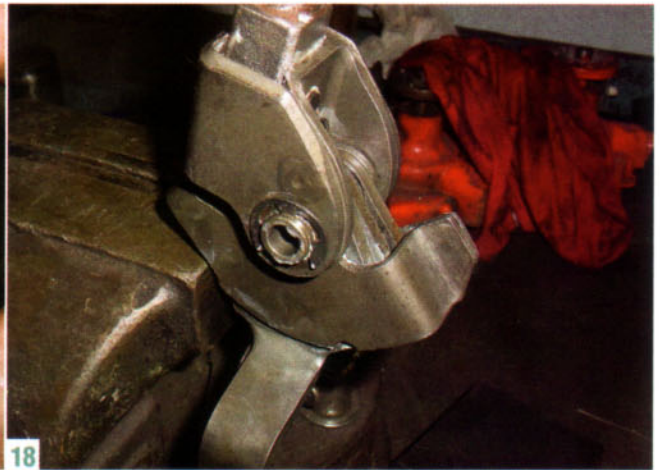
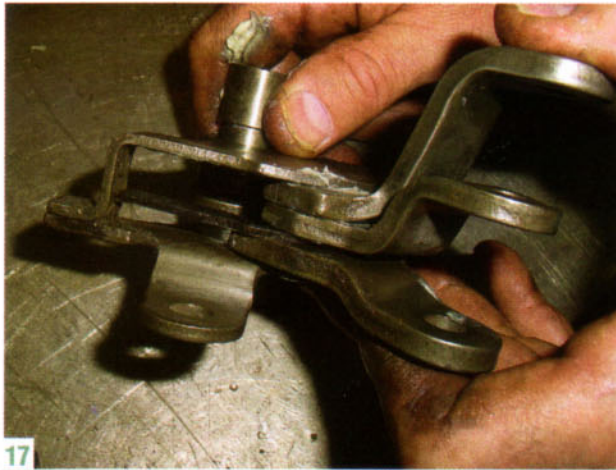
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17 Lubricate and stack the three shift levers and the interlock lever and load them into the lower bracket. If the fit is loose, use the thicker interlock lever supplied in the kit.

18 After joining the upper and lower brackets, install the hollow pivot shaft through the stack and install the C-clip retainer.

19 The shifter assembly completed, with all the levers in place.

20 The neutral gate adjustment slot; a gauge (1/8" x .646" x 3") goes all the way through the stack to hold the levers in neutral while the linkage rods are adjusted.

21 Upper lever lengths varied through the years. The short one on the left is for '64-'67, and the two longer ones were used on C3's.

lower bracket; they should fit tightly and move smoothly. If they're a bit loose, use the other (thick) interlock lever from the kit to tighten up the stack. Position the upper bracket over the lower bracket and install the new hollow pivot shaft from the kit through the brackets and lower shift and interlock levers and install the new "C"-clip to retain the shaft.

That's all there is to it—the shifter is like new again, properly lubricated, with the wear parts replaced. It should be as smooth and precise as it was 40 years ago when it left St. Louis.

THE BOTTOM LINE: Some folks say the original Muncie shifter is junk, and an aftermarket shifter is the only answer. They've probably never driven a Corvette with a properly maintained or rebuilt Muncie shifter—it's a nice piece, and you can return it to like-new condition at home with basic tools. However, if you rack up a lot of miles, a quarter-mile at a time, and really enjoy banging the gears at wide-open throttle, an aftermarket performance shifter may be a better choice for that kind of usage. To each his own! ■

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