

Effective: HY25-1650-M1/US April 2019  
Supersedes: HY25-1650-M1/US January 2019



# Electronic Overspeed Control Owner's Manual

## **WARNING — User Responsibility**

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

## **Offer of Sale**

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.



**WARNING:** This product can expose you to chemicals including Lead and Lead Compounds, 1,3-Butadiene, Carbon black (airborne, unbound particles of respirable size), or Di(2-ethylhexyl)phthalate (DEHP) which are known to the State of California to cause cancer, and Lead and Lead Compounds, 1,3-Butadiene, Toluene, or Di(2-ethylhexyl) phthalate (DEHP) which are known to the state of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

## **Patent Information**

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:

7,159,701    7,007,565    6,962,093    1,326,036    60,321,840.7    9494227 B2

Other patents pending.

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## Foreword

### What It Is

The Chelsea Electronic Overspeed Control (EOC) is an electronic controller that prevents the Power Take-Off and driven equipment from being operated at excessive speeds. This is done by automatically disengaging the Power Take-Off whenever a pre-set overspeed RPM is exceeded.

The EOC also prevents the PTO from being engaged or re-engaged if the engine RPM is too high.

### How It Works

The Chelsea Electronic Overspeed Control (EOC) energizes the solenoid valve that engages the clutch in the Power Take-Off. The control also measures the speed of the Power Take-Off and electronically compares it to the pre-set overspeed RPM setting. As long as the operating speed is less than the high limit, the Power Take-Off will operate in a normal manner.

If the operating speed exceeds the selected high limit, the control will automatically de-energize the solenoid valve and the Power Take-Off clutch will disengage. The clutch will remain disengaged until the speed has been reduced to the pre-set low limit.

Likewise the EOC prevents the PTO from being engaged when the engine speed is too high. If the engine speed exceeds the selected low limit, then the PTO will not engage or re-engage.

## Safety Information

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

### General Safety Information



**WARNING:** Before selecting or using this product, it is important that you read and follow the product warnings and instructions in the Owner's Manual.



This symbol warns of possible personal injury.

## Safety Information (Continued)

### General Safety Information (Continued)



**WARNING:** ailure or improper use of the Parker Chelsea Electronic Overspeed Control, Power Take-Offs (PTOs) or related accessories can cause death, personal injury and property damage. Possible consequences of failure or improper use of these products include but are not limited to the following:

- Operators, bystanders or equipment being crushed, impacted or caused to fall due to the sudden, inadvertent, unintended, uncontrolled or unexpected movement, stopping or starting of devices such as lifts, hoists, blowers, augers or pumps which are driven by a PTO. This can occur when the PTO is improperly or unexpectedly engaged or disengaged.
- Rotating shaft injuries resulting from skin, hands, clothing, hair or the like getting caught in the rotating shaft connected to a PTO or the rotating portion of the equipment driven by the PTO.



**WARNING:** Always remember to disengage the PTO when the driven equipment is not in operation.



**WARNING:** When the Parker Chelsea Electronic Overspeed Control is set up in Auto Re-engagement Mode, the PTO will automatically engage when the engine RPM reaches the lower preset point thus causing the driven equipment to become operable. The vehicle or equipment operator must therefore make certain that other persons and property are not in a position to be crushed, impacted, caused to fall or otherwise injured when re-engagement occurs.



**WARNING:** Original equipment manufacturers incorporating the Parker Chelsea Electronic Overspeed Control into their equipment must undertake a Failure Mode and Effect Analysis (FMEA) to identify potential hazards created by the Automatic Re-engagement Mode. They must then incorporate fail safe designs into their equipment to protect operators, other persons and property from injury associated with unexpected disengagement or re-engagement of the PTO.



**This symbol warns of possible personal injury.**

## The Control

### Under the Dash:

Select a convenient location where the indicator lights will be visible and the ON-OFF button is accessible to the operator. Mark two mounting hole locations, using the control panel mounting bracket as a template.

**CAUTION:** Do not drill into wires or a vital part on the opposite side of the dashboard – check before drilling.

Then, drill two holes and temporarily mount the control to the dashboard, using the 1/4" screws, lock-washers and nuts provided.

### On the Engine Housing:

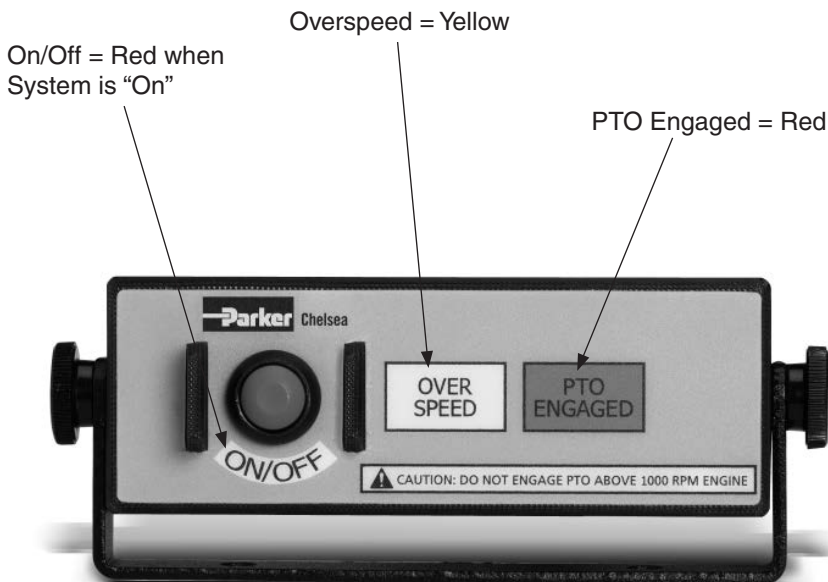
Tilt cabs may require the control to be mounted on the engine housing, with the mounting bracket and screws provided. Mark two mounting hole locations, using the mounting bracket as a template.

**CAUTION:** Do not drill into wires or a vital part on the opposite side of the engine housing – check before drilling.

Then drill two holes and temporarily mount the control and mounting bracket to the engine housing.

**NOTE:** Adjustments will be required at the bottom of the control.

(See [Page 26](#))



## **The Solenoid Valve**

Select a convenient location, near the Power Take-Off to allow the use of shorter hoses, but away from moving parts and the hot exhaust pipe. Mark the mounting hole locations, using the solenoid valve mounting bracket as a template.

**CAUTION:** Do not drill into wires or a vital part on the opposite side of the mounting surface – check before drilling.

Attach the solenoid valve to the mounting bracket using the screws provided and mount them to the vehicle.

## **The Pressure Switch**

Install the pressure switch, the screen adapter and the three hoses, as shown in the SK drawing for your Power Take-Off.

## **The Speed Pick-up**

In case the speed pick-up was not installed at the factory, remove and discard the plug in the Power Take-Off case over the input gear. Install the speed pick-up and tighten it with a crows foot adapter and a torque wrench to approximately 24 ft-lbs torque. Proceed with the electrical hook-up of the control system, as shown in the SK drawing for your Power Take-Off.

## **Routing the Cables**

**Tilt Cabs:** To permit the cab to tilt, the cables must be routed around the cab pivot point. Cab over chassis may require an additional length of cable to ensure the cable is not too tight.

Cable part number:  
328923-10X (10' cable) (Included)  
328923-5X (5' cable)

**Conventional Cabs:** Holes in the firewall are usually provided for the speedometer cable or wiring harnesses and the control cables can usually be routed through them.

**Through-Hole:** If an existing through-hole cannot be used, drill a 1" diameter hole and install the split rubber grommet provided, after all the wires have been installed.

**CAUTION:** Do not drill into wires or a vital part on the opposite side – check before drilling.

## Wiring the Control Unit

**Input Power:** Connect the red wire to a source of power that is “switched” or hot only when the key is in the ON position, using the instant connector provided. This unit can be wired to 12V or 24V DC supply (Minimum 5 amp).



**WARNING:** EOC box is supplied with a 3 amp fuse. DO NOT REPLACE FUSE with a higher amperage fuse. This may cause failure of the EOC electronics and void warranty.

**Input Ground:** Use a test light or multimeter to locate a chassis ground. Connect the black wire to the good ground connection as it is important to proper operation. Do not ground to fiberglass or plastic panels.

## Wiring the Solenoid Valve

**Ground:** Crimp the ring connector provided to one of the red ground leads and make a good ground connection, preferably on the truck frame.

**Power:** Connect the other red lead to the green wire with the butt connector provided. Route this green wire to the control unit and connect it to the green wire.

## Wiring the Pressure Switch

**Ground:** Using the black wire provided in the kit, connect one end onto either terminal of the pressure switch (379547). Connect the other end of the black wire to a confirmed chassis ground. Using the blue wire provided in the kit, attach the ring connector onto the other terminal of the pressure switch. Route the wire to the control unit and crimp it to the blue wire with the butt connector provided.

## Wiring the Speed Pick-up

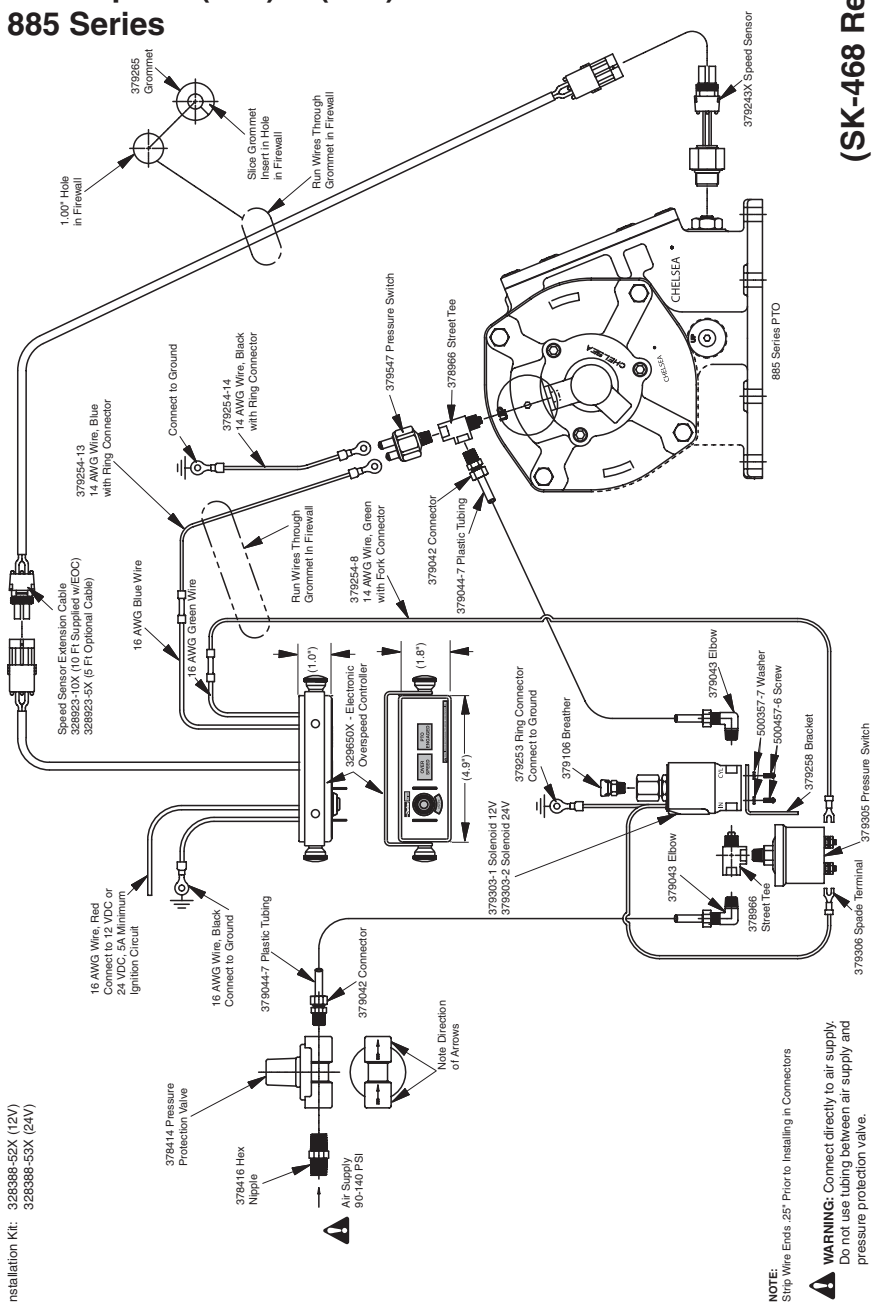
**Selecting the Cable:** A ten foot long cable is provided in the kit, which should be adequate for most installations. Additional five or ten foot long cables are available and can be connected end-to-end if necessary. Any extra length should be coiled up and tucked away under the dash. The cables are specially shielded and must not be cut or spliced.

**Routing & Protecting the Cables:** Bundle together the speed pick-up cable, the pressure switch wire, and the solenoid wire. Route the wires away from moving parts, hot pipes, sharp edges, and up out of the way.

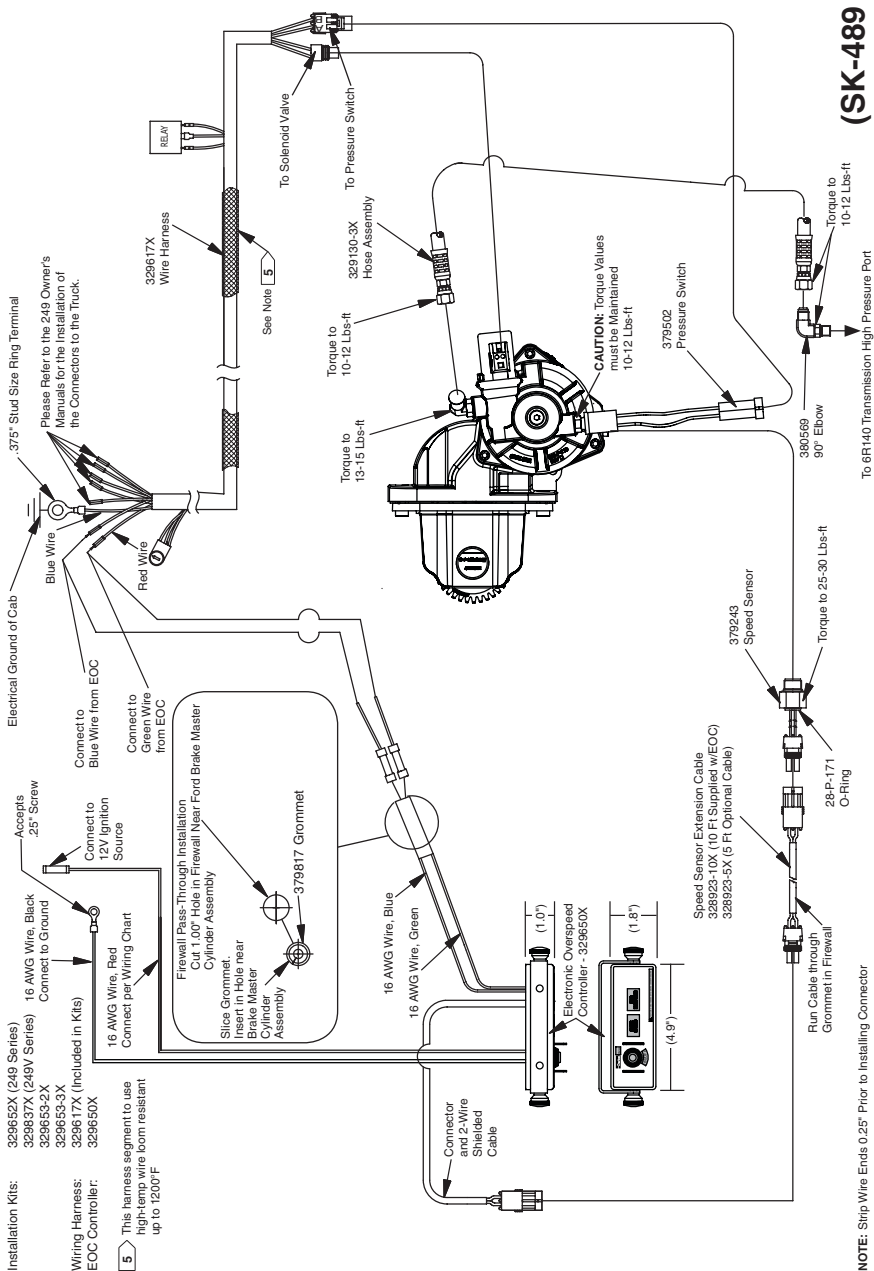


This symbol warns of possible personal injury.

(SK-468 Rev A)



(SK-489 Rev H)



**NOTE:** Strip Wire Ends 0.25" Prior to Installing Connector

# Wiring Installation Chart

(SK-489 Rev H on [Page 7](#))

## MY2011-MY2018 Super Duty w/6.7L Diesel MY2016-MY2018 Medium Duty w/6.7L Diesel 249F Series

Chelsea PTO Wire Harness	Stationary Mode			Mobile Mode		
	Function	Ford Wire Color	Circuit	Function	Ford Wire Color	Circuit
White	PTO REF	White Brown	#LE434	PTO REF	White/Brown	#LE434
Gray	PTO RTN	Gray/Violet	#RE327	PTO RTN	Gray/Violet	#RE327
Green	PTO RPM	Green	#CE914	PTO RPM	Green	#CE914
Blue/White	PTO RLY	Blue/White	#CE326	PTO RLY	Blue/White	#CE326
Black w/Ring Terminal	Chassis Ground		Chassis Ground			
Yellow	PTO REQ1	Yellow/Green	#CE912	PTO REQ2	Blue/Orange (Before March 2016) <sup>(1)</sup> Blue/Red (After March 2016) <sup>(1)</sup>	#CE933
Blue	Chelsea EOC Blue Wire		Chelsea EOC Blue Wire			
Red	Chelsea EOC Green Wire		Chelsea EOC Green Wire			
<b>NOTE:</b> <sup>(1)</sup> Early MY2011 Product Units may come with two Blunt Cut Blue w/Gray wires. One wire will be for PTO Function (PTORS2) the other will be a Customer Wire for "Park Only Output" (TRO-P). <b>NOTE:</b> EOC not available for MY2016 & Prior. Refer to Ford Body Builders website for more on this subject.						
12V Power	Stationary Mode or Mobile Mode					
Chelsea EOC Wire	F250-550		F650/750			
	Ford Wire Color		Circuit	Ford Wire Color		Circuit
	MY2011-2016 12V White/Blue <sup>(2)</sup>	#CDC64	MY2016-Current Yellow/Gray		#CBB35	
Red	MY2017-2018 12V Green/Orange	#CBP22				
Black w/Ring Terminal	Ford Chassis Ground in Dash					
<b>NOTE:</b> <sup>(2)</sup> For Super Duty Trucks built after May 15, 2010. Super Duty Trucks built prior to May 15, 2010 this Ford wire is Yellow/Orange. See Appendix for more year specific wiring information.						



## Wiring Installation Chart

(SK-489 Rev H on [Page 7](#))

MY2017-MY2018 Super Duty F250-550 w/6.8L Gas

MY2017-MY2018 Medium Duty F650/750 w/6.8L Gas

249H Series

Chelsea PTO Wire Harness	Stationary Mode			Mobile Mode		
	Function	Ford Wire Color	Circuit	Function	Ford Wire Color	Circuit
White	PTO REF	Yellow/Green	#LE424	PTO REF	Yellow/Green	#LE424
Gray	PTO RTN	Yellow/Violet	#RE407	PTO RTN	Yellow/Violet	#RE407
Green	PTO RPM	Green	#CE914	PTO RPM	Green	#CE914
Blue/White	PTO RLY	Blue/White	#CE326	PTO RLY	Blue/White	#CE326
Black w/Ring Terminal		Chassis Ground in Dash			Chassis Ground in Dash	
Yellow	PTO REQ1	Yellow/Green	#CE912	PTO REQ2	Blue/Orange <sup>(1)</sup>	#CE933
Blue		Chelsea EOC Blue Wire			Chelsea EOC Blue Wire	
Red		Chelsea EOC Green Wire			Chelsea EOC Green Wire	

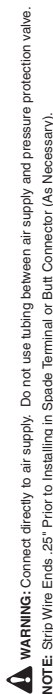
**NOTE:** <sup>(1)</sup> Early MY2011 Product Units may come with two Blunt Cut Blue w/Gray wires. One wire will be for PTO Function (PTORS2) the other will be a Customer Wire for "Park Only Output" (TRO-P).

**NOTE:** EOC not available for MY2016 & Prior.  
Refer to Ford Body Builders website for more on this subject.

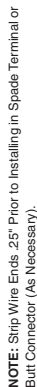
12V Power	Stationary Mode or Mobile Mode	
	F250-550	F650/750
Chelsea EOC Wire	Ford Wire Color	Ford Wire Color
Red	MY2011-2016 12V White/Blue <sup>(2)</sup>	#CDC64
	MY2017-2018 12V Green/Orange	#CBP22
Black w/Ring Terminal	Ford Chassis Ground in Dash	

**NOTE:** <sup>(2)</sup> For Super Duty Trucks built after May 15, 2010. Super Duty Trucks built prior to May 15, 2010 this Ford wire is Yellow/Orange. See Appendix for more year specific wiring information.

(SK-590 Rev A)

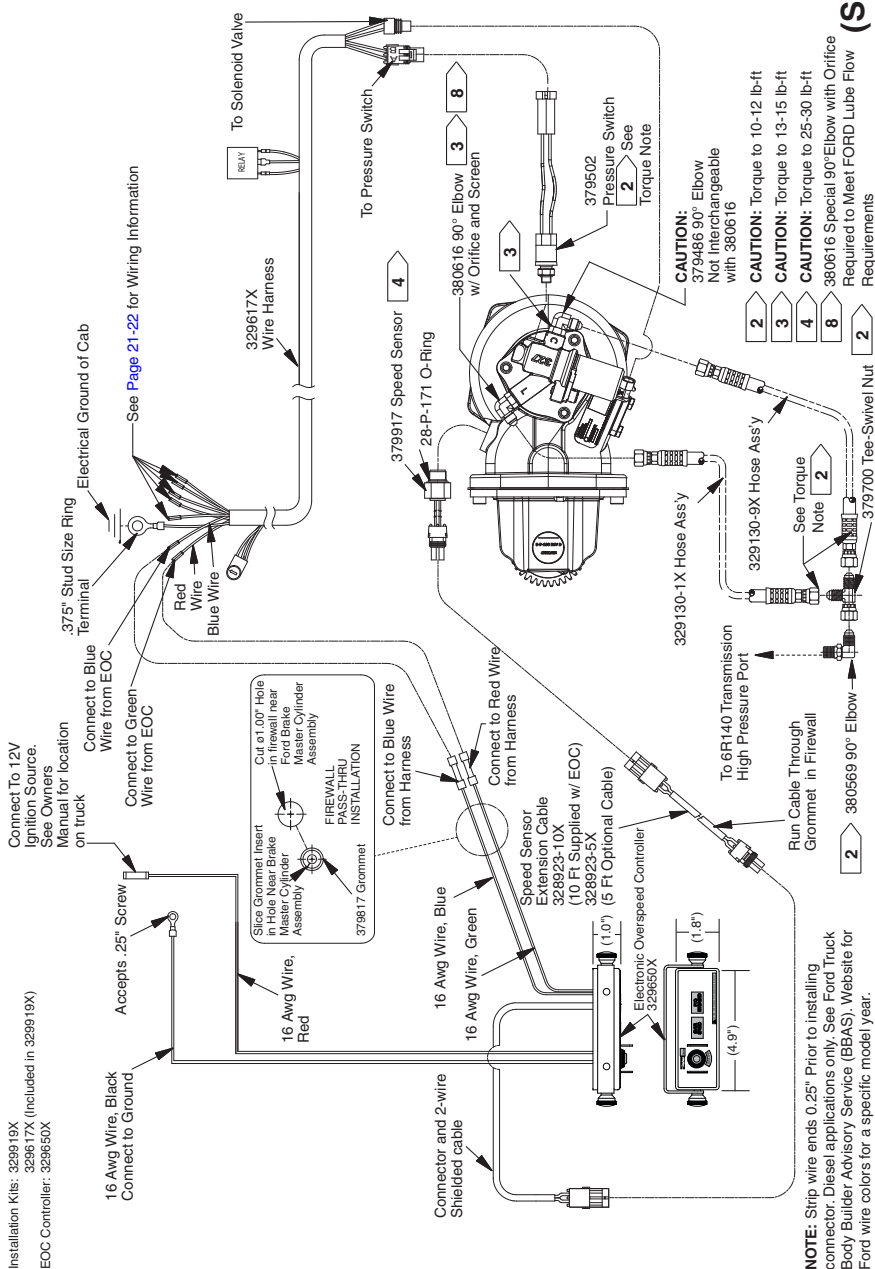


**(SK-583)**



## Electronic Overspeed Control (EOC) 272F/272H Series

**(SK-612)**



**NOTE:** Strip wire ends 0.25" Prior to installing connector. Diesel applications only. See Ford Truck Body Builder Advisory Service (BBAS). Website for Ford wire colors for a specific model year.

## Wiring Installation Chart

(SK-612 on [Page 12](#))MY2016-MY2018 Medium Duty w/6.7L Diesel  
272F Series

Chelsea PTO Wire Harness	Stationary Mode			Mobile Mode		
	Function	Ford Wire Color	Circuit	Function	Ford Wire Color	Circuit
White	PTO REF	White/Brown	#LE434	PTO REF	White/Brown	#LE434
Gray	PTO RTN	Gray/Violet	#RE327	PTO RTN	Gray/Violet	#RE327
Green	PTO RPM	Green	#CE914	PTO RPM	Green	#CE914
Blue/White	PTO RLY	Blue/White	#CE326	PTO RLY	Blue/White	#CE326
Black w/Ring Terminal	Chassis Ground			Chassis Ground		
Yellow	PTO REQ1	Yellow/Green	#CE912	PTO REQ2	Blue/Orange (Before March 2016) <sup>(1)</sup> Blue/Red (After March 2016) <sup>(1)</sup>	#CE933
Blue	Chelsea EOC Blue Wire			Chelsea EOC Blue Wire		
Red	Chelsea EOC Green Wire			Chelsea EOC Green Wire		
<b>NOTE:</b> <sup>(1)</sup> Early MY2011 Product Units may come with two Blunt Cut Blue w/Gray wires. One wire will be for PTO Function (PTORS2) the other will be a Customer Wire for "Park Only Output" (TRO-P). <b>NOTE:</b> EOC not available for MY2016 & Prior. Refer to Ford Body Builders web site for more on this subject.						

12V Power	Stationary Mode or Mobile Mode
Chelsea EOC Wire	F650/750
Red Wire	MY2016-Current #CBB35 Yellow/Gray
Black w/Ring Terminal	Chassis Ground

# Wiring Installation Chart MY2017-MY2018 Medium Duty w/6.8L Gas 272H Series

(SK-612 on [Page 12](#))

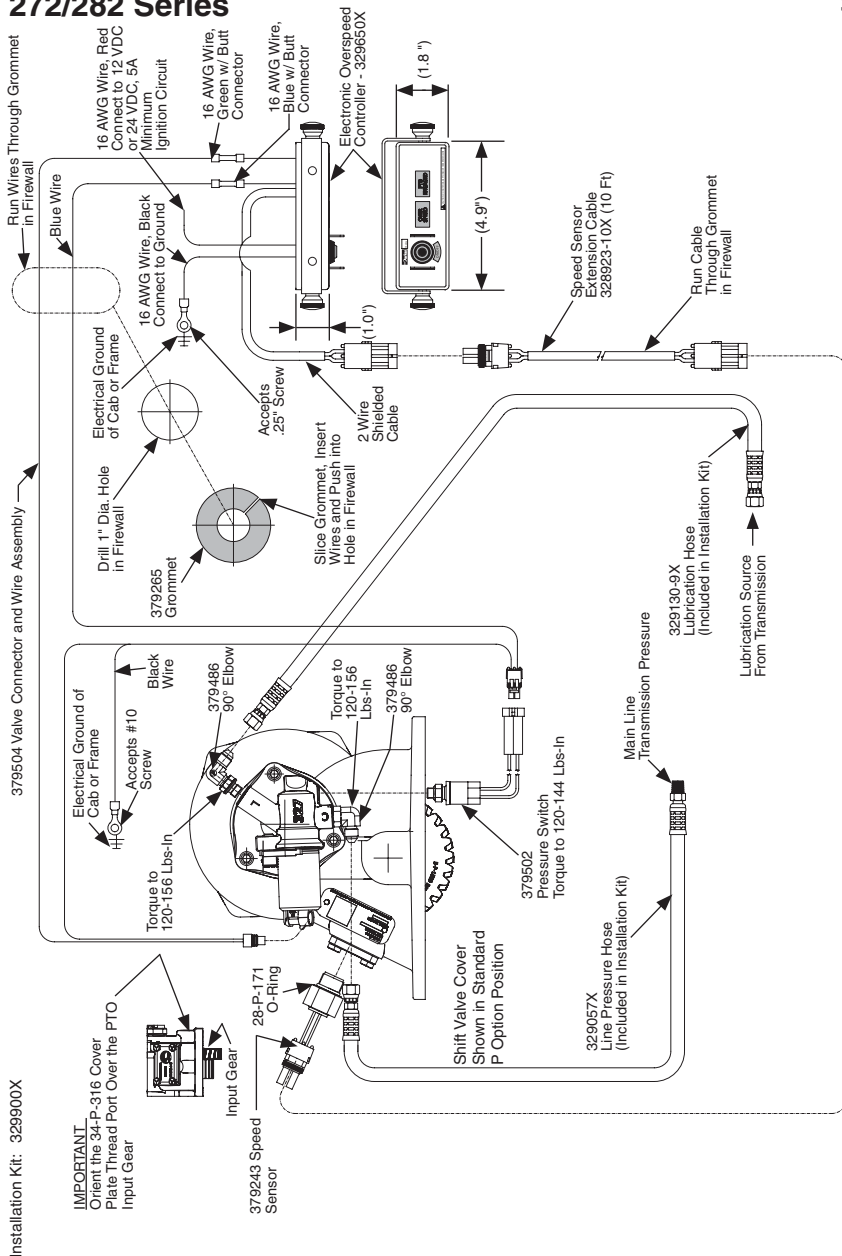
Chelsea PTO Wire Harness	Stationary Mode			Mobile Mode		
	Function	Ford Wire Color	Circuit	Function	Ford Wire Color	Circuit
White	PTO REF	Yellow/Green	#LE424	PTO REF	Yellow/Green	#LE424
Gray	PTO RTN	Yellow/Violet	#RE407	PTO RTN	Yellow/Violet	#RE407
Green	PTO RPM	Green	#CE914	PTO RPM	Green	#CE914
Blue/White	PTO RLY	Blue/White	#CE326	PTO RLY	Blue/White	#CE326
Black w/Ring Terminal			Chassis Ground			Chassis Ground
Yellow	PTO REQ1	Yellow/Blue	#CE912	PTO REQ2	Blue/Orange <sup>(1)</sup>	#CE933
Blue		Chelsea EOC Blue Wire			Chelsea EOC Blue Wire	
Red		Chelsea EOC Green Wire			Chelsea EOC Green Wire	

**NOTE:** <sup>(1)</sup> Early MY2011 Product Units may come with two Blunt Cut Blue w/Gray wires. One wire will be for PTO Function (PTORS2) the other will be a Customer Wire for "Park Only Output" (TRO-P).  
**NOTE:** EOC not available for MY2016 & Prior.  
Refer to Ford Body Builders web site for more on this subject.

12V Power	Stationary Mode or Mobile Mode
Chelsea EOC Wire	F650/750
Red Wire	MY2016-Current #CBB35 Yellow/Gray
Black w/Ring Terminal	Chassis Ground

# Electronic Overspeed Control (EOC) Shift Option K (12V) & L (24V) Elec/Hyd 272/282 Series

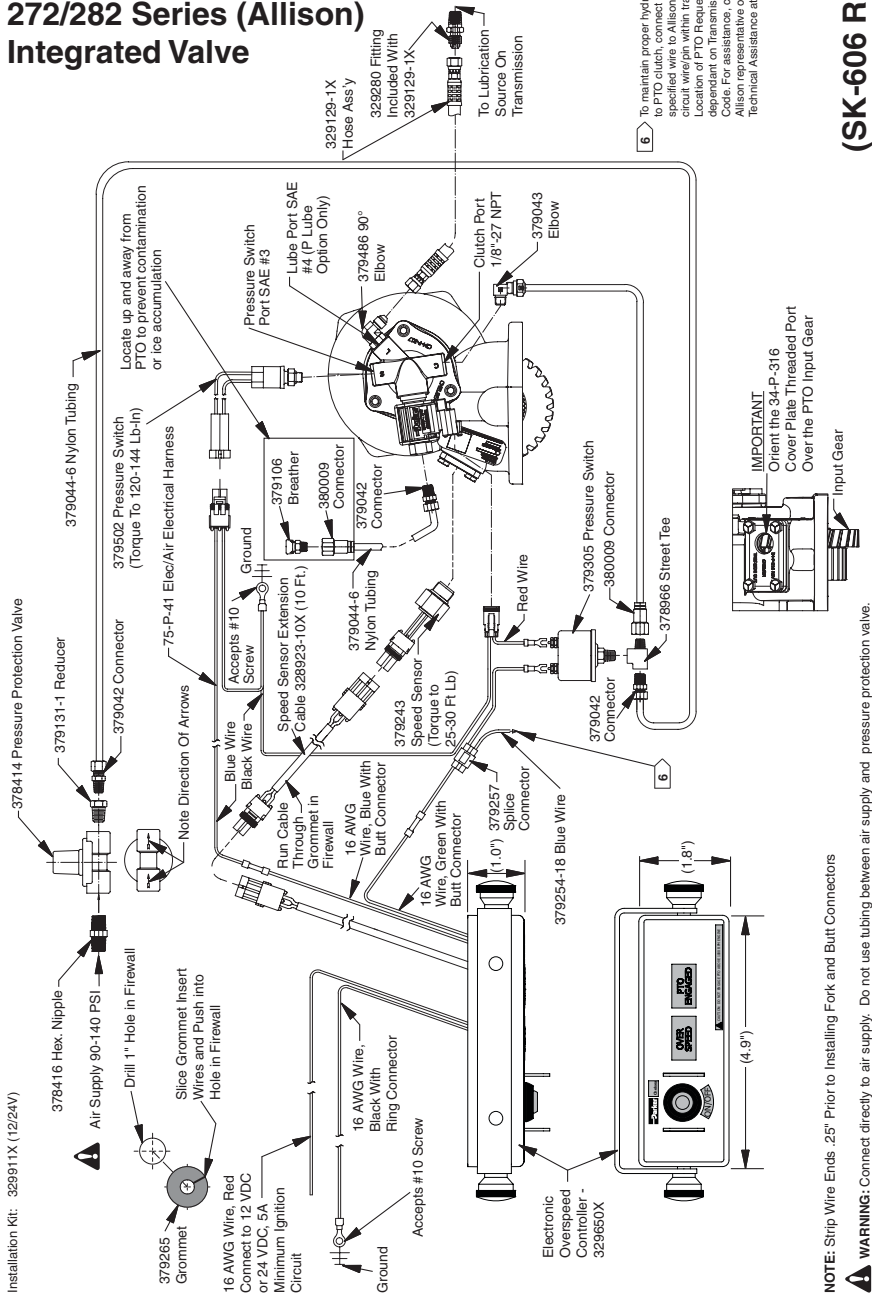
(SK-598)



**NOTE:** Strip Wire Ends .25" Prior to Installing in Spade Terminal or Butt Connector (As Necessary).

**6** To maintain proper hydraulic pressure to PTO clutch, connect Chelsea specified wire to Allison "PTO Request" circuit wire/pin within transmission TCM. Location of PTO Request wire/pin is dependent on Transmission Location Code. For assistance, contact your local Allison representative or contact Allison Technical Assistance at 1-800-252-5283.

(SK-606 Rev A)



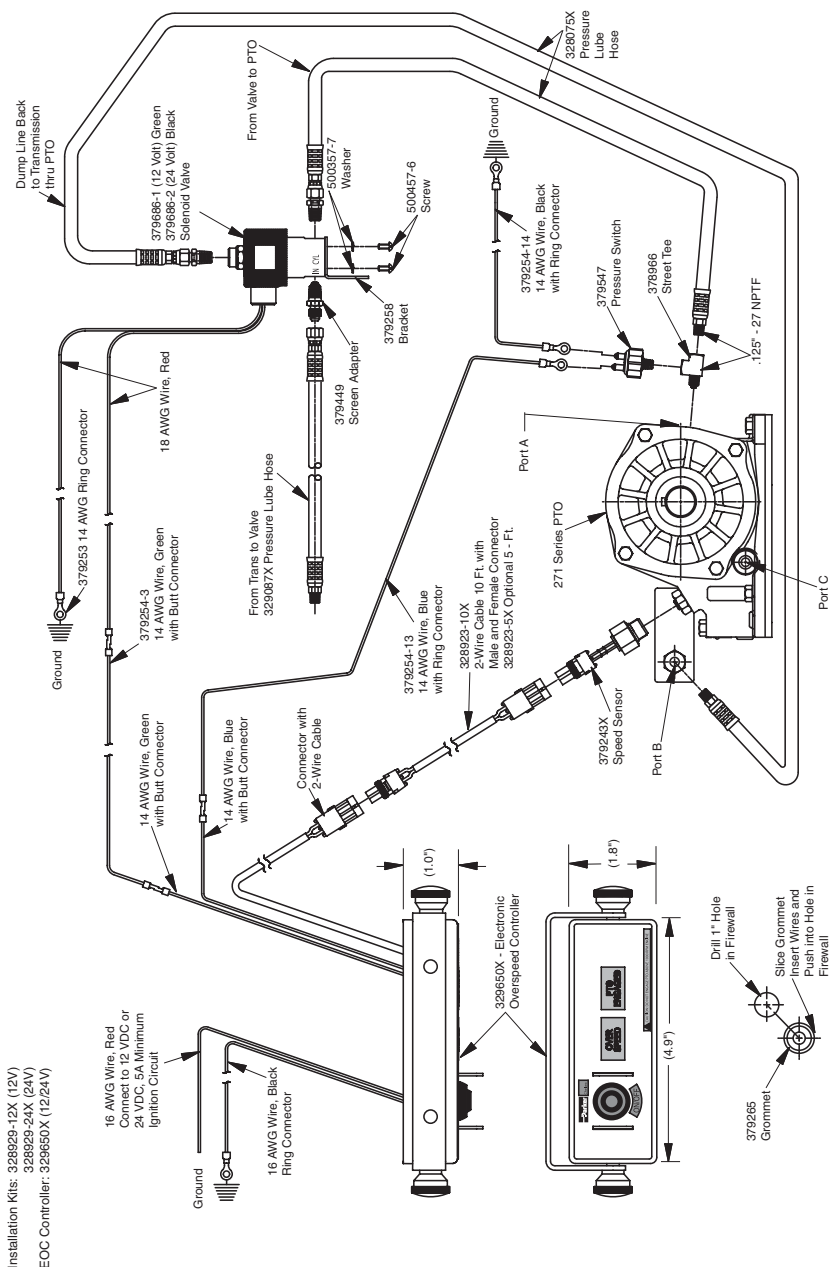
**NOTE:** Strip Wire Ends .25" Prior to Installing Fork and Butt Connectors





# Electronic Overspeed Control (EOC) 800 and 852 Series (Allison)

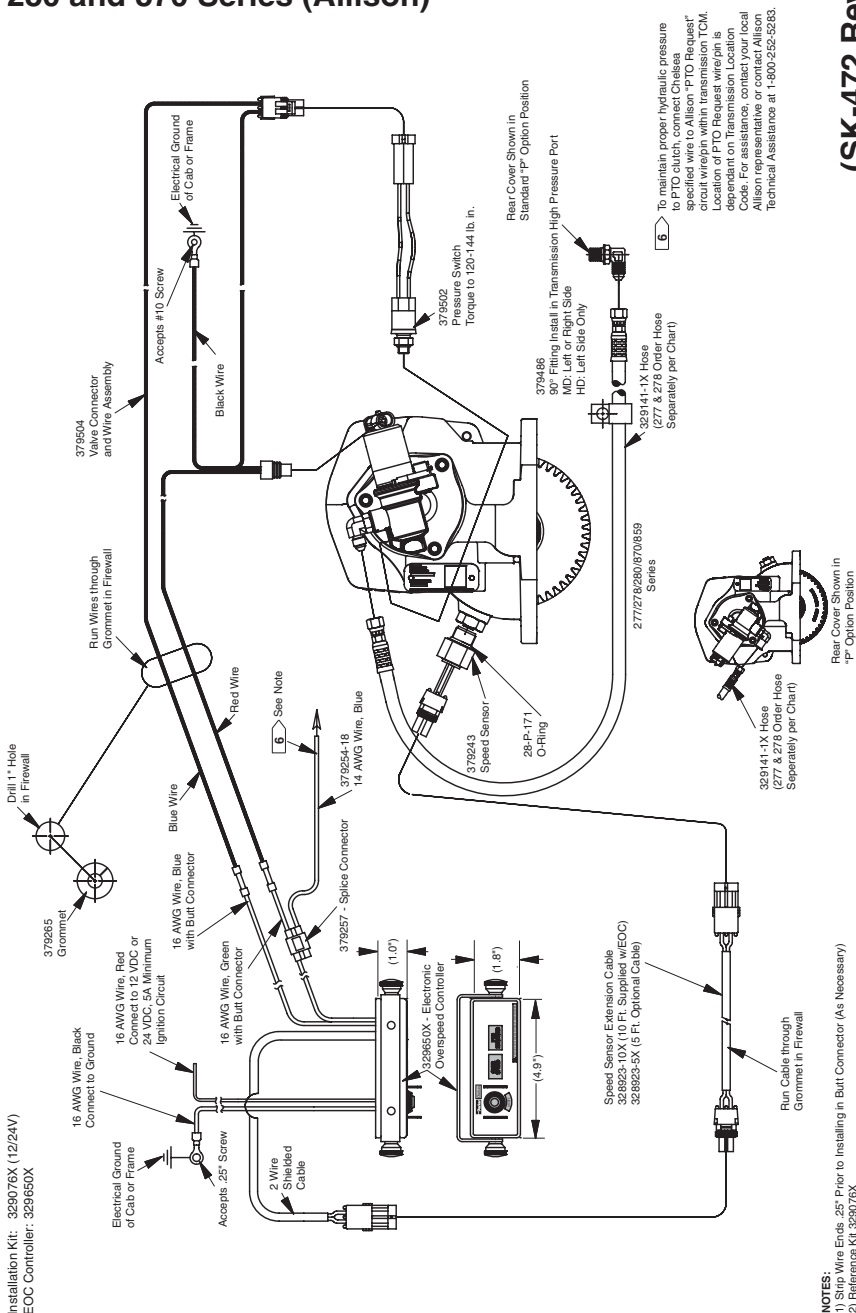
(SK-466 Rev A)



Installation Kits: 328923-12X (12V)  
328923-24X (24V)  
EOC Controller: 328950X (12/24V)

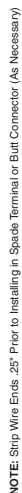
**NOTE:**  
Strip Wire Ends 0.25" Prior to Installing into Connector

(SK-472 Rev D)



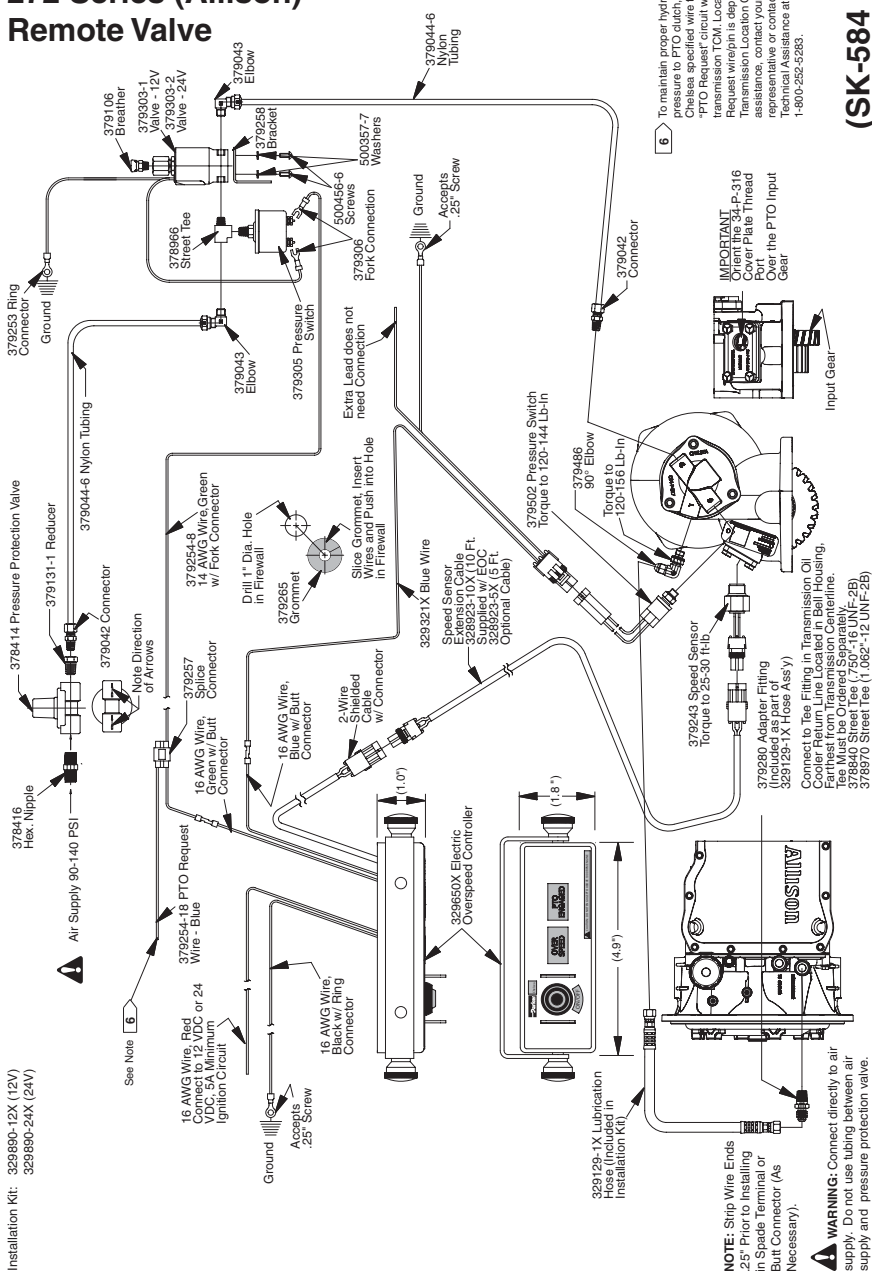
**NOTES:**  
 1) Strip Wire Ends .25" Prior to Installing in Butt Connector (As Necessary)  
 2) Reference Kit 329076X  
 3) Connection to Transmission Controller is Required for Full Pressure to PT

**(SK-475 Rev C)**



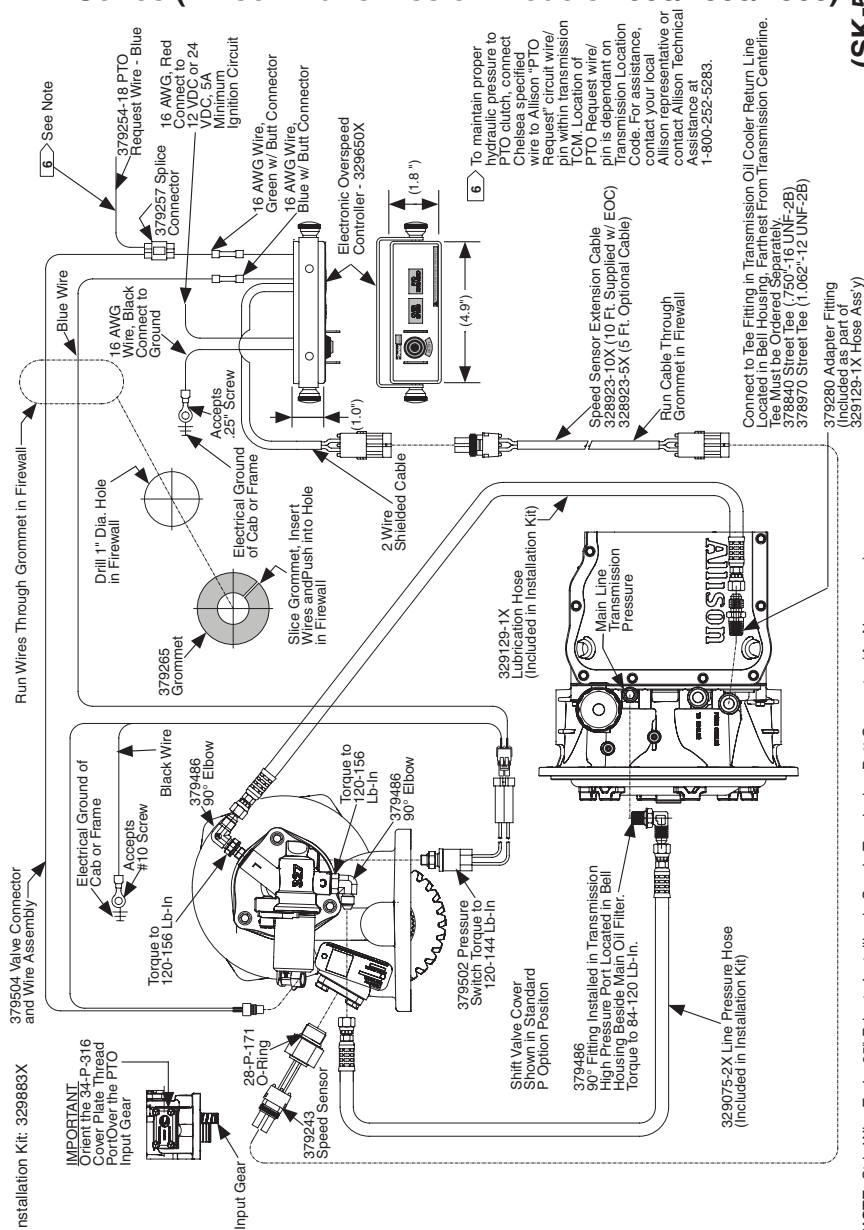
**Electronic Overspeed Control (EOC)  
Air Shift  
272 Series (Allison)  
Remote Valve**

(SK-584 Rev A)



**Electronic Overspeed Control (EOC)**  
**Shift Option K (12V) & L (24V)**  
**Elec/Hyd**  
**272 Series (Allison Transmission Models 1000/2000/2500)**

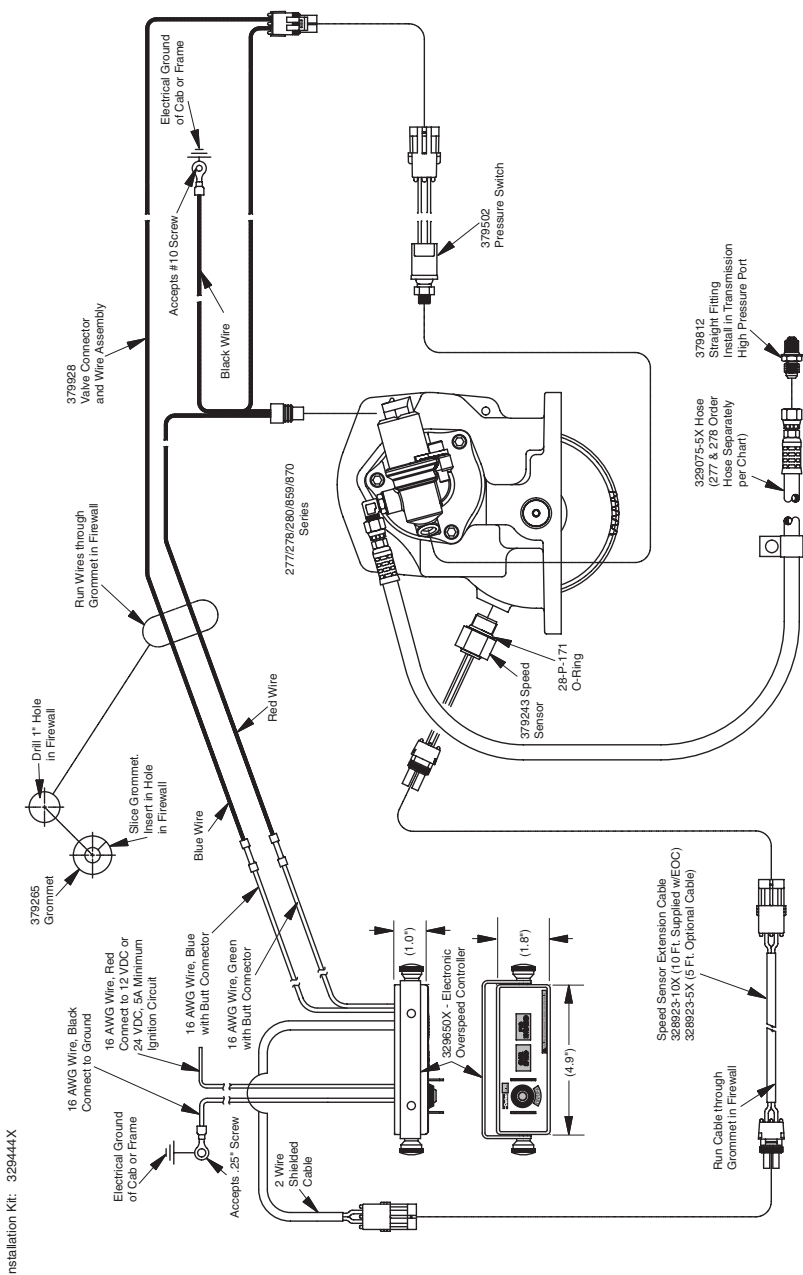
(SK-575 Rev A)



**NOTE:** Strip Wire Ends .25" Prior to Installing in Spade Terminal or Butt Connector (As Necessary).

# Electronic Overspeed Control (EOC) 280 and 870 Series (Caterpillar)

(SK-473 Rev B)



## **Control Adjustment Instructions**

### **Selecting the Overspeed RPM:**

This is usually based on safety, noise control or fuel economy considerations. The high limit set point should be set no greater than the maximum speed allowed by the manufacturer of the driven equipment, and the engine, BUT IN NO CASE GREATER THAN 3000 RPM.

### **Selecting the Reset RPM:**

The control is set to provide a reset, after an overspeed disengagement. The automatic reset, or "Low Limit", should be set above the engine fast idle speed, BUT NO GREATER THAN 1000 RPM.

### **Safety Precautions and Preparations:**

The control settings are to be made with the engine running – provide adequate ventilation and exhaust elimination or make the adjustments outdoors. Put the vehicle transmission in neutral, set the vehicle brakes and chock the wheels.

Disengage the driven equipment.

Connect a tachometer to the engine, if there is not one in the vehicle.

## **Setting Procedure - Enabling the Speed Signal Detection Feature**

**NOTE:** The unit is preset from the factory with this feature disabled.

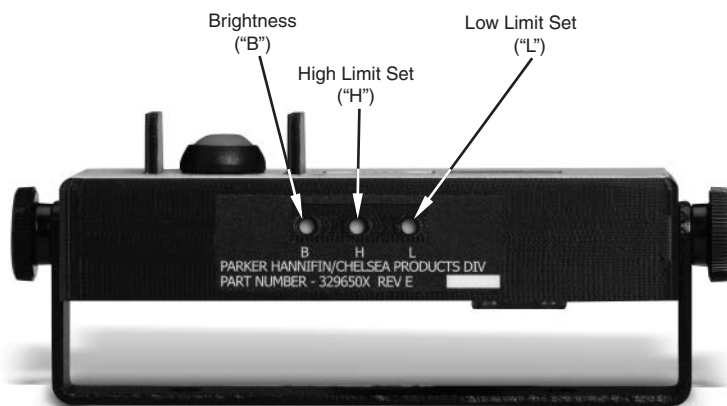
There are transmission applications such as Allison 3000/4000 Series, as well as the Ford Super Duty, that have a continuous "Live Drive" PTO gear in the transmission. This means that when the transmission is in "Drive", the PTO is being driven whether the vehicle is moving or at a stop.

It is recommended for these transmission applications that the Speed Signal Detection Feature be enabled. This will inform the operator should there be an interruption of the speed signal from the PTO to the Electronic Overspeed Controller.

## Control Adjustment Instructions (Continued)

### To Enable the Speed Signal Detection Feature

1. Turn on the vehicle ignition but do not engaged the PTO. The white backlight around the On/Off button will be illuminated.
2. Depress the "B" and "L" buttons simultaneously to enable the unit to detect/display an error due to the lack of a speed signal from the speed sensor. Both the red and yellow LEDs flash (4) times to acknowledge the speed signal detection is enabled.



**NOTE:** If there is a lack of a speed signal in this mode, the PTO will be disengaged and the white backlight around the On/Off button will flash continuously. Depress the On/Off button to reset the unit to Off.

3. Depress the "B" and "L" buttons simultaneously again to disable the unit from detecting a lack of a signal from the speed sensor. In this mode the unit does not detect/display any faults due to the lack of a speed signal from the speed sensor. The system remains in an operable mode as long as 12 or 24 VDC remains supplied to the unit. The unit will flash the red and yellow LED's (5) times to acknowledge the speed signal detection is disabled.



## **Control Adjustment Instructions (Continued)**

### **Description of Re-Engagement Modes**

1. Manual Engagement Mode - In this mode the user must manually depress the On/Off button to re-engage the PTO after an overspeed condition.

**NOTE:** The unit is preset from the factory in this mode

2. Auto Engagement Mode - In this mode the unit automatically re-engages the PTO after an overspeed condition and the lower set point has been reached.



**WARNING:** When the Parker Chelsea Electronic Overspeed Controller is set up in Auto Re-engagement Mode, the PTO will automatically engage when the engine RPM reaches the lower preset point thus causing the driven equipment to become operable. The vehicle or equipment operator must therefore make certain that other persons and property are not in a position to be crushed, impacted, caused to fall or otherwise injured when re-engagement occurs.

### **Setting Procedure - Re-Engagement Modes**

1. Turn Off the unit to set the re-engage modes.
2. By depressing the Brightness ("B") and High Limit Set ("H") buttons simultaneously the unit's mode of re-engagement is changed from "Manual Engagement Mode" to "Auto Engagement Mode". Both the red and yellow LEDs flash once to notify the installer the unit is in "Auto Engagement Mode". In "Auto Engagement Mode" the PTO re-engages automatically once the engine's RPM reach the lower set point.
3. Depressing the "B" and "H" buttons simultaneously again switches the unit from "Automatic Engagement Mode" back to "Manual Engagement Mode". Both the red and yellow LEDs flash twice to notify the installer the unit is in "Manual Engagement Mode".



**This symbol warns of possible personal injury.**

## **Control Adjustment Instructions (Continued)**

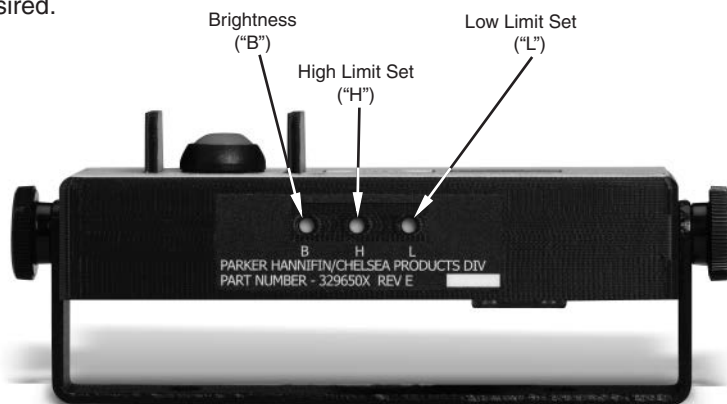
### **Setting Procedure - Speed Limits**

1. Start the engine and allow it to idle. The "On/Off" will be illuminated white to indicate the unit is turned Off. The PTO should be disengaged.
2. Turn the system On by depressing the "On/Off" button. You must hold the button down momentarily for the unit to turn On. When turned On, the "On/Off" will turn from white to red, the PTO will engage and the red "PTO Engaged" will illuminate.
3. Ramp up the vehicle's RPM to the RPM the user desires the PTO to automatically disengage. Depress the "H" (High Limit) button on the bottom of the unit using a small tool or pencil point. The yellow "Over Speed" will illuminate, the PTO will disengage, the red "PTO Engaged" will turn off.
4. Slowly let the vehicle's RPM fall to the lower RPM setting where the user desires the PTO to be able to be re-engaged. Depress the "L" (Low Limit) button on the bottom of the unit using a small tool or pencil point. The yellow "Overspeed" will turn off and the "On/Off" button will be red and flashing. Further lower the RPM slightly. The "On/Off" button flashing red indicates that the unit is ready to re-engage the PTO.
5. Depress the flashing "On/Off" button to re-engage the PTO. The PTO will engage and the red "PTO Engaged" will illuminate.
6. If the unit is in the "AUTOMATIC Engagement Mode" the PTO will be engaged automatically when the "Low Limit" RPM is reached.
7. These settings are permanently held in memory until they are changed or the user resets the unit to the "Default" mode.

## Control Adjustment Instructions (Continued)

### To Cancel Speed Limits

1. To reset the unit to the "Factory Default" mode the EOC must be turned Off. Depress both the "L" and "H" buttons simultaneously. All LEDs will flash 3 times to acknowledge the unit has been reset to the default mode. In the "Factory Default" mode, only the "On/Off" button is active and the over-speed feature is inactive. The unit may be used in this mode if desired.



### Setting the LED Brightness

1. The LED brightness can be adjusted to (4) different intensities. Locate the "B" button on the bottom of the unit.
2. Continuously depress the "B" button until the desired brightness is obtained.

### Final Installation of the Control:

After the overspeed and the reset set points are correctly set, complete the installation of the control, under the dash or on the engine housing, utilizing the supplied bracket and hardware. Be sure the EOC unit is located within easy reach of the operator and is clearly visible.

## **Before Starting the Engine**

With the vehicle turned OFF, all lights in the EOC unit should be OFF.

## **Engaging the Power Take-Off**

1. When the vehicle ignition is on and the EOC unit is Off, the "On/Off" is illuminated white.
2. To turn On the EOC unit, depress the "On/Off" button. You must hold down the button momentarily for the unit to activate. This helps prevent unintentional PTO engagement. Upon activation the "On/Off" will turn from white to red.
3. When the PTO engages, the pressure switch will close and the red "PTO Engaged" will illuminate.
4. Should the operating RPM reach the overspeed set point, the yellow "Overspeed" will illuminate, the PTO will disengage and the red "PTO Engaged" will turn off due to the lack of a signal from the PTO pressure switch.
5. To re-engage the PTO lower the vehicle RPM to less than the lower set point.
  - a. When the lower RPM set point is reached, the yellow "Overspeed" will turn off and the red backlight on the "On/Off" will begin to flash if in the "MANUAL Engagement Mode". Depress the "On/Off" button momentarily to re-engage the PTO.
  - b. Once depressed, the flashing red "On/Off" returns to solid red, the PTO re-engages and the red "PTO Engaged" will illuminate due to the signal from the PTO pressure switch.
  - c. If the unit is in the "Auto Engagement Mode" then the PTO re-engages automatically when the lower RPM threshold is reached.
  - d. Once the PTO is re-engaged, the "On/Off" red backlight stops flashing, the PTO solenoid is re-energized and the red "PTO Engaged" LED should illuminate due to the signal from the PTO pressure switch.



**WARNING:** When the Parker Chelsea Electronic Overspeed Controller is set up in Auto Re-engagement Mode, the PTO will automatically engage when the engine RPM reaches the lower preset point thus causing the driven equipment to become operable. The vehicle or equipment operator must therefore make certain that other persons and property are not in a position to be crushed, impacted, caused to fall or otherwise injured when re-engagement occurs.



**This symbol warns of possible personal injury.**

## **Engaging the Power Take-Off (Continued)**

6. Should the user try to turn On the PTO while the RPM is above the lower set point, the yellow "Overspeed" will illuminate, the "On/Off" will turn from white to flashing red but the PTO will not engage.
7. Reduce the RPM till it is below the lower set point, the yellow "Over Speed" will turn off and the "On/Off" will continue to flash. Depress the "On/Off" (momentarily) to engage the PTO.

## **Adjusting the Throttle Opening**

The Chelsea Electronic Overspeed Control is not a governor, and changing load conditions will make it necessary to make corresponding changes in the throttle opening to maintain a uniform rate of working, without lugging or overspeeding the equipment.

<b>Problem</b>	<b>Possible Causes</b>	<b>Remedy</b>
PTO will not engage	Blown fuse in back of unit	Replace fuse with 3 amp automotive stab fuse.
	Poor ground connections	Check all ground connections. Connect securely to chassis.
	PTO Solenoid valve	Check wiring to solenoid valve Replace solenoid valve.
	EOC control	Check wiring to EOC
PTO will not engage but red light comes on	Shorted pressure switch	Check wiring to Pressure switch.
	Defective PTO	Check for solenoid malfunction.
PTO engages, but red light doesn't come on	Defective red LED	Replace EOC unit.
	Open pressure switch	Check wiring to pressure switch. Check that ground is secure to chassis.
	Poor ground connection on pressure switch	Check that ground is secure to chassis.
White LED's around ON/OFF button flash	No Speed Signal present	Check speed sensor on PTO
		Check wiring harness and connectors between controller and speed sensor.

**NOTE:** Unit should be checked periodically to make sure speed sensor is operating. Speed sensor is checked by going to overspeed condition. If yellow light does NOT come on in overspeed condition, speed sensor may not be operating or the EOC unit may be in Default Mode. See "Setting Procedure". This could also indicate that control box is not operating either. Wiring harness should also be checked for breaks or disconnections.

Due to the normal and sometime severe torsional vibrations that Power Take-Off units experience, operators should follow a set maintenance schedule for inspections. Failure to service loose bolts or Power Take-Off leaks could result in potential auxiliary Power-Take-Off or transmission damage.

Periodic PTO MAINTENANCE is required by the owner/operator to ensure proper, safe and trouble free operation.

**Daily:** Check all air, hydraulic and working mechanisms before operating PTO Perform maintenance as required.

**Monthly:** Inspect for possible leaks and tighten all air, hydraulic and mounting hardware, if necessary. Torque all bolts, nuts, etc. to Chelsea specifications. Ensure that splines are properly lubricated, if applicable. Perform maintenance as required.

With regards to the direct mounted pump splines, the PTO requires the application of a specially formulated anti-fretting, high pressure, high temperature grease. The addition of the grease has been proven to reduce the effects of the torsional vibrations, which result in fretting corrosion on the PTO internal splines as well as the pump external splines. Fretting corrosion appears as a "rusting and wearing" of the pump shaft splines. Severe duty applications, which require long PTO running times and high torque may require more frequent regreasing. Applications such as Utility Trucks that run continuously and are lightly loaded also require frequent regreasing due to the sheer hours of running time. It is important to note that service intervals will vary for each and every application and is the responsibility of the end user of the product. Chelsea also recommends that you consult your pump owners manuals and technical services for their maintenance guidelines. Fretting corrosion is caused by many factors and without proper maintenance; the anti-fretting grease can only reduce its effects on components.

Chelsea offers the grease to our customers in two packages. The first is a 5/8 fluid ounce tube (379688), which is included with every applicable PTO, and the second is a 14-ounce grease cartridge (379831). Chelsea also offers greaseable shafts for select output designators.

**Warranty:** Failure to comply entirely with the provisions set forth in the appropriate Owner's Manual will result in voiding of ALL Warranty consideration.

## This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, leaving small margins at the top and bottom. There is no handwriting or other markings on the paper.



## This image shows a full page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for handwriting practice. There are no margins, text, or other markings on the page.

## Offer of Sale

The items described in this document and other documents and descriptions provided by Parker Hannifin Corporation, its subsidiaries and its authorized distributors ("Seller") are hereby offered for sale at prices to be established by Seller. 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 item described in its document, when communicated to Seller verbally, or in writing, shall constitute acceptance of this offer. All goods, services or work described will be referred to as "Products".

**1. Terms and Conditions.** Seller's willingness to offer Products, or accept an order for Products, to or from Buyer is subject to these Terms and Conditions or any newer version of the terms and conditions found on-line at [www.parker.com/salesterms/](http://www.parker.com/salesterms/). Seller objects to any contrary or additional terms or conditions of Buyer's order or any other document issued by Buyer.

**2. Price Adjustments; Payments.** Prices stated on Seller's quote or other documentation offered by Seller are valid for 30 days, and do not include any sales, use, or other taxes unless specifically stated. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2010). Payment is subject to credit approval and is due 30 days from the date of invoice or such other term as required by Seller's Credit Department, after which Buyer shall pay interest on any unpaid invoices at the rate of 1.5% per month or the maximum allowable rate under applicable law.

**3. Delivery Dates; Title and Risk; Shipment.** All delivery dates are approximate and Seller shall not be responsible for any damages resulting from any delay. Regardless of the manner of shipment, title to any products and risk of loss or damage shall pass to Buyer upon placement of the products with the shipment carrier at Seller's facility. Unless otherwise stated, Seller may exercise its judgment in choosing the carrier and means of delivery. No deferment of shipment at Buyer's request beyond the respective dates indicated will be made except on terms that will indemnify, defend and hold Seller harmless against all loss and additional expense. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions.

**4. Warranty.** Seller warrants that all products sold, other than the 590 Series, conform to the applicable Parker Chelsea standard specification for the lesser period of 2 years (24 Months) from date of service or 2-1/2 years (30 Months) from date of build (as marked on the product name plate). Seller warrants that the 590 Series will conform to the applicable Seller standard specification for the lesser period of 2 years (24 Months) from date of service or 2000 hours of usage. The prices charged for Seller's products are based upon the exclusive limited warranty stated above, and upon the following disclaimer: **DISCLAIMER OF WARRANTY: THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO PRODUCTS PROVIDED HEREUNDER. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING DESIGN, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

**5. Claims; Commencement of Actions.** Buyer shall promptly inspect all Products upon delivery. No claims for shortages will be allowed unless reported to the Seller within 10 days of delivery. No other claims against Seller will be allowed unless asserted in writing within 30 days after delivery. Buyer shall notify Seller of any alleged breach of warranty within 30 days after the date the defect is or should have been discovered by Buyer. Any action based upon breach of this agreement or upon any other claim arising out of this sale (other than an action by Seller for an amount due on any invoice) must be commenced within

12 months from the date of the breach without regard to the date breach is discovered.

**6. LIMITATION OF LIABILITY. UPON NOTIFICATION, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE A DEFECTIVE PRODUCT, OR REFUND THE PURCHASE PRICE. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, USE OR LOSS OF USE OF THE PRODUCTS OR ANY PART THEREOF, OR FOR ANY CHARGES OR EXPENSES OF ANY NATURE INCURRED WITHOUT SELLER'S WRITTEN CONSENT, EVEN IF SELLER HAS BEEN NEGLIGENT, WHETHER IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE OF THE PRODUCTS.**

**7. User Responsibility.** The user, through its own analysis and testing, is solely responsible for making the final selection of the system and Product and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application and follow applicable industry standards and Product information. If Seller provides Product or system options, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products or systems.

**8. Loss to Buyer's Property.** Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, will be considered obsolete and may be destroyed by Seller after two consecutive years have elapsed without Buyer ordering the 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. Special Tooling.** A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture Products. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the Products, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

**10. Buyer's Obligation; Rights of Seller.** To secure payment of all sums due or otherwise, Seller shall retain a security interest in the goods delivered and this agreement shall be deemed a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect its security interest.

**Offer of Sale (continued)**

**11. Improper use and Indemnity.** Buyer shall indemnify, defend, and hold Seller harmless from any claim, liability, damages, lawsuits, and costs (including attorney fees), whether for personal injury, property damage, patent, trademark or copyright infringement or any other claim, brought by or incurred by Buyer, Buyer's employees, or any other person, arising out of: (a) improper selection, improper application or other misuse of Products purchased by Buyer from Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, plans, drawings, or specifications furnished by Buyer to manufacture Product; or (d) Buyer's failure to comply with these terms and conditions. Seller shall not indemnify Buyer under any circumstance except as otherwise provided.

**12. Cancellations and Changes.** Orders shall not be subject to cancellation or change by Buyer for any reason, except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage. Seller may change product features, specifications, designs and availability with notice to Buyer.

**13. Limitation on Assignment.** Buyer may not assign its rights or obligations under this agreement without the prior written consent of Seller.

**14. Force Majeure.** Seller does not assume the risk 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, strikes or labor disputes, acts of any government or government agency, acts of nature, delays or failures in delivery from carriers or suppliers, shortages of materials, or any other cause beyond Seller's reasonable control.

**15. Waiver and Severability.** Failure to enforce any provision of this agreement will not waive that provision nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of this agreement by legislation or other rule of law shall not invalidate any other provision herein. The remaining provisions of this agreement will remain in full force and effect.

**16. Termination.** Seller may terminate this agreement for any reason and at any time by giving Buyer thirty (30) days written notice of termination. Seller may immediately terminate this agreement, in writing, if Buyer: (a) commits a breach of any provision of this agreement (b) appoints a trustee, receiver or custodian for all or any part of Buyer's property (c) files a petition for relief in bankruptcy on its own behalf, or by a third party (d) makes an assignment for the benefit of creditors, or (e) dissolves or liquidates all or a majority of its assets.

**17. Governing Law.** This agreement and the sale and delivery of all Products hereunder shall be deemed to have taken place in and shall be governed and construed in accordance with the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to this agreement.

**18. Indemnity for Infringement of Intellectual Property Rights.** Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Section. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets ("Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that a Product sold pursuant to this Agreement infringes the 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 allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If a Product is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Product, replace or modify the Product so as to make it noninfringing, or offer to accept return of the Product and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to Products 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 Product sold hereunder. The foregoing provisions of this Section shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

**19. Entire Agreement.** This agreement contains the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter are herein merged.

**20. Compliance with Law, U.K. Bribery Act and U.S. Foreign Corrupt Practices Act.** Buyer agrees to comply with all applicable laws and regulations, including both those of the United Kingdom and the United States of America, and of the country or countries of the Territory in which Buyer may operate, including without limitation the U. K. Bribery Act, the U.S. Foreign Corrupt Practices Act ("FCPA") and the U.S. Anti-Kickback Act (the "Anti-Kickback Act"), and agrees to indemnify and hold harmless Seller from the consequences of any violation of such provisions by Buyer, its employees or agents. Buyer acknowledges that they are familiar with the provisions of the U. K. Bribery Act, the FCPA and the Anti-Kickback Act, and certifies that Buyer will adhere to the requirements thereof. In particular, Buyer represents and agrees that Buyer shall not make any payment or give anything of value, directly or indirectly to any governmental official, any foreign political party or official thereof, any candidate for foreign political office, or any commercial entity or person, for the purpose of influencing such person to purchase products or otherwise benefit the business of Seller.

07/14



**WARNING:** This product can expose you to chemicals including Lead and Lead Compounds, 1,3-Butadiene, Carbon black (airborne, unbound particles of respirable size), or Di(2-ethylhexyl)phthalate (DEHP) which are known to the State of California to cause cancer, and Lead and Lead Compounds, 1,3-Butadiene, Toluene, or Di(2-ethylhexyl)phthalate (DEHP) which are known to the state of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

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