

WHEN PUSH COMES TO SHOVE: INSTALLING & ADJUSTING YOUR ISETTA'S SHIFT LINKAGE©
by Bruce Fullerton



Here's what the plumbing looks like in its birthday suit. Everything has been bead blasted and painted. All rubber bushings, firewall seal, clevises and retaining pins have been replaced and the business end of the main shift tube is greased and ready for asphalt-scorchin' action.

Well, push *did* come to shove in an initial attempt to reclaim all five gears in my car after it was put back together. If you got your car in several boxes, here's one owner's take on getting your shift linkage prepped, installed and fine-tuned.

Like other subassemblies on your Isetta, the shift linkage is a curious but simple mechanical setup when laid out on the garage floor. Sort of a hockey stick with a perpendicular handle on one end and an L-bracket and two long skinny rods on the other with a few amenities in between. It's doubtful that the Isetta will go down in the annals of automotive history as having a tight shifter but you can certainly make it acceptable with a little knowledge of how it all works and where to blow in its ear.

Before we get into that, make note that your clutch must be properly adjusted for all of this to work. If your linkage is right but your clutch isn't, you'll just have one more baffling situation to deal with that could possibly throw you off. In short, with the clutch cable hooked up on both the pedal and transmission ends, the clutch actuating bolt that's threaded into the bottom end of the clutch actuating arm on your transmission should be about 2mm from the round piston that it pushes against when you depress the clutch pedal to shift gears. This seemingly trivial spec determines the travel of your clutch pedal in regards to disengaging the clutch to shift gears and how fast your clutch engages when you let the pedal out. At 2mm, the clutch has somewhat of a quick, hair-trigger release.

The actuating bolt, part number G-38 in Werner Schwark's catalog, is a special heat-treated guy with a machined, nipple-like tip on the transmission side and is held in place by a lock nut. Ideally, it should be adjusted with the car off the frame and locked down tight. It's a bear to get to after the fact in regards being able to get two wrenches on it ... one for the bolt and one for the lock nut. Future adjustment of this tolerance is accomplished by turning the clutch cable collar that threads through the top of the actuating arm. This gives you the ability to compensate for clutch wear and your own personal pedal release preference as the miles click off. For a tighter pedal, turn the collar clockwise to bring the actuating arm closer to the transmission, counter-clockwise for more pedal before clutch engagement.

If that actuating bolt is too far in, it has the same effect as having your clutch in all the time. In another words, you're in eternal neutral. If it's too far out, like Iggy Pop, you may not be able to get the transmission out of gear because the tip of the bolt won't be able to reach that piston in the transmission to push it in and disengage the clutch. No pusho, no shifto de gearo.



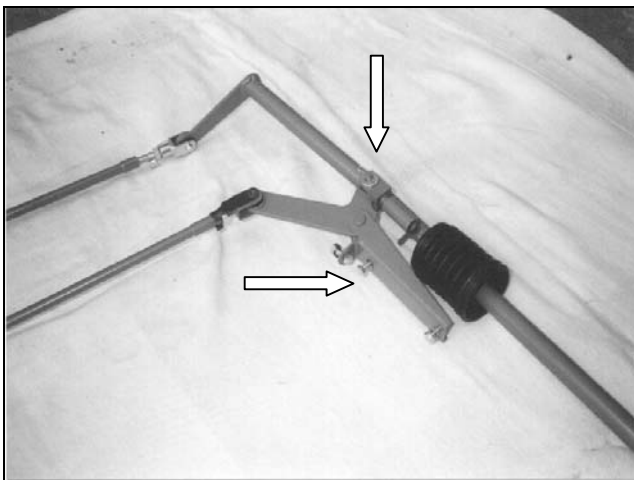
The bottom arrow points to that clutch actuating bolt at the bottom of the actuating arm. You should have a 2mm gap between the face of the bolt and the round piston it interacts with. The top arrow indicates the adjustment point on the threaded clutch cable collar at the top of the arm. All future adjustments should be made here. If you're wondering why the fit on that front shift rod looks funny, it's because it isn't hooked up to anything on the other end. This is a rolling chassis shot.

Your main shift tube should be securely mounted to the front left wheel well by three small bolts. Make sure you've put plenty of bearing grease on the sliding steel rod that inserts into the front of the main tube. As Paul Revere and the Raiders once put it, that's where the action is. Now's a

good time to put that new bellows-type rubber seal on the rear of the tube and secure it to the round flange on the back of the firewall with a stainless steel hose clamp. Place the screw side of the hose clamp to the inside with the screw's slotted head facing down. That seal is important because it will make your car's interior slightly quieter and keep any stray exhaust fumes out of the cockpit. These seals, or boots, can be had for around \$15.00 from Isettas-R-Us. Just tell Werner you need an A-142 shifter boot.

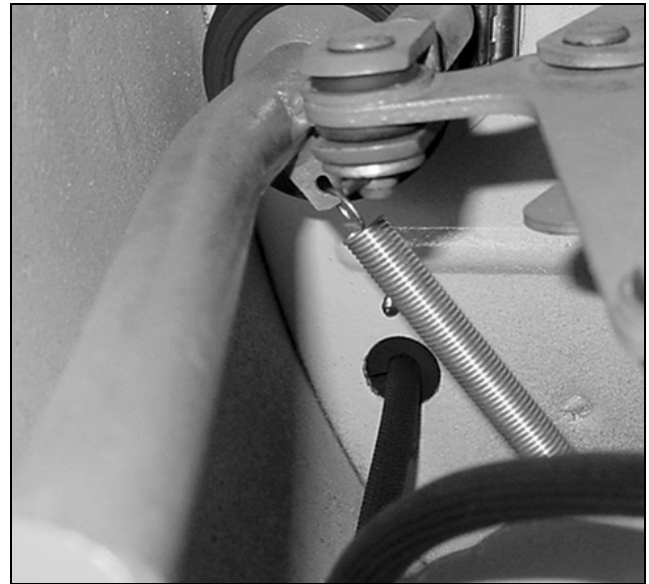
Before you bolt the L-shaped mounting bracket to the back and side of the spare tire well, install the L-shaped swing arm after you've lathered its securing pin up with grease. Drop the pin in from the top and insert a new Cotter pin but *don't bend the ends yet!* We'll assume you've replaced those old worn out rubber grommets. Go ahead and bolt this assembly on and crank it down good and tight.

Next comes the threaded clevis that screws into the top side of the main shift tube. Hopefully, you used your tap and die, cleaned up those threads and gave them a generous glob of grease. Future generations will thank you for this. The function of this clevis is to adjust the front lateral shift rod, backwards or forwards, on the main shift tube to a 90-degree angle with the shift arms on the transmission so the rear shift rods will be at a right angle when connected. Take another look at the first pic in this article for a visual that might serve better than the explanation in the last sentence. This clevis also turns slightly as you go through the shift pattern. Start by screwing the clevis about 2/3rds of the way in. This is relatively easy to adjust in or out if need be. That's the reason you want to leave the Cotter pin straight for now ... one less thing you'll have to hassle with until you've got everything where it's sharing the love.



Here's a little more detail of the business end of the backside of the linkage. The top arrow points to the threaded clevis that's an adjustment point.

Clean up the threads with your tap and die and grease it up like it's entering a bodybuilding contest. The lower arrow on the left side points to the L-mounting bracket that secures the shift linkage assembly to the firewall just behind the driver. Isetta shift linkage tends to be somewhat sloppy on a good day so make sure your mounting points are secure. By the way, this would be a good candidate for stainless steel nuts and bolts.



Here's an exciting shot of the return spring discussed below. Its only function is to return the shift lever to the left side of the car when the lever is positioned in the middle of the H-shift pattern.

Install your return spring now. This is a \$1.00 item from the hardware store. It needs to be just strong enough to pull your shift lever towards the outside of the car, away from the driver, when in the neutral zone of the shift pattern. One end attaches to the bottom side of the main shift tube as shown above and the other end fits into a similar tab on the side of the firewall, under the L-bracket mount.

Finally, we get to the real crux of the matter ... those two rear shift rods. Each rod should have a welded clevis on the transmission side and a threaded end on the outboard/driver's side. The longer of the two rods mounts to the shift arm on the top, backside of the transmission. The shorter front rod connects to the lateral transmission shift arm on the top of your gearbox. Each rod has a clevis that threads into the outboard side and has a lock nut to keep the rod from turning once it's adjusted properly and give it some extra strength. Both rods are held in place by two unique pins with retainer clips. Before you insert those pins, give them a light coat of some bearing grease so they can move

freely in their respective rubber bushings. It's small details like this that can smooth out shifting for you.

The adjustment of those two clevises is where rubber either does or doesn't meet the road. I've heard more than one Isetta owner say that their car pops out of second, or third, or fourth gear under power. Keep in mind that your big block, ram air hemi vibrates quite a bit and torques up when you stand on it. Mine sure does. This changes the effective length under load. Fine tuning these guys is a nothing more than a matter of finding the sweet spot for your particular Isetta.

What you're looking for pretty much boils down to three issues:

1. The length of the long, rear rod
2. The length of the short, front rod and
3. The relationship between the lengths of the two rods.

My geometry teacher used to make me want to crawl out of the window when she talked like that but it's not that big of a deal in this case ... just a task that requires some patience and a little trial-and-error. If you're in that mode, might not hurt to make up a simple log sheet where you can indicate how many turns you turned both the front and rear clevis either in or out and the overall effect. That way, you don't lose track of your starting point and end up with an even bigger mess on your hands. If adjusting both clevises in doesn't work and you get the negative results by turning them both out, it's a pretty good bet that one needs to be shorter and the other longer. If you document your actions, you may see a definite pattern emerge that may point you in the right direction.

On a quick side note, my car's rear shift rod was a repro. The original was hacked up, bent and generally hosed. I couldn't get third gear with the new rod for love or money. Fellow Austin Isetta owner Carl Jensen drove his red car over one night to help lend a fully functioning brain, two hands and a few tools. To make a long story short (no pun intended as you'll see), that repro rod was 1 1/2 inches too short. No wonder! Pulling Carl's rear shift rod out and comparing the two discovered this phenomenon. We measured his rear shift rod from center to center of the mounting pinholes. 29 1/2 inches was the benchmark figure.

One item that needs to be injected here is the fact that the question of center-to-center distance has been posted on more than one Isetta venue in the past. I've seen distances of around 27 3/4 inches come back as the answer to that question. In my

car, that would put the shift lever too close to the left side of the car and make shifting into third, and particularly fourth, a tight squeeze. I've also seen several shift rods, particularly the rear rod, that were bent out to the rear as opposed to being perfectly straight. Maybe the best approach would be to simply thread your clevises halfway out and start from there.

Well, the rod issue was rectified and, sure enough, that extra 1-1/2 inch is where third gear was hiding out.

With only the rear shift rod connected, the first thing that will become obvious to you is that by lengthening the rear shift rod, you will drop the shift lever farther over towards the driver. From the front of the car, it should be around the 10:00 o'clock position. This adjustment has additional implications. Keep in mind that pulling the shift lever to the right and back towards you as you shift into reverse can be somewhat tight on your left leg. Personally speaking, that's better than not having it far enough over and having to deal with your driver's side interior panel when shifting to third, and especially, fourth. (Back up two paragraphs and re-read if need be.) Your shift pattern is front to back in a straight H-pattern but the curvature of the Isetta's body tapers in towards the front, sort of like this > (H. The area between the shift lever/your hand and your side panel is tight in fourth. You want to have enough room for your hand when shifting into your two high gears. The Isetta owner's manual mentions that shifting should be done by grabbing the lever just below the knob, probably so the top side of your hand is facing the side panel rather than your whole fist being on top. Fourth gear clearance may have been the intended punch line here. Who knows?

Next, connect your forward lateral shift rod and adjust its clevis with about half of the threads showing. Make sure the retaining pins are installed and clamped down and drive your car around the block under good power in all gears. After shifting into each gear, take your hand off the lever and see if it stays in gear without you having to exert any force to keep it engaged. If you don't, your job here is finished and you're free to move about the country. If it popped out of any gear, get your log sheet out and try the tweaking method previously mentioned. As John Jensen once stated, and I paraphrase, every Isetta left the factory fine-tuned in every respect. It shouldn't take much to park that linkage on a dime for your car.

Finally, here's a graphic from a site that has, at last check, disappeared from the Internet. It simply shows the position of the transmission shift arms in all five gears. This may help you

make some sense of what's going on back there short of installing a VCR and portable lighting to shoot the action. Come to think of it, that would be kinda cool! If anyone actually does this, make sure you get a head-on shot of those drive donuts in action, too. That would be something to see as well.

As usual, please email me if you hit a snag or have trouble running this article through the Alta Vista English-to-English Language Translator ...
BF

wish the seller had put the selling price in there. You can place a sure bet that it didn't have a comma in it.



Well, looks like Bruce's shift linkage must be working OK given that he made it to Robert Mace's house (and back). Those Two Guys From Texas prepare for an all-out Isetta assault from command headquarters at RM's hacienda. Bubba's wicker parachute is packed, mounted and ready for deployment. The last time these two were here together, their respective bodies (the cars', not Bubba and Bruce's) were tied down to Terry Sayther's flatbed trailer ready to head out and find a body shop. Thank goodness that's over with.

Photos and arrows by Bruce Fullerton

1955 Chevrolet BelAir 4-door V-8 auto-
matic. Radio-heater. 43,000 miles. One
owner. Perfect condition. Full price
\$668.00.
ARMSTRONG-JOHNSON FORD
1st & Colorado GR 6-6051

1959 RAMBLER American two door, R&H,
overdrive, low mileage, economical trans-
portation. GL 3-2349.

1957 ISETTA deluxe convertible. Perfect
condition, low mileage, economical gas.
HI 2-5833 after 6.

'58 FORD two door 8. standard trans-
mission, nearly new tires, battery. Good
condition. \$695. HI 2-2615 or see at Gulf
Station. 2239 South Lamar.

CLEAN 1954 Plymouth, new paint, seat
covers. Good tires and motor. 1909 East
1st.

Here's an ad from the classified section of a 1960 issue of the Austin American-Statesman. Sure