2022 MODEL 579 BEV BODY BUILDER SUPPLEMENT

Release Date 9/01/2022

MODEL 579

BODY BUILDER MANUAL CONTENTS
BATTERY ELECTRIC VEHICLE SUPPLEMENT

SECTION 1 **INTRODUCTION**

MODEL 579 BEV

The Peterbilt 579 BEV (Battery Electric Vehicle) Body Builder Manual Supplement was designed to provide body builders additional information regarding the Battery Electric Vehicle option on the Model 579. For fundamental information not exclusive to the BEV variant, refer to the Peterbilt Heavy Duty Body Builder Manual 2017.

The Model 579 BEV utilizes the pre-VMUX electrical architecture; the pre-VMUX information is located in the Peterbilt Heavy Duty Body Builder Manual 2017. The Model 579 BEV is equipped with thermally-controlled battery packs. The fully integrated, all-electric powertrain of the Model 579 BEV is designed for optimal weight distribution and performance and utilize two wheelbase configurations; 190” and 216”. The 216” wheelbase is available with an ePTO for supplemental equipment powering.

In the interest of continuing product development, Peterbilt reserves the right to change specifications or products at any time without prior notice. It is the responsibility of the user to ensure that they are working with the latest released information. Check Peterbilt.com for the latest released version.

If you require additional information or reference materials, please contact your local Peterbilt dealer.

SECTION 2 **SAFETY AND COMPLIANCE**

SAFETY SIGNALS

There are a number of alerting messages in this book. Please read and follow them. They are there for your protection and information. These alerting messages can help you avoid injury to yourself or others and help prevent costly damage to the vehicle.

Key symbols and “signal words” are used to indicate what kind of message is going to follow. Pay special attention to comments prefaced by “WARNING”, “CAUTION”, and “NOTE.” Please don’t ignore any of these alerts.

Warnings, cautions, and notes

WARNING

When you see this word and symbol, the message that follows is especially vital. It signals a **potentially hazardous situation** which, if not avoided, could result in death or serious injury. This message will tell you what the hazard is, what can happen if you don’t heed the warning, and how to avoid it.

Example:

WARNING! Be sure to use a circuit breaker designed to meet liftgate amperage requirements. An incorrectly specified circuit breaker could result in an electrical overload or fire situation. Follow the liftgate installation instructions and use a circuit breaker with the recommended capacity.

CAUTION

Signals a **potentially hazardous situation** which, if not avoided, could result in minor or moderate injury or damage to the vehicle.

Example:

CAUTION: Never use a torch to make a hole in the rail. Use the appropriate drill bit.

NOTE

Provides general information: for example, the note could warn you on how to avoid damaging your vehicle or how to drive the vehicle more efficiently.

Example:

Note: Be sure to provide maintenance access to the battery box.

FEDERAL MOTOR VEHICLE SAFETY STANDARDS AND COMPLIANCE

As an Original Equipment Manufacturer, Peterbilt Motors Company ensures that our products comply with all applicable U.S. or Canadian Federal Motor Vehicle Safety Standards. However, the fact that this vehicle has no fifth wheel and that a Body Builder (Intermediate or Final Stage Manufacturer) will be doing additional modifications means that the vehicle was incomplete when it left the build plant.

Incomplete Vehicle Certification

An Incomplete Vehicle Document is shipped with the vehicle, certifying that the vehicle is not complete. See Figure 2–1. In addition, affixed to the driver's side door frame or edge is an Incomplete Vehicle Certification label. See Figure 2–2.

NOTE

These documents list the U.S. or Canadian Federal Motor Vehicle Safety Standard regulations that the vehicle complied with when it left the build plant. You should be aware that if you add, modify or alter any of the components or systems covered by these regulations, it is your responsibility as the Intermediate or Final Stage Manufacturer to ensure that the complete vehicle is in compliance with the particular regulations upon completion of the modifications.

FIGURE 2-1. Incomplete Vehicle Certification Document

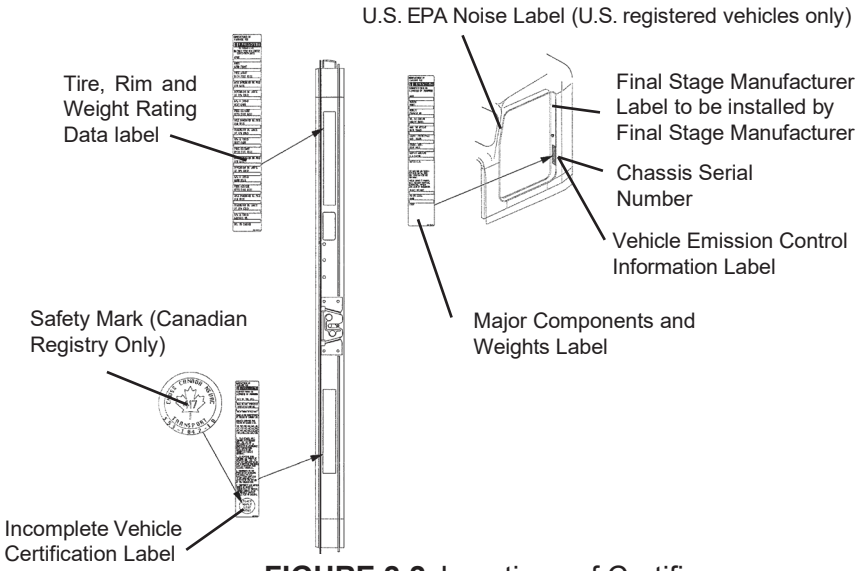


FIGURE 2-2. Locations of Certification Labels - Driver's Door and Frame

As the Intermediate or Final Stage Manufacturer, you should retain the Incomplete Vehicle Document for your records. In addition, you should record and retain the manufacturer and serial number of the tires on the vehicle. Upon completion of the vehicle (installation of the body and any other modifications), you should affix your certification label to the vehicle as required by Federal law. This tag identifies you as the “Intermediate or Final Stage Manufacturer” and certifies that the vehicle complies with Federal Motor Vehicle Safety Standards. (See Figure 2–2.) Be advised that regulations affecting the intermediate and final stage manufacturer may change without notice. Ensure you are referencing the most updated copy of the regulation during the certification and documentation processes.

In part, if the final stage manufacturer can complete and certify the vehicle within the instruction in the incomplete vehicle document (IVD) the certification label would need a statement that reads, “This vehicle has been completed in accordance with the prior manufacturers, IVD where applicable. This vehicle conforms to all applicable Federal Motor Vehicle Safety Standards [and Bumper and Theft Prevention Standards if applicable] in effect in (month, year).”

However, if the vehicle cannot be completed and certified with in the guidance provided in the IVD, the final stage manufacturer must ensure the vehicle conforms to all applicable Federal Motor Vehicle Safety Standards (FMVSS). The final stage manufactures certification label would need a statement that reads, “This vehicle conforms to all applicable Federal Motor Vehicle Safety Standards [and Bumper and Theft Prevention Standards if applicable] in effect in (month, year).These statements are just part of the changes to the new certification regulation. Please refer to the Feb 15, 2005 final rule for all of the details related to this regulation. You can contact NTEA Technical Services Department at 1-800-441- NTEA for a copy of the final rule (DocID 101760).

For Canadian final stage manufacturers see:

http://www.gazette.gc.ca/index-eng.html; and
http://www.tc.gc.ca/eng/acts-regulations/menu.htm for the regulations.

Or contact:
Transport Canada
Tower C, Place de Ville, 330 Sparks Street
Ottawa, Ontario K1A
0N5 (613) 990-2309
TTY: 1-888-675-6863

Compressed Air System

The following are highlights of some of the more common or critical aspects of this system.

- Air system modification must meet applicable FMVSS regulations
- Compressed Air tank may not be modified (exception – addition or removal of fittings or relocation of the tank)
- Added devices or bodywork may not interfere with or rub air lines
- Air lines should be routed, protected from heat, and properly secured to prevent damage from other components
- Care should be taken so that air lines do not rub against other components
- Care should be taken to protect the air system from heat sources

Cooling System

The following are highlights of some of the more common or critical aspects of this system.

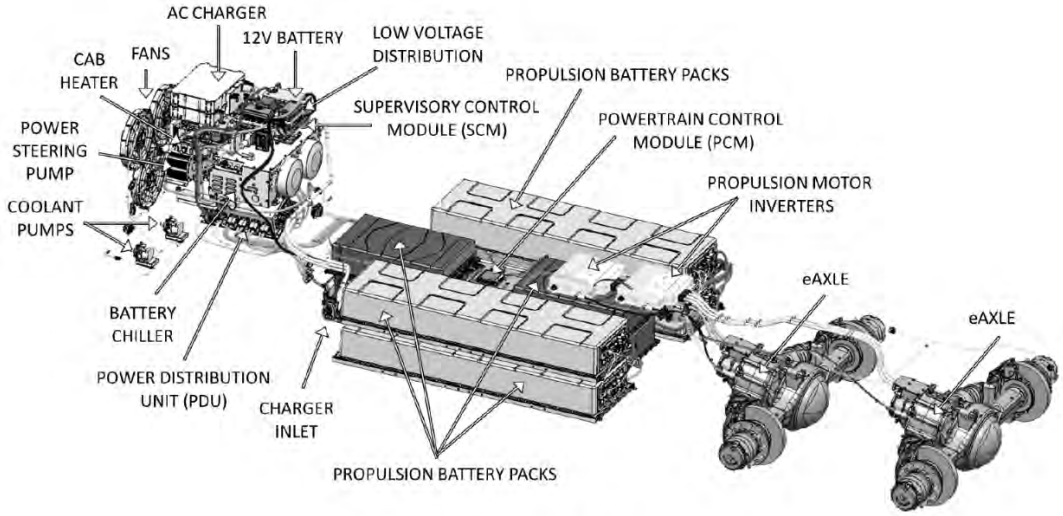
- Modifications to the design or locations of fill or vent lines, heater or defroster core, and surge tank are not recommended
- Additional accessories plumbed into the engine cooling system are not permitted, at the risk of voiding vehicle warranty
- Coolant level sensor tampering will void warranty
- When installing auxiliary equipment in front of the vehicle, or additional heat exchangers, ensure that adequate air flow is available to the vehicle cooling system. Refer to engine manufacturer application guidelines for further detail.

Battery Electric Vehicle System

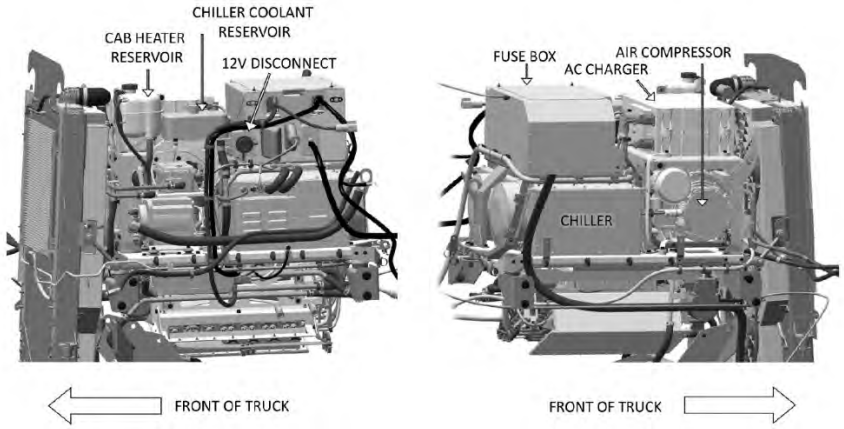
The following are highlights of some of the more common or critical aspects of this system.

- The Propulsion Battery Pack internals may not be modified.
- The eAxle internals may not be modified.
- The Powertrain Control Module (PCM), Propulsion Motor Inverters, Power Distribution Unit (PDU) and Supervisory Control Module (SCM) may not be modified.
- The battery chiller and coolant pumps may not be modified.
- Body Builder additional wiring should be routed, protected from heat, and properly secured to prevent damage from other components.
- High Voltage wires are orange and may not be modified.

WARNING *Disconnection of the Propulsion Battery Pack fuses should only be done by personnel certified to disconnect the system.*



Vehicle Layout



Additional Components on the PCAS

(PCAS: Power Electronics and Controls Subsystem)

SECTION 3 **DIMENSIONS**

INTRODUCTION

This section has been designed to provide supplemental information specific to the Model 579 BEV. All dimensions are inches unless otherwise noted. Optional equipment may not be depicted. Please contact your local Peterbilt dealer if more dimensional information is desired. Refer to Model 579 full Body Builder Manual for additional dimensions such as interior and suspension dimensions.

ABBREVIATIONS

Throughout this section and in other sections as well, abbreviations are used to describe certain characteristics on your vehicle. Table 3-1 below lists the abbreviated terms used.

TABLE 3-1. Abbreviations Used

BFA	Bumper to front axle
BOC	Back of cab
CA	Cab to axle. Measured from the back of the cab to the centerline of the rear axle(s).
EOF	End of frame
FAX	Front axle
FOF	Front of frame
WB	Wheelbase

OVERALL DIMENSIONS

This section includes supplemental information specific to the Model 579 BEV.

On the pages that follow, detail drawings show particular views of the vehicle; all dimensions are in inches (in). They illustrate important measurements critical to designing bodies of all types.

Peterbilt also offers .dxf files and frame layouts of ordered chassis prior to build. Please speak with your local dealership to request this feature when specifying your chassis.

EXTERIOR CONFIGURATIONS

FIGURE 3-1a. Model 579 Rear Loader Configuration

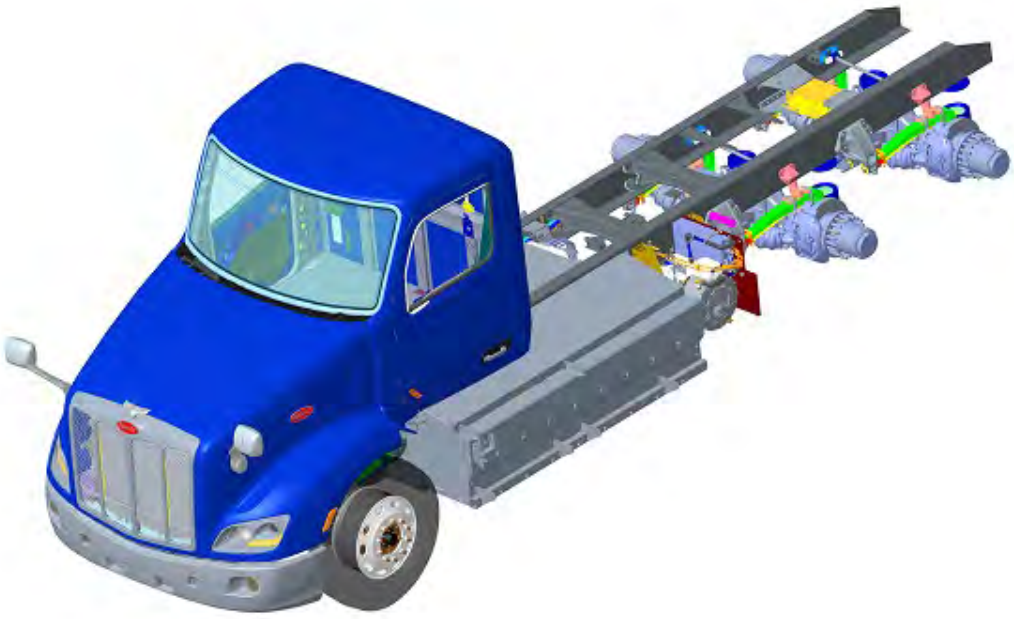


FIGURE 3-1b. Model 579 BEV 216” Wheelbase (shown with optional ePTO)

EXTERIOR DIMENSIONS

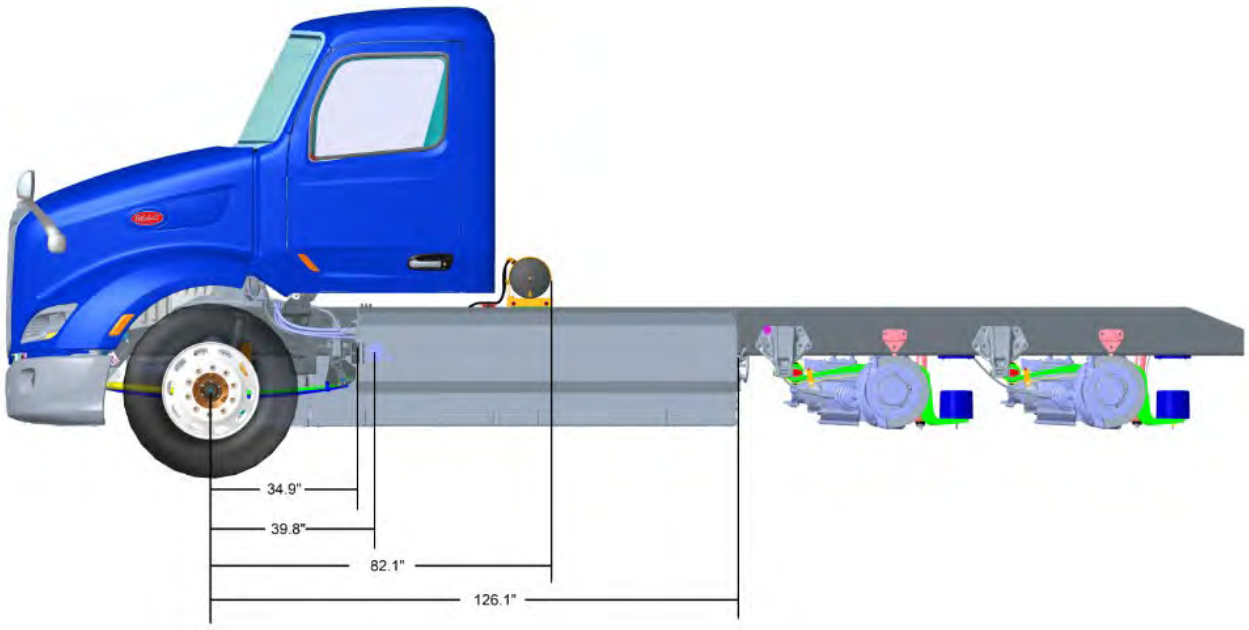


FIGURE 3-2a. 579 BEV Dimensions 190” WB

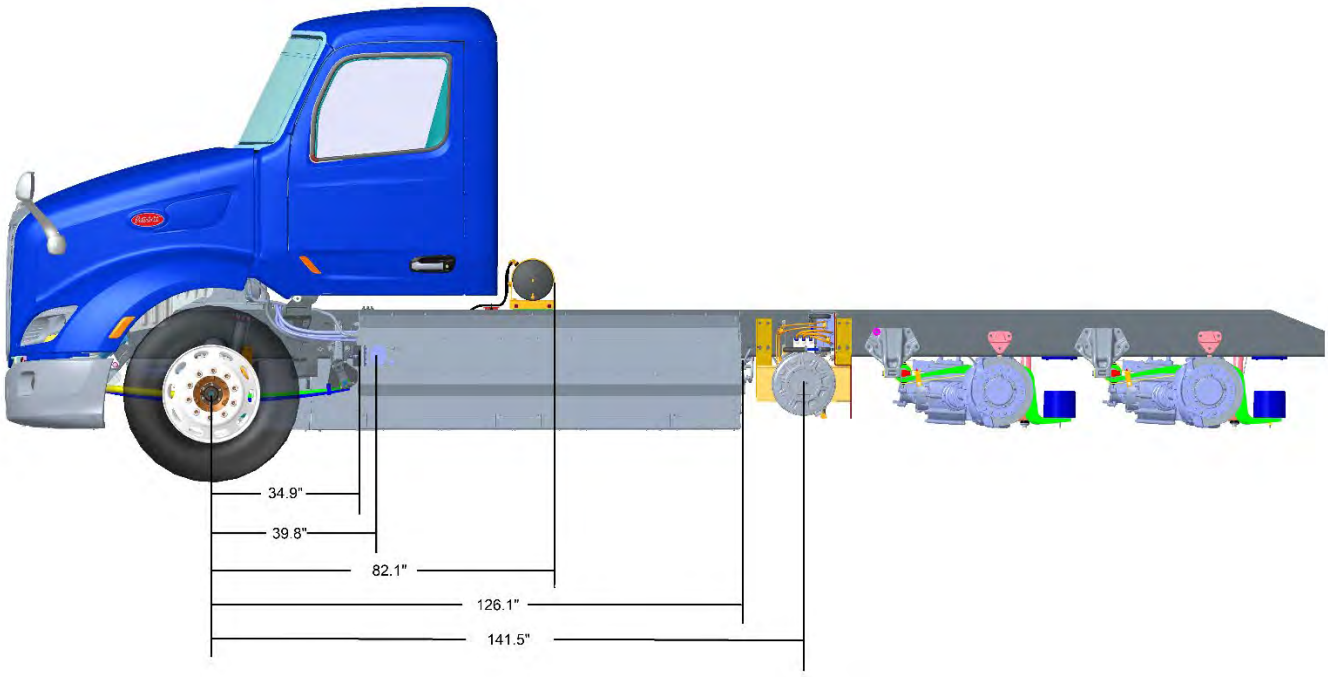


FIGURE 3-2b. 579 BEV Dimensions 216” (shown with optional ePTO)

WHEELBASE CONFIGURATIONS

The Battery Electric Model 579 is available in two wheelbase configurations. The 190” wheelbase intended for non-ePTO configurations, and 216” to allow for a Left-hand frame mounted electric power take off (ePTO).

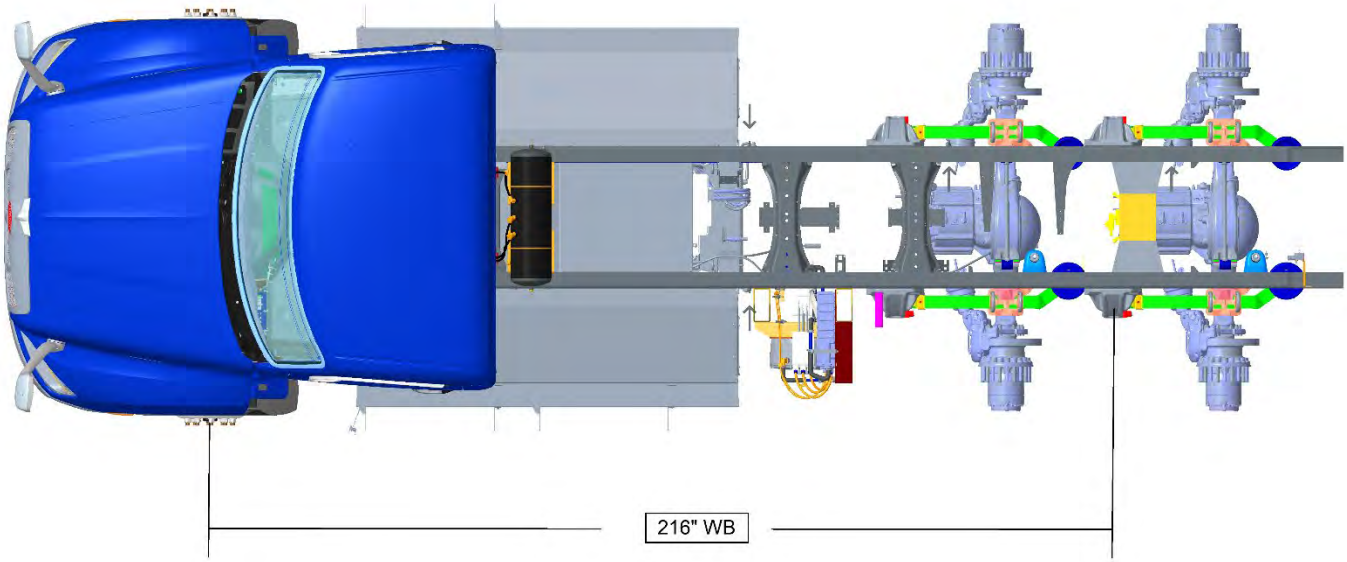


FIGURE 3-3a. 579 BEV 216” Wheelbase (shown with optional ePTO)

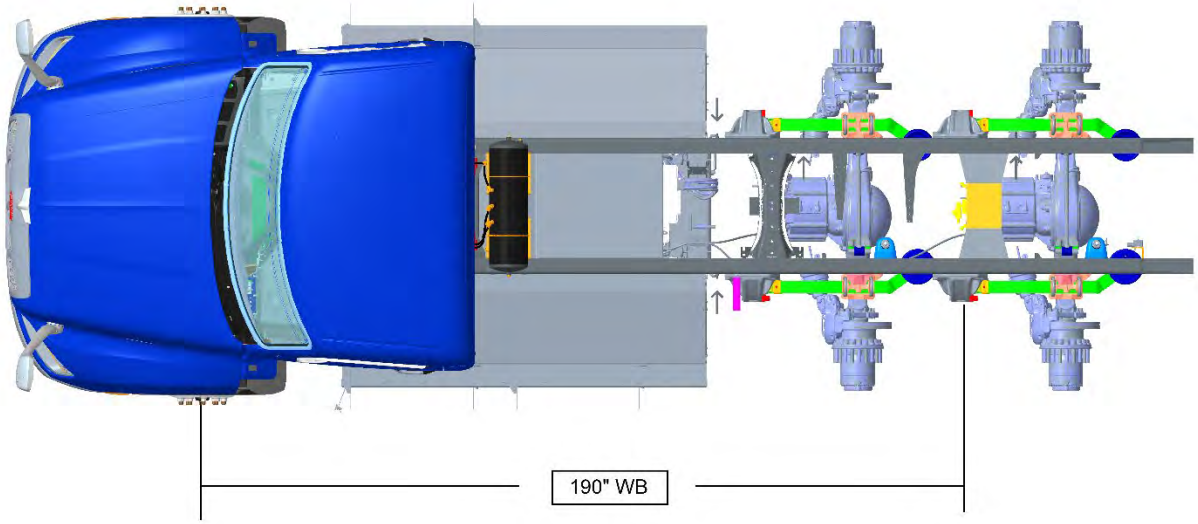


FIGURE 3-3b. 579 BEV 190” Wheelbase

SECTION 4 **BODY MOUNTING**

INTRODUCTION

This section has been designed to provide supplemental information specific to the Model 579 BEV to aid in body mounting. Refer to Peterbilt Heavy Duty Body Builder Manual 2017 for additional information. This is not intended as a complete guide, rather as general information. Body mounting strategies are unique to each body type, and body builders must determine the appropriate method.

NOTE

Note: An alignment adjustment is required after body installation. Front alignment and rear alignment must be performed prior to putting the vehicle into service.

Please contact your local Peterbilt dealer if more information is desired.

FRAME RAILS

TABLE 4-1. Built-up Frame Rails

Main Rail Height (in.)	Insert	Outsert	Section Modulus (cu. In.)	RBM (per rail) (in.-lbs)	Weight (per rail) (lbs/in.)
11 5/8	10.75 x 3.50 x .375	None	37.7	4,524,000	3.65

CRITICAL CLEARANCES

REAR TIRES AND BODY

CAUTION: *Insufficient clearance between rear tires and body structure could cause damage to the body during suspension movement.*

Normal suspension movement could cause contact between the tires and the body. To prevent this, mount the body so that the minimum clearance between the top of the tire and the bottom of the body is 8 inches (203 mm). This should be measured with the body empty. **See Figure 4-1**.

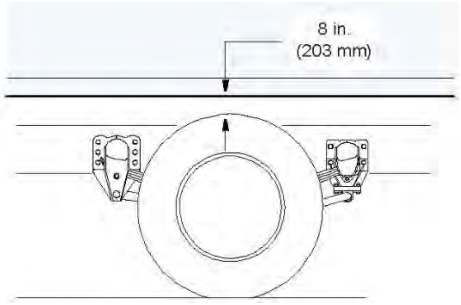


FIGURE 4-1. Minimum Clearance Between Top of Rear Tires and Body Structure Overhang

CAUTION: *Maintain adequate clearance between back of cab and the front (leading edge) of mounted body. It is recommended the body leading edge be mounted with a minimum of 4 in. clearance to battery components behind the cab*

NOTE: *Be sure to provide access to all maintenance and service components.*

FRAME DRILLING

WARNING! *When mounting a body to the chassis, DO NOT drill holes in the upper or lower flange of the frame rail. If the frame rail flanges are modified or damaged, the rail could fail prematurely and cause an accident. Mount the body using body mounting brackets or U–bolts.*

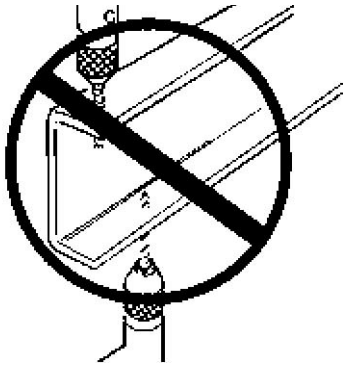


FIGURE 4-8. Frame Rail Flange Drilling Prohibited

WARNING! *DO NOT drill closely spaced holes in the frame rail. Frame hole centers of two adjacent holes should be spaced no less than twice the diameter of the largest hole. Closer spacing could induce a failure between the two holes.*

CAUTION: *An appropriately sized bolt and nut must be installed and torqued properly in all unused frame holes. Failure to do so could result in a frame crack initiation around the hole.*

CAUTION: *Use care when drilling the frame web so the wires and air lines routed inside the rail are not damaged. Failure to do so could cause an inoperable electrical or air system circuit.*

CAUTION: *Never use a torch to make holes in the rail. Use the appropriate diameter drill bit. Heat from a torch will affect the material properties of the frame rail and could result in frame rail cracks.*

CAUTION: *The frame hole diameter should not exceed the bolt diameter by more than 0.060 inches (1.5mm).*

SECTION 5 **FRAME MODIFICATIONS**

INTRODUCTION

Peterbilt offers the Model 579 BEV in two wheelbase configurations; 190” and 216”, changes to the wheelbase is not allowed

Modification to Model 579 Battery Electric Vehicle frame is NOT recommended.

WARNING! *Battery Electric Vehicle systems could be damaged by improper disconnection, disassembly, frame drilling, welding, use of a torch, or any frame modifications beyond attaching to the factory supplied Body Builder brackets. Systems could be permanently damaged and personal injury or death could occur. Contact your local Peterbilt dealership for support and guidance to any frame modifications.*

SECTION 6 **ELECTRICAL & CAN COMMUNICATIONS**

INTRODUCTION

The Model 579 BEV utilizes the pre-VMUX electrical architecture; the pre-VMUX information is located in the Peterbilt Heavy Duty Body Builder Manual 2017.

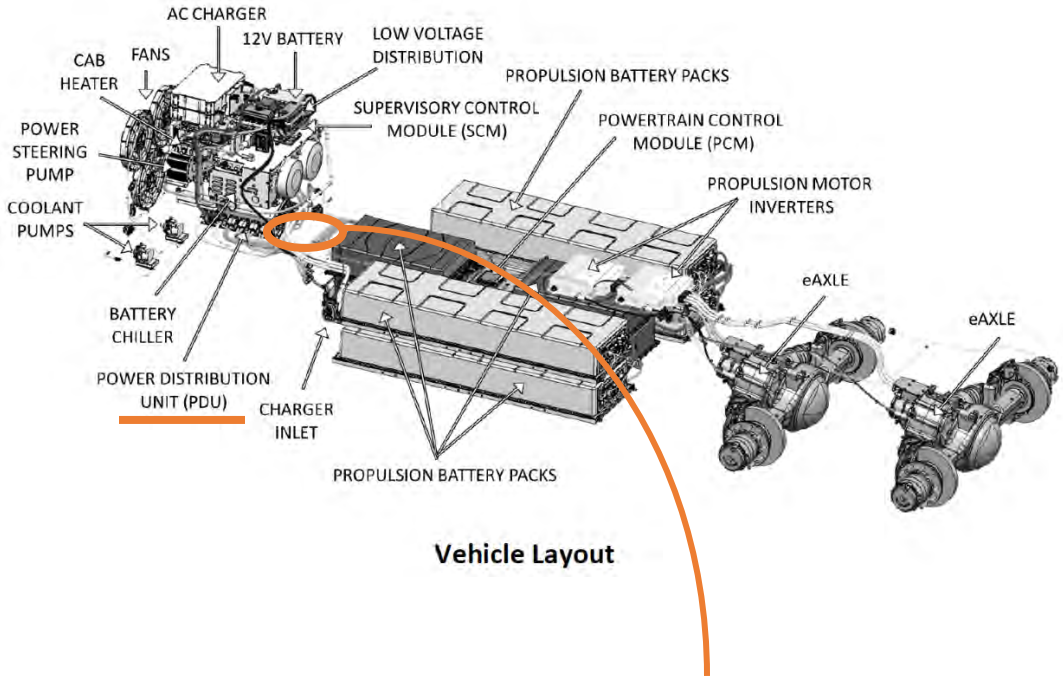
SECTION 7 electric POWER TAKE-OFF (ePTO)

INTRODUCTION

An electric Power Take Off (ePTO) provides a way to divert battery electric power to another component.

BATTERY ELECTRIC VEHICLE ePTO POWER SOURCE

On the Power Distribution Unit, the rearward facing surface of this component has the Power Source interface plug (orange plug below). This allows access to the High Voltage (HV) system for ancillary components or the optional ePTO discussed in the next paragraph. See the Meritor Blue Horizon Electric Power Take Off System Interface Control Document for additional information including the parameters of this HV plug.



Vehicle Layout

BATTERY ELECTRIC VEHICLE ePTO

The Battery Electric Model 579 is available in two wheelbase configurations. The 190” wheelbase intended for non-ePTO configurations, and 216” to allow for a Left-hand frame mounted electric power take off (ePTO).

The ePTO system is a mechanical splined interface to operate aftermarket equipment such as a hydraulic pump. Details of the mounting and spline size below.

See the Meritor Blue Horizon Electric Power Take Off System Interface Control Document for additional ePTO information.

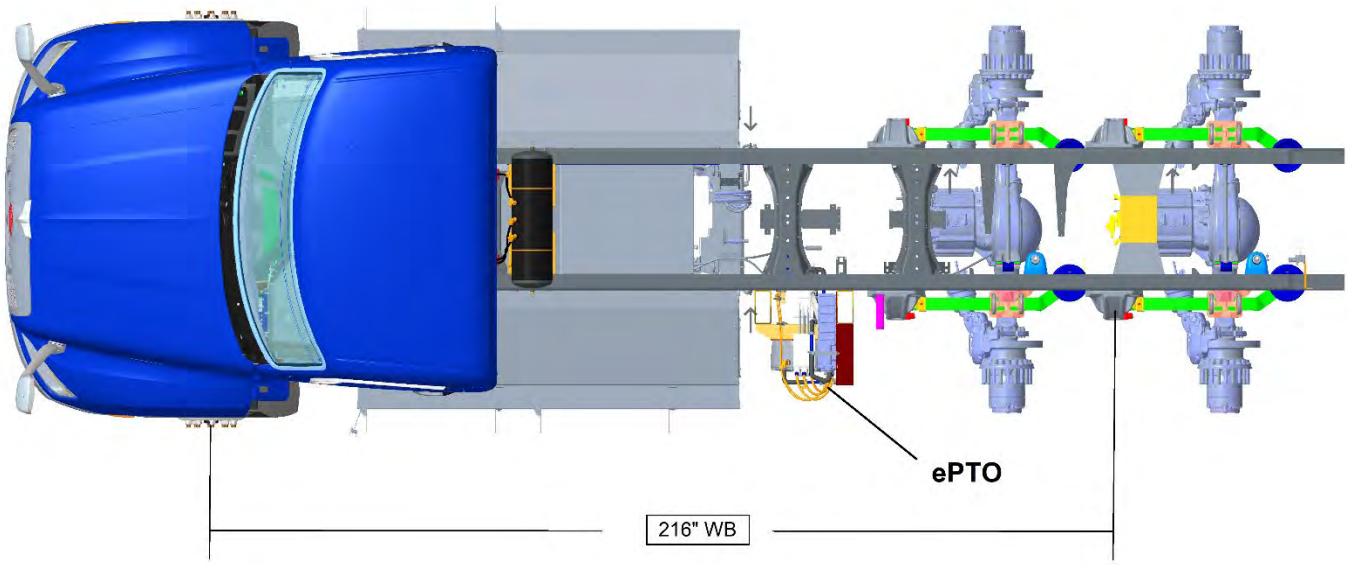


FIGURE 7-1. Model 579 BEV with ePTO mount

MERITOR ePTO

The Meritor ePTO is show below in Figure 7-2. The Body Builder will attach to the splined coupling on the backside of the ePTO. Mounting surface details in Figure 7-4 and coupler details in Figure 7-5 below.

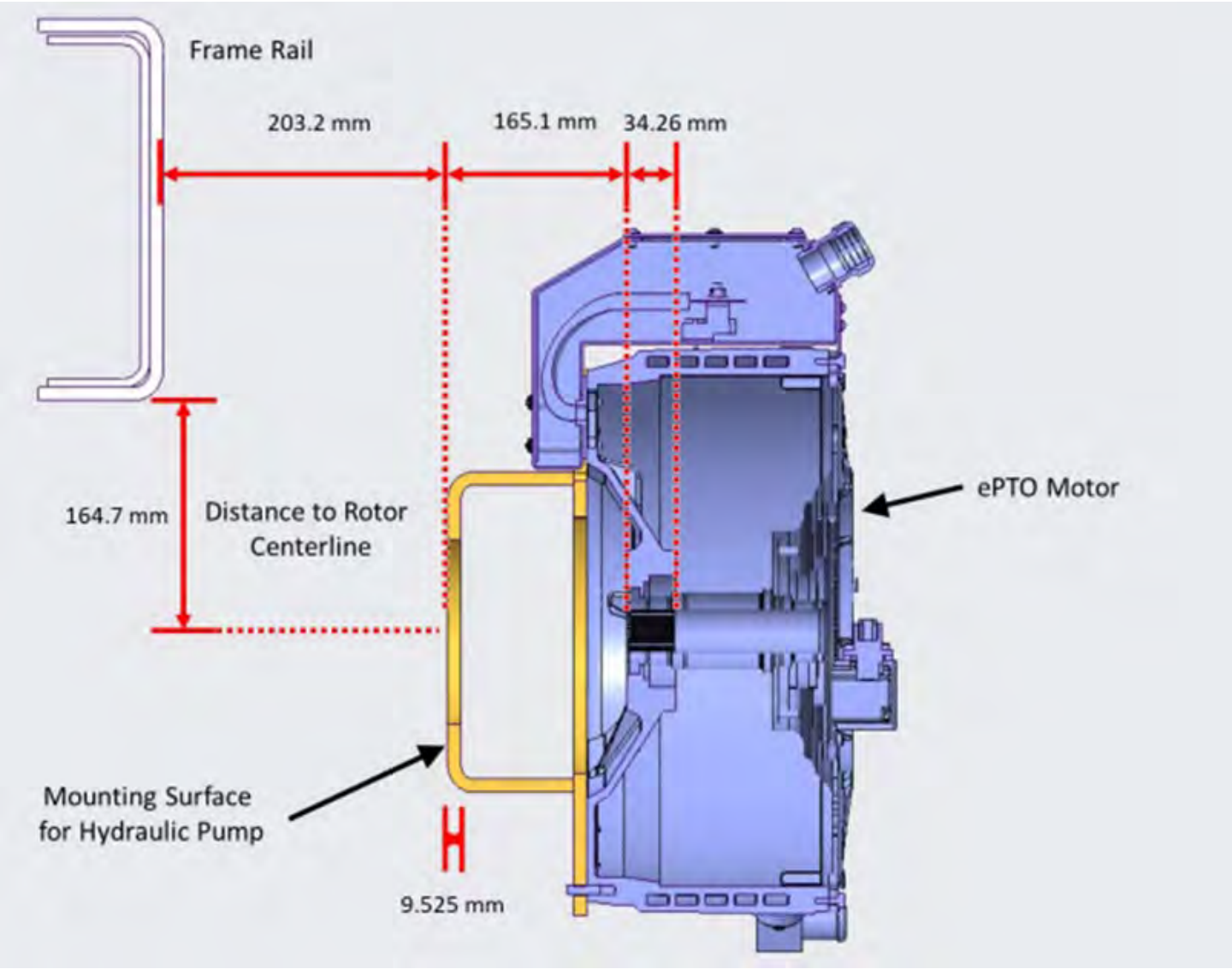


FIGURE 7-2. Meritor ePTO Dimensions

EXTERNAL INVOLUTE SPLINE, MOTOR FLAT ROOT SIDE FIT		
UNITS	IMPERIAL	METRIC
SPECIFICATION	B-92.1	
SPLINE	INPUT	
NUMBER OF TEETH	27	
SPLINE PITCH	24/48	
PRESSURE ANGLE	30°	
BASE DIAMETER (REF)	0.9742786	24.747
PITCH DIAMETER (REF)	1.125000	28.575
MAJOR DIAMETER	1.167	29.642
MINOR DIAMETER	1.055	26.797
FORM DIAMETER	1.079	27.407
TOOTH THICKNESS		
MAX EFFECTIVE	0.0654	1.661
MIN ACTUAL	0.0627	1.593

FIGURE 7-3. Meritor Rotor Specifications

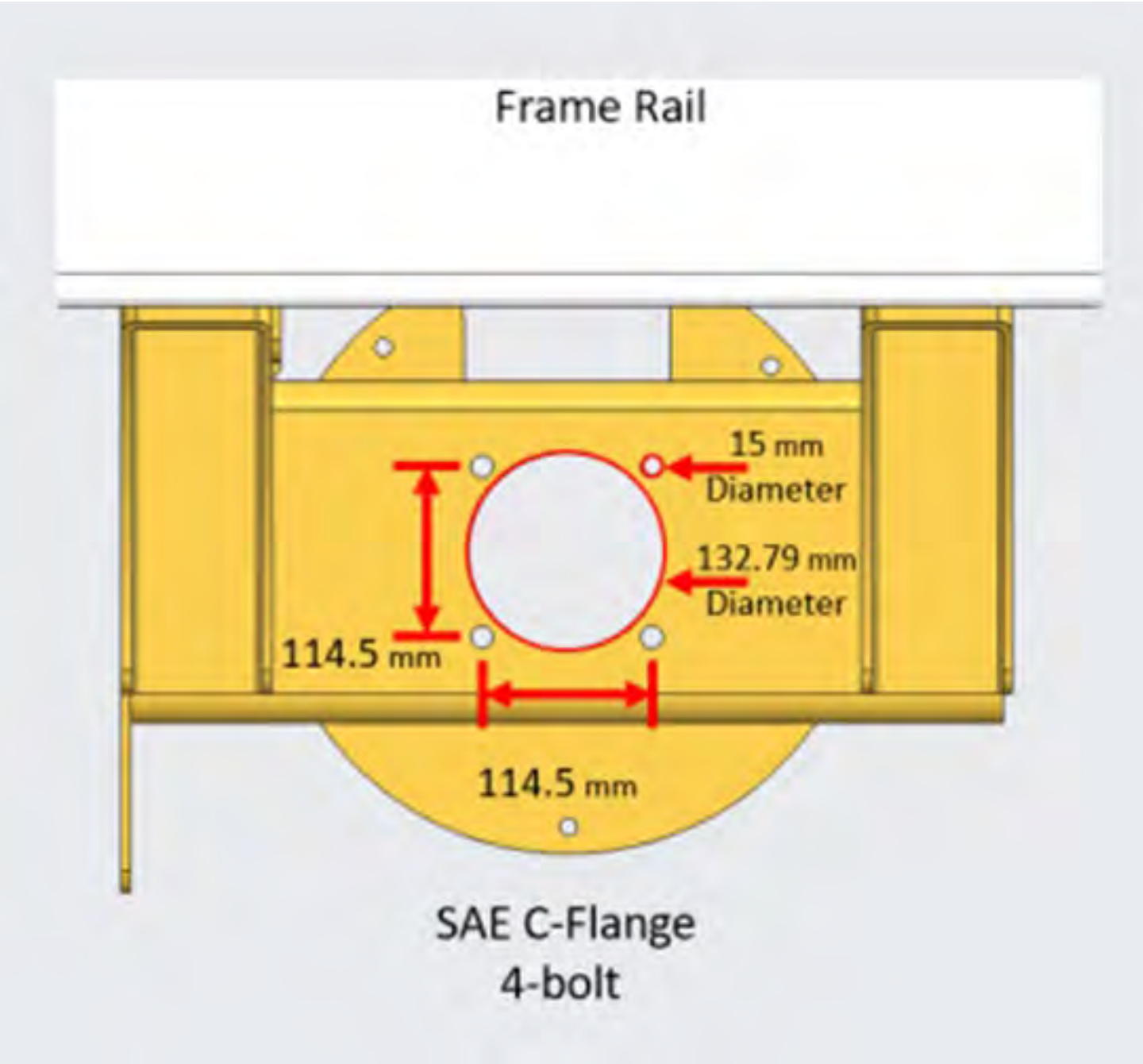


FIGURE 7-4. Mounting Surface for Hydraulic Pump (View from underneath frame looking outward to backside of ePTO)

FIGURE 7-5. Keyway Coupling (Reference McMaster 61005K188 shown; Body Builder supplied)