FINAL REPORT
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Cost and Weight Analysis of Enhanced Seat Belt Reminder Systems

from:

Ricardo Inc.
Detroit Technical Center
Van Buren Twp., MI
48111 USA

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Approved Mark Kuhn
Vice President

Commercial Contact: **Name:** Melissa Poe **Tel:** 734-394-3798
Title: Finance Administrator **Fax:** 734-397-6677
Email: Melissa.Poe@Ricardo.com

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1.0 ABSTRACT

The National Highway Traffic Safety Administration (NHTSA) has found that enhanced seat belt reminders (ESBR), that exceed the Federally-mandated basic system by providing a more persistent warning to alert drivers and passengers when they are not belted, have proven to be effective and are an important tool in the campaign to increase seat belt use. In addition, public attitudes towards the ESBR are generally positive, as those drivers whose main reasons for non-use of seat belts relate to forgetfulness or trip type, say that the ESBR alerts are beneficial[1].

Ricardo Strategic Consulting (RSC) and NHTSA studied the cost and mass impact of six light passenger vehicles that have ESBR systems installed, three of them with enhanced reminders for the front outboard passenger seating position and three with enhanced reminders for a rear seating position, Table 1.

Table 1 Vehicles and model years selected for analysis with front passenger and rear passenger ESBR systems

Model Years	Vehicle
ESBR systems for the **Front outboard Passenger**	
2014-2017	**Chevrolet Silverado**
2013-2016	**Mazda CX-5**
2017	**Ford Fusion**
ESBR systems for **Rear Passengers**	
2017	**Toyota Rav4**
2016-2017	**Land Rover Discovery**
2016-2017	**Tesla Model X**

Table 2 shows the incremental mass and incremental cost for the six ESBR systems analyzed. The cost to equip the three vehicles with front passenger ESBR systems ranged from zero incremental cost for the Ford Fusion to $1.74 for the Chevrolet Silverado. The weight of the front passenger ESBR systems ranged from nothing for the Ford Fusion to 27.6g for the Chevrolet Silverado. The cost to equip the three vehicles with rear passenger ESBR systems ranged from $12.32 for the Toyota Rav4 to $58.94 for the Tesla Model X. The weight of the ESBR systems was more consistent for the rear passenger systems ranging from 280.5g for the Toyota Rav4 to 338.8g for the Land Rover Discovery.

[1] DOT/NHTSA Contract DTNH2216D00037, Task Order 0002 Cost and Weight Analysis of Enhanced Seat Belt Reminder Systems

Table 2 Cost and weight additions for ESBR systems by vehicle

Model Years	Vehicle	Mass (g)	OEM Cost ($)	Consumer Cost x1.51
ESBR systems for the **Front outboard Passenger**				
2014-2017	**Chevrolet Silverado**	**27.6**	**$1.74**	**$2.63**
2013-2016	**Mazda CX-5**	**6.1**	**$0.93**	**$1.40**
2017	**Ford Fusion**	**-**	**-**	**-**
ESBR systems for **Rear Passengers**				
2017	**Toyota Rav4**	**280.5**	**$12.32**	**$18.60**
2016-2017	**Land Rover Discovery**	**338.8**	**$19.54**	**$29.51**
2016-2017	**Tesla Model X**	**324.9**	**$58.94**	**$89.00**

2.0 SUMMARY OF FINDINGS

Findings

Results for the enhanced seat belt reminder systems analyzed are shown in Table 3. The cost to equip the three vehicles with front passenger ESBR systems ranged from zero incremental cost for the Ford Fusion to $1.74 for the Chevrolet Silverado. The cost for equipping the front passenger seat position with ESBR functionality was minimal to nothing because the front seat already has air bags which must contain an occupancy presence sensor and seat belt switch. Therefore, only the wiring and control module associated with activating an air bag indicator was included as incremental cost and weight. In addition, the Ford Fusion shared the driver's seat belt indicator and therefore incurred zero incremental cost.

The weight of the front passenger ESBR systems ranged from nothing for the Ford Fusion to 27.6g for the Chevrolet Silverado.

The cost to equip the three vehicles with rear passenger ESBR systems ranged from $12.32 for the Toyota Rav4 to $58.94 for the Tesla Model X. The Rav4 had to monitor only 3 second-row seats and used a simpler system without an occupancy presence sensor whereas both the Discovery and the Model X had 5 rear seats to monitor in the second and third rows. In addition, the Model X used occupancy presence sensors in all five rear seating positions which accounted for the majority of the incremental cost on the Tesla Model X.

The weight of the ESBR systems was more consistent for the rear passenger systems ranging from 280.5g for the Toyota Rav4 to 338.8g for the Land Rover Discovery. The Discovery system weighed more than the Model X system because most of the mass was contained in the wiring and the Discovery had both second-row and third-row wiring harnesses whereas the Model X had only a third-row wiring harness and a single wire for the second row for a control module.

Table 3 Cost and weight additions for ESBR systems by vehicle

Model Years	Vehicle	Mass (g)	OEM Cost ($)	Consumer Cost x1.51
ESBR systems for the **Front outboard Passenger**				
2014-2017	**Chevrolet Silverado**	**27.6**	**$1.74**	**$2.63**
2013-2016	**Mazda CX-5**	**6.1**	**$0.93**	**$1.40**
2017	**Ford Fusion**	**-**	**-**	**-**
ESBR systems for **Rear Passengers**				
2017	**Toyota Rav4**	**280.5**	**$12.32**	**$18.60**
2016-2017	**Land Rover Discovery**	**338.8**	**$19.54**	**$29.51**
2016-2017	**Tesla Model X**	**324.9**	**$58.94**	**$89.00**

3.0 ENGINEERING ANALYSIS

Ricardo worked with NHTSA to define the study scope, baseline equipment, study assumptions, and cost methodology. All the ESBR system parts for the six vehicles were obtained as new service parts. These parts were procured and disassembled as necessary and Ricardo engaged in a standardized forensic analysis process to quantify the technology costs, which included use of a purchased dataset; A2Mac1 Autoreverse vehicle benchmarking database. Ricardo also employed automotive system and vehicle integration experts, cost modeling teams, and procurement professionals to support the analysis. Using engineering evaluation, the systems and parts associated with enhanced seat belt reminder systems were isolated for each of the six vehicles for either the front outboard passenger seating position or the rear passenger seating positions. Then for each model year vehicle in the study, the cost and weight of these parts were estimated. All the enhanced seat belt reminder system costs and weights contained in the report are for equivalent systems only and do not represent the total cost or weight of those systems.

System Boundary Definition

To begin the study, system boundaries were drawn to include only the materials necessary to provide enhanced seat belt reminders for the front outboard passenger or rear passengers as appropriate. The components included were derived by:

- Internal Ricardo engineering experts
- Engineering costing specialists
- Review of vehicle service parts lists
- Public domain materials

Because some of the components may already have been installed in the vehicle for the purpose of air bag activation in the event of a vehicle collision, they may have been analyzed to confirm functionality but in no case were they included in the cost or weight of components required for enhanced seat belt reminder functionality.

The system components that were added to enable ESBR functionality were broken down for in-depth analysis as follows:

- Control module assembly
    - Printed circuit board
    - Sub-assembly costs
- Passenger presence sensor assembly (for rear seating positions only; front seat sensors are needed for air bag functionality)
    - Passenger presence sensor
    - Sub-assembly costs
- Seat belt indicator assembly
    - Lamp, and/or
    - Display, and/or
    - Chime
    - Sub-assembly costs
- Seat belt receiver switch assembly
    - Seat belt receiver switch
    - Sub-assembly costs
- Wiring harness assemblies
    - Seat belt receiver switch to control module
    - Passenger presence sensor to control module
    - Control module to seat belt indicator
    - Sub-assembly costs

Costing Approach and Assumptions

The ESBR systems were disassembled to individual components and assessed for cost and mass. Component costs and assembly costs were developed for each of the components and the assemblies. Manufacturing costs were captured as applicable. Components that went through a series of production operations had the costs associated with those operations captured in the component costs. For those parts such as fasteners that are easier to procure than to manufacture, those parts were accounted for as procured parts in the analysis. A summary of each cost by direct labor, fixed, variable, material, SG&A, profit and freight in the analysis is shown in this section.

All costs were calculated as 2017 calendar year (CY) costs incurred by the manufacturer or OEM to produce the various identified components and were defined based on 2017 USA labor rates, raw material costs, and bought component costs required by each component manufacturing process. Modification of 2017CY costs to other prior or future year costs may be accomplished through employment of USA GDP price deflator or other indexes, but modification to other estimated calendar year costs beyond 2017 is left to the reader.

Component volume assumptions are consistent with a representative average volume level for these vehicles. A 200,000 unit annual vehicle volume with 5 years of production was assumed and applied to all system components. Adjustment of direct costs to the OEM for the procurement of these components and subsystems from Tier 1 vendors must be adjusted to cost impact at retail if accounting of OEM engineering design and development (ED&D) costs, OEM assembly and

factory capital costs, warranty recall costs, dealer markups and other non-purchased product costs are to be comprehended[2]. Ricardo employed the Retail Price Equivalent (RPE) uplift factor of 1.51 as is regularly employed by NHTSA component cost analysis for safety related studies.

Using the 2017CY labor and material costs within the North American market, Ricardo determined the variable manufacturing costs and total manufacturing costs for each critical elemental part, component, subassembly, and complete assemblies for the systems under study. Costs are modeled assuming the OEMs buy all components from a Tier 1 supplier. As such, all fixed costs, SG&A, and profit values seen subsequently in this report are for the Tier 1 supplier. An Activity Based Costing (ABC) methodology was used to assign appropriate variable and fixed burden costs to each unit of a product. Through this process, Ricardo isolated and identified cost elements and drivers:

- Direct labor minutes
- Direct materials
- Machine occupancy hours or station times
- Machinery, equipment, and tooling utilized
- Direct labor dollars per unit (US rates for appropriate trades by manufacturing process)
- Direct material costs per unit
- Variable burden cost per unit, including indirect labor, scrap and other costs that vary with production volume
- Fixed burden per unit, including capital depreciation and other fixed costs
- SG&A and profit per unit
- Property, plant, and equipment capital investments required at assumed annual volumes
- Depreciation schedules for property, plant, and equipment

Detailed manufacturing process operation worksheets provided for the analyzed components illustrate how variable manufacturing costs, fixed burden, and weights are accumulated. These are then reconciled, each part to its subassembly and, from subassembly to the total system.

4.0 COST AND WEIGHT ANALYSIS

For each of the six vehicles, the components that were necessary to enable an enhanced seat belt reminder for either front outboard passengers or rear passengers was identified from research as described in the System Boundary Definition section of 3.0 Engineering Analysis. The ESBR systems were then disassembled to individual components and analyzed for cost and mass. The parts and assemblies were photographed, weighed and costed as per the approach outlined in the Costing Approach and Assumptions section of 3.0 Engineering Analysis.

2 Bussmann, Wynn V. "Study of Industry Average Mark-up Factors Used to Estimate Retail Price Equivalents (RPE). January 24, 2008.

Cost and Mass Results

The following pages describe the individual systems used for the front outboard passenger seating position or rear passenger seating positions and the subsystem and subcomponent for cost and mass analysis results.

Chevrolet Silverado Front Outboard Passenger ESBR

The Chevrolet Silverado front outboard passenger ESBR system contains a specific indicator for the passenger air bag located in the front overhead console. From this indicator, #1 in Figure 1, the overhead console wiring harness connected it to the module; both harness and module are shown as #2. The reason that no more components are required for the front passenger ESBR is that the other components such as a seat belt switch are required for passenger air bag functionality and therefore were not added for ESBR function alone.

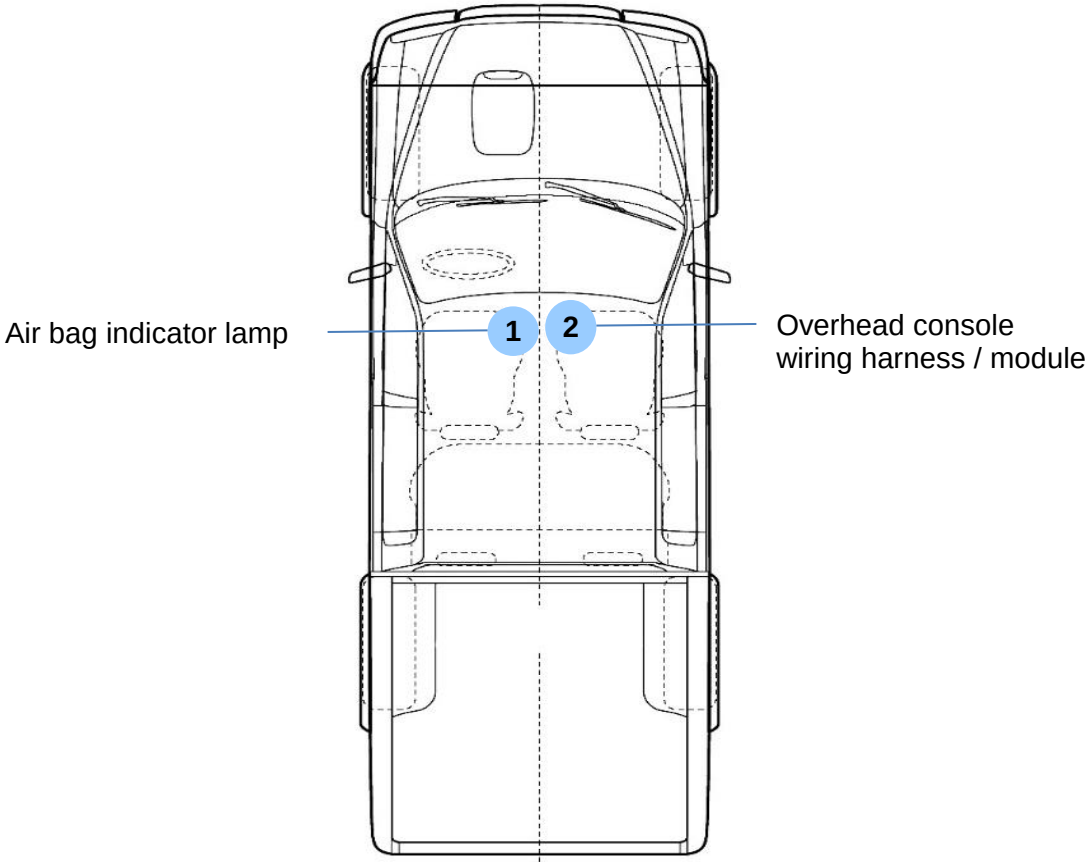
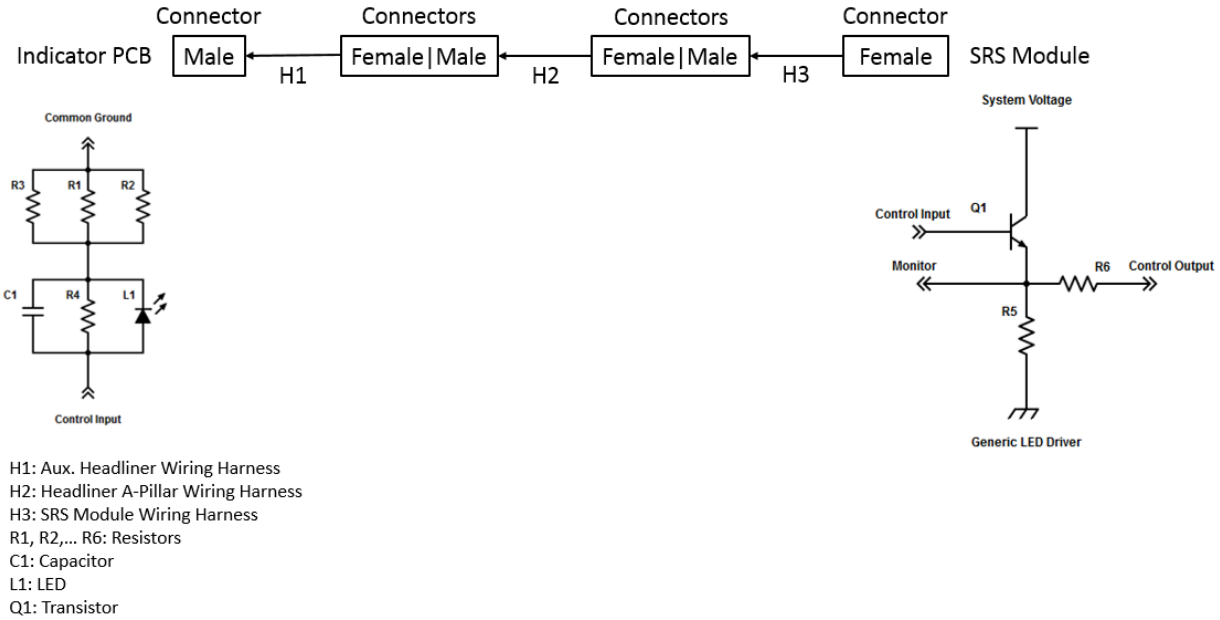


Figure 1 Chevrolet Silverado front outboard passenger ESBR system components

The ESBR system was broken down into the air bag indicator and the associated wiring to the Supplemental Restraint System (SRS) module including in-line harness to harness connectors. The additional components for the ESBR system consisted of the air bag indicator LED, LED driver circuit, printed circuit board (PCB) with resistors and capacitors and the associated wiring from the circuit board to the SRS module. On the air bag indicator side, additional cost associated with the plastic housing for the circuit board is not estimated. It is considered to be a wash as the

housing is going to replace the existing material on the overhead console (OHC). On the LED driver circuit, the transistor and the resistors are assumed to be added on the existing circuit board. The cost associated with the PCB substrate is not considered as additional cost. The wiring layout and schematics are shown in Figure 2.



H1: Aux. Headliner Wiring Harness
H2: Headliner A-Pillar Wiring Harness
H3: SRS Module Wiring Harness
R1, R2,... R6: Resistors
C1: Capacitor
L1: LED
Q1: Transistor

Figure 2 Wiring layout and schematics for the Silverado ESBR circuit

The estimated cost and mass of the ESBR components on the Silverado are shown in Table 4 and the cost is broken down by cost element in Figure 3.

Table 4 Cost and mass additions for Chevrolet Silverado front passenger ESBR

Component		Incremental Mass (g)	Incremental OEM Cost ($)
ESBR system		**27.6**	**$1.74**
Indicator Lamp & LED driver circuit		1.1	$0.55
Wiring & connectors		26.5	$1.19

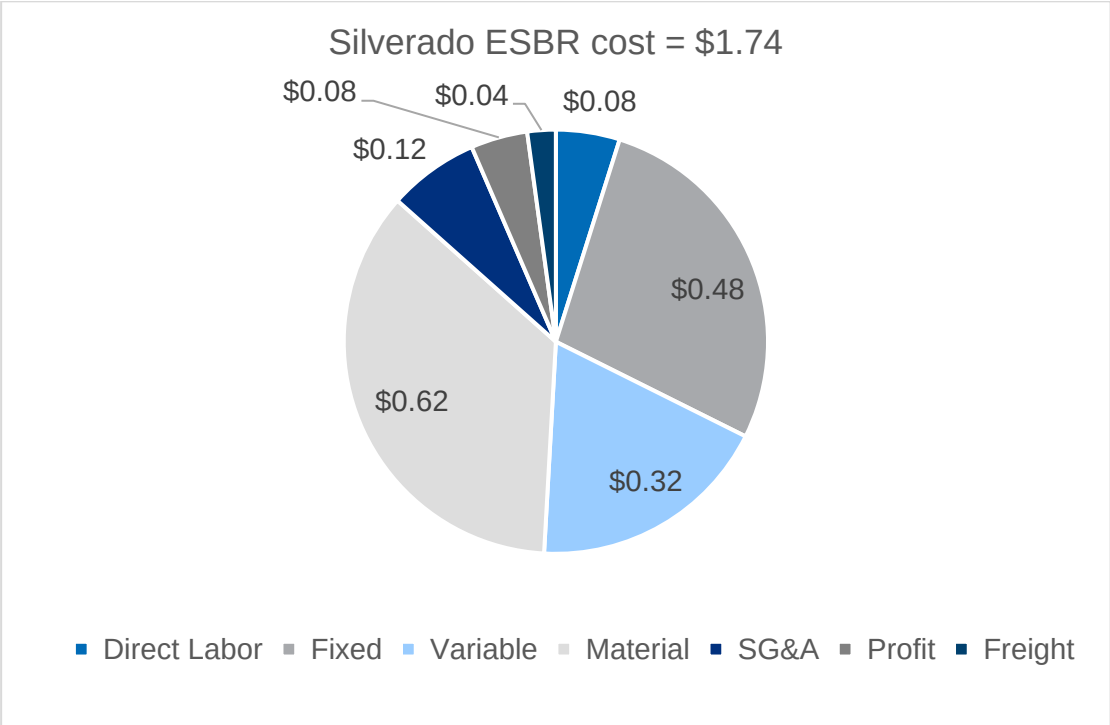


Figure 3 Chevrolet Silverado front passenger ESBR system cost breakdown

Mazda CX-5 Front Outboard Passenger ESBR

The Mazda CX-5 front outboard passenger ESBR system contains a specific indicator for the passenger air bag located in the climate control display as shown in Figure 4. The reason that no more components are required for the front passenger ESBR is that the other components such as a seat belt switch are required for passenger air bag functionality and therefore were not added for ESBR function alone.

Figure 4 Mazda CX-5 front passenger indicator

The additional components for the ESBR system consisted of the seat belt indicator LED and PCB assembly with resistors and capacitors. The wiring layout and schematic is shown in Figure 5.

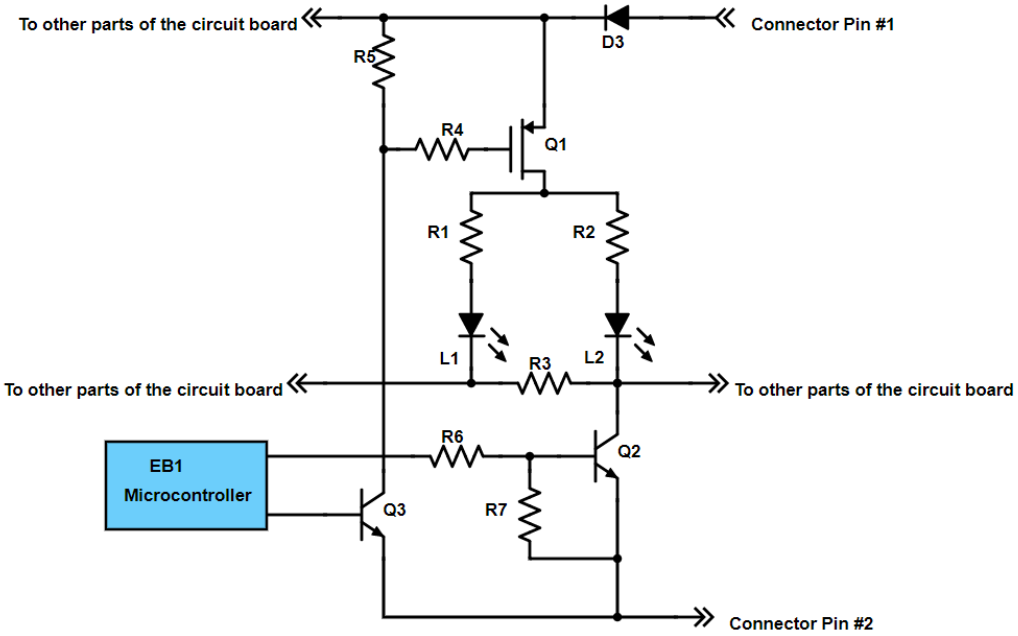
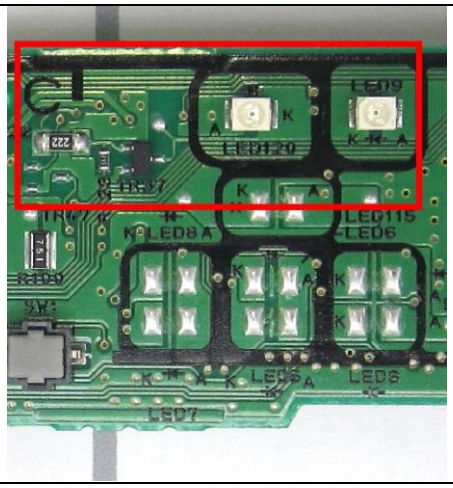


Figure 5 Wiring layout and schematic for the Mazda CX-5 ESBR circuit

The estimated cost and mass of the ESBR components on the Mazda CX-5 are shown in Table 5 and the cost is broken down by cost element in Figure 6.

Table 5 Cost and mass additions for the Mazda CX-5 front passenger ESBR

Component		Incremental Mass (g)	Incremental OEM Cost ($)
ESBR system		**6.1**	**$0.93**
Indicator assembly (LED section of PCB shown in red box)		6.1	$0.93

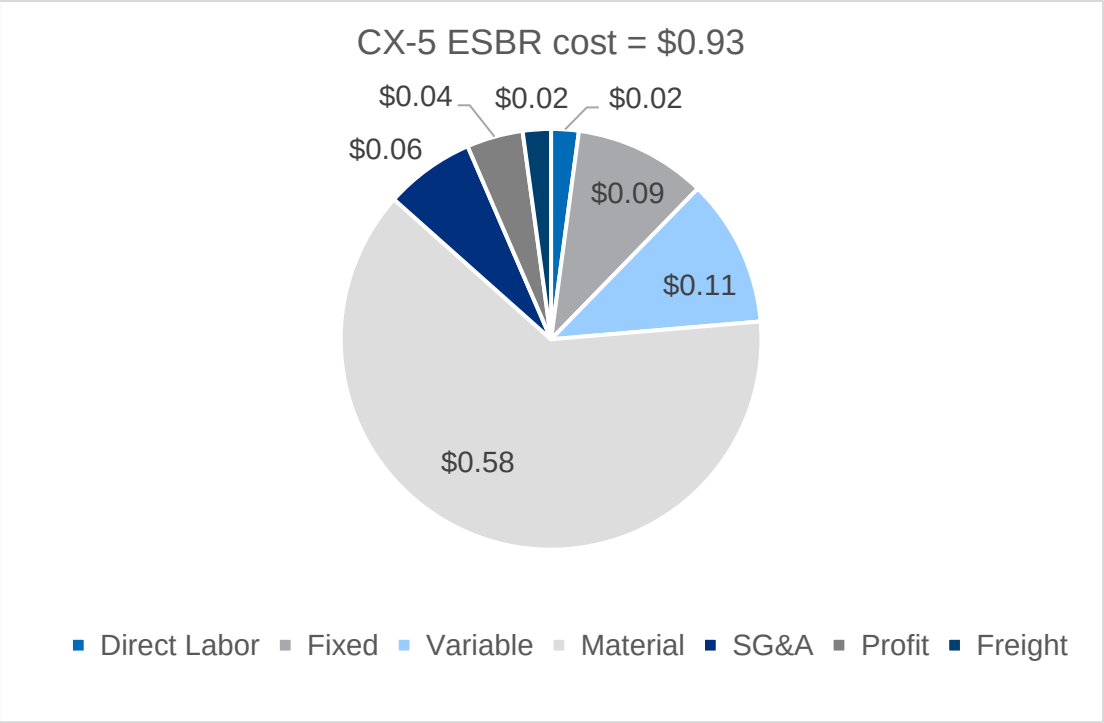


Figure 6 Mazda CX-5 front passenger ESBR system cost breakdown

Ford Fusion Front Passenger ESBR

The Ford Fusion front outboard passenger ESBR system contains a *shared* indicator with the driver. Because of this and the fact that the seat belt switch, wiring, air bag indicator and SRS module are required for air bag functionality for the front passenger, no additional cost was incurred with implementing the front passenger ESBR system on the Fusion.

Toyota Rav4 Rear Passenger ESBR

The 2017 Toyota Rav4 has ESBR functionality for the rear seat passengers which works by monitoring the rear seat belt buckles. If a previously buckled rear seat belt is unfastened while the vehicle is in motion above a certain speed the rear seat belt indicator will flash and chimes will sound. The rear seat belt indicator lamp on the Rav4 is located in the instrument panel as shown in Figure 7.

Figure 7 Toyota Rav4 rear seat belt indicator

The ESBR system was broken down into a rear seat belt switch assembly comprised of a left, center and right seat belt switch subassemblies, the rear seat belt indicator PCB, and the rear seat belt wiring harness assembly as shown in Figure 8 by 1, 2 and 3 respectively.

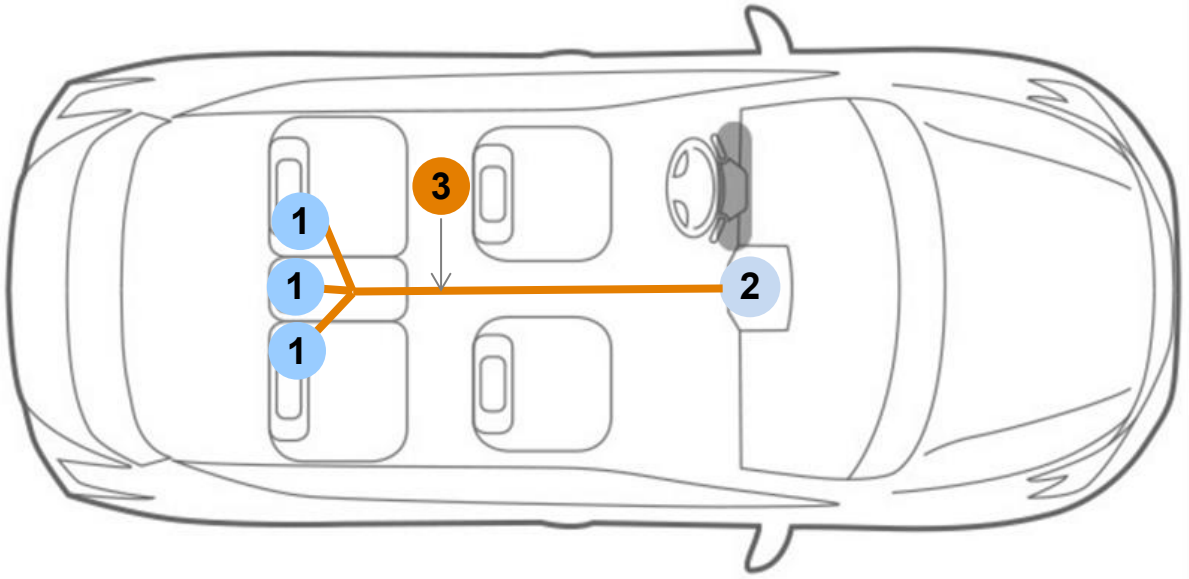


Figure 8 Toyota Rav4 rear seat ESBR system components

The additional cost associated with the rear passenger ESBR system consisted of five seat belt lamp indicators, three rear seat belt switches and the associated wiring including in-line connections for harness to harness connectors. Additional cost for the plastic housing of the circuit board is not estimated; it is considered to be a wash as the housing is already a part of the module to perform other functions. The PCB was assumed to be present already with unused sections. The cost for this section of the PCB substrate was not considered incremental but installing the additional components was considered incremental for costing purposes. The wiring layout and schematic is shown in Figure 9.

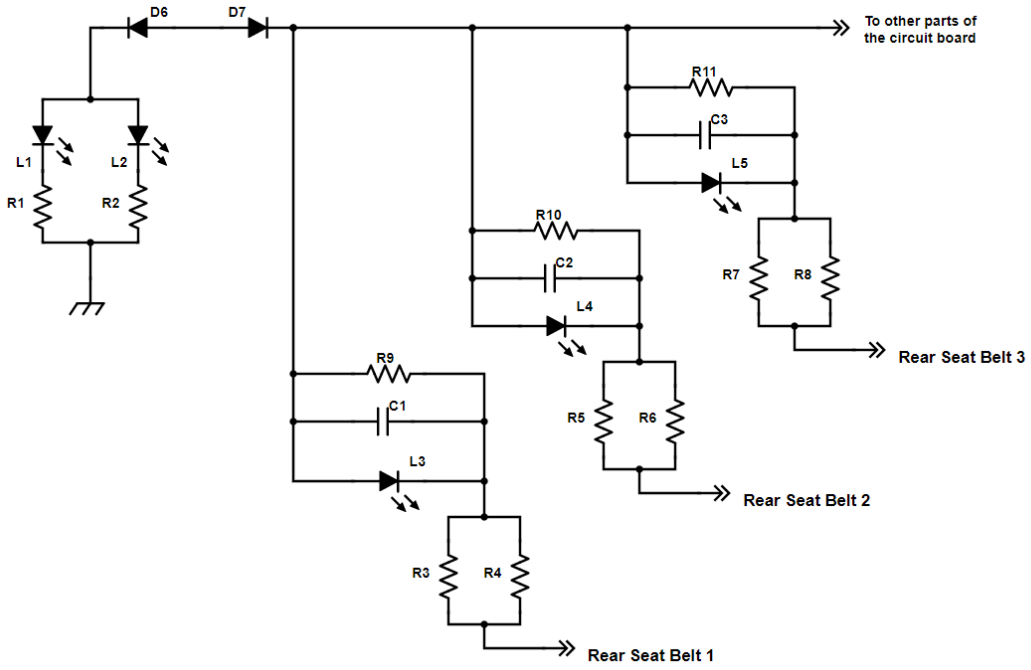
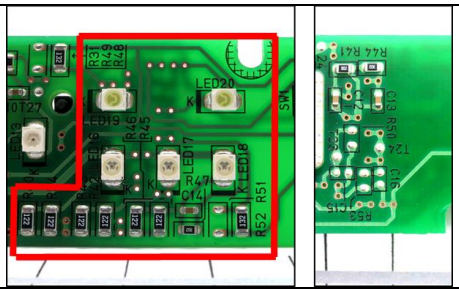
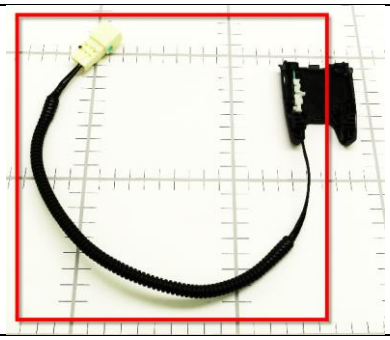


Figure 9 Wiring layout and schematic for the Toyota Rav4 ESBR circuit

The estimated cost and mass of the ESBR components on the Toyota Rav4 are shown in Table 6 and the cost is broken down by cost element in Figure 10.

Table 6 Cost and mass additions for the Toyota Rav4 rear passenger ESBR

Component		Incremental Mass (g)	Incremental OEM Cost ($)
ESBR system		**280.5**	**$12.32**
Indicator PCB (shown in red box)		2.8	$0.81

Rear seat belt switch assembly		41.4	$6.02
Rear seat belt wiring harness		236.3	$5.49

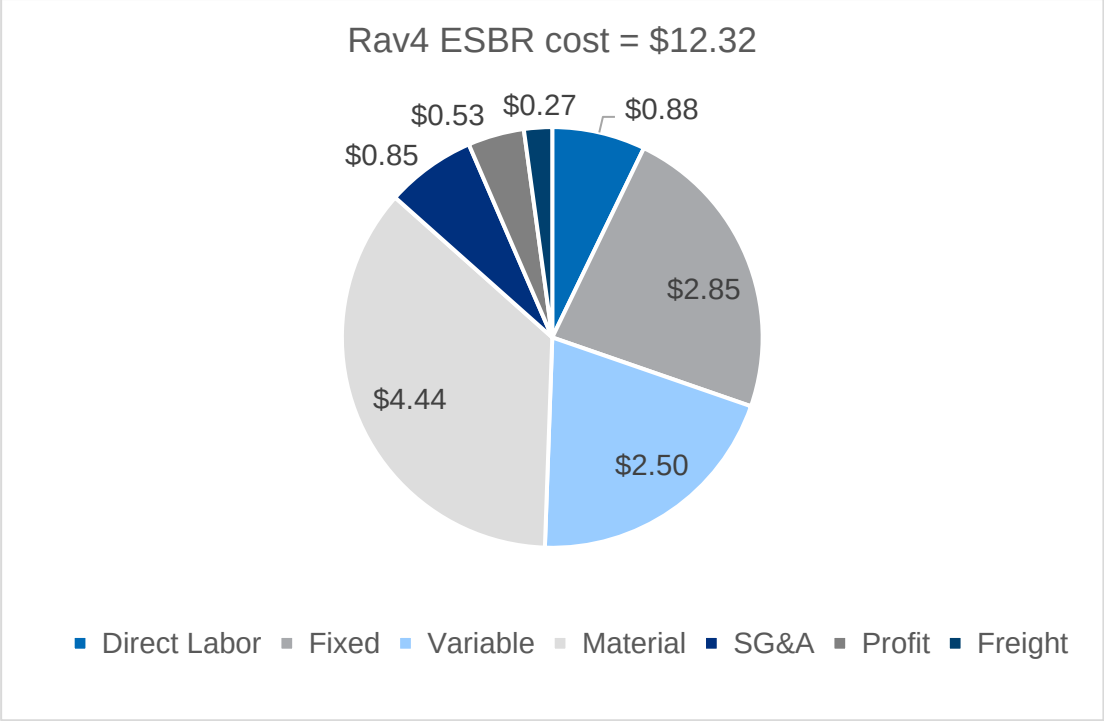


Figure 10 Toyota Rav4 rear passenger ESBR system cost breakdown

Land Rover Discovery Rear Passenger ESBR

The Land Rover Discovery Sport SE has ESBR functionality in the rear seating positions as shown in Figure 11 which works by monitoring the third-row seat belt buckles, #1, and second-row seat belt buckles, #2, which are tied to a digital display in the cluster, #3, through the third-row-seats wiring harness, #4, and second-row-seats wiring harness, #5.

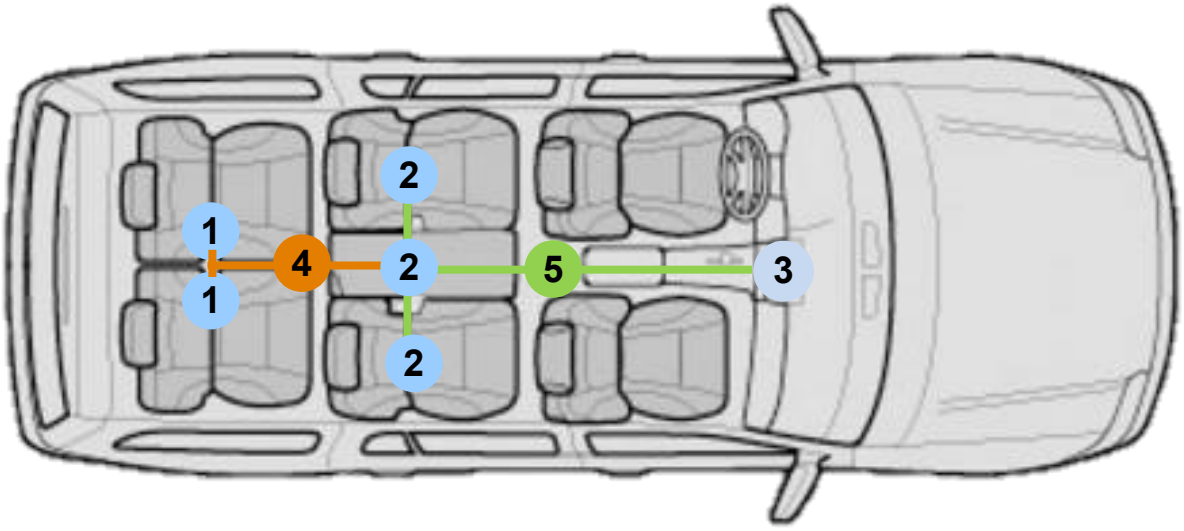


Figure 11 Land Rover Discovery rear seat ESBR system components

The additional components for the second-row-seats wiring harness consisted of 3 pig tail connectors (mating connectors for the seat belt switch assemblies), 15 female wire terminals, 6 male wire terminals, and 12 wires. Six wires connected 3 pig tail connectors to the body harness connector. Thee wires connected the IP harness connector to the seat belt indicator. Three wires connected the IP harness connector to the ground terminal. The seat belt reminder information was determined to be displayed on the message center in the center stack display. The seat belt indicator was assumed to be present already and not considered as incremental for costing purposes. The second-row-seats wiring harness layout is shown in Figure 12.

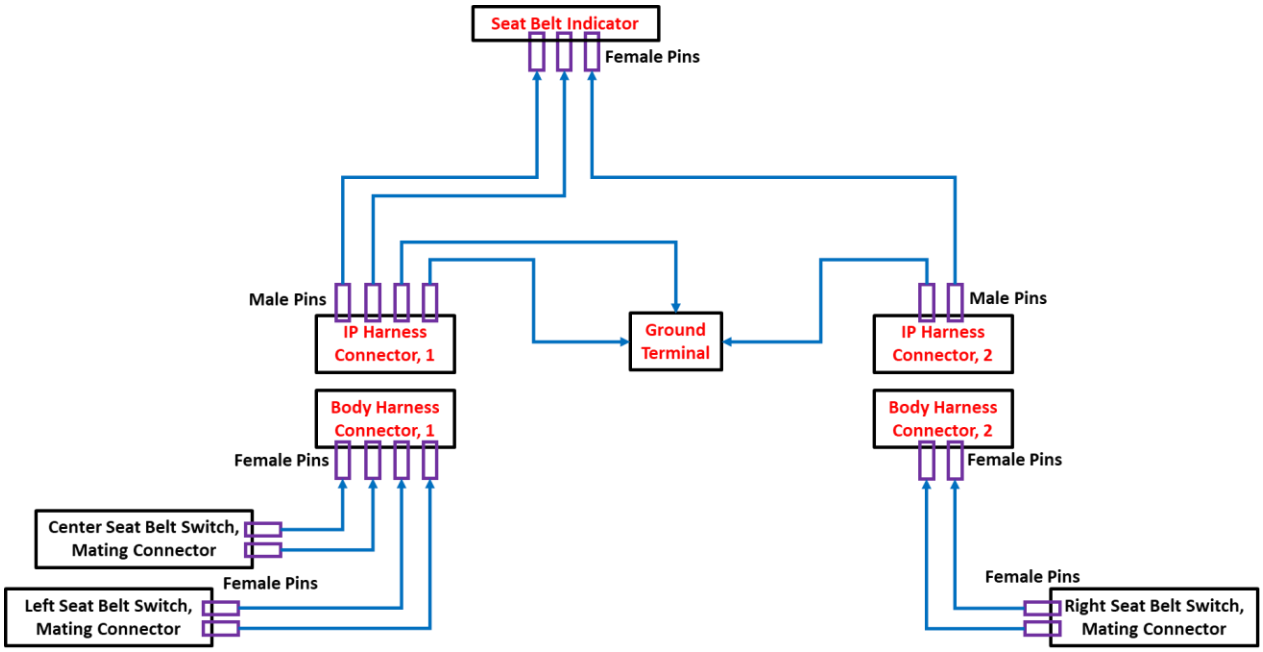


Figure 12 Layout for the Land Rover Discovery second-row-seats wiring harness

The additional components for the third-row-seats wiring harness consisted of 2 pig tail connectors (mating connectors for the seat belt switch assemblies), 10 female wire terminals, 4 male wire terminals, and 8 wires. Four wires connected 2 pig tail connectors to the body harness connector. Two wires connected the IP harness connector to the seat belt indicator. Two wires connected the IP harness connector to the ground terminal. The seat belt reminder information was determined to be displayed on the message center in the center stack display. The seat belt indicator was assumed to be present already and not considered as incremental for costing purposes. The third-row-seats wiring harness layout is shown in Figure 13.

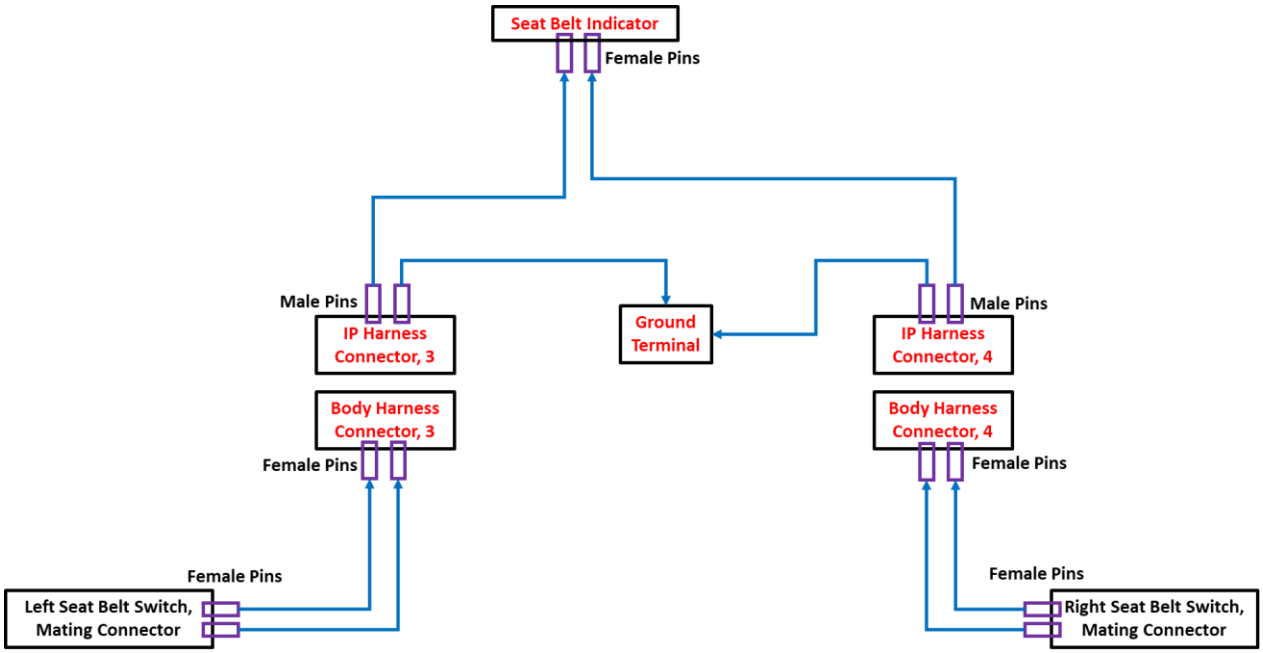
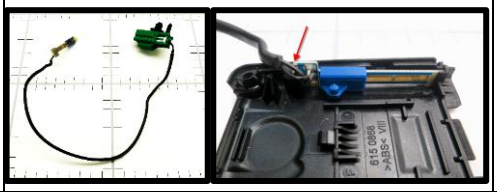


Figure 13 Layout for the Land Rover Discovery third-row-seats wiring harness

The estimated cost and mass of the ESBR components on the Land Rover Discovery are shown in Table 7 and the cost is broken down by cost element in Figure 14.

Table 7 Cost and mass additions for the Land Rover Discovery rear passenger ESBR

Component		Incremental Mass (g)	Incremental OEM Cost ($)
ESBR system		**338.8**	**$19.54**
Rear seat belt switch assembly		67.3	$9.45
Second-row seats wiring harness		162.4	$5.86
Third-row seats wiring harness		109.2	$4.24

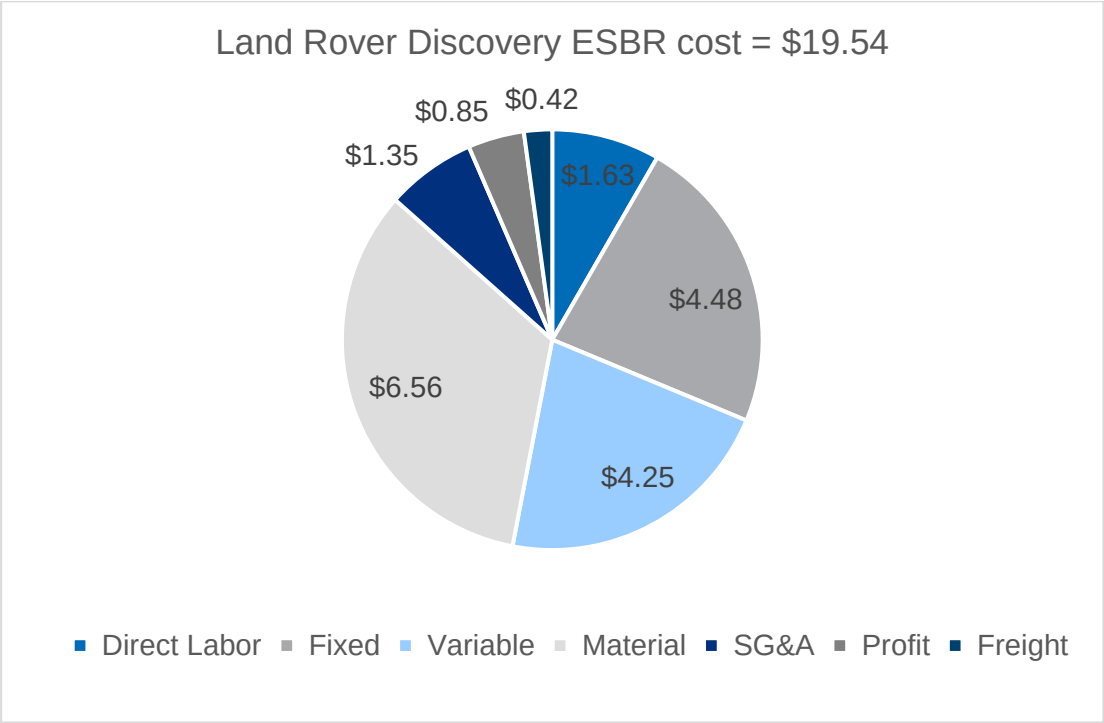


Figure 14 Land Rover Discovery rear passenger ESBR system cost breakdown

Tesla Model X Rear Passenger ESBR

The Tesla Model X rear ESBR system consists of occupant detection sensors for all five sear positions that alert the driver that an occupied seat is not buckled via graphics on the touch screen in the cluster. Figure 15 shows the five occupancy sensor assemblies, #1, five seat belt switches, #2, second-row control module wire subassembly, #3, and third-row-seats wiring harness, #4, and touch screen display, #5.

Figure 15

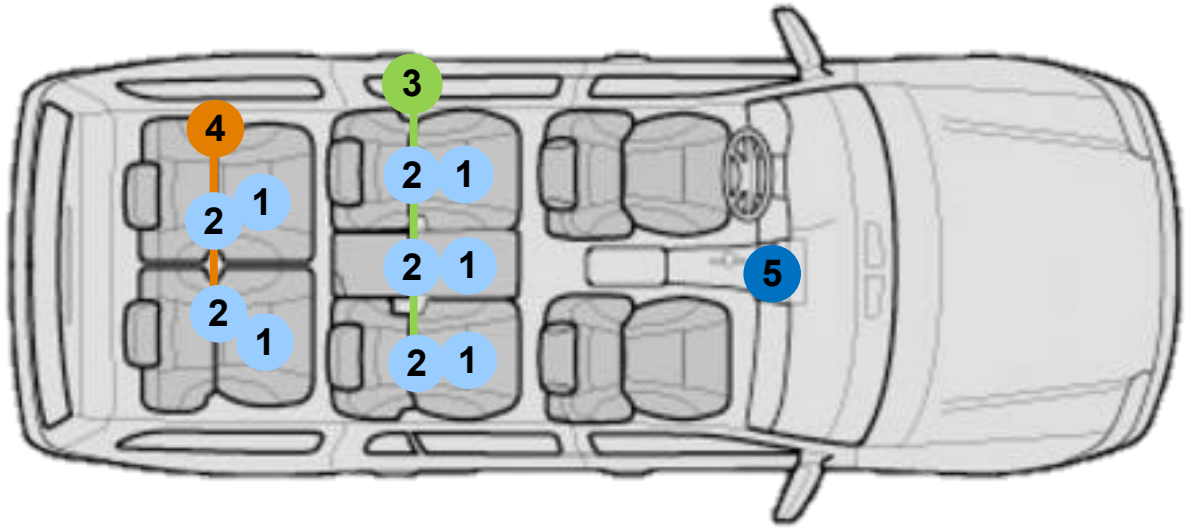


Figure 15 Tesla Model X rear seat ESBR system components

The occupancy sensors for the second-row and third-row seats were costed completely. There were 3 seats in the second row and 2 seats in the third row. Each of the seats were determined to have one occupancy sensor of the same type. The sensor assembly consisted of a flex circuit, a wire assembly, one resistor and a plastic housing for encapsulating the resistor. The occupancy sensor was placed inside the seat cushion and the connector was adjacent to the heater coil connector. The sensor was installed to the seat cushion by means of double sided adhesive pads.

The seat belt switch assembly for the second-row and third-row seats were costed completely. Each of the seats were determined to have one seat belt switch assembly of the same type. The major parts in the switch assembly were a two-conductor cable subassembly, plastic interconnect, contacts for switch mechanism, spring, actuator pin and a plastic switch housing to accommodate the contact leads. The plastic interconnect consisted of 3 contact leads and 2 resistors.

The additional components for the second-row seat ESBR system on the control module wire subassembly consisted of 2 pig tail connectors and 4 wires. There were 2 wires each from the occupancy sensor assembly and seat belt switch assembly. The splice shown in the red circle in Figure 16 joins two black wires from the sensors to a common control module lead which was also a black wire. This splice is connected to other circuits in the harness and the cost is estimated only from the point of splicing to the pig-tail connectors. The signal from rear seat control module to the center console display was through bus signals and the cost associated with the wiring was not estimated.

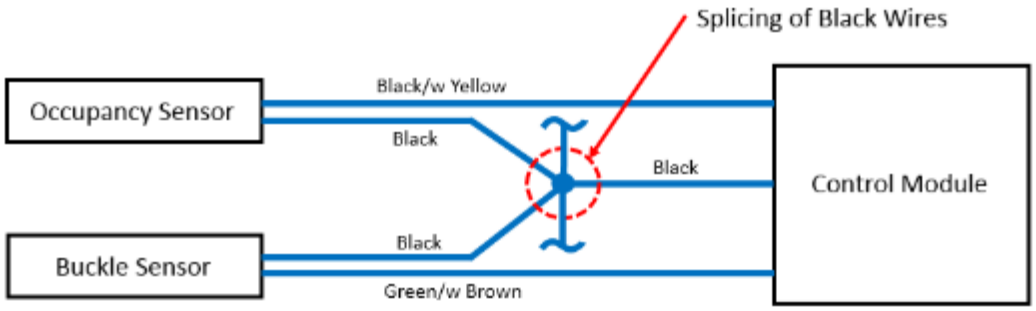


Figure 16 Layout for the Tesla Model X second-row-seats control module wire subassembly

The Tesla Model X had one seat on the left side of the vehicle and one seat on the right side of the vehicle for the 3rd row. The additional components for the third-row-seats ESBR system consisted of 6 wires (from the third-row seat belt indicator to the third-row seat belt switches), 14 female wire terminal pins, 6 male wire terminal pins, 2 mating connectors for third-row occupancy sensor assemblies, and 2 mating connectors for third-row seat belt switches. Parts labeled with red text in the third-row-seats wiring harness layout shown in Figure 17 are assumed to be present already and not considered incremental for costing purposes.

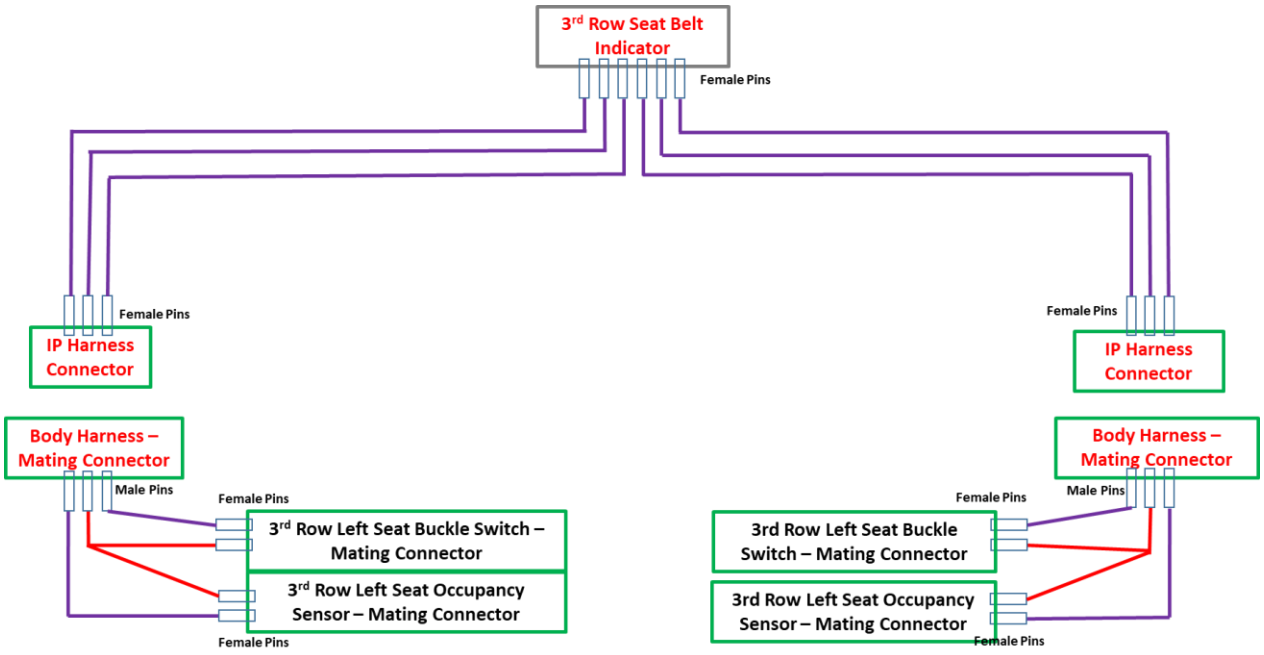
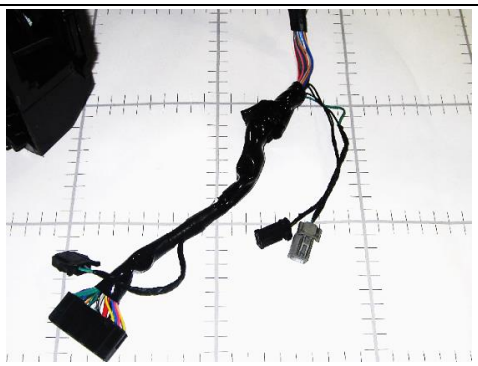
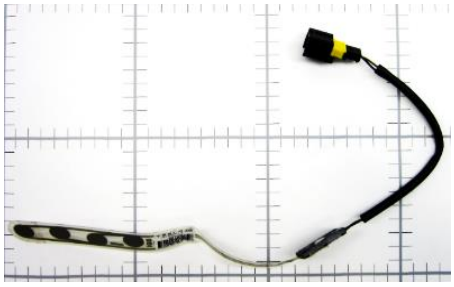
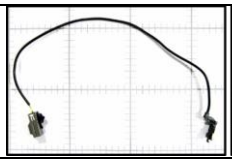


Figure 17 Layout for the Tesla Model X third-row-seats wiring harness

The estimated cost and mass of the ESBR components on the Tesla Model X are shown in Table 8 and the cost is broken down by cost element in Figure 18.

Table 8 Cost and mass additions for the Tesla Model X rear passenger ESBR

Component		Incremental Mass (g)	Incremental OEM Cost ($)
ESBR system		**324.9**	**$58.94**
Second row control module wire subassembly		33.3	$4.39
Third-row seats wiring harness		123.9	$5.82
Occupancy sensor assembly		77.7	$36.81
Seat belt switch assembly	 	90.0	$11.93

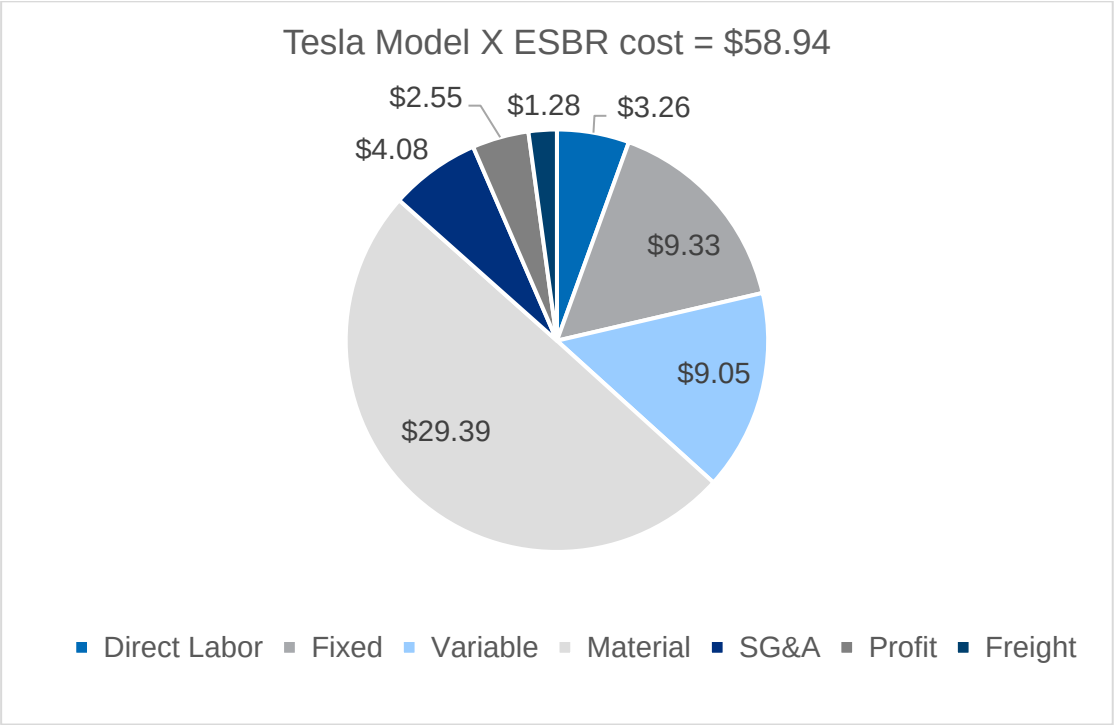


Figure 18 Tesla Model X rear passenger ESBR system cost breakdown

APPENDIX

- **Cost & Weight Analysis Approach Described**
  - **Inputs and Process**
  - **Distribution of Costs**
  - **Definitions & Assumptions**
  - **Example Cost Breakdown**
- **ESBR systems for the Front outboard Passenger**
  - **Chevrolet Silverado, 2014 - 2017**
  - **Mazda CX-5, 2013 - 2016**
  - **Ford Fusion, 2017**
- **ESBR systems for Rear Passengers**
  - **Toyota RAV4, 2017**
  - **Land Rover Discovery Sport, 2016 - 2017**
  - **Tesla Model X, 2016 - 2017**

Cost Analysis Inputs and Process

Set Project Parameters

- ✓ Production Volumes
- ✓ BOM Boundaries
- ✓ Country of Manufacture

Obtain and Teardown Service Parts to Record Parametric Data

- ✓ Component Specifications
- ✓ Materials Used
- ✓ Process Flow
- ✓ Process Type
- ✓ Test Requirements

Research Other Component Characteristics

- ✓ Component Package
- ✓ Component Volume
- ✓ Component Function
- ✓ Layer Count

Research Processing Data

- ✓ Surface Mount
- ✓ Through Hole
- ✓ Cycle Time
- ✓ Single-Sided
- ✓ Double-Sided
- ✓ Process Equipment

Research Financial Data

- ✓ Country of Mfg
- ✓ Labor Rates: Direct & Indirect
- ✓ Number of Heads
- ✓ Utility Rates/Insurance
- ✓ Taxes/Burden

Calculate Cost of Materials Purchased

Calculate Cost of Inbound Freight

Calculate Total Manufacturing Cost

Calculate Manufacturing Scrap

Calculate SG&A + Profit

Calculate 2017CY Manufacturing Based Selling Price to OEM

Add Installation Costs Provided by NHTSA

Complete

Distribution of Costs

Fixed Costs	• Capital Equipment Amortization • Capital Equipment Installation Amortization • Interest • Floor Space Including Manufacturing Area and Offices • Taxes - Local and Property • Insurance - Personal Property and Liability
Variable Costs	• Indirect Plant Staff • Material Handlers • 1st Line Supervisors • Tool Maintenance • Facility Maintenance • Non Production Plant Supplies • Energy - Electricity, Natural Gas, Water, Compressed Air • In Process Scrap • Process Gasses (Nitrogen, Argon, etc) • Fringe on Direct
SG&A Costs	• Top Plant Management • Supplier Quality • HR Related • Divisional / HQ Cost • Research and Development • Sales
Profit	
Materials	
Direct Labor	

Definitions and Assumptions 1 of 2

Annual Vehicle Production Volume	200,000 units per year
Manufacturing Cost	Costs of Materials + Labor + Piece Burden Cost (USA)
SG&A	7% of Total Manufacturing Cost (Based on Automotive Industry)
Pre Tax Profit	4% of Total Manufacturing Cost (Based on Automotive Industry)
Freight Cost (Inbound to Vendor)	3% of Purchased Materials Cost (Based on Automotive Industry)
Supplier costs not Included	✓ OEM ED&D ✓ Outbound (to OEM) Packaging & Transportation ✓ Tooling ✓ Taxes -Tariffs ✓ Royalty-License Fees ✓ Software development and integration costs

Definitions and Assumptions 2 of 2

Mechanical Components	Assembly & Mfg. Location	United States
	Equipment Amortization	5 Years Straight Line, $0 Residual Value
	Operation Plan	1- 8 Hour Shift/200K
	Burdened Labor Rate	$32.81/hr (United States Machining/Assembly); $23.20 (United States Injection Molding)
	Indirect Labor Rate	45% - 50% (Depending on Complexity)
	Scrap	1% Total Materials Cost (Based on Automotive Industry)

Each subassembly is analysed down to component level

Example: Fuel Filler Neck Valve Assembly

Subcomponents

		Cycle (sec)	Number Out	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
Housing		18.28	4	0.25	$0.01	$0.04	$0.02	$0.06	$0.12	$0.01	$0.01	$0.00	$0.14	$0.14
O-ring		-	-	-	$0.00	$0.00	$0.00	$0.03	$0.03	$0.00	$0.00	$0.00	$0.04	$0.04
Support		17.6	8	0.25	$0.00	$0.01	$0.01	$0.01	$0.04	$0.00	$0.00	$0.00	$0.04	$0.04
Gate		14.8	8	0.25	$0.00	$0.01	$0.01	$0.01	$0.03	$0.00	$0.00	$0.00	$0.04	$0.04
Spring		-	-	-	$0.00	$0.00	$0.00	$0.02	$0.02	$0.00	$0.00	$0.00	$0.02	$0.02
Pin		-	-	-	$0.00	$0.00	$0.00	$0.01	$0.01	$0.00	$0.00	$0.00	$0.01	$0.01
Assemble		15.5	1	0.5	$0.05	$0.15	$0.12	$0.00	$0.32	$0.03	$0.02	$0.00	$0.36	$0.36

ESBR systems for the Front outboard Passenger

Chevrolet Silverado, 2014 - 2017
Mazda CX-5, 2013 - 2016

Chevrolet Silverado, MY 2014 - 2017

DETAIL MANUFACTURING COSTS

Chevrolet Silverado 2014 Total Mass and Cost Details – Front Passenger Seat Belt System

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
1	1	S	2013 Chevy Silverado PS Seat Belt Indicator	1	-	-	27.6	27.6	$ 1.7401	$ 1.7401
2	2	S	Air Bag Indicator PCB	1	-	-	1.1	1.1	$0.3866	$0.3866
3	3	A	Air Bag Indicator PCB Assembly	1	-	-	-	-	$0.3866	$0.3866
4	4	M	Functional Test	1	-	-	-	-	$ 0.0438	$ 0.0438
5	4	M	Conformal Coating	1	-	-	-	-	$ 0.0240	$ 0.0240
6	5	P	Conformal Coat, PCBA	1	Commodity Item	-	0	0	$ 0.0231	$ 0.0231
7	4	M	De-Panel	1	-	-	-	-	$ 0.0554	$ 0.0554
8	4	M	PCB - Low Content	1	-	-	-	-	$ 0.2634	$ 0.2634
9	5	P	PCB Substrate	1	Commodity Item	-	1.1	1.1	$ 0.0520	$ 0.0520
10	5	S	Consumables	1	-	-	0	0	$ 0.0053	$ 0.0053
11	6	P	EF2210 VOC Free Flux	1	Commodity Item	-	0	0	$ 0.0003	$ 0.0003
12	6	P	LF318 Solder Paste	1	Commodity Item	-	0	0	$ 0.0039	$ 0.0039
13	6	P	Loctite Chipbonder 3627	1	Commodity Item	-	0	0	$ 0.0012	$ 0.0012
14	5	S	SMT Components	1	-	-	0	0	$ 0.0578	$ 0.0578
15	6	P	Seat Belt LED	1	Commodity Item	-	0	0	$ 0.0578	$ 0.0578
16	5	S	SMT Components	1	-	-	0	0	$ 0.0589	$ 0.0589
17	6	P	1206 Resistors	3	Commodity Item	-	0	0	$ 0.0035	$ 0.0104
18	6	P	0603 Resistors	1	Commodity Item	-	0	0	$ 0.0023	$ 0.0023
19	6	P	0603 Capacitor	1	Commodity Item	-	0	0	$ 0.0231	$ 0.0231
20	6	P	Male Pin, Connector	1	Commodity Item	-	0	0	$ 0.0231	$ 0.0231
21	2	P	Wire LED to Headliner Harness, AWG16	1	Commodity Item	-	1.9	1.9	$0.0234	$0.0234
22	2	P	Wire - Headliner Harness to Coupler, AWG16	1	Commodity Item	-	10.9	10.9	$0.1363	$0.1363
23	2	P	Wire - Coupler to SRS Module, AWG16	1	Commodity Item	-	11.1	11.1	$0.1395	$0.1395
24	2	P	Terminal Female, 0.64mm	1	Commodity Item	-	0.1	0.1	$0.0116	$0.0116
25	2	P	Terminal Female, 1.5mm	2	Commodity Item	-	0.5	1	$0.0173	$0.0347
26	2	P	Terminal Male, 1.5mm	3	Commodity Item	-	0.5	1.5	$0.0173	$0.0520
27	2	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-	$0.7885	$0.7885
28	3	M	Wire Installation	1	-	-	-	-	$0.4919	$0.4919
29	3	M	Common Wire Gauges	1	-	-	-	-	$0.2966	$0.2966
30	2	S	LED Driver Circuit	1	-	-	0	0	$0.1676	$0.1676
31	3	A	LED Driver Circuit Assembly	1	-	-	-	-	$0.1676	$0.1676
32	4	M	PCB - Low Content	1	-	-	-	-	$ 0.1676	$ 0.1676
33	5	S	Consumables	1	-	-	0	0	$ 0.0027	$ 0.0027
34	6	P	EF2210 VOC Free Flux	1	Commodity Item	-	0	0	$ 0.0001	$ 0.0001
35	6	P	LF318 Solder Paste	1	Commodity Item	-	0	0	$ 0.0020	$ 0.0020
36	6	P	Loctite Chipbonder 3627	1	Commodity Item	-	0	0	$ 0.0006	$ 0.0006
37	5	P	Transistor	1	Commodity Item	-	0	0	$ 0.1155	$ 0.1155
38	5	P	0603 Resistors	2	Commodity Item	-	0	0	$ 0.0023	$ 0.0046

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Chevrolet Silverado 2014 Manufacturing Cost Details – Front Passenger Seat Belt System

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
1	1	S	2013 Chevy Silverado PS Seat Belt Indicator	1	-	-	$ 0.0847	$ 0.4785	$ 0.3223	$ 0.6211	$ 1.5066	$ 0.1205	$ 0.0753	$ 0.0377	$ 1.7401	$ 1.7401
2	2	S	Air Bag Indicator PCB	1	-	-	$0.0196	$0.0748	$0.0697	$0.1706	$0.3347	$0.0268	$0.0167	$0.0084	$0.3866	$0.3866
3	3	A	Air Bag Indicator PCB Assembly	1	-	-	$0.0196	$0.0748	$0.0697	$0.1706	$0.3347	$0.0268	$0.0167	$0.0084	$0.3866	$0.3866
4	4	M	Functional Test	1	5	0.25	$ 0.0072	$ 0.0141	$ 0.0167	$ -	$ 0.0379	$ 0.0030	$ 0.0019	$ 0.0009	$ 0.0438	$ 0.0438
5	4	M	Conformal Coating	1	0.02	0.25	$ -	$ 0.0001	$ 0.0007	$ 0.0200	$ 0.0208	$ 0.0017	$ 0.0010	$ 0.0005	$ 0.0240	$ 0.0240
6	5	P	Conformal Coat, PCBA	1	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0231
7	4	M	De-Panel	1	4.62	0.25	$ 0.0066	$ 0.0235	$ 0.0178	$ -	$ 0.0480	$ 0.0038	$ 0.0024	$ 0.0012	$ 0.0554	$ 0.0554
8	4	M	PCB - Low Content	1	1.01	1	$ 0.0058	$ 0.0371	$ 0.0346	$ 0.1506	$ 0.2280	$ 0.0182	$ 0.0114	$ 0.0057	$ 0.2634	$ 0.2634
9	5	P	PCB Substrate	1	-	-	$ -	$ -	$ -	$ 0.0450	$ 0.0450	$ 0.0036	$ 0.0023	$ 0.0011	$ 0.0520	$ 0.0520
10	5	S	Consumables	1	-	-	$ -	$ -	$ -	$ 0.0046	$ 0.0046	$ 0.0004	$ 0.0002	$ 0.0001	$ 0.0053	$ 0.0053
11	6	P	EF2210 VOC Free Flux	1	-	-	$ -	$ -	$ -	$ 0.0002	$ 0.0002	$ -	$ -	$ -	$ 0.0003	$ 0.0003
12	6	P	LF318 Solder Paste	1	-	-	$ -	$ -	$ -	$ 0.0033	$ 0.0033	$ 0.0003	$ 0.0002	$ 0.0001	$ 0.0039	$ 0.0039
13	6	P	Loctite Chipbonder 3627	1	-	-	$ -	$ -	$ -	$ 0.0010	$ 0.0010	$ 0.0001	$ -	$ -	$ 0.0012	$ 0.0012
14	5	S	SMT Components	1	-	-	$ -	$ -	$ -	$ 0.0500	$ 0.0500	$ 0.0040	$ 0.0025	$ 0.0013	$ 0.0578	$ 0.0578
15	6	P	Seat Belt LED	1	-	-	$ -	$ -	$ -	$ 0.0500	$ 0.0500	$ 0.0040	$ 0.0025	$ 0.0013	$ 0.0578	$ 0.0578
16	5	S	SMT Components	1	-	-	$ -	$ -	$ -	$ 0.0510	$ 0.0510	$ 0.0041	$ 0.0026	$ 0.0013	$ 0.0589	$ 0.0589
17	6	P	1206 Resistors	3	-	-	$ -	$ -	$ -	$ 0.0030	$ 0.0030	$ 0.0002	$ 0.0002	$ 0.0001	$ 0.0035	$ 0.0104
18	6	P	0603 Resistors	1	-	-	$ -	$ -	$ -	$ 0.0020	$ 0.0020	$ 0.0002	$ 0.0001	$ 0.0001	$ 0.0023	$ 0.0023
19	6	P	0603 Capacitor	1	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0231
20	6	P	Male Pin, Connector	1	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0231
21	2	P	Wire LED to Headliner Harness, AWG16	1	-	-	$0.0000	$0.0000	$0.0000	$0.0203	$0.0203	$0.0016	$0.0010	$0.0005	$0.0234	$0.0234
22	2	P	Wire - Headliner Harness to Coupler, AWG16	1	-	-	$0.0000	$0.0000	$0.0000	$0.1180	$0.1180	$0.0094	$0.0059	$0.0030	$0.1363	$0.1363
23	2	P	Wire - Coupler to SRS Module, AWG16	1	-	-	$0.0000	$0.0000	$0.0000	$0.1208	$0.1208	$0.0097	$0.0060	$0.0030	$0.1395	$0.1395
24	2	P	Terminal Female, 0.64mm	1	-	-	$0.0000	$0.0000	$0.0000	$0.0100	$0.0100	$0.0008	$0.0005	$0.0003	$0.0116	$0.0116
25	2	P	Terminal Female, 1.5mm	2	-	-	$0.0000	$0.0000	$0.0000	$0.0150	$0.0150	$0.0012	$0.0008	$0.0004	$0.0173	$0.0347
26	2	P	Terminal Male, 1.5mm	3	-	-	$0.0000	$0.0000	$0.0000	$0.0150	$0.0150	$0.0012	$0.0008	$0.0004	$0.0173	$0.0520
27	2	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	$0.0623	$0.3851	$0.2353	$0.0000	$0.6827	$0.0546	$0.0341	$0.0171	$0.7885	$0.7885
28	3	M	Wire Installation	1	88.21	1	$0.0394	$0.2440	$0.1424	$0.0000	$0.4259	$0.0341	$0.0213	$0.0106	$0.4919	$0.4919
29	3	M	Common Wire Gauges	1	51	1	$0.0228	$0.1411	$0.0929	$0.0000	$0.2568	$0.0205	$0.0128	$0.0064	$0.2966	$0.2966
30	2	S	LED Driver Circuit	1	-	-	$0.0029	$0.0185	$0.0173	$0.1064	$0.1451	$0.0116	$0.0073	$0.0036	$0.1676	$0.1676
31	3	A	LED Driver Circuit Assembly	1	-	-	$0.0029	$0.0185	$0.0173	$0.1064	$0.1451	$0.0116	$0.0073	$0.0036	$0.1676	$0.1676
32	4	M	PCB - Low Content	1	0.51	1	$ 0.0029	$ 0.0185	$ 0.0173	$ 0.1064	$ 0.1451	$ 0.0116	$ 0.0073	$ 0.0036	$ 0.1676	$ 0.1676
33	5	S	Consumables	1	-	-	$ -	$ -	$ -	$ 0.0024	$ 0.0024	$ 0.0002	$ 0.0001	$ 0.0001	$ 0.0027	$ 0.0027
34	6	P	EF2210 VOC Free Flux	1	-	-	$ -	$ -	$ -	$ 0.0001	$ 0.0001	$ -	$ -	$ -	$ 0.0001	$ 0.0001
35	6	P	LF318 Solder Paste	1	-	-	$ -	$ -	$ -	$ 0.0017	$ 0.0017	$ 0.0001	$ 0.0001	$ -	$ 0.0020	$ 0.0020
36	6	P	Loctite Chipbonder 3627	1	-	-	$ -	$ -	$ -	$ 0.0005	$ 0.0005	$ -	$ -	$ -	$ 0.0006	$ 0.0006
37	5	P	Transistor	1	-	-	$ -	$ -	$ -	$ 0.1000	$ 0.1000	$ 0.0080	$ 0.0050	$ 0.0025	$ 0.1155	$ 0.1155
38	5	P	0603 Resistors	2	-	-	$ -	$ -	$ -	$ 0.0020	$ 0.0020	$ 0.0002	$ 0.0001	$ 0.0001	$ 0.0023	$ 0.0046

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Mazda CX-5, MY 2013 - 2016

DETAIL MANUFACTURING COSTS

Mazda CX-5 2013 Total Mass and Cost Details – Front Passenger Seat Belt System

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
1	**1**	**S**	**2013-16 Mazda CX-5 PS Seat Belt Indicator**	**1**	**-**	**-**	**6.1**	**6.1**	**$ 0.9286**	**$ 0.9286**
2	**2**	**S**	**PS Seat Belt Indicator PCB, CX-5**	**1**	**-**	**-**	**6.1**	**6.1**	**$0.9178**	**$0.9178**
3	**3**	**A**	**PS Seat Belt Indicator PCB Assembly**	**1**	**-**	**-**	**-**	**-**	**$0.9178**	**$0.9178**
4	**4**	**M**	**Functional Test**	**1**	**-**	**-**	**-**	**-**	**$ 0.0438**	**$ 0.0438**
5	**4**	**M**	**PCB - Low Content**	**1**	**-**	**-**	**-**	**-**	**$ 0.8740**	**$ 0.8740**
6	5	S	SMT Components	1	-	-	6.1	6.1	$ 0.6862	$ 0.6862
7	6	P	DRC9143Z0L, NPN Transistor	1	Commodity Item	-	1	1	$ 0.0529	$ 0.0529
8	6	P	MCH3209-TL-E, NPN Transistor	1	Commodity Item	-	1	1	$ 0.1386	$ 0.1386
9	6	P	Res 2010, CX-5	2	Commodity Item	-	0.1	0.2	$ 0.0207	$ 0.0413
10	6	P	Res 1206, CX-5	2	Commodity Item	-	0.2	0.2	$ 0.0040	$ 0.0081
11	6	P	Res 0603, CX-5	3	Commodity Item	-	0.1	0.3	$ 0.0023	$ 0.0069
12	6	P	LED - Red, CX-5	2	Commodity Item	-	0.4	0.4	$ 0.1290	$ 0.2580
13	6	P	FQT7N10LTF, N-Ch MOSFET	1	Commodity Item	-	2	2	$ 0.1269	$ 0.1269
14	6	P	MSS1P4-M3, Schottky Diode	1	Commodity Item	-	1	1	$ 0.0422	$ 0.0422

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Mazda CX-5 2013 Manufacturing Cost Details – Front Passenger Seat Belt System

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
1	1	S	2013-16 Mazda CX-5 PS Seat Belt Indicator	1	-	-	$ 0.0197	$ 0.0944	$ 0.1055	$ 0.5844	$ 0.8040	$ 0.0643	$ 0.0402	$ 0.0201	$ 0.9286	$ 0.9286
2	2	S	PS Seat Belt Indicator PCB, CX-5	1	-	-	$0.0197	$0.0944	$0.0961	$0.5844	$0.7946	$0.0636	$0.0397	$0.0199	$0.9178	$0.9178
3	3	A	PS Seat Belt Indicator PCB Assembly	1	-	-	$0.0197	$0.0944	$0.0961	$0.5844	$0.7946	$0.0636	$0.0397	$0.0199	$0.9178	$0.9178
4	4	M	Functional Test	1	5	0.25	$ 0.0072	$ 0.0141	$ 0.0167	$ -	$ 0.0379	$ 0.0030	$ 0.0019	$ 0.0009	$ 0.0438	$ 0.0438
5	4	M	PCB - Low Content	1	2.2	1	$ 0.0126	$ 0.0803	$ 0.0795	$ 0.5844	$ 0.7567	$ 0.0605	$ 0.0378	$ 0.0189	$ 0.8740	$ 0.8740
6	5	S	SMT Components	1	-	-	$ -	$ -	$ 0.0098	$ 0.5844	$ 0.5942	$ 0.0475	$ 0.0297	$ 0.0149	$ 0.6862	$ 0.6862
7	6	P	DRC9143Z0L, NPN Transistor	1	-	-	$ -	$ -	$ -	$ 0.0458	$ 0.0458	$ 0.0037	$ 0.0023	$ 0.0011	$ 0.0529	$ 0.0529
8	6	P	MCH3209-TL-E, NPN Transistor	1	-	-	$ -	$ -	$ -	$ 0.1200	$ 0.1200	$ 0.0096	$ 0.0060	$ 0.0030	$ 0.1386	$ 0.1386
9	6	P	Res 2010, CX-5	2	-	-	$ -	$ -	$ -	$ 0.0179	$ 0.0179	$ 0.0014	$ 0.0009	$ 0.0004	$ 0.0207	$ 0.0413
10	6	P	Res 1206, CX-5	2	-	-	$ -	$ -	$ -	$ 0.0035	$ 0.0035	$ 0.0003	$ 0.0002	$ 0.0001	$ 0.0040	$ 0.0081
11	6	P	Res 0603, CX-5	3	-	-	$ -	$ -	$ -	$ 0.0020	$ 0.0020	$ 0.0002	$ 0.0001	$ 0.0001	$ 0.0023	$ 0.0069
12	6	P	LED - Red, CX-5	2	-	-	$ -	$ -	$ -	$ 0.1117	$ 0.1117	$ 0.0089	$ 0.0056	$ 0.0028	$ 0.1290	$ 0.2580
13	6	P	FQT7N10LTF, N-Ch MOSFET	1	-	-	$ -	$ -	$ -	$ 0.1099	$ 0.1099	$ 0.0088	$ 0.0055	$ 0.0027	$ 0.1269	$ 0.1269
14	6	P	MSS1P4-M3, Schottky Diode	1	-	-	$ -	$ -	$ -	$ 0.0365	$ 0.0365	$ 0.0029	$ 0.0018	$ 0.0009	$ 0.0422	$ 0.0422

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

ESBR systems for Rear Passengers

Toyota Rav4, 2017
Land Rover Discovery Sport, 2016 - 2017
Tesla Model X, 2016 - 2017

Toyota Rav4, MY 2107

DETAIL MANUFACTURING COSTS

Toyota RAV 4 2017 Total Mass and Cost Overview – Rear Passenger Seat Belt System

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
1	1	S	2017 Toyota RAV4 Rear Seat Belt Indicator Assembly	1	-	-	280.5	280.5	$ 12.3226	$ 12.3226
2	2	S	Rear Seat Belt Indicator PCB	1	-	-	2.8	2.8	$0.8139	$0.8139
13	2	S	Rear Seat Belt Swtich Assembly, RAV4	1	-	-	41.4	41.4	$6.0194	$6.0194
104	2	S	Rear Seat Wiring Harness	1	-	-	236.3	236.3	$5.4893	$5.4893

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Toyota RAV 4 2017 Rear Passenger Seat Belt System – Seat Belt Indicator PCB

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
1	1	S	2017 Toyota RAV4 Rear Seat Belt Indicator Assembly	1	-	-	280.5	280.5	$ 12.3226	$ 12.3226
2	2	S	Rear Seat Belt Indicator PCB	1	-	-	2.8	2.8	$0.8139	$0.8139
3	3	S	Rear Seat Belt Indicator PCB	1	-	-	2.8	2.8	$0.8139	$0.8139
4	4	A	Rear Seat Belt Indicator PCB Assembly	1	-	-	-	-	$ 0.8139	$ 0.8139
5	5	M	Functional Test	1	-	-	-	-	$ 0.0438	$ 0.0438
6	5	M	PCB - Low Content	1	-	-	-	-	$ 0.7701	$ 0.7701
7	6	P	LED - Blue, RAV4	2	Commodity Item	-	0.2	0.4	$ 0.0873	$ 0.1746
8	6	P	LED - Red, RAV4	3	Commodity Item	-	0.2	0.6	$ 0.0634	$ 0.1902
9	6	P	Res 1206, RAV4	8	Commodity Item	-	0.1	0.8	$ 0.0035	$ 0.0277
10	6	P	Res 0603, RAV4	3	Commodity Item	-	0.1	0.3	$ 0.0023	$ 0.0069
11	6	P	Cap 0603, RAV4	3	Commodity Item	-	0.1	0.3	$ 0.0139	$ 0.0416
12	6	P	BZT52H-C3V3, Zener Diode	2	Commodity Item	-	0.2	0.4	$ 0.0104	$ 0.0208

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Toyota RAV 4 2017 Rear Passenger Seat Belt System – Seat Belt Switch Assembly

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
13	2	S	Rear Seat Belt Swtich Assembly, RAV4	1	-	-	41.4	41.4	$6.0194	$6.0194
14	3	S	Seat Belt Switch Subassy, R	1	-	-	13	13	$1.2577	$1.2577
15	4	P	Black Wire 1, RAV4	1	Commodity Item	-	3.9	3.9	$ 0.0578	$ 0.0578
16	4	P	Black Wire 2, RAV4	1	Commodity Item	-	3.9	3.9	$ 0.0578	$ 0.0578
17	4	P	Wire Conduit, RAV4	1	Commodity Item	-	0.8	0.8	$ 0.0534	$ 0.0534
18	4	P	Tape Wire Insulator, RAV4	2	Commodity Item	-	0.4	0.8	$ 0.0087	$ 0.0173
19	4	P	Male Wire Terminal, RAV4	1	Commodity Item	-	0.1	0.1	$ 0.0231	$ 0.0231
20	4	P	Female Wire Terminal, RAV4	1	Commodity Item	-	0.1	0.1	$ 0.0173	$ 0.0173
21	4	P	Seat Belt Switch Connector, RAV4	1	Commodity Item	-	3	3	$ 0.2310	$ 0.2310
22	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 0.6175	$ 0.6175
23	5	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.1064	$ 0.1064
24	5	M	Wire and Tape Windings Installation	1	-	-	-	-	$ 0.1517	$ 0.1517
25	5	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.2534	$ 0.2534
26	5	M	Wire and Coverings Installation	1	-	-	-	-	$ 0.1060	$ 0.1060
27	4	P	Seat Belt Switch PCB, RAV4	1	Commodity Item	-	0.4	0.4	$ 0.0693	$ 0.0693
28	4	P	LF318 Solder Paste	1	Commodity Item	-	0	0	$ 0.0013	$ 0.0013
29	4	A	Install PCB and Wire	1	-	-	-	-	$ 0.1096	$ 0.1096
30	5	M	Installation Process	1	-	-	-	-	$ 0.1096	$ 0.1096
31	3	S	Plastic Cover 1 Subassy, RAV4	1	-	-	0.3	0.3	$0.2732	$0.2732
32	4	P	Plastic Cover 1, RAV4	1	PBT GP	-	0.2	0.2	$ 0.0076	$ 0.0076
33	5	M	Injection Mold, 55 Ton	1	PBT GP	-	0.2	0.2	$ 0.0076	$ 0.0076
34	4	P	Contact Arm, RAV4	1	opper Beryllium(1720	-	0.1	0.1	$ 0.0991	$ 0.0991
35	5	M	Wash	1	-	-	-	-	$ 0.0207	$ 0.0207
36	5	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	-	0.1	0.1	$ 0.0783	$ 0.0783
37	4	A	Plastic Cover 1 Assembly	1	-	-	-	-	$ 0.1665	$ 0.1665
38	5	M	Manual Assembly	1	-	-	-	-	$ 0.1665	$ 0.1665
39	3	P	Plastic Cover 2, RAV4	1	PBT GP	-	0.5	0.5		
40	4	M	Injection Mold, 55 Tons	1	PBT GP	-	0.5	0.5		
41	3	A	Seat Belt Swtich Assembly, RAV4	1	-	-	-	-	$0.4659	$0.4659
42	4	M	Manual Assembly	1	-	-	-	-		
43	4	M	Functional Test	1	-	-	-	-		

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Toyota RAV 4 2017 Rear Passenger Seat Belt System – Seat Wiring Harness Assembly (1/2)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
104	**2**	**S**	**Rear Seat Wiring Harness**	**1**	**-**	**-**	**236.3**	**236.3**	**$5.4893**	**$5.4893**
105	**3**	**S**	**Rear Seat Wire Assembly**	**1**	**-**	**-**	**117.3**	**117.3**		
106	**4**	**S**	**Right & Center Rear Seat Wire Subassy, RAV4**	**1**	**-**	**-**	**77.9**	**77.9**		
107	5	P	Connector 1, RAV4	1	Commodity Item	-	3	3	$ 0.2310	$ 0.2310
108	5	P	Wire 1, RAV4	1	Commodity Item	-	6.9	6.9		
109	5	P	Wire 2, RAV4	1	Commodity Item	-	28	28		
110	5	P	Connector 2, RAV4	1	Commodity Item	-	3	3	$ 0.0231	$ 0.0231
111	5	P	Wire 3, RAV4	1	Commodity Item	-	6.9	6.9		
112	5	P	Wire 4, RAV4	1	Commodity Item	-	28	28		
113	5	P	Right Rear Seat Wire Conduit, RAV4	1	Commodity Item	-	1.5	1.5	$ 0.1346	$ 0.1346
114	5	P	Female Wire Terminal 1, RAV4	4	Commodity Item	-	0.1	0.4		
115	5	P	Male Wire Terminal 2, RAV4	2	Commodity Item	-	0.1	0.2		
116	5	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 0.8121	$ 0.8121
117	6	M	Wire and Connector Assembly	1	-	-	-	-		
118	6	M	Wire and Terminal Assembly	1	-	-	-	-		
119	6	M	Wire and Covering Installation	1	-	-	-	-	$ 0.1843	$ 0.1843
120	**4**	**S**	**Left Rear Seat Wire Subassy, RAV4**	**1**	**-**	**-**	**39.4**	**39.4**		
121	5	P	Connector 3, RAV4	1	Commodity Item	-	3	3		
122	5	P	Wire 5, RAV4	1	Commodity Item	-	6.9	6.9	$ 0.0924	$ 0.0924
123	5	P	Wire 6, RAV4	1	Commodity Item	-	28	28		
124	5	P	Left Rear Seat Wire Conduit, RAV4	1	Commodity Item	-	1.2	1.2		
125	5	P	Female Wire Terminal 1, RAV4	2	Commodity Item	-	0.1	0.2	$ 0.0231	$ 0.0462
126	5	P	Male Wire Terminal 2, RAV4	1	Commodity Item	-	0.1	0.1		
127	5	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-		
128	6	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.1064	$ 0.1064
129	6	M	Wire and Terminal Assembly	1	-	-	-	-		
130	6	M	Wire and Covering Installation	1	-	-	-	-		

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Toyota RAV 4 2017 Rear Passenger Seat Belt System – Seat Wiring Harness Assembly (2/2)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
131	**4**	**A**	**Rear Seat Switch & Wire Assembly**	**1**	**-**	**-**	**-**	**-**	**$ 0.7593**	**$ 0.7593**
132	5	M	Manual Assembly	1	-	-	-	-		
133	5	M	Functional Test	1	-	-	-	-		
134	**3**	**S**	**Seat Belt Ind. Wire Assembly**	**1**	**-**	**-**	**119**	**119**	**$1.0286**	**$1.0286**
135	**4**	**P**	**Female Wire Terminal 2, RAV4**	**3**	**Commodity Item**	**-**	**0.1**	**0.3**		
136	**4**	**P**	**Female Wire Terminal 3, RAV4**	**3**	**Commodity Item**	**-**	**0.1**	**0.3**		
137	**4**	**P**	**Seat Belt Ind. Wire 1, RAV4**	**1**	**Commodity Item**	**-**	**105**	**105**	**$ 0.1502**	**$ 0.1502**
138	**4**	**P**	**Seat Belt Ind. Wire 2, RAV4**	**1**	**Commodity Item**	**-**	**6.7**	**6.7**		
139	**4**	**P**	**Seat Belt Ind. Wire 3, RAV4**	**1**	**Commodity Item**	**-**	**6.7**	**6.7**		
140	**4**	**A**	**Wire Prep - Cut, Strip, Crimp Terminals**	**1**	**-**	**-**	**-**	**-**	**$ 0.5807**	**$ 0.5807**
141	5	M	Wire and Connector Assembly	1	-	-	-	-		
142	5	M	Wire and Terminal Assembly	1	-	-	-	-		

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Toyota RAV4 2017 Manufacturing Cost Details – Rear Seat Belt Indicator PCB

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
1	1	S	2017 Toyota RAV4 Rear Seat Belt Indicator Assembly	1	-	-	$ 0.8840	$ 2.8503	$ 2.4960	$ 4.4386	$ 10.6689	$ 0.8535	$ 0.5334	$ 0.2667	$ 12.3226	$ 12.3226
2	2	S	Rear Seat Belt Indicator PCB	1	-	-	$0.0275	$0.1438	$0.1335	$0.3999	$0.7046	$0.0564	$0.0352	$0.0176	$0.8139	$0.8139
3	3	S	Rear Seat Belt Indicator PCB	1	-	-	$0.0275	$0.1438	$0.1335	$0.3999	$0.7046	$0.0564	$0.0352	$0.0176	$0.8139	$0.8139
4	4	A	Rear Seat Belt Indicator PCB Assembly	1	-	-	$ 0.0275	$ 0.1438	$ 0.1335	$ 0.3999	$ 0.7046	$ 0.0564	$ 0.0352	$ 0.0176	$ 0.8139	$ 0.8139
5	5	M	Functional Test	1	5	0.25	$ 0.0072	$ 0.0141	$ 0.0167	$ -	$ 0.0379	$ 0.0030	$ 0.0019	$ 0.0009	$ 0.0438	$ 0.0438
6	5	M	PCB - Low Content	1	3.55	1	$ 0.0203	$ 0.1297	$ 0.1168	$ 0.3999	$ 0.6667	$ 0.0533	$ 0.0333	$ 0.0167	$ 0.7701	$ 0.7701
7	6	P	LED - Blue, RAV4	2	-	-	$ -	$ -	$ -	$ 0.0756	$ 0.0756	$ 0.0060	$ 0.0038	$ 0.0019	$ 0.0873	$ 0.1746
8	6	P	LED - Red, RAV4	3	-	-	$ -	$ -	$ -	$ 0.0549	$ 0.0549	$ 0.0044	$ 0.0027	$ 0.0014	$ 0.0634	$ 0.1902
9	6	P	Res 1206, RAV4	8	-	-	$ -	$ -	$ -	$ 0.0030	$ 0.0030	$ 0.0002	$ 0.0002	$ 0.0001	$ 0.0035	$ 0.0277
10	6	P	Res 0603, RAV4	3	-	-	$ -	$ -	$ -	$ 0.0020	$ 0.0020	$ 0.0002	$ 0.0001	$ 0.0001	$ 0.0023	$ 0.0069
11	6	P	Cap 0603, RAV4	3	-	-	$ -	$ -	$ -	$ 0.0120	$ 0.0120	$ 0.0010	$ 0.0006	$ 0.0003	$ 0.0139	$ 0.0416
12	6	P	BZT52H-C3V3, Zener Diode	2	-	-	$ -	$ -	$ -	$ 0.0090	$ 0.0090	$ 0.0007	$ 0.0005	$ 0.0002	$ 0.0104	$ 0.0208

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

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Toyota RAV4 2017 Manufacturing Cost Details – Rear Seat Belt Switch Assembly

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
13	2	S	Rear Seat Belt Swtich Assembly, RAV4	1	-	-	$0.5624	$1.5955	$1.4859	$1.5679	$5.2116	$0.4169	$0.2606	$0.1303	$6.0194	$6.0194
14	3	S	Seat Belt Switch Subassy, R	1	-	-	$0.0572	$0.3541	$0.2202	$0.4573	$1.0889	$0.0871	$0.0544	$0.0272	$1.2577	$1.2577
15	4	P	Black Wire 1, RAV4	1	-	-	$ -	$ -	$ -	$ 0.0500	$ 0.0500	$ 0.0040	$ 0.0025	$ 0.0013	$ 0.0578	$ 0.0578
16	4	P	Black Wire 2, RAV4	1	-	-	$ -	$ -	$ -	$ 0.0500	$ 0.0500	$ 0.0040	$ 0.0025	$ 0.0013	$ 0.0578	$ 0.0578
17	4	P	Wire Conduit, RAV4	1	-	-	$ -	$ -	$ -	$ 0.0462	$ 0.0462	$ 0.0037	$ 0.0023	$ 0.0012	$ 0.0534	$ 0.0534
18	4	P	Tape Wire Insulator, RAV4	2	-	-	$ -	$ -	$ -	$ 0.0075	$ 0.0075	$ 0.0006	$ 0.0004	$ 0.0002	$ 0.0087	$ 0.0173
19	4	P	Male Wire Terminal, RAV4	1	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0231
20	4	P	Female Wire Terminal, RAV4	1	-	-	$ -	$ -	$ -	$ 0.0150	$ 0.0150	$ 0.0012	$ 0.0008	$ 0.0004	$ 0.0173	$ 0.0173
21	4	P	Seat Belt Switch Connector, RAV4	1	-	-	$ -	$ -	$ -	$ 0.2000	$ 0.2000	$ 0.0160	$ 0.0100	$ 0.0050	$ 0.2310	$ 0.2310
22	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	$ 0.0487	$ 0.3016	$ 0.1843	$ -	$ 0.5347	$ 0.0428	$ 0.0267	$ 0.0134	$ 0.6175	$ 0.6175
23	5	M	Wire and Connector Assembly	1	19	1	$ 0.0085	$ 0.0526	$ 0.0310	$ -	$ 0.0921	$ 0.0074	$ 0.0046	$ 0.0023	$ 0.1064	$ 0.1064
24	5	M	Wire and Tape Windings Installation	1	27	1	$ 0.0121	$ 0.0747	$ 0.0446	$ -	$ 0.1314	$ 0.0105	$ 0.0066	$ 0.0033	$ 0.1517	$ 0.1517
25	5	M	Wire and Terminal Assembly	1	44	1	$ 0.0197	$ 0.1217	$ 0.0780	$ -	$ 0.2194	$ 0.0175	$ 0.0110	$ 0.0055	$ 0.2534	$ 0.2534
26	5	M	Wire and Coverings Installation	1	19	1	$ 0.0085	$ 0.0526	$ 0.0307	$ -	$ 0.0918	$ 0.0073	$ 0.0046	$ 0.0023	$ 0.1060	$ 0.1060
27	4	P	Seat Belt Switch PCB, RAV4	1	-	-	$ -	$ -	$ -	$ 0.0600	$ 0.0600	$ 0.0048	$ 0.0030	$ 0.0015	$ 0.0693	$ 0.0693
28	4	P	LF318 Solder Paste	1	-	-	$ -	$ -	$ -	$ 0.0011	$ 0.0011	$ 0.0001	$ 0.0001	$ -	$ 0.0013	$ 0.0013
29	4	A	Install PCB and Wire	1	-	-	$ 0.0085	$ 0.0526	$ 0.0338	$ -	$ 0.0949	$ 0.0076	$ 0.0047	$ 0.0024	$ 0.1096	$ 0.1096
30	5	M	Installation Process	1	19	1	$ 0.0085	$ 0.0526	$ 0.0338	$ -	$ 0.0949	$ 0.0076	$ 0.0047	$ 0.0024	$ 0.1096	$ 0.1096
31	3	S	Plastic Cover 1 Subassy, RAV4	1	-	-	$0.0399	$0.0491	$0.0838	$0.0637	$0.2366	$0.0189	$0.0118	$0.0059	$0.2732	$0.2732
32	4	P	Plastic Cover 1, RAV4	1	-	-	$ 0.0007	$ 0.0021	$ 0.0031	$ 0.0007	$ 0.0066	$ 0.0005	$ 0.0003	$ 0.0002	$ 0.0076	$ 0.0076
33	5	M	Injection Mold, 55 Ton	1	0.93	0.25	$ 0.0007	$ 0.0021	$ 0.0031	$ 0.0007	$ 0.0066	$ 0.0005	$ 0.0003	$ 0.0002	$ 0.0076	$ 0.0076
34	4	P	Contact Arm, RAV4	1	-	-	$ 0.0049	$ 0.0059	$ 0.0120	$ 0.0630	$ 0.0858	$ 0.0069	$ 0.0043	$ 0.0021	$ 0.0991	$ 0.0991
35	5	M	Wash	1	5	0.25	$ 0.0043	$ 0.0040	$ 0.0097	$ -	$ 0.0179	$ 0.0014	$ 0.0009	$ 0.0004	$ 0.0207	$ 0.0207
36	5	M	Stamping Press, 25 Ton	1	0.75	0.25	$ 0.0006	$ 0.0019	$ 0.0023	$ 0.0630	$ 0.0678	$ 0.0054	$ 0.0034	$ 0.0017	$ 0.0783	$ 0.0783
37	4	A	Plastic Cover 1 Assembly	1	-	-	$ 0.0343	$ 0.0412	$ 0.0687	$ -	$ 0.1442	$ 0.0115	$ 0.0072	$ 0.0036	$ 0.1665	$ 0.1665
38	5	M	Manual Assembly	1	10	1	$ 0.0343	$ 0.0412	$ 0.0687	$ -	$ 0.1442	$ 0.0115	$ 0.0072	$ 0.0036	$ 0.1665	$ 0.1665
39	3	P	Plastic Cover 2, RAV4	1												
40	4	M	Injection Mold, 55 Tons	1	1.08											
41	3	A	Seat Belt Swtich Assembly, RAV4	1	-	-	$0.0894	$0.1261	$0.1878	$0.0000	$0.4034	$0.0323	$0.0202	$0.0101	$0.4659	$0.4659
42	4	M	Manual Assembly	1	19	1										
43	4	M	Functional Test	1	17	0.25										

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Toyota RAV4 2017 Manufacturing Cost Details – Seat Wiring Harness Assembly (1/2)

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
104	2	S	Rear Seat Wiring Harness	1		-	$0.2941	$1.1110	$0.8767	$2.4708	$4.7526	$0.3802	$0.2376	$0.1188	$5.4893	$5.4893
105	3	S	Rear Seat Wire Assembly	1	-	-										
106	4	S	Right & Center Rear Seat Wire Subassy, RAV4	1	-	-										
107	5	P	Connector 1, RAV4	1	-	-	$ -	$ -	$ -	$ 0.2000	$ 0.2000	$ 0.0160	$ 0.0100	$ 0.0050	$ 0.2310	$ 0.2310
108	5	P	Wire 1, RAV4	1	-	-										
109	5	P	Wire 2, RAV4	1												
110	5	P	Connector 2, RAV4	1	-		$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0231
111	5	P	Wire 3, RAV4	1	-	-										
112	5	P	Wire 4, RAV4	1	-	-										
113	5	P	Right Rear Seat Wire Conduit, RAV4	1	-	-	$ -	$ -	$ -	$ 0.1165	$ 0.1165	$ 0.0093	$ 0.0058	$ 0.0029	$ 0.1346	$ 0.1346
114	5	P	Female Wire Terminal 1, RAV4	4		-										
115	5	P	Male Wire Terminal 2, RAV4	2	-	-										
116	5	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-		$ 0.0640	$ 0.3956	$ 0.2436	$ -	$ 0.7031	$ 0.0563	$ 0.0352	$ 0.0176	$ 0.8121	$ 0.8121
117	6	M	Wire and Connector Assembly	1	38											
118	6	M	Wire and Terminal Assembly	1	72	1										
119	6	M	Wire and Covering Installation	1		1	$ 0.0148	$ 0.0913	$ 0.0535	$ -	$ 0.1595	$ 0.0128	$ 0.0080	$ 0.0040	$ 0.1843	$ 0.1843
120	4	S	Left Rear Seat Wire Subassy, RAV4	1	-	-										
121	5	P	Connector 3, RAV4	1	-	-										
122	5	P	Wire 5, RAV4	1	-	-	$ -	$ -	$ -	$ 0.0800	$ 0.0800	$ 0.0064	$ 0.0040	$ 0.0020	$ 0.0924	$ 0.0924
123	5	P	Wire 6, RAV4	1	-											
124	5	P	Left Rear Seat Wire Conduit, RAV4	1												
125	5	P	Female Wire Terminal 1, RAV4	2	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462
126	5	P	Male Wire Terminal 2, RAV4	1	-	-										
127	5	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-										
128	6	M	Wire and Connector Assembly	1	19	1	$ 0.0085	$ 0.0526	$ 0.0310	$ -	$ 0.0921	$ 0.0074	$ 0.0046	$ 0.0023	$ 0.1064	$ 0.1064
129	6	M	Wire and Terminal Assembly	1		1										
130	6	M	Wire and Covering Installation	1	19											

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Toyota RAV4 2017 Manufacturing Cost Details – Seat Wiring Harness Assembly (2/2)

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
104	**2**	**S**	**Rear Seat Wiring Harness**	**1**		**-**	**$0.2941**	**$1.1110**	**$0.8767**	**$2.4708**	**$4.7526**	**$0.3802**	**$0.2376**	**$0.1188**	**$5.4893**	**$5.4893**
105	**3**	**S**	**Rear Seat Wire Assembly**	**1**	**-**	**-**										
106	**4**	**S**	**Right & Center Rear Seat Wire Subassy, RAV4**	**1**	**-**	**-**										
107	5	P	Connector 1, RAV4	1	-	-	$ -	$ -	$ -	$ 0.2000	$ 0.2000	$ 0.0160	$ 0.0100	$ 0.0050	$ 0.2310	$ 0.2310
108	5	P	Wire 1, RAV4	1	-	-										
109	5	P	Wire 2, RAV4	1												
110	5	P	Connector 2, RAV4	1	-		$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0231
111	5	P	Wire 3, RAV4	1	-	-										
112	5	P	Wire 4, RAV4	1	-	-										
131	**4**	**A**	**Rear Seat Switch & Wire Assembly**	**1**	**-**		**$ 0.1475**	**$ 0.2035**	**$ 0.3064**	**$ -**	**$ 0.6574**	**$ 0.0526**	**$ 0.0329**	**$ 0.0164**	**$ 0.7593**	**$ 0.7593**
132	5	M	Manual Assembly	1	33	1										
133	5	M	Functional Test	1	24	0.25										
134	**3**	**S**	**Seat Belt Ind. Wire Assembly**	**1**		**-**	**$0.0456**	**$0.2822**	**$0.1767**	**$0.3860**	**$0.8905**	**$0.0712**	**$0.0445**	**$0.0223**	**$1.0286**	**$1.0286**
135	**4**	**P**	**Female Wire Terminal 2, RAV4**	**3**	**-**	**-**										
136	**4**	**P**	**Female Wire Terminal 3, RAV4**	**3**	**-**	**-**										
137	**4**	**P**	**Seat Belt Ind. Wire 1, RAV4**	**1**	**-**		**$ -**	**$ -**	**$ -**	**$ 0.1300**	**$ 0.1300**	**$ 0.0104**	**$ 0.0065**	**$ 0.0033**	**$ 0.1502**	**$ 0.1502**
138	**4**	**P**	**Seat Belt Ind. Wire 2, RAV4**	**1**	**-**											
139	**4**	**P**	**Seat Belt Ind. Wire 3, RAV4**	**1**		**-**										
140	**4**	**A**	**Wire Prep - Cut, Strip, Crimp Terminals**	**1**	**-**	**-**	**$ 0.0456**	**$ 0.2822**	**$ 0.1749**	**$ -**	**$ 0.5027**	**$ 0.0402**	**$ 0.0251**	**$ 0.0126**	**$ 0.5807**	**$ 0.5807**
141	5	M	Wire and Connector Assembly	1	36	1										
142	5	M	Wire and Terminal Assembly	1	66	1										

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Land Rover Discovery, MY 2016 - 2107

DETAIL MANUFACTURING COSTS

Land Rover Discovery 2016-2017 Total Mass and Cost Details – Rear Passenger Seat Belt System

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
1	1	S	2016-17 Land Rover Discovery Rear ESBR Study	1	-	-	338.8	338.8	$ 19.5431	$ 19.5431
2	2	S	Rear Seat Belt Switch Assembly	1	-	-	67.3	67.3	$9.4455	$9.4455
135	2	S	2R Seat Wiring Harness	1	-	-	162.4	162.4	$5.8603	$5.8603
162	2	S	3R Seat Wiring Harness	1	-	-	109.2	109.2	$4.2373	$4.2373

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Land Rover Discovery 2016-2017 Rear Passenger Seat Belt System – Rear Seat Belt Switch Assembly (1/3)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
1	1	S	2016-17 Land Rover Discovery Rear ESBR Study	1	-	-	338.8	338.8	$ 19.5431	$ 19.5431
2	2	S	Rear Seat Belt Switch Assembly	1	-	-	67.3	67.3	$9.4455	$9.4455
3	3	S	2R Center Seat Belt Switch Subassy, Discovery	1	-	-	12.9	12.9	$0.9149	$0.9149
4	4	P	Two Cond. Cable, Discovery	1	Commodity Item	-	6.3	6.3	$ 0.0924	$ 0.0924
5	4	P	Male Wire Terminal 1, Discovery	2	Commodity Item	-	0.1	0.2	$ 0.0231	$ 0.0462
6	4	P	Seat Belt Switch Connector, Discovery	1	Commodity Item	-	5	5	$ 0.2310	$ 0.2310
7	4	P	Terminal Pos. Assurance, Discovery	2	Commodity Item	-	0.1	0.2	$ 0.0231	$ 0.0462
8	4	P	Connector Clip, Discovery	1	Commodity Item	-	0.8	0.8	$ 0.0155	$ 0.0155
9	4	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 0.3129	$ 0.3129
10	5	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.1970	$ 0.1970
11	5	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.1159	$ 0.1159
12	4	P	2R Center Seat Belt Switch PCB, Discovery	1	Commodity Item	-	0.4	0.4	$ 0.0578	$ 0.0578
13	4	P	LF318 Solder Paste	1	Commodity Item	-	0	0	$ 0.0013	$ 0.0013
14	4	A	Install PCB and Wire	1	-	-	-	-	$ 0.1096	$ 0.1096
15	5	M	Installation Process	1	-	-	-	-	$ 0.1096	$ 0.1096
16	3	S	Plastic Cover 1 Subassy, Discovery	1	-	-	0.5	0.5	$0.2275	$0.2275
17	4	P	Plastic Cover 1, Discovery	1	PBT GP	-	0.4	0.4	$ 0.0091	$ 0.0091
18	5	M	Injection Mold, 55 Tons	1	PBT GP	0.4	0.4	0.4	$ 0.0091	$ 0.0091
19	4	P	Contact Arm 1, Discovery	1	Nickel Plated Copper	-	0.1	0.1	$ 0.0518	$ 0.0518
20	5	M	Wash	1	-	-	-	-	$ 0.0207	$ 0.0207
21	5	M	Stamping Press, 55 Tons	1	Nickel Plated Copper	1.5	0.1	0.1	$ 0.0311	$ 0.0311
22	4	A	Plastic Cover 1 Assembly	1	-	-	-	-	$ 0.1665	$ 0.1665
23	5	M	Manual Assembly	1	-	-	-	-	$ 0.1665	$ 0.1665
24	3	P	Fabric Wire Tape, Discovery	1	Commodity Item	-	0.2	0.2	$0.0036	$0.0036
25	3	P	Pushpin, Discovery	1	Commodity Item	-	0.5	0.5	$0.0788	$0.0788
26	3	A	2nd Row Center Seat Belt Switch Assembly	1	-	-	-	-	$0.7489	$0.7489
27	4	M	Manual Assembly	1	-	-	-	-	$ 0.5989	$ 0.5989
28	4	M	Functional Test	1	-	-	-	-	$ 0.1500	$ 0.1500
29	3	S	2R Left Seat Belt Switch Subassy, Discovery	1	-	-	12	12	$0.9011	$0.9011
30	4	P	Two Cond. Cable, Discovery	1	Commodity Item	-	5.4	5.4	$ 0.0785	$ 0.0785
31	4	P	Male Wire Terminal 1, Discovery	2	Commodity Item	-	0.1	0.2	$ 0.0231	$ 0.0462
32	4	P	Seat Belt Switch Connector, Discovery	1	Commodity Item	-	5	5	$ 0.2310	$ 0.2310
33	4	P	Terminal Pos. Assurance, Discovery	2	Commodity Item	-	0.1	0.2	$ 0.0231	$ 0.0462
34	4	P	Connector Clip, Discovery	1	Commodity Item	-	0.8	0.8	$ 0.0155	$ 0.0155
35	4	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 0.3129	$ 0.3129
36	5	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.1970	$ 0.1970
37	5	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.1159	$ 0.1159
38	4	P	2R Center Seat Belt Switch PCB, Discovery	1	Commodity Item	-	0.4	0.4	$ 0.0578	$ 0.0578
39	4	P	LF318 Solder Paste	1	Commodity Item	-	0	0	$ 0.0013	$ 0.0013
40	4	A	Install PCB and Wire	1	-	-	-	-	$ 0.1096	$ 0.1096
41	5	M	Installation Process	1	-	-	-	-	$ 0.1096	$ 0.1096
42	3	S	Plastic Cover 1 Subassy, Discovery	1	-	-	0.5	0.5	$0.2275	$0.2275
43	4	P	Plastic Cover 1, Discovery	1	PBT GP	-	0.4	0.4	$ 0.0091	$ 0.0091
44	5	M	Injection Mold, 55 Tons	1	PBT GP	0.4	0.4	0.4	$ 0.0091	$ 0.0091
45	4	P	Contact Arm 1, Discovery	1	Nickel Plated Copper	-	0.1	0.1	$ 0.0518	$ 0.0518
46	5	M	Wash	1	-	-	-	-	$ 0.0207	$ 0.0207

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Land Rover Discovery 2016-2017 Rear Passenger Seat Belt System – Rear Seat Belt Switch Assembly (2/3)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
47	5	M	Stamping Press, 25 Tons	1	Nickel Plated Copper	1.5	0.1	0.1	$ 0.0311	$ 0.0311
48	**4**	**A**	**Plastic Cover 1 Assembly**	**1**	**-**	**-**	**-**	**-**	**$ 0.1665**	**$ 0.1665**
49	5	M	Manual Assembly	1	-	-	-	-	$ 0.1665	$ 0.1665
50	**3**	**P**	**Heat Shrink Tube, Discovery**	**1**	**Commodity Item**	**-**	**0.5**	**0.5**	**$0.0113**	**$0.0113**
51	**3**	**P**	**Cable Tie/w Edge Clip, Discovery**	**1**	**Commodity Item**	**-**	**1.8**	**1.8**	**$0.1040**	**$0.1040**
52	**3**	**A**	**2nd Row Left Seat Belt Switch Assembly**	**1**	**-**	**-**	**-**	**-**	**$0.7585**	**$0.7585**
53	**4**	**M**	**Manual Assembly**	**1**	**-**	**-**	**-**	**-**	**$ 0.5775**	**$ 0.5775**
54	**4**	**M**	**Auto Label Apply**	**1**	**-**	**-**	**-**	**-**	**$ 0.0310**	**$ 0.0310**
55	5	P	Label, Discovery	1	Commodity Item	-	0.1	0.1	$ 0.0116	$ 0.0116
56	**4**	**M**	**Functional Test**	**1**	**-**	**-**	**-**	**-**	**$ 0.1500**	**$ 0.1500**
57	**3**	**S**	**2R Right Seat Belt Switch Subassy, Discovery**	**1**	**-**	**-**	**12**	**12**	**$0.9011**	**$0.9011**
58	**4**	**P**	**Two Cond. Cable, Discovery**	**1**	**Commodity Item**	**-**	**5.4**	**5.4**	**$ 0.0785**	**$ 0.0785**
59	**4**	**P**	**Male Wire Terminal 1, Discovery**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**	**$ 0.0231**	**$ 0.0462**
60	**4**	**P**	**Seat Belt Switch Connector, Discovery**	**1**	**Commodity Item**	**-**	**5**	**5**	**$ 0.2310**	**$ 0.2310**
61	**4**	**P**	**Terminal Pos. Assurance, Discovery**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**	**$ 0.0231**	**$ 0.0462**
62	**4**	**P**	**Connector Clip, Discovery**	**1**	**Commodity Item**	**-**	**0.8**	**0.8**	**$ 0.0155**	**$ 0.0155**
63	**4**	**A**	**Wire Pre - Cut, Strip, Crimp Terminals**	**1**	**-**	**-**	**-**	**-**	**$ 0.3129**	**$ 0.3129**
64	5	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.1970	$ 0.1970
65	5	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.1159	$ 0.1159
66	**4**	**P**	**2R Center Seat Belt Switch PCB, Discovery**	**1**	**Commodity Item**	**-**	**0.4**	**0.4**	**$ 0.0578**	**$ 0.0578**
67	**4**	**P**	**LF318 Solder Paste**	**1**	**Commodity Item**	**-**	**0**	**0**	**$ 0.0013**	**$ 0.0013**
68	**4**	**A**	**Install PCB and Wire**	**1**	**-**	**-**	**-**	**-**	**$ 0.1096**	**$ 0.1096**
69	5	M	Installation Process	1	-	-	-	-	$ 0.1096	$ 0.1096
70	**3**	**S**	**Plastic Cover 1 Subassy, Discovery**	**1**	**-**	**-**	**0.5**	**0.5**	**$0.2275**	**$0.2275**
71	**4**	**P**	**Plastic Cover 1, Discovery**	**1**	**PBT GP**	**-**	**0.4**	**0.4**	**$ 0.0091**	**$ 0.0091**
72	5	M	Injection Mold, 55 Tons	1	PBT GP	0.4	0.4	0.4	$ 0.0091	$ 0.0091
73	**4**	**P**	**Contact Arm 1, Discovery**	**1**	**Nickel Plated Copper**	**-**	**0.1**	**0.1**	**$ 0.0518**	**$ 0.0518**
74	5	M	Wash	1	-	-	-	-	$ 0.0207	$ 0.0207
75	5	M	Stamping Press, 55 Tons	1	Nickel Plated Copper	1.5	0.1	0.1	$ 0.0311	$ 0.0311
76	**4**	**A**	**Plastic Cover 1 Assembly**	**1**	**-**	**-**	**-**	**-**	**$ 0.1665**	**$ 0.1665**
77	5	M	Manual Assembly	1	-	-	-	-	$ 0.1665	$ 0.1665
78	**3**	**P**	**Heat Shrink Tube, Discovery**	**1**	**Commodity Item**	**-**	**0.5**	**0.5**	**$0.0113**	**$0.0113**
79	**3**	**P**	**Cable Tie/w Edge Clip, Discovery**	**1**	**Commodity Item**	**-**	**1.8**	**1.8**	**$0.1040**	**$0.1040**
80	**3**	**A**	**2nd Row Right Seat Belt Switch Assembly**	**1**	**-**	**-**	**-**	**-**	**$0.7585**	**$0.7585**
81	**4**	**M**	**Manual Assembly**	**1**	**-**	**-**	**-**	**-**	**$ 0.5775**	**$ 0.5775**
82	**4**	**M**	**Auto Label Apply**	**1**	**-**	**-**	**-**	**-**	**$ 0.0310**	**$ 0.0310**
83	5	P	Label, Discovery	1	Commodity Item	-	0.1	0.1	$ 0.0116	$ 0.0116
84	**4**	**M**	**Functional Test**	**1**	**-**	**-**	**-**	**-**	**$ 0.1500**	**$ 0.1500**
85	**3**	**S**	**3R Left Seat Belt Switch Subassy, Discovery**	**1**	**-**	**-**	**10.5**	**10.5**	**$0.8798**	**$0.8798**
86	**4**	**P**	**Two Cond. Cable, Discovery**	**1**	**Commodity Item**	**-**	**3.9**	**3.9**	**$ 0.0573**	**$ 0.0573**
87	**4**	**P**	**Male Wire Terminal 1, Discovery**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**	**$ 0.0231**	**$ 0.0462**
88	**4**	**P**	**Seat Belt Switch Connector, Discovery**	**1**	**Commodity Item**	**-**	**5**	**5**	**$ 0.2310**	**$ 0.2310**
89	**4**	**P**	**Terminal Pos. Assurance, Discovery**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**	**$ 0.0231**	**$ 0.0462**
90	**4**	**P**	**Connector Clip, Discovery**	**1**	**Commodity Item**	**-**	**0.8**	**0.8**	**$ 0.0155**	**$ 0.0155**
91	**4**	**A**	**Wire Pre - Cut, Strip, Crimp Terminals**	**1**	**-**	**-**	**-**	**-**	**$ 0.3129**	**$ 0.3129**
92	5	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.1970	$ 0.1970

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Land Rover Discovery 2016-2017 Rear Passenger Seat Belt System – Rear Seat Belt Switch Assembly (3/3)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
93	5	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.1159	$ 0.1159
94	**4**	**P**	**2R Center Seat Belt Switch PCB, Discovery**	**1**	**Commodity Item**	**-**	**0.4**	**0.4**	**$ 0.0578**	**$ 0.0578**
95	**4**	**P**	**LF318 Solder Paste**	**1**	**Commodity Item**	**-**	**0**	**0**	**$ 0.0013**	**$ 0.0013**
96	**4**	**A**	**Install PCB and Wire**	**1**	**-**	**-**	**-**	**-**	**$ 0.1096**	**$ 0.1096**
97	5	M	Installation Process	1	-	-	-	-	$ 0.1096	$ 0.1096
98	**3**	**S**	**Plastic Cover 1 Subassy, Discovery**	**1**	**-**	**-**	**0.5**	**0.5**	**$0.2275**	**$0.2275**
99	**4**	**P**	**Plastic Cover 1, Discovery**	**1**	**PBT GP**	**-**	**0.4**	**0.4**	**$ 0.0091**	**$ 0.0091**
100	5	M	Injection Mold, 55 Tons	1	PBT GP	0.4	0.4	0.4	$ 0.0091	$ 0.0091
101	**4**	**P**	**Contact Arm 1, Discovery**	**1**	**Nickel Plated Copper**	**-**	**0.1**	**0.1**	**$ 0.0518**	**$ 0.0518**
102	5	M	Wash	1	-	-	-	-	$ 0.0207	$ 0.0207
103	5	M	Stamping Press, 55 Tons	1	Nickel Plated Copper	1.5	0.1	0.1	$ 0.0311	$ 0.0311
104	**4**	**A**	**Plastic Cover 1 Assembly**	**1**	**-**	**-**	**-**	**-**	**$ 0.1665**	**$ 0.1665**
105	5	M	Manual Assembly	1	-	-	-	-	$ 0.1665	$ 0.1665
106	**3**	**P**	**Heat Shrink Tube, Discovery**	**1**	**Commodity Item**	**-**	**0.7**	**0.7**	**$0.0152**	**$0.0152**
107	**3**	**A**	**3rd Row Left Seat Belt Switch Assembly**	**1**	**-**	**-**	**-**	**-**	**$0.6102**	**$0.6102**
108	**4**	**M**	**Manual Assembly**	**1**	**-**	**-**	**-**	**-**	**$ 0.4601**	**$ 0.4601**
109	**4**	**M**	**Functional Test**	**1**	**-**	**-**	**-**	**-**	**$ 0.1500**	**$ 0.1500**
110	**3**	**S**	**3R Right Seat Belt Switch Subassy, Discovery**	**1**	**-**	**-**	**10.5**	**10.5**	**$0.8798**	**$0.8798**
111	**4**	**P**	**Two Cond. Cable, Discovery**	**1**	**Commodity Item**	**-**	**3.9**	**3.9**	**$ 0.0573**	**$ 0.0573**
112	**4**	**P**	**Male Wire Terminal 1, Discovery**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**	**$ 0.0231**	**$ 0.0462**
113	**4**	**P**	**Seat Belt Switch Connector, Discovery**	**1**	**Commodity Item**	**-**	**5**	**5**	**$ 0.2310**	**$ 0.2310**
114	**4**	**P**	**Terminal Pos. Assurance, Discovery**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**	**$ 0.0231**	**$ 0.0462**
115	**4**	**P**	**Connector Clip, Discovery**	**1**	**Commodity Item**	**-**	**0.8**	**0.8**	**$ 0.0155**	**$ 0.0155**
116	**4**	**A**	**Wire Pre - Cut, Strip, Crimp Terminals**	**1**	**-**	**-**	**-**	**-**	**$ 0.3129**	**$ 0.3129**
117	5	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.1970	$ 0.1970
118	5	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.1159	$ 0.1159
119	**4**	**P**	**2R Center Seat Belt Switch PCB, Discovery**	**1**	**Commodity Item**	**-**	**0.4**	**0.4**	**$ 0.0578**	**$ 0.0578**
120	**4**	**P**	**LF318 Solder Paste**	**1**	**Commodity Item**	**-**	**0**	**0**	**$ 0.0013**	**$ 0.0013**
121	**4**	**A**	**Install PCB and Wire**	**1**	**-**	**-**	**-**	**-**	**$ 0.1096**	**$ 0.1096**
122	5	M	Installation Process	1	-	-	-	-	$ 0.1096	$ 0.1096
123	**3**	**S**	**Plastic Cover 1 Subassy, Discovery**	**1**	**-**	**-**	**0.5**	**0.5**	**$0.2275**	**$0.2275**
124	**4**	**P**	**Plastic Cover 1, Discovery**	**1**	**PBT GP**	**-**	**0.4**	**0.4**	**$ 0.0091**	**$ 0.0091**
125	5	M	Injection Mold, 55 Tons	1	PBT GP	0.4	0.4	0.4	$ 0.0091	$ 0.0091
126	**4**	**P**	**Contact Arm 1, Discovery**	**1**	**Nickel Plated Copper**	**-**	**0.1**	**0.1**	**$ 0.0518**	**$ 0.0518**
127	5	M	Wash	1	-	-	-	-	$ 0.0207	$ 0.0207
128	5	M	Stamping Press, 55 Tons	1	Nickel Plated Copper	1.5	0.1	0.1	$ 0.0311	$ 0.0311
129	**4**	**A**	**Plastic Cover 1 Assembly**	**1**	**-**	**-**	**-**	**-**	**$ 0.1665**	**$ 0.1665**
130	5	M	Manual Assembly	1	-	-	-	-	$ 0.1665	$ 0.1665
131	**3**	**P**	**Heat Shrink Tube, Discovery**	**1**	**Commodity Item**	**-**	**0.7**	**0.7**	**$0.0152**	**$0.0152**
132	**3**	**A**	**3rd Row Right Seat Belt Switch Assembly**	**1**	**-**	**-**	**-**	**-**	**$0.6102**	**$0.6102**
133	**4**	**M**	**Manual Assembly**	**1**	**-**	**-**	**-**	**-**	**$ 0.4601**	**$ 0.4601**
134	**4**	**M**	**Functional Test**	**1**	**-**	**-**	**-**	**-**	**$ 0.1500**	**$ 0.1500**

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Land Rover Discovery 2016-2017 Rear Passenger Seat Belt System – Seat Wiring Harness Assembly

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
135	2	S	2R Seat Wiring Harness	1	-	-	162.4	162.4	$5.8603	$5.8603
136	3	S	2R Seat Rear Wire Assembly	1	-	-	47.5	47.5	$3.1819	$3.1819
137	4	P	2R Wire 1, Discovery	2	Commodity Item	-	8.5	17	$ 0.1155	$ 0.2310
138	4	P	Connector 1, Discovery	1	Commodity Item	-	1.5	1.5	$ 0.0693	$ 0.0693
139	4	P	2R Wire 2, Discovery	2	Commodity Item	-	7.6	15.2	$ 0.1040	$ 0.2079
140	4	P	Connector 2, Discovery	1	Commodity Item	-	1.5	1.5	$ 0.0693	$ 0.0693
141	4	P	2R Wire 3, Discovery	2	Commodity Item	-	4.8	9.6	$ 0.0693	$ 0.1386
142	4	P	Connector 3, Discovery	1	Commodity Item	-	1.5	1.5	$ 0.0693	$ 0.0693
143	4	P	Female Wire Terminal 1, Discovery	12	Commodity Item	-	0.1	1.2	$ 0.0173	$ 0.2079
144	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 1.3355	$ 1.3355
145	5	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.5754	$ 0.5754
146	5	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.7601	$ 0.7601
147	4	A	2R Seat Switch and Wire Assembly	1	-	-	-	-	$ 0.8482	$ 0.8482
148	5	M	Manual Assembly	1	-	-	-	-	$ 0.5463	$ 0.5463
149	5	M	Functional Test	1	-	-	-	-	$ 0.3019	$ 0.3019
150	3	S	2R Seat Belt Ind. Wire Assembly	1	-	-	114.9	114.9	$2.6784	$2.6784
151	4	P	2R Seat Belt Ind. Wire 1, Discovery	1	Commodity Item	-	29.6	29.6	$ 0.4158	$ 0.4158
152	4	P	2R Seat Belt Ind. Wire 2, Discovery	1	Commodity Item	-	29.6	29.6	$ 0.4158	$ 0.4158
153	4	P	2R Seat Belt Ind. Wire 3, Discovery	1	Commodity Item	-	29.6	29.6	$ 0.4158	$ 0.4158
154	4	P	2R Gnd. Wire 1, Discovery	1	Commodity Item	-	8.1	8.1	$ 0.1155	$ 0.1155
155	4	P	2R Gnd. Wire 2, Discovery	1	Commodity Item	-	8.1	8.1	$ 0.1155	$ 0.1155
156	4	P	2R Gnd. Wire 3, Discovery	1	Commodity Item	-	9	9	$ 0.1271	$ 0.1271
157	4	P	Male Wire Terminal 1, Discovery	6	Commodity Item	-	0.1	0.6	$ 0.0231	$ 0.1386
158	4	P	Female Wire Terminal 1, Discovery	3	Commodity Item	-	0.1	0.3	$ 0.0173	$ 0.0520
159	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 0.8789	$ 0.8789
160	5	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.2563	$ 0.2563
161	5	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.6227	$ 0.6227
162	2	S	3R Seat Wiring Harness	1	-	-	109.2	109.2	$4.2373	$4.2373
163	3	S	3R Seat Rear Wire Assembly	1	-	-	25.6	25.6	$2.1303	$2.1303
164	4	P	3R Wire 1, Discovery	2	Commodity Item	-	6.9	13.8	$ 0.0924	$ 0.1848
165	4	P	Connector 4, Discovery	1	Commodity Item	-	1.5	1.5	$ 0.0693	$ 0.0693
166	4	P	3R Wire 2, Discovery	2	Commodity Item	-	4	8	$ 0.0578	$ 0.1155
167	4	P	Connector 5, Discovery	1	Commodity Item	-	1.5	1.5	$ 0.0693	$ 0.0693
168	4	P	Female Wire Terminal 2, Discovery	8	Commodity Item	-	0.1	0.8	$ 0.0231	$ 0.1848
169	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 0.9089	$ 0.9089
170	5	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.4022	$ 0.4022
171	5	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.5067	$ 0.5067
172	4	A	3R Seat Switch and Wire Assembly	1	-	-	-	-	$ 0.5945	$ 0.5945
173	5	M	Manual Assembly	1	-	-	-	-	$ 0.3642	$ 0.3642
174	5	M	Functional test	1	-	-	-	-	$ 0.2303	$ 0.2303
175	3	S	3R Seat Belt Ind. Wire Assembly	1	-	-	83.6	83.6	$2.1070	$2.1070
176	4	P	3R Seat Belt Ind. Wire 1, Discovery	1	Commodity Item	-	30.5	30.5	$ 0.4274	$ 0.4274
177	4	P	3R Seat Belt Ind. Wire 2, Discovery	1	Commodity Item	-	30.5	30.5	$ 0.4274	$ 0.4274
178	4	P	3R Gnd. Wire 1, Discovery	1	Commodity Item	-	10.5	10.5	$ 0.1502	$ 0.1502
179	4	P	3R Gnd. Wire 2, Discovery	1	Commodity Item	-	11.5	11.5	$ 0.1617	$ 0.1617
180	4	P	Male Wire Terminal 2, Discovery	4	Commodity Item	-	0.1	0.4	$ 0.0231	$ 0.0924
181	4	P	Female Wire Terminal 2, Discovery	2	Commodity Item	-	0.1	0.2	$ 0.0231	$ 0.0462
182	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 0.7995	$ 0.7995
183	5	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.3844	$ 0.3844
184	5	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.4151	$ 0.4151

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Land Rover Discovery 2016-2017 Manufacturing Cost Details – Rear Seat Belt Switch Assembly (1/3)

Item #	Assembly Level	Type	Description	Qty	Material	Cycle (sec)	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
1	1	S	2016-17 Land Rover Discovery Rear ESBR Study	1	-	-	-	$ 1.6272	$ 4.4848	$ 4.2514	$ 6.5570	$ 16.9205	$ 1.3536	$ 0.8460	$ 0.4230	$ 19.5431	$ 19.5431
2	2	S	Rear Seat Belt Switch Assembly	1	-	-	-	$1.0443	$2.1803	$2.4814	$2.4720	$8.1779	$0.6542	$0.4089	$0.2044	$9.4455	$9.4455
3	3	S	2R Center Seat Belt Switch Subassy, Discovery	1	-	-	-	$0.0331	$0.2047	$0.1298	$0.4245	$0.7921	$0.0634	$0.0396	$0.0198	$0.9149	$0.9149
4	4	P	Two Cond. Cable, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0800	$ 0.0800	$ 0.0064	$ 0.0040	$ 0.0020	$ 0.0924	$ 0.0924
5	4	P	Male Wire Terminal 1, Discovery	2	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462
6	4	P	Seat Belt Switch Connector, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.2000	$ 0.2000	$ 0.0160	$ 0.0100	$ 0.0050	$ 0.2310	$ 0.2310
7	4	P	Terminal Pos. Assurance, Discovery	2	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462
8	4	P	Connector Clip, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0134	$ 0.0134	$ 0.0011	$ 0.0007	$ 0.0003	$ 0.0155	$ 0.0155
9	4	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-	-	$ 0.0246	$ 0.1522	$ 0.0941	$ -	$ 0.2709	$ 0.0217	$ 0.0135	$ 0.0068	$ 0.3129	$ 0.3129
10	5	M	Wire and Connector Assembly	1	-	35	1	$ 0.0157	$ 0.0968	$ 0.0581	$ -	$ 0.1705	$ 0.0136	$ 0.0085	$ 0.0043	$ 0.1970	$ 0.1970
11	5	M	Wire and Terminal Assembly	1	-	20	1	$ 0.0089	$ 0.0553	$ 0.0361	$ -	$ 0.1004	$ 0.0080	$ 0.0050	$ 0.0025	$ 0.1159	$ 0.1159
12	4	P	2R Center Seat Belt Switch PCB, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0500	$ 0.0500	$ 0.0040	$ 0.0025	$ 0.0013	$ 0.0578	$ 0.0578
13	4	P	LF318 Solder Paste	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0011	$ 0.0011	$ 0.0001	$ 0.0001	$ -	$ 0.0013	$ 0.0013
14	4	A	Install PCB and Wire	1	-	-	-	$ 0.0085	$ 0.0526	$ 0.0338	$ -	$ 0.0949	$ 0.0076	$ 0.0047	$ 0.0024	$ 0.1096	$ 0.1096
15	5	M	Installation Process	1	-	19	1	$ 0.0085	$ 0.0526	$ 0.0338	$ -	$ 0.0949	$ 0.0076	$ 0.0047	$ 0.0024	$ 0.1096	$ 0.1096
16	3	S	Plastic Cover 1 Subassy, Discovery	1	-	-	-	$0.0400	$0.0494	$0.0841	$0.0234	$0.1970	$0.0158	$0.0098	$0.0049	$0.2275	$0.2275
17	4	P	Plastic Cover 1, Discovery	1	PBT GP	-	-	$ 0.0008	$ 0.0023	$ 0.0035	$ 0.0013	$ 0.0079	$ 0.0006	$ 0.0004	$ 0.0002	$ 0.0091	$ 0.0091
18	5	M	Injection Mold, 55 Tons	1	PBT GP	1.05	0.25	$ 0.0008	$ 0.0023	$ 0.0035	$ 0.0013	$ 0.0079	$ 0.0006	$ 0.0004	$ 0.0002	$ 0.0091	$ 0.0091
19	4	P	Contact Arm 1, Discovery	1	Nickel Plated Copper	-	-	$ 0.0049	$ 0.0059	$ 0.0120	$ 0.0221	$ 0.0449	$ 0.0036	$ 0.0022	$ 0.0011	$ 0.0518	$ 0.0518
20	5	M	Wash	1	-	5	0.25	$ 0.0043	$ 0.0040	$ 0.0097	$ -	$ 0.0179	$ 0.0014	$ 0.0009	$ 0.0004	$ 0.0207	$ 0.0207
21	5	M	Stamping Press, 55 Tons	1	Nickel Plated Copper	0.75	0.25	$ 0.0006	$ 0.0019	$ 0.0023	$ 0.0221	$ 0.0269	$ 0.0022	$ 0.0013	$ 0.0007	$ 0.0311	$ 0.0311
22	4	A	Plastic Cover 1 Assembly	1	-	-	-	$ 0.0343	$ 0.0412	$ 0.0687	$ -	$ 0.1442	$ 0.0115	$ 0.0072	$ 0.0036	$ 0.1665	$ 0.1665
23	5	M	Manual Assembly	1	-	10	1	$ 0.0343	$ 0.0412	$ 0.0687	$ -	$ 0.1442	$ 0.0115	$ 0.0072	$ 0.0036	$ 0.1665	$ 0.1665
24	3	P	Fabric Wire Tape, Discovery	1	Commodity Item	-	-	$0.0000	$0.0000	$0.0000	$0.0031	$0.0031	$0.0002	$0.0002	$0.0001	$0.0036	$0.0036
25	3	P	Pushpin, Discovery	1	Commodity Item	-	-	$0.0000	$0.0000	$0.0000	$0.0682	$0.0682	$0.0055	$0.0034	$0.0017	$0.0788	$0.0788
26	3	A	2nd Row Center Seat Belt Switch Assembly	1	-	-	-	$0.1477	$0.1961	$0.3046	$0.0000	$0.6484	$0.0519	$0.0324	$0.0162	$0.7489	$0.7489
27	4	M	Manual Assembly	1	-	36	1	$ 0.1234	$ 0.1482	$ 0.2469	$ -	$ 0.5185	$ 0.0415	$ 0.0259	$ 0.0130	$ 0.5989	$ 0.5989
28	4	M	Functional Test	1	-	17	0.25	$ 0.0243	$ 0.0479	$ 0.0577	$ -	$ 0.1299	$ 0.0104	$ 0.0065	$ 0.0032	$ 0.1500	$ 0.1500
29	3	S	2R Left Seat Belt Switch Subassy, Discovery	1	-	-	-	$0.0331	$0.2047	$0.1298	$0.4125	$0.7801	$0.0624	$0.0390	$0.0195	$0.9011	$0.9011
30	4	P	Two Cond. Cable, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0680	$ 0.0680	$ 0.0054	$ 0.0034	$ 0.0017	$ 0.0785	$ 0.0785
31	4	P	Male Wire Terminal 1, Discovery	2	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462
32	4	P	Seat Belt Switch Connector, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.2000	$ 0.2000	$ 0.0160	$ 0.0100	$ 0.0050	$ 0.2310	$ 0.2310
33	4	P	Terminal Pos. Assurance, Discovery	2	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462
34	4	P	Connector Clip, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0134	$ 0.0134	$ 0.0011	$ 0.0007	$ 0.0003	$ 0.0155	$ 0.0155
35	4	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-	-	$ 0.0246	$ 0.1522	$ 0.0941	$ -	$ 0.2709	$ 0.0217	$ 0.0135	$ 0.0068	$ 0.3129	$ 0.3129
36	5	M	Wire and Connector Assembly	1	-	35	1	$ 0.0157	$ 0.0968	$ 0.0581	$ -	$ 0.1705	$ 0.0136	$ 0.0085	$ 0.0043	$ 0.1970	$ 0.1970
37	5	M	Wire and Terminal Assembly	1	-	20	1	$ 0.0089	$ 0.0553	$ 0.0361	$ -	$ 0.1004	$ 0.0080	$ 0.0050	$ 0.0025	$ 0.1159	$ 0.1159
38	4	P	2R Center Seat Belt Switch PCB, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0500	$ 0.0500	$ 0.0040	$ 0.0025	$ 0.0013	$ 0.0578	$ 0.0578
39	4	P	LF318 Solder Paste	1	Commodity Item											$ 0.0013	$ 0.0013
40	4	A	Install PCB and Wire	1	-	-										$ 0.1096	$ 0.1096
41	5	M	Installation Process	1	-	19	1	$ 0.0085	$ 0.0526	$ 0.0338	$ -	$ 0.0949	$ 0.0076	$ 0.0047	$ 0.0024	$ 0.1096	$ 0.1096
42	3	S	Plastic Cover 1 Subassy, Discovery	1	-	-	-									$0.2275	$0.2275
43	4	P	Plastic Cover 1, Discovery	1	PBT GP	-	-									$ 0.0091	$ 0.0091
44	5	M	Injection Mold, 55 Tons	1	PBT GP		0.25	$ 0.0008	$ 0.0023	$ 0.0035	$ 0.0013	$ 0.0079	$ 0.0006	$ 0.0004	$ 0.0002	$ 0.0091	$ 0.0091
45	4	P	Contact Arm 1, Discovery	1	Nickel Plated Copper	-	-									$ 0.0518	$ 0.0518
46	5	M	Wash	1	-	5										$ 0.0207	$ 0.0207
47	5	M	Stamping Press, 25 Tons	1	Nickel Plated Copper	0.75		$ 0.0006	$ 0.0019	$ 0.0023	$ 0.0221	$ 0.0269	$ 0.0022	$ 0.0013	$ 0.0007	$ 0.0311	$ 0.0311

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Land Rover Discovery 2016-2017 Manufacturing Cost Details – Rear Seat Belt Switch Assembly (2/3)

Item #	Assembly Level	Type	Description	Qty	Material	Cycle (sec)	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
48	4	A	Plastic Cover 1 Assembly	1	-	-	-									$ 0.1665	$ 0.1665
49	5	M	Manual Assembly	1	-		1									$ 0.1665	$ 0.1665
50	3	P	Heat Shrink Tube, Discovery	1	Commodity Item	-	-	$0.0000	$0.0000	$0.0000	$0.0098	$0.0098	$0.0008	$0.0005	$0.0002	$0.0113	$0.0113
51	3	P	Cable Tie/w Edge Clip, Discovery	1	Commodity Item	-	-									$0.1040	$0.1040
52	3	A	2nd Row Left Seat Belt Switch Assembly	1	-	-	-									$0.7585	$0.7585
53	4	M	Manual Assembly	1	-	34.59		$ 0.1186	$ 0.1424	$ 0.2391	$ -	$ 0.5000	$ 0.0400	$ 0.0250	$ 0.0125	$ 0.5775	$ 0.5775
54	4	M	Auto Label Apply	1	-											$ 0.0310	$ 0.0310
55	5	P	Label, Discovery	1	Commodity Item	-	-									$ 0.0116	$ 0.0116
56	4	M	Functional Test	1	-	17	0.25	$ 0.0243	$ 0.0479	$ 0.0577	$ -	$ 0.1299	$ 0.0104	$ 0.0065	$ 0.0032	$ 0.1500	$ 0.1500
57	3	S	2R Right Seat Belt Switch Subassy, Discovery	1	-	-	-									$0.9011	$0.9011
58	4	P	Two Cond. Cable, Discovery	1	Commodity Item	-	-									$ 0.0785	$ 0.0785
59	4	P	Male Wire Terminal 1, Discovery	2	Commodity Item		-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462
60	4	P	Seat Belt Switch Connector, Discovery	1	Commodity Item	-										$ 0.2310	$ 0.2310
61	4	P	Terminal Pos. Assurance, Discovery	2	Commodity Item	-										$ 0.0231	$ 0.0462
62	4	P	Connector Clip, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0134	$ 0.0134	$ 0.0011	$ 0.0007	$ 0.0003	$ 0.0155	$ 0.0155
63	4	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-	-									$ 0.3129	$ 0.3129
64	5	M	Wire and Connector Assembly	1	-		1									$ 0.1970	$ 0.1970
65	5	M	Wire and Terminal Assembly	1	-	20	1	$ 0.0089	$ 0.0553	$ 0.0361	$ -	$ 0.1004	$ 0.0080	$ 0.0050	$ 0.0025	$ 0.1159	$ 0.1159
66	4	P	2R Center Seat Belt Switch PCB, Discovery	1	Commodity Item	-	-									$ 0.0578	$ 0.0578
67	4	P	LF318 Solder Paste	1	Commodity Item	-										$ 0.0013	$ 0.0013
68	4	A	Install PCB and Wire	1	-	-		$ 0.0085	$ 0.0526	$ 0.0338	$ -	$ 0.0949	$ 0.0076	$ 0.0047	$ 0.0024	$ 0.1096	$ 0.1096
69	5	M	Installation Process	1	-		1									$ 0.1096	$ 0.1096
70	3	S	Plastic Cover 1 Subassy, Discovery	1	-	-	-									$0.2275	$0.2275
71	4	P	Plastic Cover 1, Discovery	1	PBT GP	-	-	$ 0.0008	$ 0.0023	$ 0.0035	$ 0.0013	$ 0.0079	$ 0.0006	$ 0.0004	$ 0.0002	$ 0.0091	$ 0.0091
72	5	M	Injection Mold, 55 Tons	1	PBT GP	1.05	0.25									$ 0.0091	$ 0.0091
73	4	P	Contact Arm 1, Discovery	1	Nickel Plated Copper	-	-									$ 0.0518	$ 0.0518
74	5	M	Wash	1	-			$ 0.0043	$ 0.0040	$ 0.0097	$ -	$ 0.0179	$ 0.0014	$ 0.0009	$ 0.0004	$ 0.0207	$ 0.0207
75	5	M	Stamping Press, 55 Tons	1	Nickel Plated Copper	0.75										$ 0.0311	$ 0.0311
76	4	A	Plastic Cover 1 Assembly	1	-	-	-									$ 0.1665	$ 0.1665
77	5	M	Manual Assembly	1	-	10	1	$ 0.0343	$ 0.0412	$ 0.0687	$ -	$ 0.1442	$ 0.0115	$ 0.0072	$ 0.0036	$ 0.1665	$ 0.1665
78	3	P	Heat Shrink Tube, Discovery	1	Commodity Item	-	-									$0.0113	$0.0113
79	3	P	Cable Tie/w Edge Clip, Discovery	1	Commodity Item		-									$0.1040	$0.1040
80	3	A	2nd Row Right Seat Belt Switch Assembly	1	-	-	-	$0.1466	$0.1952	$0.3049	$0.0100	$0.6567	$0.0525	$0.0328	$0.0164	$0.7585	$0.7585
81	4	M	Manual Assembly	1	-	34.59										$ 0.5775	$ 0.5775
82	4	M	Auto Label Apply	1	-	4.75										$ 0.0310	$ 0.0310
83	5	P	Label, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0100	$ 0.0100	$ 0.0008	$ 0.0005	$ 0.0003	$ 0.0116	$ 0.0116
84	4	M	Functional Test	1	-		0.25									$ 0.1500	$ 0.1500
85	3	S	3R Left Seat Belt Switch Subassy, Discovery	1	-	-	-									$0.8798	$0.8798
86	4	P	Two Cond. Cable, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0496	$ 0.0496	$ 0.0040	$ 0.0025	$ 0.0012	$ 0.0573	$ 0.0573
87	4	P	Male Wire Terminal 1, Discovery	2	Commodity Item	-	-									$ 0.0231	$ 0.0462
88	4	P	Seat Belt Switch Connector, Discovery	1	Commodity Item	-										$ 0.2310	$ 0.2310
89	4	P	Terminal Pos. Assurance, Discovery	2	Commodity Item			$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462
90	4	P	Connector Clip, Discovery	1	Commodity Item	-	-									$ 0.0155	$ 0.0155
91	4	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-	-									$ 0.3129	$ 0.3129
92	5	M	Wire and Connector Assembly	1	-	35	1	$ 0.0157	$ 0.0968	$ 0.0581	$ -	$ 0.1705	$ 0.0136	$ 0.0085	$ 0.0043	$ 0.1970	$ 0.1970

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Land Rover Discovery 2016-2017 Manufacturing Cost Details – Rear Seat Belt Switch Assembly (3/3)

Item #	Assembly Level	Type	Description	Qty	Material	Cycle (sec)	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
93	5	M	Wire and Terminal Assembly	1	-	20	1									$ 0.1159	$ 0.1159
94	**4**	**P**	**2R Center Seat Belt Switch PCB, Discovery**	**1**	**Commodity Item**		**-**									**$ 0.0578**	**$ 0.0578**
95	**4**	**P**	**LF318 Solder Paste**	**1**	**Commodity Item**	**-**		**$ -**	**$ -**	**$ -**	**$ 0.0011**	**$ 0.0011**	**$ 0.0001**	**$ 0.0001**	**$ -**	**$ 0.0013**	**$ 0.0013**
96	**4**	**A**	**Install PCB and Wire**	**1**	**-**	**-**										**$ 0.1096**	**$ 0.1096**
97	5	M	Installation Process	1	-	19	1									$ 0.1096	$ 0.1096
98	**3**	**S**	**Plastic Cover 1 Subassy, Discovery**	**1**	**-**	**-**	**-**	**$0.0400**	**$0.0494**	**$0.0841**	**$0.0234**	**$0.1970**	**$0.0158**	**$0.0098**	**$0.0049**	**$0.2275**	**$0.2275**
99	**4**	**P**	**Plastic Cover 1, Discovery**	**1**	**PBT GP**		**-**									**$ 0.0091**	**$ 0.0091**
100	5	M	Injection Mold, 55 Tons	1	PBT GP	1.05	0.25									$ 0.0091	$ 0.0091
101	**4**	**P**	**Contact Arm 1, Discovery**	**1**	**Nickel Plated Copper**	**-**	**-**	**$ 0.0049**	**$ 0.0059**	**$ 0.0120**	**$ 0.0221**	**$ 0.0449**	**$ 0.0036**	**$ 0.0022**	**$ 0.0011**	**$ 0.0518**	**$ 0.0518**
102	5	M	Wash	1	-	5										$ 0.0207	$ 0.0207
103	5	M	Stamping Press, 55 Tons	1	Nickel Plated Copper	0.75										$ 0.0311	$ 0.0311
104	**4**	**A**	**Plastic Cover 1 Assembly**	**1**	**-**		**-**	**$ 0.0343**	**$ 0.0412**	**$ 0.0687**	**$ -**	**$ 0.1442**	**$ 0.0115**	**$ 0.0072**	**$ 0.0036**	**$ 0.1665**	**$ 0.1665**
105	5	M	Manual Assembly	1	-	10	1									$ 0.1665	$ 0.1665
106	**3**	**P**	**Heat Shrink Tube, Discovery**	**1**	**Commodity Item**	**-**	**-**									**$0.0152**	**$0.0152**
107	**3**	**A**	**3rd Row Left Seat Belt Switch Assembly**	**1**	**-**	**-**	**-**	**$0.1189**	**$0.1615**	**$0.2479**	**$0.0000**	**$0.5283**	**$0.0423**	**$0.0264**	**$0.0132**	**$0.6102**	**$0.6102**
108	**4**	**M**	**Manual Assembly**	**1**	**-**	**27.59**	**1**									**$ 0.4601**	**$ 0.4601**
109	**4**	**M**	**Functional Test**	**1**	**-**											**$ 0.1500**	**$ 0.1500**
110	**3**	**S**	**3R Right Seat Belt Switch Subassy, Discovery**	**1**	**-**	**-**		**$0.0331**	**$0.2047**	**$0.1298**	**$0.3941**	**$0.7617**	**$0.0609**	**$0.0381**	**$0.0190**	**$0.8798**	**$0.8798**
111	**4**	**P**	**Two Cond. Cable, Discovery**	**1**	**Commodity Item**	**-**	**-**									**$ 0.0573**	**$ 0.0573**
112	**4**	**P**	**Male Wire Terminal 1, Discovery**	**2**	**Commodity Item**	**-**	**-**									**$ 0.0231**	**$ 0.0462**
113	**4**	**P**	**Seat Belt Switch Connector, Discovery**	**1**	**Commodity Item**	**-**	**-**	**$ -**	**$ -**	**$ -**	**$ 0.2000**	**$ 0.2000**	**$ 0.0160**	**$ 0.0100**	**$ 0.0050**	**$ 0.2310**	**$ 0.2310**
114	**4**	**P**	**Terminal Pos. Assurance, Discovery**	**2**	**Commodity Item**		**-**									**$ 0.0231**	**$ 0.0462**
115	**4**	**P**	**Connector Clip, Discovery**	**1**	**Commodity Item**	**-**	**-**									**$ 0.0155**	**$ 0.0155**
116	**4**	**A**	**Wire Pre - Cut, Strip, Crimp Terminals**	**1**	**-**	**-**		**$ 0.0246**	**$ 0.1522**	**$ 0.0941**	**$ -**	**$ 0.2709**	**$ 0.0217**	**$ 0.0135**	**$ 0.0068**	**$ 0.3129**	**$ 0.3129**
117	5	M	Wire and Connector Assembly	1	-	35										$ 0.1970	$ 0.1970
118	5	M	Wire and Terminal Assembly	1	-	20	1									$ 0.1159	$ 0.1159
119	**4**	**P**	**2R Center Seat Belt Switch PCB, Discovery**	**1**	**Commodity Item**		**-**	**$ -**	**$ -**	**$ -**	**$ 0.0500**	**$ 0.0500**	**$ 0.0040**	**$ 0.0025**	**$ 0.0013**	**$ 0.0578**	**$ 0.0578**
120	**4**	**P**	**LF318 Solder Paste**	**1**	**Commodity Item**	**-**	**-**									**$ 0.0013**	**$ 0.0013**
121	**4**	**A**	**Install PCB and Wire**	**1**	**-**	**-**	**-**									**$ 0.1096**	**$ 0.1096**
122	5	M	Installation Process	1	-	19	1	$ 0.0085	$ 0.0526	$ 0.0338	$ -	$ 0.0949	$ 0.0076	$ 0.0047	$ 0.0024	$ 0.1096	$ 0.1096
123	**3**	**S**	**Plastic Cover 1 Subassy, Discovery**	**1**	**-**	**-**										**$0.2275**	**$0.2275**
124	**4**	**P**	**Plastic Cover 1, Discovery**	**1**	**PBT GP**											**$ 0.0091**	**$ 0.0091**
125	5	M	Injection Mold, 55 Tons	1	PBT GP	1.05	0.25	$ 0.0008	$ 0.0023	$ 0.0035	$ 0.0013	$ 0.0079	$ 0.0006	$ 0.0004	$ 0.0002	$ 0.0091	$ 0.0091
126	**4**	**P**	**Contact Arm 1, Discovery**	**1**	**Nickel Plated Copper**	**-**	**-**									**$ 0.0518**	**$ 0.0518**
127	5	M	Wash	1	-	5	0.25									$ 0.0207	$ 0.0207
128	5	M	Stamping Press, 55 Tons	1	Nickel Plated Copper	0.75	0.25	$ 0.0006	$ 0.0019	$ 0.0023	$ 0.0221	$ 0.0269	$ 0.0022	$ 0.0013	$ 0.0007	$ 0.0311	$ 0.0311
129	**4**	**A**	**Plastic Cover 1 Assembly**	**1**	**-**		**-**									**$ 0.1665**	**$ 0.1665**
130	5	M	Manual Assembly	1	-	10										$ 0.1665	$ 0.1665
131	**3**	**P**	**Heat Shrink Tube, Discovery**	**1**	**Commodity Item**	**-**		**$0.0000**	**$0.0000**	**$0.0000**	**$0.0131**	**$0.0131**	**$0.0011**	**$0.0007**	**$0.0003**	**$0.0152**	**$0.0152**
132	**3**	**A**	**3rd Row Right Seat Belt Switch Assembly**	**1**	**-**	**-**	**-**									**$0.6102**	**$0.6102**
133	**4**	**M**	**Manual Assembly**	**1**	**-**	**27.59**	**1**									**$ 0.4601**	**$ 0.4601**
134	**4**	**M**	**Functional Test**	**1**	**-**		**0.25**	**$ 0.0243**	**$ 0.0479**	**$ 0.0577**	**$ -**	**$ 0.1299**	**$ 0.0104**	**$ 0.0065**	**$ 0.0032**	**$ 0.1500**	**$ 0.1500**

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Land Rover Discovery 2016-2017 Manufacturing Cost Details – Seat Wiring Harness Assembly

Item #	Assembly Level	Type	Description	Qty	Material	Cycle (sec)	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
135	2	S	2R Seat Wiring Harness	1	-	-	-									$5.8603	$5.8603
136	3	S	2R Seat Rear Wire Assembly	1	-	-	-									$3.1819	$3.1819
137	4	P	2R Wire 1, Discovery	2	Commodity Item	-		$ -	$ -	$ -	$ 0.1000	$ 0.1000	$ 0.0080	$ 0.0050	$ 0.0025	$ 0.1155	$ 0.2310
138	4	P	Connector 1, Discovery	1	Commodity Item	-										$ 0.0693	$ 0.0693
139	4	P	2R Wire 2, Discovery	2	Commodity Item		-									$ 0.1040	$ 0.2079
140	4	P	Connector 2, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0600	$ 0.0600	$ 0.0048	$ 0.0030	$ 0.0015	$ 0.0693	$ 0.0693
141	4	P	2R Wire 3, Discovery	2	Commodity Item	-	-									$ 0.0693	$ 0.1386
142	4	P	Connector 3, Discovery	1	Commodity Item	-	-									$ 0.0693	$ 0.0693
143	4	P	Female Wire Terminal 1, Discovery	12	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0150	$ 0.0150	$ 0.0012	$ 0.0008	$ 0.0004	$ 0.0173	$ 0.2079
144	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-											$ 1.3355	$ 1.3355
145	5	M	Wire and Connector Assembly	1	-	103										$ 0.5754	$ 0.5754
146	5	M	Wire and Terminal Assembly	1	-	132	1	$ 0.0590	$ 0.3652	$ 0.2339	$ -	$ 0.6581	$ 0.0526	$ 0.0329	$ 0.0165	$ 0.7601	$ 0.7601
147	4	A	2R Seat Switch and Wire Assembly	1	-	-	-									$ 0.8482	$ 0.8482
148	5	M	Manual Assembly	1	-	33	1									$ 0.5463	$ 0.5463
149	5	M	Functional Test	1	-		0.25	$ 0.0486	$ 0.0959	$ 0.1169	$ -	$ 0.2614	$ 0.0209	$ 0.0131	$ 0.0065	$ 0.3019	$ 0.3019
150	3	S	2R Seat Belt Ind. Wire Assembly	1	-	-	-									$2.6784	$2.6784
151	4	P	2R Seat Belt Ind. Wire 1, Discovery	1	Commodity Item	-										$ 0.4158	$ 0.4158
152	4	P	2R Seat Belt Ind. Wire 2, Discovery	1	Commodity Item	-		$ -	$ -	$ -	$ 0.3600	$ 0.3600	$ 0.0288	$ 0.0180	$ 0.0090	$ 0.4158	$ 0.4158
153	4	P	2R Seat Belt Ind. Wire 3, Discovery	1	Commodity Item	-	-									$ 0.4158	$ 0.4158
154	4	P	2R Gnd. Wire 1, Discovery	1	Commodity Item		-									$ 0.1155	$ 0.1155
155	4	P	2R Gnd. Wire 2, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.1000	$ 0.1000	$ 0.0080	$ 0.0050	$ 0.0025	$ 0.1155	$ 0.1155
156	4	P	2R Gnd. Wire 3, Discovery	1	Commodity Item	-	-									$ 0.1271	$ 0.1271
157	4	P	Male Wire Terminal 1, Discovery	6	Commodity Item	-	-									$ 0.0231	$ 0.1386
158	4	P	Female Wire Terminal 1, Discovery	3	Commodity Item	-		$ -	$ -	$ -	$ 0.0150	$ 0.0150	$ 0.0012	$ 0.0008	$ 0.0004	$ 0.0173	$ 0.0520
159	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-											$ 0.8789	$ 0.8789
160	5	M	Wire and Connector Assembly	1	-	46	1									$ 0.2563	$ 0.2563
161	5	M	Wire and Terminal Assembly	1	-	108	1	$ 0.0483	$ 0.2988	$ 0.1920	$ -	$ 0.5391	$ 0.0431	$ 0.0270	$ 0.0135	$ 0.6227	$ 0.6227
162	2	S	3R Seat Wiring Harness	1	-	-	-									$4.2373	$4.2373
163	3	S	3R Seat Rear Wire Assembly	1	-	-	-									$2.1303	$2.1303
164	4	P	3R Wire 1, Discovery	2	Commodity Item		-	$ -	$ -	$ -	$ 0.0800	$ 0.0800	$ 0.0064	$ 0.0040	$ 0.0020	$ 0.0924	$ 0.1848
165	4	P	Connector 4, Discovery	1	Commodity Item	-										$ 0.0693	$ 0.0693
166	4	P	3R Wire 2, Discovery	2	Commodity Item	-										$ 0.0578	$ 0.1155
167	4	P	Connector 5, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.0600	$ 0.0600	$ 0.0048	$ 0.0030	$ 0.0015	$ 0.0693	$ 0.0693
168	4	P	Female Wire Terminal 2, Discovery	8	Commodity Item	-	-									$ 0.0231	$ 0.1848
169	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-		-									$ 0.9089	$ 0.9089
170	5	M	Wire and Connector Assembly	1	-	72	1	$ 0.0322	$ 0.1992	$ 0.1168	$ -	$ 0.3482	$ 0.0279	$ 0.0174	$ 0.0087	$ 0.4022	$ 0.4022
171	5	M	Wire and Terminal Assembly	1	-	88	1									$ 0.5067	$ 0.5067
172	4	A	3R Seat Switch and Wire Assembly	1	-	-										$ 0.5945	$ 0.5945
173	5	M	Manual Assembly	1	-	22		$ 0.0754	$ 0.0906	$ 0.1493	$ -	$ 0.3153	$ 0.0252	$ 0.0158	$ 0.0079	$ 0.3642	$ 0.3642
174	5	M	Functional test	1	-		0.25									$ 0.2303	$ 0.2303
175	3	S	3R Seat Belt Ind. Wire Assembly	1	-	-	-									$2.1070	$2.1070
176	4	P	3R Seat Belt Ind. Wire 1, Discovery	1	Commodity Item	-	-	$ -	$ -	$ -	$ 0.3700	$ 0.3700	$ 0.0296	$ 0.0185	$ 0.0093	$ 0.4274	$ 0.4274
177	4	P	3R Seat Belt Ind. Wire 2, Discovery	1	Commodity Item	-	-									$ 0.4274	$ 0.4274
178	4	P	3R Gnd. Wire 1, Discovery	1	Commodity Item	-	-									$ 0.1502	$ 0.1502
179	4	P	3R Gnd. Wire 2, Discovery	1	Commodity Item			$ -	$ -	$ -	$ 0.1400	$ 0.1400	$ 0.0112	$ 0.0070	$ 0.0035	$ 0.1617	$ 0.1617
180	4	P	Male Wire Terminal 2, Discovery	4	Commodity Item	-										$ 0.0231	$ 0.0924
181	4	P	Female Wire Terminal 2, Discovery	2	Commodity Item	-	-									$ 0.0231	$ 0.0462
182	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	$ 0.0631	$ 0.3901	$ 0.2391	$ -	$ 0.6922	$ 0.0554	$ 0.0346	$ 0.0173	$ 0.7995	$ 0.7995
183	5	M	Wire and Connector Assembly	1	-	69	1									$ 0.3844	$ 0.3844
184	5	M	Wire and Terminal Assembly	1	-		1									$ 0.4151	$ 0.4151

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X, MY 2016 - 2107

DETAIL MANUFACTURING COSTS

Tesla Model X 2016-2017 Total Mass and Cost Details – Rear Passenger Seat Belt System

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
1	1	S	2016-17 Tesla Model X Rear ESBR Study	1	-	-	324.9	324.9	$ 58.9418	$ 58.9418
2	2	S	2nd Row Control Module Wire Subassy	1	-	-	33.3	33.3	$4.3870	$4.3870
18	2	S	3rd Row Seat Wiring Harness	1	-	-	123.9	123.9	$5.8172	$5.8172
44	2	S	Occupancy Sensor Assembly	1	-	-	77.7	77.7	$36.8075	$36.8075
290	2	S	Seat Belt Switch Assembly	1	-	-	90	90	$11.9301	$11.9301

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Rear Passenger Seat Belt System – 2nd Row Control Module Assembly

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
1	1	S	2016-17 Tesla Model X Rear ESBR Study	1	-	-	324.9	324.9	$ 58.9418	$ 58.9418
2	2	S	2nd Row Control Module Wire Subassy	1	-	-	33.3	33.3	$4.3870	$4.3870
3	3	P	Green /w Brown Wire	3	Commodity Item	-	2.5	7.5	$0.0347	$0.1040
4	3	P	Black Wire 2	3	Commodity Item	-	0.9	2.7	$0.0116	$0.0347
5	3	P	Black /w Yellow Wire	3	Commodity Item	-	2.5	7.5	$0.0347	$0.1040
6	3	P	Black Wire 1	3	Commodity Item	-	0.9	2.7	$0.0116	$0.0347
7	3	P	Wire Terminals 1, Female, 2mm	18	Commodity Item	-	0.1	1.8	$0.0231	$0.4158
8	3	P	Tape wire Insulator 1	3	Commodity Item	-	0.1	0.3	$0.0032	$0.0097
9	3	P	Tape Wire Insulator 2	3	Commodity Item	-	0.1	0.3	$0.0030	$0.0090
10	3	P	Pig-Tail Conn 2, Female	3	Commodity Item	-	1.6	4.8	$0.0653	$0.1958
11	3	P	Terminal Pos. Assurance, Lock 1	9	Commodity Item	-	0.1	0.9	$0.0231	$0.2079
12	3	P	Pig-Tail Conn 1, Female	3	Commodity Item	-	1.6	4.8	$0.0653	$0.1958
13	3	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-	$3.0627	$3.0627
14	4	M	Coverings and Tape Windings	1	-	-	-	-	$ 0.5016	$ 0.5016
15	4	M	Wire and Connector Assembly	1	-	-	-	-	$ 1.0142	$ 1.0142
16	4	M	Wire and Splice Assembly	1	-	-	-	-	$ 0.3395	$ 0.3395
17	4	M	Wire and Terminal Assembly	1	-	-	-	-	$ 1.2075	$ 1.2075

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Rear Passenger Seat Belt System – 3rd Row Wiring Harness Assembly

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
18	2	S	3rd Row Seat Wiring Harness	1	-	-	123.9	123.9	$5.8172	$5.8172
19	3	S	3rd Row Seat Rear Wire Assembly	1	-	-	29.2	29.2	$3.2241	$3.2241
20	4	P	Green /w Brown Wire	2	Commodity Item	-	2.8	5.7	$ 0.0392	$ 0.0783
21	4	P	Black Wire 1	2	Commodity Item	-	2.3	4.6	$ 0.0293	$ 0.0587
22	4	P	Black /w Yellow Wire	2	Commodity Item	-	2.8	5.7	$ 0.0392	$ 0.0783
23	4	P	Black Wire 2	2	Commodity Item	-	2.3	4.6	$ 0.0293	$ 0.0587
24	4	P	Wire Terminals 1, Female, 2mm	8	Commodity Item	-	0.1	0.8	$ 0.0231	$ 0.1848
25	4	P	Tape wire Insulator 1	2	Commodity Item	-	0.1	0.2	$ 0.0032	$ 0.0065
26	4	P	Tape Wire Insulator 2	2	Commodity Item	-	0.1	0.2	$ 0.0030	$ 0.0060
27	4	P	Pig-Tail Conn 2, Female	2	Commodity Item	-	1.6	3.2	$ 0.0653	$ 0.1305
28	4	P	Terminal Pos. Assurance, Lock 1	6	Commodity Item	-	0.1	0.6	$ 0.0231	$ 0.1386
29	4	P	Pig-Tail Conn 1, Female	2	Commodity Item	-	1.6	3.2	$ 0.0653	$ 0.1305
30	4	P	Wire Terminals 1, Male, 2mm	6	Commodity Item	-	0.1	0.6	$ 0.0231	$ 0.1386
31	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 2.2054	$ 2.2054
32	5	M	Coverings and Tape Windings	1	-	-	-	-	$ 0.3344	$ 0.3344
33	5	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.7481	$ 0.7481
34	5	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.8966	$ 0.8966
35	5	M	Wire and Splice Assembly	1	-	-	-	-	$ 0.2263	$ 0.2263
36	3	S	3rd Row Seat Body Harness Wire Assembly	1	-	-	94.7	94.7	$2.5931	$2.5931
37	4	P	Green /w Brown Wire	2	Commodity Item	-	15.7	31.4	$ 0.2173	$ 0.4345
38	4	P	Black /w Yellow Wire	2	Commodity Item	-	15.7	31.4	$ 0.2173	$ 0.4345
39	4	P	Black Wire 1	2	Commodity Item	-	15.4	30.8		
40	4	P	Wire Terminals 1, Female, 2mm	12	Commodity Item	-	0.1	1.2		
41	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 1.0477	$ 1.0477
42	5	M	Wire and Connector Assembly	1	-	-	-	-		
43	5	M	Wire and Terminal Assembly	1	-	-	-	-		

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Rear Passenger Seat Belt System – Occupant Sensor Assembly (1/6)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
44	**2**	**S**	**Occupancy Sensor Assembly**	**1**	**-**	**-**	**77.7**	**77.7**	**$36.8075**	**$36.8075**
45	**3**	**S**	**Occupancy Sensor Subassy**	**1**	**-**	**-**	**14.1**	**14.1**		
46	**4**	**S**	**Wire 3 Subassy**	**1**	**-**	**-**	**10.5**	**10.5**		
47	5	S	Brown Wire Subassy	1	-	-	2.2	2.2	$ 0.2730	$ 0.2730
48	6	P	Brown Wire 1	1	Commodity Item	-	0.3	0.3		
49	6	P	Brown Wire 2	1	Commodity Item	-	1.5	1.5		
50	6	P	Intermediate Wire Terminal	2	Commodity Item	-	0.1	0.2	$ 0.0231	$ 0.0462
51	6	P	Heat Shrink	1	Commodity Item	-	0.1	0.1		
52	6	P	Resistor 1	1	Commodity Item	-	0.2	0.2		
53	6	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 0.1987	$ 0.1987
54	7	M	Coverings and Tape Windings	1	-	-	-	-		
55	7	M	Wire and Resistor Assembly	1	-	-	-	-		
56	7	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.0701	$ 0.0701
57	5	P	Black Wire 3	1	Commodity Item	-	2.1	2.1		
58	5	P	Wire Terminals 1, Male, 2mm	2	Commodity Item	-	0.1	0.2		
59	5	P	Tube Vinyl, Wire Insulator 1	1	Commodity Item	-	1	1	$ 0.2079	$ 0.2079
60	5	P	Pig-Tail Conn 1, Male	1	Commodity Item	-	4.3	4.3		
61	5	P	Pig-Tail Conn 1, Clip	1	Commodity Item	-	0.7	0.7		
62	5	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 0.3725	$ 0.3725
63	6	M	Coverings and Tape Windings	1	-	-	-	-		
64	6	M	Wire and Connector Assembly	1	-	-	-	-		
65	6	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.1491	$ 0.1491
66	**4**	**S**	**Sensor Flex Subassy**	**1**	**-**	**-**	**0.6**	**0.6**		
67	5	P	Sensor Flex 1	1	Commodity Item	-	0.2	0.2		
68	5	P	Sensor Flex 2	1	Commodity Item	-	0.2	0.2	$ 2.1137	$ 2.1137
69	5	P	Insulator Strip	1	Commodity Item	-	0.1	0.1		
70	5	A	Assembly, Sensor Flex	1	-	-	-	-		
71	6	M	Auto Label Apply	1	-	-	-	-	$ 0.0492	$ 0.0492
72	7	P	Label	1	Commodity Item	-	0.1	0.1		
73	6	M	Functional Test	1	-	-	-	-		
74	6	M	Auto Flex Assembly	1	-	-	-	-	$ 0.1730	$ 0.1730
75	**4**	**P**	**Wire Terminal, Sensor Flex**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**		
76	**4**	**P**	**Resistor 2**	**1**	**Commodity Item**	**-**	**0.2**	**0.2**		
77	**4**	**P**	**Terminal, Resistor 2**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**	**$ 0.0231**	**$ 0.0462**
78	**4**	**A**	**Wire Prep - Cut, Strip, Crimp Terminals**	**1**	**-**	**-**	**-**	**-**		
79	5	M	Resistor and Terminal Assembly	1	-	-	-	-		
80	5	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.1384	$ 0.1384
81	**4**	**P**	**Plastic Housing Bottom, Sensor Flex**	**1**	**PBT GP**	**-**	**1.2**	**1.2**		
82	5	M	Injection Mold, 55 Tons	1	PBT GP	1.3	1.2	1.2		
83	**4**	**P**	**Plastic Housing Top, Sensor Flex**	**1**	**PBT GP**	**-**	**1.2**	**1.2**	**$ 0.0122**	**$ 0.0122**
84	5	M	Injection Mold, 55 Tons	1	PBT GP	1.3	1.2	1.2		

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Rear Passenger Seat Belt System – Occupant Sensor Assembly (2/6)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
85	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**	**-**	**-**		
86	5	M	Manual Assembly Station	1	-	-	-	-	$ 0.2486	$ 0.2486
87	**3**	**P**	**Double Sided Adhesive Pad**	**1**	**Commodity Item**	**-**	**0.2**	**0.2**		
88	**3**	**P**	**Adhesive Pad 1, Sensor Flex Subassy**	**1**	**Commodity Item**	**-**	**0.6**	**0.6**		
89	**3**	**P**	**Adhesive Pad 2, Sensor Flex Subassy**	**1**	**Commodity Item**	**-**	**0.6**	**0.6**	**$0.0347**	**$0.0347**
90	**3**	**A**	**Occupancy Sensor Assembly**	**1**	**-**	**-**	**-**	**-**		
91	**4**	**M**	**Manual Assembly Station**	**1**	**-**	**-**	**-**	**-**		
92	**4**	**M**	**Manual Assembly Station**	**1**	**-**	**-**	**-**	**-**	**$ 0.4404**	**$ 0.4404**
93	**4**	**M**	**Functional Test**	**1**	**-**	**-**	**-**	**-**		
94	**3**	**S**	**Occupancy Sensor Subassy**	**1**	**-**	**-**	**14.1**	**14.1**		
95	**4**	**S**	**Wire 3 Subassy**	**1**	**-**	**-**	**10.5**	**10.5**	**$ 1.3840**	**$ 1.3840**
96	5	S	Brown Wire Subassy	1	-	-	2.2	2.2		
97	6	P	Brown Wire 1	1	Commodity Item	-	0.3	0.3		
98	6	P	Brown Wire 2	1	Commodity Item	-	1.5	1.5	$ 0.0231	$ 0.0231
99	6	P	Intermediate Wire Terminal	2	Commodity Item	-	0.1	0.2		
100	6	P	Heat Shrink	1	Commodity Item	-	0.1	0.1		
101	6	P	Resistor 1	1	Commodity Item	-	0.2	0.2	$ 0.0012	$ 0.0012
102	6	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-		
103	7	M	Coverings and Tape Windings	1	-	-	-	-		
104	7	M	Wire and Resistor Assembly	1	-	-	-	-	$ 0.1033	$ 0.1033
105	7	M	Wire and Terminal Assembly	1	-	-	-	-		
106	5	P	Black Wire 3	1	Commodity Item	-	2.1	2.1		
107	5	P	Wire Terminals 1, Male, 2mm	2	Commodity Item	-	0.1	0.2	$ 0.0231	$ 0.0462
108	5	P	Tube Vinyl, Wire Insulator 1	1	Commodity Item	-	1	1		
109	5	P	Pig-Tail Conn 1, Male	1	Commodity Item	-	4.3	4.3		
110	5	P	Pig-Tail Conn 1, Clip	1	Commodity Item	-	0.7	0.7	$ 0.0155	$ 0.0155
111	5	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-		
112	6	M	Coverings and Tape Windings	1	-	-	-	-		
113	6	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.1236	$ 0.1236
114	6	M	Wire and Terminal Assembly	1	-	-	-	-		
115	**4**	**S**	**Sensor Flex Subassy**	**1**	**-**	**-**	**0.6**	**0.6**		
116	5	P	Sensor Flex 1	1	Commodity Item	-	0.2	0.2	$ 2.1137	$ 2.1137
117	5	P	Sensor Flex 2	1	Commodity Item	-	0.2	0.2		
118	5	P	Insulator Strip	1	Commodity Item	-	0.1	0.1		
119	5	A	Assembly, Sensor Flex	1	-	-	-	-	$ 0.3441	$ 0.3441
120	6	M	Auto Label Apply	1	-	-	-	-		
121	7	P	Label	1	Commodity Item	-	0.1	0.1		
122	6	M	Functional Test	1	-	-	-	-	$ 0.1220	$ 0.1220
123	6	M	Auto Flex Assembly	1	-	-	-	-		

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Rear Passenger Seat Belt System – Occupant Sensor Assembly (3/6)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
124	**4**	**P**	**Wire Terminal, Sensor Flex**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**		
125	**4**	**P**	**Resistor 2**	**1**	**Commodity Item**	**-**	**0.2**	**0.2**	**$ 0.0012**	**$ 0.0012**
126	**4**	**P**	**Terminal, Resistor 2**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**		
127	**4**	**A**	**Wire Prep - Cut, Strip, Crimp Terminals**	**1**	**-**	**-**	**-**	**-**		
128	5	M	Resistor and Terminal Assembly	1	-	-	-	-	$ 0.0862	$ 0.0862
129	5	M	Wire and Terminal Assembly	1	-	-	-	-		
130	**4**	**P**	**Plastic Housing Bottom, Sensor Flex**	**1**	**PBT GP**	**-**	**1.2**	**1.2**		
131	5	M	Injection Mold, 55 Tons	1	PBT GP	1.3	1.2	1.2	$ 0.0122	$ 0.0122
132	**4**	**P**	**Plastic Housing Top, Sensor Flex**	**1**	**PBT GP**	**-**	**1.2**	**1.2**		
133	5	M	Injection Mold, 55 Tons	1	PBT GP	1.3	1.2	1.2		
134	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**	**-**	**-**	**$ 0.2486**	**$ 0.2486**
135	5	M	Manual Assembly Station	1	-	-	-	-		
136	**3**	**P**	**Double Sided Adhesive Pad**	**1**	**Commodity Item**	**-**	**0.2**	**0.2**		
137	**3**	**P**	**Adhesive Pad 1, Sensor Flex Subassy**	**1**	**Commodity Item**	**-**	**0.6**	**0.6**	**$0.0347**	**$0.0347**
138	**3**	**P**	**Adhesive Pad 2, Sensor Flex Subassy**	**1**	**Commodity Item**	**-**	**0.6**	**0.6**		
139	**3**	**A**	**Occupancy Sensor Assembly**	**1**	**-**	**-**	**-**	**-**		
140	**4**	**M**	**Manual Assembly Station**	**1**	**-**	**-**	**-**	**-**	**$ 0.1166**	**$ 0.1166**
141	**4**	**M**	**Manual Assembly Station**	**1**	**-**	**-**	**-**	**-**		
142	**4**	**M**	**Functional Test**	**1**	**-**	**-**	**-**	**-**		
143	**3**	**S**	**Occupancy Sensor Subassy**	**1**	**-**	**-**	**14.1**	**14.1**	**$6.5547**	**$6.5547**
144	**4**	**S**	**Wire 3 Subassy**	**1**	**-**	**-**	**10.5**	**10.5**		
145	5	S	Brown Wire Subassy	1	-	-	2.2	2.2		
146	6	P	Brown Wire 1	1	Commodity Item	-	0.3	0.3	$ 0.0013	$ 0.0013
147	6	P	Brown Wire 2	1	Commodity Item	-	1.5	1.5		
148	6	P	Intermediate Wire Terminal	2	Commodity Item	-	0.1	0.2		
149	6	P	Heat Shrink	1	Commodity Item	-	0.1	0.1	$ 0.0012	$ 0.0012
150	6	P	Resistor 1	1	Commodity Item	-	0.2	0.2		
151	6	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-		
152	7	M	Coverings and Tape Windings	1	-	-	-	-	$ 0.0253	$ 0.0253
153	7	M	Wire and Resistor Assembly	1	-	-	-	-		
154	7	M	Wire and Terminal Assembly	1	-	-	-	-		
155	5	P	Black Wire 3	1	Commodity Item	-	2.1	2.1	$ 0.0347	$ 0.0347
156	5	P	Wire Terminals 1, Male, 2mm	2	Commodity Item	-	0.1	0.2		
157	5	P	Tube Vinyl, Wire Insulator 1	1	Commodity Item	-	1	1		
158	5	P	Pig-Tail Conn 1, Male	1	Commodity Item	-	4.3	4.3	$ 0.4327	$ 0.4327
159	5	P	Pig-Tail Conn 1, Clip	1	Commodity Item	-	0.7	0.7		
160	5	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-		
161	6	M	Coverings and Tape Windings	1	-	-	-	-	$ 0.0998	$ 0.0998
162	6	M	Wire and Connector Assembly	1	-	-	-	-		
163	6	M	Wire and Terminal Assembly	1	-	-	-	-		

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Rear Passenger Seat Belt System – Occupant Sensor Assembly (4/6)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
164	**4**	**S**	**Sensor Flex Subassy**	**1**	**-**	**-**	**0.6**	**0.6**	**$ 4.5784**	**$ 4.5784**
165	5	P	Sensor Flex 1	1	Commodity Item	-	0.2	0.2		
166	5	P	Sensor Flex 2	1	Commodity Item	-	0.2	0.2		
167	5	P	Insulator Strip	1	Commodity Item	-	0.1	0.1	$ 0.0058	$ 0.0058
168	5	A	Assembly, Sensor Flex	1	-	-	-	-		
169	6	M	Auto Label Apply	1	-	-	-	-		
170	7	P	Label	1	Commodity Item	-	0.1	0.1	$ 0.0231	$ 0.0231
171	6	M	Functional Test	1	-	-	-	-		
172	6	M	Auto Flex Assembly	1	-	-	-	-		
173	**4**	**P**	**Wire Terminal, Sensor Flex**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**	**$ 0.0231**	**$ 0.0462**
174	**4**	**P**	**Resistor 2**	**1**	**Commodity Item**	**-**	**0.2**	**0.2**		
175	**4**	**P**	**Terminal, Resistor 2**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**		
176	**4**	**A**	**Wire Prep - Cut, Strip, Crimp Terminals**	**1**	**-**	**-**	**-**	**-**	**$ 0.2246**	**$ 0.2246**
177	5	M	Resistor and Terminal Assembly	1	-	-	-	-		
178	5	M	Wire and Terminal Assembly	1	-	-	-	-		
179	**4**	**P**	**Plastic Housing Bottom, Sensor Flex**	**1**	**PBT GP**	**-**	**1.2**	**1.2**	**$ 0.0122**	**$ 0.0122**
180	5	M	Injection Mold, 55 Tons	1	PBT GP	1.3	1.2	1.2		
181	**4**	**P**	**Plastic Housing Top, Sensor Flex**	**1**	**PBT GP**	**-**	**1.2**	**1.2**		
182	5	M	Injection Mold, 55 Tons	1	PBT GP	1.3	1.2	1.2	$ 0.0122	$ 0.0122
183	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**	**-**	**-**		
184	5	M	Manual Assembly Station	1	-	-	-	-		
185	**3**	**P**	**Double Sided Adhesive Pad**	**1**	**Commodity Item**	**-**	**0.2**	**0.2**	**$0.0116**	**$0.0116**
186	**3**	**P**	**Adhesive Pad 1, Sensor Flex Subassy**	**1**	**Commodity Item**	**-**	**0.6**	**0.6**		
187	**3**	**P**	**Adhesive Pad 2, Sensor Flex Subassy**	**1**	**Commodity Item**	**-**	**0.6**	**0.6**		
188	**3**	**A**	**Occupancy Sensor Assembly**	**1**	**-**	**-**	**-**	**-**	**$0.7070**	**$0.7070**
189	**4**	**M**	**Manual Assembly Station**	**1**	**-**	**-**	**-**	**-**		
190	**4**	**M**	**Manual Assembly Station**	**1**	**-**	**-**	**-**	**-**		
191	**4**	**M**	**Functional Test**	**1**	**-**	**-**	**-**	**-**	**$ 0.1500**	**$ 0.1500**
192	**3**	**S**	**Occupancy Sensor Subassy**	**1**	**-**	**-**	**14.1**	**14.1**		
193	**4**	**S**	**Wire 3 Subassy**	**1**	**-**	**-**	**10.5**	**10.5**		
194	5	S	Brown Wire Subassy	1	-	-	2.2	2.2	$ 0.2730	$ 0.2730
195	6	P	Brown Wire 1	1	Commodity Item	-	0.3	0.3		
196	6	P	Brown Wire 2	1	Commodity Item	-	1.5	1.5		
197	6	P	Intermediate Wire Terminal	2	Commodity Item	-	0.1	0.2	$ 0.0231	$ 0.0462
198	6	P	Heat Shrink	1	Commodity Item	-	0.1	0.1		
199	6	P	Resistor 1	1	Commodity Item	-	0.2	0.2		
200	6	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 0.1987	$ 0.1987
201	7	M	Coverings and Tape Windings	1	-	-	-	-		
202	7	M	Wire and Resistor Assembly	1	-	-	-	-		
203	7	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.0701	$ 0.0701

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Rear Passenger Seat Belt System – Occupant Sensor Assembly (5/6)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
204	5	P	Black Wire 3	1	Commodity Item	-	2.1	2.1		
205	5	P	Wire Terminals 1, Male, 2mm	2	Commodity Item	-	0.1	0.2		
206	5	P	Tube Vinyl, Wire Insulator 1	1	Commodity Item	-	1	1	$ 0.2079	$ 0.2079
207	5	P	Pig-Tail Conn 1, Male	1	Commodity Item	-	4.3	4.3		
208	5	P	Pig-Tail Conn 1, Clip	1	Commodity Item	-	0.7	0.7		
209	5	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 0.3725	$ 0.3725
210	6	M	Coverings and Tape Windings	1	-	-	-	-		
211	6	M	Wire and Connector Assembly	1	-	-	-	-		
212	6	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.1491	$ 0.1491
213	**4**	**S**	**Sensor Flex Subassy**	**1**	**-**	**-**	**0.6**	**0.6**		
214	5	P	Sensor Flex 1	1	Commodity Item	-	0.2	0.2		
215	5	P	Sensor Flex 2	1	Commodity Item	-	0.2	0.2	$ 2.1137	$ 2.1137
216	5	P	Insulator Strip	1	Commodity Item	-	0.1	0.1		
217	5	A	Assembly, Sensor Flex	1	-	-	-	-		
218	6	M	Auto Label Apply	1	-	-	-	-	$ 0.0492	$ 0.0492
219	7	P	Label	1	Commodity Item	-	0.1	0.1		
220	6	M	Functional Test	1	-	-	-	-		
221	6	M	Auto Flex Assembly	1	-	-	-	-	$ 0.1730	$ 0.1730
222	**4**	**P**	**Wire Terminal, Sensor Flex**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**		
223	**4**	**P**	**Resistor 2**	**1**	**Commodity Item**	**-**	**0.2**	**0.2**		
224	**4**	**P**	**Terminal, Resistor 2**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**	**$ 0.0231**	**$ 0.0462**
225	**4**	**A**	**Wire Prep - Cut, Strip, Crimp Terminals**	**1**	**-**	**-**	**-**	**-**		
226	5	M	Resistor and Terminal Assembly	1	-	-	-	-		
227	5	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.1384	$ 0.1384
228	**4**	**P**	**Plastic Housing Bottom, Sensor Flex**	**1**	**PBT GP**	**-**	**1.2**	**1.2**		
229	5	M	Injection Mold, 55 Tons	1	PBT GP	1.3	1.2	1.2		
230	**4**	**P**	**Plastic Housing Top, Sensor Flex**	**1**	**PBT GP**	**-**	**1.2**	**1.2**	**$ 0.0122**	**$ 0.0122**
231	5	M	Injection Mold, 55 Tons	1	PBT GP	1.3	1.2	1.2		
232	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**	**-**	**-**		
233	5	M	Manual Assembly Station	1	-	-	-	-	$ 0.2486	$ 0.2486
234	**3**	**P**	**Double Sided Adhesive Pad**	**1**	**Commodity Item**	**-**	**0.2**	**0.2**		
235	**3**	**P**	**Adhesive Pad 1, Sensor Flex Subassy**	**1**	**Commodity Item**	**-**	**0.6**	**0.6**		
236	**3**	**P**	**Adhesive Pad 2, Sensor Flex Subassy**	**1**	**Commodity Item**	**-**	**0.6**	**0.6**	**$0.0347**	**$0.0347**
237	**3**	**A**	**Occupancy Sensor Assembly**	**1**	**-**	**-**	**-**	**-**		
238	**4**	**M**	**Manual Assembly Station**	**1**	**-**	**-**	**-**	**-**		
239	**4**	**M**	**Manual Assembly Station**	**1**	**-**	**-**	**-**	**-**	**$ 0.4404**	**$ 0.4404**
240	**4**	**M**	**Functional Test**	**1**	**-**	**-**	**-**	**-**		

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Rear Passenger Seat Belt System – Occupant Sensor Assembly (6/6)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
241	**3**	**S**	**Occupancy Sensor Subassy**	**1**	**-**	**-**	**14.1**	**14.1**		
242	**4**	**S**	**Wire 3 Subassy**	**1**	**-**	**-**	**10.5**	**10.5**	**$ 1.4295**	**$ 1.4295**
243	5	S	Brown Wire Subassy	1	-	-	2.2	2.2		
244	6	P	Brown Wire 1	1	Commodity Item	-	0.3	0.3		
245	6	P	Brown Wire 2	1	Commodity Item	-	1.5	1.5	$ 0.0231	$ 0.0231
246	6	P	Intermediate Wire Terminal	2	Commodity Item	-	0.1	0.2		
247	6	P	Heat Shrink	1	Commodity Item	-	0.1	0.1		
248	6	P	Resistor 1	1	Commodity Item	-	0.2	0.2	$ 0.0012	$ 0.0012
249	6	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-		
250	7	M	Coverings and Tape Windings	1	-	-	-	-		
251	7	M	Wire and Resistor Assembly	1	-	-	-	-	$ 0.1033	$ 0.1033
252	7	M	Wire and Terminal Assembly	1	-	-	-	-		
253	5	P	Black Wire 3	1	Commodity Item	-	2.1	2.1		
254	5	P	Wire Terminals 1, Male, 2mm	2	Commodity Item	-	0.1	0.2	$ 0.0231	$ 0.0462
255	5	P	Tube Vinyl, Wire Insulator 1	1	Commodity Item	-	1	1		
256	5	P	Pig-Tail Conn 1, Male	1	Commodity Item	-	4.3	4.3		
257	5	P	Pig-Tail Conn 1, Clip	1	Commodity Item	-	0.7	0.7	$ 0.0155	$ 0.0155
258	5	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	-	-		
259	6	M	Coverings and Tape Windings	1	-	-	-	-		
260	6	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.1236	$ 0.1236
261	6	M	Wire and Terminal Assembly	1	-	-	-	-		
262	**4**	**S**	**Sensor Flex Subassy**	**1**	**-**	**-**	**0.6**	**0.6**		
263	5	P	Sensor Flex 1	1	Commodity Item	-	0.2	0.2	$ 2.1137	$ 2.1137
264	5	P	Sensor Flex 2	1	Commodity Item	-	0.2	0.2		
265	5	P	Insulator Strip	1	Commodity Item	-	0.1	0.1		
266	5	A	Assembly, Sensor Flex	1	-	-	-	-	$ 0.3441	$ 0.3441
267	6	M	Auto Label Apply	1	-	-	-	-		
268	7	P	Label	1	Commodity Item	-	0.1	0.1		
269	6	M	Functional Test	1	-	-	-	-	$ 0.1220	$ 0.1220
270	6	M	Auto Flex Assembly	1	-	-	-	-		
271	**4**	**P**	**Wire Terminal, Sensor Flex**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**		
272	**4**	**P**	**Resistor 2**	**1**	**Commodity Item**	**-**	**0.2**	**0.2**	**$ 0.0012**	**$ 0.0012**
273	**4**	**P**	**Terminal, Resistor 2**	**2**	**Commodity Item**	**-**	**0.1**	**0.2**		
274	**4**	**A**	**Wire Prep - Cut, Strip, Crimp Terminals**	**1**	**-**	**-**	**-**	**-**		
275	5	M	Resistor and Terminal Assembly	1	-	-	-	-	$ 0.0862	$ 0.0862
276	5	M	Wire and Terminal Assembly	1	-	-	-	-		
277	**4**	**P**	**Plastic Housing Bottom, Sensor Flex**	**1**	**PBT GP**	**-**	**1.2**	**1.2**		
278	5	M	Injection Mold, 55 Tons	1	PBT GP	1.3	1.2	1.2	$ 0.0122	$ 0.0122
279	**4**	**P**	**Plastic Housing Top, Sensor Flex**	**1**	**PBT GP**	**-**	**1.2**	**1.2**		
280	5	M	Injection Mold, 55 Tons	1	PBT GP	1.3	1.2	1.2		
281	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**	**-**	**-**	**$ 0.2486**	**$ 0.2486**
282	5	M	Manual Assembly Station	1	-	-	-	-		
283	**3**	**P**	**Double Sided Adhesive Pad**	**1**	**Commodity Item**	**-**	**0.2**	**0.2**		
284	**3**	**P**	**Adhesive Pad 1, Sensor Flex Subassy**	**1**	**Commodity Item**	**-**	**0.6**	**0.6**	**$0.0347**	**$0.0347**
285	**3**	**P**	**Adhesive Pad 2, Sensor Flex Subassy**	**1**	**Commodity Item**	**-**	**0.6**	**0.6**		
286	**3**	**A**	**Occupancy Sensor Assembly**	**1**	**-**	**-**	**-**	**-**		
287	**4**	**M**	**Manual Assembly Station**	**1**	**-**	**-**	**-**	**-**	**$ 0.1166**	**$ 0.1166**
288	**4**	**M**	**Manual Assembly Station**	**1**	**-**	**-**	**-**	**-**		
289	**4**	**M**	**Functional Test**	**1**	**-**	**-**	**-**	**-**		

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Rear Passenger Seat Belt System – Seat Belt Switch Assembly (1/6)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
290	**2**	**S**	**Seat Belt Switch Assembly**	**1**	**-**	**-**	**90**	**90**	**$11.9301**	**$11.9301**
291	**3**	**S**	**Seat Belt Switch Subassy**	**1**	**-**	**-**	**18**	**18**		
292	**4**	**S**	**Two Conductor Cable Subassy**	**1**	**-**	**-**	**8**	**8**		
293	5	P	Two Conductor Cable	1	Commodity Item	-	2.5	2.5	$ 0.1415	$ 0.1415
294	5	P	Wire Terminals 3, Male, 2mm	2	Commodity Item	-	0.1	0.2		
295	5	P	Pig-Tail Conn 2, Male	1	Commodity Item	-	4.3	4.3		
296	5	P	Terminal Pos. Assurance, Lock	2	Commodity Item	-	0.1	0.2	$ 0.0231	$ 0.0462
297	5	P	Pig-Tail Conn 2, Clip	1	Commodity Item	-	0.8	0.8		
298	5	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-	-	-		
299	6	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.1970	$ 0.1970
300	6	M	Wire and Terminal Assembly	1	-	-	-	-		
301	**4**	**S**	**Plastic Interconnect**	**1**	**-**	**-**	**3**	**3**		
302	5	P	Leadframe 1	1	opper Beryllium(1720(	-	0.9	0.9	$ 0.0785	$ 0.0785
303	6	M	Wash	1	-	-	-	-		
304	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	2.1	0.9	0.9		
305	5	P	Leadframe 2	1	opper Beryllium(1720(	-	0.5	0.5	$ 0.0633	$ 0.0633
306	6	M	Wash	1	-	-	-	-		
307	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	1.5	0.5	0.5		
308	5	P	Leadframe 3	1	opper Beryllium(1720(	-	0.4	0.4	$ 0.0609	$ 0.0609
309	6	M	Wash	1	-	-	-	-		
310	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	1.4	0.4	0.4		
311	5	P	Resistor 3	1	Commodity Item	-	0.1	0.1	$ 0.0012	$ 0.0012
312	5	P	Resistor 4	1	Commodity Item	-	0.1	0.1		
313	5	A	Plastic Injection Molding	1	-	-	1	1		
314	6	M	Injection Molding, 55 Ton	1	PBT GP	1.1	1	1	$ 0.0455	$ 0.0455
315	**4**	**S**	**Contact Arm 1 Subassembly**	**1**	**-**	**-**	**1.6**	**1.6**		
316	5	P	Contact Arm 1	1	opper Beryllium(1720(	-	1.6	1.6		
317	6	M	Wash	1	-	-	-	-	$ 0.0207	$ 0.0207
318	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	1.5	1.6	1.6		
319	5	P	Electrical Contact 1	2	Commodity Item	-	0	0		
320	5	A	Spot Welding	1	-	-	-	-	$ 0.0834	$ 0.0834
321	6	M	Spot Welding Operation	1	-	-	-	-		
322	**4**	**S**	**Contact Arm 2 Subassembly**	**1**	**-**	**-**	**1.8**	**1.8**		
323	5	P	Contact Arm 2	1	opper Beryllium(1720(	-	1.8	1.8	$ 0.0943	$ 0.0943
324	6	M	Wash	1	-	-	-	-		
325	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	2.8	1.8	1.8		
326	5	P	Electrical Contact 2	1	Commodity Item	-	0	0	$ 0.0012	$ 0.0012
327	5	A	Spot Welding	1	-	-	-	-		
328	6	M	Spot Welding Operation	1	-	-	-	-		
329	**4**	**A**	**Spot Welding**	**1**	**-**	**-**	**-**	**-**	**$ 0.1584**	**$ 0.1584**
330	5	M	Spot Welding Operation	1	-	-	-	-		
331	**4**	**P**	**Switch Housing, Tesla**	**1**	**PBT GF30 FR**	**-**	**1.7**	**1.7**		
332	5	M	Injection Mold, 55 Tons	1	PBT GF30 FR	1.8	1.7	1.7	$ 0.0181	$ 0.0181
333	**4**	**P**	**Spring**	**1**	**Commodity Item**	**-**	**0.5**	**0.5**		
334	**4**	**P**	**Switch Actuator Pin**	**1**	**PBT GP**	**-**	**0.7**	**0.7**		
335	5	M	Injection Molding, 55 Tons	1	PBT GP	0.8	0.7	0.7	$ 0.0095	$ 0.0095
336	**4**	**P**	**Plastic Cover**	**1**	**PBT SG20**	**-**	**0.7**	**0.7**		
337	5	M	Injection Mold, 55 Tons	1	PBT SG20	0.8	0.7	0.7		
338	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**	**-**	**-**	**$ 0.5675**	**$ 0.5675**
339	5	M	Manual Assembly Station	1	-	-	-	-		

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Rear Passenger Seat Belt System – Seat Belt Switch Assembly (2/6)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
340	3	A	Seat Belt Switch Assembly	1	-	-	-	-		
341	4	M	Manual Assembly Station	1	-	-	-	-	$ 0.1166	$ 0.1166
342	4	M	Functional Test	1	-	-	-	-		
343	3	S	Seat Belt Switch Subassy	1	-	-	18	18		
344	4	S	Two Conductor Cable Subassy	1	-	-	8	8	$ 0.7951	$ 0.7951
345	5	P	Two Conductor Cable	1	Commodity Item	-	2.5	2.5		
346	5	P	Wire Terminals 3, Male, 2mm	2	Commodity Item	-	0.1	0.2		
347	5	P	Pig-Tail Conn 2, Male	1	Commodity Item	-	4.3	4.3	$ 0.2310	$ 0.2310
348	5	P	Terminal Pos. Assurance, Lock	2	Commodity Item	-	0.1	0.2		
349	5	P	Pig-Tail Conn 2, Clip	1	Commodity Item	-	0.8	0.8		
350	5	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 0.3129	$ 0.3129
351	6	M	Wire and Connector Assembly	1	-	-	-	-		
352	6	M	Wire and Terminal Assembly	1	-	-	-	-		
353	4	S	Plastic Interconnect	1	-	-	3	3	$ 0.2509	$ 0.2509
354	5	P	Leadframe 1	1	opper Beryllium(1720(	-	0.9	0.9		
355	6	M	Wash	1	-	-	-	-		
356	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	2.1	0.9	0.9	$ 0.0578	$ 0.0578
357	5	P	Leadframe 2	1	opper Beryllium(1720(	-	0.5	0.5		
358	6	M	Wash	1	-	-	-	-		
359	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	1.5	0.5	0.5	$ 0.0426	$ 0.0426
360	5	P	Leadframe 3	1	opper Beryllium(1720(	-	0.4	0.4		
361	6	M	Wash	1	-	-	-	-		
362	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	1.4	0.4	0.4	$ 0.0401	$ 0.0401
363	5	P	Resistor 3	1	Commodity Item	-	0.1	0.1		
364	5	P	Resistor 4	1	Commodity Item	-	0.1	0.1		
365	5	A	Plastic Injection Molding	1	-	-	1	1	$ 0.0455	$ 0.0455
366	6	M	Injection Molding, 55 Ton	1	PBT GP	1.1	1	1		
367	4	S	Contact Arm 1 Subassembly	1	-	-	1.6	1.6		
368	5	P	Contact Arm 1	1	opper Beryllium(1720(	-	1.6	1.6	$ 0.0636	$ 0.0636
369	6	M	Wash	1	-	-	-	-		
370	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	1.5	1.6	1.6		
371	5	P	Electrical Contact 1	2	Commodity Item	-	0	0	$ 0.0012	$ 0.0023
372	5	A	Spot Welding	1	-	-	-	-		
373	6	M	Spot Welding Operation	1	-	-	-	-		
374	4	S	Contact Arm 2 Subassembly	1	-	-	1.8	1.8	$ 0.1459	$ 0.1459
375	5	P	Contact Arm 2	1	opper Beryllium(1720(	-	1.8	1.8		
376	6	M	Wash	1	-	-	-	-		
377	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	2.8	1.8	1.8	$ 0.0736	$ 0.0736
378	5	P	Electrical Contact 2	1	Commodity Item	-	0	0		
379	5	A	Spot Welding	1	-	-	-	-		
380	6	M	Spot Welding Operation	1	-	-	-	-	$ 0.0499	$ 0.0499
381	4	A	Spot Welding	1	-	-	-	-		
382	5	M	Spot Welding Operation	1	-	-	-	-		
383	4	P	Switch Housing, Tesla	1	PBT GF30 FR	-	1.7	1.7	$ 0.0181	$ 0.0181
384	5	M	Injection Mold, 55 Tons	1	PBT GF30 FR	1.8	1.7	1.7		
385	4	P	Spring	1	Commodity Item	-	0.5	0.5		
386	4	P	Switch Actuator Pin	1	PBT GP	-	0.7	0.7	$ 0.0095	$ 0.0095
387	5	M	Injection Molding, 55 Tons	1	PBT GP	0.8	0.7	0.7		
388	4	P	Plastic Cover	1	PBT SG20	-	0.7	0.7		
389	5	M	Injection Mold, 55 Tons	1	PBT SG20	0.8	0.7	0.7	$ 0.0120	$ 0.0120
390	4	A	Assembly of Parts	1	-	-	-	-		
391	5	M	Manual Assembly Station	1	-	-	-	-		

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Rear Passenger Seat Belt System – Seat Belt Switch Assembly (3/6)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
392	**3**	**A**	**Seat Belt Switch Assembly**	**1**	**-**	**-**	**-**	**-**	**$0.2666**	**$0.2666**
393	**4**	**M**	**Manual Assembly Station**	**1**	**-**	**-**	**-**	**-**		
394	**4**	**M**	**Functional Test**	**1**	**-**	**-**	**-**	**-**		
395	**3**	**S**	**Seat Belt Switch Subassy**	**1**	**-**	**-**	**18**	**18**	**$2.1194**	**$2.1194**
396	**4**	**S**	**Two Conductor Cable Subassy**	**1**	**-**	**-**	**8**	**8**		
397	5	P	Two Conductor Cable	1	Commodity Item	-	2.5	2.5		
398	5	P	Wire Terminals 3, Male, 2mm	2	Commodity Item	-	0.1	0.2	$ 0.0231	$ 0.0462
399	5	P	Pig-Tail Conn 2, Male	1	Commodity Item	-	4.3	4.3		
400	5	P	Terminal Pos. Assurance, Lock	2	Commodity Item	-	0.1	0.2		
401	5	P	Pig-Tail Conn 2, Clip	1	Commodity Item	-	0.8	0.8	$ 0.0155	$ 0.0155
402	5	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-	-	-		
403	6	M	Wire and Connector Assembly	1	-	-	-	-		
404	6	M	Wire and Terminal Assembly	1	-	-	-	-	$ 0.1159	$ 0.1159
405	**4**	**S**	**Plastic Interconnect**	**1**	**-**	**-**	**3**	**3**		
406	5	P	Leadframe 1	1	opper Beryllium(1720(	-	0.9	0.9		
407	6	M	Wash	1	-	-	-	-	$ 0.0207	$ 0.0207
408	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	2.1	0.9	0.9		
409	5	P	Leadframe 2	1	opper Beryllium(1720(	-	0.5	0.5		
410	6	M	Wash	1	-	-	-	-	$ 0.0207	$ 0.0207
411	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	1.5	0.5	0.5		
412	5	P	Leadframe 3	1	opper Beryllium(1720(	-	0.4	0.4		
413	6	M	Wash	1	-	-	-	-	$ 0.0207	$ 0.0207
414	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	1.4	0.4	0.4		
415	5	P	Resistor 3	1	Commodity Item	-	0.1	0.1		
416	5	P	Resistor 4	1	Commodity Item	-	0.1	0.1	$ 0.0012	$ 0.0012
417	5	A	Plastic Injection Molding	1	-	-	1	1		
418	6	M	Injection Molding, 55 Ton	1	PBT GP	1.1	1	1		
419	**4**	**S**	**Contact Arm 1 Subassembly**	**1**	**-**	**-**	**1.6**	**1.6**	**$ 0.1503**	**$ 0.1503**
420	5	P	Contact Arm 1	1	opper Beryllium(1720(	-	1.6	1.6		
421	6	M	Wash	1	-	-	-	-		
422	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	1.5	1.6	1.6	$ 0.0429	$ 0.0429
423	5	P	Electrical Contact 1	2	Commodity Item	-	0	0		
424	5	A	Spot Welding	1	-	-	-	-		
425	6	M	Spot Welding Operation	1	-	-	-	-	$ 0.0834	$ 0.0834
426	**4**	**S**	**Contact Arm 2 Subassembly**	**1**	**-**	**-**	**1.8**	**1.8**		
427	5	P	Contact Arm 2	1	opper Beryllium(1720(	-	1.8	1.8		
428	6	M	Wash	1	-	-	-	-	$ 0.0207	$ 0.0207
429	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	2.8	1.8	1.8		
430	5	P	Electrical Contact 2	1	Commodity Item	-	0	0		
431	5	A	Spot Welding	1	-	-	-	-	$ 0.0499	$ 0.0499
432	6	M	Spot Welding Operation	1	-	-	-	-		

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Rear Passenger Seat Belt System – Seat Belt Switch Assembly (4/6)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
433	**4**	**A**	**Spot Welding**	**1**	**-**	**-**	**-**	**-**		
434	5	M	Spot Welding Operation	1	-	-	-	-	$ 0.1584	$ 0.1584
435	**4**	**P**	**Switch Housing, Tesla**	**1**	**PBT GF30 FR**	**-**	**1.7**	**1.7**		
436	5	M	Injection Mold, 55 Tons	1	PBT GF30 FR	1.8	1.7	1.7		
437	**4**	**P**	**Spring**	**1**	**Commodity Item**	**-**	**0.5**	**0.5**	**$ 0.0116**	**$ 0.0116**
438	**4**	**P**	**Switch Actuator Pin**	**1**	**PBT GP**	**-**	**0.7**	**0.7**		
439	5	M	Injection Molding, 55 Tons	1	PBT GP	0.8	0.7	0.7		
440	**4**	**P**	**Plastic Cover**	**1**	**PBT SG20**	**-**	**0.7**	**0.7**	**$ 0.0120**	**$ 0.0120**
441	5	M	Injection Mold, 55 Tons	1	PBT SG20	0.8	0.7	0.7		
442	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**	**-**	**-**		
443	5	M	Manual Assembly Station	1	-	-	-	-	$ 0.5675	$ 0.5675
444	**3**	**A**	**Seat Belt Switch Assembly**	**1**	**-**	**-**	**-**	**-**		
445	**4**	**M**	**Manual Assembly Station**	**1**	**-**	**-**	**-**	**-**		
446	**4**	**M**	**Functional Test**	**1**	**-**	**-**	**-**	**-**	**$ 0.1500**	**$ 0.1500**
447	**3**	**S**	**Seat Belt Switch Subassy**	**1**	**-**	**-**	**18**	**18**		
448	**4**	**S**	**Two Conductor Cable Subassy**	**1**	**-**	**-**	**8**	**8**		
449	5	P	Two Conductor Cable	1	Commodity Item	-	2.5	2.5	$ 0.1415	$ 0.1415
450	5	P	Wire Terminals 3, Male, 2mm	2	Commodity Item	-	0.1	0.2		
451	5	P	Pig-Tail Conn 2, Male	1	Commodity Item	-	4.3	4.3		
452	5	P	Terminal Pos. Assurance, Lock	2	Commodity Item	-	0.1	0.2	$ 0.0231	$ 0.0462
453	5	P	Pig-Tail Conn 2, Clip	1	Commodity Item	-	0.8	0.8		
454	5	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-	-	-		
455	6	M	Wire and Connector Assembly	1	-	-	-	-	$ 0.1970	$ 0.1970
456	6	M	Wire and Terminal Assembly	1	-	-	-	-		
457	**4**	**S**	**Plastic Interconnect**	**1**	**-**	**-**	**3**	**3**		
458	5	P	Leadframe 1	1	opper Beryllium(1720	-	0.9	0.9	$ 0.0785	$ 0.0785
459	6	M	Wash	1	-	-	-	-		
460	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720	2.1	0.9	0.9		
461	5	P	Leadframe 2	1	opper Beryllium(1720	-	0.5	0.5	$ 0.0633	$ 0.0633
462	6	M	Wash	1	-	-	-	-		
463	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720	1.5	0.5	0.5		
464	5	P	Leadframe 3	1	opper Beryllium(1720	-	0.4	0.4	$ 0.0609	$ 0.0609
465	6	M	Wash	1	-	-	-	-		
466	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720	1.4	0.4	0.4		
467	5	P	Resistor 3	1	Commodity Item	-	0.1	0.1	$ 0.0012	$ 0.0012
468	5	P	Resistor 4	1	Commodity Item	-	0.1	0.1		
469	5	A	Plastic Injection Molding	1	-	-	1	1		
470	6	M	Injection Molding, 55 Ton	1	PBT GP	1.1	1	1	$ 0.0455	$ 0.0455

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Rear Passenger Seat Belt System – Seat Belt Switch Assembly (5/6)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
471	**4**	**S**	**Contact Arm 1 Subassembly**	**1**	**-**	**-**	**1.6**	**1.6**		
472	5	P	Contact Arm 1	1	opper Beryllium(1720(	-	1.6	1.6		
473	6	M	Wash	1	-	-	-	-	$ 0.0207	$ 0.0207
474	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	1.5	1.6	1.6		
475	5	P	Electrical Contact 1	2	Commodity Item	-	0	0		
476	5	A	Spot Welding	1	-	-	-	-	$ 0.0834	$ 0.0834
477	6	M	Spot Welding Operation	1	-	-	-	-		
478	**4**	**S**	**Contact Arm 2 Subassembly**	**1**	**-**	**-**	**1.8**	**1.8**		
479	5	P	Contact Arm 2	1	opper Beryllium(1720(	-	1.8	1.8	$ 0.0943	$ 0.0943
480	6	M	Wash	1	-	-	-	-		
481	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	2.8	1.8	1.8		
482	5	P	Electrical Contact 2	1	Commodity Item	-	0	0	$ 0.0012	$ 0.0012
483	5	A	Spot Welding	1	-	-	-	-		
484	6	M	Spot Welding Operation	1	-	-	-	-		
485	**4**	**A**	**Spot Welding**	**1**	**-**	**-**	**-**	**-**	**$ 0.1584**	**$ 0.1584**
486	5	M	Spot Welding Operation	1	-	-	-	-		
487	**4**	**P**	**Switch Housing, Tesla**	**1**	**PBT GF30 FR**	**-**	**1.7**	**1.7**		
488	5	M	Injection Mold, 55 Tons	1	PBT GF30 FR	1.8	1.7	1.7	$ 0.0181	$ 0.0181
489	**4**	**P**	**Spring**	**1**	**Commodity Item**	**-**	**0.5**	**0.5**		
490	**4**	**P**	**Switch Actuator Pin**	**1**	**PBT GP**	**-**	**0.7**	**0.7**		
491	5	M	Injection Molding, 55 Tons	1	PBT GP	0.8	0.7	0.7	$ 0.0095	$ 0.0095
492	**4**	**P**	**Plastic Cover**	**1**	**PBT SG20**	**-**	**0.7**	**0.7**		
493	5	M	Injection Mold, 55 Tons	1	PBT SG20	0.8	0.7	0.7		
494	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**	**-**	**-**	**$ 0.5675**	**$ 0.5675**
495	5	M	Manual Assembly Station	1	-	-	-	-		
496	**3**	**A**	**Seat Belt Switch Assembly**	**1**	**-**	**-**	**-**	**-**		
497	**4**	**M**	**Manual Assembly Station**	**1**	**-**	**-**	**-**	**-**	**$ 0.1166**	**$ 0.1166**
498	**4**	**M**	**Functional Test**	**1**	**-**	**-**	**-**	**-**		
499	**3**	**S**	**Seat Belt Switch Subassy**	**1**	**-**	**-**	**18**	**18**		
500	**4**	**S**	**Two Conductor Cable Subassy**	**1**	**-**	**-**	**8**	**8**	**$ 0.7951**	**$ 0.7951**
501	5	P	Two Conductor Cable	1	Commodity Item	-	2.5	2.5		
502	5	P	Wire Terminals 3, Male, 2mm	2	Commodity Item	-	0.1	0.2		
503	5	P	Pig-Tail Conn 2, Male	1	Commodity Item	-	4.3	4.3	$ 0.2310	$ 0.2310
504	5	P	Terminal Pos. Assurance, Lock	2	Commodity Item	-	0.1	0.2		
505	5	P	Pig-Tail Conn 2, Clip	1	Commodity Item	-	0.8	0.8		
506	5	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-	-	-	$ 0.3129	$ 0.3129
507	6	M	Wire and Connector Assembly	1	-	-	-	-		
508	6	M	Wire and Terminal Assembly	1	-	-	-	-		

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Rear Passenger Seat Belt System – Seat Belt Switch Assembly (6/6)

Item #	Assembly Level	Type	Description	Qty	Material	Gross Weight (g)	Unit Mass (g)	Total Mass (g)	$/Unit	$/System
509	**4**	**S**	**Plastic Interconnect**	**1**	**-**	**-**	**3**	**3**	**$ 0.2509**	**$ 0.2509**
510	5	P	Leadframe 1	1	opper Beryllium(1720(	-	0.9	0.9		
511	6	M	Wash	1	-	-	-	-		
512	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	2.1	0.9	0.9	$ 0.0578	$ 0.0578
513	5	P	Leadframe 2	1	opper Beryllium(1720(	-	0.5	0.5		
514	6	M	Wash	1	-	-	-	-		
515	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	1.5	0.5	0.5	$ 0.0426	$ 0.0426
516	5	P	Leadframe 3	1	opper Beryllium(1720(	-	0.4	0.4		
517	6	M	Wash	1	-	-	-	-		
518	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	1.4	0.4	0.4	$ 0.0401	$ 0.0401
519	5	P	Resistor 3	1	Commodity Item	-	0.1	0.1		
520	5	P	Resistor 4	1	Commodity Item	-	0.1	0.1		
521	5	A	Plastic Injection Molding	1	-	-	1	1	$ 0.0455	$ 0.0455
522	6	M	Injection Molding, 55 Ton	1	PBT GP	1.1	1	1		
523	**4**	**S**	**Contact Arm 1 Subassembly**	**1**	**-**	**-**	**1.6**	**1.6**		
524	5	P	Contact Arm 1	1	opper Beryllium(1720(	-	1.6	1.6	$ 0.0636	$ 0.0636
525	6	M	Wash	1	-	-	-	-		
526	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	1.5	1.6	1.6		
527	5	P	Electrical Contact 1	2	Commodity Item	-	0	0	$ 0.0012	$ 0.0023
528	5	A	Spot Welding	1	-	-	-	-		
529	6	M	Spot Welding Operation	1	-	-	-	-		
530	**4**	**S**	**Contact Arm 2 Subassembly**	**1**	**-**	**-**	**1.8**	**1.8**	**$ 0.1459**	**$ 0.1459**
531	5	P	Contact Arm 2	1	opper Beryllium(1720(	-	1.8	1.8		
532	6	M	Wash	1	-	-	-	-		
533	6	M	Stamping Press, 25 Ton	1	opper Beryllium(1720(	2.8	1.8	1.8	$ 0.0736	$ 0.0736
534	5	P	Electrical Contact 2	1	Commodity Item	-	0	0		
535	5	A	Spot Welding	1	-	-	-	-		
536	6	M	Spot Welding Operation	1	-	-	-	-	$ 0.0499	$ 0.0499
537	**4**	**A**	**Spot Welding**	**1**	**-**	**-**	**-**	**-**		
538	5	M	Spot Welding Operation	1	-	-	-	-		
539	**4**	**P**	**Switch Housing, Tesla**	**1**	**PBT GF30 FR**	**-**	**1.7**	**1.7**	**$ 0.0181**	**$ 0.0181**
540	5	M	Injection Mold, 55 Tons	1	PBT GF30 FR	1.8	1.7	1.7		
541	**4**	**P**	**Spring**	**1**	**Commodity Item**	**-**	**0.5**	**0.5**		
542	**4**	**P**	**Switch Actuator Pin**	**1**	**PBT GP**	**-**	**0.7**	**0.7**	**$ 0.0095**	**$ 0.0095**
543	5	M	Injection Molding, 55 Tons	1	PBT GP	0.8	0.7	0.7		
544	**4**	**P**	**Plastic Cover**	**1**	**PBT SG20**	**-**	**0.7**	**0.7**		
545	5	M	Injection Mold, 55 Tons	1	PBT SG20	0.8	0.7	0.7	$ 0.0120	$ 0.0120
546	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**	**-**	**-**		
547	5	M	Manual Assembly Station	1	-	-	-	-		
548	**3**	**A**	**Seat Belt Switch Assembly**	**1**	**-**	**-**	**-**	**-**	**$0.2666**	**$0.2666**
549	**4**	**M**	**Manual Assembly Station**	**1**	**-**	**-**	**-**	**-**		
550	**4**	**M**	**Functional Test**	**1**	**-**	**-**	**-**	**-**		

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Manufacturing Cost Details – 2nd Row Control Module Assembly

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
1	1	S	2016-17 Tesla Model X Rear ESBR Study	1	-	-	$ 3.2605	$ 9.3324	$ 9.0471	$ 29.3919	$ 51.0319	$ 4.0826	$ 2.5516	$ 1.2758	$ 58.9418	$ 58.9418
2	2	S	2nd Row Control Module Wire Subassy	1	-	-	$0.2415	$1.4940	$0.9276	$1.1352	$3.7983	$0.3039	$0.1899	$0.0950	$4.3870	$4.3870
3	3	P	Green /w Brown Wire	3	-	-	$0.0000	$0.0000	$0.0000	$0.0300	$0.0300	$0.0024	$0.0015	$0.0008	$0.0347	$0.1040
4	3	P	Black Wire 2	3	-	-	$0.0000	$0.0000	$0.0000	$0.0100	$0.0100	$0.0008	$0.0005	$0.0003	$0.0116	$0.0347
5	3	P	Black /w Yellow Wire	3	-	-	$0.0000	$0.0000	$0.0000	$0.0300	$0.0300	$0.0024	$0.0015	$0.0008	$0.0347	$0.1040
6	3	P	Black Wire 1	3	-	-	$0.0000	$0.0000	$0.0000	$0.0100	$0.0100	$0.0008	$0.0005	$0.0003	$0.0116	$0.0347
7	3	P	Wire Terminals 1, Female, 2mm	18	-	-	$0.0000	$0.0000	$0.0000	$0.0200	$0.0200	$0.0016	$0.0010	$0.0005	$0.0231	$0.4158
8	3	P	Tape wire Insulator 1	3	-	-	$0.0000	$0.0000	$0.0000	$0.0028	$0.0028	$0.0002	$0.0001	$0.0001	$0.0032	$0.0097
9	3	P	Tape Wire Insulator 2	3	-	-	$0.0000	$0.0000	$0.0000	$0.0026	$0.0026	$0.0002	$0.0001	$0.0001	$0.0030	$0.0090
10	3	P	Pig-Tail Conn 2, Female	3	-	-	$0.0000	$0.0000	$0.0000	$0.0565	$0.0565	$0.0045	$0.0028	$0.0014	$0.0653	$0.1958
11	3	P	Terminal Pos. Assurance, Lock 1	9	-	-	$0.0000	$0.0000	$0.0000	$0.0200	$0.0200	$0.0016	$0.0010	$0.0005	$0.0231	$0.2079
12	3	P	Pig-Tail Conn 1, Female	3	-	-	$0.0000	$0.0000	$0.0000	$0.0565	$0.0565	$0.0045	$0.0028	$0.0014	$0.0653	$0.1958
13	3	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	$0.2415	$1.4940	$0.9162	$0.0000	$2.6517	$0.2121	$0.1326	$0.0663	$3.0627	$3.0627
14	4	M	Coverings and Tape Windings	1	90	1	$ 0.0403	$ 0.2490	$ 0.1450	$ -	$ 0.4343	$ 0.0347	$ 0.0217	$ 0.0109	$ 0.5016	$ 0.5016
15	4	M	Wire and Connector Assembly	1	180	1	$ 0.0805	$ 0.4980	$ 0.2996	$ -	$ 0.8781	$ 0.0702	$ 0.0439	$ 0.0220	$ 1.0142	$ 1.0142
16	4	M	Wire and Splice Assembly	1	60	1	$ 0.0268	$ 0.1660	$ 0.1011	$ -	$ 0.2939	$ 0.0235	$ 0.0147	$ 0.0073	$ 0.3395	$ 0.3395
17	4	M	Wire and Terminal Assembly	1	210	1	$ 0.0939	$ 0.5810	$ 0.3705	$ -	$ 1.0454	$ 0.0836	$ 0.0523	$ 0.0261	$ 1.2075	$ 1.2075

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Manufacturing Cost Details – 2nd Row Control Module Assembly

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
18	2	S	3rd Row Seat Wiring Harness	1	-	-	$0.2554	$1.5798	$0.9930	$2.2084	$5.0365	$0.4029	$0.2518	$0.1259	$5.8172	$5.8172
19	3	S	3rd Row Seat Rear Wire Assembly	1	-	-	$0.1735	$1.0735	$0.6704	$0.8740	$2.7914	$0.2233	$0.1396	$0.0698	$3.2241	$3.2241
20	4	P	Green /w Brown Wire	2	-	-	$ -	$ -	$ -	$ 0.0339	$ 0.0339	$ 0.0027	$ 0.0017	$ 0.0008	$ 0.0392	$ 0.0783
21	4	P	Black Wire 1	2	-	-	$ -	$ -	$ -	$ 0.0254	$ 0.0254	$ 0.0020	$ 0.0013	$ 0.0006	$ 0.0293	$ 0.0587
22	4	P	Black /w Yellow Wire	2	-	-	$ -	$ -	$ -	$ 0.0339	$ 0.0339	$ 0.0027	$ 0.0017	$ 0.0008	$ 0.0392	$ 0.0783
23	4	P	Black Wire 2	2	-	-	$ -	$ -	$ -	$ 0.0254	$ 0.0254	$ 0.0020	$ 0.0013	$ 0.0006	$ 0.0293	$ 0.0587
24	4	P	Wire Terminals 1, Female, 2mm	8	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.1848
25	4	P	Tape wire Insulator 1	2	-	-	$ -	$ -	$ -	$ 0.0028	$ 0.0028	$ 0.0002	$ 0.0001	$ 0.0001	$ 0.0032	$ 0.0065
26	4	P	Tape Wire Insulator 2	2	-	-	$ -	$ -	$ -	$ 0.0026	$ 0.0026	$ 0.0002	$ 0.0001	$ 0.0001	$ 0.0030	$ 0.0060
27	4	P	Pig-Tail Conn 2, Female	2	-	-	$ -	$ -	$ -	$ 0.0565	$ 0.0565	$ 0.0045	$ 0.0028	$ 0.0014	$ 0.0653	$ 0.1305
28	4	P	Terminal Pos. Assurance, Lock 1	6	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.1386
29	4	P	Pig-Tail Conn 1, Female	2	-	-	$ -	$ -	$ -	$ 0.0565	$ 0.0565	$ 0.0045	$ 0.0028	$ 0.0014	$ 0.0653	$ 0.1305
30	4	P	Wire Terminals 1, Male, 2mm	6	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.1386
31	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	$ 0.1735	$ 1.0735	$ 0.6624	$ -	$ 1.9094	$ 0.1528	$ 0.0955	$ 0.0477	$ 2.2054	$ 2.2054
32	5	M	Coverings and Tape Windings	1	60	1	$ 0.0268	$ 0.1660	$ 0.0967	$ -	$ 0.2895	$ 0.0232	$ 0.0145	$ 0.0072	$ 0.3344	$ 0.3344
33	5	M	Wire and Connector Assembly	1	132	1	$ 0.0590	$ 0.3652	$ 0.2235	$ -	$ 0.6477	$ 0.0518	$ 0.0324	$ 0.0162	$ 0.7481	$ 0.7481
34	5	M	Wire and Terminal Assembly	1	156	1	$ 0.0698	$ 0.4316	$ 0.2749	$ -	$ 0.7763	$ 0.0621	$ 0.0388	$ 0.0194	$ 0.8966	$ 0.8966
35	5	M	Wire and Splice Assembly	1	40	1	$ 0.0179	$ 0.1107	$ 0.0674	$ -	$ 0.1959	$ 0.0157	$ 0.0098	$ 0.0049	$ 0.2263	$ 0.2263
36	3	S	3rd Row Seat Body Harness Wire Assembly	1	-	-	$0.0818	$0.5063	$0.3225	$1.3344	$2.2451	$0.1796	$0.1123	$0.0561	$2.5931	$2.5931
37	4	P	Green /w Brown Wire	2	-	-	$ -	$ -	$ -	$ 0.1881	$ 0.1881	$ 0.0150	$ 0.0094	$ 0.0047	$ 0.2173	$ 0.4345
38	4	P	Black /w Yellow Wire	2	-	-	$ -	$ -	$ -	$ 0.1881	$ 0.1881	$ 0.0150	$ 0.0094	$ 0.0047	$ 0.2173	$ 0.4345
39	4	P	Black Wire 1	2												
40	4	P	Wire Terminals 1, Female, 2mm	12	-											
41	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	$ 0.0818	$ 0.5063	$ 0.3189	$ -	$ 0.9071	$ 0.0726	$ 0.0454	$ 0.0227	$ 1.0477	$ 1.0477
42	5	M	Wire and Connector Assembly	1	87	1										
43	5	M	Wire and Terminal Assembly	1	96	1										

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Manufacturing Cost Details – Occupant Sensor Assembly (1/6)

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Number Out	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
44	**2**	**S**	**Occupancy Sensor Assembly**	**1**		**-**	**$1.5091**	**$3.7545**	**$3.8001**	**$22.8043**	**$31.8680**	**$2.5494**	**$1.5934**	**$0.7967**	**$36.8075**	**$36.8075**
45	**3**	**S**	**Occupancy Sensor Subassy**	**1**	**-**	**-**											
46	**4**	**S**	**Wire 3 Subassy**	**1**	**-**												
47	5	S	Brown Wire Subassy	1	-		$ 0.0153	$ 0.0946	$ 0.0634	$ 0.0631	$ 0.2363	$ 0.0189	$ 0.0118	$ 0.0059	$ 0.2730	$ 0.2730
48	6	P	Brown Wire 1	1	-	-											
49	6	P	Brown Wire 2	1		-											
50	6	P	Intermediate Wire Terminal	2	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462
51	6	P	Heat Shrink	1	-	-											
52	6	P	Resistor 1	1	-	-											
53	6	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-		$ 0.0153	$ 0.0946	$ 0.0622	$ -	$ 0.1720	$ 0.0138	$ 0.0086	$ 0.0043	$ 0.1987	$ 0.1987
54	7	M	Coverings and Tape Windings	1													
55	7	M	Wire and Resistor Assembly	1	18	1											
56	7	M	Wire and Terminal Assembly	1	12	1	$ 0.0054	$ 0.0332	$ 0.0221	$ -	$ 0.0607	$ 0.0049	$ 0.0030	$ 0.0015	$ 0.0701	$ 0.0701
57	5	P	Black Wire 3	1	-	-											
58	5	P	Wire Terminals 1, Male, 2mm	2	-	-											
59	5	P	Tube Vinyl, Wire Insulator 1	1		-	$ -	$ -	$ -	$ 0.1800	$ 0.1800	$ 0.0144	$ 0.0090	$ 0.0045	$ 0.2079	$ 0.2079
60	5	P	Pig-Tail Conn 1, Male	1	-												
61	5	P	Pig-Tail Conn 1, Clip	1	-												
62	5	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	$ 0.0295	$ 0.1826	$ 0.1104	$ -	$ 0.3225	$ 0.0258	$ 0.0161	$ 0.0081	$ 0.3725	$ 0.3725
63	6	M	Coverings and Tape Windings	1	18	1											
64	6	M	Wire and Connector Assembly	1		1											
65	6	M	Wire and Terminal Assembly	1	26	1	$ 0.0116	$ 0.0719	$ 0.0456	$ -	$ 0.1291	$ 0.0103	$ 0.0065	$ 0.0032	$ 0.1491	$ 0.1491
66	**4**	**S**	**Sensor Flex Subassy**	**1**	**-**	**-**											
67	5	P	Sensor Flex 1	1	-												
68	5	P	Sensor Flex 2	1	-		$ -	$ -	$ -	$ 1.8300	$ 1.8300	$ 0.1464	$ 0.0915	$ 0.0458	$ 2.1137	$ 2.1137
69	5	P	Insulator Strip	1		-											
70	5	A	Assembly, Sensor Flex	1	-	-											
71	6	M	Auto Label Apply	1	6.5	0.25	$ 0.0051	$ 0.0067	$ 0.0108	$ 0.0200	$ 0.0426	$ 0.0034	$ 0.0021	$ 0.0011	$ 0.0492	$ 0.0492
72	7	P	Label	1	-	-											
73	6	M	Functional Test	1	14	0.25											
74	6	M	Auto Flex Assembly	1			$ 0.0223	$ 0.0675	$ 0.0600	$ -	$ 0.1498	$ 0.0120	$ 0.0075	$ 0.0037	$ 0.1730	$ 0.1730
75	**4**	**P**	**Wire Terminal, Sensor Flex**	**2**	**-**												
76	**4**	**P**	**Resistor 2**	**1**	**-**	**-**											
77	**4**	**P**	**Terminal, Resistor 2**	**2**	**-**	**-**	**$ -**	**$ -**	**$ -**	**$ 0.0200**	**$ 0.0200**	**$ 0.0016**	**$ 0.0010**	**$ 0.0005**	**$ 0.0231**	**$ 0.0462**
78	**4**	**A**	**Wire Prep - Cut, Strip, Crimp Terminals**	**1**	**-**	**-**											
79	5	M	Resistor and Terminal Assembly	1		1											
80	5	M	Wire and Terminal Assembly	1	24	1	$ 0.0107	$ 0.0664	$ 0.0427	$ -	$ 0.1198	$ 0.0096	$ 0.0060	$ 0.0030	$ 0.1384	$ 0.1384
81	**4**	**P**	**Plastic Housing Bottom, Sensor Flex**	**1**	**-**												
82	5	M	Injection Mold, 55 Tons	1	1.04												
83	**4**	**P**	**Plastic Housing Top, Sensor Flex**	**1**	**-**	**-**	**$ 0.0008**	**$ 0.0023**	**$ 0.0034**	**$ 0.0040**	**$ 0.0106**	**$ 0.0008**	**$ 0.0005**	**$ 0.0003**	**$ 0.0122**	**$ 0.0122**
84	5	M	Injection Mold, 55 Tons	1		0.25											
85	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**											
86	5	M	Manual Assembly Station	1	15	1	$ 0.0514	$ 0.0618	$ 0.1021	$ -	$ 0.2153	$ 0.0172	$ 0.0108	$ 0.0054	$ 0.2486	$ 0.2486

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Manufacturing Cost Details – Occupant Sensor Assembly (2/6)

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Number Out	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
87	**3**	**P**	**Double Sided Adhesive Pad**	**1**	**-**	**-**											
88	**3**	**P**	**Adhesive Pad 1, Sensor Flex Subassy**	**1**	**-**												
89	**3**	**P**	**Adhesive Pad 2, Sensor Flex Subassy**	**1**			**$0.0000**	**$0.0000**	**$0.0000**	**$0.0300**	**$0.0300**	**$0.0024**	**$0.0015**	**$0.0008**	**$0.0347**	**$0.0347**	
90	**3**	**A**	**Occupancy Sensor Assembly**	**1**	**-**	**-**											
91	**4**	**M**	**Manual Assembly Station**	**1**	**7**	**1**											
92	**4**	**M**	**Manual Assembly Station**	**1**	**26.5**	**1**	**$ 0.0908**	**$ 0.1091**	**$ 0.1814**	**$ -**	**$ 0.3813**	**$ 0.0305**	**$ 0.0191**	**$ 0.0095**	**$ 0.4404**	**$ 0.4404**	
93	**4**	**M**	**Functional Test**	**1**	**17**	**0.25**											
94	**3**	**S**	**Occupancy Sensor Subassy**	**1**		**-**											
95	**4**	**S**	**Wire 3 Subassy**	**1**	**-**		**$ 0.0448**	**$ 0.2772**	**$ 0.1752**	**$ 0.7011**	**$ 1.1983**	**$ 0.0959**	**$ 0.0599**	**$ 0.0300**	**$ 1.3840**	**$ 1.3840**	
96	5	S	Brown Wire Subassy	1	-												
97	6	P	Brown Wire 1	1	-	-											
98	6	P	Brown Wire 2	1	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0231	
99	6	P	Intermediate Wire Terminal	2		-											
100	6	P	Heat Shrink	1	-	-											
101	6	P	Resistor 1	1	-	-	$ -	$ -	$ -	$ 0.0010	$ 0.0010	$ 0.0001	$ 0.0001	$ -	$ 0.0012	$ 0.0012	
102	6	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-												
103	7	M	Coverings and Tape Windings	1	4.18												
104	7	M	Wire and Resistor Assembly	1		1	$ 0.0081	$ 0.0498	$ 0.0316	$ -	$ 0.0894	$ 0.0072	$ 0.0045	$ 0.0022	$ 0.1033	$ 0.1033	
105	7	M	Wire and Terminal Assembly	1	12	1											
106	5	P	Black Wire 3	1	-	-											
107	5	P	Wire Terminals 1, Male, 2mm	2	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462	
108	5	P	Tube Vinyl, Wire Insulator 1	1	-	-											
109	5	P	Pig-Tail Conn 1, Male	1													
110	5	P	Pig-Tail Conn 1, Clip	1	-		$ -	$ -	$ -	$ 0.0134	$ 0.0134	$ 0.0011	$ 0.0007	$ 0.0003	$ 0.0155	$ 0.0155	
111	5	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-											
112	6	M	Coverings and Tape Windings	1	18	1											
113	6	M	Wire and Connector Assembly	1	22	1	$ 0.0098	$ 0.0609	$ 0.0363	$ -	$ 0.1070	$ 0.0086	$ 0.0053	$ 0.0027	$ 0.1236	$ 0.1236	
114	6	M	Wire and Terminal Assembly	1		1											
115	**4**	**S**	**Sensor Flex Subassy**	**1**	**-**	**-**											
116	5	P	Sensor Flex 1	1	-		$ -	$ -	$ -	$ 1.8300	$ 1.8300	$ 0.1464	$ 0.0915	$ 0.0458	$ 2.1137	$ 2.1137	
117	5	P	Sensor Flex 2	1	-												
118	5	P	Insulator Strip	1	-	-											
119	5	A	Assembly, Sensor Flex	1		-	$ 0.0474	$ 0.1136	$ 0.1170	$ 0.0200	$ 0.2979	$ 0.0238	$ 0.0149	$ 0.0074	$ 0.3441	$ 0.3441	
120	6	M	Auto Label Apply	1	6.5	0.25											
121	7	P	Label	1	-	-											
122	6	M	Functional Test	1	14	0.25	$ 0.0200	$ 0.0395	$ 0.0461	$ -	$ 0.1056	$ 0.0084	$ 0.0053	$ 0.0026	$ 0.1220	$ 0.1220	
123	6	M	Auto Flex Assembly	1	13												
124	**4**	**P**	**Wire Terminal, Sensor Flex**	**2**													
125	**4**	**P**	**Resistor 2**	**1**	**-**	**-**	**$ -**	**$ -**	**$ -**	**$ 0.0010**	**$ 0.0010**	**$ 0.0001**	**$ 0.0001**	**$ -**	**$ 0.0012**	**$ 0.0012**	
126	**4**	**P**	**Terminal, Resistor 2**	**2**	**-**	**-**											
127	**4**	**A**	**Wire Prep - Cut, Strip, Crimp Terminals**	**1**	**-**	**-**											
128	5	M	Resistor and Terminal Assembly	1	15	1	$ 0.0067	$ 0.0415	$ 0.0265	$ -	$ 0.0747	$ 0.0060	$ 0.0037	$ 0.0019	$ 0.0862	$ 0.0862	
129	5	M	Wire and Terminal Assembly	1		1											
130	**4**	**P**	**Plastic Housing Bottom, Sensor Flex**	**1**	**-**												
131	5	M	Injection Mold, 55 Tons	1	1.04		$ 0.0008	$ 0.0023	$ 0.0034	$ 0.0040	$ 0.0106	$ 0.0008	$ 0.0005	$ 0.0003	$ 0.0122	$ 0.0122	
132	**4**	**P**	**Plastic Housing Top, Sensor Flex**	**1**	**-**	**-**											
133	5	M	Injection Mold, 55 Tons	1	1.04	0.25											
134	**4**	**A**	**Assembly of Parts**	**1**		**-**	**$ 0.0514**	**$ 0.0618**	**$ 0.1021**	**$ -**	**$ 0.2153**	**$ 0.0172**	**$ 0.0108**	**$ 0.0054**	**$ 0.2486**	**$ 0.2486**	
135	5	M	Manual Assembly Station	1	15	1											

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Manufacturing Cost Details – Occupant Sensor Assembly (3/6)

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Number Out	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
136	3	P	Double Sided Adhesive Pad	1	-	-											
137	3	P	Adhesive Pad 1, Sensor Flex Subassy	1	-		$0.0000	$0.0000	$0.0000	$0.0300	$0.0300	$0.0024	$0.0015	$0.0008	$0.0347	$0.0347	
138	3	P	Adhesive Pad 2, Sensor Flex Subassy	1	-												
139	3	A	Occupancy Sensor Assembly	1		-											
140	4	M	Manual Assembly Station	1	7	1	$ 0.0240	$ 0.0288	$ 0.0481	$ -	$ 0.1009	$ 0.0081	$ 0.0050	$ 0.0025	$ 0.1166	$ 0.1166	
141	4	M	Manual Assembly Station	1	26.5	1											
142	4	M	Functional Test	1	17	0.25											
143	3	S	Occupancy Sensor Subassy	1	-	-	$0.1627	$0.5651	$0.4723	$4.4751	$5.6751	$0.4540	$0.2838	$0.1419	$6.5547	$6.5547	
144	4	S	Wire 3 Subassy	1													
145	5	S	Brown Wire Subassy	1	-												
146	6	P	Brown Wire 1	1	-	-	$ -	$ -	$ -	$ 0.0011	$ 0.0011	$ 0.0001	$ 0.0001	$ -	$ 0.0013	$ 0.0013	
147	6	P	Brown Wire 2	1	-	-											
148	6	P	Intermediate Wire Terminal	2	-	-											
149	6	P	Heat Shrink	1		-	$ -	$ -	$ -	$ 0.0010	$ 0.0010	$ 0.0001	$ 0.0001	$ -	$ 0.0012	$ 0.0012	
150	6	P	Resistor 1	1	-	-											
151	6	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-												
152	7	M	Coverings and Tape Windings	1	4.18		$ 0.0019	$ 0.0116	$ 0.0084	$ -	$ 0.0219	$ 0.0018	$ 0.0011	$ 0.0005	$ 0.0253	$ 0.0253	
153	7	M	Wire and Resistor Assembly	1	18	1											
154	7	M	Wire and Terminal Assembly	1		1											
155	5	P	Black Wire 3	1	-	-	$ -	$ -	$ -	$ 0.0300	$ 0.0300	$ 0.0024	$ 0.0015	$ 0.0008	$ 0.0347	$ 0.0347	
156	5	P	Wire Terminals 1, Male, 2mm	2	-	-											
157	5	P	Tube Vinyl, Wire Insulator 1	1	-	-											
158	5	P	Pig-Tail Conn 1, Male	1	-		$ -	$ -	$ -	$ 0.3746	$ 0.3746	$ 0.0300	$ 0.0187	$ 0.0094	$ 0.4327	$ 0.4327	
159	5	P	Pig-Tail Conn 1, Clip	1													
160	5	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-											
161	6	M	Coverings and Tape Windings	1	18	1	$ 0.0081	$ 0.0498	$ 0.0286	$ -	$ 0.0865	$ 0.0069	$ 0.0043	$ 0.0022	$ 0.0998	$ 0.0998	
162	6	M	Wire and Connector Assembly	1	22	1											
163	6	M	Wire and Terminal Assembly	1	26	1											
164	4	S	Sensor Flex Subassy	1		-	$ 0.0474	$ 0.1136	$ 0.1180	$ 3.6850	$ 3.9639	$ 0.3171	$ 0.1982	$ 0.0991	$ 4.5784	$ 4.5784	
165	5	P	Sensor Flex 1	1	-												
166	5	P	Sensor Flex 2	1	-												
167	5	P	Insulator Strip	1	-	-	$ -	$ -	$ -	$ 0.0050	$ 0.0050	$ 0.0004	$ 0.0003	$ 0.0001	$ 0.0058	$ 0.0058	
168	5	A	Assembly, Sensor Flex	1	-	-											
169	6	M	Auto Label Apply	1		0.25											
170	7	P	Label	1	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0231	
171	6	M	Functional Test	1	14	0.25											
172	6	M	Auto Flex Assembly	1	13												
173	4	P	Wire Terminal, Sensor Flex	2	-		$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462	
174	4	P	Resistor 2	1		-											
175	4	P	Terminal, Resistor 2	2	-	-											
176	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	$ 0.0174	$ 0.1079	$ 0.0691	$ -	$ 0.1945	$ 0.0156	$ 0.0097	$ 0.0049	$ 0.2246	$ 0.2246	
177	5	M	Resistor and Terminal Assembly	1	15	1											
178	5	M	Wire and Terminal Assembly	1	24	1											
179	4	P	Plastic Housing Bottom, Sensor Flex	1			$ 0.0008	$ 0.0023	$ 0.0034	$ 0.0040	$ 0.0106	$ 0.0008	$ 0.0005	$ 0.0003	$ 0.0122	$ 0.0122	
180	5	M	Injection Mold, 55 Tons	1	1.04												
181	4	P	Plastic Housing Top, Sensor Flex	1	-	-											
182	5	M	Injection Mold, 55 Tons	1	1.04	0.25	$ 0.0008	$ 0.0023	$ 0.0034	$ 0.0040	$ 0.0106	$ 0.0008	$ 0.0005	$ 0.0003	$ 0.0122	$ 0.0122	
183	4	A	Assembly of Parts	1	-	-											
184	5	M	Manual Assembly Station	1		1											

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Manufacturing Cost Details – Occupant Sensor Assembly (4/6)

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Number Out	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
185	3	P	Double Sided Adhesive Pad	1	-	-	$0.0000	$0.0000	$0.0000	$0.0100	$0.0100	$0.0008	$0.0005	$0.0003	$0.0116	$0.0116
186	3	P	Adhesive Pad 1, Sensor Flex Subassy	1	-	-										
187	3	P	Adhesive Pad 2, Sensor Flex Subassy	1	-	-										
188	3	A	Occupancy Sensor Assembly	1		-	$0.1391	$0.1858	$0.2872	$0.0000	$0.6122	$0.0490	$0.0306	$0.0153	$0.7070	$0.7070
189	4	M	Manual Assembly Station	1	7	1										
190	4	M	Manual Assembly Station	1	26.5	1										
191	4	M	Functional Test	1	17	0.25	$ 0.0243	$ 0.0479	$ 0.0577	$ -	$ 0.1299	$ 0.0104	$ 0.0065	$ 0.0032	$ 0.1500	$ 0.1500
192	3	S	Occupancy Sensor Subassy	1		-										
193	4	S	Wire 3 Subassy	1	-	-										
194	5	S	Brown Wire Subassy	1	-	-	$ 0.0153	$ 0.0946	$ 0.0634	$ 0.0631	$ 0.2363	$ 0.0189	$ 0.0118	$ 0.0059	$ 0.2730	$ 0.2730
195	6	P	Brown Wire 1	1	-	-										
196	6	P	Brown Wire 2	1		-										
197	6	P	Intermediate Wire Terminal	2	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462
198	6	P	Heat Shrink	1	-	-										
199	6	P	Resistor 1	1	-	-										
200	6	A	Wire Prep - Cut, Strip, Crimp Terminals	1		-	$ 0.0153	$ 0.0946	$ 0.0622	$ -	$ 0.1720	$ 0.0138	$ 0.0086	$ 0.0043	$ 0.1987	$ 0.1987
201	7	M	Coverings and Tape Windings	1	4.18	1										
202	7	M	Wire and Resistor Assembly	1	18	1										
203	7	M	Wire and Terminal Assembly	1	12	1	$ 0.0054	$ 0.0332	$ 0.0221	$ -	$ 0.0607	$ 0.0049	$ 0.0030	$ 0.0015	$ 0.0701	$ 0.0701
204	5	P	Black Wire 3	1		-										
205	5	P	Wire Terminals 1, Male, 2mm	2	-	-										
206	5	P	Tube Vinyl, Wire Insulator 1	1	-	-	$ -	$ -	$ -	$ 0.1800	$ 0.1800	$ 0.0144	$ 0.0090	$ 0.0045	$ 0.2079	$ 0.2079
207	5	P	Pig-Tail Conn 1, Male	1	-	-										
208	5	P	Pig-Tail Conn 1, Clip	1		-										
209	5	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-	$ 0.0295	$ 0.1826	$ 0.1104	$ -	$ 0.3225	$ 0.0258	$ 0.0161	$ 0.0081	$ 0.3725	$ 0.3725
210	6	M	Coverings and Tape Windings	1	18	1										
211	6	M	Wire and Connector Assembly	1	22	1										
212	6	M	Wire and Terminal Assembly	1		1	$ 0.0116	$ 0.0719	$ 0.0456	$ -	$ 0.1291	$ 0.0103	$ 0.0065	$ 0.0032	$ 0.1491	$ 0.1491
213	4	S	Sensor Flex Subassy	1	-	-										
214	5	P	Sensor Flex 1	1	-	-										
215	5	P	Sensor Flex 2	1	-	-	$ -	$ -	$ -	$ 1.8300	$ 1.8300	$ 0.1464	$ 0.0915	$ 0.0458	$ 2.1137	$ 2.1137
216	5	P	Insulator Strip	1		-										
217	5	A	Assembly, Sensor Flex	1	-	-										
218	6	M	Auto Label Apply	1	6.5	0.25	$ 0.0051	$ 0.0067	$ 0.0108	$ 0.0200	$ 0.0426	$ 0.0034	$ 0.0021	$ 0.0011	$ 0.0492	$ 0.0492
219	7	P	Label	1	-	-										
220	6	M	Functional Test	1		0.25										
221	6	M	Auto Flex Assembly	1	13	0.5	$ 0.0223	$ 0.0675	$ 0.0600	$ -	$ 0.1498	$ 0.0120	$ 0.0075	$ 0.0037	$ 0.1730	$ 0.1730
222	4	P	Wire Terminal, Sensor Flex	2	-	-										
223	4	P	Resistor 2	1	-	-										
224	4	P	Terminal, Resistor 2	2		-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462
225	4	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-										
226	5	M	Resistor and Terminal Assembly	1	15	1										
227	5	M	Wire and Terminal Assembly	1	24	1	$ 0.0107	$ 0.0664	$ 0.0427	$ -	$ 0.1198	$ 0.0096	$ 0.0060	$ 0.0030	$ 0.1384	$ 0.1384
228	4	P	Plastic Housing Bottom, Sensor Flex	1		-										
229	5	M	Injection Mold, 55 Tons	1	1.04	0.25										
230	4	P	Plastic Housing Top, Sensor Flex	1	-	-	$ 0.0008	$ 0.0023	$ 0.0034	$ 0.0040	$ 0.0106	$ 0.0008	$ 0.0005	$ 0.0003	$ 0.0122	$ 0.0122
231	5	M	Injection Mold, 55 Tons	1	1.04	0.25										
232	4	A	Assembly of Parts	1		-										
233	5	M	Manual Assembly Station	1	15	1	$ 0.0514	$ 0.0618	$ 0.1021	$ -	$ 0.2153	$ 0.0172	$ 0.0108	$ 0.0054	$ 0.2486	$ 0.2486

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Manufacturing Cost Details – Occupant Sensor Assembly (5/6)

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Number Out	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
234	**3**	**P**	**Double Sided Adhesive Pad**	**1**	**-**	**-**											
235	**3**	**P**	**Adhesive Pad 1, Sensor Flex Subassy**	**1**	**-**	**-**											
236	**3**	**P**	**Adhesive Pad 2, Sensor Flex Subassy**	**1**		**-**	**$0.0000**	**$0.0000**	**$0.0000**	**$0.0300**	**$0.0300**	**$0.0024**	**$0.0015**	**$0.0008**	**$0.0347**	**$0.0347**	
237	**3**	**A**	**Occupancy Sensor Assembly**	**1**	**-**	**-**											
238	**4**	**M**	**Manual Assembly Station**	**1**	**7**	**1**											
239	**4**	**M**	**Manual Assembly Station**	**1**	**26.5**	**1**	**$ 0.0908**	**$ 0.1091**	**$ 0.1814**	**$ -**	**$ 0.3813**	**$ 0.0305**	**$ 0.0191**	**$ 0.0095**	**$ 0.4404**	**$ 0.4404**	
240	**4**	**M**	**Functional Test**	**1**		**0.25**											
241	**3**	**S**	**Occupancy Sensor Subassy**	**1**	**-**	**-**											
242	**4**	**S**	**Wire 3 Subassy**	**1**	**-**	**-**	**$ 0.0448**	**$ 0.2772**	**$ 0.1752**	**$ 0.7405**	**$ 1.2377**	**$ 0.0990**	**$ 0.0619**	**$ 0.0309**	**$ 1.4295**	**$ 1.4295**	
243	5	S	Brown Wire Subassy	1	-	-											
244	6	P	Brown Wire 1	1		-											
245	6	P	Brown Wire 2	1	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0231	
246	6	P	Intermediate Wire Terminal	2	-	-											
247	6	P	Heat Shrink	1	-	-											
248	6	P	Resistor 1	1		-	$ -	$ -	$ -	$ 0.0010	$ 0.0010	$ 0.0001	$ 0.0001	$ -	$ 0.0012	$ 0.0012	
249	6	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-											
250	7	M	Coverings and Tape Windings	1	4.18	1											
251	7	M	Wire and Resistor Assembly	1	18	1	$ 0.0081	$ 0.0498	$ 0.0316	$ -	$ 0.0894	$ 0.0072	$ 0.0045	$ 0.0022	$ 0.1033	$ 0.1033	
252	7	M	Wire and Terminal Assembly	1		1											
253	5	P	Black Wire 3	1	-	-											
254	5	P	Wire Terminals 1, Male, 2mm	2	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462	
255	5	P	Tube Vinyl, Wire Insulator 1	1	-	-											
256	5	P	Pig-Tail Conn 1, Male	1		-											
257	5	P	Pig-Tail Conn 1, Clip	1	-	-	$ -	$ -	$ -	$ 0.0134	$ 0.0134	$ 0.0011	$ 0.0007	$ 0.0003	$ 0.0155	$ 0.0155	
258	5	A	Wire Prep - Cut, Strip, Crimp Terminals	1	-	-											
259	6	M	Coverings and Tape Windings	1	18	1											
260	6	M	Wire and Connector Assembly	1		1	$ 0.0098	$ 0.0609	$ 0.0363	$ -	$ 0.1070	$ 0.0086	$ 0.0053	$ 0.0027	$ 0.1236	$ 0.1236	
261	6	M	Wire and Terminal Assembly	1	26	1											
262	**4**	**S**	**Sensor Flex Subassy**	**1**	**-**	**-**											
263	5	P	Sensor Flex 1	1	-	-	$ -	$ -	$ -	$ 1.8300	$ 1.8300	$ 0.1464	$ 0.0915	$ 0.0458	$ 2.1137	$ 2.1137	
264	5	P	Sensor Flex 2	1		-											
265	5	P	Insulator Strip	1	-	-											
266	5	A	Assembly, Sensor Flex	1	-	-	$ 0.0474	$ 0.1136	$ 0.1170	$ 0.0200	$ 0.2979	$ 0.0238	$ 0.0149	$ 0.0074	$ 0.3441	$ 0.3441	
267	6	M	Auto Label Apply	1	6.5	0.25											
268	7	P	Label	1		-											
269	6	M	Functional Test	1	14	0.25	$ 0.0200	$ 0.0395	$ 0.0461	$ -	$ 0.1056	$ 0.0084	$ 0.0053	$ 0.0026	$ 0.1220	$ 0.1220	
270	6	M	Auto Flex Assembly	1	13	0.5											

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Manufacturing Cost Details – Occupant Sensor Assembly (6/6)

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Number Out	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
271	**4**	**P**	**Wire Terminal, Sensor Flex**	**2**	**-**	**-**											
272	**4**	**P**	**Resistor 2**	**1**		**-**	**$ -**	**$ -**	**$ -**	**$ 0.0010**	**$ 0.0010**	**$ 0.0001**	**$ 0.0001**	**$ -**	**$ 0.0012**	**$ 0.0012**
273	**4**	**P**	**Terminal, Resistor 2**	**2**	**-**	**-**											
274	**4**	**A**	**Wire Prep - Cut, Strip, Crimp Terminals**	**1**	**-**	**-**											
275	5	M	Resistor and Terminal Assembly	1	15	1	$ 0.0067	$ 0.0415	$ 0.0265	$ -	$ 0.0747	$ 0.0060	$ 0.0037	$ 0.0019	$ 0.0862	$ 0.0862
276	5	M	Wire and Terminal Assembly	1		1										
277	**4**	**P**	**Plastic Housing Bottom, Sensor Flex**	**1**	**-**	**-**											
278	5	M	Injection Mold, 55 Tons	1	1.04	0.25	$ 0.0008	$ 0.0023	$ 0.0034	$ 0.0040	$ 0.0106	$ 0.0008	$ 0.0005	$ 0.0003	$ 0.0122	$ 0.0122
279	**4**	**P**	**Plastic Housing Top, Sensor Flex**	**1**	**-**	**-**											
280	5	M	Injection Mold, 55 Tons	1		0.25											
281	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**	**$ 0.0514**	**$ 0.0618**	**$ 0.1021**	**$ -**	**$ 0.2153**	**$ 0.0172**	**$ 0.0108**	**$ 0.0054**	**$ 0.2486**	**$ 0.2486**
282	5	M	Manual Assembly Station	1	15	1										
283	**3**	**P**	**Double Sided Adhesive Pad**	**1**	**-**	**-**											
284	**3**	**P**	**Adhesive Pad 1, Sensor Flex Subassy**	**1**		**-**	**$0.0000**	**$0.0000**	**$0.0000**	**$0.0300**	**$0.0300**	**$0.0024**	**$0.0015**	**$0.0008**	**$0.0347**	**$0.0347**
285	**3**	**P**	**Adhesive Pad 2, Sensor Flex Subassy**	**1**	**-**	**-**											
286	**3**	**A**	**Occupancy Sensor Assembly**	**1**	**-**	**-**											
287	**4**	**M**	**Manual Assembly Station**	**1**	**7**	**1**	**$ 0.0240**	**$ 0.0288**	**$ 0.0481**	**$ -**	**$ 0.1009**	**$ 0.0081**	**$ 0.0050**	**$ 0.0025**	**$ 0.1166**	**$ 0.1166**
288	**4**	**M**	**Manual Assembly Station**	**1**		**1**											
289	**4**	**M**	**Functional Test**	**1**	**17**	**0.25**											

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Manufacturing Cost Details – Seat Belt Switch Assembly (1/6)

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Number Out	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
290	**2**	**S**	**Seat Belt Switch Assembly**	**1**	**-**	**-**	**$1.2546**	**$2.5042**	**$3.3264**	**$3.2440**	**$10.3291**	**$0.8263**	**$0.5165**	**$0.2582**	**$11.9301**	**$11.9301**
291	**3**	**S**	**Seat Belt Switch Subassy**	**1**	**-**	**-**											
292	**4**	**S**	**Two Conductor Cable Subassy**	**1**		**-**											
293	5	P	Two Conductor Cable	1	-	-	$ -	$ -	$ -	$ 0.1225	$ 0.1225	$ 0.0098	$ 0.0061	$ 0.0031	$ 0.1415	$ 0.1415
294	5	P	Wire Terminals 3, Male, 2mm	2	-	-										
295	5	P	Pig-Tail Conn 2, Male	1	-	-										
296	5	P	Terminal Pos. Assurance, Lock	2		-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462
297	5	P	Pig-Tail Conn 2, Clip	1	-	-										
298	5	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-										
299	6	M	Wire and Connector Assembly	1	35	1	$ 0.0157	$ 0.0968	$ 0.0581	$ -	$ 0.1705	$ 0.0136	$ 0.0085	$ 0.0043	$ 0.1970	$ 0.1970
300	6	M	Wire and Terminal Assembly	1		1										
301	**4**	**S**	**Plastic Interconnect**	**1**	**-**	**-**										
302	5	P	Leadframe 1	1	-	-	$ 0.0048	$ 0.0055	$ 0.0116	$ 0.0461	$ 0.0680	$ 0.0054	$ 0.0034	$ 0.0017	$ 0.0785	$ 0.0785
303	6	M	Wash	1	5	0.25										
304	6	M	Stamping Press, 25 Ton	1		0.25										
305	5	P	Leadframe 2	1	-	-	$ 0.0048	$ 0.0055	$ 0.0116	$ 0.0329	$ 0.0548	$ 0.0044	$ 0.0027	$ 0.0014	$ 0.0633	$ 0.0633
306	6	M	Wash	1	5	0.25										
307	6	M	Stamping Press, 25 Ton	1	0.6	0.25										
308	5	P	Leadframe 3	1		-	$ 0.0048	$ 0.0055	$ 0.0116	$ 0.0308	$ 0.0527	$ 0.0042	$ 0.0026	$ 0.0013	$ 0.0609	$ 0.0609
309	6	M	Wash	1	5	0.25										
310	6	M	Stamping Press, 25 Ton	1	0.6	0.25										
311	5	P	Resistor 3	1	-	-	$ -	$ -	$ -	$ 0.0010	$ 0.0010	$ 0.0001	$ 0.0001	$ -	$ 0.0012	$ 0.0012
312	5	P	Resistor 4	1		-										
313	5	A	Plastic Injection Molding	1	-	-										
314	6	M	Injection Molding, 55 Ton	1	5.94	0.25	$ 0.0046	$ 0.0133	$ 0.0182	$ 0.0033	$ 0.0394	$ 0.0031	$ 0.0020	$ 0.0010	$ 0.0455	$ 0.0455
315	**4**	**S**	**Contact Arm 1 Subassembly**	**1**	**-**	**-**										
316	5	P	Contact Arm 1	1		-										
317	6	M	Wash	1	5	0.25	$ 0.0043	$ 0.0040	$ 0.0097	$ -	$ 0.0179	$ 0.0014	$ 0.0009	$ 0.0004	$ 0.0207	$ 0.0207
318	6	M	Stamping Press, 25 Ton	1	0.6	0.25										
319	5	P	Electrical Contact 1	2	-	-										
320	5	A	Spot Welding	1		-	$ 0.0086	$ 0.0238	$ 0.0399	$ -	$ 0.0722	$ 0.0058	$ 0.0036	$ 0.0018	$ 0.0834	$ 0.0834
321	6	M	Spot Welding Operation	1	10	0.25										
322	**4**	**S**	**Contact Arm 2 Subassembly**	**1**	**-**	**-**										
323	5	P	Contact Arm 2	1	-	-	$ 0.0048	$ 0.0055	$ 0.0116	$ 0.0598	$ 0.0817	$ 0.0065	$ 0.0041	$ 0.0020	$ 0.0943	$ 0.0943
324	6	M	Wash	1		0.25										
325	6	M	Stamping Press, 25 Ton	1	0.6	0.25										
326	5	P	Electrical Contact 2	1	-	-	$ -	$ -	$ -	$ 0.0010	$ 0.0010	$ 0.0001	$ 0.0001	$ -	$ 0.0012	$ 0.0012
327	5	A	Spot Welding	1	-	-										
328	6	M	Spot Welding Operation	1		0.25										

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Manufacturing Cost Details – Seat Belt Switch Assembly (2/6)

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Number Out	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
329	**4**	**A**	**Spot Welding**	**1**	**-**	**-**	**$ 0.0163**	**$ 0.0451**	**$ 0.0757**	**$ -**	**$ 0.1371**	**$ 0.0110**	**$ 0.0069**	**$ 0.0034**	**$ 0.1584**	**$ 0.1584**
330	5	M	Spot Welding Operation	1	19	0.25										
331	**4**	**P**	**Switch Housing, Tesla**	**1**	**-**	**-**										
332	5	M	Injection Mold, 55 Tons	1		0.25	$ 0.0011	$ 0.0031	$ 0.0044	$ 0.0070	$ 0.0156	$ 0.0013	$ 0.0008	$ 0.0004	$ 0.0181	$ 0.0181
333	**4**	**P**	**Spring**	**1**	**-**	**-**										
334	**4**	**P**	**Switch Actuator Pin**	**1**	**-**	**-**										
335	5	M	Injection Molding, 55 Tons	1	0.94	0.25	$ 0.0007	$ 0.0021	$ 0.0031	$ 0.0023	$ 0.0083	$ 0.0007	$ 0.0004	$ 0.0002	$ 0.0095	$ 0.0095
336	**4**	**P**	**Plastic Cover**	**1**		**-**										
337	5	M	Injection Mold, 55 Tons	1	1.26	0.25										
338	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**	**$ 0.1165**	**$ 0.1400**	**$ 0.2348**	**$ -**	**$ 0.4913**	**$ 0.0393**	**$ 0.0246**	**$ 0.0123**	**$ 0.5675**	**$ 0.5675**
339	5	M	Manual Assembly Station	1	34	1										
340	**3**	**A**	**Seat Belt Switch Assembly**	**1**		**-**										
341	**4**	**M**	**Manual Assembly Station**	**1**	**7**	**1**	**$ 0.0240**	**$ 0.0288**	**$ 0.0481**	**$ -**	**$ 0.1009**	**$ 0.0081**	**$ 0.0050**	**$ 0.0025**	**$ 0.1166**	**$ 0.1166**
342	**4**	**M**	**Functional Test**	**1**	**17**	**0.25**										
343	**3**	**S**	**Seat Belt Switch Subassy**	**1**	**-**	**-**										
344	**4**	**S**	**Two Conductor Cable Subassy**	**1**		**-**	**$ 0.0246**	**$ 0.1522**	**$ 0.0957**	**$ 0.4159**	**$ 0.6884**	**$ 0.0551**	**$ 0.0344**	**$ 0.0172**	**$ 0.7951**	**$ 0.7951**
345	5	P	Two Conductor Cable	1	-	-										
346	5	P	Wire Terminals 3, Male, 2mm	2	-	-										
347	5	P	Pig-Tail Conn 2, Male	1	-	-	$ -	$ -	$ -	$ 0.2000	$ 0.2000	$ 0.0160	$ 0.0100	$ 0.0050	$ 0.2310	$ 0.2310
348	5	P	Terminal Pos. Assurance, Lock	2		-										
349	5	P	Pig-Tail Conn 2, Clip	1	-	-										
350	5	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-	$ 0.0246	$ 0.1522	$ 0.0941	$ -	$ 0.2709	$ 0.0217	$ 0.0135	$ 0.0068	$ 0.3129	$ 0.3129
351	6	M	Wire and Connector Assembly	1	35	1										
352	6	M	Wire and Terminal Assembly	1		1										
353	**4**	**S**	**Plastic Interconnect**	**1**	**-**	**-**	**$ 0.0190**	**$ 0.0298**	**$ 0.0533**	**$ 0.1151**	**$ 0.2172**	**$ 0.0174**	**$ 0.0109**	**$ 0.0054**	**$ 0.2509**	**$ 0.2509**
354	5	P	Leadframe 1	1	-	-										
355	6	M	Wash	1	5	0.25										
356	6	M	Stamping Press, 25 Ton	1		0.25	$ 0.0005	$ 0.0016	$ 0.0019	$ 0.0461	$ 0.0500	$ 0.0040	$ 0.0025	$ 0.0013	$ 0.0578	$ 0.0578
357	5	P	Leadframe 2	1	-	-										
358	6	M	Wash	1	5	0.25										
359	6	M	Stamping Press, 25 Ton	1	0.6	0.25	$ 0.0005	$ 0.0016	$ 0.0019	$ 0.0329	$ 0.0368	$ 0.0029	$ 0.0018	$ 0.0009	$ 0.0426	$ 0.0426
360	5	P	Leadframe 3	1		-										
361	6	M	Wash	1	5	0.25										
362	6	M	Stamping Press, 25 Ton	1	0.6	0.25	$ 0.0005	$ 0.0016	$ 0.0019	$ 0.0308	$ 0.0347	$ 0.0028	$ 0.0017	$ 0.0009	$ 0.0401	$ 0.0401
363	5	P	Resistor 3	1	-	-										
364	5	P	Resistor 4	1		-										
365	5	A	Plastic Injection Molding	1	-	-	$ 0.0046	$ 0.0133	$ 0.0182	$ 0.0033	$ 0.0394	$ 0.0031	$ 0.0020	$ 0.0010	$ 0.0455	$ 0.0455
366	6	M	Injection Molding, 55 Ton	1	5.94	0.25										
367	**4**	**S**	**Contact Arm 1 Subassembly**	**1**	**-**	**-**										
368	5	P	Contact Arm 1	1		-	$ 0.0048	$ 0.0055	$ 0.0116	$ 0.0332	$ 0.0551	$ 0.0044	$ 0.0028	$ 0.0014	$ 0.0636	$ 0.0636
369	6	M	Wash	1	5	0.25										
370	6	M	Stamping Press, 25 Ton	1	0.6	0.25										
371	5	P	Electrical Contact 1	2	-	-	$ -	$ -	$ -	$ 0.0010	$ 0.0010	$ 0.0001	$ 0.0001	$ -	$ 0.0012	$ 0.0023
372	5	A	Spot Welding	1		-										
373	6	M	Spot Welding Operation	1	10	0.25										

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Manufacturing Cost Details – Seat Belt Switch Assembly (3/6)

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Number Out	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
374	**4**	**S**	**Contact Arm 2 Subassembly**	**1**	**-**	**-**	**$ 0.0099**	**$ 0.0198**	**$ 0.0358**	**$ 0.0608**	**$ 0.1263**	**$ 0.0101**	**$ 0.0063**	**$ 0.0032**	**$ 0.1459**	**$ 0.1459**
375	5	P	Contact Arm 2	1	-	-											
376	6	M	Wash	1		0.25											
377	6	M	Stamping Press, 25 Ton	1	0.6	0.25	$ 0.0005	$ 0.0016	$ 0.0019	$ 0.0598	$ 0.0637	$ 0.0051	$ 0.0032	$ 0.0016	$ 0.0736	$ 0.0736
378	5	P	Electrical Contact 2	1	-	-											
379	5	A	Spot Welding	1	-	-											
380	6	M	Spot Welding Operation	1		0.25	$ 0.0052	$ 0.0143	$ 0.0238	$ -	$ 0.0432	$ 0.0035	$ 0.0022	$ 0.0011	$ 0.0499	$ 0.0499
381	**4**	**A**	**Spot Welding**	**1**	**-**	**-**											
382	5	M	Spot Welding Operation	1	19	0.25											
383	**4**	**P**	**Switch Housing, Tesla**	**1**	**-**	**-**	**$ 0.0011**	**$ 0.0031**	**$ 0.0044**	**$ 0.0070**	**$ 0.0156**	**$ 0.0013**	**$ 0.0008**	**$ 0.0004**	**$ 0.0181**	**$ 0.0181**
384	5	M	Injection Mold, 55 Tons	1		0.25											
385	**4**	**P**	**Spring**	**1**	**-**	**-**											
386	**4**	**P**	**Switch Actuator Pin**	**1**	**-**	**-**	**$ 0.0007**	**$ 0.0021**	**$ 0.0031**	**$ 0.0023**	**$ 0.0083**	**$ 0.0007**	**$ 0.0004**	**$ 0.0002**	**$ 0.0095**	**$ 0.0095**
387	5	M	Injection Molding, 55 Tons	1	0.94	0.25											
388	**4**	**P**	**Plastic Cover**	**1**		**-**											
389	5	M	Injection Mold, 55 Tons	1	1.26	0.25	$ 0.0010	$ 0.0028	$ 0.0041	$ 0.0025	$ 0.0104	$ 0.0008	$ 0.0005	$ 0.0003	$ 0.0120	$ 0.0120
390	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**											
391	5	M	Manual Assembly Station	1	34	1											
392	**3**	**A**	**Seat Belt Switch Assembly**	**1**		**-**	**$0.0483**	**$0.0767**	**$0.1058**	**$0.0000**	**$0.2308**	**$0.0185**	**$0.0115**	**$0.0058**	**$0.2666**	**$0.2666**
393	**4**	**M**	**Manual Assembly Station**	**1**	**7**	**1**											
394	**4**	**M**	**Functional Test**	**1**	**17**	**0.25**											
395	**3**	**S**	**Seat Belt Switch Subassy**	**1**	**-**	**-**	**$0.2026**	**$0.4241**	**$0.5595**	**$0.6488**	**$1.8350**	**$0.1468**	**$0.0917**	**$0.0459**	**$2.1194**	**$2.1194**
396	**4**	**S**	**Two Conductor Cable Subassy**	**1**		**-**											
397	5	P	Two Conductor Cable	1	-	-											
398	5	P	Wire Terminals 3, Male, 2mm	2	-	-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462
399	5	P	Pig-Tail Conn 2, Male	1	-	-											
400	5	P	Terminal Pos. Assurance, Lock	2		-											
401	5	P	Pig-Tail Conn 2, Clip	1	-	-	$ -	$ -	$ -	$ 0.0134	$ 0.0134	$ 0.0011	$ 0.0007	$ 0.0003	$ 0.0155	$ 0.0155
402	5	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-											
403	6	M	Wire and Connector Assembly	1	35	1											
404	6	M	Wire and Terminal Assembly	1		1	$ 0.0089	$ 0.0553	$ 0.0361	$ -	$ 0.1004	$ 0.0080	$ 0.0050	$ 0.0025	$ 0.1159	$ 0.1159
405	**4**	**S**	**Plastic Interconnect**	**1**	**-**	**-**											
406	5	P	Leadframe 1	1	-	-											
407	6	M	Wash	1	5	0.25	$ 0.0043	$ 0.0040	$ 0.0097	$ -	$ 0.0179	$ 0.0014	$ 0.0009	$ 0.0004	$ 0.0207	$ 0.0207
408	6	M	Stamping Press, 25 Ton	1		0.25											
409	5	P	Leadframe 2	1	-	-											
410	6	M	Wash	1	5	0.25	$ 0.0043	$ 0.0040	$ 0.0097	$ -	$ 0.0179	$ 0.0014	$ 0.0009	$ 0.0004	$ 0.0207	$ 0.0207
411	6	M	Stamping Press, 25 Ton	1	0.6	0.25											
412	5	P	Leadframe 3	1		-											
413	6	M	Wash	1	5	0.25	$ 0.0043	$ 0.0040	$ 0.0097	$ -	$ 0.0179	$ 0.0014	$ 0.0009	$ 0.0004	$ 0.0207	$ 0.0207
414	6	M	Stamping Press, 25 Ton	1	0.6	0.25											
415	5	P	Resistor 3	1	-	-											
416	5	P	Resistor 4	1		-	$ -	$ -	$ -	$ 0.0010	$ 0.0010	$ 0.0001	$ 0.0001	$ -	$ 0.0012	$ 0.0012
417	5	A	Plastic Injection Molding	1	-	-											
418	6	M	Injection Molding, 55 Ton	1	5.94	0.25											

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Manufacturing Cost Details – Seat Belt Switch Assembly (4/6)

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Number Out	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
419	**4**	**S**	**Contact Arm 1 Subassembly**	**1**	**-**	**-**	**$ 0.0134**	**$ 0.0293**	**$ 0.0523**	**$ 0.0352**	**$ 0.1301**	**$ 0.0104**	**$ 0.0065**	**$ 0.0033**	**$ 0.1503**	**$ 0.1503**
420	5	P	Contact Arm 1	1		-										
421	6	M	Wash	1	5	0.25										
422	6	M	Stamping Press, 25 Ton	1	0.6	0.25	$ 0.0005	$ 0.0016	$ 0.0019	$ 0.0332	$ 0.0371	$ 0.0030	$ 0.0019	$ 0.0009	$ 0.0429	$ 0.0429
423	5	P	Electrical Contact 1	2	-	-										
424	5	A	Spot Welding	1		-										
425	6	M	Spot Welding Operation	1	10	0.25	$ 0.0086	$ 0.0238	$ 0.0399	$ -	$ 0.0722	$ 0.0058	$ 0.0036	$ 0.0018	$ 0.0834	$ 0.0834
426	**4**	**S**	**Contact Arm 2 Subassembly**	**1**	**-**	**-**										
427	5	P	Contact Arm 2	1	-	-										
428	6	M	Wash	1		0.25	$ 0.0043	$ 0.0040	$ 0.0097	$ -	$ 0.0179	$ 0.0014	$ 0.0009	$ 0.0004	$ 0.0207	$ 0.0207
429	6	M	Stamping Press, 25 Ton	1	0.6	0.25										
430	5	P	Electrical Contact 2	1	-	-										
431	5	A	Spot Welding	1	-	-	$ 0.0052	$ 0.0143	$ 0.0238	$ -	$ 0.0432	$ 0.0035	$ 0.0022	$ 0.0011	$ 0.0499	$ 0.0499
432	6	M	Spot Welding Operation	1		0.25										
433	**4**	**A**	**Spot Welding**	**1**	**-**	**-**										
434	5	M	Spot Welding Operation	1	19	0.25	$ 0.0163	$ 0.0451	$ 0.0757	$ -	$ 0.1371	$ 0.0110	$ 0.0069	$ 0.0034	$ 0.1584	$ 0.1584
435	**4**	**P**	**Switch Housing, Tesla**	**1**	**-**	**-**										
436	5	M	Injection Mold, 55 Tons	1		0.25										
437	**4**	**P**	**Spring**	**1**	**-**	**-**	**$ -**	**$ -**	**$ -**	**$ 0.0100**	**$ 0.0100**	**$ 0.0008**	**$ 0.0005**	**$ 0.0003**	**$ 0.0116**	**$ 0.0116**
438	**4**	**P**	**Switch Actuator Pin**	**1**	**-**	**-**										
439	5	M	Injection Molding, 55 Tons	1	0.94	0.25										
440	**4**	**P**	**Plastic Cover**	**1**		**-**	**$ 0.0010**	**$ 0.0028**	**$ 0.0041**	**$ 0.0025**	**$ 0.0104**	**$ 0.0008**	**$ 0.0005**	**$ 0.0003**	**$ 0.0120**	**$ 0.0120**
441	5	M	Injection Mold, 55 Tons	1	1.26	0.25										
442	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**										
443	5	M	Manual Assembly Station	1	34	1	$ 0.1165	$ 0.1400	$ 0.2348	$ -	$ 0.4913	$ 0.0393	$ 0.0246	$ 0.0123	$ 0.5675	$ 0.5675
444	**3**	**A**	**Seat Belt Switch Assembly**	**1**		**-**										
445	**4**	**M**	**Manual Assembly Station**	**1**	**7**	**1**										
446	**4**	**M**	**Functional Test**	**1**	**17**	**0.25**	**$ 0.0243**	**$ 0.0479**	**$ 0.0577**	**$ -**	**$ 0.1299**	**$ 0.0104**	**$ 0.0065**	**$ 0.0032**	**$ 0.1500**	**$ 0.1500**
447	**3**	**S**	**Seat Belt Switch Subassy**	**1**	**-**	**-**										
448	**4**	**S**	**Two Conductor Cable Subassy**	**1**		**-**										
449	5	P	Two Conductor Cable	1	-	-	$ -	$ -	$ -	$ 0.1225	$ 0.1225	$ 0.0098	$ 0.0061	$ 0.0031	$ 0.1415	$ 0.1415
450	5	P	Wire Terminals 3, Male, 2mm	2	-	-										
451	5	P	Pig-Tail Conn 2, Male	1	-	-										
452	5	P	Terminal Pos. Assurance, Lock	2		-	$ -	$ -	$ -	$ 0.0200	$ 0.0200	$ 0.0016	$ 0.0010	$ 0.0005	$ 0.0231	$ 0.0462
453	5	P	Pig-Tail Conn 2, Clip	1	-	-										
454	5	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-										
455	6	M	Wire and Connector Assembly	1	35	1	$ 0.0157	$ 0.0968	$ 0.0581	$ -	$ 0.1705	$ 0.0136	$ 0.0085	$ 0.0043	$ 0.1970	$ 0.1970
456	6	M	Wire and Terminal Assembly	1		1										
457	**4**	**S**	**Plastic Interconnect**	**1**	**-**	**-**										
458	5	P	Leadframe 1	1	-	-	$ 0.0048	$ 0.0055	$ 0.0116	$ 0.0461	$ 0.0680	$ 0.0054	$ 0.0034	$ 0.0017	$ 0.0785	$ 0.0785
459	6	M	Wash	1	5	0.25										
460	6	M	Stamping Press, 25 Ton	1		0.25										
461	5	P	Leadframe 2	1	-	-	$ 0.0048	$ 0.0055	$ 0.0116	$ 0.0329	$ 0.0548	$ 0.0044	$ 0.0027	$ 0.0014	$ 0.0633	$ 0.0633
462	6	M	Wash	1	5	0.25										
463	6	M	Stamping Press, 25 Ton	1	0.6	0.25										
464	5	P	Leadframe 3	1		-	$ 0.0048	$ 0.0055	$ 0.0116	$ 0.0308	$ 0.0527	$ 0.0042	$ 0.0026	$ 0.0013	$ 0.0609	$ 0.0609
465	6	M	Wash	1	5	0.25										
466	6	M	Stamping Press, 25 Ton	1	0.6	0.25										
467	5	P	Resistor 3	1	-	-	$ -	$ -	$ -	$ 0.0010	$ 0.0010	$ 0.0001	$ 0.0001	$ -	$ 0.0012	$ 0.0012
468	5	P	Resistor 4	1		-										
469	5	A	Plastic Injection Molding	1	-	-										
470	6	M	Injection Molding, 55 Ton	1	5.94	0.25	$ 0.0046	$ 0.0133	$ 0.0182	$ 0.0033	$ 0.0394	$ 0.0031	$ 0.0020	$ 0.0010	$ 0.0455	$ 0.0455

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Manufacturing Cost Details – Seat Belt Switch Assembly (5/6)

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Number Out	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
471	**4**	**S**	**Contact Arm 1 Subassembly**	**1**	**-**	**-**											
472	5	P	Contact Arm 1	1		-											
473	6	M	Wash	1	5	0.25	$ 0.0043	$ 0.0040	$ 0.0097	$ -	$ 0.0179	$ 0.0014	$ 0.0009	$ 0.0004	$ 0.0207	$ 0.0207
474	6	M	Stamping Press, 25 Ton	1	0.6	0.25											
475	5	P	Electrical Contact 1	2	-	-											
476	5	A	Spot Welding	1		-	$ 0.0086	$ 0.0238	$ 0.0399	$ -	$ 0.0722	$ 0.0058	$ 0.0036	$ 0.0018	$ 0.0834	$ 0.0834
477	6	M	Spot Welding Operation	1	10	0.25											
478	**4**	**S**	**Contact Arm 2 Subassembly**	**1**	**-**	**-**											
479	5	P	Contact Arm 2	1	-	-	$ 0.0048	$ 0.0055	$ 0.0116	$ 0.0598	$ 0.0817	$ 0.0065	$ 0.0041	$ 0.0020	$ 0.0943	$ 0.0943
480	6	M	Wash	1		0.25											
481	6	M	Stamping Press, 25 Ton	1	0.6	0.25											
482	5	P	Electrical Contact 2	1	-	-	$ -	$ -	$ -	$ 0.0010	$ 0.0010	$ 0.0001	$ 0.0001	$ -	$ 0.0012	$ 0.0012
483	5	A	Spot Welding	1	-	-											
484	6	M	Spot Welding Operation	1		0.25											
485	**4**	**A**	**Spot Welding**	**1**	**-**	**-**	**$ 0.0163**	**$ 0.0451**	**$ 0.0757**	**$ -**	**$ 0.1371**	**$ 0.0110**	**$ 0.0069**	**$ 0.0034**	**$ 0.1584**	**$ 0.1584**
486	5	M	Spot Welding Operation	1	19	0.25											
487	**4**	**P**	**Switch Housing, Tesla**	**1**	**-**	**-**											
488	5	M	Injection Mold, 55 Tons	1		0.25	$ 0.0011	$ 0.0031	$ 0.0044	$ 0.0070	$ 0.0156	$ 0.0013	$ 0.0008	$ 0.0004	$ 0.0181	$ 0.0181
489	**4**	**P**	**Spring**	**1**	**-**	**-**											
490	**4**	**P**	**Switch Actuator Pin**	**1**	**-**	**-**											
491	5	M	Injection Molding, 55 Tons	1	0.94	0.25	$ 0.0007	$ 0.0021	$ 0.0031	$ 0.0023	$ 0.0083	$ 0.0007	$ 0.0004	$ 0.0002	$ 0.0095	$ 0.0095
492	**4**	**P**	**Plastic Cover**	**1**		**-**											
493	5	M	Injection Mold, 55 Tons	1	1.26	0.25											
494	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**	**$ 0.1165**	**$ 0.1400**	**$ 0.2348**	**$ -**	**$ 0.4913**	**$ 0.0393**	**$ 0.0246**	**$ 0.0123**	**$ 0.5675**	**$ 0.5675**
495	5	M	Manual Assembly Station	1	34	1											
496	**3**	**A**	**Seat Belt Switch Assembly**	**1**		**-**											
497	**4**	**M**	**Manual Assembly Station**	**1**	**7**	**1**	**$ 0.0240**	**$ 0.0288**	**$ 0.0481**	**$ -**	**$ 0.1009**	**$ 0.0081**	**$ 0.0050**	**$ 0.0025**	**$ 0.1166**	**$ 0.1166**
498	**4**	**M**	**Functional Test**	**1**	**17**	**0.25**											
499	**3**	**S**	**Seat Belt Switch Subassy**	**1**	**-**	**-**											
500	**4**	**S**	**Two Conductor Cable Subassy**	**1**		**-**	**$ 0.0246**	**$ 0.1522**	**$ 0.0957**	**$ 0.4159**	**$ 0.6884**	**$ 0.0551**	**$ 0.0344**	**$ 0.0172**	**$ 0.7951**	**$ 0.7951**
501	5	P	Two Conductor Cable	1	-	-											
502	5	P	Wire Terminals 3, Male, 2mm	2	-	-											
503	5	P	Pig-Tail Conn 2, Male	1	-	-	$ -	$ -	$ -	$ 0.2000	$ 0.2000	$ 0.0160	$ 0.0100	$ 0.0050	$ 0.2310	$ 0.2310
504	5	P	Terminal Pos. Assurance, Lock	2		-											
505	5	P	Pig-Tail Conn 2, Clip	1	-	-											
506	5	A	Wire Pre - Cut, Strip, Crimp Terminals	1	-	-	$ 0.0246	$ 0.1522	$ 0.0941	$ -	$ 0.2709	$ 0.0217	$ 0.0135	$ 0.0068	$ 0.3129	$ 0.3129
507	6	M	Wire and Connector Assembly	1	35	1											
508	6	M	Wire and Terminal Assembly	1		1											

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

Tesla Model X 2016-2017 Manufacturing Cost Details – Seat Belt Switch Assembly (6/6)

Item #	Assembly Level	Type	Description	Qty	Cycle (sec)	Number Out	Man Power	Direct Labor	Fixed	Variable	Material	Sub Cost	SG&A	Profit	Freight	$/Unit	$/System
509	**4**	**S**	**Plastic Interconnect**	**1**	**-**	**-**	**$ 0.0190**	**$ 0.0298**	**$ 0.0533**	**$ 0.1151**	**$ 0.2172**	**$ 0.0174**	**$ 0.0109**	**$ 0.0054**	**$ 0.2509**	**$ 0.2509**
510	5	P	Leadframe 1	1	-	-											
511	6	M	Wash	1	5	0.25											
512	6	M	Stamping Press, 25 Ton	1		0.25	$ 0.0005	$ 0.0016	$ 0.0019	$ 0.0461	$ 0.0500	$ 0.0040	$ 0.0025	$ 0.0013	$ 0.0578	$ 0.0578
513	5	P	Leadframe 2	1	-	-											
514	6	M	Wash	1	5	0.25											
515	6	M	Stamping Press, 25 Ton	1	0.6	0.25	$ 0.0005	$ 0.0016	$ 0.0019	$ 0.0329	$ 0.0368	$ 0.0029	$ 0.0018	$ 0.0009	$ 0.0426	$ 0.0426
516	5	P	Leadframe 3	1		-											
517	6	M	Wash	1	5	0.25											
518	6	M	Stamping Press, 25 Ton	1	0.6	0.25	$ 0.0005	$ 0.0016	$ 0.0019	$ 0.0308	$ 0.0347	$ 0.0028	$ 0.0017	$ 0.0009	$ 0.0401	$ 0.0401
519	5	P	Resistor 3	1	-	-											
520	5	P	Resistor 4	1		-											
521	5	A	Plastic Injection Molding	1	-	-	$ 0.0046	$ 0.0133	$ 0.0182	$ 0.0033	$ 0.0394	$ 0.0031	$ 0.0020	$ 0.0010	$ 0.0455	$ 0.0455
522	6	M	Injection Molding, 55 Ton	1	5.94	0.25											
523	**4**	**S**	**Contact Arm 1 Subassembly**	**1**	**-**	**-**											
524	5	P	Contact Arm 1	1		-	$ 0.0048	$ 0.0055	$ 0.0116	$ 0.0332	$ 0.0551	$ 0.0044	$ 0.0028	$ 0.0014	$ 0.0636	$ 0.0636
525	6	M	Wash	1	5	0.25											
526	6	M	Stamping Press, 25 Ton	1	0.6	0.25											
527	5	P	Electrical Contact 1	2	-	-	$ -	$ -	$ -	$ 0.0010	$ 0.0010	$ 0.0001	$ 0.0001	$ -	$ 0.0012	$ 0.0023
528	5	A	Spot Welding	1		-											
529	6	M	Spot Welding Operation	1	10	0.25											
530	**4**	**S**	**Contact Arm 2 Subassembly**	**1**	**-**	**-**	**$ 0.0099**	**$ 0.0198**	**$ 0.0358**	**$ 0.0608**	**$ 0.1263**	**$ 0.0101**	**$ 0.0063**	**$ 0.0032**	**$ 0.1459**	**$ 0.1459**
531	5	P	Contact Arm 2	1	-	-											
532	6	M	Wash	1		0.25											
533	6	M	Stamping Press, 25 Ton	1	0.6	0.25	$ 0.0005	$ 0.0016	$ 0.0019	$ 0.0598	$ 0.0637	$ 0.0051	$ 0.0032	$ 0.0016	$ 0.0736	$ 0.0736
534	5	P	Electrical Contact 2	1	-	-											
535	5	A	Spot Welding	1	-	-											
536	6	M	Spot Welding Operation	1		0.25	$ 0.0052	$ 0.0143	$ 0.0238	$ -	$ 0.0432	$ 0.0035	$ 0.0022	$ 0.0011	$ 0.0499	$ 0.0499
537	**4**	**A**	**Spot Welding**	**1**	**-**	**-**											
538	5	M	Spot Welding Operation	1	19	0.25											
539	**4**	**P**	**Switch Housing, Tesla**	**1**	**-**	**-**	**$ 0.0011**	**$ 0.0031**	**$ 0.0044**	**$ 0.0070**	**$ 0.0156**	**$ 0.0013**	**$ 0.0008**	**$ 0.0004**	**$ 0.0181**	**$ 0.0181**
540	5	M	Injection Mold, 55 Tons	1		0.25											
541	**4**	**P**	**Spring**	**1**	**-**	**-**											
542	**4**	**P**	**Switch Actuator Pin**	**1**	**-**	**-**	**$ 0.0007**	**$ 0.0021**	**$ 0.0031**	**$ 0.0023**	**$ 0.0083**	**$ 0.0007**	**$ 0.0004**	**$ 0.0002**	**$ 0.0095**	**$ 0.0095**
543	5	M	Injection Molding, 55 Tons	1	0.94	0.25											
544	**4**	**P**	**Plastic Cover**	**1**		**-**											
545	5	M	Injection Mold, 55 Tons	1	1.26	0.25	$ 0.0010	$ 0.0028	$ 0.0041	$ 0.0025	$ 0.0104	$ 0.0008	$ 0.0005	$ 0.0003	$ 0.0120	$ 0.0120
546	**4**	**A**	**Assembly of Parts**	**1**	**-**	**-**											
547	5	M	Manual Assembly Station	1	34	1											
548	**3**	**A**	**Seat Belt Switch Assembly**	**1**		**-**	**$0.0483**	**$0.0767**	**$0.1058**	**$0.0000**	**$0.2308**	**$0.0185**	**$0.0115**	**$0.0058**	**$0.2666**	**$0.2666**
549	**4**	**M**	**Manual Assembly Station**	**1**	**7**	**1**											
550	**4**	**M**	**Functional Test**	**1**	**17**	**0.25**											

Type: S=Subassembly, P=Part, M=Manufacturing Process, A=Assemble

Subassembly costs may show a small rounding error as constituent costs are calculated to 3 decimal places

