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TCI® 616541 FastGate™ Shifter

Installation Instructions

The **TCI® FastGate** shifter can be used in vehicles equipped with most popular three and 4 speed automatic transmissions. Your **TCI® FastGate** shifter comes equipped with a neutral safety switch, transmission brackets and levers and a five foot shift cable. Optional shifter cables in 2 ft. (#850200), 3 ft. (#850300), 4 ft. (#850400), 8 ft. (#850800), 10 ft. (#851000), 12 ft. (#851200) and 14 ft. (851400) are also available. To use the **TCI® FastGate** shifter with the Ford AOD transmission you will need our optional accessory kit #618016. Please read the instructions and review the illustrations thoroughly before beginning the installation. The mechanical components of this shifter are precision made. Any modification or disassembly of these parts can cause the shifter to malfunction and will void the warranty. You should disassemble only those items outlined in the instructions. The vehicle should be about 2 feet off the ground for ease of installation. Use jack stands, wheel ramps or a vehicle lift. Make sure the vehicle is firmly supported before attempting to work on it. **IMPORTANT:** If your vehicle is equipped with a locking steering column. Securing the column lock lever in the engine compartment in the full up position will allow the steering wheel to be locked and unlocked and the ignition key to be removed. **WARNING:** This allows the steering wheel to be locked WHENEVER the ignition key is turned to the "lock" position WHILE THE VEHICLE IS MOVING, OR AT ANY OTHER TIME. Securing the steering column lock lever in any other position will both PREVENT the steering wheel from locking and the removal of the ignition key.

INSTALLATION

STEP 1. Remove the stock shift linkage; **Column Shifters**: Remove all rods, levers or cables from the column and the transmission. Place the column shift lever in the Park position. Remove the pin holding the shift lever in the column and remove the lever assembly. If your vehicle is equipped with a locking steering column, secure the column lock lever in the full up position. **WARNING:** This allows the steering wheel to be locked and ignition key removed WHENEVER the ignition key is turned to the "lock" position WHILE THE VEHICLE IS MOVING, OR AT ANY OTHER TIME. **Console Shifters:** Remove the shifter mechanism from the console. Disconnect the rod or cable from the transmission. Remove the cable bracket if equipped. If there is a cable or linkage from the console shifter or the transmission to the steering column lock, it must be blocked in the Park position as described above.

NOTE: The shifter installation may require console modification or complete console removal depending on the space available in your vehicle.

STEP 2. Pull the carpet away from the floorboard where the shifter is to be mounted. If the vehicle has a bench type seat, move seat to the full forward position. Place the shifter on the floor with the stick shifted to the rearmost position. Locate the shifter for ease and convenience of operation. Make sure the Reverse lockout and the knob clear the dash with the shifter in the Park position. Mark the position of four mounting holes on the floor.

STEP 3. Drill four 9/32" mounting holes where marked. Temporarily mount the shifter in place using the included spacers. Mark the location for the shifter cable hole, 3-3/4" ahead of the front shifter mounting hole. Drill or cut a 1" diameter cable hole in the floorboard.

NOTE: Some floorboards are extremely thin and will not adequately support the shifter mechanism when bolted to the floor. For those vehicles we recommend that you fabricate a stiffener plate for additional strength.

STEP 4. Install (but do not secure) the carpet back to its original position. Cut holes in the carpet for the mounting holes and the cable. **DO NOT** use a drill bit to make the holes in the carpet.

STEP 5. Install jam nut, ball handle and the Reverse lock-out arm using the clip and washer shown in **Figure 1**.

STEP 6. (This step is omitted on 1969 and later Chrysler vehicles.) Assemble the neutral safety switch and the backup light switch to the shifter using two #4-40 screws, nuts and lock washers, as shown in **Figure 1**. The backup light switch is on the other side of the backing plate and is not seen in the illustration. **Beware**, over tightening the switch attachment screws will crack the switch housings. Install the switch assembly on the shifter. To adjust the switch loosen the screws and slide the switches as required, then retighten the screws.

STEP 7. Install the cable on the shifter as shown in **Figure 1**. The tab should be bolted to the outside surface of the shifter base using the 1/4" X 1/2" hex bolt and lock washer. Install the cable end to shifter mechanism.

STEP 8. Install the shifter mechanism into the vehicle. Slide the shifter cable through the carpet and the hole in the floor. Bolt the shifter down using four 1/4" hex bolts, nuts and spacers. **ROUTE THE CABLE AS SHOWN IN FIGURE 2, AVOID SHARP BENDS WHICH WILL KINK AND DAMAGE THE CABLE. Be sure to keep the cable away from the exhaust!** Use cable clamps or tie wraps to secure the cable housing to chassis to avoid contact with hot engine or exhaust system. For General Motors vehicles go to **Step 9**, for Ford vehicles go to **Step 15**, for Chrysler vehicles go to **Step 20**.

GENERAL MOTORS

STEP 9. If you have not already done so, remove the stock selector lever nut and the selector lever. Discard the stock lever and the stock shifter linkage. Install the **TCI®** selector lever in position using the stock selector lever nut **(See Figure 3)**. Torque the nut to 23 ft. lbs. The lever should move smoothly from front to rear with a positive click in each gear position.

STEP 10. Remove the two transmission oil pan bolts from the middle of the left side of the oil pan. Install the cable bracket in position. The bracket must be installed with two spacers between the pan and the bracket. (If your transmission is equipped with a cast aluminum oil pan, these spacers should be omitted however the cable bracket will have to be modified.) Install the two 5/16-18 x 1.00" or M8 x 1.25 bolts supplied and tighten to 12-13 ft. lbs. Do not overtighten as this can damage the pan gasket.

STEP 11. Remove the two rubber boots, one large nut, and a large lockwasher from the threaded end of the shifter cable. Route the shifter cable according to **Figure 2**. Avoid sharp bends and route the cable away from hot engine exhaust parts. Slide the end of the cable into the cable bracket, install the lockwasher and large nut over the end of the cable. Position the cable so the threaded portion of the cable housing is centered in the cable bracket. Tighten both large nuts to hold the cable in this position. Install the two rubber boots onto the end of the cable.

STEP 12. Move the transmission selector lever by hand to full rear position (Low). Operate the shifter lever to the Low gear position (ratcheted all the way back). Adjust the large nuts on the cable so that the swivel will slide into the **center** hole on the selector lever. Tighten the large nuts completely. Be sure that the swivel will slide freely in and out of the hole in the selector lever. **Note: The shifter will not operate correctly unless the center hole in the shift lever is used**. Leave the swivel out of the hole and move the selector lever to Park, all the way forward. Also move the shifter to the Park position (all the way forward). Reinsert the swivel into the **center** hole in the selector lever. Check to see that the swivel will slide freely in and out of the **center** hole in the selector lever in this position. If it does not slip in freely, adjust the swivel slightly until it will slip into the hole in the lever. Move the shifter back to the Low gear position and check that the swivel will still slide easily in and out of the **center** hole in the selector lever. (If you do not use the **center** hole in the lever, it will be impossible to correctly adjust the cable.) Operate the shifter through all the gear positions. Check to make sure swivel will slide in and out of the **center** selector lever hole in each gear position. The shift cable is now correctly adjusted. Install the cotter key supplied with the shifter into the swivel and spread the key ends. If you have a problem, ***DO NOT FORCE THE SHIFTER***, this will damage the cable, the shifter or the transmission. Simply start at the beginning and check all your steps.

STEP 13. On GM vehicles the neutral safety switch may be located on the shifter (steering column or console), or it may be a mechanical interlock in the steering column that prevents the key from turning to the Start position unless the shifter is in the Park or Neutral position. Identify the type of neutral safety system you have. If the key will not turn to the Start position unless the stock shifter is in Park or Neutral, you have a mechanical interlock, otherwise you have a neutral safety switch. If you have a neutral safety switch, locate and identify the neutral safety wires (engine will not crank unless these wires are connected together). With either type, disconnect the battery ground cable to prevent accidental shorts. If you have a neutral safety switch, extend both wires from the GM switch to the switch on the shifter. If you have a mechanical interlock cut the wire that goes from the start position on the ignition switch to the solenoid on the starter. This wire is usually a 10 or 12 gauge purple wire. Run wires from both ends of the cut wire to the shifter. Put slip on terminals on the ends of the lengthened wire. Crimp the terminals onto the wires using a crimping tool or pliers. Connect the wires to the neutral safety switch on the shifter, on the driver's side of the shifter. Connect the backup light wires to the switch on the other side of the shifter. Tape terminal connections and all other connections to prevent shorts. Reconnect the battery ground cable, disconnect the coil wire and set the parking brake. Check the switch operation by attempting to start the motor in each shifter position. **The starter must crank only when shifter is in the Park or Neutral position**. Adjust the switches if required. Reconnect the coil wire.

Go to **Step 26**.

Ford

STEP 14. If you have not already done so, remove the nut and lockwasher holding the downshift linkage onto the downshift lever shaft. The downshift lever is the outer lever on C-4, C-5 and C-6 transmissions. Pull the lever off the shaft and allow the linkage to hang free. Remove and discard the stock shift linkage rods. Some C-6 and all (late) C-4 and C-5 transmissions have a neutral safety back up light switch on the transmission shift lever. If your transmission is so equipped, remove the two bolts holding the switch in place and slide it off the shift shaft. Disconnect the switch at the factory plug and discard it.

STEP 15. Install the **TCI®** selector lever **(See Figure 4 or 5)**. Note: The **TCI®** lever must point downward for proper operation. If the stock shift lever on your transmission points down, you will have to remove the lower part of the stock arm by cutting it off to clear the **TCI®** lever **(See Figure 4)**. Install the **TCI®** selector lever onto the shift shaft of the transmission. Align the selector lever so that when it points straight down it travels equal arcs in both directions from the center, then tighten the 1/4"-20 x 1 1/2" pinch bolt and nut. The lever should travel smoothly from front to back with a positive click in each gear position. Make sure the o-ring is in position on the downshift shaft and install the downshift lever in position on the shaft. Install the lockwasher and nut and tighten securely. The downshift lever must operate smoothly. Reconnect the downshift linkage.

STEP 16. Cable bracket installation: **C-4, C-5:** Remove the two lower bolts from the rear servo cover. Install the cable bracket in position **(See Figure 4)**. Install the two servo cover bolts as removed and tighten to 12-13 ft. lbs. Do not over tighten as this can distort the servo cover. **C-6:** Remove the two transmission oil pan bolts from the left rear corner of the oil pan. Install the cable bracket in position **(See Figure 5)** with two spacers between the pan and bracket. (If your transmission is equipped with a cast aluminum oil pan, these spacers should be omitted.) Install the two 5/16-18 x 1.00" bolts supplied and tighten 12-13 ft. lbs. Do not overtighten as this can damage the pan gasket.

STEP 17. Remove the two rubber boots, one large nut, and a large lockwasher from the threaded end of the shifter cable. Route the shifter cable according to **Figure 2**. Avoid sharp bends and route the cable away from hot engine exhaust parts. The cable may be secured up and out of the way with nylon cable ties. Slide the end of the cable into the cable bracket, install the lockwasher and large nut over the end of the cable. Position the cable so the threaded portion of the cable housing is centered in the cable bracket. Tighten both large nuts to hold the cable in this position. Install the two rubber boots onto end of cable.

STEP 18. Move the transmission selector lever by hand to full rear position (Low). Place the shifter lever to the Low gear position (all the way back). Adjust the large nuts on the cable so that the swivel will slide into the hole on the selector lever. Tighten the large nuts completely. Be sure that the swivel will slide freely in and out of the hole in the selector lever. With the swivel in the selector lever, move the shifter to the Park position, as far forward as the shifter will go without forcing it. (The shifter has further travel that is used to reach the GM Park position but is not used on Ford transmissions. Trying to force the cable will damage the cable.) The shift lever on the transmission should be all the way forward. Check to see that the swivel will slide freely in and out of the hole in the lever in this position. If it does not slip in freely, adjust the swivel

slightly until it will slip into the hole in the lever in both the Low and Park positions. Operate the shifter through all the gear positions. Check to make sure the swivel will slide in and out of the selector lever hole in each gear position. Install the cotter key supplied with the shifter into the swivel and spread the key ends. If you have a problem, ***DO NOT FORCE THE SHIFTER***, this will damage the cable, the shifter or the transmission. Simply start at the beginning and carefully check all your steps. Reinstall the downshift linkage, tightening the nut securely.

IMPORTANT: Do not force the shifter to over travel into the Park position. This will move the shifter into GM Park position and will damage the cable or transmission.

STEP 19. On Ford vehicles, the neutral safety/backup light switch is located on the transmission (or on the steering column on some early vehicles). If the vehicle has an AOD transmission the neutral safety/backup light switches on the **TCI®** shifter will **NOT** be used. The neutral safety/backup light switch on the AOD transmissions will continue to function normally. If using an AOD you must use TCI# 618016 linkage kit. On the C-4 and C-5 transmissions it is necessary to completely remove the stock neutral safety/backup light switch in order to install the **TCI®** transmission shift lever. On C-4, C-5 and C-6 transmissions, it will be necessary to hook up the neutral safety/backup light switches on the **TCI® FastGate** shifter. Locate and identify the neutral safety (the engine will not crank unless these wires are connected together), and reverse light wires. Disconnect the battery ground cable before beginning to wire the neutral safety and reverse light switches. Reroute the wires to the shifter. Strip 1/4" insulation off the wires and install the supplied slip-on terminals. Crimp the terminals onto the wires using a crimping tool or pliers. Connect the neutral safety wires to the switch on the driver's side of the shifter and the backup light wires to the other switch **(See Figure 1)**. Tape the terminal connections to prevent shorts. Reconnect the battery ground cable, disconnect the coil wire and set the parking brake. Check the switch operation by attempting to start the motor in each shifter position. **The starter must crank only when the shifter is in the Park or Neutral position**. Check the backup light operation when the shifter is shifted to the Reverse position. Adjust the switches if required. Reconnect the coil wire. Go to **Step 26**.

CHRYSLER

STEP 20. If you have not already done so, loosen the pinch bolt on the throttle lever on the transmission. This is the lever on the small diameter shaft. Pry the lever off with a screwdriver and allow the linkage to hang free. Remove and discard the stock shift lever and the stock shift linkage. Install the **TCI®** selector lever in position and tighten the pinch bolt securely **(See Figure 6)**. Make sure the lever is not pushed down so far as to touch the transmission case. This will cause the lever to bind on the case. The lever should travel smoothly from front to back with a positive click in each gear position. Install the stock throttle lever in position on the small diameter shaft as removed and tighten the pinch bolt securely. The throttle lever must operate smoothly.

STEP 21. Remove the two transmission oil pan bolts directly below the shift lever. Install the cable bracket in position **(See Figure 6)** with two spacers between the pan and the bracket. (If your transmission is equipped with a cast aluminum oil pan these spacers can be omitted.) Install the two 5/16-18 x 1.00" pan bolts supplied and tighten to 12-13 ft. lbs. Do not overtighten as this can damage the pan gasket.

STEP 22. Remove two rubber boots, one large nut, and a large lockwasher from the threaded end of the shifter cable. Route the shifter cable according to **Figure 2**. Avoid sharp bends and route the cable away from hot engine and exhaust parts. The cable may be secured up out of the way with nylon cable ties. Slide the end of the cable into the cable bracket, install the lockwasher and large nut over the end of the cable. Position the cable so the threaded portion of the cable housing is centered in the cable bracket.

Tighten both large nuts to hold the cable in this position. Install the two rubber boots onto the end of the cable.

STEP 23. Move the transmission selector lever by hand to the full forward position (Low). Place the shifter lever to the Low gear position (ratcheted all the way back). Adjust the large nuts on the cable so that the swivel will slide into the hole on the selector lever. Tighten the large nuts completely. Be sure that the swivel will slide freely in and out of the hole in the selector lever. With the swivel in the selector lever, move the shifter to the Park position, as far forward as the shifter will go without forcing it. (The shifter has further travel that is used to reach the GM Park position but is not used on Chrysler transmissions. Trying to force the shifter will damage the cable.) The shift lever on the transmission should be all the way back. Check to see that the swivel will slide freely in and out of the hole in the lever in this position. If it does not slip in freely, adjust the swivel slightly until it will slip into the hole in the lever in both the Low and Park positions. Operate the shifter through all the gear positions. Check to make sure swivel will slide in and out of the selector lever hole in each gear position. Install the cotter key supplied with the shifter into the swivel and spread the key ends. If you have a problem, ***DO NOT FORCE THE SHIFTER***, this will damage the cable, the shifter or the transmission. Simply start at the **beginning and carefully check all your steps.**

IMPORTANT: Do not force the shifter to over travel into the Park position. This will move the shifter into GM Park position and will damage the cable or the transmission.

STEP 24. Check the operation of the throttle linkage again. The linkage must operate smoothly with no bind. All transmissions using automatic valve bodies must have the throttle linkage connected and operating or transmission damage will result.

STEP 25. Neutral safety/backup light switch. **'66-'68**: The neutral safety switch will continue to function normally. It will not be necessary to hook up the neutral safety switch wires on the shifter. Disconnect the battery ground cable before wiring the backup light switch. Locate the original backup light switch on the steering column or the console shifter. Run these wires to the switch on the passenger's side of the **TCI® FastGate (See Figure 1)**. Reconnect the ground wire and check the light for proper operation. Adjust the switches on the shifter if required. **'69 and Later:** The neutral safety/backup switch is located on the transmission and will continue to function normally. It will not be necessary to connect any wires to the switches on the shifter.

STEP 26. Put shifter in low gear and remove the ball handle, the jam nut and the Reverse lockout from the shifter. To remove the Reverse lockout handle, remove the spring clip and washer at the bottom of the rod and pull the assembly upwards. There is a small washer between the rod and the "U" shaped stamping, do not loose it **(See Figure 1).**

STEP 27. Install the correct shift indicator decal onto the cover. Use a bottle and "roll" the decal around it to make it easier to put on the cover. Place cover over the assembly and while holding the front up, replace the Reverse lockout assembly and reinstall the washer and spring clip **(See Figure 1)**. Use the hex head countersunk screws to attach the shifter cover to the shifter. Re-install the jam nut and ball handle. Move the shifter through the full travel and notice the clearance in the cover slot. If the stick rubs the cover, either the cover or the shifter is improperly installed.

OPERATION

Operation of the **TCI® FastGate** shifter is very simple. After you run it through the gate positions two or three times, you will find it easy to use. The chevron will line up with the correct gear positions indicator decal. Operate the shifter to all positions by lifting or dropping the Reverse lockout and moving the stick. Note: There are two Park positions on the shifter. The one closest to Reverse is

used on Ford and Chrysler vehicles. The forward one is used on G.M. vehicles. The stick will move between Neutral and Drive positions without lifting the Reverse lockout. To engage Reverse from Neutral, lift the Reverse lockout slightly and push the stick forward. To engage Park from Neutral or Reverse, lift the Reverse lockout and fully and push the stick forward until it stops, then release. The shifter will lock in Park position and you must lift the Reverse lockout to move to Reverse or Neutral.

When downshifting, Drive to 2 or 2 to 1 you must lift the Reverse lockout and pull the stick back. When upshifting,1 to 2 or 2 to Drive, moving the stick with a quick, firm push will cause the Reverse lockout to stop in each gear position. Moving the stick slowly will allow it to slide through the gears without stopping.

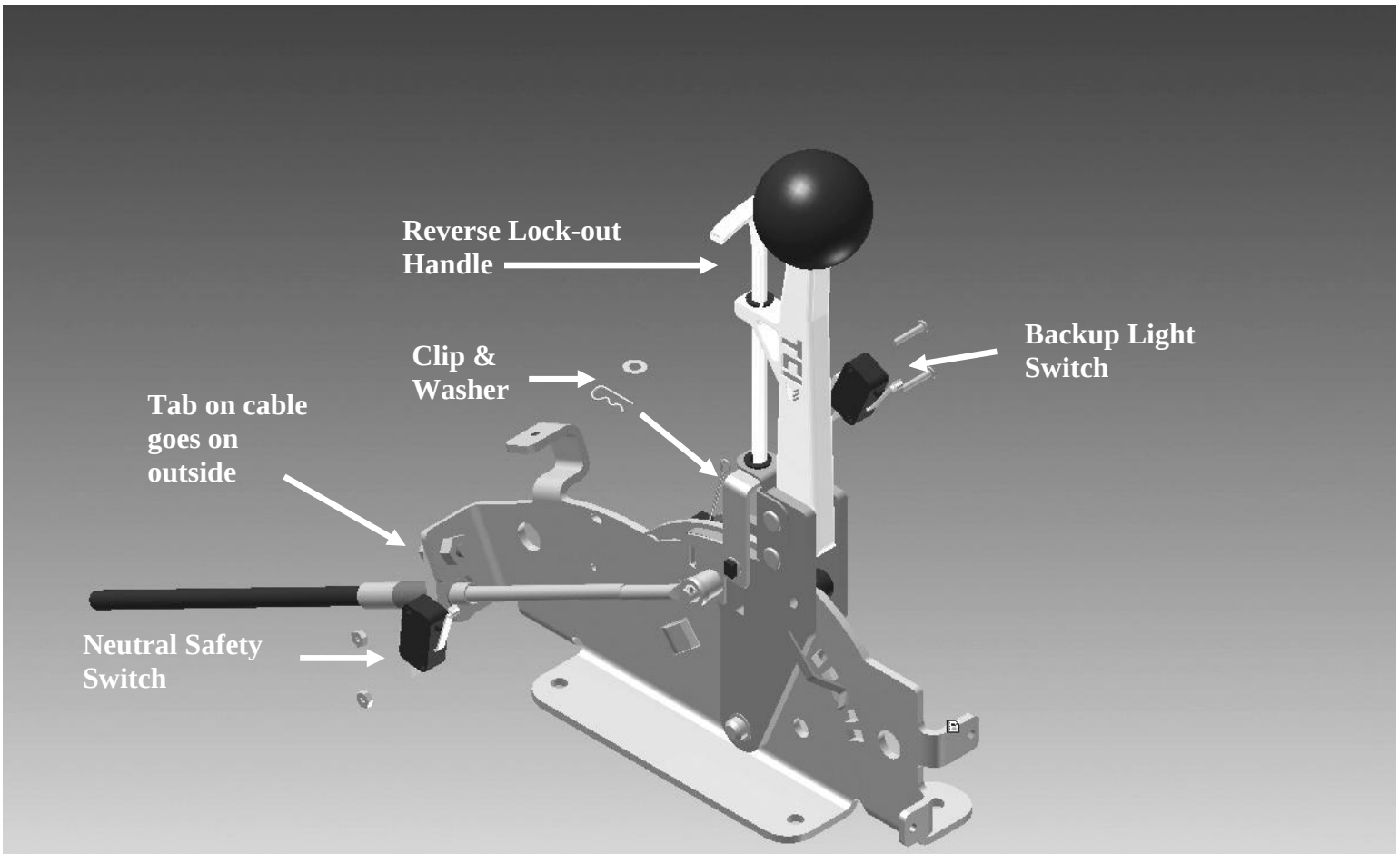


Figure 1

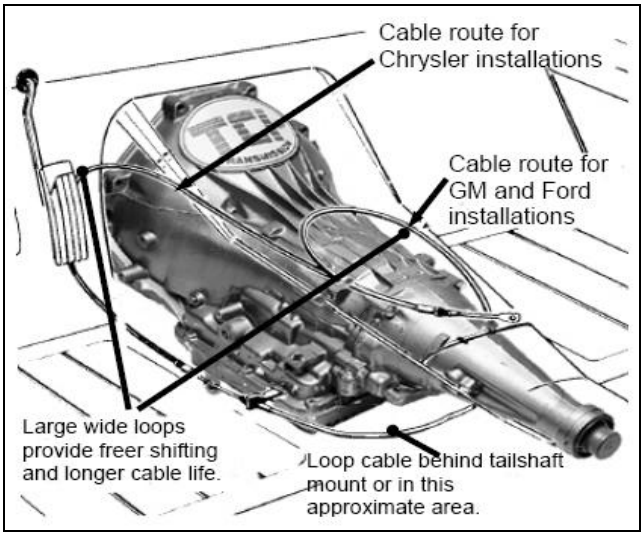


Figure 2

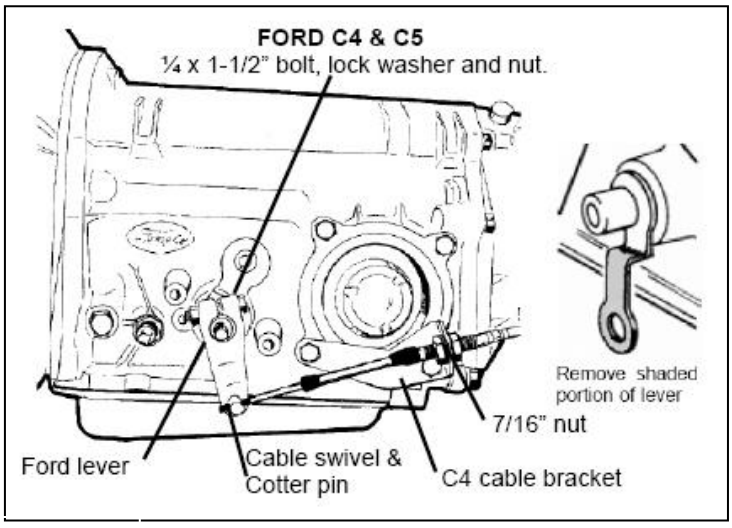
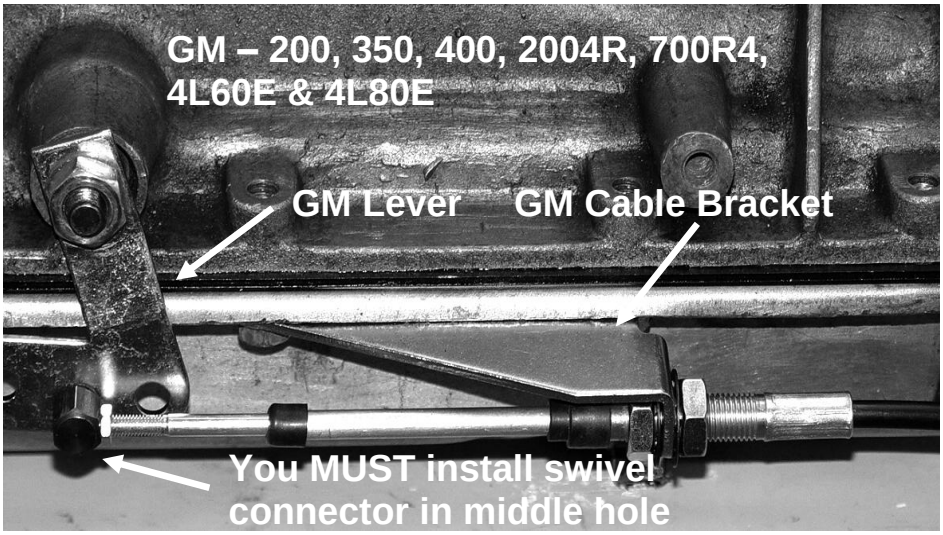
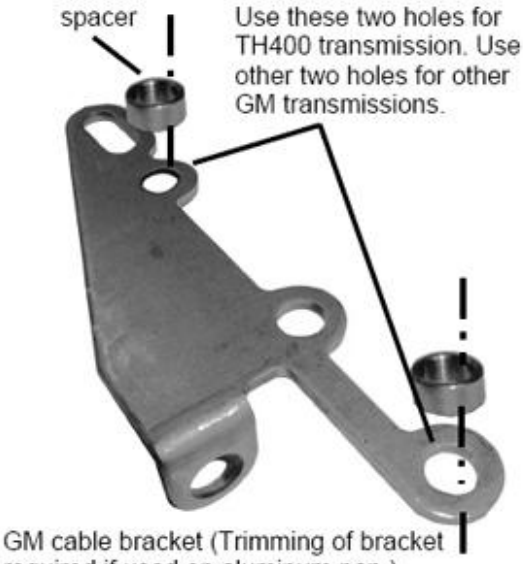


Figure 4





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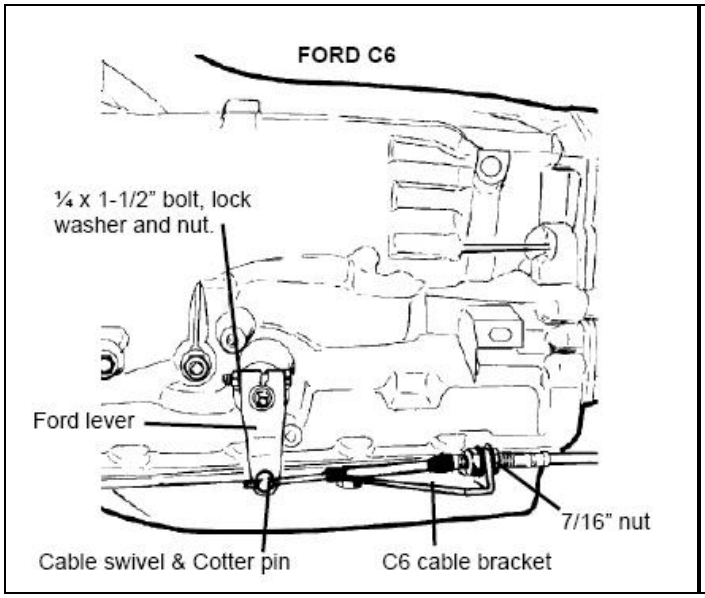

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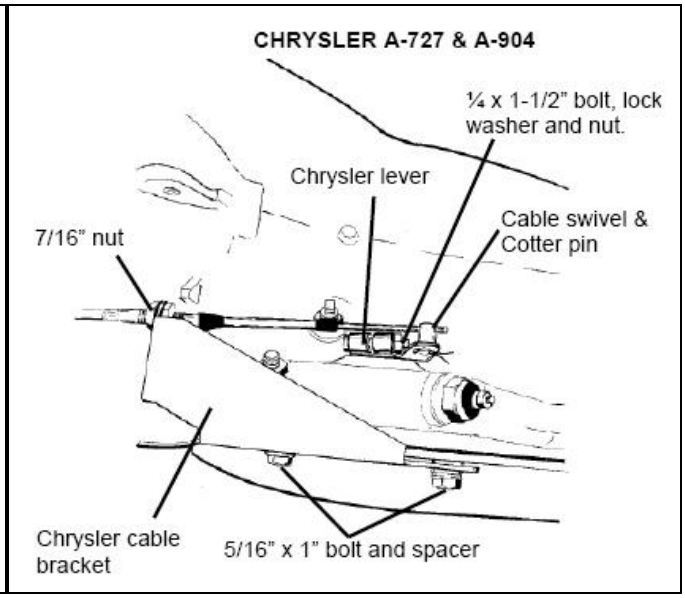
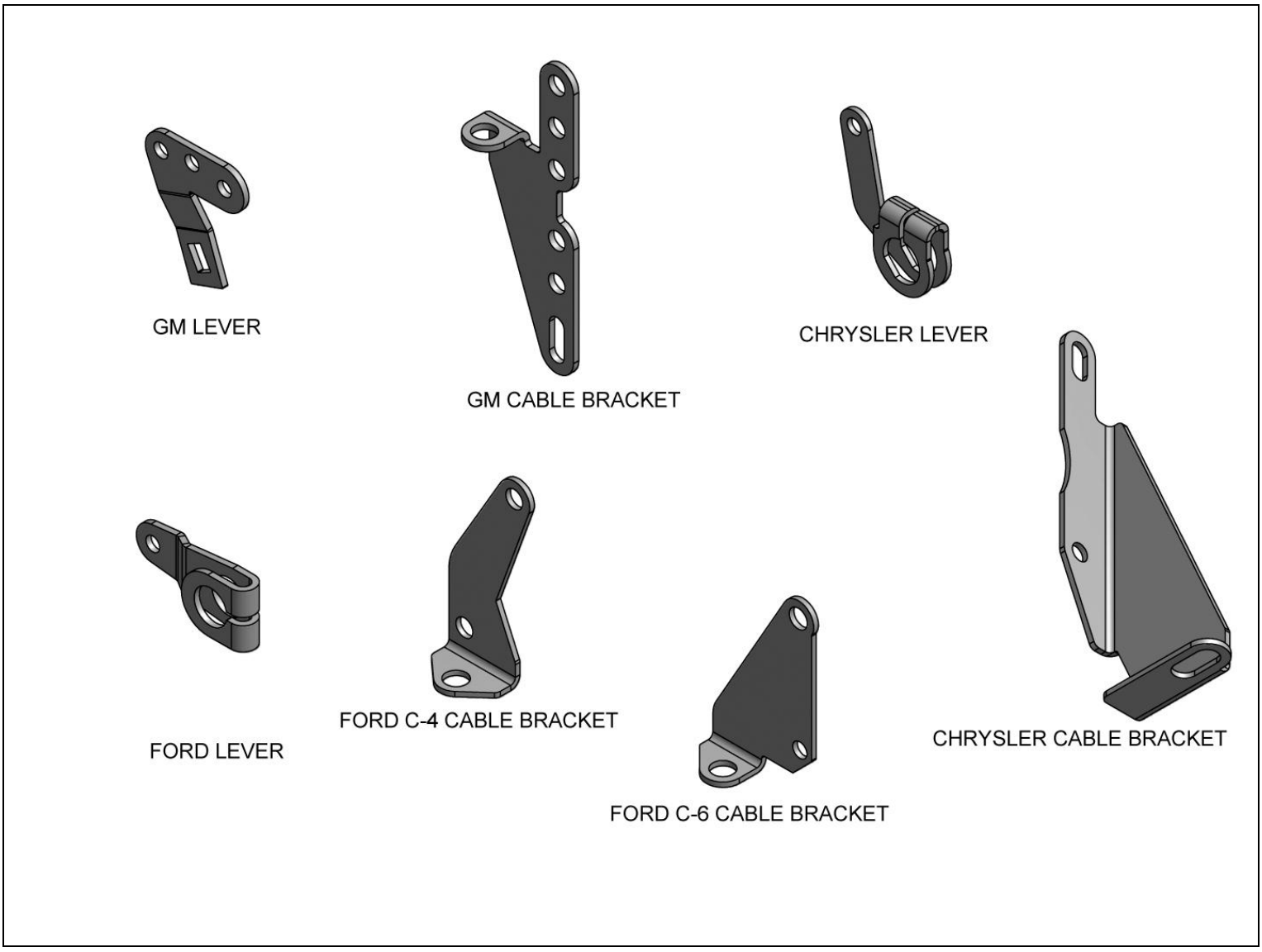


Figure 6



Cable and Pan Brackets