

**BULLETIN BULLETIN BULLETIN BULLETIN BULLETIN****Date:** September 10, 1993**To:** All Chelsea Power Take-Off Customers**Subject:** Chelsea E-Z Shift™ Installation and Usage

Installation of the E-Z SHIFT is faster than installing either wire or air shift options. On the fourth page of this bulletin is an installation sketch to show you the proper wiring of the shift mechanism. Listed below are a few steps to help make your installation easier.

**INSTALLATION**

1. The motor and shaft assembly features a 14 position mounting bracket. This bracket will allow you to rotate the motor and shaft assembly to clear mounting obstacles such as pumps, frame rails, or exhaust systems. To change the assembly, remove the two hex head capscrews and rotate the bracket either clockwise or counter-clockwise for your best clearance. Reinstall the two hex head capscrews and torque to 16-20 lbs. ft.
2. Mount the control module and switch in the cab. There are two wires to connect to your electrical system. The red wire is the positive lead. It should be connected to a fused (12 volt) power source of your choice. An inline fuse holder is also provided for your use. The black wire is the ground wire and should be hooked to a ground point in the cab or chassis.
3. The final electrical connections to make are between the P.T.O. and the control module mounted in the cab. This is simplified with the use of a 10 ft. cable between the components. The connectors on the cable are plugged into the module in the cab and the motor assembly. The third wire in the cable has no fitting on one end and a ring fitting on the opposite end. Attach the ring connector to the indicator switch on the shift cover of the P.T.O. The other end of the wire should be connected to the yellow wire of the shift module with the included butt connector. If you have a truck with a tilt cab, a 5 ft. extension cable is available to get around the pivot point.

Once this has been accomplished, you have completed the electrical portion of your E-Z SHIFT installation. Please remember to read your owners manual for installation instructions and safety messages pertaining to the P.T.O.

The E-Z SHIFT functions much like an air shift with some added benefits. The operation or shifting of a P.T.O. has been simplified with the smart circuitry that is featured in the E-Z SHIFT. For example, if the gears clash or butt teeth together during an engagement cycle, the smart circuitry senses the added load and will automatically reverse its direction back to the disengaged position. This will occur if the shift cycle has not been completed within 2 to 3 seconds. By momentarily engaging the clutch during a tooth butt or gear clash condition, the transmission gears will start to rotate. This will allow the E-Z SHIFT to complete the shift cycle.

Another feature of the E-Z SHIFT smart circuitry is the self test the motor does when the brain module is initialized with 12 volts. When you initially connect the power leads or have the unit hooked up to the ignition switch circuit, the motor will test itself by running itself to disengage. This feature is designed to protect driven equipment by disengaging itself automatically.

By following the shifting procedures listed below, your E-Z SHIFT and P.T.O. should have a long life.

#### OPERATION/ P.T.O. ENGAGEMENT

1. A Power Take-Off is, and should be operated as, an integral part of the main transmission.
2. Bring the vehicle to a stop.
3. Set the vehicle brakes for stationary operation.
4. Place the transmission in neutral.
5. Before shifting the Power Take-Off into gear, disengage the clutch and wait for the transmission and P.T.O. gear to stop rotating. While the E-Z SHIFT helps to reduce damage caused by clash shifting, it will not stop all the damage.
6. Engage the P.T.O. by actuating the momentary Rocker Switch. The P.T.O. gear is engaged when the light is on.
7. Engage the clutch.

## **OPERATION/ P.T.O. DISENGAGEMENT**

1. Before shifting the Power Take-Off out of gear, disengage the clutch and wait for the transmission and P.T.O. gears to stop rotating.
2. Disengage the P.T.O. by actuating the momentary Rocker Switch. The P.T.O. gear is disengaged when the light is off.
3. Engage the Clutch.

The P.T.O. is disengaged; you can now operate the vehicle in its customary manner.



Jeff King  
Product Manager  
Power Take-Offs

