Preparing the Gate

1. PARK the vehicle on a level surface and set the parking brake.
   Note: Keep body parts clear of moving parts during liftgate operation.
2. REMOVE the box cover fasteners (Figure 1).
3. REMOVE the box cover.
4. ACTIVATE the control.
   A) Push the hidden "POWER ON" switch. The amber "POWER ON" LED will illuminate.
   B) Push the hidden "LIFTGATE ACTIVATED" switch twice within one (1) second.
      The red "LIFTGATE ACTIVATED" LED will illuminate. With both lights on, the liftgate can be raised or lowered. If not used for 90 seconds, the control will automatically shut off.
5. LOWER the liftgate until the arms are parallel with the truck bed (Figure 1)
   The arms must be parallel with the truck bed to remove the master link.
6. BLOCK the liftgate under the false floor.
7. PUSH down on the toggle switch until all the pressure in the hydraulic system is relieved.
8. DISCONNECT the 4ga ground cable from the battery, if previously installed.
9. DISCONNECT the 4ga power cable from the battery, or manually TRIP the circuit breaker.
10. REMOVE the three screws holding the control to the upright, (recessed controls only).
11. REMOVE the control from the upright and allow it to hang by the control wire, (recessed controls only)

Removing the Cylinder

1. DISCONNECT the hydraulic hose from the tee on the power unit housing (Figure 2).
   A) Place a rag underneath the Tee to absorb any hydraulic oil that leaks when hose is loosened.

WARNING:
If the following steps are not performed, warranty will not be awarded for pulled threads.

   B) Loosen the tee jam nut. While attempting to loosen the jam nut with an open end wrench, hold the tee in place using another open end wrench.
   C) Loosen the hose connected to the tee. While attempting to loosen the hose with an open end wrench, hold the tee in place with another open end wrench.
   D) Place the end of the disconnected hose over a bucket to drain the remaining hydraulic fluid from the cylinder.
2. REMOVE the master link assembly (Figure 3).
   Note: New snap rings and shim(s) for the master link are provided in the kit.
   A) Remove the two snap rings from the master link assembly.
   B) Remove the master link side plate.
   C) Remove the shim.
   D) Remove the master link.
3. REMOVE the upright cap screw(s) from the uprights (Figure 4).
4. REMOVE the upright cap (Figure 4). Upright cap design may vary.
5. REMOVE the cylinder pin (Figure 4).
   A) Remove the snap ring from the cylinder pin.
   B) Remove the pin keeper screw.
   C) Remove the cylinder pin.
   Note: Sketch or photograph how the hose is routed as this is how you will route the hose later.
6. REMOVE the cylinder and hydraulic hose by pulling them out the top of the upright.
7. REMOVE the hose from the cylinder (only if replacing the complete cylinder) (Figure 5).
   A) Hold the flow control in place with an open end wrench.
   B) Loosen the hose with another open end wrench.
8. VERIFY that the hose and O-ring are in good condition and free of cuts or wear marks (Figure 5).
   If the hose and O-ring are in good condition proceed to the next step. If not call Tommy Gate.
Disassembling the Cylinder

Note: If you are replacing the complete cylinder, proceed to Installing the Cylinder.

1. REMOVE the vent plug (Figure 6).
   A new vent plug is supplied with the repair kit.
2. PULL the cylinder shaft out about 2/3 of the length of the shaft.
   Hydraulic oil will come out the elbow when you extend the cylinder.
3. REMOVE the 1-7/8" snap ring (relaxed measures 2-1/16") (Figure 6).
   If the snap ring is 1-3/4" (relaxed measures 1-15/16"),
   the cylinder cannot be rebuilt.
4. PULL the cylinder shaft out the end of the cylinder tube.
5. INSPECT the cylinder tube.
   A) Check for any scoring.
   B) Check for burrs on the snap ring groove, vent plug hole, and cylinder elbow port.
6. DEBURR the inside of the cylinder tube, if necessary, with a 240 grit flapper wheel or sand paper.
7. CLEAN the cylinder tube of all debris.

Rebuilding the Cylinder

Note: If you are replacing the cylinder shaft, proceed to Installing the Cylinder Shaft.

1. STRIKE the ram adjuster with a hammer. This will break the Loctite free.
2. REMOVE the nut with an impact while holding the ram adjuster in a vice (Figure 7).
   The shaft will turn in both the nut and ram adjuster, but the nut should come off.
3. DISCARD the old nut.
4. REMOVE and DISCARD the piston, washer, and guide bushing.
   Note: Proceed carefully, damage to the shaft will cause the cylinder to leak.
5. HOLD the shaft in a vice, using the cardboard tube provided as a protective barrier.
6. REMOVE and SAVE the ram adjuster.
7. INSPECT the cylinder shaft for nicks or scarring.
8. CHECK the cylinder shaft threads for damage.
9. CLEAN the cylinder shaft of all debris.
10. VERIFY that the cylinder tube is debris free.
11. LUBRICATE the inside of the guide bushing with ISO Grade 32 hydraulic oil.
12. LUBRICATE the cylinder shaft with ISO Grade 32 hydraulic oil.
13. INSTALL the guide bushing on the cylinder shaft as shown in (Figure 7).
    A twisting motion will aid installation.
14. INSTALL the washer, piston, and nut in the order and position shown in (Figure 7).
    A twisting motion is required to avoid o-ring damage.
15. CLEAN the cylinder shaft threads for the ram adjuster of oil.
    Use compressed air or a clean, dry rag.
16. APPLY blue Loctite threadlocker (or equal) to the threads for the ram adjuster.
17. INSTALL the ram adjuster on the cylinder shaft.
18. TIGHTEN the nut to 80 ft-lb while holding the ram adjuster in a vice.

Installing the Cylinder Shaft

1. INSTALL the new vent plug in the cylinder tube.
   Do not overtighten the vent plug, it could come in contact with the cylinder piston.
2. LUBRICATE the piston, guide bushing, and the inside of the cylinder tube
   with ISO grade 32 hydraulic oil.
3. INSTALL the piston into the cylinder tube (Figure 8).
4. INSTALL the guide bushing into the cylinder tube (Figure 8).
5. INSTALL the snap ring in the snap ring groove.
Installing the Cylinder

1. LUBRICATE the hose O-ring, if previously disconnected (Figure 5).
2. ATTACH the hose to the cylinder, if previously disconnected (Figure 5).
   A) Hold the flow control in place with an open end wrench.
   B) Tighten the hose with another open end wrench.
3. PULL on the ram adjuster extending the cylinder to approximately 6” (Figure 9).
4. VERIFY that the plastic grommet is still positioned in the hole in the inside of
   the upright (Figure 9).
   Note: The elbow on the cylinder should be installed facing the front of the vehicle.
5. ROTATE the cylinder shaft in the cylinder so that the widest portion of the ram
   adjuster is facing to the outside of the liftgate (Figure 9).
6. LOWER the cylinder and hydraulic hose through the top of the upright,
   guiding the hose end through the grommet in the upright (Figure 9).
7. VERIFY that the control wire is routed over the top of the
   cylinder (recessed controls only).
8. INSTALL the cylinder pin (Figure 4).
   A) Insert the 7/8” x 3-1/8” cylinder pin through the upright
      into the cylinder.
   B) Install the 1/4-20 x 1/2” screw through the pin keeper and into the upright.
   C) Install the 7/8” external snap ring in the groove in the end of the cylinder pin.
9. INSTALL the master link assembly (Figure 3).
   A) Apply grease to the master link pin(s). Do not grease pin for composite bushing! (certain models)
   B) Install the new thin shim provided over the lower pin of the master link (use with 7GA, 0.179” thick guide plate only).
   C) Insert the master link with one pin through the arm and one pin through the ram adjuster.
   D) Install the new shim provided over the lower pin of the master link.
   E) Install the master link side plate with the guide facing up and
      toward the ram adjuster.
   F) Install the two new 3/4” external snap rings provided in the grooves in the ends
      of the master link pins.

WARNING:
Do not twist the hydraulic hose when installing or the hose may fail prematurely.

10. CONNECT the hydraulic hose to the tee on the power unit housing (Figure 10).

WARNING:
If the following steps are not performed, warranty will not be awarded for pulled threads.

   A) Connect the hose end to the tee on the powerunit.
   B) Tighten the tee jam nut. While attempting to tighten the jam nut with an open end
      wrench, hold the tee in place using another open end wrench.
      Note: DO NOT OVER TIGHTEN.
   C) Tighten the hose connected to the tee. While attempting to tighten the hose with an
      open end wrench, hold the tee in place with another open end wrench.
11. ATTACH the control to the upright with the three (3) screws, if previously removed.
12. GREASE the zerk on the top of the cylinder (Figure 9).
13. INSTALL the upright cap and 1/4-20 x 1/2” screw(s) (Figure 4).
14. CHECK to make sure all connections are tight.
15. RECONNECT the 4ga. power cable to the battery or RESET the circuit breaker.
16. RECONNECT the ground cable.
   Note: Keep body parts clear of moving parts during liftgate operation.
17. TEST the gate operation.
18. CHECK and add oil to the hydraulic reservoir.
    The oil should be 3/4 full when both cylinders are completely extended.
19. INSPECT all hydraulic lines and fittings for leaks.
20. ADHERE the provided "CAUTION" decal to the power unit in plain view (Figure 11).
21. REINSTALL the box cover (Figure 1).
22. REINSTALL and tighten the box cover fasteners (Figure 1).
23. PLACE provided “NOTICE” in the operator/service manual.
NOTICE
TOMMY GATE ISO GRADE 32 HYDRAULIC FLUID OR ISO GRADE 32 EQUIVALENT RECOMMENDED.

WITH THE USE OF AUTOMATIC TRANSMISSION FLUID (ATF) OR TOMMY GATE WINTER GRADE HYDRAULIC FLUID THE CYLINDERS MAY BEGIN TO MAKE NOISE. WHILE THERE WILL BE NO DAMAGE TO THE HYDRAULIC SYSTEM, IT MAY BECOME A NUISANCE. AN OIL ADDITIVE CAN BE USED TO ELIMINATE THE PROBLEM.

DO NOT USE AN ADDITIVE THAT IS NOT APPROVED BY TOMMY GATE.

THE FOLLOWING ADDITIVES ARE APPROVED:
1) Caterpillar part# 1U-9891