

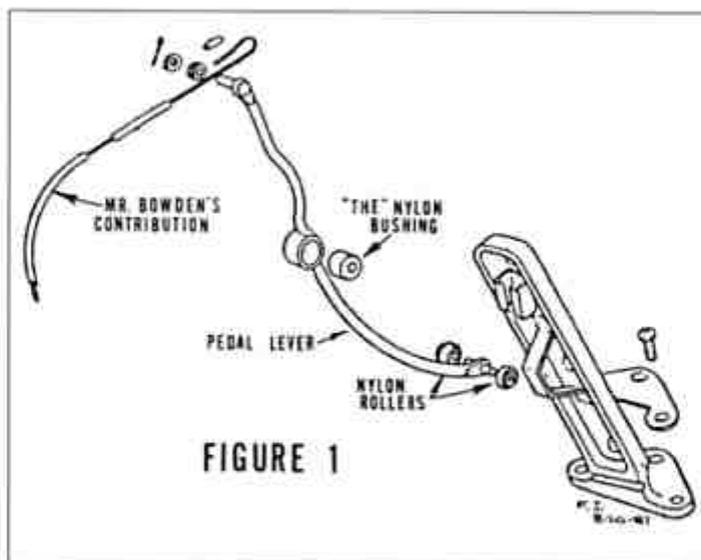
Remember when I expounded on the sweet precision of Fulvia controls? Well that was true, mostly, well, at least seasonally. The exception is throttle stickiness in hot weather. This is a rare problem in the great North West but appears as one approaches the equator en route to the annual West Coast Reunion. In retrospect, it may not be a problem in a continuously hot dry climate. I cannot recall my car having similar symptoms before leaving it first stateside above, Smog City.

Anyone with British car/bike experience knows a chap named Bowden invented the sticky-flexible-control-cable. He must have been Scottish because there is no cheaper way to mechanically transmit motion around corners. I know the next generation of transportation devices will be fly (or drive)-by-wire, electric wire, which will be even cheaper OEM, and oh so profitable once out of warranty. One can only empathise with Henry Ford's position a couple of generations ago when he was reluctant to adopt hydraulic brakes after years with 'the safety of steel from pedal to wheel'. Now, it isn't an upmarket car if it doesn't have a black box controlled ABS system interposed in the hydraulics to Big Brother you. Isn't progress wonderful! Well back to the Fulvia throttle cable. Lancia's first mass produced (ignoring the

## Folk fixes – Bowden's revenge

by Bill Stebbins

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Flaminia) throttle cable is a good example of its kind, short and with only a gentle S-bend. It should not be a problem, but at the first sign of stickiness you grease it good, and all is well until the next hot day. Then you crawl under the dash and notice the peg on the pedal lever does not

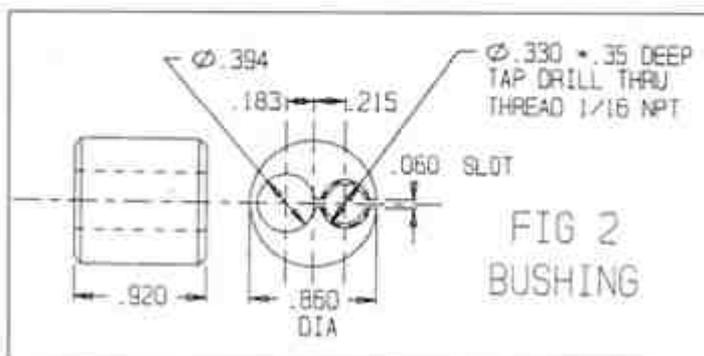
line up with the hole in the firewall. So you replace the piano wire with stranded cable that should align itself easier, and all is fine until the next hot day (or the next reunion). After a few years of this one finally sets aside enough time to bludgeon the problem to death, once and for all. The following three prong attack seems to have effected a permanent cure, knock-on-wood, well, plastic.

1. The real root of the problem is the nylon pedal lever bushing. Figure 1. (Bowden is in hysterics in his grave because you wasted so much time thinking ill of him). Nylon is great, no wear, no lubrication, you just pour the little pellets into your injection moulding machine and out pop your bearings. Sounds good, but its shortcomings were not obvious to Fessia's crew almost 30 years ago. These are: high moisture absorption and swell, and high thermal expansion, compounded by the heavy wall of the Fulvia bushing. Attend the Seattle Rain Festival (September 1 to June 15) and then expose to California sunshine, that nice running clearance disappears, and a considerable pucker develops. Boring the bushing out nice-and-loose (say 13/32nds or 10.4mm) should solve the problem but it is

too simple, with a new bushing we can also attack the next problem.

2. Misalignment at the firewall, both vertical and horizontal could be relieved by butchering the lever. But it can be cured in fewer excursions under the dash, with a new bushing. I used brass, bored the hole with maximum eccentricity and retained it in the lever with set screws. Figure 2 shows an ultimate high tech design, split, with a 1/16th inch pipe plug to expand it after adjustment. Note the bore is for early cars with .391 dia pins, sometime before the 2000LX a cheaper simple 10mm (.394 dia) pin was adopted (the parts book shows the same bushing and the lever bore measures the same, but clearance is miraculously greater).

3. Finally, Mr. Bowden's cable has been improved in the last few decades. Plastic lined casings are now available, which should be less dependent on regular lubrication. I was able to find some nylon spaghetti that slipped inside the existing Lancia casing. I bored out the holes in the fire wall and the engine fitting and let the spaghetti extend through, restrained in the casing with weatherstrip cement. Now if there is any residual misalignment the cable does not ride on the edge of the hole. Unfortunately the Lancia casing will not accept readily available 1/8" OD nylon tubing. Lancia casing measures around .110 ID, the standard cable is around .040 dia, the tubing I found is .105 OD, and .073 ID. It was acquired indirectly from Barnett, the California motorcycle clutch and cable people I am informed by the local plastics jobber that this is no longer a stock size, oh well. Your best bet is probably a good bicycle shop for slightly smaller brake cable casing and sleeving. Or, mail order, around \$13 gets you 25 feet, from Bike Nasbar, Youngstown, OH (with a choice of 14, count-um, colours for you concours types). With correct alignment the Lancia piano wire cable is probably to be preferred over stranded cable.



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