

# S14/S15/R33/R34 subframe weld in reinforcement plates installation guide

## 1. Check if all parts are present in the package:

- 2x camber arm bracket brace
- 2x traction arm bracket brace
- 2x lower control arm front bracket brace
- 2x lower control arm rear bracket brace
- 1x Left side differential carrier brace
- 1x Right side differential carrier brace

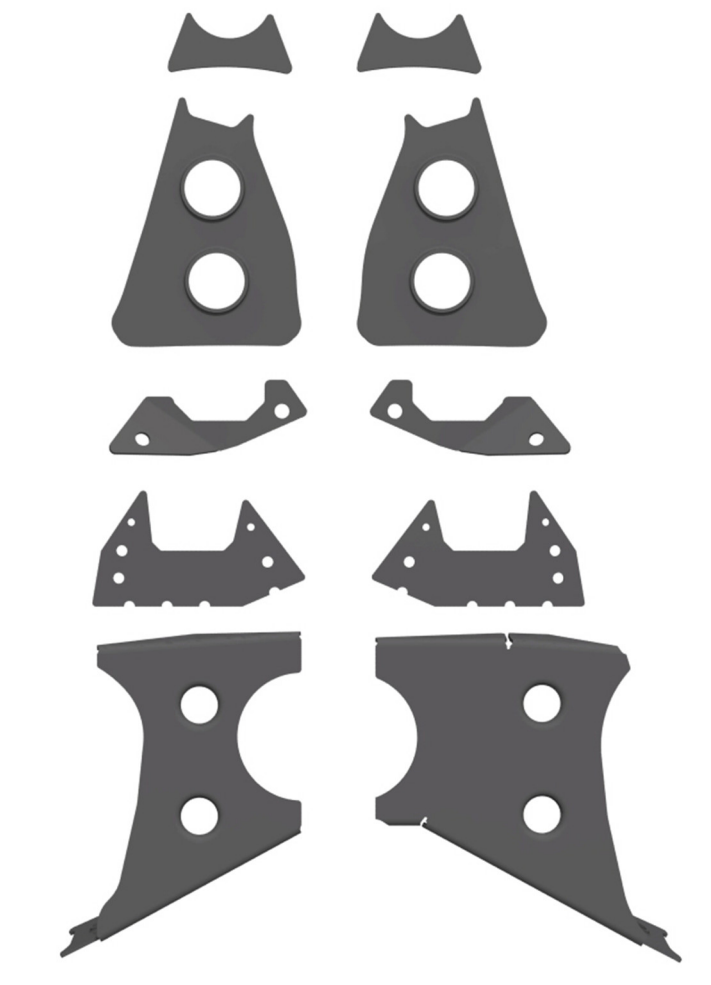


Image 1. S14/S15/R33/R34 subframe weld in reinforcement plates

The most ergonomic method for installing this product is to remove the rear suspension subframe from the car. This is required for installing the rear differential carrier brace as the top section cannot be accessed for welding with the subframe installed in the car.

Other plates can be welded with subframe in the car, however it is recommended to remove it for cleaning, damage inspection and painting after the parts have been welded in.

The weld-in plate material is low carbon high strength structural steel, pre-heating is not required. MIG/MAG and GTAW/TIG processes are most suitable. Stick welding is recommended to prevent warping and excessive stress. 3mm welding leg is suitable.

Installation of this product requires the following tools but is not limited to the following:

- MIG/MAG or GTAW/TIG welding machine
- Basic toolkit for removal and installation of subframe related components (subframe, suspension links, differential carrier) – mostly 17mm and 19mm hexagonal head bolts and nuts
- Torque wrench – recommended
- Welding primer - recommended
- Welding anti-spatter spray – recommended for MIG welding
- Welding clamps (locking C-clamps) – recommended during welding
- Sheet metal working hammer (adjusting parts during welding)
- Grinder or other suitable tool for cleaning subframe to bare metal around welding areas
- OEM arms for spacing the brackets during spot welding or other suitable spacers

## 2. Installing left side differential carrier brace

- 2.1. Remove the nuts securing differential carrier to the subframe and remove differential carrier
- 2.2. Remove differential carrier mounting bushings by pressing them out. Solid bushings may remain granted they are metal, but their paint/anodizing will most likely be damaged by heat from the welding process
- 2.3. Clean the surface to bare metal under surfaces and edges where welds will be added (images 3 & 4). Use of welding primer is recommended
- 2.4. Install toe arm/bushing insert or other suitable part to correctly space the suspension arm mounting tabs - bolt torque 90Nm / 65 ft-lb
- 2.5. Place the weld-in plate and locate it so that the gaps are minimal
- 2.6. Add two spot welds to the round cutout's corners and two spot welds the corners and two to the corner of the toe arm mount connecting weld-in plate and subframe
- 2.7. Remove non-metal spacing parts - do not stitch weld with non-metal (including rod ends/rose joint) parts installed as they will be damaged by the heat from welding
- 2.8. Stich weld subframe weld-in plate (images 3 & 4) – start welding from the center towards outside. This brace also acts as toe arm bracket reinforcement meaning it also is to be welded around area shown in image 3.

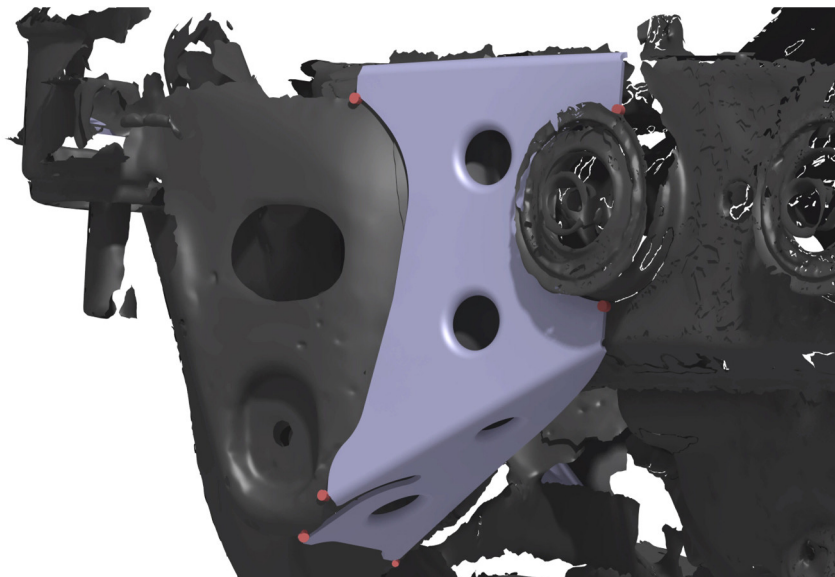


Image 2. Rear differential carrier's left side brace spot welding

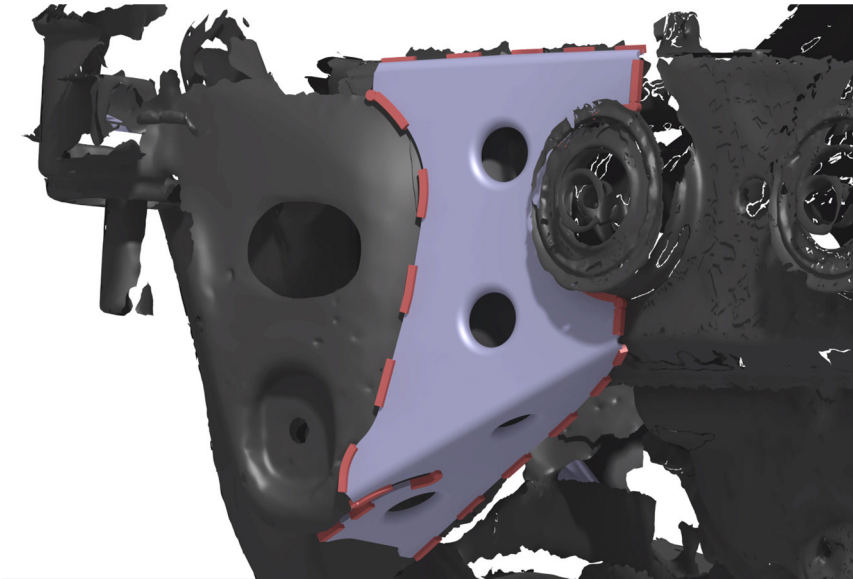


Image 3. Rear differential carrier's left side stich welding right view

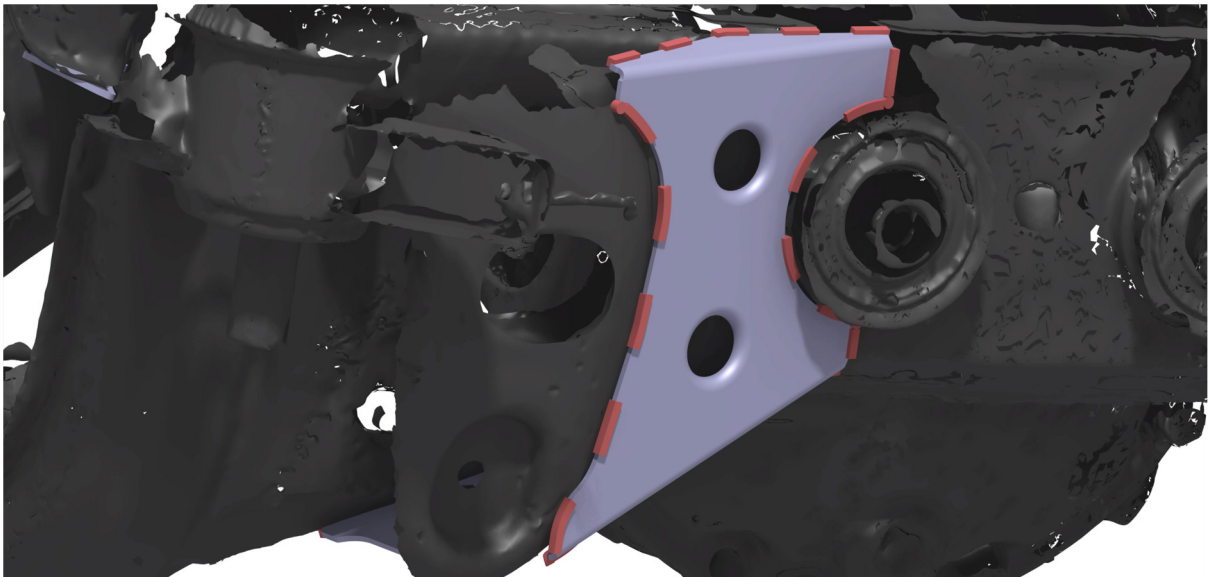


Image 4. Rear differential carrier's left side stich welding left view

### 3. Installing right side differential carrier brace

- 3.1. Remove the nuts securing differential carrier to the subframe and remove differential carrier
- 3.2. Remove differential carrier mounting bushings by pressing them out. Solid bushings may remain granted they are metal, but their paint/anodizing will most likely be damaged by heat from the welding process
- 3.3. Clean the surface to bare metal under surfaces and edges where welds will be added (images 6 & 7). Use of welding primer is recommended
- 3.4. Install toe arm/bushing insert or other suitable part to correctly space the suspension arm mounting tabs - bolt torque 90Nm / 65 ft-lb
- 3.5. Place the weld-in plate and locate it so that the gaps are minimal
- 3.6. Add two spot welds to the round cutout's corners and two spot welds the corners and one to the front side of the toe arm mount connecting to the weld-in plate
- 3.7. Remove non-metal spacing parts - do not stitch weld with non-metal (including rod ends/rose joint) parts installed as they will be damaged by the heat from welding
- 3.8. Stich weld subframe weld-in plate (images 6 & 7) – start welding from the center towards outside. This brace also acts as toe arm bracket reinforcement meaning it also is to be welded around area shown in image 7.
- 3.9. The gaps between bent sections of the weld-in plate are to be filled with welding



Image 5. Rear differential carrier's right side spot welding

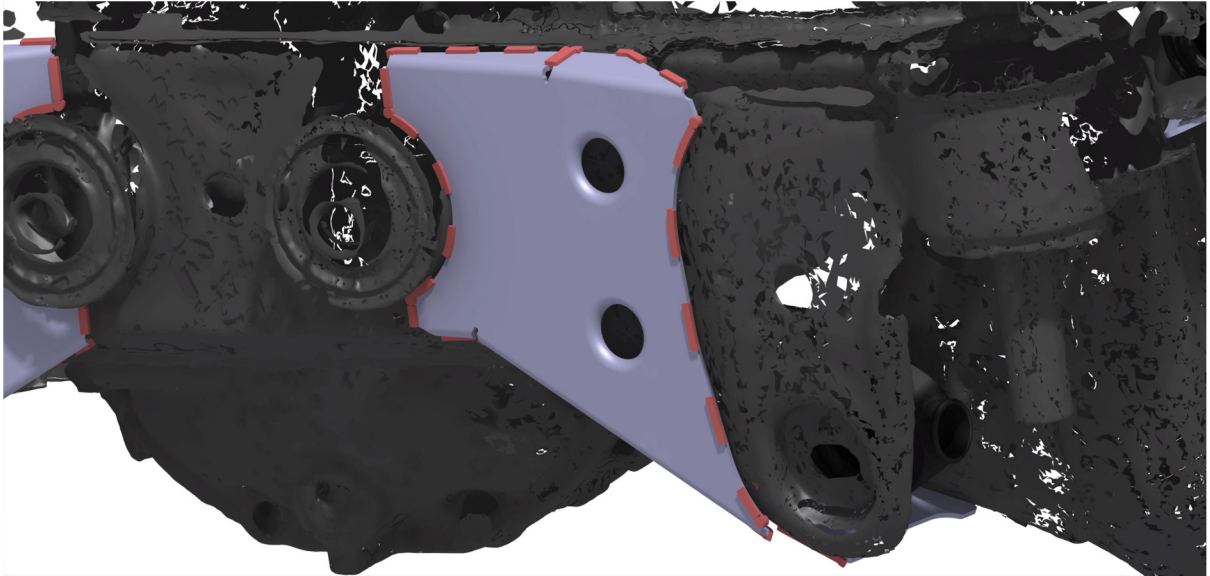


Image 6. Rear differential carrier's right side stitch welding right view

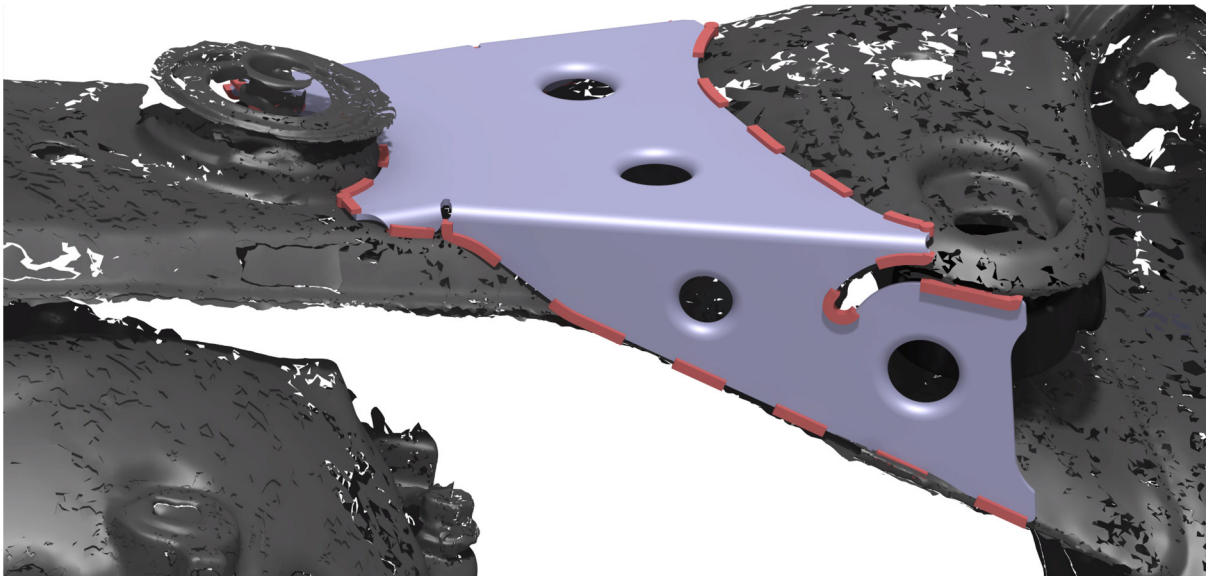


Image 7. Rear differential carrier's right side stitch welding left view



#### 4. Installing camber arm bracket brace

- 4.1. Test fit brace to check for interference between components and adjust to avoid it.

Brace should be flat with the bracket on the subframe

- 4.2. Remove camber arm (rear upper control arm)
- 4.3. Clean the area where welds will be added (image 9)
- 4.4. Install camber arm/bushing insert or other suitable part to correctly space the suspension arm mounting tabs - bolt torque 90Nm / 65 ft-lb
- 4.5. Spot weld the corners of the weld in plate to the subframe (image 8)
- 4.6. Remove non-metal spacing parts - do not stitch weld with non-metal (including rod ends/rose joint) parts installed as they will be damaged by the heat from welding
- 4.7. Add stitch welds from inside to outside, equidistant 8-12mm (image 9)
- 4.8. Repeat on the other side



Image 8. Camber arm brace spot welds



Image 9. Camber arm brace stitch welds

## 5. Installing traction arm bracket brace

- 5.1. Test fit brace to check for interference between components and adjust to avoid it
- 5.2. Remove traction arm (front upper link)
- 5.3. Clean the area where welds will be added (image 11)
- 5.4. Install traction arm/bushing insert or other suitable part to correctly space the suspension arm mounting tabs - bolt torque 90Nm / 65 ft-lb
- 5.5. Spot weld the corners of the weld in plate to the subframe (see image 10)
- 5.6. Remove non-metal spacing parts - do not stitch weld with non-metal (including rod ends/rose joint) parts installed as they will be damaged by the heat from welding
- 5.7. Add stitch welds from inside to outside, equidistant 10-15mm (image 11)
- 5.8. Repeat on the other side



Image 10. Traction arm brace spot welds



Image 11. Traction arm brace stitch welds



## 6. Installing lower control arm rear bracket brace

- 6.1. Test fit brace to check for interference between components and adjust to avoid it.
- 6.2. Remove lower control arm
- 6.3. Clean the area where welds will be added (image 11)
- 6.4. Install lower control arm/bushing insert or other suitable part to correctly space the suspension arm mounting tabs - bolt torque 90Nm / 65 ft-lb
- 6.5. Plug weld the holes on the weld in plate to the subframe (image 10)
- 6.6. Remove non-metal spacing parts - do not stitch weld with non-metal (including rod ends/rose joint) parts installed as they will be damaged by the heat from welding
- 6.7. Add stitch welds from inside to outside, equidistant 8-12mm (image 11)
- 6.8. Add stitch welds on the inside of the bracket, 10mm length from most outer edge (image 12)
- 6.9. Repeat on the other side

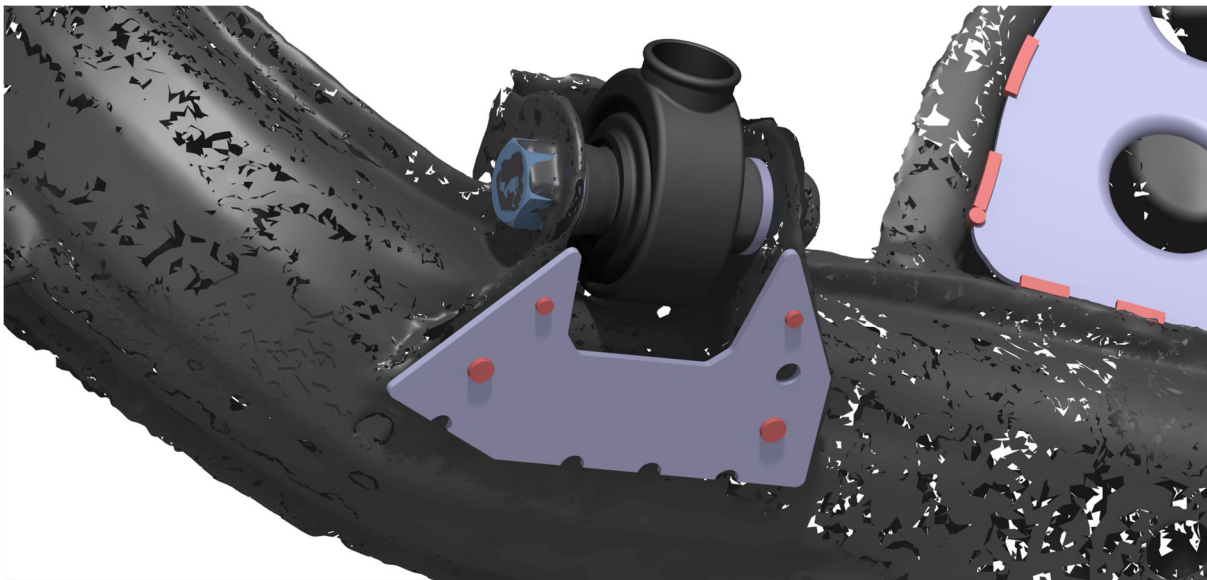


Image 12. Lower control arm rear bracket brace plug welds



Image 13. Lower control arm rear bracket brace stitch welds

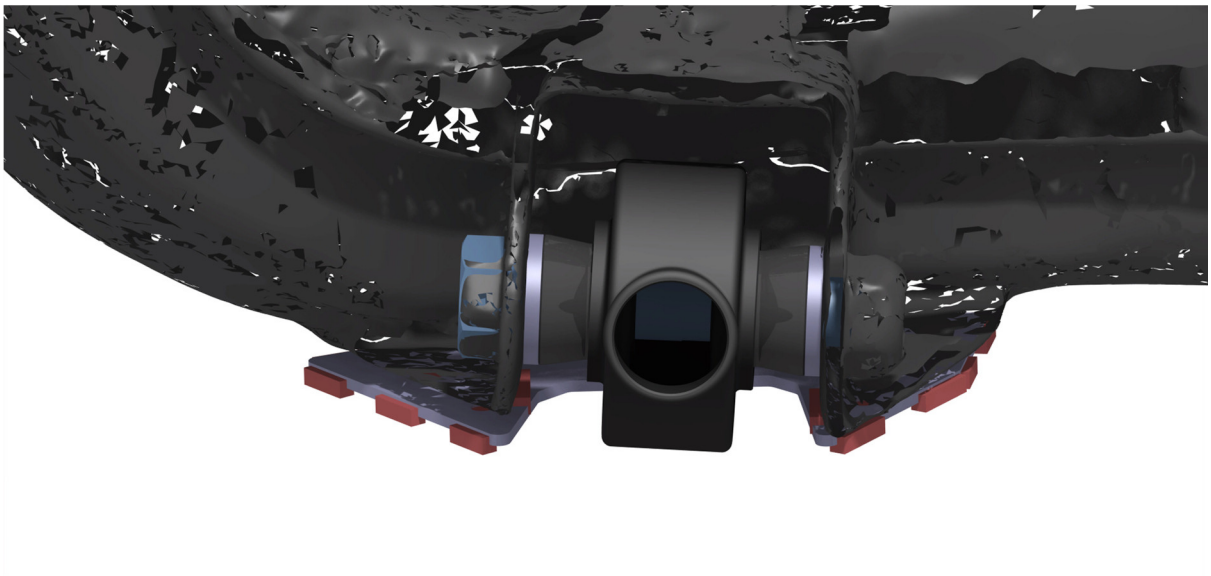


Image 14. Inner welds

## 7. Installing lower control arm front bracket brace

- 7.1. Test fit brace to check for interference between components and adjust to avoid it
- 7.2. Remove lower control arm
- 7.3. Clean the area where welds will be added (image 16)
- 7.4. Install lower control arm/bushing insert or other suitable part to correctly space the suspension arm mounting tabs - bolt torque 90Nm / 65 ft-lb
- 7.5. Plug weld the holes on the weld in plate to the subframe (see image 15)
- 7.6. Remove non-metal spacing parts - do not stitch weld with non-metal (including rod ends/rose joint) parts installed as they will be damaged by the heat from welding
- 7.7. Add stitch welds from inside to outside, equidistant 8-12mm (image 16)
- 7.8. Add stitch welds on the inside of the bracket, 10mm length from most outer edge (image 17)
- 6.10. Repeat on the other side



Image 15. Lower control arm front bracket brace plug welds



Image 16. Lower control arm front bracket brace stitch welds



Image 17. Lower control arm front bracket brace inner stitch welds

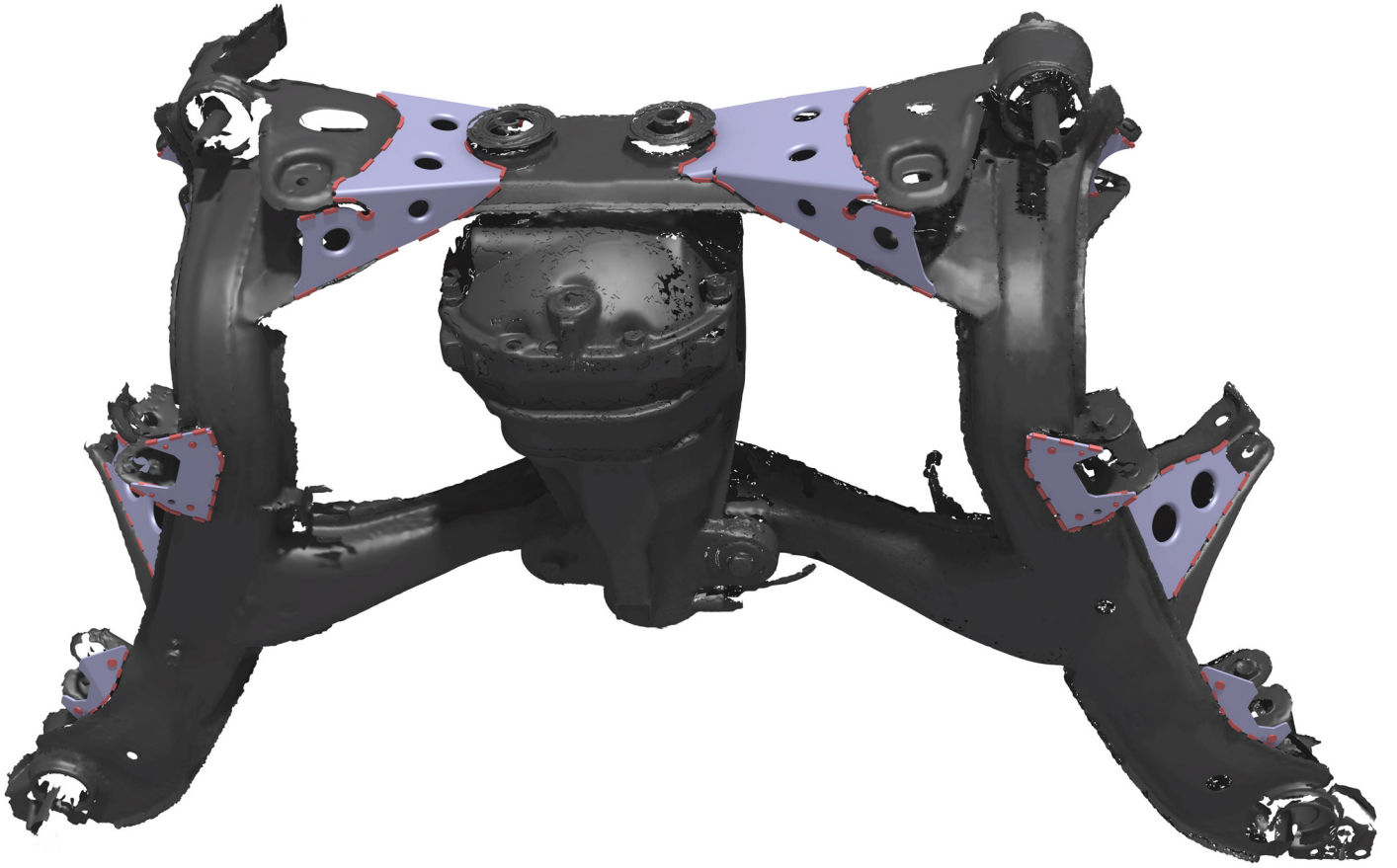


Image 1818. Finished assembly. Time for paint!