



TAILGATE & TONNEAU COVER POWER LIFT SYSTEM INSTALLATION INSTRUCTIONS

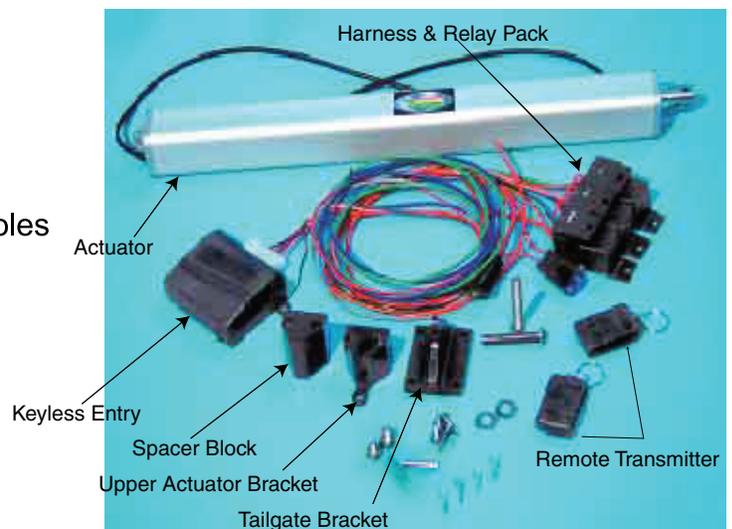
Installation of the Power Lift System is relatively simple and straightforward. With any motorized equipment care must be taken to avoid serious injury from moving parts. This kit is designed as a universal style kit, and will fit on most fleet side and step side trucks. On trucks equipped with bed liners and rail caps, you may be required to remove the liner and/or cap in order to install the system. If you have a raised bed/tailgate liner you may want to notch the liner and fit it over the brackets. If you notch the liner, make circular cuts, do not make square cuts. As with any universal application situations may arise that require additional modifications, and in some cases this kit may not be able to be installed safely. It is strongly recommended that you read the instructions thoroughly to determine whether this kit can be safely installed on your particular application.

The power lift system is made up of two separate sub-systems; the tailgate lift system and the tonneau cover lift system. The systems are integrated through a common control module and wiring harness. The systems are available individually or as a complete package. This instruction sheet will outline the procedures for installing the complete system or as individual modules.

We suggest that you first locate a clean area where you can work safely and have enough room to move around your vehicle. If you're installing both the tailgate kit and the tonneau kit you will want to have enough clean space to store interior panels and seats. Once you have a suitable work area, you should remove the contents of the package and make sure that all of the pieces of the kit are in the box. Please check the parts against the list below:

TAILGATE KIT PARTS (TG-1)

- 12" Linear Actuator
- Keyless Entry Control Module
- Wiring Harness
- Upper Mounting Bracket w/2 Threaded Bolt-Holes
- Upper Mounting Bracket Spacer Block
- 4 Hole Tailgate Mounting Bracket
- 2 Button Head Machine Screws with Washers
- 4 Stainless Steel Sheet Metal Screws
- 2 Clevis Pins with Hair Pin Clips
- Assorted Electrical Connectors
- Assorted Rubber Grommets

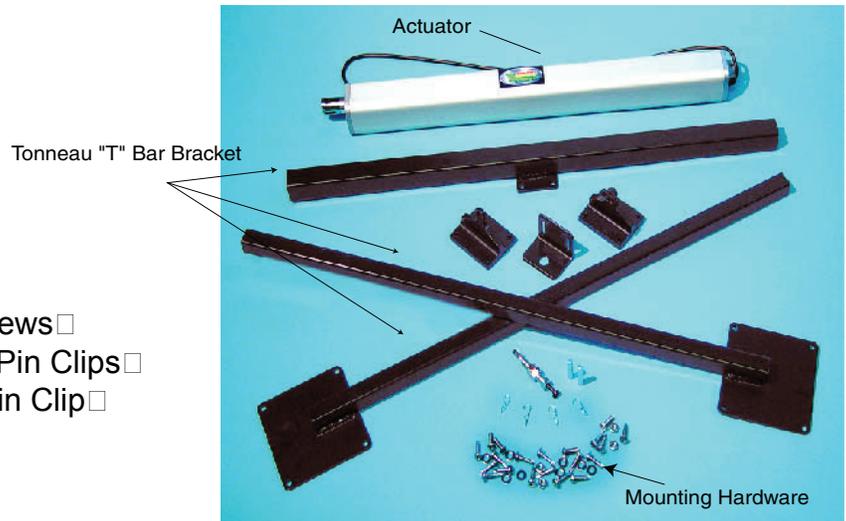


TG-1

TAILGATE & TONNEAU COVER POWER LIFT SYSTEM INSTALLATION INSTRUCTIONS

TONNEAU COVER KIT (TG-2)

- 12" Linear Actuator
- Upper Mount Assembly
- 2 4-Hole Mounting Brackets
- 4 Stainless Steel Bolts and Nuts
- 16 Stainless Steel Sheet Metal Screws
- 1 Clevis Pin with 2 Holes and Hair Pin Clips
- 1 Clevis Pin with 1 Hole, No Hair Pin Clip
- Assorted Electrical Connectors
- Assorted Rubber Grommets



TG-2

The tailgate (TG-1) and tonneau (TG-2) cover kits are also sold as a combination kit (TG-3). The TG-3 comes complete with all of the components in the TG-1 & 2, along with our optional **98152 Emergency Entry Kit**, which releases the tonneau cover manually in case of a power loss. **If you are just installing the TG-2 kit, we highly recommend that you purchase the 98152 Emergency Entry Kit.** Once you've inspected the parts, it's time to get out the tools and begin installing the Tanager parts. No special tools are required, the list below is what we consider to be the minimum tools needed to complete the job.

TOOLS:

- Electric Drill
- Various Size Drill Bits
- 3/8" Ratchet and Socket Set
- Phillips Head Screwdriver
- Assorted Box and Open-End Wrenches
- Wire Cutters & Crimpers
- Pliers
- 12v Testing Light
- Tape Measure
- Allen Wrench Set
- Chalk or non-permanent marker
- 2 Part Liquid Epoxy



98152 EMERGENCY ENTRY KIT

We are now ready to begin the actual installation of the kit(s). For simplification purposes, we break down the installation into two phases. In Phase-1 we install the tailgate kit (TG-1) and in Phase-2 we install the tonneau cover kit (TG-2). **To insure safe and proper operation, the installation should proceed according to the steps outlined herein.**

TAILGATE & TONNEAU COVER POWER LIFT SYSTEM INSTALLATION INSTRUCTIONS

PHASE - 1

TAILGATE KIT (TG-1)

1. The first thing you need to do is to disable the manual tailgate locking system. **THIS IS ABSOLUTELY CRITICAL. SERIOUS DAMAGE MAY OCCUR IF THE LOCK ASSEMBLY IS NOT DISABLED PRIOR TO OPERATION.** We recommend removing the striker-bolt / bolts from the tailgate post, placing the striker-bolt in a sealed plastic bag and store it in a safe place like a glove box. This is a good way to insure that you don't lose the striker-bolt, in case you want to switch back to manual operation.

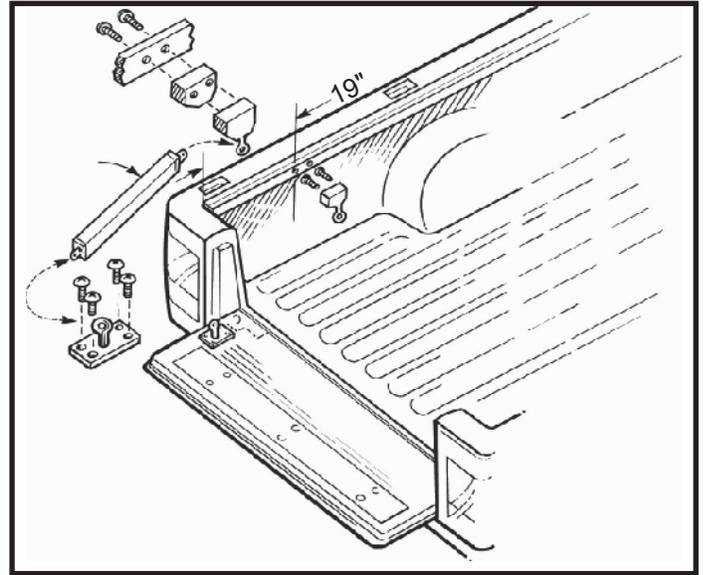


Fig.1

2. The next step requires you to locate the mounting position for the upper actuator bracket. The position of the bracket will depend on the type of truck you have (fleet-side vs. step-side). On fleet-side trucks you will mount the bracket onto the upper bed rail. With the tailgate fully closed, measure 21" from the face of the tailgate along the rail. This will be the point where you will drill the first mounting hole for the upper bracket. (See fig.1) **NOTE! THIS IS A CRITICAL MEASUREMENT, DON'T RUSH, TAKE YOUR TIME AND MEASURE TWICE.** You may want to consider making a backing plate to mount behind the rail for better support. We suggest that you use the spacer block as a template for drilling your holes. Set the bracket on the bed rail as low as possible and run a 5/16" drill bit through the spacer block and drill through the rail. Now use the spacer block as a template and drill the second hole. On step-side trucks, measure the same distance (21"), however you should place the bracket about 3" below the top of the rail bed in order to hide the screws inside the fender well.
3. Once you have drilled the holes, it is time to attach the upper bracket. In some cases the bracket does not allow for the actuator to clear the tailgate post. Use the spacer block to shim the bracket out and clear the post. Bolt the bracket (and spacer block if needed) to the rail using the 2 stainless steel bolts and washers supplied in the kit. Once you attach the bracket open the tailgate all the way.
4. Now take the actuator and using the jumper leads connected to a 12v source, run the piston out until it has reached the end of its travel. Attach the piston end of the actuator to the tailgate bracket using the supplied pin, then attach the actuator to the upper bracket with another pin. At this point you are ready to position the tailgate bracket. Slowly let the assembly come down onto the tailgate, once the bracket is resting on the tailgate take a 1/16" drill bit and make 4 pilot holes using the tailgate bracket as a template. Now mix-up a batch of epoxy and, roughen up the mating surfaces of the bracket and tailgate. Apply the epoxy to both mating surfaces and attach the bracket using 4 self-tapping stainless steel screws supplied in the kit. Insert 4 hairpin clips and insert them into the holes in the pins to secure the pins to the actuator. The mechanical portion of the tailgate kit installation is now complete. Now it's time to begin the electrical portion of the installation. Follow the directions carefully, and take your time.

TAILGATE & TONNEAU COVER POWER LIFT SYSTEM INSTALLATION INSTRUCTIONS

5. First locate a spot under the dash or under the hood, where you can mount the keyless entry module and the harness relay pack. It is a good idea to try and keep the electronics away from heating ducts and other electronic components. You will also need to determine a path to run the harness from the cab to the truck bed. You will probably need to drill holes in the truck cab and the truck bed to pass the wires through. Take your time here and plan carefully. A little extra effort in planning will go a long way to insure a professional looking installation.
6. At this point layout the harness in an open area, along with the keyless entry. There is a large white plug socket, which plugs directly into the keyless entry. There will also be 2 separate leads, a black ground (-) lead and a fused red lead which should be connected to battery (+) or you can run it into the fuse box to a constant 12v source. If you choose to connect the lead to the fuse box, make sure you tap into a circuit that has continuous power.
7. The harness is manufactured with additional motor leads and switching leads for integration with our tonneau cover system. If you are just installing the tailgate system, and will not be installing the tonneau cover kit follow the instructions below, if on the other hand you will be installing the tonneau cover system, disregard the information below, and go directly to step number 8. If you are only installing the tailgate kit you can reduce a lot of wiring by terminating the following leads. The blue and white / black leads (power for the tonneau actuator) that are taped together can be terminated. Make sure you tape off the end of each lead to prevent any short circuits. **NOTE: DO NOT TERMINATE THE BLUE/BLACK AND WHITE LEADS. THESE ARE THE POWER LEADS FOR THE TAILGATE ACTUATOR. BE CAREFUL THEY LOOK SIMILAR TO THE BLUE AND WHITE / BLACK LEADS.**
8. If you are installing the tonneau cover system you will need to run the taped blue and white / black leads separate from the rest of the tailgate leads. If you're working on a fleet-side, you should run the harness underneath the bed rail and hidden from view. If you are working on a step-side try running the harness inside the wheel well, you can drill a hole into the bed wall and use a rubber grommet to run the actuator or switch leads into the fender well.
9. Now it is time to connect the leads under the dash and test the operation of the tailgate system. Once we complete the test, we will proceed to phase 2, the installation of the tonneau system. Connect the power leads as shown in the wiring diagram, then plug-in the keyless entry module. Now connect the blue / black lead from the harness to the white lead from the tailgate actuator, and the white lead from the harness to the black lead from the actuator. The system is almost ready to run. Disconnect the actuator from the tailgate bracket and slide the split collar lock over the actuator piston and reconnect the actuator to the tailgate bracket. The collar acts as a mechanical stop. Follow the instructions provided with the collar for proper adjustment. Using the remote press and hold button no.3 down until the tailgate starts to rise.

TAILGATE & TONNEAU COVER POWER LIFT SYSTEM INSTALLATION INSTRUCTIONS

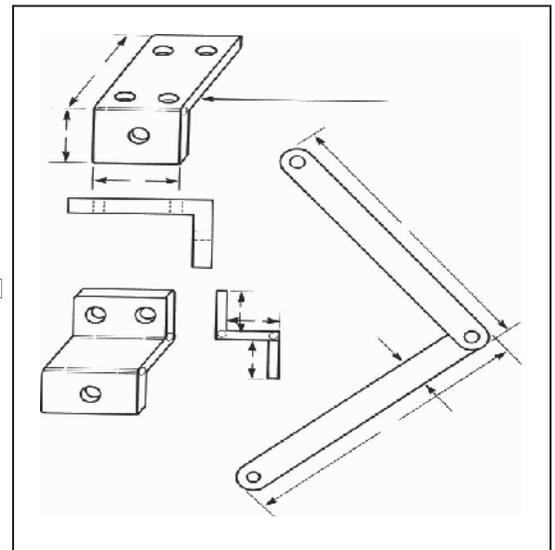
10. If the system does not operate when you press the button, check to make sure that you have connected the leads properly on to the actuator. Make sure that the blue / black lead is attached to the white actuator lead, and that the white lead from the harness is attached securely to the black actuator lead. Also make sure that when you stripped the insulation from the actuator leads you did not nick the wires and cause them to short out. You'd be surprised how many times this has happened. If all of the connections are okay, check to make sure that your power and ground leads are connected correctly, and that the system fuse has not blown. Run the system through a few cycles and check to make sure that nothing binds and that everything operates smoothly.

PHASE - 2

1. We begin the tonneau cover system installation by removing the manual lock assembly. We suggest that you store the lock in the tailgate next to the striker bolt, in case you ever want to remove the system. **NOTE! IF YOUR TRUCK HAS A SPLIT BARREL TYPE HINGE (THE TONNEAU SLIDES OUT OF THE HINGE) USED BY LEAR AND MANY OTHER MANUFACTURERS (see fig. 5 & 7). YOU WILL NEED TO ORDER BRACKET KIT NO. 98153. THIS BRACKET MUST BE INSTALLED ON SPLIT BARREL HINGED TONNEAUS.**

The next thing you want to do is raise the tonneau cover about 2/3 of the way up, and block it so that it is secure. Now you need to mount the the lower actuator bracket to the back of the truck bed. Take your tape measure and measure the distance from side to side. Locate the center point and make a chalk mark. Now measure up about 3" from the floor bed, and make another mark.

The bracket should be mounted on center and the bottom edge of the bracket should be located at or slightly above the 3" mark. Use the bracket as a template and drill 4 small pilot holes. Attach the bracket using 4 stainless steel self-tapping sheet metal screws supplied in the kit.



98153 HINGE KIT

TAILGATE & TONNEAU COVER POWER LIFT SYSTEM INSTALLATION INSTRUCTIONS

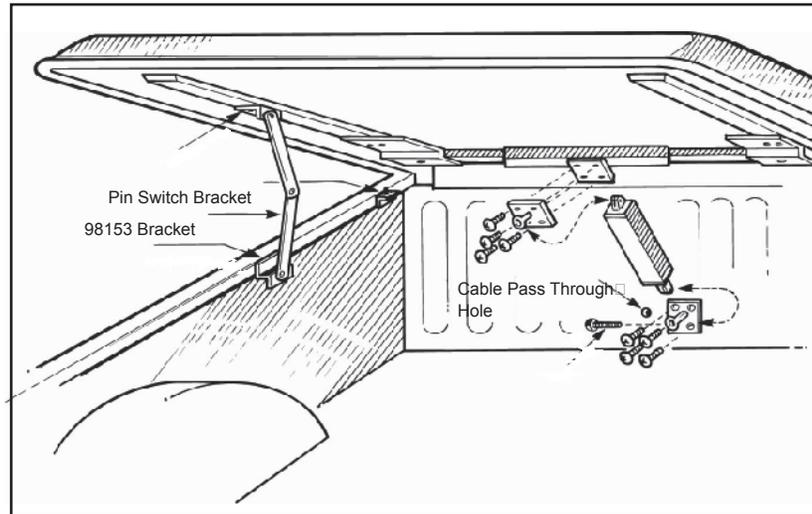


fig. 3

2. Make sure the tailgate is fully open, and disconnect the power leads from the tailgate actuator. **NOTE! THIS IS EXTREMELY IMPORTANT, DO NOT OPERATE THE TAILGATE WHILE INSTALLING THE TONNEAU SYSTEM.** Once you have disconnected the tailgate leads, temporarily connect the tonneau leads to the tonneau actuator and run out the piston to the end of its travel, then attach the piston to the lower bracket using one of the pins in the kit. **NOTE: IF YOU ARE INSTALLING AN EMERGENCY ENTRY KIT, DO NOT INSERT ANY LOCK CLIPS INTO THE PIN. THE EMERGENCY CABLE WILL HOLD THE PIN IN PLACE. IF YOU ARE NOT INSTALLING THE EMERGENCY KIT USE A 2 HOLE PIN. WE STRONGLY RECOMMEND THAT YOU INSTALL AN EMERGENCY ENTRY KIT WHEN INSTALLING OUR TONNEAU SYSTEM.** See fig. 4

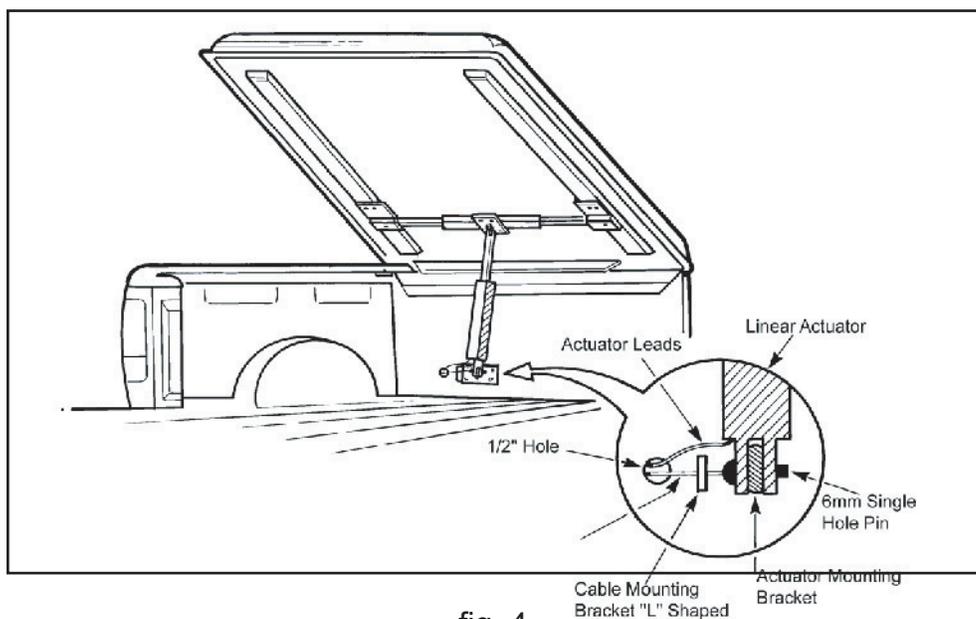


fig. 4

TAILGATE & TONNEAU COVER POWER LIFT SYSTEM INSTALLATION INSTRUCTIONS

3. This next step will require an extra pair of hands to help mount the upper tonneau bracket. The bracket is actually made up of three separate tubes with plates mounted on the ends of 2 of the tubes and a plate mounted in the center of the third tube. See fig. 6. Slide the 2 tubes with the end plates into the tube with the center plate, so that the end plates are facing upward and the center plate is facing down (**inserting the side tubes into the center tube will require some extra effort as the fit is very tight**). Bolt the actuator attaching bracket to the center plate using 4 stainless steel nuts and bolts provided in the kit. Temporarily attach the bracket to the actuator with one of the double hole pins. Now raise the bracket up until it comes into contact with the tonneau cover. Slide the end tubes in or out until they are centered over the tonneau side supports. Some tonneau cover manufacturers do not use a framework support system, in which case extend the tubes to within 4" of the inner edge of the tonneau cover. Mark 4 holes on each side of the cover using the plates as templates. Now mix-up a batch of epoxy (**we suggest JB Weld slow-dry**) and roughen up the mating surfaces on both of the mounting plates and on the mounting surface of the tonneau cover (**for best results sand down the mounting plates to bare-metal**). Spread the epoxy over the plates and attach the plates using 8 self-tapping sheet metal screws provided in the kit. Then remove one screw at a time and inject epoxy into the screw hole and reinsert the screw. Follow this procedure for each mounting screw. **NOTE: YOU MUST USE EPOXY ON TONNEAU COVERS THAT DO NOT USE A FRAMEWORK SUPPORT SYSTEM. YOU MUST ALLOW 24 HOURS FOR THE EPOXY TO FULLY CURE BEFORE ATTEMPTING TO OPERATE THE TONNEAU COVER.** Once the tonneau support bar is firmly in place, locate 2 small holes at each end of the center tube. Run 2 self tapping sheet metal screws into the holes, this will secure the tubes and prevent any rattles. Store the tonneau lock hardware in a plastic bag, again we suggest keeping the bag inside of the tailgate, in case you ever want to go back to manual operation. **WARNING!!! DO NOT UNDER ANY CIRCUMSTANCE CLOSE THE TAILGATE UNTIL THE COMPLETE SYSTEM IS CONNECTED AND FULLY OPERATIONAL.**

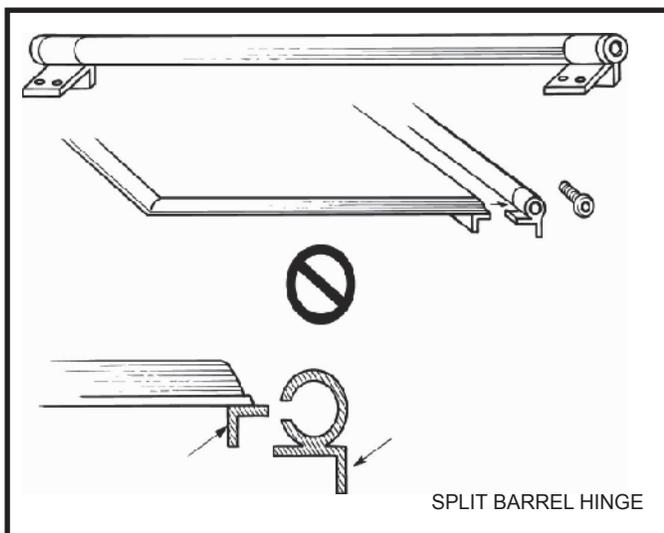


fig. 5

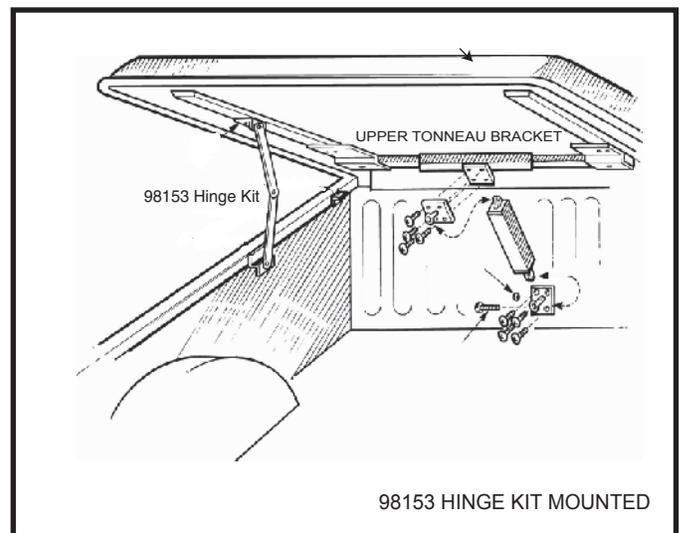


fig. 6

TAILGATE & TONNEAU COVER POWER LIFT SYSTEM INSTALLATION INSTRUCTIONS

4. It is now time to check the operation of the tonneau cover. The easiest and safest way is to temporarily connect the tailgate actuator power leads to the tonneau actuator. Using the remote press and hold button #1 to run the tonneau up and press and hold button # 4 to lower the cover. Run the cover up and down a few times checking to make sure that everything operates smoothly. Now disconnect the actuator from the upper tonneau bracket and slide the split collar lock over the actuator shaft. The collar acts as a mechanical stop when you close the tonneau cover. Follow the instructions provided with the collar to insure that the actuator is adjusted properly. Once you are sure that the tonneau is operating properly, it is time to complete the electric portion of the installation.
5. The first thing you will need to determine is how you plan on running the power leads to the tonneau actuator. Basically, you can run the leads under the truck bed and drill a hole into the drain plug located on the bed floor and run the wires up. Or you can run the wires behind the drivers seat, which may require removal of the drivers seat back. We feel this is a much better option and gives a more finished look. Drill a 1/2" hole through the cab and through the back of the truck bed. The hole should be drilled approximately 3" to the left of the bracket on center. Insert 2 rubber grommets supplied with the kit into each hole to prevent the wires from chafing. At this time if you are installing an emergency entry kit, you should run the emergency cable together with the power leads and have it exit out the same grommet.
6. If you are installing the emergency cable you will need to attach the "L" bracket supplied in the kit to the lower actuator bracket, make sure you install the little white plastic bushing that is supplied with the emergency kit into the hole at the top of the "L" bracket. This bushing must be seated properly in order for the cable to function correctly, refer to fig. 7. Once you have run the cable through, make a gentle arc, and run the cable housing up into the bushing. Now loop the cable through the actuator mounting pin and run it through one end of the crimp sleeve supplied with the kit. Now loop the cable end into the other end of the sleeve and crimp it so that the cable is secured. Make sure you have some tension on the cable prior to crimping the sleeve.
7. It's time to test the operation of the emergency cable. **WARNING! IT IS CRITICAL THAT THE CABLE OPERATE SMOOTHLY AND THAT WHEN YOU PULL THE KNOB, THE PIN RELEASES THE ACTUATOR, AND THE ACTUATOR IS FREE. WE CANNOT STRESS ENOUGH THE IMPORTANCE OF THIS CABLE.** Once you have tested the operation of the cable a number of times, and are sure that it works properly, you can proceed to the next step.

TAILGATE & TONNEAU COVER POWER LIFT SYSTEM INSTALLATION INSTRUCTIONS

8. You can now permanently attach the tonneau power leads to the actuator. Once you have connected the leads it is time to check the operation again. Make sure that the power to the tailgate is still disconnected and that the tailgate is in the open position. Now using the remote raise the tonneau cover by pressing and holding button # 1. To close the tonneau cover press and hold button # 4 make sure that the system works smoothly.

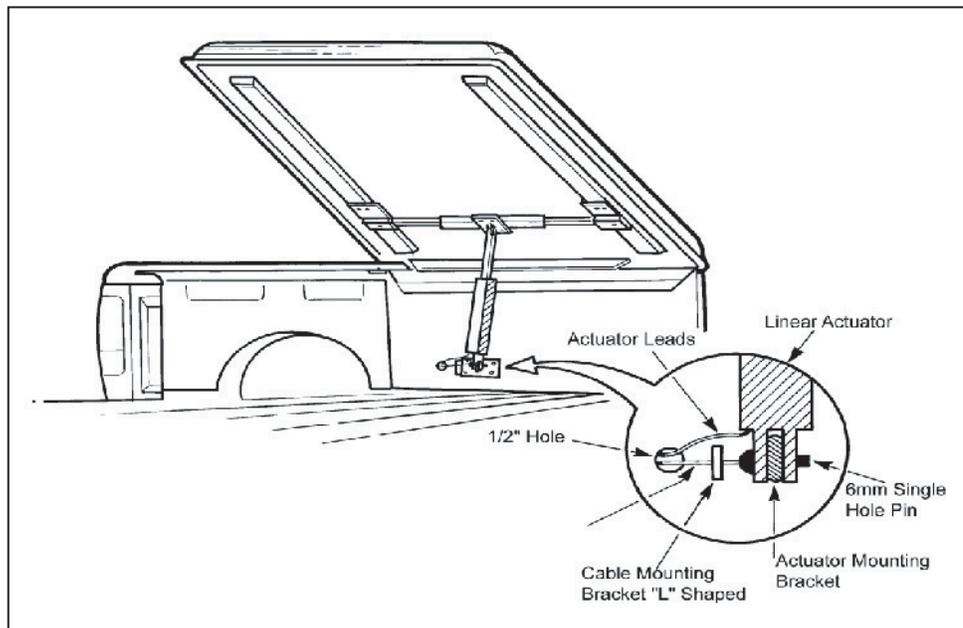


fig. 7

12. Prior to running the whole system, check that your emergency release cable is operating properly. This is extremely important, if for some reason you lose power or something mal-functions, you will not be able to open the tonneau or the tailgate. If you are not using our emergency kit, we suggest that you attach some mechanics wire to the pin on the tonneau and run the wire outside of the tonneau cover, and use that to release the actuator during the test. Once you are sure that the release works, it's time to power up the system. With the tailgate power disconnected run the tonneau (button # 1) until its fully open. Now connect the tailgate and press and hold button # 3 until the tailgate is closed. Now press and hold button # 4 to close the tonneau cover.
- Run the system once more to insure that everything works properly. Press and hold button #1 to open the tonneau. Press and hold button # 2 to open the tailgate. Press and hold button # 3 to close the tailgate. Press and hold button # 4 to close the tonneau cover.
- VERY IMPORTANT!!!! IN ORDER TO PREVENT DAMAGING THE TAILGATE AND / OR TONNEAU COVER ALWAYS CLOSE THE TAILGATE PRIOR TO CLOSING THE TONNEAU**
- If everything works correctly you're done!