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The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

WARNING

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the “Offer of Sale”.

Offer of Sale

The Chelsea® Power Take-Off or its components shipped with this owner’s manual may be manufactured under one or more of the following U.S. patents:

4610175 5228355 4597301 5645363 6151975 6142274 6260682

Other patents pending.

Patent Information

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These instructions are for your safety and the safety of the end user. Read them carefully until you understand them.

General Safety Information

To prevent injury to yourself and/or damage to the equipment:

- Read carefully all owner’s manuals, service manuals, and/or other instructions.
- Always follow proper procedures, and use proper tools and safety equipment.
- Be sure to receive proper training.
- Never work alone while under a vehicle or while repairing or maintaining equipment.
- Always use proper components in applications for which they are approved.
- Be sure to assemble components properly.
- Never use wornout or damaged components.
- Always block any raised or moving device that may injure a person working on or under a vehicle.
- Never operate the controls of the Power Take-Off or other driven equipment from any position that could result in getting caught in the moving machinery.
- Before connecting the ground and power wires from the module, turn the ignition switch off and disconnect the battery ground.

Proper Matching of P.T.O.

**WARNING:** A Power Take-Off must be properly matched to the vehicle transmission and to the auxiliary equipment being powered. An improperly matched Power Take-Off could cause severe damage to the vehicle transmission, the auxiliary driveshaft, and/or to the auxiliary equipment being powered. **Damaged components or equipment could malfunction causing serious personal injury to the vehicle operator or to others nearby.**

To avoid personal injury and/or equipment damage:

- Always refer to Chelsea catalogs, literature, and owner’s manuals and follow Chelsea recommendations when selecting, installing, repairing, or operating a Power Take-Off.
Never attempt to use a Power Take-Off not specifically recommended by Chelsea for the vehicle transmission.

Always match the Power Take-Off’s specified output capabilities to the requirements of the equipment to be powered.

Never use a Power Take-Off whose range of speed could exceed the maximum safe speed of the equipment to be powered.

**Rotating Auxiliary Driveshafts**

⚠️ **WARNING:** Rotating auxiliary driveshafts are dangerous. You can snag clothes, skin, hair, hands, etc. This can cause serious injury or death.

Do not go under the vehicle when the engine is running.

Do not work on or near an exposed shaft when the engine is running.

Shut off the engine before working on the Power Take-Off or driven equipment.

Exposed rotating driveshafts must be guarded.

**Guarding Auxiliary Driveshafts**

⚠️ **WARNING:** We strongly recommend that a Power Take-Off and a directly mounted pump be used to eliminate the auxiliary driveshaft whenever possible. If an auxiliary driveshaft is used and remains exposed after installation, it is the responsibility of the vehicle designer and P.T.O. installer to install a guard.

**Using Set Screws**

⚠️ **WARNING:** Auxiliary driveshafts may be installed with either recessed or protruding set screws. If you choose a square head set screw, you should be aware that it will protrude above the hub of the yoke and may be a point where clothes, skin, hair, hands, etc. could be snagged. A socket head set screw which may not protrude above the hub of the yoke, does not permit the same amount of torquing as does a square head set screw. Also, a square head set screw, if used with a lock wire, will prevent loosening of the screw caused by vibration. Regardless of the choice made with respect to a set screw, an exposed rotating auxiliary driveshaft must be guarded.

⚠️ This symbol warns of possible personal injury.
IMPORTANT: Safety Information and Owner’s Manual

Chelsea Power Take-Offs are packaged with safety information decals, instructions, and an owner’s manual. These items are located in the envelope with the P.T.O. mounting gaskets. Also, safety information and installation instructions are packaged with some individual parts and kits. **Be sure to read the owner’s manual before installing or operating the P.T.O.** Always install the safety information decals according to the instructions provided. Place the owner’s manual in the vehicle glove compartment.

![WARNING: Operating the P.T.O. with the Vehicle in Motion](image)

Some Power Take-Offs may be operated when the vehicle is in motion. To do so, the P.T.O. must have been properly selected to operate at highway speeds and correctly matched to the vehicle transmission and the requirements of the driven equipment.

If in doubt about the P.T.O.’s specifications and capabilities, avoid operating the P.T.O. when the vehicle is in motion. Improper application and/or operation can cause serious personal injury or premature failure of the vehicle, the driven equipment, and/or the P.T.O.

Always remember to disengage the P.T.O. when the driven equipment is not in operation.

**Pump Installation Precautions**

Use a bracket to support the pump to the transmission if:

- The pump weighs **40 pounds** or more.
- The combined length of the P.T.O. and pump is **18 inches** or more from the P.T.O. centerline to the end of the pump.

Also remember to pack the female pilot of the P.T.O. pump flange with grease before installing the pump on the P.T.O.
Introduction to Operation

The E-Z Shift consists of a cover assembly with motor and a combination control module which is mounted in the cab, and a wiring harness which relays information and power between the cab and the P.T.O. shift cover/motor assembly.

When the operator momentarily pushes the switch to engage the E-Z Shift, the unit sends a maximum of 5 amps 12 volts D.C. to the motor assembly on the shift cover. A worm gear moves the shift fork assembly and the P.T.O. gear into the engaged position. Once the P.T.O. is engaged, the system uses only .5 amps to operate. If a gear clash condition is sensed, a signal is sent via the wiring harness to the control module to tell the unit to back out of gear.

The E-Z Shift must be wired into an ignition switch circuit. Anytime the control module senses a drop in system power (such as when the truck is turned off), it will disengage the P.T.O. when the ignition switch is turned on. P.T.O. installation usually takes 25 - 45 minutes, and the E-Z Shift will generally take an additional 30-45 minutes.

E-Z Shift Operation

Power-up Cycle

When the ignition key of the vehicle is turned on, 12 volts D.C. power is applied to the E-Z Shift control module and this will initiate a disengagement cycle. This cycle will last approximately 5 seconds. The red LED indicator should be off. Now the E-Z shift is ready for an operational cycle.

Engagement Cycle

If the operator decides to engage the P.T.O., the left side of the rocker switch must be momentarily pushed. The control module senses the command and will power the motor to move the fork on the output gear to mesh with the ratio gear. Once these two gears are fully meshed, the indicator switch will be actuated. The signal from the switch will be fed back to the control module and the red LED indicator should be on. The engagement cycle will require approximately 5 seconds to complete. The P.T.O. should be operating the driven equipment.
E-Z Shift Operation (Continued)

Disengagement Cycle

If the operator needs to disengage the P.T.O., momentarily push the rocker switch to the “OFF” position. The control module senses this operator command and will power the motor accordingly to move the fork/output gear in the opposite direction. The disengagement cycle takes approximately 5 seconds. The red LED should be off indicating the P.T.O. is not engaged.
Wiring Identification

The diagram below identifies the key wires to install the E-Z Shift.

1. **Red Wire** - the 12 volts D.C. positive connection.

2. **Black Wire** - a negative or ground connection.

3. **Yellow Wire** - the wire which connects to the black booted wire. This wire completes the connection to the indicator switch.

4. **Black Wire** - an additional ground wire. One end of this smaller gauge wire is already attached to the motor support bracket of the E-Z Shift Cover using a Phillips screw.

5. **Orange and Brown Wires** - wires which connect the control module and motor. These come with pre-assembled connectors at each end.
Mounting the Control Module and Switch

CAUTION: Before drilling any holes, make sure there is adequate clearance on both sides.

1. Determine a suitable location on the vehicle’s dash to mount the operator’s switch using the hardware provided. (See the mounting template below.)

2. Determine a suitable location on or underneath the vehicle’s fire wall in the cab side to mount the control module to the fire wall using the hardware provided. (See the mounting template below.)

   NOTE: The actual location depends on the length of the wire harness.

3. Once you have adequate clearances, drill a 1” hole through the vehicle’s fire wall in the cab side.

4. Remove all burrs from the front and rear edges of the hole.

Mounting Template
A solid electrical connection is essential when installing any electrical device. It is even more important with the control module on the E-Z Shift. A proper crimp is shown here.

Refer to the E-Z Shift Electrical Schematic (page 10) when wiring the E-Z Shift control module to the E-Z Shift cover.

NOTE: Warranty will be void if:
1.) Any E-Z Shift component or wire is cut or spliced without Chelsea Engineering’s approval.
2.) The shaft is disassembled from the motor or gear box.
3.) The motor is disassembled or opened up.
4.) Any E-Z Shift connector is removed.
5.) Any additional circuits or components are added without Chelsea Engineering’s approval.

1. Locate the red wire that is used for the 12 volts D.C. positive connection.
   Insert the pre-stripped end into a butt splice connector (379252). Using a crimping tool for insulated wire terminals, crimp the wire.

2. Strip 1/4" of insulation from one end of the fuse holder harness wire (379247).
   Insert the stripped end of the fuse holder harness (379247) into the opposite end the butt splice (379252), and then crimp the end.
   Strip 1/4" of insulation from the other end of the fuse holder harness (379247), and connect it to the ignition circuit switch, 12 volts D.C. power source.

3. Insert the pre-stripped black wire into the large ring type wire (379253) terminal, and crimp the end.

4. Locate the black wire which has one end attached to the motor support bracket (via a Phillips sheet-metal screw). From the engine side, pull the free end of this wire through the 1" drilled hold on the firewall to the cab of the vehicle.

5. Using a screw and nut, connect the two black wires with ring terminals to a known good ground bus or the vehicle’s chassis. Inspect both wires for a tight, solid connection to ground.

NOTE: This connection is critical to the system since a poor connection affects two wires and the control module.
6. Insert the pre-stripped end of the yellow wire from the control module into a butt splice connector (379252), and crimp the wire.

7. Locate the black wire with the booted connector at one end. From the engine side of the firewall, pull the other end of this wire through the 1" drilled hole into the cab of the vehicle.
   Strip 1/4" of insulation from the end of this black wire, and insert the stripped end into the other end of the butt splice (379252) in step 6.
   Crimp the end of the black wire.

8. From the control module, locate the orange and brown wires terminated with a female Packard connector.
   Find the cable assembly with orange and brown wires and connectors at each end, and then connect the end with the male connector to the female connector of the cable (329163-10X) from the control module.
   NOTE: Make sure both connectors are interlocked and seals are intact.

9. From the cab side, pull the end of the extended orange and brown wires cable through the 1" drilled hole on the firewall to the E-Z Shift cover.
   Connect the female connector to the male connector at the motor.
   NOTE: Make sure both connectors are interlocked and seals are intact.

10. To install the grommet in the drilled hole, slice the grommet and place it over the wires.
    NOTE: The grommet is included in the installation kit.

11. Position the wires in the center of the grommet, and insert it in the drilled hole.

12. Connect the booted connector (379640) end of the black wire to the indicator switch pin terminal.
    NOTE: The booted connector (379640) will not require dialectric grease.
    NOTE: Always inspect for proper connection.
    CAUTION: Make sure the harness you just wired between the control module and the E-Z Shift cover is secured away from any moving or rotating parts and has at least 6" clearance from the exhaust system. Always use high temperature wrap type conduit to protect the wires.
E-Z Shift ZF/GM (SK-346)

- Ignition Circuit Switch 12-Volt DC Power Source
- 379247-9 Amp Fuse & Holder
- 14 Gauge Wire (Red)
- 379257 Splice Connector
- 379252 Butt Connector
- 379253 Ring Connector Accepts 25" Screw
- 379640 Booted Pin Connector and Wire
- 379903 Shrink Wrap
- Black Strip Wire .25" Prior to inserting in Butt Connector
- 379895 Wiring Harness Assembly
- Cut the Rubber Boot and Splice wire to Black wire with a Butt Connector
- Electrical ground of Cab or Frame
- 379252 Butt Connector
- Note: Motor Can be Rotated for Clearance

- Accept #8 Screw
- Indicator Switch

To GM P.T.O. Connector
Rotation for Clearance

Rotate the motor and shaft assembly orientation to clear mounting obstacles such as hydraulic pumps, frame rails, and exhaust systems. Follow these steps:

1. Remove the two cover hex head capscrews (.312 - 18 x .5000") that hold the rotating bracket in position. (See the drawing below.)

2. Rotate the 14-position mounting bracket to the position that provides the best clearance.

3. Reinstall the two cover hex head capscrews (.312 - 18 x .500").

4. Torque both capscrews to 16 - 20 ft. lbs.
The E-Z Shift electronic shift control is only available for the following Chelsea P.T.O. units: 100, 290, 381, 420, 431, 434, 435, 436, 437, 438, 442, 447, 448, 489, and 2442 series.

To check for backlash or convert from a shift type such as cable to the E-Z Shift, the P.T.O. cover must be removed. See the owner's manual that comes with your P.T.O. for the proper installation and safety messages pertaining to the above mentioned P.T.O. series.

To install the shift cover, follow these three steps:

1. Before installing the shift cover on the P.T.O., place a gasket between the shift cover and P.T.O. housing.
2. Reinstall the four hex capscrews (.312 - 18 x .750”).
3. Torque the capscrews to 16 - 20 ft. lbs.

When reinstalling the shift cover, have the shift fork and motor assembly in the proper position for the assembly arrangement of the P.T.O. you are installing. The “in gear” (P.T.O. engaged) position is installed so the motor (actuator) is at the opposite side of the P.T.O.

The following diagrams should help you ensure that cover motor and shift fork are in the proper position for the assembly arrangement and P.T.O. you are installing. (See pages 14 - 19.)
Shift Cover Arrangement

Power Take-Offs
E-Z Shift

Diagrams

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<th>329168-1X Ass’y 3 &amp; 6</th>
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</thead>
<tbody>
<tr>
<td>381*S</td>
<td>448*Q</td>
<td>438*U</td>
</tr>
<tr>
<td>420*Q</td>
<td>448*W</td>
<td></td>
</tr>
<tr>
<td>431*W</td>
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<thead>
<tr>
<th>Diagrams</th>
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<th>329168-2X Ass’y 4 &amp; 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>381*S</td>
<td>448*Q</td>
<td>438*U</td>
</tr>
<tr>
<td>420*Q</td>
<td>448*W</td>
<td></td>
</tr>
<tr>
<td>431*W</td>
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Parker Hannifin Corporation
Chelsea Products Division
Olive Branch, MS 38654 USA

Bulletin HY25-1667-M1/US
Shift Cover Arrangement
Power Take-Offs
E-Z Shift

Diagrams

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<th>329189X</th>
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<tbody>
<tr>
<td>420*S</td>
<td>448*S</td>
<td>435*U</td>
</tr>
<tr>
<td>431*U</td>
<td>448*Y</td>
<td></td>
</tr>
<tr>
<td>437*W</td>
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329165-2X Ass'y 4 & 5

<table>
<thead>
<tr>
<th>Ass'y</th>
<th>329165-2X</th>
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<tbody>
<tr>
<td>420*S</td>
<td>448*S</td>
</tr>
<tr>
<td>431*U</td>
<td>448*W</td>
</tr>
<tr>
<td>436*W</td>
<td></td>
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</tbody>
</table>
Diagrams

329168-1X Ass’y 3 & 6
445*Q
445*W

329168-2X Ass’y 4 & 5
445*Q
445*W
Diagrams

329169-1X  Ass'y 3 & 6
434*U
445*S
445*U
447*Q, S, U & W

329169-2X  Ass'y 4 & 5
445*S
445*U
447*Q, S, U & W
Diagrams

329170-1X Ass’y 3 & 6
410*U, W & X

329172X Ass’y 3 & 6
290*U

329170-2X Ass’y 4 & 5
410*U, W & X
Diagrams

329167X Ass' y 3
100*R

329167X Ass' y 4
100*R
E-Z Shift System Test

Perform the following tests before placing the vehicle with the Chelsea E-Z Shift in the field. If a problem exists, see the Troubleshooting section on page 23. If you cannot determine the problem, contact your local authorized Chelsea Power Take-Off Distributor.

Ignition Switch On, Engine Off

1. After you complete the wiring to the ignition switch circuit, turn on the ignition switch but do not start the engine. 
   
   **NOTE:** The E-Z Shift motor should test itself by running until it is disengaged. This feature is designed to protect driven equipment by disengaging itself automatically when the ignition switch is turned on.

2. Momentarily push the rocker switch to engage the P.T.O. 
   
   **NOTE:** The indicator light will illuminate and the P.T.O. gears will engage in approximately 5 seconds. After the motor shuts itself off, the indicator light will remain on to signal the unit is engaged.

Gear Clash Conditions

At times, the output and ratio gear of the P.T.O. will butt gear teeth. If this condition occurs after you momentarily press the rocker switch, the motor will run for approximately 5 seconds. Because the shift cycle is not complete, the motor will reverse itself and the P.T.O. will return to the disengaged position. Before repeating the engagement process, jog the gears by releasing the clutch pedal, and this will allow the gears to rotate. Re-engage the P.T.O. to complete the shift cycle.
Ignition Switch On, Engine On

1. Turn the ignition switch on and start the engine. The E-Z Shift motor should test itself by running until the unit is disengaged. This feature is designed to protect driven equipment by automatically disengaging itself when the ignition switch is turned on.

2. Momentarily push the rocker switch to engage the P.T.O. The indicator light will illuminate and the P.T.O. gears will engage in approximately 5 seconds. After the motor shuts itself off, the indicator light will remain on to signal the unit is engaged.

Gear Clash Conditions

At times, the output and ratio gear of the P.T.O. will butt gear teeth. If this condition occurs after you momentarily press the rocker switch, the indicator light will come on and the motor will run for approximately 5 seconds. Because the shift cycle is not complete, the motor will reverse itself and the P.T.O. will come out of gear. The indicator light will automatically turn off. Before repeating the engagement process, jog the gears by releasing the clutch pedal, and this will allow the gears to rotate. Engage the P.T.O. to complete the shift cycle.
Operation Procedures

P.T.O. Engagement

1. Stop the vehicle.
2. Set the vehicle brakes for stationary operation.
3. Place the transmission in neutral.
4. Depress the clutch pedal to disengage the clutch.

**CAUTION:** Wait for the transmission and P.T.O. gears to stop rotating. Some transmissions may take approximately 10 seconds for the gears to stop rotating. Doing this helps prevent clash shifting when you engage the P.T.O.

5. Momentarily press and release the rocket switch to start the P.T.O. engagement.
   **CAUTION:** The indicator light will illuminate in approximately 5 seconds signaling the P.T.O. is fully engaged.
6. Slowly release the clutch pedal to engage the clutch.

7. The P.T.O. shaft is now operating.
Operation Procedures (Continued)

P.T.O. Disengagement

1. Depress the clutch pedal to disengage the clutch.

   CAUTION: Wait for the transmission and P.T.O. gears to stop rotating. Some transmissions may take approximately 10 seconds for the gears to stop rotating. Doing this helps prevent clash shifting when you disengage the P.T.O.

2. Momentarily press and release the rocker switch to start the P.T.O. disengagement.

   CAUTION: The indicator light will go off in approximately 5 seconds signaling the P.T.O. is fully disengaged.

3. Operate the vehicle in its customary manner.
E-Z Shift Troubleshooting

NOTE: Warranty will be void if:

1.) Any E-Z Shift component or wire is cut or spliced without Chelsea Engineering approval.
2.) The shaft is disassembled from the motor or gear box.
3.) The motor is disassembled or opened up.
4.) Any E-Z Shift connector is removed.
5.) Any additional circuits or components are added without Chelsea Engineering approval.

E-Z Shift Is Inoperative.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Recommended Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Blown fuse</td>
<td>Replace fuse.</td>
</tr>
<tr>
<td>2. Connectors unplugged</td>
<td>Check connectors and reconnect them.</td>
</tr>
<tr>
<td>3. Damaged motor wires</td>
<td>Check and repair wiring.</td>
</tr>
<tr>
<td>4. Inadequate ground</td>
<td>Ensure proper ground.</td>
</tr>
<tr>
<td>5. Positive red wire disconnected</td>
<td>Check red positive wire.</td>
</tr>
<tr>
<td>6. Red LED or its wiring has an open circuit</td>
<td>Replace control module.</td>
</tr>
<tr>
<td>7. Rocker switch failure**</td>
<td>Replace rocker switch.</td>
</tr>
<tr>
<td>8. No voltage in orange wire*</td>
<td>Faulty switch, control module, or bad connection.</td>
</tr>
</tbody>
</table>

P.T.O. Won’t Stay Engaged.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Recommended Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Inadequate ground</td>
<td>Ensure proper ground.</td>
</tr>
<tr>
<td>2. Disconnected booted connector to indicator</td>
<td>Inspect and clean booted connector, and reconnect switch.</td>
</tr>
<tr>
<td>3. Broken yellow wire</td>
<td>Repair or replace yellow wire.</td>
</tr>
<tr>
<td>4. Damaged indicator switch</td>
<td>Replace E-Z Shift cover, and perform continuity check.</td>
</tr>
<tr>
<td>5. Damaged control module</td>
<td>Replace control module.</td>
</tr>
</tbody>
</table>

P.T.O. Will Not Engage - Red light remains on.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Recommended Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Connectors unplugged</td>
<td>Check and reconnect connectors.</td>
</tr>
<tr>
<td>2. Damaged motor wires</td>
<td>Check and repair wiring.</td>
</tr>
<tr>
<td>3. Yellow wire shorted to ground</td>
<td>Visually inspect yellow wire.</td>
</tr>
<tr>
<td>4. Damaged control module</td>
<td>Replace module.</td>
</tr>
<tr>
<td>5. Rocker switch failure**</td>
<td>Replace rocker switch.</td>
</tr>
<tr>
<td>6. Damaged motor</td>
<td>Replace motor and cover assembly.</td>
</tr>
<tr>
<td>7. No voltage in brown wire*</td>
<td>Faulty switch, control module, or bad connection.</td>
</tr>
</tbody>
</table>

*Check for voltage across the terminals on the Packard connector.

**Check for continuity across switch terminals.
Offer of Sale

The items described in this document and other documents or descriptions provided by Parker Hannifin Corporation, its subsidiaries and its authorized distributors are hereby offered for sale at prices to be established by Parker Hannifin Corporation, its subsidiaries and its authorized distributors. This offer and its acceptance by any customer (“Buyer”) shall be governed by all of the following Terms and Conditions. Buyer’s order for any such items, when communicated to Parker Hannifin Corporation, its subsidiary or an authorized distributor (“Seller”) verbally or in writing, shall constitute acceptance of this offer.

1. Terms and Conditions of Sale: All descriptions, quotations, proposals, offers, acknowledgments, acceptances and sales of Seller’s products are subject to the following terms and conditions set forth herein, together with any amendments, modifications and cancellations made in writing. Buyer’s acceptance of any offer to sell is limited to these terms and conditions.

2. Payment: Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Amounts not timely paid shall bear interest at the maximum rate permitted by law for each month or portion thereof that the Buyer is late in making payment. Any claims by Buyer for omissions or shortages in a shipment of goods shall be made within ten (10) days from delivery, unless otherwise agreed by Seller in writing. Buyer shall notify Seller within 30 days after Buyer’s receipt of the shipment.

3. Delivery: Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller’s premises. Failure of Seller to deliver, however, risk of loss shall pass to Buyer upon Seller’s delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

4. Warranties: Seller warrants that the items sold hereunder shall be free from defects in material or workmanship for a period of:
   (A) All Power Take-Off units one (1) year from date of installation.
   (B) Except 267, 277, 278, 242, 244, 250, 251 and 859 series two (2) years from date of installation.

   THIS WARRANTY COMPRIZES THE SOLE AND ENTIRE WARRANTY FOR ITEMS SOLD HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANDABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS OR IMPLIED, ARE HEREBY DISCLAIMED. NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY, TO BUYER’S DESIGNS OR SPECIFICATIONS.

5. Limitation Of Remedy: SELLER’S LIABILITY ARISING FROM OR BASED ON INFORMATION PROVIDED BY BUYER SOLD HEREUNDER SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD OR REFUND OF THE PURCHASE PRICE PAID BY BUYER, AT SELLER’S SOLE DISCRETION.

6. Changes, Reschedules and Cancellations: Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller’s discretion, and shall be upon such terms and conditions as Seller may require.

7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract, the cost of which shall be charged to Buyer. Seller retains title to all tooling and molds hereunder, notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is not a part of the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer.

8. Buyer’s Property: Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer in connection with Buyer’s order for any other item or items shall become the property of Seller, and any item sold hereunder or any other item or items manufactured using such property, Seller shall not be responsible for any loss or damage to such property while it is in Seller’s possession or control.

9. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Seller shall not be liable for not saving or charging such tax or any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. Indemnity For Infringement of Intellectual Property Rights: Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade secrets or similar rights except as provided in this Part 10. Buyer will defend and indemnify Seller against all actions including all negotiations for settlement or compromise. If any item sold hereunder or any item which is manufactured using such property, Seller shall have no liability for claims of infringement of any intellectual property rights of a third party, Seller’s obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If a claim is based on information provided by Buyer or if the design or fabrication of any item sold pursuant to this contract infringes the Intellectual Property Rights of a third party, Seller may, at its sole discretion and option, procure for Buyer the right to continue using said item, replace or modify said item to make it non-infringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement by Buyer caused by Buyer’s failure to use or specify the items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Section 10 shall not be subject to the limitations of exclusive liability and Buyer’s sole and exclusive remedy for infringement of Intellectual Property Rights.

11. Force Majeure: Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller’s obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter ‘Events of Force Majeure’). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller’s control.

12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold hereunder. Seller represents that Seller has complied with all applicable laws and regulations which pertain there/to. This Agreement shall be governed in all respects by the laws of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.