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HEADREST MOUNTING ASSEMBLY

Abstract

A headrest mounting assembly for mounting a headrest on a cross member of a seat back includes a mounting bracket having a centre portion, a first side portion and a second side portion. A first guide channel is provided for receiving a first headrest interconnecting member; and a second guide channel is provided for receiving a second headrest interconnecting member. The first and second guide channels are fastened to the centre portion of the mounting bracket. The first side portion is disposed outboard of the first guide channel on a first side of the mounting bracket; and the second side portion is disposed outboard of the second guide channel on a second side of the mounting bracket. The first and the second side portions are each configured to be fastened to the seat back outboard of the first and second guide channels respectively.

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Background/Summary

TECHNICAL FIELD

[0001] The present disclosure relates to a headrest mounting assembly. Aspects of the invention relate to a headrest mounting assembly, a vehicle seat comprising a headrest mounting assembly; and a vehicle comprising one or more vehicle seat.

BACKGROUND

[0002] It is known to incorporate a headrest mounting assembly into a seat back of a vehicle seat. A known headrest mounting assembly comprises a bracket that is fastened to the seat frame. It has been determined that increasing the stiffness of the headrest mounting assembly may provide improved safety for a seat occupant, for example in the event of a collision involving the vehicle.

[0003] It is an aim of the present invention to address one or more of the disadvantages associated with the prior art.

SUMMARY OF THE INVENTION

[0004] Aspects and embodiments of the invention provide a headrest mounting assembly, a vehicle seat comprising a headrest mounting assembly; and a vehicle comprising one or more vehicle seat as claimed in the appended claims.

[0005] Within the scope of this application it is expressly intended that the various aspects, embodiments, examples and alternatives set out in the claims and/or in the following description and drawings, and in particular the individual features thereof, may be taken independently or in any combination. That is, all embodiments and/or features of any embodiment can be combined in any way and/or combination, unless such features are incompatible. The applicant reserves the right to change any originally filed claim or file any new claim accordingly, including the right to amend any originally filed claim to depend from and/or incorporate any feature of any other claim although not originally claimed in that manner.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] One or more embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

[0007] FIG. **1** shows a schematic representation of a vehicle seat incorporating a headrest mounting assembly in accordance with an embodiment of the present invention;

[0008] FIG. **2** shows a perspective view of the vehicle seat in the vehicle shown in FIG. **1**;

[0009] FIG. **3** shows a first perspective view of the headrest mounting assembly fastened to an upper portion of the vehicle seat shown in FIG. **2**;

[0010] FIG. **4** shows a second perspective view of the headrest mounting assembly fastened to an upper portion of the vehicle seat shown in FIG. **2**;

[0011] FIG. **5** shows a first perspective view of the headrest mounting assembly with the headrest removed; and

[0012] FIG. **6** shows a perspective view of a mounting bracket.

DETAILED DESCRIPTION

[0013] A headrest mounting assembly **1** in accordance with an embodiment of the present invention is described herein with reference to the accompanying Figures.

[0014] The headrest mounting assembly **1** is suitable for mounting a headrest **3** on a vehicle seat **5**. The vehicle seat **5** is for use in a vehicle **7**. The vehicle **7** typically comprises a plurality of the vehicle seats **5**. As shown in FIG. **1**, the vehicle **7** in the present embodiment is an automobile. It will be understood that the headrest mounting assembly **1** may be used in other types of vehicles. As shown in FIGS. **1** and **2**, the vehicle seat **5** comprises a seat back **9** and a seat base **11**. The longitudinal and/or vertical position of the vehicle seat **5** may be adjusted in conventional manner. Alternatively, or in addition, an incline of the seat back **9** relative to the seat base **11** may be adjusted. Other aspects of the vehicle seat **5** may be adjusted, such as lumbar support or side bolsters.

[0015] The headrest mounting assembly **1** is defined with reference to a local reference frame comprising a longitudinal axis X, a transverse axis Y and a vertical axis Z. The vertical axis Z is a central axis of the headrest mounting assembly **1** and, in the assembled vehicle seat **5**, is parallel to a central longitudinal axis of the seat back **9**. The relative lateral position of components and features of the headrest mounting assembly **1** and the seat back **9** are described herein with reference to the XZ plane (i.e. the plane defined by the longitudinal axis X and the vertical axis Z) of the headrest mounting assembly **1**. A component or feature disposed further from the XZ plane (in a transverse direction) is described herein as being outboard or in an outboard position. A component or feature disposed closer to the XZ plane (in a transverse direction) is described herein as being inboard or in an inboard position.

[0016] As shown in FIG. **2**, the headrest **3** is mounted to the seat back **9**. The headrest **3** comprises a support member **13**, a first interconnecting members **15-1** and a second interconnecting member **15-2**. The first and second interconnecting members **15-1**, **15-2** locate in the headrest mounting assembly **1** to mount the headrest **3** to the seat back **9**. The first and second interconnecting members **15-1**, **15-2** comprise metal rods or tubes extending substantially parallel to each other. The first and second interconnecting members **15-1**, **15-2** may optionally comprise one or more notches (not shown) for cooperating with a height adjustment mechanism (not shown) to enable the height of the headrest **3** to be adjusted. As shown in FIGS. **2** and **3**, the seat back **9** comprises a frame assembly F**1** composed of a plurality of frame members. The frame assembly F**1** in the present embodiment comprises first and second side members **17-1**, **17-2**, a first cross member **19**, a second cross member **21** and a third cross member **23**. The first, second and third cross members **19**, **21**, **23** extend between the first and second side members **17-1**, **17-2**. The first cross member **19** is disposed at the top of the seat back **9**. The second cross member **21** is disposed in the middle of the seat back **9**. The third cross member **23** is disposed at the bottom of the seat back **9**. The headrest mounting assembly **1** is fastened to the first cross member **19** in the present embodiment. It will be understood that the composition of the frame assembly F**1** may be modified.

[0017] The headrest mounting assembly **1** comprises a mounting bracket **25**, a first guide channel **27-1** and a second guide channel **27-2**. The mounting bracket **25** comprises a centre portion **29**, a first side portion **31-1** and a second side portion **31-2**. The mounting bracket **25** has a unitary structure, for example comprising a formed metal plate, as shown in FIG. **6**. The centre portion **29**, the first side portion **31-1** and the second side portion **31-2** are formed integrally. In use, the centre portion **29** locates centrally in the seat back **9**. The mounting bracket **25** is mounted to the first cross member **19** to provide a fixed support for the headrest **3**. The centre portion **29** comprises upper and lower central fixing apertures **33** for receiving mechanical fasteners **35**. In the present embodiment, the centre portion **29** comprises two (2) upper central fixing apertures **33**-*n* and two (2) lower central fixing apertures **33**-*n*. The mechanical fasteners **35** may, for example, comprise screws or bolts and/or nuts.

[0018] The first guide channel **27-1** and the second guide channel **27-2** are configured to receive the first and second interconnecting members **15-1**, **15-2** respectively to connect the headrest **3** to the seat back **9**. The first guide channel **27-1** and the second guide channel **27-2** are fastened to the mounting bracket **25**. In the present embodiment, the first guide channel **27-1** and the second guide

channel **27-2** are fastened to the centre portion **29** of the mounting bracket **25**. The first guide channel **27-1** and the second guide channel **27-2** are welded to the mounting bracket **25**. The first and second guide channels **27-1**, **27-2** extend parallel to each other at least substantially parallel to the vertical axis Z. A height adjustment mechanism (not shown) may be associated with at least one of the first and second guide channels **27-1**, **27-2** to enable adjustment of the vertical position of the headrest **3** relative to the seat back **9**.

[0019] The first side portion **31-1** extends in a first lateral direction and is disposed outboard of the first guide channel **27-1**. In the illustrated arrangement, the first side portion **31-1** is disposed on a right-hand side of the first guide channel **27-1**. The second side portion **31-2** extends in a second lateral direction and is disposed outboard of the second guide channel **27-2**. In the illustrated arrangement, the second side portion **31-2** is disposed on a left-hand side of the second guide channel **27-2**. The first and second side portions **31-1**, **31-2** of the mounting bracket **25** are configured to be fastened to the seat back **9**. Each of the first and second side portions **31-1**, **31-2** comprise one or more outboard fixing aperture **39-*n*** for receiving a mechanical fastener **41-*n***. In the present embodiment, the mechanical fasteners **41-*n*** comprise screws for fastening the first and second side portions **31-1**, **31-2** to the first cross member **19**. The one or more outboard fixing aperture **39-*n*** is disposed outboard of the first and second guide channels **27-1**, **27-2**. In the present embodiment, each of the first and second side portions **31-1**, **31-2** comprises two (2) outboard fixing apertures **39-*n***. The outboard fixing apertures **39-*n*** are spaced apart from each other vertically and/or transversely. It will be understood that other types of fastener may be used to fasten the mounting bracket **25** to the cross member **23**. For example, each mechanical fastener **41-*n*** may comprise a rivet or a bolt. Alternatively, or in addition, the mounting bracket **25** could be welded or adhesively bonded to the cross member **23**.

[0020] The first and second side portions **31-1**, **31-2** are inclined relative to the centre portion **29** of the mounting bracket **25**. In particular, the first and second side portions **31-1**, **31-2** are oriented at an oblique angle relative to the centre portion **29**. The first and second side portions **31-1**, **31-2** open outwardly towards a front of the seat back **9**. The mounting bracket **25** is generally U-shaped in transverse section (i.e., in section perpendicular to the vertical axis Z of the seat back **9**).

[0021] The first cross member **19** comprises an upper edge **43**. An outer flange **45** is formed along the upper edge **43** of the first cross member **19**. In the present embodiment, the mounting bracket **25** comprises a bracket upper edge **47** for positioning proximal to the upper edge **43** of the first cross member **19**. The bracket upper edge **47** extends across the centre portion **29** and the first and second side portions **31-1**, **31-2**. An upper bracket flange **49** is formed along the bracket upper edge **47**. The upper bracket flange **49** is substantially continuous and is inset from the outer flange **45** when the mounting bracket **25** is mounted to the first cross member **19**. The upper bracket flange **49** is at least substantially continuous across the top of the mounting bracket **25**. The upper bracket flange **49** extends across the centre portion **29** and each of the first and second side portions **31-1**, **31-2**. As shown in FIG. **3**, the centre portion **29** of the mounting bracket **25** is configured to extend upwardly (i.e., in a direction along the vertical axis Z) from the first and second guide channels **27-1**, **27-2**. This upwardly extended section of the centre portion **29** is continued into the first and second side portions **31-1**, **31-2**. This arrangement allows the profile of the mounting bracket **25** to conform more closely to the profile of the first cross member **19**. The upper bracket flange **49** is inset from the outer flange **45** across at least substantially the width of the mounting bracket **25**. A bracket lower flange (not shown) could optionally be formed along a lower edge of the mounting bracket **25**.

[0022] As shown in FIG. **5**, the first and second side portions **31-1**, **31-2** of the mounting bracket **25** comprise respective central platforms **51-1**, **51-2**. The one or more outboard fixing aperture **39-*n*** are formed in the central platforms **51-1**, **51-2** of the first and second side portions **31-1**, **31-2**. The central platforms **51-1**, **51-2** are raised relative to the adjacent upper and lower portions of the first and second side portions **31-1**, **31-2**. The central platforms **51-1**, **51-2** are offset towards a front of

the seat back **9** relative to the adjacent upper portion and/or the adjacent lower portion of the first and second side portions **31-1**, **31-2**. The section of each of the first and second side portions **31-1**, **31-2** disposed between the respective central platforms **51-1**, **51-2** and the upper bracket flange **49** has a concave profile. In the present embodiment, this portion of the mounting bracket **25** is generally C-shaped.

[0023] The centre portion **29** of the mounting bracket **25** comprises a ridge **53** for reinforcing the mounting bracket **25**. The ridge **53** extends in a transverse direction between the first and second guide channels **27-1**, **27-2**.

[0024] The headrest mounting assembly **1** is mounted to the seat back **9** during assembly of the vehicle seat **5**. The mounting bracket **25** is aligned with the first cross member **19**. The mounting bracket **25** is fastened in position by the mechanical fasteners **35** disposed in the central fixing apertures **33**-*n*, and the mechanical fasteners **41** in the outboard fixing apertures **39**-*n*. Once the mounting bracket **25** is installed, the assembly and fabrication of the vehicle seat **5** continues in conventional manner, for example to apply cushioning and upholster the seat back **9**. Once assembled, the headrest **3** can be removably located on the seat back **9**. In particular, the first and second interconnecting members **15-1**, **15-2** are located in the first guide channel **27-1** and the second guide channel **27-2**.

[0025] The headrest mounting assembly **1** is effective in distributing operational loadings to the seat back **9**. The headrest mounting assembly **1** may offer increased stiffness compared to prior art mounting assemblies. The incorporation of the first and second side portions **31-1**, **31-2** into the mounting bracket **9** may distribute loading, for example to facilitate the dissipation of energy in the event of a collision. The peak load applied to the mounting bracket **9** may be reduced. At least in certain embodiments, the headrest mounting assembly **1** may offer improved safety characteristics for an occupant of the vehicle seat **3**. For example, the headrest mounting assembly **1** may help to reduce soft tissue injury (also known as whiplash) to the occupant's neck in the event of a collision, for example a rear-end collision at a speed in the range 16 km/h to 24 km/h.

[0026] It will be appreciated that various changes and modifications can be made to the present invention without departing from the scope of the present application.

Claims

1. A headrest mounting assembly for mounting a headrest on a frame member of a seat back, the headrest mounting assembly comprising: a mounting bracket comprising a centre portion, a first side portion and a second side portion; and a first guide channel for receiving a first headrest interconnecting member, and a second guide channel for receiving a second headrest interconnecting member, the first and second guide channels being fastened to the centre portion of the mounting bracket; wherein the first side portion is disposed outboard of the first guide channel on a first side of the mounting bracket, and the second side portion is disposed outboard of the second guide channel on a second side of the mounting bracket; and each of the first and second side portions being configured to be fastened to the seat back outboard of the first and second guide channels respectively.

2. The headrest mounting assembly as claimed in claim 1, wherein the first and second side portions are inclined relative to the centre portion of the mounting bracket.

3. The headrest mounting assembly as claimed in claim 2, wherein the first and second side portions open outwardly towards a front of the seat back.

4. The headrest mounting assembly as claimed in claim 2, wherein the mounting bracket is generally U-shaped in a transverse section.

5. The headrest mounting assembly as claimed in claim 1, wherein each of the first and second side portions comprises at least one aperture for receiving a mechanical fastener to fasten the mounting bracket to the seat back.

6. The headrest mounting assembly as claimed in claim 1, wherein the mounting bracket comprises a bracket upper edge for positioning proximal to an upper edge of the frame member of the seat back, the bracket upper edge extending across the centre portion and the first and second side portions.
7. The headrest mounting assembly as claimed in claim 6, wherein an upper bracket flange is formed along the bracket upper edge of the mounting bracket, the upper bracket flange being at least substantially continuous.
8. The headrest mounting assembly as claimed in claim 6, wherein the centre portion of the mounting bracket extends upwardly from the first and second guide channels to the bracket upper edge.
9. The headrest mounting assembly as claimed in claim 1, wherein each of the first and second side portions comprise a central platform which is raised relative to at least one of an upper region and a lower region.
10. The headrest mounting assembly as claimed in claim 1, wherein the centre portion comprises a ridge extending in a transverse direction between the first and second guide channels.
11. The headrest mounting assembly as claimed in claim 1, wherein the mounting bracket comprises a plate having a unitary composition.
12. The headrest mounting assembly as claimed in claim 1, wherein the centre portion comprises a plurality of apertures for fastening the mounting bracket to the seat back.
13. A vehicle seat comprising the headrest mounting assembly as claimed in claim 1.
14. A vehicle comprising one or more vehicle seat as claimed in claim 13.