HURST SHIFTERS

PART NO. #383 8525

V-MATIC 2™

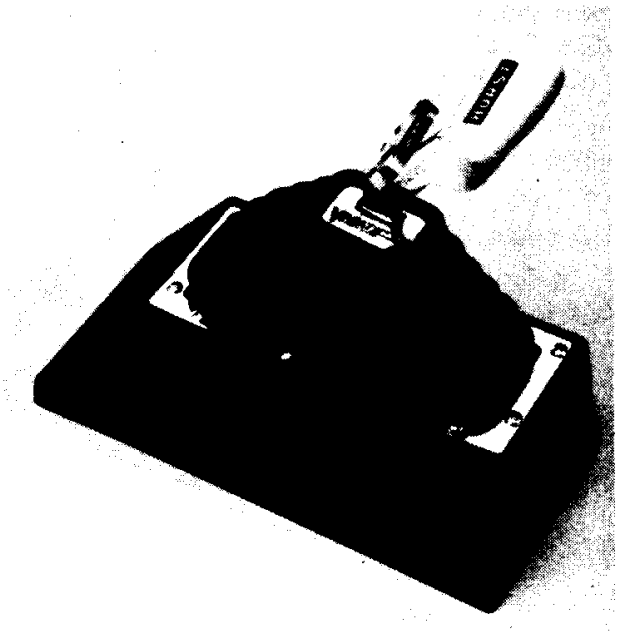
Automatic Transmission Shifter

For Powerglide Transmissions

Congratulations on your purchase of the . . . **V-MATIC 2™**. . . the ultimate shifter.

The finest dual action shifter on the market today, with the look of a 4-speed.

V-MATIC 2™ operates as a stock unit, or when you need precise transmission control push down into neutral and pull back to enter the ratchet mode, for a true racing shifter.



Consider these features:

- Top choice for street or strip.
- Brushed aluminum Hurst "T" Handle.
- Neutral safety/back-up switch assembly.
- Progressively illuminated gear indicator.
- Trigger operated reverse lock-out built for racing.
- All necessary installation hardware is included with every **V-MATIC 2™.**

Before you begin installation of the **V-MATIC 2™** please take a few minutes to read this instruction booklet . . . it will make your installation of the **V-MATIC 2™** much easier.

FIG. 1

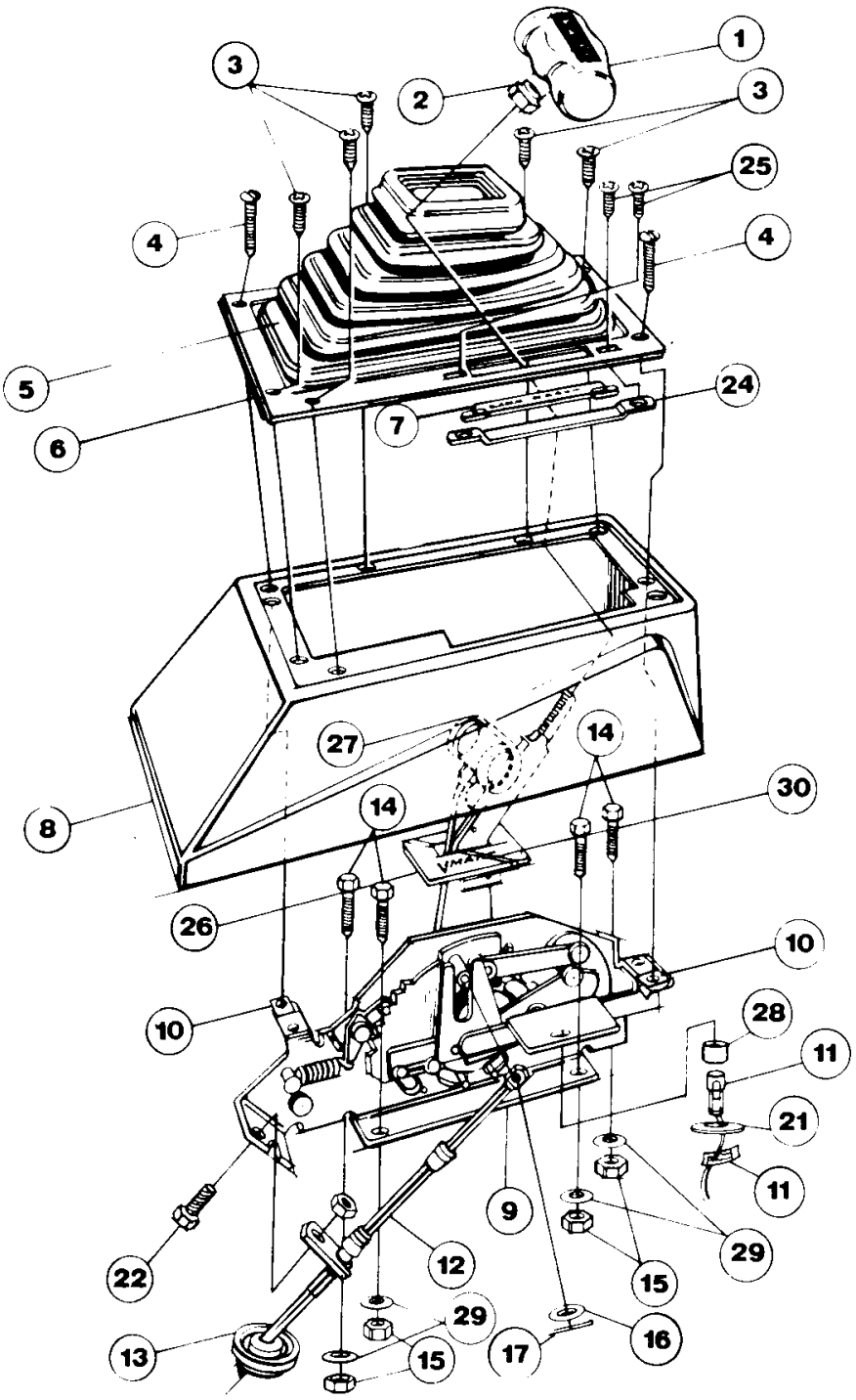
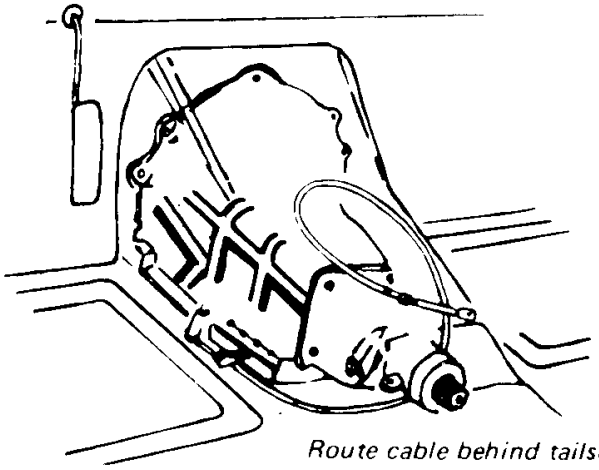


FIG.2



Route cable behind tailshaft mount

PARTS LIST

		ORDER NO.
1.	T-Handle	**1534810**
*2.	Jam Nut	**1794719**
*3.	Self-Tapping Screw, #8 x 3/4	**97093105**
4.	Self-Tapping Screw, #8 x 1-3/4	**97093106**
5.	Rubber Boot	**1148572**
6.	Chrome Retainer Plate	**1958574**
*7.	Indicator Lens	**2418571**
8.	Console	**1298554**
9.	Shifter Mechanism	**3830502**
10.	Speed Nut	**97093081**
11.	Indicator Light Assembly	**1578575**
12.	Shifter Cable	**5008555**
*13.	Grommet (Floorboard Cable)	**97093109**
*14.	Hex Bolt, 1/4″ x 1″	**97080969**
*15.	Nut 1/4″	**97000910**
*16.	Flat Washer, 3/16″	**97000905**
*17.	Cotter Pin, 1/16″ x 1″	**97093086**
*18.	Cable Pivot	**97X93089**
*19.	Trans Arm and Shaft Assembly	**97094004**
*20.	Cable Bracket	**97X94003**
*21.	Flatwasher, 1/4″ — Large	**97000729**
*22.	Hex Bolt, 1/4″ x 3/4″	**97090029**
*23.	Plug, 7/16″	**97094006**
*24.	Lens Plate	**97X93213**
*25.	Machine Screw, 10-32 x 3/8″	**97093235**
26.	BootPlate	**97093204**
27.	Trigger	**3078576**
28.	Lense Sleeve	**97093246**
*29.	Flatwasher, 1/4″ — Small	**97000818**
30.	V-Matic Decal	**97093234**

*Supplied in hardware kit

TOOLS REQUIRED FOR INSTALLATION

2 or 4 Jack Stands
Drill Motor
1-1/2″ Hole Saw
9/32″ Drill Bit
Utility Knife
Scissors
Hammer
File
Center Punch
Wire Strippers
Wire Crimping Tool
1/8″ Drift Punch
12-Volt Test Light or Voltmeter
Belt Sander or Grinder
Torque Wrench
Tape Rule
Electrical Tape
Pliers
Phillips Screwdriver
3/8″ Ratchet
3/8″ Universal
3/8″ Extension 10″ Long
7/16″ Socket—3/8″ Drive
1/2″ Socket—3/8″ Drive
1/4″ 12 Pt. Socket—1/4″ Drive
3/8″ End Wrench
7/16″ End Wrench
11/16″ End Wrench
3/16″ Allen Socket
GasketScraper

SHIFTER INSTALLATION

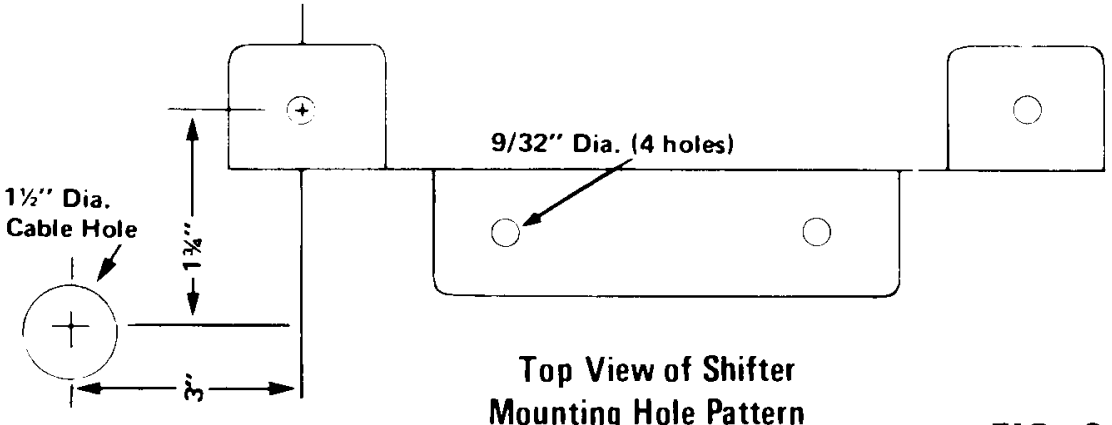
The vehicle should be raised off the ground and firmly supported with jack stands or ramps, before starting installation.

1. Place the column shift lever in the Park position. Remove the drive pin that holds the lever to the column, then remove this lever from the column. **For factory console shifters:** Remove shifting mechanism and any cables, cable bracket or rods that are attached to the shifter and/or transmission. **Note: Console modification or console removal may be necessary depending on the vehicle and space available.** Use a metal plate to cover the hole in the floor that was left from the factcry floor shifter.

   For vehicles equipped with a steering column lock: Place the column shift into the Park position and secure the shift lever linkage (which is located in the engine compartment or under the instrument panel) to a rigid frame member or support to prevent movement. This will allow the steering wheel to lock in the Park position as it should when the key is removed.

CAUTION: If this lever is secured too tight the ignition will be hard to operate.

2. Determine a comfortable position for the shifter assembly on the centerline of the transmission tunnel allowing clearance for seat travel and shift lever travel between dashboard when shifting into Park position. Cut a small section of the carpet where the shifter mechanism will mount to the transmission tunnel. Make sure there are no wires under the carpet. After the carpet is cut, position shifter in desired location. Mark and drill four mounting holes using a 9/32″ drill bit.
3. If necessary, mark and cut a slit in the carpet to accommodate the shifter cable. Using a hole saw or other suitable tool, make a 1½″ diameter hole in the floor to accommodate the cable, 3″ to the front and 1¾″ to the left of the forward mounting hole. For some vehicles the 3″ dimension may have to be less, depending on floor tunnel configuration (See Fig. 3).



Top View of Shifter
Mounting Hole Pattern

FIG. 3

4. Install the rubber grommet **#13** (supplied) in the 1½″ cable hole located in the floor.
5. Install the shifter mechanism into the vehicle using the four ¼ x 1″ bolts, nuts, and washers supplied.
6. Remove two rubber boots **A**, two nuts **B**, and two flat washers from the end of the shifter cable and set them aside (See Figure 9). Tape the sections of the cable that these rubber boots were covering so that dirt or grease will not build up on them which would cause the cable to scuff and bind. Route the cable so there are no sharp bends which would make the shifter hard to operate (See Figure 2). **Be sure that the cable clears all exhaust pipes by at least 1½.″** The end of the cable that has the tab attached to it must be installed into the slot to the inside of the shifter mechanism using a ¼″ x ¾″ bolt and nut supplied (See Figure 4). Slip the flattened end of the cable over the pin attached to the shifter and secure it with the flat washer and a cotter pin (See Figure 4).

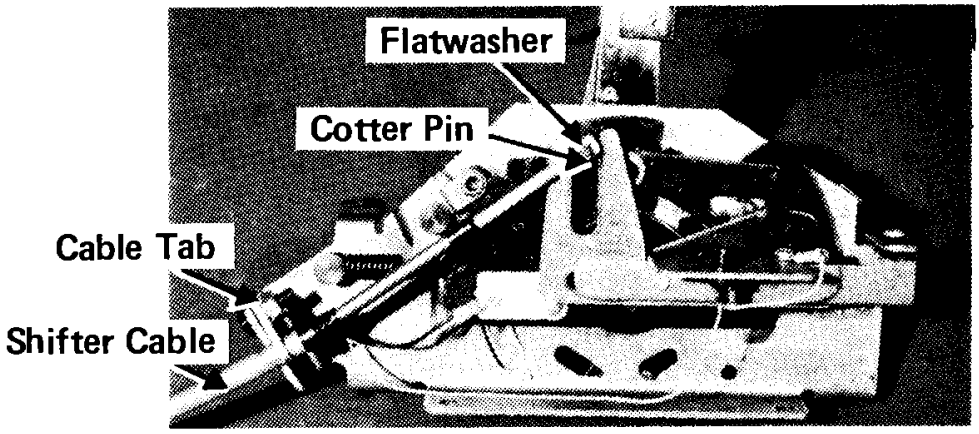


FIG. 4

7. Remove throttle linkage rod ends which attach to the carburetor and to the arm on the transmission allowing it to hang free. Remove the factory shifter linkage. This linkage will not be used with your **V-MATIC 2™**.
8. Using a drain pan, drain the oil from transmission. **CAUTION: The transmission oil should be cool before draining. If your oil pan doesn't have a drain plug, remove all oil pan bolts except the two at the front corners.** Loosen the last two bolts but do not remove at this point. Let the oil pan tilt down so the oil will drain from the pan. It may be necessary to pry the oil pan loose with a screwdriver. Remove the last two bolts and the oil pan and set them aside.

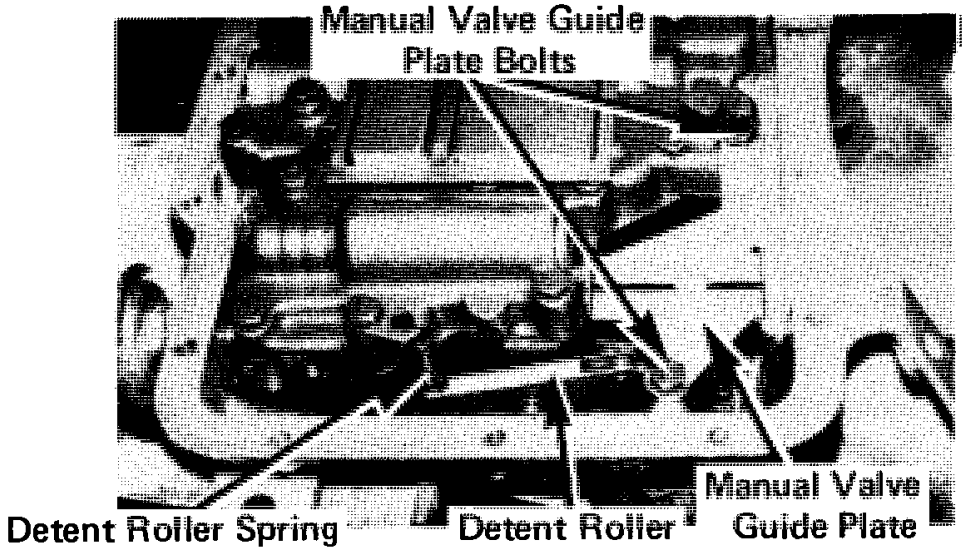
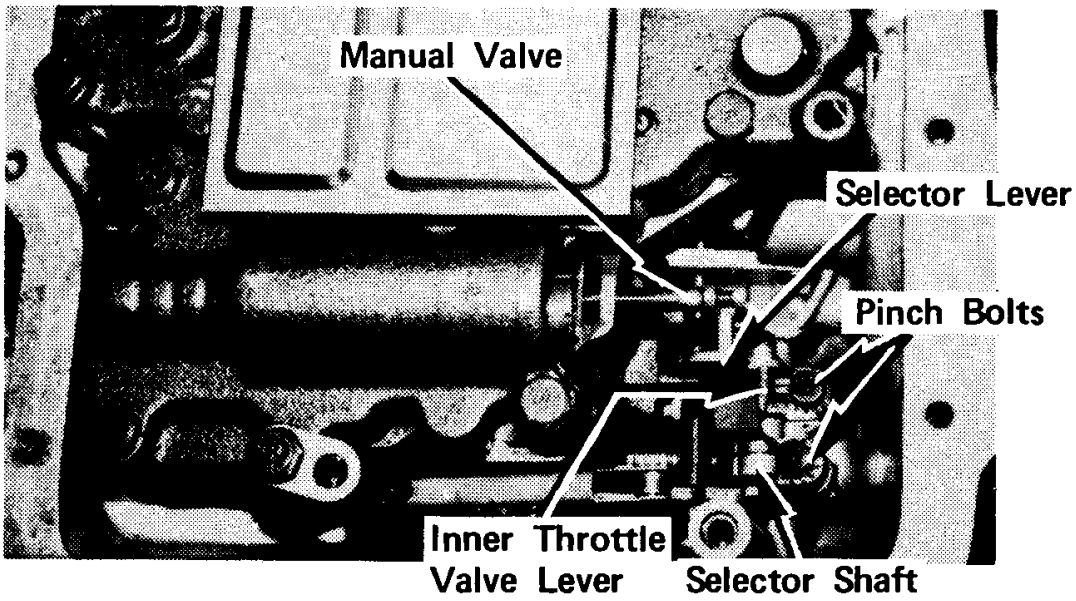


FIG. 5

9. Remove the two manual valve guide plate bolts and plate (See Figure 5). Remove the detent roller spring by unhooking it from the detent roller and the tab attached to the housing (See Figure 5).
10. Loosen the pinch bolt on the inner throttle valve lever with either a 1/4" 12 pt. socket or a 3/16" allen socket (See Figure 6). Do not remove pinch bolt. Pry this lever at the opening and slide outer throttle shaft from the transmission. Set the inner throttle valve lever aside. Make sure 0-ring seal remains on the shaft.
11. Loosen the pinch bolt on the selector lever with either a 1/4" 12 pt. socket or a 3/16" allen socket (See Figure 6). Do not remove pinch bolt. Pry this lever at the opening and slide the selector shaft from the transmission. This selector shaft will not be used again.

FIG. 6



12. **For Manual Valve Bodies/Racing Applications:** The outer throttle shaft can be omitted. The 7/16" plug (supplied) must be pressed into the outer end of the transmission arm and shaft assembly to prevent any oil leakage (See Figure 7). Use a gasket sealer on the plug before installing it. Slide the **Hurst** selector shaft into the transmission with the lever pointing down. Make sure the factory selector lever pin is engaged into the manual valve (See Figure 6). Rotate the **Hurst** selector shaft until the flat on the shaft aligns with the serrations on the lever then slide the shaft through the lever until the lever stops on the shoulder of the shaft. Tighten the pinch bolt. When the shaft is properly aligned with the serrations, the shaft will slide smoothly through. The flat on the shaft must be aligned with two end serrations as shown. (See Figure 6A). Install the manual valve guide plate in place. Tighten the two bolts to 15 ft. lbs. Install the detent roller spring by hooking it to the roller assembly and tab bolted to the valve body (See Figure 5). Check the assembly by moving the selector lever to each detent position forward and backward. The selector lever should engage each position firmly. The throttle lever should rotate easily with a spring type action.

Note: If there are any binds in the throttle lever the inner throttle lever may have to be moved away from the inner selector lever. Loosen the pinch bolt, move lever and retighten. The throttle linkage rod may have to be adjusted so the transmission will shift properly.

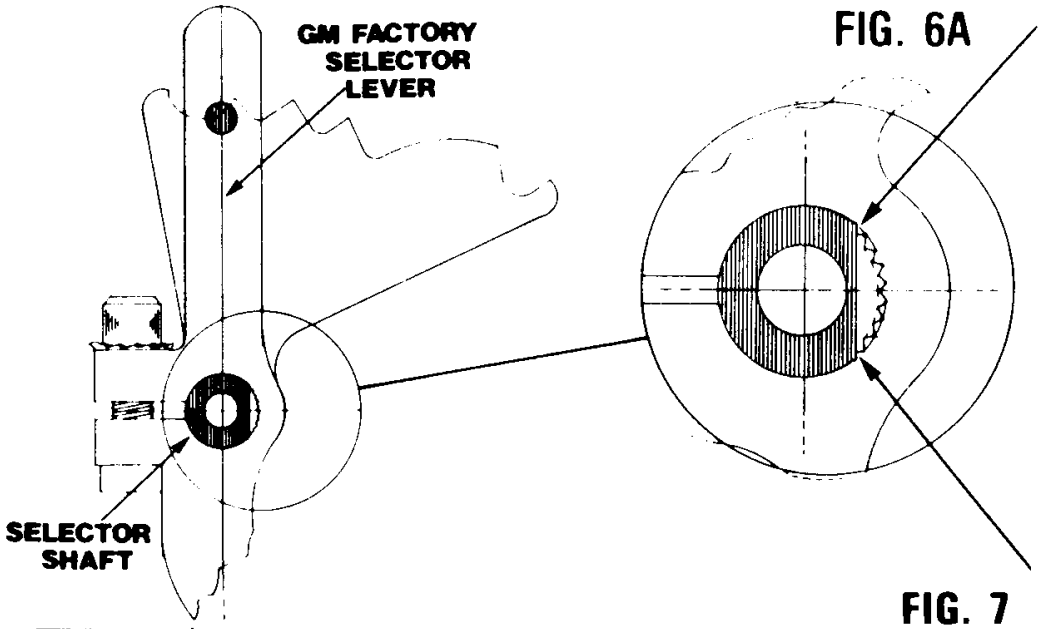
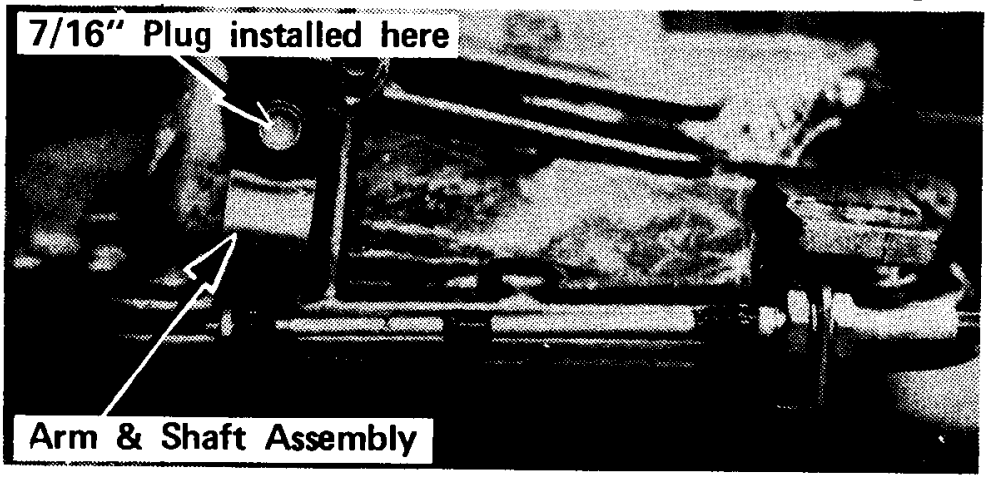


FIG. 6A

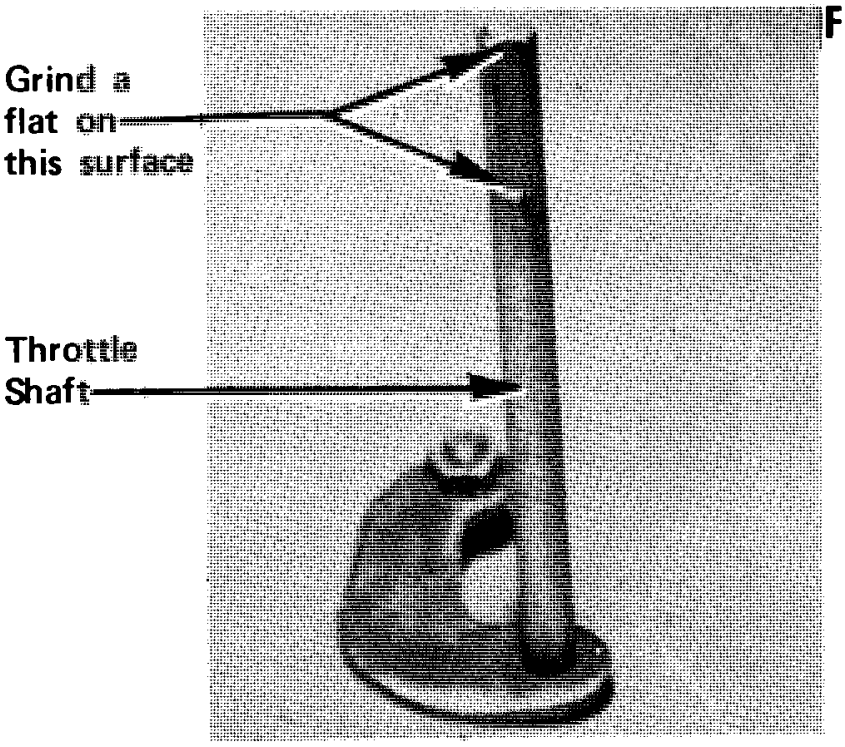
FIG. 7



13. **Automatic Valve Bodies Selector Shaft and Throttle Shaft Installation:** Slide the **Hurst** selector shaft into the transmission with the lever pointing down. Make sure the factory selector lever pin is engaged into the manual valve (See Figure 6). Rotate the **Hurst** selector shaft until the flat on the shaft aligns with the serrations on the lever then slide the shaft through the lever until the lever stops on the shoulder of the shaft. Tighten pinch bolt. When the shaft is properly aligned with the serrations, the shaft will slide smoothly through. The flat on the shaft must be aligned with two end serrations as shown. (See Figure 6A). Vehicles with automatic valve bodies must use throttle linkage for proper transmission operation. Re-indexing of the outer throttle shaft is necessary to clear the **Hurst** selector lever. Use a belt sander or grinder to make a flat approximately ¼" wide that will extend through the first spline on the throttle shaft (See Figure 8). Make sure this shaft slides easily into the throttle valve lever. Before installing throttle shaft make sure O-ring is on the shaft then slide the shaft into the transmission part way. Hold inner throttle lever in position in transmission, and with the throttle shaft at the maximum clockwise position, slide the shaft thru the serrations in the lever. Tighten pinch bolt. Install the manual valve guide plate in place. Tighten the two bolts to 15 ft. lbs. Install the detent roller spring by hooking it to the roller assembly and tab bolted to the valve body (See Figure 5). Check the assembly by moving the selector lever to each detent position forward and backward. The selector lever should engage each position firmly. Throttle lever should rotate easily with a spring type action.

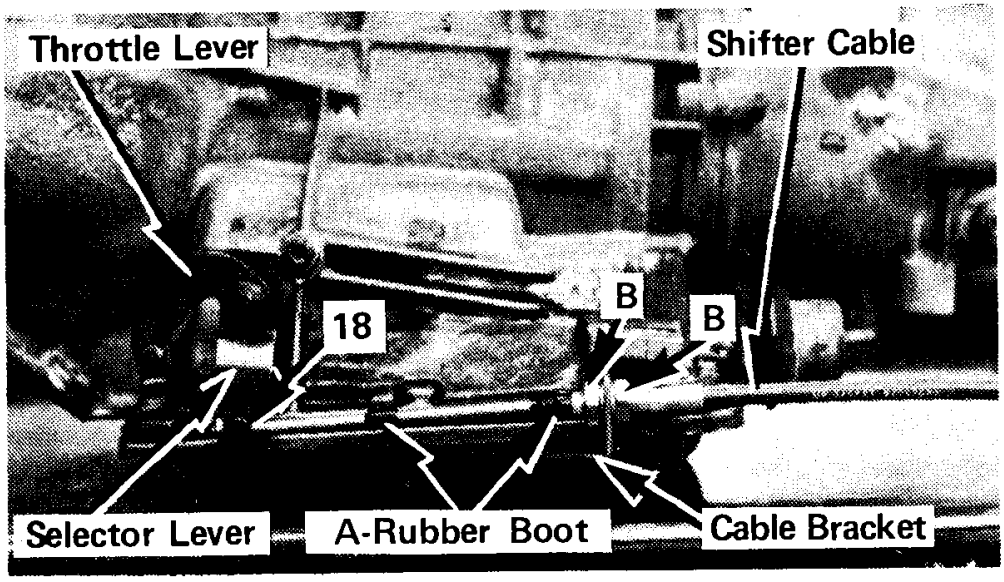
Note: If there are any binds in the throttle lever the inner throttle lever may have to be moved away from the inner selector lever to eliminate binding. Loosen the pinch bolt, move lever and retighten pinch bolt. The throttle linkage rod may have to be adjusted so the transmission will shift properly.

FIG. 8



14. Prepare oil pan and case by scraping off the old gasket. Install the oil pan with new gasket supplied in kit. Install all oil pan bolts except for the two center bolts on the left side. Tighten bolts to 8 ft. lbs. Be careful not to over-tighten as oil pan can distort causing gasket damage.
15. Using the two $^{5}/_{16}$″-18 x ¾″ bolts supplied, install cable bracket (See Figure 9).

FIG. 9



16. Remove the tape from the cable and install one nut and flat wsher B on the shifter cable. Route the shifter cable through the bracket and reinstall the other flat washer, nut B, and two rubber boots A (See Figure 2 and 9). **IMPORTANT: Use tie straps or clamps to secure the cable away from the exhaust pipes and engine.**
17. The trans arm must be moved to the far rear position and the shifter must be moved to the first gear position (See Figure 11). Adjust the pivot #18 on the end of the cable until it falls freely into the hole in the trans arm. Attach the cotter pin. **IT MAY BE NECESSARY TO MAKE A FINE ADJUSTMENT OF THE PIVOT BEFORE THE SHIFTER WILL ENGAGE ALL GEARS PROPERLY.**

Connection of Neutral Safety and Back-Up Light Switches and Wiring

18. The **V-MATIC 2™** shifter has an integrated electrical switch which replaces the original equipment neutral safety switch and back-up light switch on some installations. Use No. 18 AWG or larger stranded wire when splicing into the shifter.

GENERAL DESCRIPTION

The following paragraphs describe the procedure to locate the neutral-safety switch and back-up light switch on most vehicles and how to identify the wires needed to connect to the **V-MATIC 2™** Shifter. These instructions must be carefully read and understood prior to proceeding to page 10.

The original equipment neutral safety switch is located in one of two places in the start solenoid circuit, shown as "A" or "B" in Figure 10. Once located determine which installation is used. This may be done by placing the gear shifter in **Park** or **Neutral** positions and installing a 12-volt lamp (or voltmeter) between either lead or terminal of the neutral safety switch and ground. Momentarily engage the "start" position on the ignition switch and crank the engine. If configuration "A" is used, the lamp will not illuminate (or the voltmeter will indicate near zero volts) during crank. If configuration "B" is used the lamp will stay illuminated (or the voltmeter will indicate close to the battery voltage) during crank.

To determine the hot side of the neutral safety switch, remove the wire from one side of the switch and connect to a 12-volt lamp. Connect the other side of the lamp to ground and put the gear selector in the **Park** position. Energize the "start" position of the ignition switch and observe the lamp. If the lamp lights, the hot side of the terminal has been found. If the lamp does not illuminate, the cold side of the switch has been found.

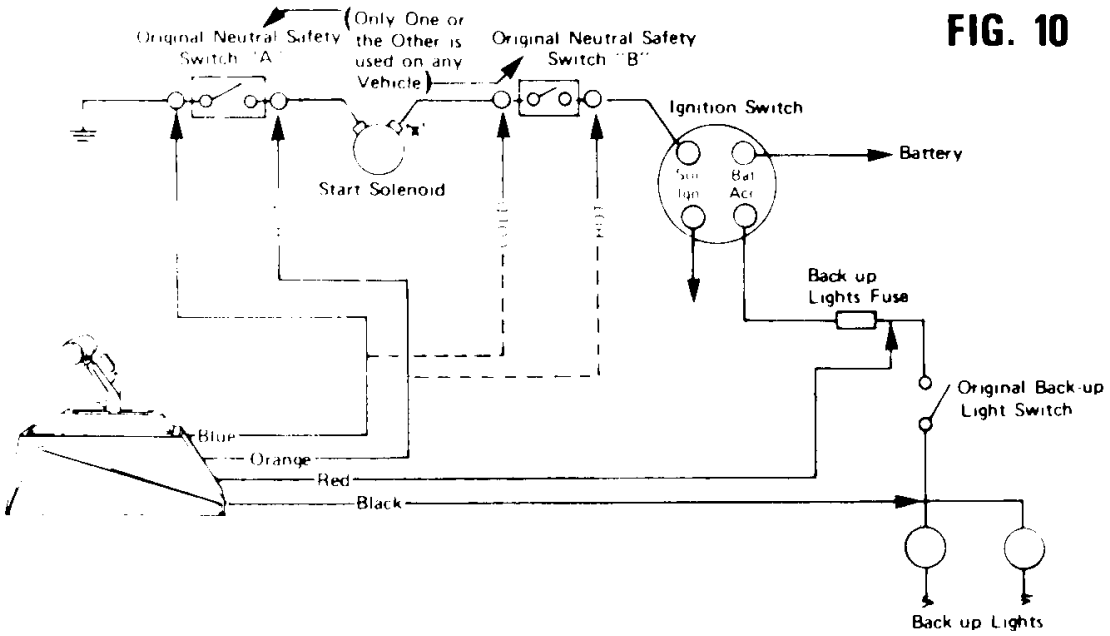


FIG. 10

WARNING:

Incorrect installation of the blue and orange wires could energize the start solenoid or cause the back-up light fuse to open when the gear lever is placed in the reverse (R) position and the ignition switch is on.

It is imperative that the blue wire from the V-MATIC 2™ Shifter be connected to the cold side of the original neutral safety switch and the orange wire be connected to the hot side.

NOTE: Mechanical Neutral Safety

Note all vehicles have a neutral safety electrical switch to prevent starting in the reverse and forward gears. In the event that your vehicle uses a mechanical lockout feature on the steering column key switch, the **V-MATIC 2™** Shifter may be wired into the start solenoid or relay circuit as shown in installation of "B" of Figure 10.

The original wire which connects to the start solenoid or relay from the ignition switch must be removed from the start solenoid and connected to the orange wire on the **V-MATIC 2™** Shifter. The blue wire from the **V-MATIC 2™** Shifter must be connected to the start solenoid terminal where the original wire was previously removed. Insulate the splices and connections with electrical tape.

Neutral Safety and Back-Up Light Switches

To connect the **V-MATIC 2™** neutral safety switch, remove the wires from the hot side of the original equipment safety switch and connect these wires to the orange wire from the **V-MATIC 2™** Shifter. Connect the blue wire from the **V-MATIC 2™** Shifter to the other side of the original safety switch. Insulate the splices with electrical tape.

WARNING:

Failure to properly install the blue and orange wires could cause the engine to start when the V-MATIC 2™ Shifter is put in the reverse position and the ignition switch is on.

To connect the back-up lights, locate the supply side of the back-up light fuse (which goes to the original back-up light switch) and connect the red wire from the **V-MATIC 2™** Shifter to this terminal.

Connect the black wire from the **V-MATIC 2™** Shifter to the back-up light lead wire (connected to the lamp side of the original back-up light switch). Insulate the splices with electrical tape.

TEST OPERATION OF SHIFTER

With the shifter in the Park position and your foot holding the brakes, start the engine. Turn the engine off and test for starter operation in every position of the shifting pattern. The starter must operate in the Park and Neutral positions **only.** If the starter operates in any other position, re-check step #18 to be sure the wire connections are correct.

CONSOLE INSTALLATION

19. Before installing the rubber boot, the bottom flange must be trimmed. To do this place chrome boot retainer plate over rubber boot on a workbench or flat surface. Align plate holes with boot holes and mark boot with a pencil along both sides. Trim rubber boot flange on pencil lines with a razor blade or scissors. Place chrome boot retainer plate over rubber boot.
20. Install the indicator lens into the chrome boot retainer plate and rubber boot from the bottom side, use lens plate #24 and screws #25 (See Figure 1). The indicator lens supplied with the shifter is designed for a standard shift pattern automatic valve body. Slip two speed nuts #10 on the shifter mechanism as shown in (See Figure 1).
21. The bottom of the console must be trimmed to match the contour of the floor. The inside of the console top flange must rest on the two mounting ears of the shifter mechanism (See Figure 12). Place the console over the shifter mechanism and hold it level with the shifter. Measure the distance A (See Figure 12) from the underside of the console to the console mounting surface on the shifter mechanism. Using a pair of dividers set to ¼" less than the dimension of distance A, touch one end of the dividers to the console and the other to the floor. Scribe a line on the console to match the floor contour by keeping the dividers perpendicular to the floor, dragging the dividers along the floor and against the console. Using a utility knife, score a firm cut over the line, just scribed in the console. With a pair of pliers, placed near the scored line, bend the excess material back and forth until it breaks away. Remove any burrs or rough edges with the utility knife. To prevent any unnecessary cracking, it is recommended that the console #8 be at room temperature before breaking the excess material away.

22. Install the console (No. 8) over the shifter mechanism. Check the fit at the floor and speed nut mounts. If any more trimming is necessary, do it at this time. Console should fit snugly against floor and shifter mounting tabs.
23. With the T-Handle removed, install the rubber boot and chrome retainer plate. Carefully stretch it over the trigger and onto the boot plate #26.
24. Align the holes with the boot and the console.
25. Install two screws #4 through boot retainer plate, rubber boot and console. Snug them down but do not install the remaining screws until gear indicator light position is checked.
26. Thread the jam nut #2 and T-Handle #1 onto the shifter lever. Shifter can now be checked for proper operation. After shifter is operational, remove 2 screws #4. Indicator lens can now be positioned for proper gear engagement over indicator light and tightened in place. The remaining 5 screws #3 can be attached securely.

SHIFTER OPERATION

The upper position of the shifter operates the straight gate mode of Park, Reverse, Neutral. The handle moves straight backward from Park to Neutral but the trigger must be lifted to clear the safety stop between Park and Reverse. Once in Reverse the handle must be pushed down then the shifter is ready for a straight pull back to Neutral.

After Neutral is engaged, you have the choice of either pulling straight back to D or Low positions or instead pushing straight down on the T-Handle then back into the ratchet mode of D, or Low. In this ratchet mode, the first pull back will be Drive position. Release the T-Handle and the shifter will return to a relaxed position. Another pull back will engage Low gear. To upshift, push the T-Handle forward until it stops and release. This procedure must be followed for each gear until Neutral is reached. At this time the T-Handle will spring upward. To engage Reverse, the trigger must be lifted with two fingers and the T-Handle pushed forward. To shift into Park, lift trigger and push T-Handle forward to stop. Release trigger and T-Handle and Park is secured.

For full manual valve body transmissions, the shift pattern is usually reversed.

FIG. 11

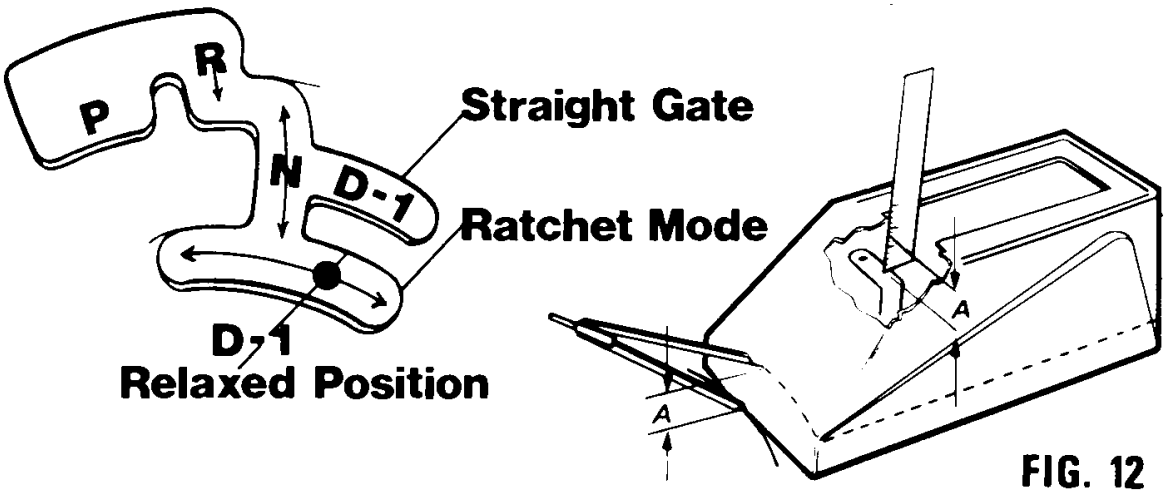


FIG. 12