



## **RANGER WHAT'S NEW**

- No significant product changes for 2020MY Ranger
- New "What's New" and "Introduction" pages added to BBLB
- Significant additions / revisions were made to the Electrical content (pages 17-23) within this document since the first revision of 2019MY Ranger BBLB



RANGER

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**WARNING:**

During the production and servicing of these vehicles, due care should be taken to avoid damaging of safety or emissions related systems such as the braking system, fuel lines, sensors, catalysts, etc. through contacting them while working on adjacent areas of the vehicle. Inadvertent damage can also occur due to adjacent welding/cutting operations, people standing near/on unprotected systems while performing other tasks.



## RANGER INTRODUCTION

### Important Notices

The information described herein is believed to be correct at the time of publication, but accuracy cannot be guaranteed. Ford reserves the right to discontinue models or change specifications or designs at any time without notice and without incurring any obligation.

Representations regarding the compliance of any Ford-manufactured incomplete vehicle to any rule, regulation or standard issued pursuant to the National Traffic and Motor Vehicle Safety Act or the Canadian Motor Vehicle Safety Act are set forth only in the Incomplete Vehicle Manual (IVM) which accompanies each incomplete vehicle.

Regulations such as those issued by the Federal Highway Administration (FHA) or issued pursuant to the Occupational Safety and Health Act (OSHA), and/or state, provincial, and local laws and regulations may require installation of additional equipment for the particular use intended for the vehicle. It is the responsibility of the subsequent stage manufacturer or completed vehicle alterer and the vehicle purchaser to ascertain how the vehicle will ultimately be used, if FHA, OSHA or state provincial or local regulations apply and how the vehicle as completed will comply with those requirements. Nothing contained herein is to be construed as a representation that such equipment required for the particular use intended has been installed on the completed or incomplete vehicle.

### Reference Information

#### Ford Body Builder Advisory Service Publications

This document is an example of a program-specific Body Builders Layout Book (BBLB) published by the Ford Body Builder Advisory Service (BBAS) team. Each Ford Commercial Truck vehicle line has a similar document that aims to provide detailed information which may be of interest to a subsequent-stage manufacturer or alterer.

The Ford Transit and Transit Connect also have a Body and Equipment Mounting Manual (BEMM), which is a comprehensive resource dedicated to body and equipment mounting information.

Yet another source of program-specific information are the "Vehicle Specification" documents available on the Ford BBAS website. Information typically found in these documents are: vehicle curb and accessory weights, vehicle dimensions, component descriptions, capacities, GAWRs, alternator output, powertrain output and gear ratios.

In addition to the program-specific documents, there are several Ford BBLB documents that contain general best practices or information on specific subjects that span multiple vehicle lines. These include:

- General BBLB - contains Definitions, Design Recommendations and Vehicle Storage Guidelines.
- Snow Plow BBLB
- Pickup Box Removal BBLB

These publications are updated every model year and can be accessed via the web at <https://fordbbas.com> under "Publications". For BBLB and BEMM documents, expand the "Body Builder Layout Book" Section to view all available documents. For Vehicle Specifications, expand the "Vehicle Specifications" section. The website search function can be used to filter for specific content or vehicle line.

#### Ford Body Builder Advisory Service Bulletins

Occasionally, the Ford BBAS team will create an SVE "Bulletin" to address a specific issue or distribute important information in a timely manner. These documents can be accessed via the web at <https://fordbbas.com> under "Bulletins". The website search function can be used to filter for specific content or vehicle line.

If applicable, information from each SVE bulletin will be incorporated into the appropriate BBLB document the following model year. In some cases, SVE bulletins will continue to be referenced in this document.

#### Ford Body Builder Advisory Service Contact

The Ford Truck Body Builder Advisory Service may be consulted if questions regarding the completion of Ford commercial vehicles are not adequately addressed in the documentation described above. For assistance call (877) 840-4338 or e-mail via the web at <https://fordbbas.com> under "Contact Us" and select "General Questions".

For Ford vehicle CAD requests, please visit <https://fordbbas.com>, select "Contact Us" and then "CAD Request".

For both Questions and CAD Requests, please be as specific as possible with the request details to assure the most accurate and timely response.

#### Ford Service Publications

Ford Service Technical Resources (including wiring diagrams, repair manuals and diagnostic tool support) are available by subscription via the Motorcraft website: [www.motorcraftservice.com](http://www.motorcraftservice.com)

The following publications are examples of digital and printed manuals which are available from Helm Incorporated; call 1-800-782-4356 or contact Helm, Inc. at their website [www.helminc.com](http://www.helminc.com):

- Ford Truck Shop Manuals
- Ford Towing Manuals
- Ford Wiring Diagrams



## RANGER MODEL LINEUP

### SUPER CAB / CREW CAB / PICKUP BOX DELETE (1)

| Cab Style/<br>Drive           | Engine        | Max.<br>GVWR<br>(lbs.) | Max.<br>Payload<br>(lbs.) (2) | Max.<br>OPT/ARC<br>Weight<br>(lbs.) (3) | Max. GAWR<br>(lbs.) (4) |      | Base Curb Weight<br>(lbs.) (5) |      |       |
|-------------------------------|---------------|------------------------|-------------------------------|---|-------------------------|------|--------------------------------|------|-------|
|                               |               |                        |                               |   | Front                   | Rear | Front                          | Rear | Total |
| SuperCab<br>4X2               | 2.3L EcoBoost | 6050                   | 1860                          | 1117                                    | 2885                    | 3500 | 2368                           | 1777 | 4145  |
| SuperCab<br>Box Delete<br>4X2 | 2.3L EcoBoost | 6050                   | 2080                          | 1340                                    | 3130                    | 3500 | 2395                           | 1527 | 3922  |
| SuperCab<br>4X4               | 2.3L EcoBoost | 6050                   | 1650                          | 908                                     | 3108                    | 3370 | 2544                           | 1810 | 4354  |
| CrewCab<br>4X2                | 2.3L EcoBoost | 6050                   | 1770                          | 1068                                    | 2930                    | 3500 | 2377                           | 1855 | 4232  |
| CrewCab<br>4X4                | 2.3L EcoBoost | 6050                   | 1560                          | 859                                     | 3130                    | 3370 | 2554                           | 1887 | 4441  |

#### Notes:

(1) Pickup box delete available with Super Cab 4x2 only.

(2) Load rating represents maximum allowable weight of people,cargo and body equipment and is reduced by optional equipment weight.

(3) OPT/ARC Weight is the maximum allowable weight of regular production options (OPT) and aftermarket equipment (Accessory Reserve Capacity) above standard equipment for each configuration.Please also refer to footnote 5.

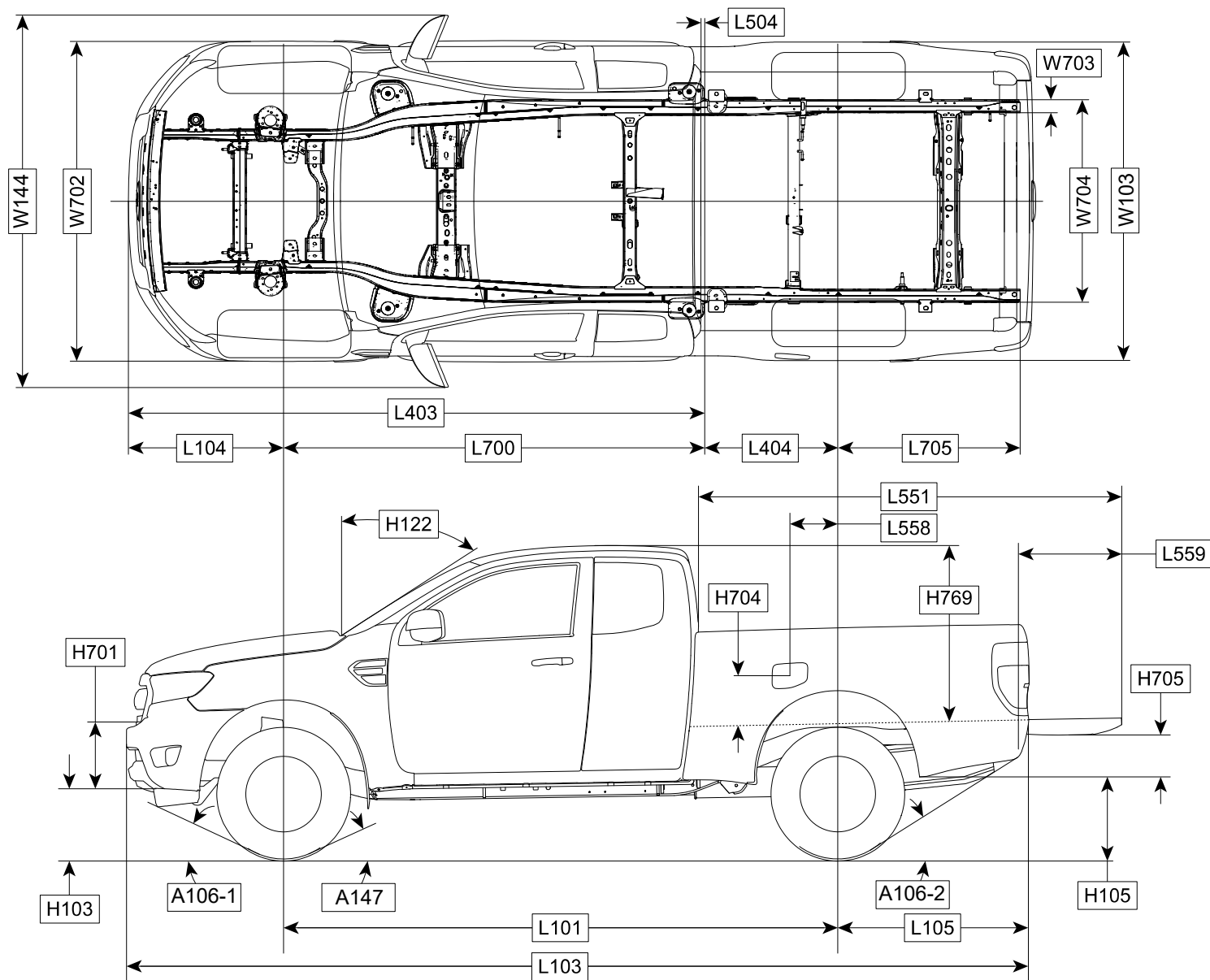
(4) Gross Axle Weight Rating is determined by the rated capacity of the minimum component of the axle system (axle, springs,wheels, tires) of a specific vehicle. Front and rear GAWRs will, in all cases, sum to a number equal to or greater than the GVWR for the particular vehicle.

Maximum loaded vehicle (including passengers,equipment and payload) cannot exceed the GVW rating or GAWR (front or rear).

(5) Base Curb Weights shown above are for truck models with standard equipment. Please also refer to footnote 3.



## RANGER DIMENSIONAL DATA SUPER CAB / CREW CAB





## RANGER DIMENSIONAL DATA SUPER CAB / CREW CAB (Cont'd)

### CHASSIS

| CODE   | DESCRIPTION  | Super Cab         |                  | Crew Cab         |                  |
|--------|--|-------------------|------------------|------------------|------------------|
|        |  | 4x2               | 4x4              | 4x2              | 4x4              |
| H103   | BOTTOM OF FRONT BUMPER VALANCE TO GROUND @ CURB (BASE TIRE)  | 293.9<br>[11.57]  | 295.1<br>[11.62] | 293.7<br>[11.56] | 294.9<br>[11.61] |
| H105   | BOTTOM OF REAR BUMPER VALANCE TO GROUND @ CURB (BASE TIRE)   | 502.2<br>[19.77]  | 519.4<br>[20.45] | 501.1<br>[19.73] | 518.3<br>[20.41] |
| A106-1 | APPROACH ANGLE @ CURB (DEGREES)                              | 27.9              | 28.7             | 27.9             | 28.7             |
| A106-2 | DEPARTURE ANGLE @ CURB (DEGREES) (TAKEN AT BOTTOM OF BUMPER) | 25.2              | 25.4             | 25.2             | 25.4             |
| A147   | RAMP BREAKOVER ANGLE @ CURB (DEGREES)                        | 22.7              | 21.5             | 22.7             | 21.5             |
| L101   | WHEELBASE  | 3220 [126.8]      |                  |                  |                  |
| L103   | VEHICLE LENGTH   | 5355 [210.8]      |                  |                  |                  |
| L104   | FRONT OVERHANG (NO LICENSE PLATE BRACKET)                    | 910 [35.8]        |                  |                  |                  |
| L105   | REAR OVERHANG  | 1225 [48.2]       |                  |                  |                  |
| L403   | FRONT OF BUMPER TO BACK OF CAB                               | 3335<br>[131.30]  |                  | 3635<br>[143.11] |                  |
| L404   | CAB TO $\varnothing$ OF REAR AXLE                            | 795<br>[31.30]    |                  | 495<br>[19.49]   |                  |
| L700   | $\varnothing$ OF FRONT AXLE TO BACK OF CAB                   | 2425<br>[95.47]   |                  | 2725<br>[107.28] |                  |
| L705   | $\varnothing$ OF REAR AXLE TO REAR END OF FRAME              | 1046<br>[41.18]   |                  |                  |                  |
| W703   | FRAME RAIL WIDTH   | 83.2<br>[3.28]    |                  |                  |                  |
| W704   | REAR FRAME WIDTH   | 1184.2<br>[46.62] |                  |                  |                  |

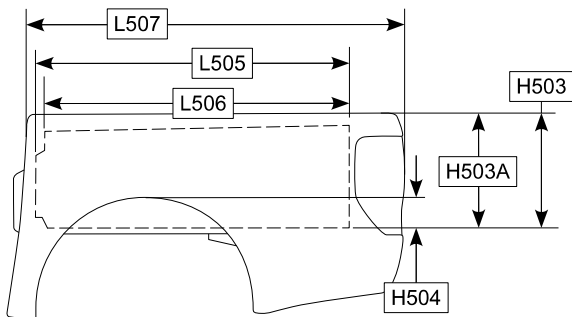
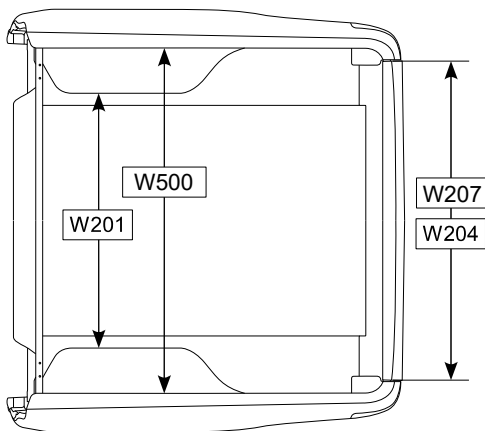
### PICKUP BODY

| CODE                    | DESCRIPTION  | Super Cab       | Crew Cab        |
|-------------------------|--|-----------------|-----------------|
| NOMINAL CARGO BODY SIZE |  | 6.0 FT          | 5.0 FT          |
| H704                    | TOP OF PICKUP BOX FLOOR (HIGHEST POINT) TO CL OF FUEL FILLER DOOR                  | 257<br>[10.12]  |                 |
| H705                    | REAR BUMPER HEIGHT WITH TAILGATE CLOSED  | 266<br>[10.47]  |                 |
| H769                    | TOP OF PICKUP BOX FLOOR (HIGHEST POINT) TO TOP OF CAB @ $\varnothing$ OF REAR AXLE | 1017<br>[40.04] |                 |
| L504                    | CAB TO PICKUP BOX  | 16.6<br>[0.65]  |                 |
| L551                    | BOX OVERALL LENGTH TO OPEN TAILGATE (MINIMUM)                                      | 2468<br>[97.17] | 2168<br>[85.35] |
| L558                    | $\varnothing$ OF REAR AXLE TO $\varnothing$ OF FUEL FILLER DOOR                    | 267<br>[10.51]  |                 |
| L559                    | LENGTH OF OPEN TAILGATE FRONT END OF BOX FLOOR SAME AS F150                        | 626<br>[24.65]  |                 |

### CAB

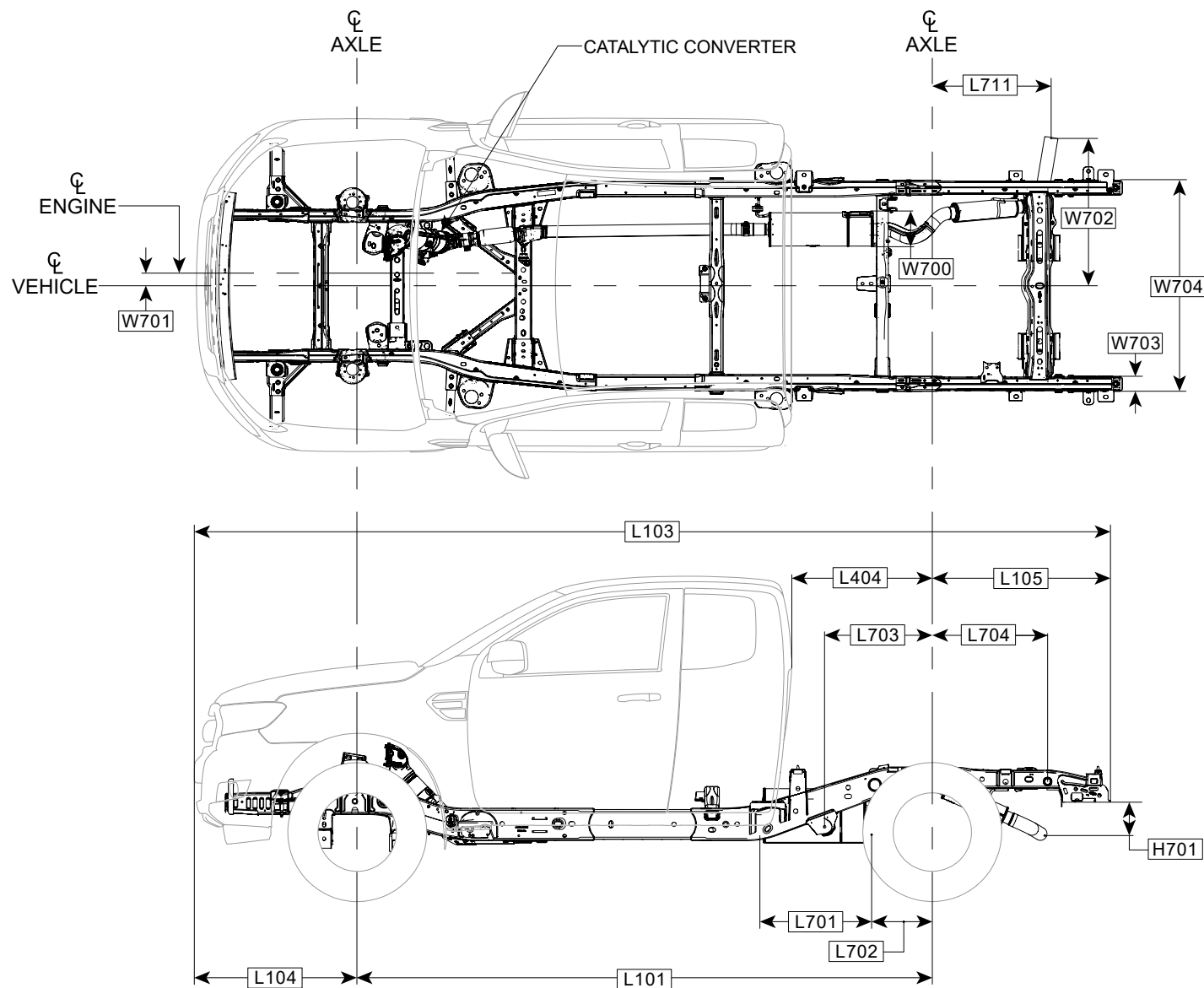
| CODE | DESCRIPTION                             | Super Cab    | Crew Cab    |
|------|---|--------------|-------------|
| H122 | WINDSHIELD ANGLE (DEGREES)              | 57           |             |
| H701 | FRONT BUMPER HEIGHT W/ VALENCES         | 464 [18.27]  | 464 [18.27] |
| W103 | VEHICLE BODY WIDTH (MAX W/O MIRRORS)    | 1861 [73.3]  |             |
| W144 | VEHICLE WIDTH (MAX W/ STANDARD MIRRORS) | 2179 [85.8]  |             |
| W702 | FRONT BUMPER WIDTH                      | 1827 [71.93] |             |

## RANGER DIMENSIONAL DATA PICKUP BOX



| CODE  | DESCRIPTION   | Super Cab<br>6ft Box | Crew Cab<br>5ft Box |
|-------|---|----------------------|---------------------|
| H503  | CARGO BODY HEIGHT W/ MOLDING  | 529 [20.8]           | 531 [20.9]          |
| H503A | CARGO BODY HEIGHT WITHOUT MOLDING @ CL OF REAR AXLE                   | 522 [20.55]          | 524 [20.63]         |
| H504  | WHEELHOUSE HEIGHT WITH MOLDING  | 139 [5.47]           | 139 [5.47]          |
| L505  | CARGO BODY LENGTH @ FLOOR   | 1848 [72.8]          | 1550 [61.0]         |
| L506  | CARGO BODY LENGTH @ TOP (BELT)  | 1777 [70.0]          | 1479 [58.2]         |
| L507  | CARGO BODY OVERALL LENGTH<br>(INCLUDES TAILGATE HANDLE BEZEL & BADGE) | 1985 [78.15]         | 1685 [66.34]        |
| W201  | CARGO WIDTH AT WHEELHOUSE   | 1138 [44.8]          | 1138 [44.8]         |
| W204  | REAR OPENING WIDTH @ TOP (BELT)                                       | 1410 [55.5]          | 1410 [55.5]         |
| W207  | REAR OPENING WIDTH AT FLOOR   | 1408 [55.4]          | 1408 [55.4]         |
| W500  | EXPOSED CARGO WIDTH   | 1560 [61.4]          | 1560 [61.4]         |
| V5    | CARGO VOLUME - LITERS<br>[ C U.FT.]                                   | 1466 [51.8]          | 1225 [43.3]         |

## RANGER DIMENSIONAL DATA SUPERCAB BOX DELETE

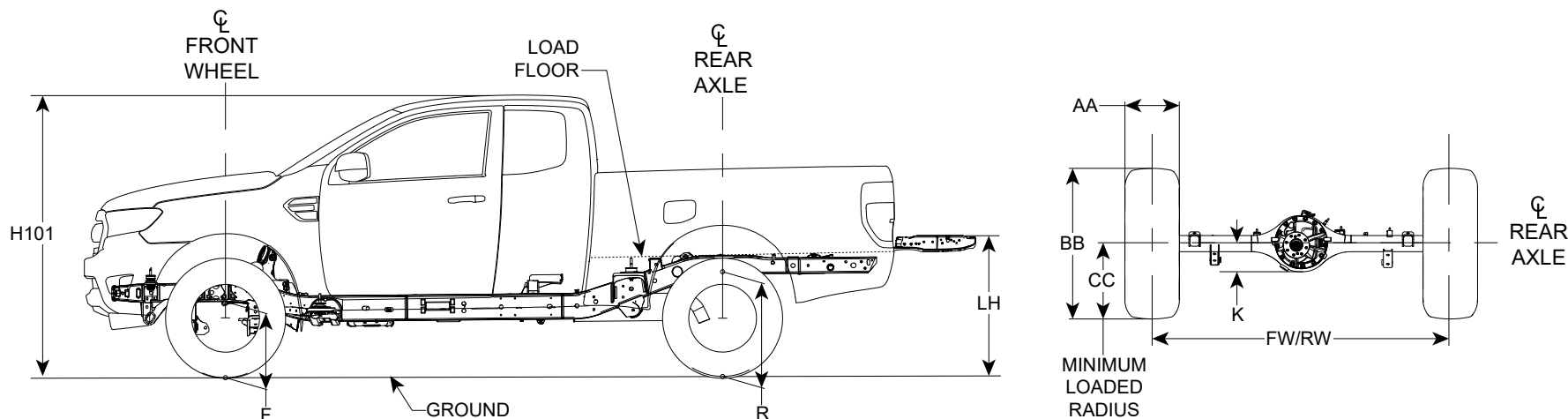




## RANGER DIMENSIONAL DATA SUPERCAB BOX DELETE (Cont'd)

| CODE | DESCRIPTION  | SUPER CAB      |
|------|--|----------------|
|      |  | 4x2            |
| H701 | C/L OF OUTLET PIPE TO BOTTOM OF FRAME                      | 262 [10.31]    |
| L101 | WHEELBASE  | 3220 [126.8]   |
| L103 | OVERALL LENGTH   | 5355 [210.83]  |
| L104 | FRONT OVERHANG   | 910 [35.8]     |
| L105 | REAR OVERHANG (TO REAR OF HITCH RECEIVER BRACKETS)         | 1144.4 [45.05] |
| L404 | BACK OF CAB TO C/L OF REAR AXLE                            | 794.6 [31.28]  |
| L701 | MUFFLER LENGTH   | 583 [22.95]    |
| L702 | MUFFLER REAR TO C/L REAR AXLE                              | 356.3 [14.03]  |
| L703 | REAR SPRING FRONT EYE TO C/L REAR AXLE                     | 590 [23.23]    |
| L704 | C/L REAR AXLE TO C/L REAR SPRING SHACKLE BRACKET           | 719 [28.31]    |
| L711 | C/L OF REAR AXLE TO C/L OF EXHAUST PIPE                    | 645.6 [25.42]  |
| W700 | MUFFLER CROSS SECTION                                      | 274.9 [10.82]  |
| W701 | DISTANCE BETWEEN C/L ENGINE / VEHICLE                      | 0              |
| W702 | END OF TAILPIPE TO C/L VEHICLE<br>FROM OUTLET PIPE END TIP | 833 [32.80]    |
| W703 | FRAME RAIL WIDTH   | 83.2 [3.28]    |
| W704 | REAR FRAME RAIL WIDTH                                      | 1184.2 [46.62] |

## RANGER AXLE / TIRE / VEHICLE HEIGHT DATA SUPER CAB / CREW CAB

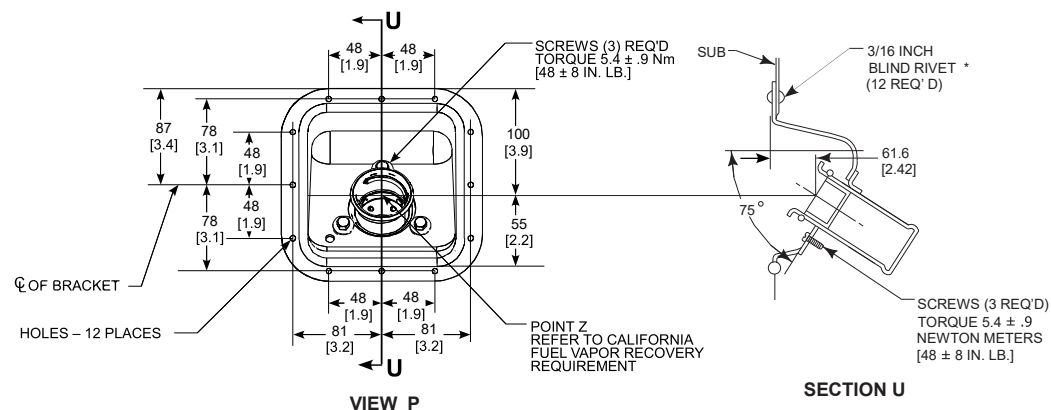
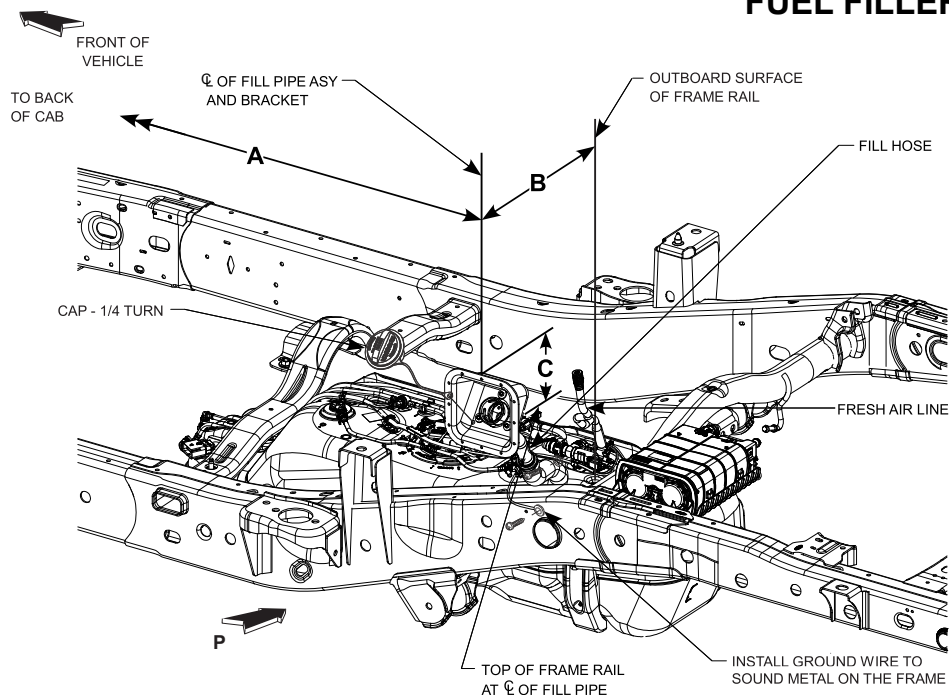


| Model         | WB<br>inches | GVWR<br>pounds | Base<br>Tire | F Height @ Front Wheel<br>to Bottom of Frame (1)(2)<br>mm [in] |                                     | R Height @ Rear Wheel<br>to Bottom of Frame (1)(2)<br>mm [in] |                                     | LH (1)(2)<br>mm [in] |                  | H101 (1)(2)<br>mm [in] |                 | K<br>mm [in]    | AA<br>mm [in]  | BB<br>mm [in]  | CC<br>mm [in]    | W102-1<br>FW<br>mm [in] | W102-2<br>RW<br>mm [in] |
|---------------|--------------|----------------|--------------|--|-------------------------------------|---|-------------------------------------|----------------------|------------------|------------------------|-----------------|-----------------|----------------|----------------|------------------|-------------------------|-------------------------|
|               |              |                |              | Height @ Base<br>Curb Weight                                   | Loaded Height<br>@ Spring<br>Rating | Height @ Base<br>Curb Weight                                  | Loaded Height<br>@ Spring<br>Rating | Empty                | Loaded           | Empty                  | Loaded          |                 |                |                |                  |                         |                         |
| Super Cab 4X2 | 126.8        | 6050           | 255/65R17    | 435.8<br>[17.15]   | 410.7<br>[16.16]                    | 626.5<br>[24.66]  | 530.2<br>[20.87]                    | 840.2<br>[33.07]     | 707.5<br>[27.85] | 1797<br>[70.74]        | 1731<br>[68.14] | 138.7<br>[5.46] | 265<br>[10.43] | 730<br>[28.74] | 348.7<br>[13.72] | 1560<br>[61.41]         | 1560<br>[61.41]         |
| Super Cab 4X4 | 126.8        | 6050           | 255/65R17    | 438.9<br>[17.27]   | 413.6<br>[16.28]                    | 639.9<br>[25.19]  | 545.9<br>[21.49]                    | 858.9<br>[33.81]     | 729.7<br>[28.72] | 1807<br>[71.14]        | 1742<br>[68.58] | 138.7<br>[5.46] | 265<br>[10.43] | 732<br>[28.81] | 350.4<br>[13.79] | 1560<br>[61.41]         | 1560<br>[61.41]         |
| Crew Cab 4X2  | 126.8        | 6050           | 255/65R17    | 435.4<br>[17.14]   | 410.6<br>[16.16]                    | 625.6<br>[24.62]  | 529.4<br>[20.84]                    | 839.0<br>[33.03]     | 706.4<br>[27.81] | 1806<br>[71.10]        | 1737<br>[68.38] | 138.7<br>[5.46] | 265<br>[10.43] | 730<br>[28.74] | 347.9<br>[13.69] | 1560<br>[61.41]         | 1560<br>[61.41]         |
| Crew Cab 4X4  | 126.8        | 6050           | 255/65R17    | 438.5<br>[17.26]   | 413.5<br>[16.27]                    | 639.0<br>[25.15]  | 545.1<br>[21.46]                    | 857.7<br>[33.76]     | 728.6<br>[28.68] | 1816<br>[71.49]        | 1748<br>[68.81] | 138.7<br>[5.46] | 265<br>[10.43] | 731<br>[28.77] | 349.6<br>[13.76] | 1560<br>[61.41]         | 1560<br>[61.41]         |

(1) The Height Data shown represents dimensions of a base/standard vehicle with no options. Actual height may vary due to production tolerances.

(2) Vehicle ride heights are given at tire minimum loaded radius.

## RANGER SUPER CAB BOX DELETE FUEL FILLER PIPE INSTALLATION



### Important

Fuel fill hose as standard will suit a mounting position 40" from vehicle centerline (for 80" wide Second Unit Body). Fill hose has a paint mark on it which indicates where the hose should be cut for mounting 36" from vehicle centerline (for 72" wide SUB).

The fuel hose is formed and cannot be changed.

The fresh air line tube end must be above fuel filler, ∇C min 11".

Install ground wire to sound metal on the frame.

The fuel evaporative emission control equipment is certified to be in compliance with the Federal and California Vehicle Emission Standards, any alterations to systems or components and their location could void compliance. System includes but not limited to:

\*Fuel tank, Fuel fuller, Metering Unit, Lines including purge control solenoids & Canister

**NO ALTERATION OF THE FUEL SYSTEM IS RECOMMENDED.**

| MODEL                    | WHEELBASE    |            |
|--------------------------|--------------|------------|
| SUPER CAB                | 3220 [126.8] |            |
| FUEL FILLER CUP LOCATION |              |            |
| ∇A                       | MIN          | 280 [11.0] |
|                          | MAX          | 330 [13.0] |
| ∇B                       | MIN          | 327 [12.9] |
|                          | MAX          | 429 [16.9] |
| ∇C                       | MIN          | 267 [10.5] |
|                          | MAX          | 392 [11.5] |
| FRESH AIR LINE           |              |            |
| ∇C                       | MIN          | 280 [11.0] |

### NOTES:

▽ TORQUE ALL WORM GEAR DRIVEN HOSE CLAMPS TO 4.8 ± 8 NEWTON METERS [43 ± 7 IN. LB.]

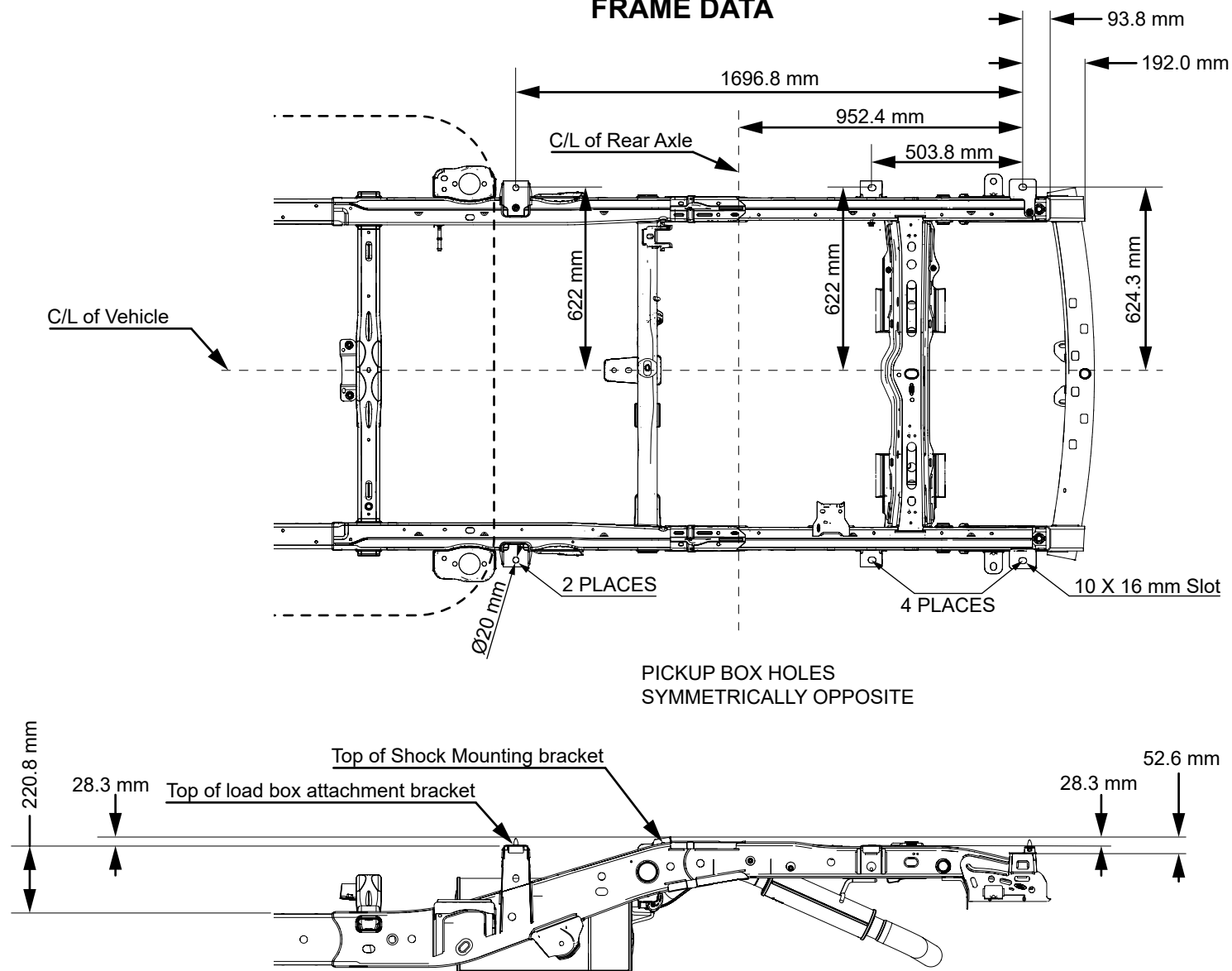
[ ] DIMENSIONS ARE INCHES

\* NOT SUPPLIED BY FORD MOTOR COMPANY

### CRITICAL CONTROL ITEM

Use the scuff guards, tie wraps, and clamps provided in the dunnage kit. Do not extend the fuel fill system outboard of the second unit body.

## RANGER PICKUP BOX DELETE FRAME DATA





## RANGER WHEEL & TIRE DATA

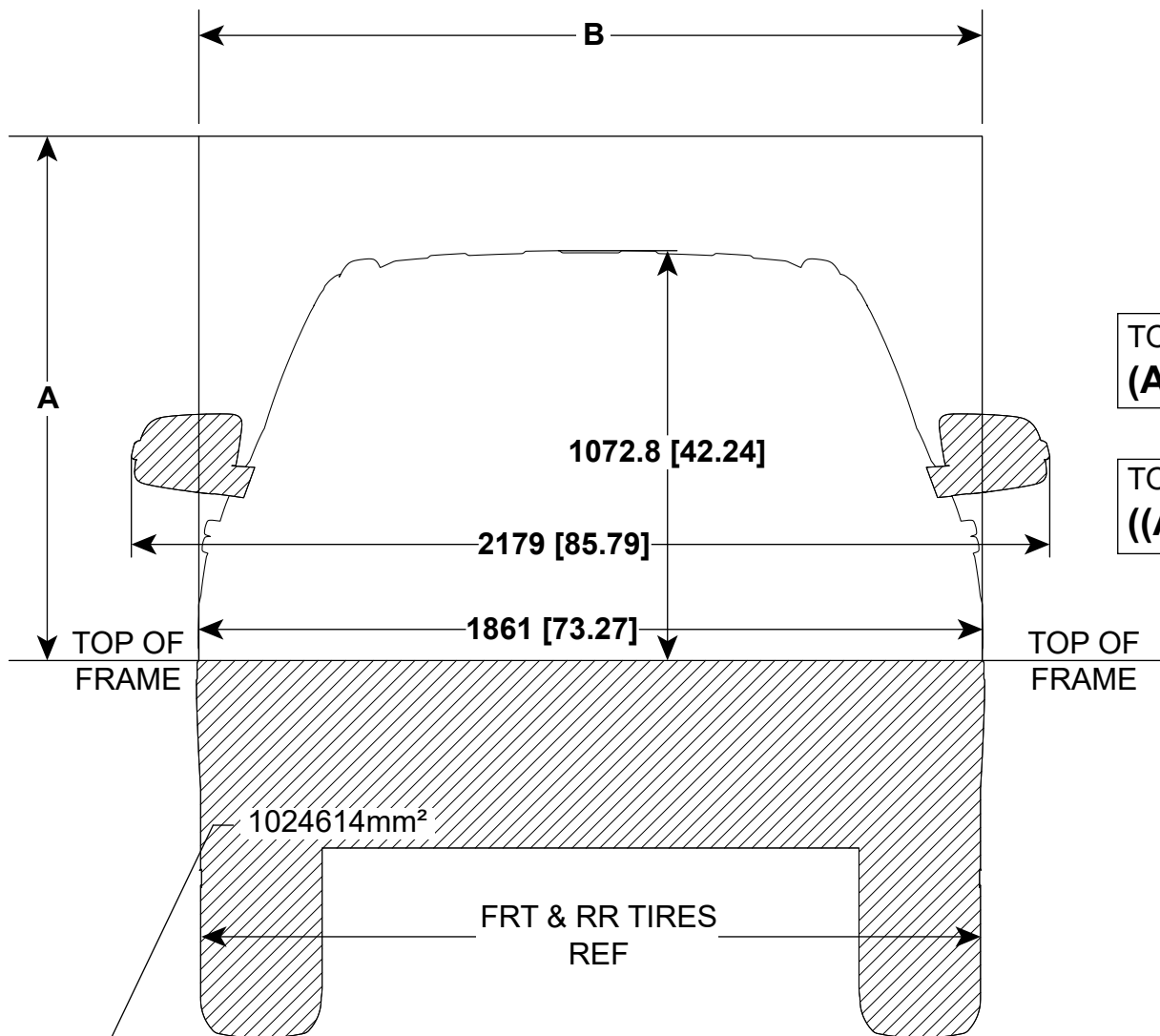
### WHEEL DATA

| Wheel Type  | Wheel Size (in.) | Offset (mm) | No. of Studs | Bolt Circle Diameter (in.)/(mm) | Maximum Wheel Capacity Load (lbs.) |
|---|------------------|-------------|--------------|---------------------------------|------------------------------------|
| Silver-Painted Steel (64A)                                | 16 X 7           | 55 mm       | 6            | 5.5/139.7                       | 1620                               |
| Silver-Painted Aluminum (64Y)                             | 17 X 8           | 55 mm       | 6            | 5.5/139.7                       |                                    |
| Magnetic-Painted Aluminum (64D)                           | 17 X 8           | 55 mm       | 6            | 5.5/139.7                       |                                    |
| Chrome-like PVD Aluminum (64P)                            | 17 X 8           | 55 mm       | 6            | 5.5/139.7                       |                                    |
| Chrome-like PVD Aluminum (64F)                            | 18 X 8           | 55 mm       | 6            | 5.5/139.7                       |                                    |
| Machined Aluminum with Magnetic-painted pockets (64J)     | 18 X 8           | 55 mm       | 6            | 5.5/139.7                       |                                    |
| Machined Aluminum with Stealth-Gray-painted pockets (649) | 18 X 8           | 55 mm       | 6            | 5.5/139.7                       |                                    |

### TIRE DATA

| Size (Road Tyres)        | Rim Width [in] | Measured Section Width [in] | Measured Static Loaded Radius [in] |
|--------------------------|----------------|-----------------------------|------------------------------------|
| 255/70R16 111T A/S BSW   | 7              | 10.07                       | 13.5                               |
| 255/65R17 110T A/S BSW   | 8              | 10.47                       | 13.59                              |
| 255/65R17 110T A/T BSW   | 8              | 10.55                       | 13.57                              |
| 265/65R17 112T A/T OWL   | 8              | 10.64                       | 13.42                              |
| 265/60R18 110T A/S BSW   | 8              | 10.69                       | 13.69                              |
| 265/60R18 110T A/T BSW   | 8              | 10.72                       | 13.46                              |
| 265/60R18 110T A/T OWL   | 8              | 10.72                       | 13.46                              |
| LT265/65R17 109T A/T OWL | 8              | 10.71                       | 14.44                              |

## RANGER FRONT SURFACE AREA WORKSHEET



A = BOX HEIGHT IN INCHES

B = BOX WIDTH IN INCHES

TO FIND FRONT SURFACE AREA IN SQ INCHES  
 **$(A \times B) + 1719.8 =$**

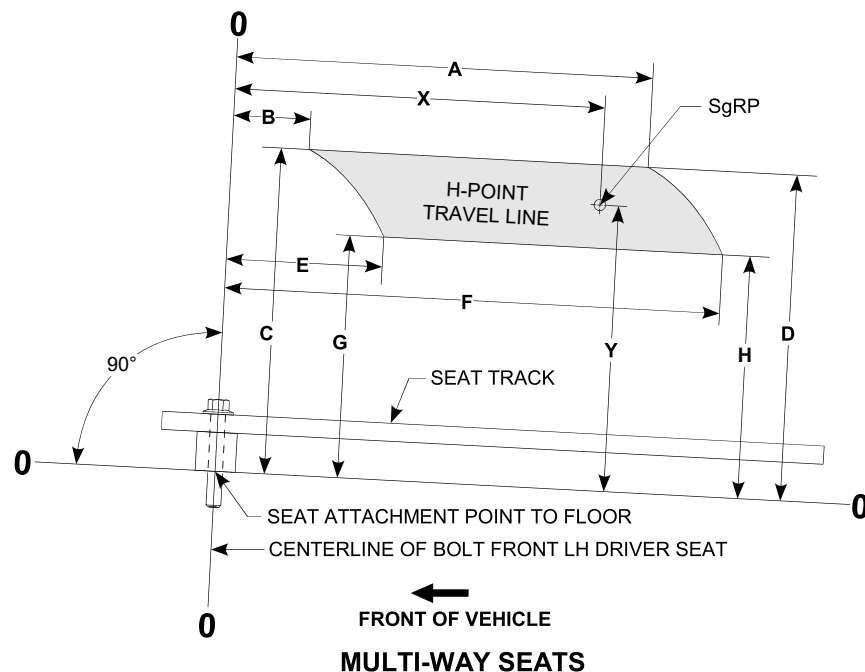
TO FIND FRONT SURFACE AREA IN SQ FEET  
 **$((A \times B) / 144) + 11.94 =$**

BELOW FRAME SHADED AREA EQUALS  
 $1024614 \text{ mm}^2 / (25.4 \times 25.4) = 1588.2 \text{ SQ.IN.}$   
 $1588.2 / (12 \times 12) = 11.03 \text{ SQ.FT.}$

MIRROR SHADED AREA EQUALS  
 $(42458 \times 2) \text{ mm}^2 / (25.4 \times 25.4) = 131.6 \text{ SQ.IN.}$   
 $131.6 / (12 \times 12) = 0.91 \text{ SQ.FT.}$

TOTAL SHADED AREA EQUALS  
 $1109530 \text{ mm}^2 / (25.4 \times 25.4) = 1719.8 \text{ SQ.IN.}$   
 $1719.8 / (12 \times 12) = 11.94 \text{ SQ.FT.}$

## RANGER SEAT TRACK & H-POINT DATA



| SEAT TRAVEL DATA                        |                  |                |                  |                  |                |                  |                 |                 |                  |                  |
|---|------------------|----------------|------------------|------------------|----------------|------------------|-----------------|-----------------|------------------|------------------|
| Seat Model                              | Seat Dimensions  |                |                  |                  |                |                  |                 |                 | SgRP Location    |                  |
|   | A                | B              | C                | D                | E              | F                | G               | H               | X                | Y                |
| 4-Way Seat                              | 280.2<br>[11.03] | 26.2<br>[1.03] | 311.5<br>[12.26] | 309.8<br>[12.20] | 88.7<br>[3.49] | 342.7<br>[13.49] | 250<br>[9.84]   | 248.2<br>[9.77] | 294.3<br>[11.59] | 279.3<br>[11.00] |
| 8-Way Seat                              | 281.4<br>[11.08] | 24.5<br>[0.96] | 311.2<br>[12.25] | 309.4<br>[12.18] | 87.1<br>[3.43] | 343.9<br>[13.54] | 249.6<br>[9.83] | 247.9<br>[9.76] | 294.3<br>[11.59] | 279.3<br>[11.00] |
| Seat Track Angle To Top Of Frame = 4.5° |                  |                |                  |                  |                |                  |                 |                 |                  |                  |



**RANGER  
PICKUP BOX DELETE  
MAXIMUM UNLOADED VEHICLE WEIGHT (UVW)**

**SEE INCOMPLETE VEHICLE MANUAL (IVM) FOR MUVW INFORMATION**

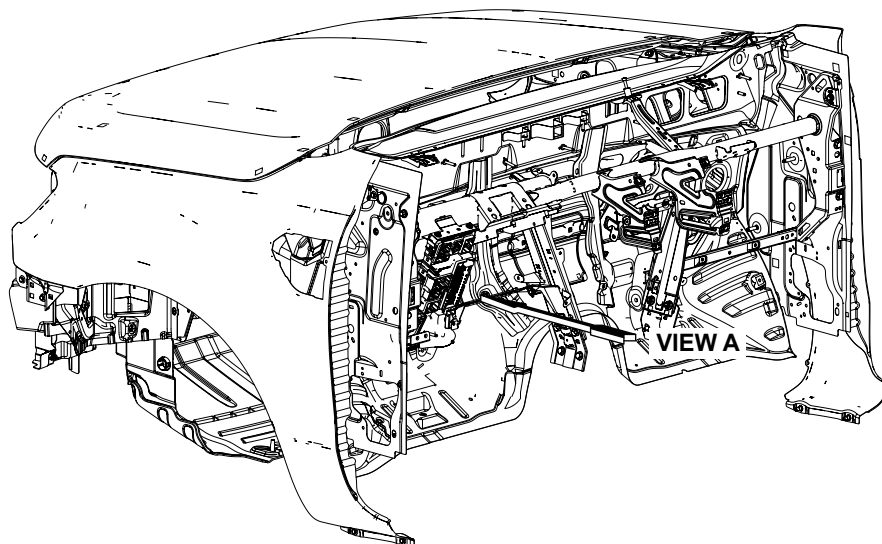
## RANGER CHMSL CIRCUIT

When Equipment is mounted that blocks the factory CHMSL, An auxiliary CHMSL must be fitted.

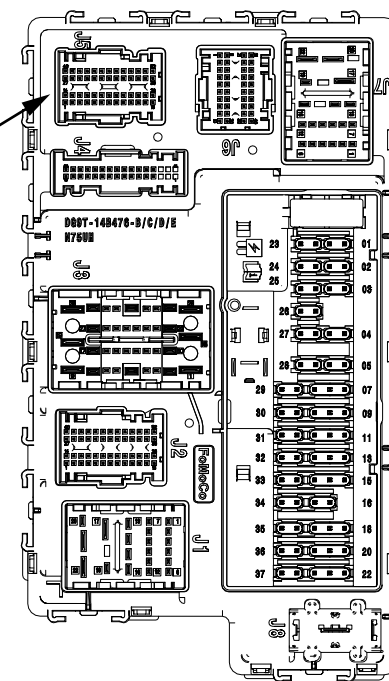
| Trim Level | Circuit Type | Max Current<br>(1) (3) | Factory CHMSL Load<br>(3) | Circuit Reserve Capacity<br>with Factory CHMSL (2) |
|------------|--------------|------------------------|---------------------------|--|
| XL/XLT     | PWM          | 1.70A                  | 1.06A                     | 0.64A  |
| Lariat     | Non-PWM      | 1.70A                  | 0.20A                     | 1.50A  |

### Notes:

- (1) - The Maximum current load for the circuit must not be exceeded
- (2) - If auxiliary CHMSL exceeds the reserve capacity, the factory CHMSL must be disconnected.
- (3) - Continuous at 12V

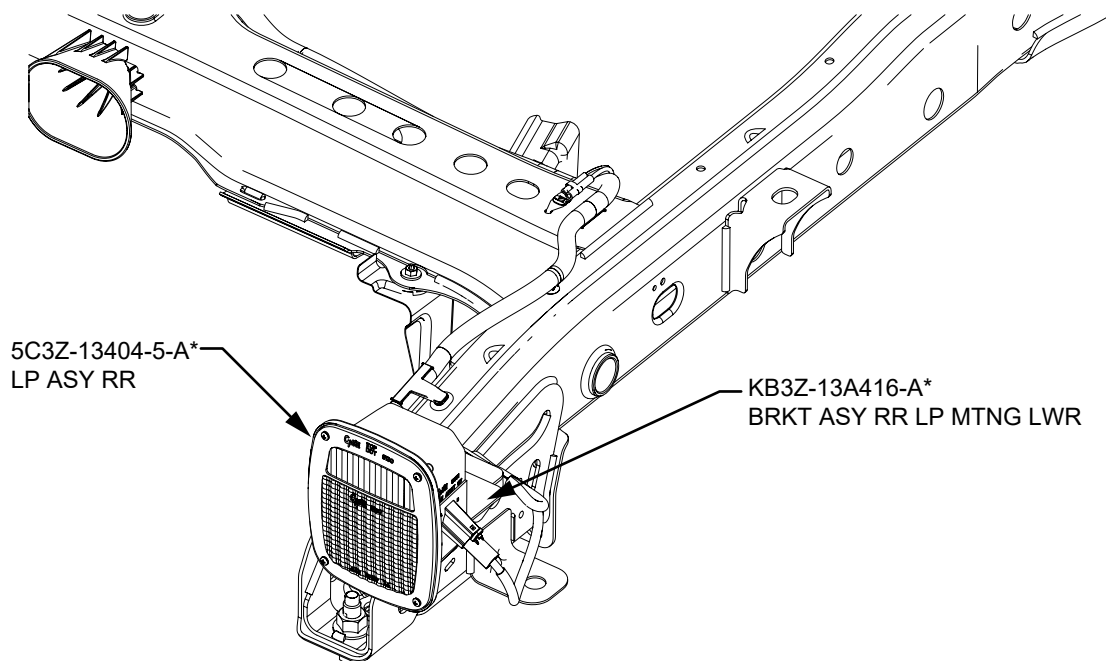


CHMSL CIRCUIT  
BCM (LH UNDER DASH)  
CONNECTOR 5, PIN 13  
WIRE COLOR : YE/GY



VIEW A

## RANGER ELECTRICAL WIRING BOX DELETE TAIL LAMPS



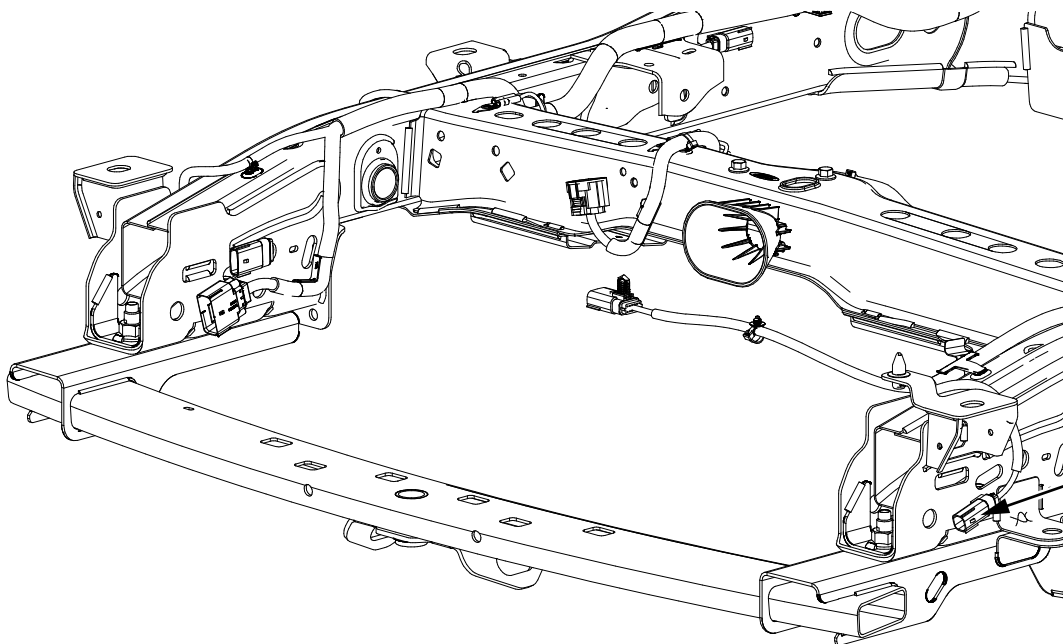
| Tail Lamp Pin Out |      |                            |                  |                 |
|-------------------|------|----------------------------|------------------|-----------------|
| 4 way Connector   |      |                            |                  |                 |
| Function (2)      | Pin# | Wire Color                 | Circuit Type (2) | Max Current (4) |
| Reverse           | 1    | GN / BN                    | PWM (3)          | 3.9A(1)         |
| Park              | 3    | RH: WH / OG<br>LH: VT / GN | PWM (3)          | 0.52A           |
| Stop/Turn         | 4    | RH: GN / OG<br>LH: GY / OG | PWM (3)          | 2.2A            |
| Ground            | 2    | BK                         | N/A              | 6.8A            |

- (1) Combined load for RH and LH Lamps
- (2) Circuits are not re-configurable
- (3) Incandescent bulbs are recommended
- (4) Continuous at 12V

## RANGER

### ELECTRICAL WIRING

### BOX REMOVAL TAIL LAMPS

**NOTES:**

Box Removal is only recommended on XL models WITHOUT Co-Pilot360 option. All other models have BLIS and Rear Park Aid features which utilize sensors in the tail lamps and rear bumper respectively. Error messages will appear during key on if these components are removed from the vehicle. These vehicle features cannot be permanently disabled.

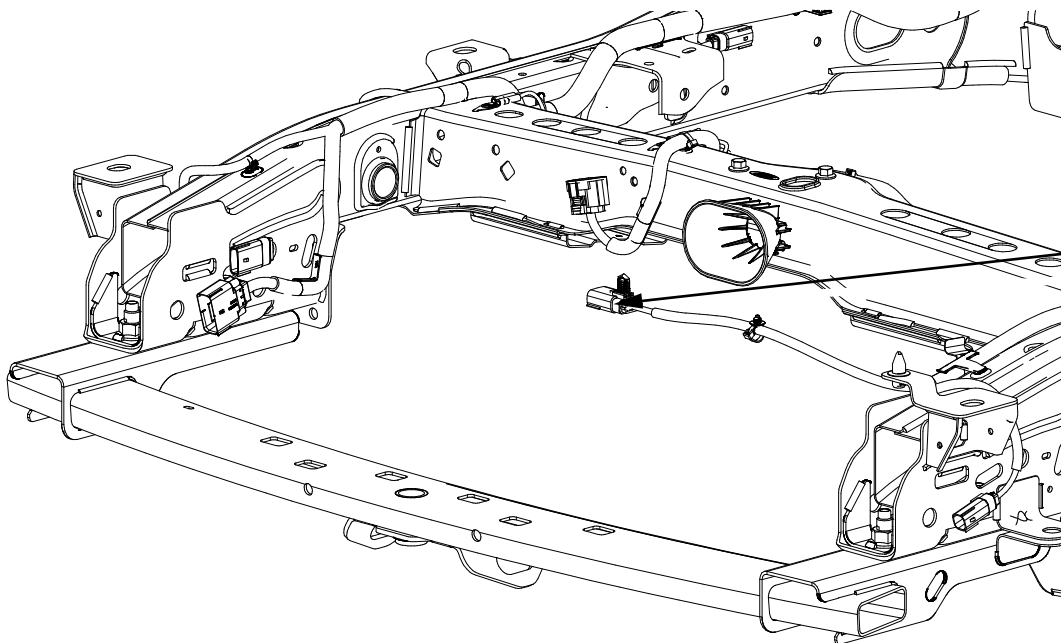
Pickup Tail Lamp Pin Out (XL without Co-Pilot360)

6 way - Molex 33542-0601

| Function (2) | Pin # | Wire Color                 | Circuit Type (2) | Max Current (4) |
|--------------|-------|----------------------------|------------------|-----------------|
| Reverse      | 4     | GN / BN                    | PWM (3)          | 3.9 A (1)       |
| Park         | 3     | RH: WH / OG<br>LH: VT / GN | PWM (3)          | 0.52 A          |
| Turn         | 5     | RH: GN / OG<br>LH: GY / OG | PWM (3)          | 2.2 A           |
| Stop         | 2     | VT / BN                    | PWM (3)          | 2.8 A           |
| Ground       | 1     | BK                         | N/A              | 6.8 A           |

- (1) Combined load for RH and LH Lamps
- (2) Circuits are not re-configurable
- (3) Incandescent bulbs are recommended
- (4) Continuous at 12V

## RANGER ELECTRICAL WIRING BOX AND TAILGATE REMOVAL - POWER LOCKS



Chassis Wiring Pin Out for Tailgate

(Power Lock Function Shown)

12 way - Molex 33542-1201

Mating: Molex 33492-1301

| Function | Pin # | Wire Color | Max Current |
|----------|-------|------------|-------------|
| Lock     | 12    | GY / BN    | 4 A (1)     |
| Unlock   | 5     | BN / GN    | 4 A (1)     |

This connector must not be left unplugged.

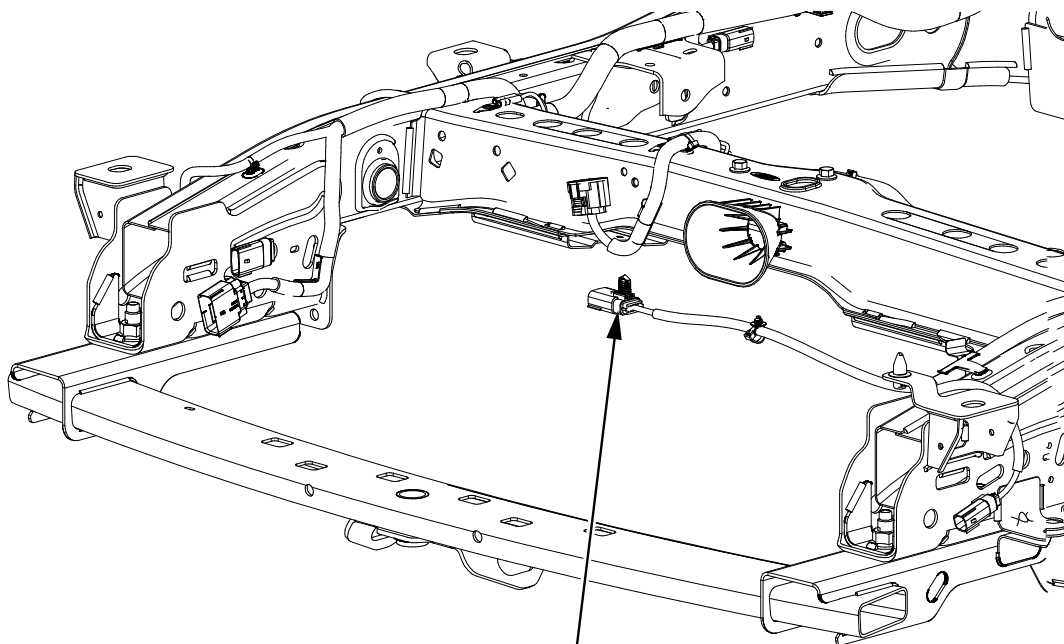
Note (1): The 20 Amp fused vehicle lock / unlock circuit is shared between the Tailgate and Side Door locks: the Tailgate apportionment is 4 Amps. A 5 Amp inrush current for 5 ms is permissible.

During Lock event, lock circuit is at battery voltage, unlock circuit is tied to ground. The opposite occurs during unlock event. The Lock / Unlock pulse duration is 110 ms.

For Ranger Pickup trucks where the Box or Tailgate will be removed, The power locking tailgate circuit (if equipped) may be used for a similar function with any installed equipment (second unit body, cap, tool boxes, etc)



## RANGER ELECTRICAL WIRING BOX AND TAILGATE REMOVAL REAR VIEW CAMERA



Chassis Wiring Pin Out for Tailgate  
(Rear View Camera Functions Shown)  
12 Way Male Molex 33542-1201

| Function | Pin # | Wire Color |
|----------|-------|------------|
| V+ Bat   | 6     | BN / YE    |
| Lin Bus  | 4     | VT / WH    |
| Video -  | 2     | BU / GY    |
| Video +  | 1     | WH / GN    |
| Ground   | 3     | BK         |

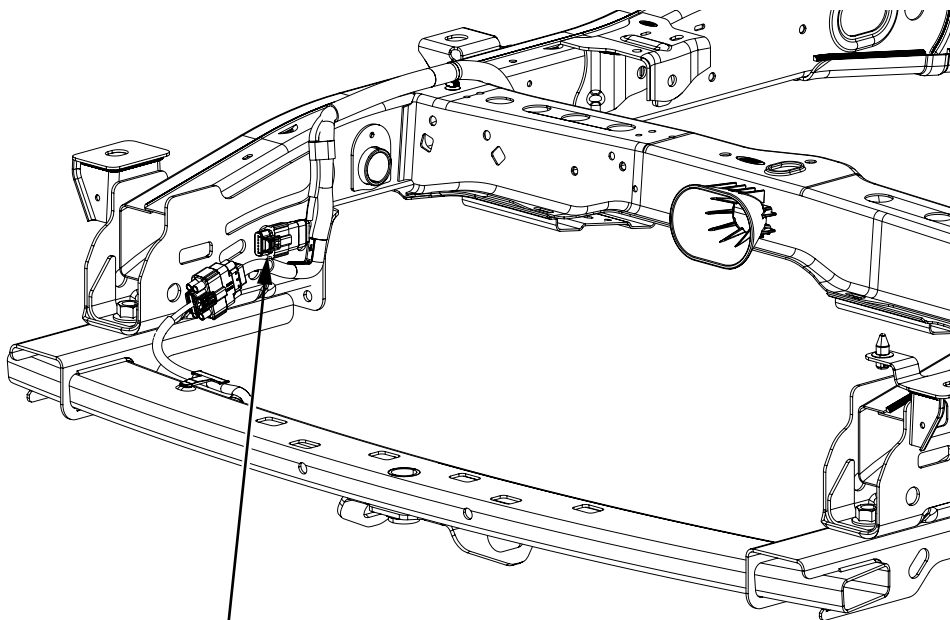
Female Mate: Molex 33492-1301  
(Ford Pigtail Kit: AU2Z-14S411-AMB)  
All Open Cavities must be plugged  
This connector must not be left unplugged

For Ranger Pickup trucks, the rear view camera is contained within the tailgate handle. If the Tailgate or Pickup Box is removed from the vehicle, another camera will need to be installed to continue compliance to FMVSS 111. A Rear View Camera Kit may be ordered from your Ford Dealer (part number JC3Z-19G490-D) for this purpose. The kit includes a camera, camera mounting hardware and 20' wiring harness. Camera placement locations for this kit are recommended on page 21, however the vehicle alterer is responsible for certification to the rear view camera portion of FMVSS 111.

### NOTES:

- The wiring harness included in the Rear View Camera Kit has a 6 pin inline connector that is not compatible with the 12 pin connector on the vehicle. A couple of options are available:
  - The existing tailgate harness may be reused or a new one may be ordered from your Ford Dealer (part number KB3Z-14A412-B) and used in place of the wiring provided in the kit.
  - The wiring in the Camera Kit can be made compatible with the vehicle by replacing the 6 pin inline connector with a 12 pin (Pigtail Kit #AU2Z-14S411-AMB). A shield is used to minimize noise in the video circuits, therefore it is not recommended that the harness from the kit be shortened. When replacing the 6 pin connector, it is recommended that the wires are clipped as close to the 6 pin connector as possible to maintain the integrity of the shield. Follow the recommended, approved splice procedure provided in the pigtail kit for each circuit spliced. The pigtail connector will not remain sealed if any circuits are removed.
- It is not recommended to reuse the camera provided in the tailgate for mounting anywhere else on the vehicle. The guidance overlay (i.e. lines showing the vehicle path and Red/Yellow/Green proximity zones) will not be accurate for the new location and cannot be turned off. The camera provided in the Rear View Camera Kit does not have guidance overlay to avoid this issue.

## RANGER ELECTRICAL WIRING BOX DELETE REAR VIEW CAMERA



Box Delete Rear Camera Connector  
6 way - Molex #33481-0617  
(Cavity 5 Molded over)

| Function | Pin # | Wire Color |
|----------|-------|------------|
| V+ Bat   | 1     | BN/YE      |
| Video +  | 2     | WH/GN      |
| Video -  | 3     | BU/GY      |
| Ground   | 4     | BK         |
| N/A      | 5     | N/A        |
| LIN Bus  | 6     | VT/WH      |

Female Mate: WDP #33471-0601  
All open cavities must be plugged

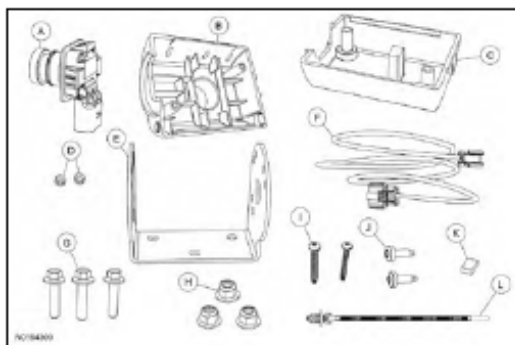
### NOTES:

A Rear View Camera Kit is available as an orderable option (Order Code 53N) with all Ranger Pickup Box Delete vehicles.

For Ranger Pickup Box Delete vehicles ordered without the factory Rear View Camera Kit, a compatible kit is available through your Ford Dealer (part number JC3Z-19G490-D). An FDRS (Ford Diagnosis and Repair Tool) is required to activate the camera kit.

Camera placement locations for this kit are recommended on page 21, however the subsequent stage vehicle manufacturer is responsible for certification to the rear view camera portion of FMVSS 111.

### Rear View Camera Kit Contents



| Item | Quantity | Description            |
|------|----------|------------------------|
| A    | 1        | Rear View Camera       |
| B    | 1        | Front Camera Case Half |
| C    | 1        | Rear Camera Case Half  |
| D    | 2        | Screw Retaining nuts   |
| E    | 1        | Mounting Bracket       |
| F    | 1        | Wire Harness           |
| G    | 3        | Bolts                  |
| H    | 3        | Nuts                   |
| I    | 2        | Screws (Longer)        |
| J    | 2        | Screws (Shorter)       |
| K    | 1        | Foam Pad               |
| L    | 1        | Push Pin Tie Strap     |

## RANGER ELECTRICAL WIRING

### REAR VIEW CAMERA PLACEMENT FOR BOX DELETE / REMOVAL

#### Ford Rear View Camera Compliance Capability:

Ford has tested the available rear view cameras in combination with the available displays and found all pairings capable of meeting the rear view camera portion of FMVSS 111 requirement when mounted within the zones defined in below. Actual certification to the rear view camera portion of FMVSS 111 is the responsibility of the subsequent stage manufacturer (box delete) or vehicle alterer (box or tailgate removal).

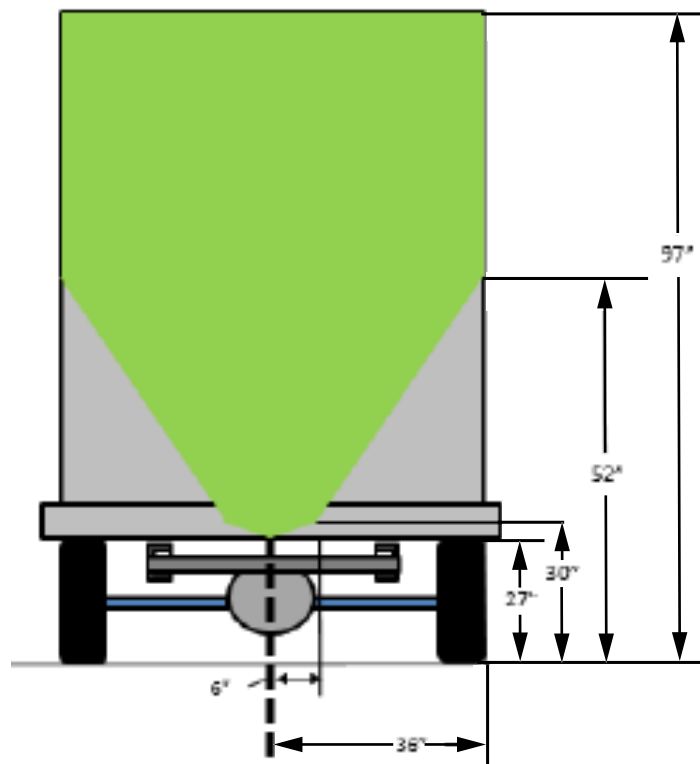
#### Applicable Equipment:

- Equipment provided with Rear View Camera option 53N on Ranger Box Delete (R1A) incomplete vehicles.
- Equipment provided in Rear View Camera Kit (part number JC3Z-19G490-D) when used on Box Delete vehicles or on Pickups where the tailgate or pickup box is removed.

#### Applicable Vehicle Displays:

- 4.2" Center Stack
- 8" Center Stack

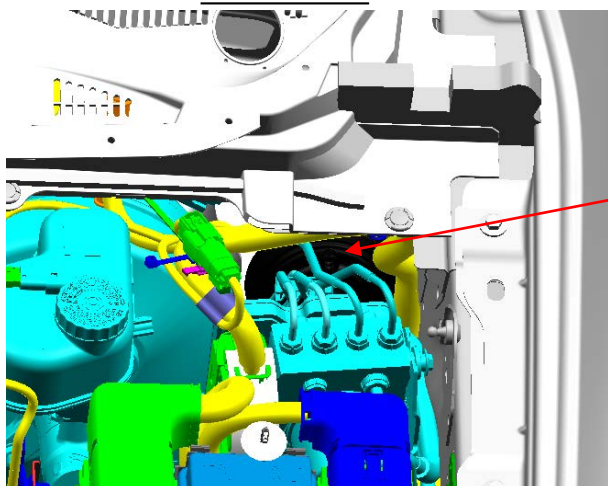
#### Compatible Rear View Camera Locations



Note that the NTEA has provided detailed information and educational resources to help members better understand the new FMVSS 111/reverse camera conformity (including a manual and test kit). Ref. <http://www.ntea.com/fmvss111rearvisibility>

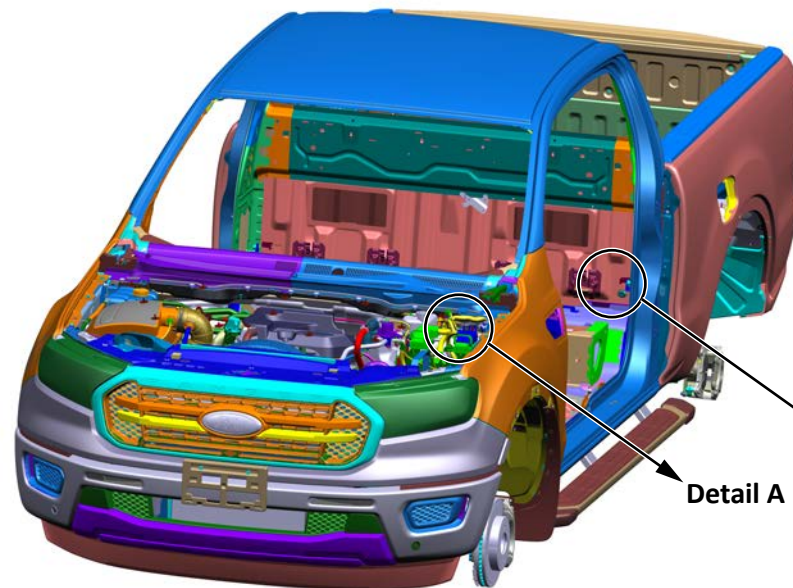
## RANGER ELECTRICAL WIRING WIRING PASS THROUGH LOCATIONS

Dash Panel



Dash Wire  
Grommet

**Detail A**

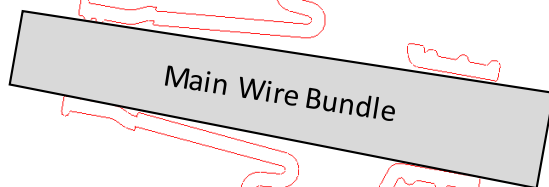


**Detail A**

**Detail B**

Section Through Main Wiring  
Grommet

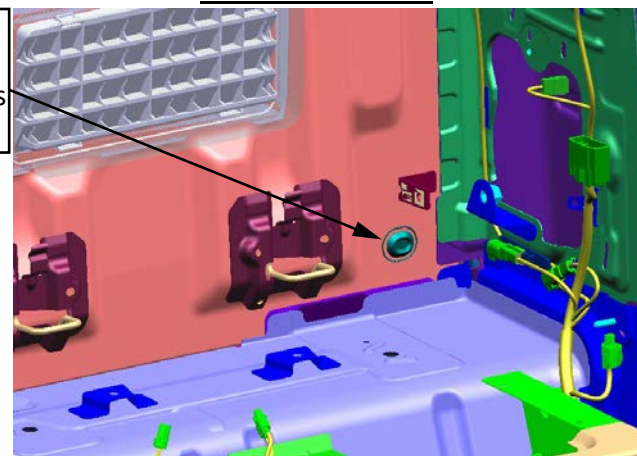
Pass Through Location for  
Additional Wiring. Make sure pass  
through is adequately sealed.



Main Wire Bundle

Grommet at bottom left corner of  
back panel can be slit and used for  
wire pass through. Make sure pass  
through is adequately sealed.

Cab Back Panel



**Detail B**

(View rotated for better visibility)



## RANGER ELECTRICAL WIRING ADDED CIRCUITS

### **B+ (Hot at All Times)**

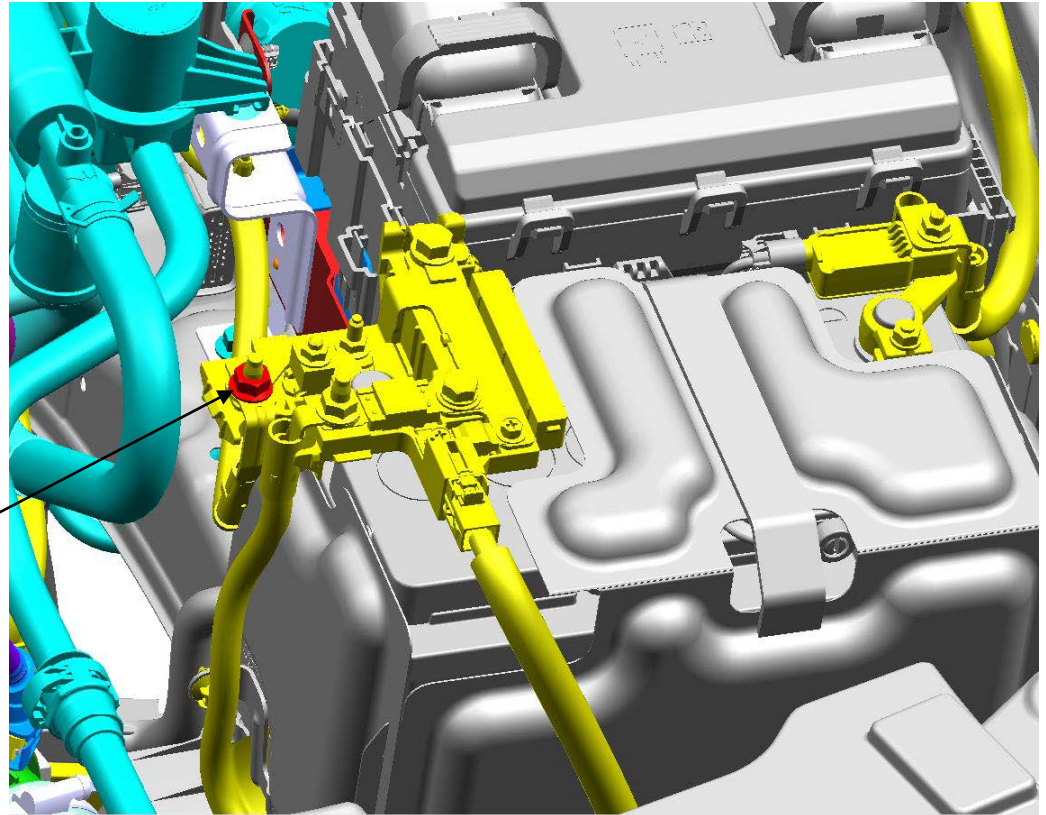
Any added circuits must be appropriately fused and connected to the positive battery terminal in the location shown.

- The maximum thickness of additional terminal(s) being installed is 2.0mm.
- Reuse the existing nut and torque to 13.5 +/- 2.1 Nm.

### **Circuit Grounding**

Ground wires for added circuits must not be connected directly to the battery nor to any existing vehicle grounding points. A new ground location(s) must be established.

Location for B+ connection

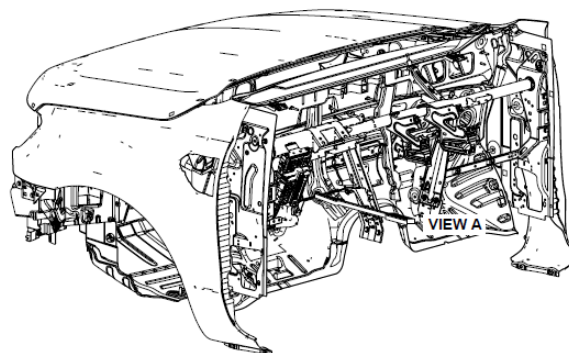


## RANGER ELECTRICAL WIRING ADDED CIRCUITS, CON'T

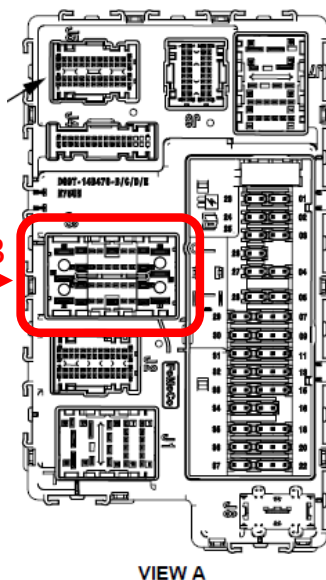
### Delayed Accessory

When installing auxiliary equipment that is active with delayed accessory, a relay connected to B+ must be installed. That relay can then be driven by a delayed accessory feed from the BCM. Install a female terminal kit (DU2Z-14474-DA) into the open location in BCM Connector 3, Pin 30. The terminal kit should then be connected to a 2 or 3 Amp inline fuse before connection to the relay input (can install a switch between the fuse and relay). This BCM output shares BCM fuse #23 with another circuit, the added in line fuse prevents issues in the new circuit from blowing the BCM fuse and affecting other electrical features in the vehicle.

Note: BCM Connector 3 has a black plastic cover that will need to be temporarily removed to install the terminal kit(s)



BCM Front View

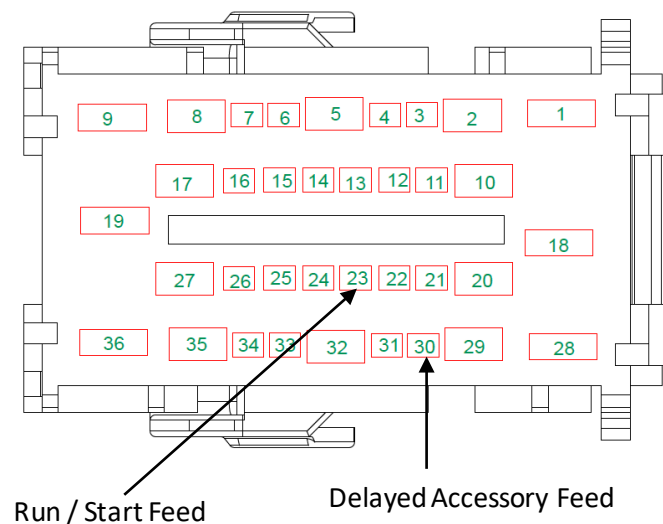


VIEW A

### Run / Start

When installing auxiliary equipment that is active with Run / Start condition, a relay connected to B+ must be installed. That relay can then be driven by a run / start feed from the BCM. Install a female terminal kit (DU2Z-14474-DA) into the open location in BCM Connector 3, Pin 23. The terminal kit should then be connected to the relay input (can install a switch between the fuse and relay). This circuit is protected by BCM fuse #22.

View of Front Face of BCM Connector 3





# Body Builders Layout Book

RANGER

**2020**  
MODEL YEAR

## CHANGE CONTROL INDEX

| LTRS  | REVISIONS |          |          |          |  |
|---|-----------|----------|----------|----------|--|
| ORIGINATOR  | CHECKER   | ENGR APP | MATL APP |          |  |
| INITIAL RELEASE   |           |          |          |          |  |
| CHLB34-000000-BBLB-AA-01-FOA-ECN/1  |           |          |          |          |  |
| RELEASED  |           |          |          | 20190904 |  |
| KVINOTH4  | RWAGNE43  | PHEIRTZL | --       |          |  |
| REVISED: ADDED PAGES 24-26,<br>REMOVED MUVW INFORMATION FROM PAGE 16,<br>REVISED LAMP AND BRACKET PART NUMBERS<br>ON PAGE 18. |           |          |          |          |  |
| CHLB34-000000-BBLB-AA-01-FOA-ECN/2  |           |          |          |          |  |
| RELEASED  |           |          |          | 20191108 |  |
| KVINOTH4  | RWAGNE43  | PHEIRTZL | --       |          |  |