A.F.P. Clutch Pedal Installation G35 and 350Z

Getting Started – Removal & Disassembly of the Stock Pedal Bracket

Step 1:

- For this the car should be on a level surface with the parking brake firmly applied
- Roll the drivers seat Back as far as it will go to give yourself room to work under the dash.
- Remove the floor mat and place it on the ground to help protect your knees while working under the dash.

Step 2:

- Next we need to remove the Dead Pedal (pictured above) to make more room to work.

There are two options here.

- The first is to pry up on the pedal at the top first and then at the bottom. The clips that hold it in place should pop free and allow you to lift it out.

- The second method is to use a medium Philips screw driver and remove the 5 screws holding the cover on. Underneath the cover you'll find plastic nuts and if you turn them out while lifting up on the pedal the plastic nuts will start to unscrew off the speed studs welded to the floor.

- Once off using either method you can put it off to the side. If you unscrewed the cover you can now put the 5 screws back in. For reinstallation later all you do is push it back down onto the speed studs.

Step 3:

- With the dead pedal out of the way you can now remove the left kicker panel.

- Start by removing the black plastic thumb screw near the back at the top.

- Next you can pull out the fuse block cover from the center of the panel.

Step 4:

- Next gently pull the door trim off the front corner of the kicker panel and move it to the side a bit.

- You can now guide the back side off of the stud where the plastic nut was.

Step 5:

- Gently pull the front corner away from the door pillar and the snap clips that hold it will release one by one with a little coaxing.

- Once off set it aside and let the door trim slip back into place so it doesn't get damaged while you're working.

Step 6:

Here are the tools you'll need to continue.

- A pair of flat-nosed or channel lock pliers. Needle nose would also work as long as it has grippers on the jaws.

- A standard 3/8" ratchet.

- A 12mm deep socket.

- A Universal Flex Joint

- A Long Extension or several shorter ones put together. The longer the better to get the ratchet out from under the dash for an easy swing.

Step 7:

- Now that you have clear access to the bracket area, go under with a light and have a look at the bracket.

- Note that there are only 2 nuts and 1 bolt holding the whole assembly up there.

-To get started on the removal you want to disconnect both of the clutch switches.
Alternately
- If the connectors are difficult to get out you can skip this step for now and remove the wiring later once the nuts and bolt that hold the bracket in place are removed and the bracket can be lowered down for easier removal of the plugs.

- The one at the Bottom of the stroke is the starter safety switch. The one at the Top is the Cruise Control switch.

- To disconnect simply find the release tab on the connectors, depress it and slide the connector out of the switch. They may be stiff if they've never been out before.

-Next you'll need your pliers to free the wiring loom from the clutch bracket. The wires are held to the bracket with a plastic push pin.

- Just use your pliers to gently pry the plastic pin from the metal bracket. Then push the wires off the side so they stay up out of your way as you work.

Note- the plastic pin may break but don't worry about it as it won't be used again. A zip tie is provided to hold these to the new brackets.

Step 8:

- Next find the gold colored clevis fork that attaches the pedal arm to the clutch rod.

- Use your pliers to pull the cotter key out and then push the pin out the other side to free it.

- It may be tight pushing it back through but just wiggle it out a bit at a time.

- Be careful not to drop it into the fuse block area as it will end up down under the floor in the foot well and rattle around down there. Ask me how I know ;)

- If you did just drop it down there you will need to remove the door trim, release the carpet from the clips underneath the trim and pull the carpet up to access the area under the drivers foot well to retrieve it... or just leave it as it won't be reused.

Step 9:

- Next take the ratchet and set it up as shown with the long extension and deep 12mm socket.

- If you really don't have a 12mm socket a 1/2" will do the trick as well.

- Now go after the single bolt that holds the top of the bracket to the dash area. It can be clearly seen at the top of the picture for Step 7

Step 10:

- With the upper bolt removed you can now install the swivel joint to remove the 2 remaining nuts holding the bracket up there.

- See the Photo from Step 7. Remove the nut on the stud inside the clutch bracket on the left side.

- Next go to the right side of the bracket and remove the nut that is below the starter safety switch.

Step 11:

- Now you can carefully guide the entire bracket, arm and switch assembly out from under the dash.

- Watch the clutch rod and clevis as you twist and maneuver the bracket forward, up and to the right to get it free.

- Once you get it maneuvered around and clear of the studs and hang-ups it should simply drop out.
Now take the whole assembly to a clean flat surface where you can work to break down this assembly into its components.

CAUTION!!! - The Clutch Assist Spring Mechanism is powerful and due to its over-center cam design it will snap violently like a mouse trap in either direction once you reach the tripping point.

Do not get your fingers between the pedal arm and the bracket, the switches or anything else. To do so would ruin your day completely.

This spring is why you couldn't turn the clutch rod too many times without fear of clutch damage. If the pedal moved too much and crossed the tipping point by way of the clutch rod adjustment this spring would never snap back over to the up position, meaning it would constantly be riding your clutch pedal with all its force. When you have the assembly in your hands you'll see what I mean more clearly.

Step 12:

- Having moved to a work bench or suitable working location place the assembly on the table and look to the back side. You'll see the spring assembly shown to the left.

- Allow the clutch pedal to snap into the down position. This releases the tension on the spring.

- Now using a flat blade screw driver, a punch or other suitable device push the e-clips off of the retaining pins that hold the spring assembly in place.

- You can also loosen the jam nuts on the switches with a 12mm wrench or pliers and remove them for safe keeping.

- These switches will be reused. The white body switch is for the cruise control, Brown is the starter safety.

Step 13:

Here are the next tools you'll need to remove the Fulcrum Bolt.

- Either a 21mm wrench or socket, a set of channel lock pliers as pictured. In a pinch a 13/16" Wrench or socket works too.

A 14mm wrench or socket. In a pinch use a 9/16" wrench or socket

Now remove the lock nut holding the Fulcrum bolt in place using which ever combination of these tools you have.

See photos below.

Fulcrum Bolt

Fulcrum Nut

Nut & Bolt Removal

Keep these safe

Step 14:

- Once you pull the fulcrum bolt out the arm will slide free of the main bracket.

- The spring assembly will separate into multiple pieces and pose no threat anymore.

- Pull the retaining pins from their locations and put the spring parts aside. They won't be reused.

- Make sure to keep the fulcrum bolt and lock nut handy as they will be used again soon.

Part 2 - Assembly & Installation of New Brackets

Step 1:

- Set the factory bracket aside as it won't be needed anymore.

- Next layout the parts of the new bracket kit. The AFP adjuster comes pre-assembled as well as the adjustable upper mounting plate. You'll also find two M10 nuts for mounting the switches to the new brackets.

- Remove the AFP Adjuster from the bag it was shipped in and with the appropriate Allen wrench, Torx or Phillips driver remove the 3 screws holding the AFP adjuster together. Careful not to rotate the pieces out of position.

NOTE: Rev 2 Top Bracket Design has removed the second bolt on the top left side of the bracket and is replaced with a single long bolt and sliding nut that clamps the bracket from the much easier to access top right corner.

Step 2:

- Next take the stock pedal arm you extracted from the factory bracket earlier and with a punch or tip a flat blade screwdriver drive the plastic bushing out of the pedal arm hole where the factory clevis used to pin into.

- Now rotate the pedal arm in front of you to look like the picture below. This is what I'm calling the back side of the pedal arm as it faces the firewall when installed. This is the direction the AFP adjuster will be slipped on from.

Step 3:

- Carefully spread the AFP adjuster components so that the clutch pedal arm can slide up into the center of the adjuster assembly

. You will need to guide the assembly in place around the switch pad mounts in order to get it fully seated against the pivot tube at the top.

Step 4:

- Next you can just start the 3 machine screws back into their respective locations being careful to line everything up as you go. Do not tighten these yet!

- Now with the adjuster loosely installed on the arm you can pre-set the location of the pivot point.

- For the initial bench setting I'm recommending you start at about 75% of the available travel up from the bottom of the slot. Or approximately when the top edge of the bushing end is even with the top of the slot in the AFP brackets. This setting is a safe starting point for your adjustments later.

Here I'll explain the theory of the AFP a little better.
When I say to initially setup the AFP at 75% what I'm referring to is the percent of total travel the slider has from the bottom of the slot if viewed as it would be installed in the car.

0%= Slider Bottomed out. (Stock fulcrum length. Same as the factory setup)

50%= Slider ~centered half way up from the bottom. This is also the Minimum recommended setting for tuning.

75%= Recommended Initial setting from the manual. Slider ~ 3/4 of the way up from the bottom. Just eye ball it.

80-100% is NOT recommended for anyone with a stock type clutch as full disengagement becomes difficult without raising the pedal height well above the brake pedal. This extra adjustment travel exists for people running aftermarket clutches that came with or require a Stop Plate to shorten the factory pedal travel. People with these clutches can safely use this extra range as their clutches disengage in a much shorter stroke then the factory or factory replacement types. (Act, JWT, etc)

As you can see small changes of fulcrum length make big changes to the system. The sliders total travel is only ½" so for every 1/8" you move the slider up its equal to 25%. It's also better to start out a tad lower and move up later then starting out too high.

Step 5:

- Now making sure the AFP adjuster is tight up against the fulcrum point tube and the new clevis fork is set to the same 75% travel as above on each side you can go ahead and tighten down the 3 machine screws a little at a time going around several times increasing the tension each time. If you do not tighten them evenly (Especially in the beginning) the brackets will pull to one side causing the whole assembly to be crocked against the face of the pedal arm and cause undue stress on the AFP assembly. When finished the AFP assembly should be clamped firmly to the arm and when viewed from the end the AFP plates should be flat and straight the pedal arm.

Step 6:

- Next apply a little grease or lube to the white pedal arm fulcrum bushings and prepare to insert the finished pedal arm assembly into the main bracket.

- Slide it in place and line the holes up so you can see clear through.
- Then take the fulcrum bolt and slip it in from the left side if the bracket with the pedal facing you.

- The bolt is captured between the flats in the spacer block to eliminate the need for a socket to reach down in there. Turn the bolt so the flats line up as you push the bolt down to seat it. The bolt head may be a tight fit sliding down and some brackets have received additional clearance in this area before they were shipped.

- Next spin the locknut on finger tight and then tighten it down the last bit of the way with the 14mm or 9/16” wrench you used previously to remove it from the factory brackets.
- Tighten it down until snug only. Checking the pedal arm is perfectly free to swing, but with zero side-side slop. Tighten a ¼ turn at a time until you find this point.

Step 7:

- Next take the brown start safety switch and thread the stock bronze color nut about ½ to ¾ of the way down to the bottom.
- Now slip the switch into the main brackets lower switch mount and spin one of the silver M10 nuts provided in the kit on to lock the switch in place.

- With the bottom travel stop bolt turned about 1/8” out (As shipped) you can set the starter switch to depress when the pedal arm is all the way down against the stop. Making sure the switch depresses but does not ever bottom out.

- Next take the white cruise control switch and run the other supplied M10 nut down first this time again about ½ to ¾ of the way. **Do not install this switch into the bracket at this time.**

Step 8:

- Now bring the new bracket assembly to the car to prepare for installation along with the cruise switch.

- Before you continue you will need to remove the old clevis from the clutch rod. Using a 12mm wrench loosen the jam nut on the clutch rod while holding the clevis from turning with your pliers. The simply unthread the old clevis from the clutch rod and run the jam nut down until it gently bottoms out at the bottom of the threads.

- Next get the new clutch bracket assembly and guide it carefully up into position over the master cylinder, clutch rod and onto the studs. You may need to pull the padding down a bit as well to ensure it doesn't get underneath the new clutch bracket or it will hold it from the mounting pad on the firewall.

- Next take the two nuts you removed earlier and spin them onto the studs just enough to hold the bracket up there but still loose enough to move the bracket around up/down and rock left and right on the studs.

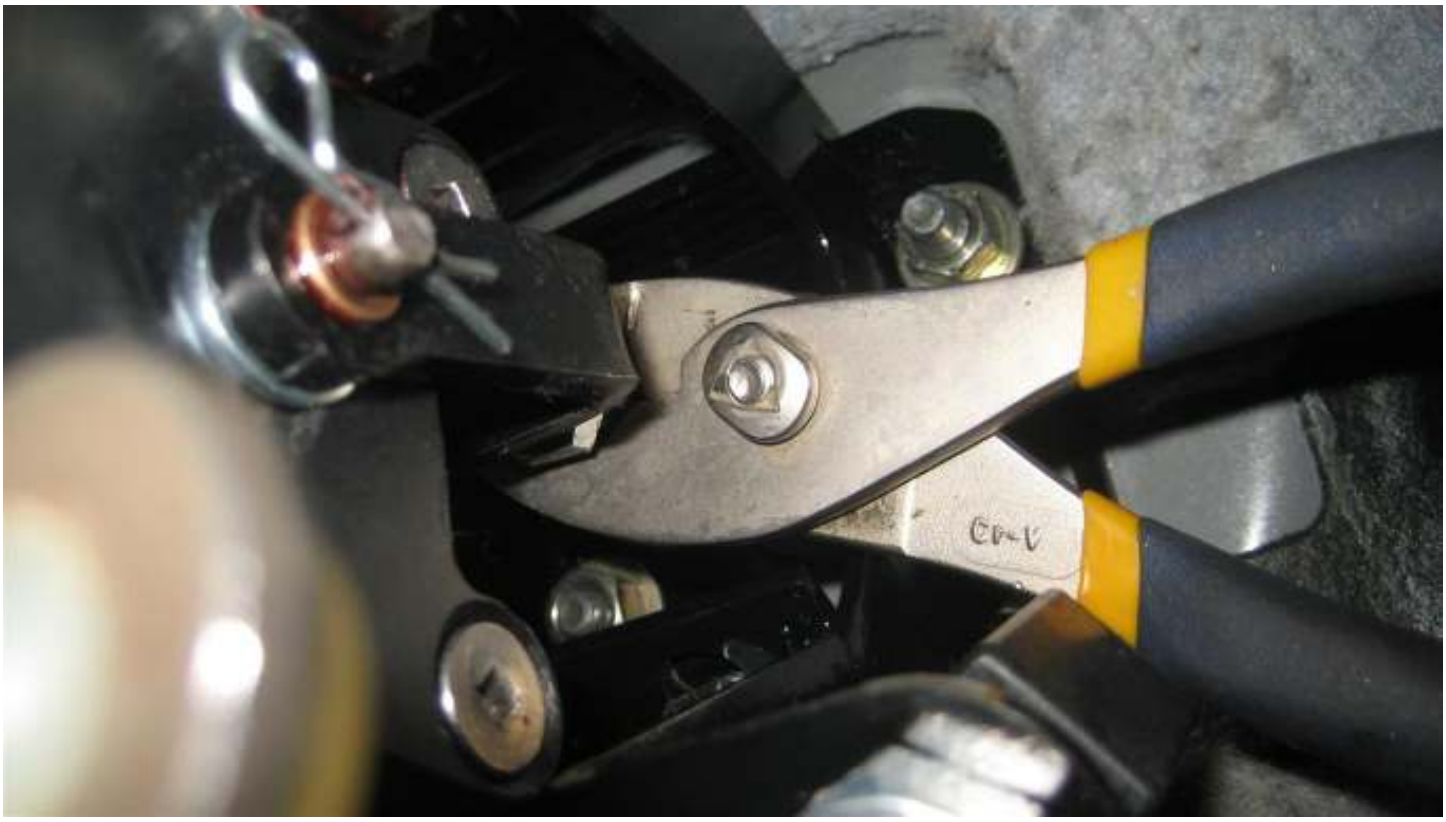
Step 9:

- Next find the top bolt you removed earlier and setup your ratchet with the long extension (no swivel) and the deep 12mm socket.
- Reach up and maneuver the top mounting plate roughly into position to meet up with the top mounting pad in the dash.
- Run the bolt through the loosely fitted top mounting plate and start the bolt into its hole until the bolt just draws the top mounting plate level to meet the mounting pad but do not tighten it yet.

Step 10:

- **Now comes the most challenging part of the whole install.**
- **You need to guide the whole assembly around in such a way that new clutch fork clevis lines up the clutch rod so it can be threaded into place.**
- **Carefully align the clutch rod to the hole in the new fork on the AFP assembly.**
- **While still guiding things by moving the whole bracket put a slight pressure on the rod to help it start and to keep it lined up with the hole in the fork.**
- **Using you pliers such as the ones pictured below you can now reach in with your other hand to turn the clutch rod in a grab, turn, release and ratchet back type motion to thread the clutch rod into the fork.**

- **If you don’t get it the first time don’t try and force it. The clutch rod should turn fairly easily into the fork once its properly aligned. Otherwise you could damage the threads or the clutch rod.**



- Turn the clutch rod in until you see about 2 or 3 full threads sticking out the back side.

This is your initial adjustment for pedal height and setting the friction point up from the floor. We will go back and adjust this further once the main installation is completed and the testing / tuning begin.

Step 11:

- Next you want to slide the main bracket up to get the clutch rod leveled up with the master cylinder. The ideal setting is angled just slightly down from level as the clutch rod will raise some as the pedal travels in its arc.
- No need to go crazy here, just eyeball it so its close to level and call it good.

- Once you have it set about level you can go ahead and tighten down the two nuts holding the base of the bracket so the adjustment doesn't move while ensuring the bracket is straight up and down.

- Tighten these down using the 3/8 ratchet, 12mm Deep socket, long extension and the swivel to reach.

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- Now you can remove the swivel from the ratchet and go back to lock down the top mounting plate bolt.

Step 12:

- Next you can go in and tighten down the ¼-20 bolt on the right side of the main bracket that holds the top mounting plate in place.
- Here you can use either the correct 7/16” wrench or socket. An 11mm will also do.
- Don’t over tighten this bolt, just draw it up snug and then give it an extra ½ a turn.
- If you happen to have a ratcheting box end wrench like pictured below it will make this 10x faster.


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Step 13:

- Now you can pull the switch wiring back down from where you tucked it earlier and connect the starter switch.

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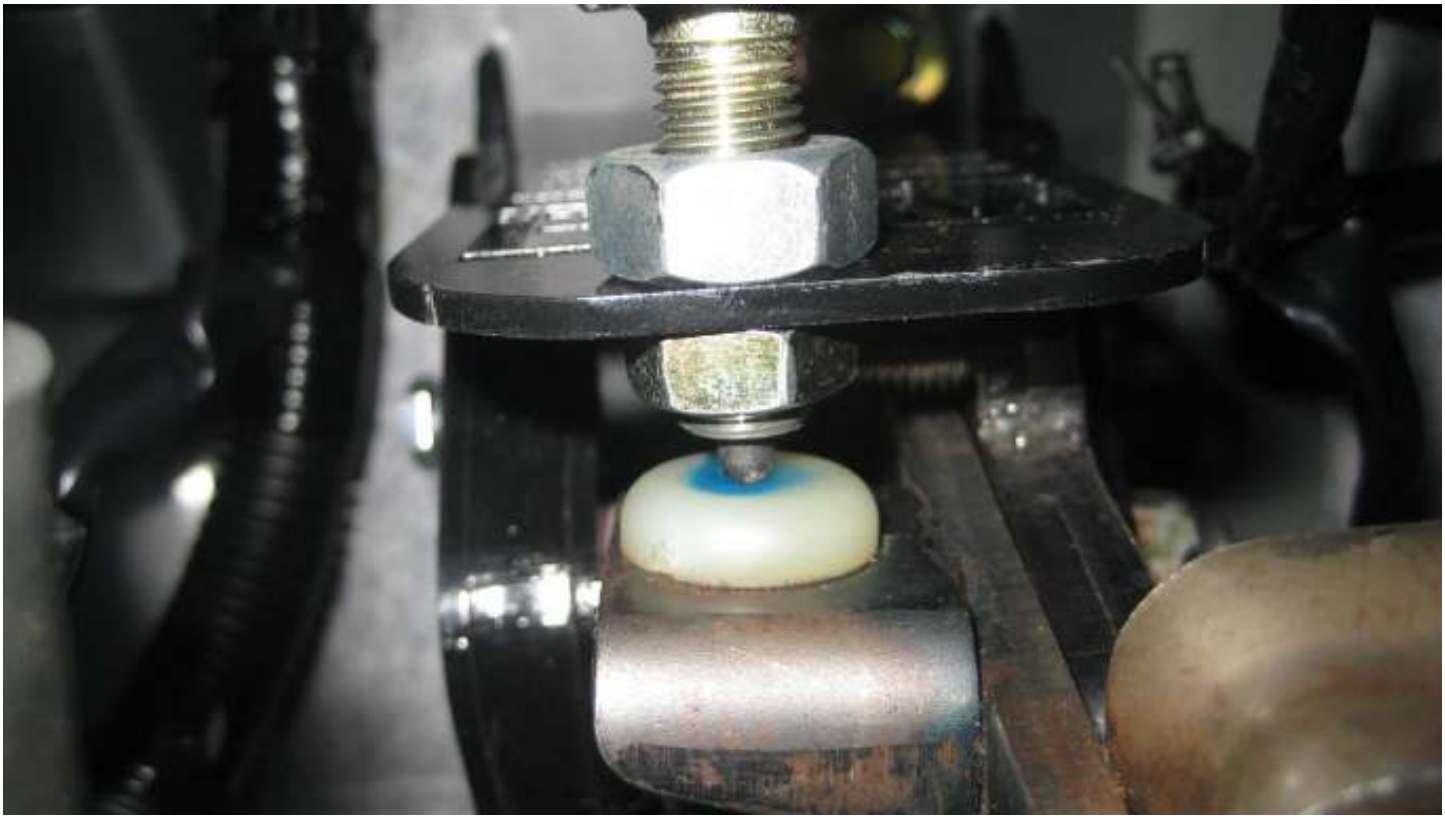
- Next find the white cruise switch and the bronze nut for installation.

- Now plug the switch into the wiring harness.

- And finally pass the switch through the upper switch plate and spin the nut on up from the bottom. Don’t worry about setting the final height of the switch yet.



- Now have a look at where your clutch pedal has ended up relative to the brake pedal with the initial height setting you made earlier. Is the Pedal level with or slightly higher then the brake pedal? If so you're good to go and no change is required. If you are below the brake pedal then you need to go back and turn the clutch rod out a turn or two to make the pedal level with the brake.

- If you are more then a ½" higher then the brake pedal you can go back and turn the clutch rod in a turn or 2 to bring it down a bit. It's better to start too high then too low.

Once you're satisfied with the initial position of the clutch pedal go back and adjust the upper switch so that it too gets just depressed by the pedal while fully at rest but does not bottom out the switch and hold the clutch pedal from returning all the way up.

If everything is good the pedal should have a smooth motion going down and coming up with no binding, rough spots or squeaking. The first ¼ to ½ inch of pedal travel when pushing down should feel easy and then you should feel the pressure increase as the TOB starts to push the clutch diaphragm. This is important as it means the TOB is getting fully retracted from the diaphragm spring when the pedal is up and not causing excess TOB wear. There is a return spring in the Slave cylinder at the transmission which retracts the TOB from the clutch face, returns the pedal to the fully up position, holds the weight of the pedal up and has enough force to depress the cruise switch so there is never any force on the clutch diaphragm when the pedal is at rest and fully up. So no worries about burning the clutch, not fully engaging & slipping as you previously had to worry about when doing clutch mods with the stock pedal setup and assist spring.

Part 3 – Testing and Tuning

1. Get in & reset your seat so you're comfortable. Depress the clutch pedal a few times to get a feel for its new travel and firmness.
2. Place the shifter into neutral before starting the car.
3. Start the car as normal. If it doesn't start check the starter safety switch is making full contact.
4. With the clutch out wait 30 seconds for the cars idle to settle down.
5. Now depress the clutch and immediately try moving the shifter into 1st. Did it move smoothly into 1st or at least as smooth as previous?
   - If not then immediately turn the car off and turn the clutch rod out 1 turn and try again until it is smooth and there is no resistance holding it back. If it is grossly off it will feel like first is being blocked out.

6. If it went smoothly into 1st then go back to neutral, let off the clutch 10 seconds, then back down and try for reverse. Did it go easily into reverse or at least as easily as previously?
   - If not then again you need to adjust the clutch rod out more until it passes this test.

7. If after getting through steps 5&6 your clutch pedal is now excessively high or more then ½" above the brake pedal you will need to go back to the AFP Assembly and lower the fulcrum adjustment a little bit back towards stock as you aren't getting enough clutch travel to fully disengage using a normal pedal travel distance. Loosen the 3 machine screws and lower the fork down by about 1/8". Lock it back down and try the testing again. Does it pass this time? If so continue, if not lower the fulcrum adjustment a little at a time until it does.

8. If all is good in the world so far its time to see how the clutch feels and where the friction point is off the floor. On a level surface clutch in and put it in 1st. Now very slowly lift the clutch to feel for the friction point. Was it right there at the very bottom as you came up at all or was it a long way up?

If the friction point was too low or close to the floor -> Turn the clutch rod OUT 1 turn and try again.
If the friction point is too high up off the floor -> Turn the clutch rod IN 1 turn and try again.

Do this until you are comfortable with where the friction point is. However the initial tests must still pass after making this adjustment and there should be no more resistance or roughness then previously felt stock.

Now you can go for a drive and test it out for real while paying attention to the friction point or for any resistance to gear changes that might indicate the clutch isn't fully disengaging.

It may take you a few blocks to a few days to readjust your clutch/gas balance and get used to the new clutch feel and friction points. Just take it easy for a little bit until you get the feel of it. It will be like driving a new car for the first time but you should adjust and get the feel for it quickly.

From here you can continue to fine tune your clutch rod to hone in on the perfect friction point. Small changes make a big difference so go slow and only move a little at a time until you happy with it.

Once you're happy with the feel and all the tests pass, go ahead and tighten the lock nut on the clutch rod so the current setting can't change over time.

Additional Tuning:

You may desire to increase the fulcrum length back towards stock if you don't want the pedal to be as soft or to have a shorter pedal travel. In that case at any time you can unlock the 3 machine screws and lower the fork to any desired setting. Going right to the bottom is the same fulcrum length as stock. Anything above that will show an improvement but you gain very little noticeable effect when below about ½ way on the adjuster.

You may also wish to raise the bottom stop a little as well if you decide to move the fulcrum back towards stock to reduce the travel a bit. You can also turn your clutch rod in to lower the pedal as well to attain the same effect which is more effective.

Hopefully you can find the sweet spot that best suites you and your driving style.
It may take a little trial and error but I'm sure once you find that sweet spot I think you'll be pleased with the results.

Enjoy.