A seat assembly is provided and may include a support member having a first surface, a second surface, and an aperture disposed between the first surface and the second surface. The first surface may be substantially coplanar with the second surface and a recliner mechanism may be received between the first surface and the second surface and may at least partially overlap the aperture.
RECLINER MECHANISM WITH MOUNTING FEATURE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application No. 61/314,907, filed on Mar. 17, 2010 and claims the benefit of U.S. Provisional Application No. 61/415,539, filed on Nov. 19, 2010. The entire disclosures of each of the above applications are incorporated herein by reference.

FIELD

[0002] The present disclosure relates to recliner mechanisms and more particularly to a mounting feature of a recliner mechanism.

BACKGROUND

[0003] This section provides background information related to the present disclosure and is not necessarily prior art.

[0004] Seat assemblies typically include at least one recliner mechanism that permits selective rotation of a seatback relative to a seat bottom. Such recliner mechanisms permit rotation of the seatback relative to the seat bottom to position the seatback relative to the seat bottom in a desired angular position. Furthermore, such recliner mechanisms may also permit the seatback to be positioned in a fold-flat state relative to the seat bottom to allow the seatback and seat bottom to be moved into a dumped position and/or to allow the seatback to provide a flat-load surface.

[0005] Regardless of the particular construction and function of the recliner mechanism, conventional recliner mechanisms are typically disposed proximate to a pivot point disposed between the seatback and the seat bottom. The recliner mechanism may be attached to either or both of the seatback and the seat bottom to selectively permit rotation of the seatback relative to the seat bottom.

[0006] With particular reference to FIG. 1, a prior-art recliner mechanism A is shown incorporated into and attached to a seatback-support member B. The recliner mechanism A is received generally within a stepped portion C of the seatback-support member B and at least a portion of the recliner mechanism A is fixedly attached to the seatback-support member B within the stepped portion C. The stepped portion C includes a surface D that is offset from a surface E of the seatback-support member B by a distance F. The surface E is located above the stepped portion C and extends generally to a top portion of the seatback-support member B and away from the recliner mechanism A. The surface D of the stepped portion C is disposed proximate to a bottom portion of the seatback-support member B and proximate to a seat bottom (not shown).

[0007] The stepped portion C provides a recess G in which the recliner mechanism A is disposed. The recess G accounts for most if not all of the thickness of the recliner mechanism A and provides a surface D to which at least a portion of the recliner mechanism A may be fixedly attached.

[0008] While the recess G of the seatback-support member B provides a surface D for attachment to the recliner mechanism A, as well as a space in which to receive the recliner mechanism A, the stepped portion C typically requires the seatback-support member B to be formed from a relatively thick material to ensure adequate strength of the seatback-support member B at a transition area H disposed generally between surface E and surface D. Forming the seatback-support member B from a relatively thick material increases the weight, size, and cost of the seatback-support member B and, as a result, increases the overall weight, size, and cost of the assembled recliner mechanism and seatback-support member.

[0009] In addition to the foregoing, conventional recliner mechanisms typically require a separate and distinct mounting bracket to attach a portion of the recliner mechanism to a seatback-support member and a separate and distinct mounting bracket to attach a portion of the recliner mechanism to a structure of a seat bottom. While the respective mounting brackets adequately attach a conventional recliner mechanism to a seatback-support structure and a seat bottom-support structure, such brackets increase the overall weight, cost, and complexity of the assembled recliner mechanism, seatback-support member, and seat bottom-support member.

SUMMARY

[0010] This section provides a general summary of the disclosure, and is not a comprehensive disclosure of its full scope or all of its features.

[0011] A seat assembly is provided and may include a support member having a first surface, a second surface, and an aperture disposed between the first surface and the second surface. The first surface may be substantially coplanar with the second surface and a recliner mechanism may be received between the first surface and the second surface and may at least partially overlap the aperture.

[0012] In another form, the present disclosure provides a seat assembly that may include a support member, a recliner mechanism and an encapsulation member. The support member may include a first surface, a second surface, and an aperture disposed between the first surface and the second surface. The first surface may be substantially coplanar with the second surface. The recliner mechanism may be received between the first surface and the second surface and may be disposed substantially coaxial with the aperture. The encapsulation member may engage the support member and the recliner mechanism.

[0013] Further areas of applicability will become apparent from the description provided herein. The description and specific examples in this summary are intended for purposes of illustration only and are not intended to limit the scope of the present disclosure.

DRAWINGS

[0014] The drawings described herein are for illustrative purposes only of selected embodiments and not all possible implementations, and are not intended to limit the scope of the present disclosure.

[0015] FIG. 1 is a schematic representation of a prior-art recliner mechanism incorporated into a prior-art, seatback-support member;

[0016] FIG. 2 is a perspective view of a seat assembly incorporating a seatback-support member and recliner mechanism in accordance with the principles of the present disclosure;

[0017] FIG. 3 is a perspective view of the seat assembly of FIG. 2 with part of an outer structure removed to show the seatback-support member and recliner mechanism of FIG. 2;
FIG. 4 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure;

FIG. 5 is a partial sectional view of the seatback-support member and recliner mechanism of FIG. 4;

FIG. 6 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure;

FIG. 7 is a partial cross-sectional view of the seatback-support member and recliner mechanism of FIG. 6;

FIG. 8 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure;

FIG. 9 is a partial cross-sectional view of the seatback-support member and recliner mechanism of FIG. 8;

FIG. 10 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure;

FIG. 11 is a partial cross-sectional view of the seatback-support member and recliner mechanism of FIG. 10;

FIG. 12 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure;

FIG. 13 is a partial perspective view of the seatback-support member and recliner mechanism of FIG. 12;

FIG. 14 is a partial cross-sectional view of the seatback-support member and recliner mechanism of FIGS. 12 and 13;

FIG. 15 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure;

FIG. 16 is a partial cross-sectional view of the seatback-support member and recliner mechanism of FIG. 15;

FIG. 17 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure;

FIG. 18 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure;

FIG. 19 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure;

FIG. 20 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure;

FIG. 21 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure;

FIG. 22 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure;

FIG. 23 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure;

FIG. 24 is a partial perspective view of the seatback-support member and recliner mechanism of FIG. 23;

FIG. 25 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure;

FIG. 26 is a partial exploded view of the seatback-support member and recliner mechanism of FIG. 25;

FIG. 27 is a cross-sectional view of the seatback-support member and recliner mechanism of FIG. 25;

FIG. 28 is a partial perspective view of a seatback-support member in accordance with the principles of the present disclosure for use with the seat assembly of FIG. 2 and incorporating a recliner mechanism in accordance with the principles of the present disclosure; and

FIG. 29 is a cross-sectional view of the seatback-support member and recliner mechanism of FIG. 28.

Corresponding reference numerals indicate corresponding parts throughout the several views of the drawings.

DETAILED DESCRIPTION

Example embodiments will now be described more fully with reference to the accompanying drawings.

Example embodiments are provided so that this disclosure will be thorough, and will fully convey the scope to those who are skilled in the art. Numerous specific details are set forth such as examples of specific components, devices, and methods, to provide a thorough understanding of embodiments of the present disclosure. It will be apparent to those skilled in the art that specific details need not be employed, that example embodiments may be embodied in many different forms and that neither should be construed to limit the scope of the disclosure. In some example embodiments, well-known processes, well-known device structures, and well-known technologies are not described in detail.

The terminology used herein is for the purpose of describing particular example embodiments only and is not intended to be limiting. As used herein, the singular forms “a,” “an,” and “the” may be intended to include the plural forms as well, unless the context clearly indicates otherwise. The terms “comprising,” “comprising,” “including,” and “having,” are inclusive and therefore specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof. The method steps, pro-
cesses, and operations described herein are not to be construed as necessarily requiring their performance in the particular order discussed or illustrated, unless specifically identified as an order of performance. It is also to be understood that additional or alternative steps may be employed.

[0048] When an element or layer is referred to as being "on," "engaged to," "connected to," or "coupled to" another element or layer, it may be directly on, engaged, connected or coupled to the other element or layer, or intervening elements or layers may be present. In contrast, when an element is referred to as being "directly on," "directly engaged to," "directly connected to," or "directly coupled to" another element or layer, there may be no intervening elements or layers present. Other words used to describe the relationship between elements should be interpreted in a like fashion (e.g., "between" versus "directly between," "adjacent" versus "directly adjacent," etc.). As used herein, the term "and/or" includes any and all combinations of one or more of the associated listed items.

[0049] Although the terms first, second, third, etc. may be used herein to describe various elements, components, regions, layers and/or sections, these elements, components, regions, layers and/or sections should not be limited by these terms. These terms may be only used to distinguish one element, component, region, layer or section from another region, layer or section. Terms such as "first," "second," and other numerical terms when used herein do not imply a sequence or order unless clearly indicated by the context. Thus, a first element, component, region, layer or section discussed below could be termed a second element, component, region, layer or section without departing from the teachings of the example embodiments.

[0050] Spatially relative terms, such as "inner," "outer," "beneath," "below," "lower," "above," "upper," and the like, may be used herein for ease of description to describe one element or feature's relationship to another element(s) or feature(s) as illustrated in the figures. Spatially relative terms may be intended to encompass different orientations of the device in use or operation in addition to the orientation depicted in the figures. For example, if the device in the figures is turned over, elements described as "below" or "beneath" other elements or features would then be oriented "above" the other elements or features. Thus, the example term "below" can encompass both an orientation of above and below. The device may be otherwise oriented (rotated 90 degrees or at other orientations) and the spatially relative descriptors used herein interpreted accordingly.

[0051] With reference to FIGS. 2-5, a seat assembly 2 for a vehicle is provided and may include a seatback 4, a seat bottom 6, a head restraint 8, and a recliner mechanism 10. The seatback 2 and seat bottom 4 may include a seatback-side member 12 and a seat-bottom-side member 13. The recliner mechanism 10 cooperates with and is supported by the seatback-side member 12 to selectively permit movement of the seatback-side member 12 relative to the seat-bottom-side member 13 about an axis defined by the recliner mechanism 10.

[0052] The recliner mechanism 10 may be a round recliner and may include a guide plate 14, a ratchet plate 16, a locking mechanism 18, and an encapsulation ring 20. The recliner mechanism 10 may also include a cam 22 and a biasing member 24 that cooperate to bias the locking mechanism 18 into a locked state. A lever (not shown) may engage the cam 22 for rotation therewith between the locked state and an unlocked state. When the locking mechanism 18 is in the locked state, relative rotation between the guide plate 14 and the ratchet plate 16 is restricted by the locking mechanism 18. When the locking mechanism 18 is in the unlocked state, relative rotation between the guide plate 14 and the ratchet plate 16 the locking mechanism 18 allows relative rotation between the guide plate 14 and the ratchet plate 16, and thus, relative rotation between the seatback 4 and the seat bottom 6. A user may grasp and rotate the lever to rotate the cam 22 to cause the locking mechanism 18 to move between the locked and unlocked states. The recliner mechanism 10 may be of the type disclosed in assignee's commonly owned International Application No. PCT/US2009/033067 filed Feb. 4, 2009, which claims benefit of U.S. Provisional Application No. 61/026,352 filed Feb. 5, 2008; and International Application No. PCT/US2009/031255 filed Jan. 16, 2009, which claims benefit of U.S. Provisional Application No. 61/021,744 filed Jan. 17, 2008, and U.S. Provisional Application No. 61/044,162 filed Apr. 11, 2008, the disclosures of which are herein incorporated by reference.

[0053] As shown in FIG. 5, the locking mechanism 18 is disposed generally between the guide plate 14 and the ratchet plate 16. The encapsulation ring 20 may surround at least a portion of the guide plate 14 and ratchet plate 16 and may include a main body 26 surrounding at least a portion of a perimeter of the guide plate 14 and ratchet plate 16, a first flange 28, and a second flange 30. The first flange 28 may be positioned substantially perpendicular to the main body 26 and may extend over a portion of the guide plate 14. The second flange 30 may likewise be formed substantially perpendicular to the main body 26 and may extend in an opposite direction than the first flange 28.

[0054] The seatback-side member 12 may include a main body 32, a flange 34, and an aperture 36. The flange 34 may be formed substantially perpendicular to the main body 32 and may extend at least partially around a perimeter of the main body 32. The aperture 36 may be formed through the main body 32 and may be spaced apart and separated from the flange 34.

[0055] The main body 32 may surround the aperture 36 and may include a first surface 38 and a second surface 40. The first surface 38 may be formed on an opposite side of the aperture 36 than the second surface 40 such that the aperture 36 extends generally between the first surface 38 and the second surface 40. In one configuration, the first surface 38 is substantially coplanar with the second surface 40.

[0056] With particular reference to FIGS. 3-5, attachment of the recliner mechanism 10 to the seatback-side member 12 will be described in detail. Once the recliner mechanism 10 is assembled such that the guide plate 14, ratchet plate 16, and locking mechanism 18 are assembled to the encapsulation ring 20, the recliner mechanism 10 may be attached to the seatback-side member 12. The recliner mechanism 10 may be inserted into the aperture 36 of the seatback-side member 12 such that the encapsulation ring 20 extends from the first surface 38 and the second surface 40 of the seatback-side member 12.

[0057] The recliner mechanism 10 may be inserted into the aperture 36 until the second flange 30 of the encapsulation ring 20 contacts the main body 32 at a third surface 42 and a fourth surface 44. The third surface 42 may be formed on an opposite side of the main body 32 than the first surface 38 while the fourth surface 44 may be formed on an opposite side of the main body 32 than the second surface 40. As such, the
first surface 38 is substantially parallel to the third surface 42 and the second surface 40 is substantially parallel to the fourth surface 44. As with the first surface 38 and the second surface 40, the third surface 42 may be substantially coplanar with the fourth surface 44.

[0058] Once the second flange 30 contacts the third surface 42 and the fourth surface 44 of the main body 32, the second flange 30 of the encapsulation ring 20 may be attached to the main body 32 at the third surface 42 and the fourth surface 44 via a suitable process such as, for example, M.I.G. welding or laser welding. In one configuration, the second flange 30 is laser welded around an entire perimeter of the second flange 30. In some configurations, the second flange 30 may be welded to the main body 32 at discrete locations or attached via one or more rivets or any other suitable means.

[0059] Once the second flange 30 is attached to the main body 32, the main body 32 is fixed for movement with the encapsulation ring 20. Furthermore, because the ratchet plate 16 is fixed for movement with the encapsulation ring 20 at an outer perimeter of the ratchet plate 16, the ratchet plate 16 is likewise fixed for movement with the main body 32 of the seatback-side member 12. In one configuration, the ratchet plate 16 is attached to the encapsulation ring 20 at a weld 46 disposed at an outer perimeter of the ratchet plate 16 and generally between the outer perimeter of the ratchet plate 16 and the main body 26 of the encapsulation ring 20.

[0060] While the ratchet plate 16 is described as being attached to the encapsulation ring 20 such that the ratchet plate 16 is fixed for movement with the encapsulation ring 20 and, thus, the seatback-side member 12, the guide plate 14 could alternatively be attached to the encapsulation ring 20 such that the guide plate 14 is fixed for movement with the encapsulation ring 20 and seatback-side member 12. Further, while the encapsulation ring 20 is described as being attached to the seatback-side member 12, the encapsulation ring 20 could alternatively be attached to the seat-bottom side member 13 in a similar fashion as described with respect to the seatback-side member 12 such that either the guide plate 14 or ratchet plate 16 are fixed for movement with the seat-bottom side member 13 via the encapsulation ring 20. While the encapsulation ring 20 could be attached to either the guide plate 14 or ratchet plate 16 and the guide plate 14 or ratchet plate 16 could be associated with either the seatback-side member 12 or the seat-bottom side member 13, the encapsulation ring 20 will be described and shown hereinafter in each configuration of the recliner mechanism 10-10m as being attached to the ratchet plate 16 and, thus, the ratchet plate 16 will be described and shown as being attached to the seatback-side member 12.

[0061] The recliner mechanism 10 may be directly attached to the seatback-side member 12 without requiring an additional support bracket. Permitting the encapsulation ring 20 of the recliner mechanism 10 to attach the recliner mechanism 10 to the seatback-side member 12 reduces the overall size of the assembled recliner mechanism 10 and seatback-side member 12. Further, by obviating the need for a support bracket to attach the recliner mechanism 10 to the seatback-side member 12, the overall weight and cost of the assembled recliner mechanism 10 and seatback-side member 12 may be reduced.

[0062] The assembled recliner mechanism 10 and seatback-side member 12 may be attached to the seat-bottom side member 13. Specifically, the guide plate 14 may be attached to the seat-bottom side member 13, for example, such that the guide plate 14 is fixed for movement with the seat-bottom side member 13.

[0063] In operation, when the locking mechanism 18 permits relative movement between the guide plate 14 and the ratchet plate 16, the ratchet plate 16, seatback-side member 12, and encapsulation ring 20 are permitted to rotate relative to the guide plate 14. Permitting rotation of the seatback-side member 12, ratchet plate 16, and encapsulation ring 20 relative to the seat bottom likewise permits adjustment of a position of the seatback-side member 12 relative to the seat bottom. Because the seatback-side member 12 may support the seatback 4, permitting movement of the seatback-side member 12 relative to the seat-bottom side member 13 likewise permits movement and adjustment of a position of the seatback 4 relative to the seat bottom 6.

[0064] The recliner mechanism 10 may be disposed proximate to a bottom portion of the seatback-side member 12 such that the recliner mechanism 10 is in close proximity to the seat bottom 6 when the seatback-side member 12 is attached to the seat bottom 6. As such, the main body 32 proximate to the first surface 38 and the third surface 42 may extend generally away from the recliner mechanism 10 towards a top portion of the seatback-side member 12 while the second surface 40 and fourth surface 44 of the main body 32 may extend generally away from the recliner mechanism 10 and toward the seat bottom 6.

[0065] With reference to FIGS. 6 and 7, a recliner mechanism 10a is shown incorporated into a seatback-side member 12a. In view of the substantial similarity in structure and function of the components associated with the recliner mechanism 10 and seatback-side member 12 with respect to the components associated with the recliner mechanism 10a and seatback-side member 12a, like reference numerals are used hereinafter in the drawings to identify like components while like reference numerals containing letter extensions are used to identify those components that have been modified.

[0066] As with the recliner mechanism 10, the recliner mechanism 10a may include a guide plate 14a, a ratchet plate 16a, and a locking mechanism 18a. The recliner mechanism 10a may also include an encapsulation ring 20a including a main body 26a and a first flange 28a. The main body 26a may be formed substantially perpendicular to the first flange 28a and may extend around at least a portion of an outer perimeter of the guide plate 14a and the ratchet plate 16a. The seatback-side member 12a may include a main body 32a including an aperture 36a. The aperture 36a may be formed in the main body 32a and may be defined by extruding or otherwise forming portions of the main body 32a into the aperture 36a. Specifically, portions of the main body 32a disposed proximate to the aperture 36a may be bent or otherwise formed at a substantially ninety-degree (90°) angle such that the portions of the main body 32a proximate to the aperture 36a are perpendicular to the main body 32a. The bent or otherwise formed portions of the main body 32a may define a flange 48 that is substantially perpendicular to the first, second, third, and fourth surfaces 38a, 40a, 42a, and 44a of the main body 32a and extends substantially in the same direction as the flange 34.

[0068] With particular reference to FIG. 7, assembly of the recliner mechanism 10a to the seatback-side member 12a will be described in detail. Once the guide plate 14a, ratchet plate 16a, and locking mechanism 18a are received within the encapsulation ring 20a, the recliner mechanism 10a may be
inserted into the aperture 36a of the seatback-side member 12a. The recliner mechanism 10a may be inserted into the aperture 36a such that the main body 26a of the encapsulation ring 20a opposes and is aligned with the flange 48 of the main body 32a. The encapsulation ring 20a may be positioned relative to the flange 48 such that the main body 26a of the encapsulation ring 20a opposes and is in contact with the flange 48 of the seatback-side member 12a. In other words, the main body 26a of the encapsulation ring 20a may be substantially parallel to the flange 48 and may be fixedly attached thereto via a weld 50, for example.

Positioning the recliner mechanism 10a within the aperture 36a and flange 48 allows the recliner mechanism 10a and seatback-side member 12 to include a reduced overall width when compared to a width of a conventional recliner mechanism/seatback-side member assembly (FIG. 1). Furthermore, positioning the recliner mechanism 10a at least partially within the aperture 36a allows the first surface 38 and third surface 42 to be substantially within the same plane and allows the second surface 40 and fourth surface 44 to be substantially within the same plane, thereby obviating the need for a stepped portion associated with conventional seatback-side members (FIG. 1). Providing the recliner mechanism 10a within the flange 48 also allows the recliner mechanism 10a to increase the overall strength of the seatback-side member 12a, as the flange 48 is attached to the encapsulation ring 20a.

As with the recliner mechanism 10, during operation, the ratchet plate 16 may be fixed for rotation with the seatback-side member 12a due to engagement between the ratchet plate 16 and the encapsulation ring 20a. As with the recliner mechanism 10, the encapsulation ring 20a may be fixedly attached to the ratchet plate 16 via a weld 46.

With reference to FIGS. 8 and 9, a recliner mechanism 10b is shown incorporated into a seatback-side member 12b. In view of the substantial similarity in structure and function of the components associated with the recliner mechanism 10 and seatback-side member 12 with respect to the recliner mechanism 10b and seatback-side member 12b, like reference numerals are used hereinafter and in the drawings to identify like components while like reference numerals containing letter extensions are used to identify those components that have been modified.

The recliner mechanism 10b may include a guide plate 14, a ratchet plate 16, and a locking mechanism 18. An encapsulation ring 20b may surround at least a portion of the guide plate 14, ratchet plate 16, and locking mechanism 18 and may include a main body 26b and a first flange 28. The first flange 28 may be formed substantially perpendicular to the main body 26b and may extend at least partially around a top portion of the guide plate 14, as shown in FIG. 9. The main body 26b may be formed substantially perpendicular to the first flange 28 and may extend at least partially around an outer perimeter of the guide plate 14 and ratchet plate 16.

The seatback-side member 12 may include an aperture 36b having a flange 48b. The flange 48b may be formed in an opposite direction than the flange 48 such that the flange 48b extends in an opposite direction of the flange 34 of the seatback-side member 12b.

When the recliner mechanism 10b is assembled to the seatback-side member 12b, the recliner mechanism 10b is received generally within the aperture 36b of the seatback-side member 12b such that the main body 26b of the encapsulation ring 20b opposes the flange 48b. As with the recliner mechanism 10a, the main body 26b of the encapsulation ring 20b may be fixedly attached to the seatback-side member 12b at the flange 48b by providing a weld 50 generally between the main body 26b of the encapsulation ring 20b and the flange 48b of the seatback-side member 12b.

As with the recliner mechanisms 10 and 10a, once the encapsulation ring 20b is attached to the seatback-side member 12b, the seatback-side member 12, ratchet plate 16, and encapsulation ring 20 may be fixed for rotation, as the ratchet plate 16 may be attached to the encapsulation ring 20b via a weld 46.

With reference to FIGS. 10 and 11, a recliner mechanism 10c is shown attached to a seatback-side member 12c. In view of the substantial similarity in structure and function of the components associated with the recliner mechanism 10 and the seatback-side member 12 with respect to the recliner mechanism 10c and the seatback-side member 12c, like reference numerals are used hereinafter and in the drawings to identify like components while like reference numerals containing letter extensions are used to identify those components that have been modified.

The recliner mechanism 10c may include a guide plate 14, a ratchet plate 16, and a locking mechanism 18. An encapsulation ring 20c may surround at least a portion of the guide plate 14 and ratchet plate 16 and may include a main body 26c and a second flange 30c. In addition to the encapsulation ring 20c, the recliner mechanism 10c may also include a mounting bracket 52 disposed generally between the encapsulation ring 20c and the seatback-side member 12c. The mounting bracket 52 may include a main body 54, an aperture 56 formed through the main body 54, and a flange 58 disposed around an outer perimeter of the main body 54. The flange 58 may be offset from the main body 54 such that a recess 60 is defined generally between the flange 58 and the main body 54.

When the mounting bracket 52 is attached to the recliner mechanism 10c, a portion of the recliner mechanism 10c may be disposed generally within the recess 60. Specifically, the ratchet plate 16 may be disposed within and attached to the main body 54 within the recess 60.

The seatback-side member 12c may include an aperture 36c and may be of a similar construction to the seatback-side member 12c.

With particular reference to FIG. 11, assembly of the recliner mechanism 10c to the seatback-side member 12c will be described in detail. Once the mounting bracket 52 is attached to the encapsulation ring 20c and/or ratchet plate 16, the mounting bracket 52 and, thus, the recliner mechanism 10c may be attached to the seatback-side member 12c. Specifically, the main body 54 of the mounting bracket 52 may be at least partially received within the aperture 36c of the seatback-side member 12c. Because the flange 58 is offset from the main body 54, the flange 58 may contact the first surface 38 and second surface 40 of the seatback-side member 12c to position the mounting bracket 52 and recliner mechanism 10c relative to the seatback-side member 12c.

Once the flange 58 engages the first surface 38 and the second surface 40 of the seatback-side member 12c, the flange 58 may be fixedly attached to the seatback-side member 12c. In one configuration, a weld extends generally around an entire perimeter of the mounting bracket 52 at the flange 58 to fixedly attach the flange 58 to the main body 32 of the seatback-side member 12c. In another configuration, the mounting bracket 52 may be attached to the seatback-side
member 12 at discrete locations. In either configuration, the flange 58 may be fixedly attached to the seatback-side member 12 by a suitable process such as, for example, M.I.G. welding or laser welding.  

While the mounting bracket 52 is shown in FIG. 10 as including an arcuate surface 62 and a substantially planar surface 64, the mounting bracket 52 could alternatively include a substantially circular shape. The mounting bracket 52 may include any shape that allows the mounting bracket to be nested within a stamping tool or other manufacturing process that minimizes scrap when the mounting bracket 52 is formed.

With reference to FIGS. 12-14, a recliner mechanism 10d and seatback-side member 12d are provided. In view of the substantial similarity in structure and function of the components associated with the recliner mechanism 10 and the seatback-side member 12 with respect to the recliner mechanism 10d and seatback-side member 12d, like reference numerals are used hereinafter and in the drawings to identify like components while like reference numerals containing letter extensions are used to identify those components that have been modified.

The recliner mechanism 10d may include a guide plate 14, a ratchet plate 16, and a locking mechanism 18. An encapsulation ring 20d may extend around and partially overlap a perimeter of the guide plate 14 and the ratchet plate 16 and may include a main body 26d and a second flange 30d. The second flange 30d may be formed substantially perpendicular to the main body 26d and may at least partially overlap a surface of the ratchet plate 16, as shown in FIG. 14.

The seatback-side member 12d may include a so-called “doubler plate” that increases the overall strength of the seatback-side member 12d proximate to an aperture 36d. In one configuration, the doubler plate is formed by folding a main body 32d of the seatback-side member 12d onto itself in an area proximate to the aperture 36d such that the seatback-side member 12d includes a localized region of increased thickness. While the doubler plate is described as being formed by folding the main body 32d such that the main body 32d is folded onto itself to substantially double a thickness of the seatback-side member 12d in an area of the aperture 36d, the seatback-side member 12d could alternatively be provided with a separate bracket or plate that is fixedly attached to the main body 32d of the seatback-side member 12d to locally reinforce the seatback-side member 12d proximate to the aperture 36d.

When the recliner mechanism 10d is attached to the seatback-side member 12d, the ratchet plate 16 may be fixedly attached to the main body 32d of the seatback-side member 12d by any suitable method. For example, in one configuration, the ratchet plate 16 may include a series of protrusions 66 matingly received within apertures 68 formed in the main body 32d of the seatback-side member 12d. Once the protrusions 66 are received within the aperture 68, the ratchet plate 16 may be fixedly attached to the main body 32d by welding the ratchet plate 16 to the main body 32d. Once the ratchet plate 16 is fixedly attached to the main body 32d of the seatback-side member 12d, the ratchet plate 16 is fixed for movement with the seatback-side member 12d.

With reference to FIGS. 15 and 16, a recliner mechanism 10e and seatback-side member 12e are provided. In view of the substantial similarity in structure and function of the components associated with the recliner mechanism 10 and the seatback-side member 12 with respect to the recliner mechanism 10e and seatback-side member 12e, like reference numerals are used hereinafter and in the drawings to identify like components while like reference numerals containing letter extensions are used to identify those components that have been modified.

The recliner mechanism 10e may include a guide plate 14, a ratchet plate 16, and a locking mechanism 18. An encapsulation ring 20e may extend around and partially overlap a perimeter of the guide plate 14 and the ratchet plate 16 and may include a main body 26e, a first flange 28e, and a second flange 30e. The second flange 30e may be formed substantially perpendicular to the main body 26e and may at least partially overlap a surface of the ratchet plate 16.

As shown in FIG. 16, the second flange 30e may include a substantially hexagonal shape having six substantially planar sides 70. The planar sides 70 may each be connected to one another via a radiused edge 72 or, alternatively, may provide the second flange 30e with six substantially sharp corners (not shown) formed by the intersection of a pair of adjacent planar sides 70. Regardless of the particular configuration of the second flange 30e, the hexagonal shape allows the encapsulation ring 20e to nest with other encapsulation rings 20e during formation of the encapsulation rings 20e and, as such, reduces the scrap associated with producing each encapsulation ring 20e.

With continued reference to FIGS. 15 and 16, installation of the recliner mechanism 10e into the seatback-side member 12e will be described. The recliner mechanism 10e may be positioned relative to the seatback-side member 12e such that the encapsulation ring 20e is received at least partially within an aperture 36e formed in the seatback-side member 12e. Once the encapsulation ring 20e is positioned within the aperture 36e such that an outer surface of the main body 26e opposes the aperture 36e, a weld 50 may be used at various locations around the second flange 30e to attach the second flange 30e and, thus, the encapsulation ring 20e, to the seatback-side member 12e. Specifically, once the second flange 30e engages the third and fourth surfaces 42, 44 of the seatback-side member 12e, the welds 50 may be utilized to attach the second flange 30e to the surfaces 42, 44. Because the encapsulation ring 20e may be attached to the ratchet plate 16 via a weld 46, attaching the encapsulation ring 20e to the seatback-side member 12e likewise attaches the guide plate 14, ratchet plate 16, and locking mechanism 18 of the recliner mechanism 10e to the seatback-side member 12e. While the guide plate 14, ratchet plate 16, locking mechanism 18, and encapsulation ring 20e are supported by the seatback-side member 12e, only the ratchet plate 16 and encapsulation ring 20e are fixed for rotation with the seatback-side member 12e, as the encapsulation ring 20e is attached to the ratchet plate 16 via weld 46 and is attached to the seatback-side member 12e via weld 50.

While the seatback-side member 12e is described as being associated with a recliner mechanism 10e having an encapsulation ring 20e incorporating a substantially hexagonal second flange 30e, the seatback-side member 12e could be associated with a recliner mechanism having an encapsulation ring incorporating a second flange of virtually any geometrical shape. FIGS. 17-24 provide various recliner mechanisms 10f/10g incorporating encapsulation rings 20f/20g, each having a second flange 30f/30g that may be attached to a respective seatback-side member 12f/12g. Each encapsulation ring 20f/20g may include a shape that allows the particular ring 20f/20g to nest with other similarly shaped encapsu-
lation rings 20/20f to allow the encapsulation rings 20/20f to nest during manufacturing, thereby reducing the scrap associated with forming each encapsulation ring 20/20f.

[0092] In view of the substantial similarity in structure and function of the components associated with the recliner mechanism 10 and the seatback-side member 12 with respect to the recliner mechanisms 10/10f and the seatback-side members 12/12f, like reference numerals are used hereinafter and in the drawings to identify like components while like reference numerals containing letter extensions are used to identify those components that have been modified.

[0093] With reference to FIG. 17, the recliner mechanism 10f is shown to include an encapsulation ring 20f having a second flange 30f. The second flange 30f may be attached to a seatback-side member 12f via a weld 50f and may include three tabs 76f. The three tabs 76f may include an outer surface 77f. The outer surface 77f of one of the tabs 76f may engage a flange 84 of the seatback-side member 12f to locate and position the recliner mechanism 10f relative to the seatback-side member 12f. The welds 50f may attach the encapsulation ring 20f to the seatback-side member 12f at one or more of the tabs 76f and/or at areas of the second flange 30f generally between the tabs 76f. As with the foregoing recliner mechanisms 10-10f, attaching the encapsulation ring 20f to the seatback-side member 12f fixes the ratchet plate 16 and encapsulation ring 20f for movement with the seatback-side member 12f.

[0094] With reference to FIG. 18, the recliner mechanism 10g is shown as being associated with a seatback-side member 12g and may include an encapsulation ring 20g having a second flange 30g. The second flange 30g may include a pair of tabs 78 extending therefrom. The tabs 78 may be positioned adjacent to the seatback-side member 12g to position the recliner mechanism 10g relative to the seatback-side member 12g. For example, an outer surface 79 of at least one tab 78 may engage a flange 84 of the seatback-side member 12g to locate and position the recliner mechanism 10g relative to the seatback-side member 12g.

[0095] At least one weld may secure the encapsulation ring 20g to the seatback-side member 12g at one or both of the tabs 78. While at least one of the tabs 78 are described as being attached to the seatback-side member 12g via at least one weld, an additional or alternative one or more welds may be positioned in an area of the second flange 30g generally between the tabs 78. Regardless of the particular location and number of welds used to secure the encapsulation ring 20g to the seatback-side member 12g, once the encapsulation ring 20g is fixed to the seatback-side member 12g, the ratchet plate 16 and encapsulation ring 20g are fixed for movement with the seatback-side member 12g, as described above with respect to the recliner mechanisms 10-10f.

[0096] With reference to FIG. 19, the recliner mechanism 10h is shown as being associated with a seatback-side member 12h and includes an encapsulation ring 20h having a substantially rectangular shape. The encapsulation ring 20h may include a second flange 30h that defines the substantially rectangular shape of the encapsulation ring 20h and may be attached to the seatback-side member 12h via at least one weld 50h at the second flange 30h. The at least one weld 50h may be located at various points along the second flange 30h to attach the second flange 30h and, thus, the encapsulation ring 20h and recliner mechanism 10h to the seatback-side member 12h. As with the recliner mechanisms 10-10f, attaching the second flange 30h to the seatback-side member 12h fixes the ratchet plate 16 and encapsulation ring 20h for movement with the seatback-side member 12h.

[0097] With reference to FIG. 20, the recliner mechanism 10i is shown as being associated with a seatback-side member 12i and includes an encapsulation ring 20i having a substantially square shape. The encapsulation ring 20i may include a second flange 30i that defines the substantially square shape of the encapsulation ring 20i and may be attached to the seatback-side member 12i via at least one weld 50i at the second flange 30i. The at least one weld 50i may be located at various points along the second flange 30i to attach the second flange 30i and, thus, the encapsulation ring 20i and recliner mechanism 10i to the seatback-side member 12i.

[0098] With reference to FIG. 21, the recliner mechanism 10j is shown as being associated with a seatback-side member 12j and may include an encapsulation ring 20j having a series of tabs 80. The encapsulation ring 20j may include a second flange 30j that defines each tab 80 and may be positioned relative to the seatback-side member 12j such that at least one weld attaches the encapsulation ring 20j to the seatback-side member 12j. The at least one weld may attach the second flange 30j to the seatback-side member 12j at one or more of the tabs 80 and/or at an area of the second flange 30j disposed between the tabs 80. Regardless of the particular number and location of the welds, the welds serve to attach the encapsulation ring 20j to the seatback-side member 12j and, as with the recliner mechanisms 10-10j, fix the ratchet plate 16 and encapsulation ring 20j for movement with the seatback-side member 12j.

[0099] The tabs 80 may each include an outer arcuate surface 82 having a similar radius to that of a flange 84 of the seatback-side member 12j. At least one of the arcuate surfaces 82 may abut the flange 84 of the seatback-side member 12j to aid in positioning the encapsulation ring 20j and, thus, the recliner mechanism 10j relative to the seatback-side member 12j prior to attaching the encapsulation ring 20j to the seatback-side member 12j.

[0100] With reference to FIG. 22, the recliner mechanism 10k is shown as being associated with a seatback-side member 12k and may include an encapsulation ring 20k. The encapsulation ring 20k may include a second flange 30k having a pair of projections 88 that may serve to both position the encapsulation ring 20k relative to the seatback-side member 12k and provide a surface for attaching the encapsulation ring 20k to the seatback-side member 12k.

[0101] The pair of projections 88 may be disposed on opposite sides of a recess 90 formed in the seatback-side member 12k. Positioning the projections 88 on either side of the recess 90 and allowing either or both projections 88 to contact an area of the seatback-side member 12k proximate to the recess 90 allows the projections 88 to aid in properly positioning the encapsulation ring 20k and, thus, the recliner mechanism 10k relative to the seatback-side member 12k. Once the encapsulation ring 20k and recliner mechanism 10k are properly positioned relative to the seatback-side member 12k, at least one weld 50k may be used to attach the encapsulation ring 20k to the seatback-side member 12k at any location of the second flange 30k. As described above with respect to the recliner mechanisms 10-10j, attaching the encapsulation ring 20k to
the seatback-side member 12k fixes the ratchet plate 16 and encapsulation ring 20k for movement with the seatback-side member 12k.

[0102] With reference to FIGS. 23-24, the recliner mechanism 10l is shown as being associated with a seatback-side member 12l. The recliner mechanism 10l may include an encapsulation ring 20l having a second flange 30l that may position the recliner mechanism 10l relative to the seatback-side member 12l and may provide a surface for attaching the encapsulation ring 20l to the seatback-side member 12l.

[0103] The second flange 30l may include a substantially tear-drop shape having a distal end 92 extending generally away from the guide plate 14 and ratchet plate 16. The distal end 92 may be received within a recess 94 formed in the seatback-side member 12 in aid of in positioning the encapsulation ring 20l and, thus, the recliner mechanism 10l relative to the seatback-side member 12. Once the recliner mechanism 10l is properly positioned relative to the seatback-side member 12l, at least one weld 50 may attach the encapsulation ring 20l and, thus, the recliner mechanism 10l, to the seatback-side member 12l. As with the recliner mechanisms 10-10k, attaching the encapsulation ring 20l in this manner fixes the ratchet plate 16 and encapsulation ring 20l for movement with the seatback-side member 12l.

[0104] With reference to FIGS. 25-27, a recliner mechanism 10n is shown incorporated into a seatback-side member 12n. In view of the substantial similarity in structure and function of the components associated with the recliner mechanism 10n and seatback-side member 12n with respect to the components associated with the recliner mechanism 10m and seatback-side member 12m, like reference numerals are used hereinafter in the drawings to identify like components while like reference numerals containing letter extensions are used to identify those components that have been modified.

[0105] As with the recliner mechanism 10, the recliner mechanism 10m may include a guide plate 14, a ratchet plate 16, and a locking mechanism 18. The recliner mechanism 10m may also include an encapsulation ring 20m including a main body 26m, a first flange 28m, and a second flange 30m. The main body 26m may be formed substantially perpendicular to the first and second flanges 28m, 30m and may extend around at least a portion of an outer perimeter of the guide plate 14 and the ratchet plate 16.

[0106] The second flange 30m may include a substantially helical shape having a first end 31 and a second end 33. The second flange 30m may include first and second cutouts 35, 37 disposed about one-hundred-eighty degrees (180°) apart from each other. The first cutout 35 may radially and axially separate the first and second ends 31, 33 from each other. The first and second cutouts 35, 37 may cooperate to define first and second portions 39, 41 of the second flange 30m. Because of the substantially helical shape of the second flange 30m, the second end 33 is axially spaced apart from the first flange 28m more than the first end 31 is axially spaced apart from the first flange 28m.

[0107] The seatback-side member 12m may include a main body 26m including an aperture 36m and first, second, third and fourth surfaces 38, 40, 42, 44. The main body 26m may also include a flange 48m at least partially defining the aperture 36m. The flange 48m may include a substantially helical shape having a pitch that substantially matches a pitch of the helical shape of the second flange 30m of the encapsulation ring 20m. The flange 48m may include a first and second ends 49, 51 that are axially and radially spaced apart from each other. The space between the first and second ends 49, 51 may define a first cutout 53 disposed approximately one-hundred-eighty degrees (180°) apart from a second cutout 55 in the flange 48m. The first and second cutouts 53, 55 may cooperate to define first and second portions 57, 59 of the flange 48m.

[0108] With continued reference to FIGS. 25-27, assembly of the recliner mechanism 10m to the seatback-side member 12m will be described in detail. Once the guide plate 14, ratchet plate 16, and locking mechanism 18 are attached to the encapsulation ring 20m, the recliner mechanism 10m may be engaged with the aperture 36m of the seatback-side member 12m.

[0109] Engaging the recliner mechanism 10m with the aperture 36m may include positioning the recliner mechanism 10m so that the encapsulation ring 20m is substantially coaxial with the aperture 36m and axially positioned so that the second portion 41 of the second flange 30m of the encapsulation ring 20m is abutting the first portion 57 of the flange 48m. The recliner mechanism 10m can then be rotated approximately one-hundred-eighty degrees (180°) to thread the helical surfaces of the second flange 30m and the flange 48m into a position in which the second portion 59 of the flange 48m engages the second portion 41 of the second flange 30m, as shown in FIGS. 25 and 27. Such a configuration allows the recliner mechanism 10m and encapsulation ring 20m to be assembled to the seat-back side member 12n in a direction toward surfaces 38, 40.

[0110] Once the recliner mechanism 10m is positioned in this manner and seat-back to the seat-back-side member 12n, one or more welds may be applied to the second flange 30m and the flange 48m to fix the encapsulation ring 20m relative to the seatback-side member 12n. In some embodiments, the pitches of the flanges 30m, 48m can be configured such that more or less rotation of the encapsulation ring 20m relative to the aperture 36m than described above is needed to fully engage the flanges 30m, 48m with each other.

[0111] As with the recliner mechanism 10, during operation, the ratchet plate 16 of the recliner mechanism 10m may be fixed for rotation with the seatback-side member 12m due to engagement between the ratchet plate 16 and the encapsulation ring 20m. The encapsulation ring 20m may be fixedly attached to the ratchet plate 16 via one or more welds. Attaching the encapsulation ring 20m in this manner fixes the ratchet plate 16 and encapsulation ring 20m for movement with the seatback-side member 12m relative to the seat-bottom side member 13.

[0112] With reference to FIGS. 28 and 29, a recliner mechanism 10n is shown incorporated into a seatback-side member 12n. In view of the substantial similarity in structure and function of the components associated with the recliner mechanism 10n and seatback-side member 12n with respect to the components associated with the recliner mechanism 10m and seatback-side member 12m, like reference numerals are used hereinafter in the drawings to identify like components while like reference numerals containing letter extensions are used to identify those components that have been modified.

[0113] As with the recliner mechanism 10, the recliner mechanism 10n may include a guide plate 14, a ratchet plate 16, and a locking mechanism 18. The recliner mechanism 10n may also include an encapsulation ring 20n including a main body 26n, a first flange 28n, and a second flange 30n. The main body 26n may be formed substantially perpendicular to the first and second flanges 28n, 30n and may extend around at least a portion of an outer perimeter of the guide plate 14.
and the ratchet plate 16. The first and second flanges 28n, 30n may extend radially from the main body 26n in opposite directions from each other. The second flange 30n may include a plurality of apertures 96 formed therethrough.

[0114] The seatback-side member 12n may include a main body 32n, including an aperture 36n, and first, second, third and fourth surfaces 38n, 40n, 42n, 44n. One or both of the third and fourth surfaces 42n, 44n may include one or more protrusions 98 extending outwardly therefrom in a direction generally parallel to an axis defining the aperture 36n. The protrusions 98 can be formed by pressing dimples in the first and second surfaces 38n, 40n, for example. The number of protrusions 98 and the spacing therebetween may correspond to the number of apertures 96 in the encapsulation ring 20n and the relative spacing between the apertures 96, respectively.

[0115] With continued reference to FIGS. 28 and 29, attachment of the recliner mechanism 10n to the seatback-side member 12n will be described in detail. Once the recliner mechanism 10n is assembled such that the guide plate 14, ratchet plate 16, and locking mechanism 18 are assembled to the encapsulation ring 20n, the recliner mechanism 10n may be attached to the seatback-side member 12n. The recliner mechanism 10n may be inserted into the aperture 36n until the second flange 30n of the encapsulation ring 20n contacts the third and fourth surfaces 42n, 44n with the protrusions 98 of the seatback-side member 12n engaging the apertures 96 in the second flange 30n. Engagement between the protrusions 98 and apertures 96 may facilitate rotational alignment of the recliner mechanism 10n relative to the seatback-side member 12n.

[0116] The engagement between the protrusions 98 and the apertures 96 may be a press fit or interference fit, so that once the encapsulation ring 20n is pressed into engagement with the seatback-side member 12n, the recliner mechanism 10n may be securely retained on the seatback-side member 12n. In some embodiments, rivets may be used in addition to or in the alternative to the protrusions 98 to secure the encapsulation ring 20n to the seatback-side member 12n. In some embodiments, one or more welds may be applied to the encapsulation ring 20n and the seatback-side member 12n to securely attach the recliner mechanism 10n to the seatback-side member 12n. The one or more welds may be applied proximate the apertures 96 and protrusions 98, proximate the aperture 36n and the main body 26n and/or second flange 30n, and/or proximate an outer perimeter of the second flange 30n and the third and/or fourth surfaces 42n, 44n.

[0117] While various embodiments of the recliner mechanism 10-10n are shown in the figures and described above, as being in a particular orientation relative to the seatback-side member 12-12n, in some embodiments, the recliner mechanism 10-10n could be oriented differently. For example, the recliner mechanism 10 is shown in FIGS. 4 and 5 being oriented such that the ratchet plate 16 faces an interior of the seat assembly 2 and the guide plate 14 and first flange 28 face outwardly from the seat assembly 2. In some embodiments, however, the orientation of the recliner mechanism 10 relative to the seatback-side member 12 could be reversed such that the guide plate 14 and first flange 28 face the interior of the seat assembly 2 and the ratchet plate 16 faces outwardly from the seat assembly 2.

[0118] The foregoing description of the embodiments has been provided for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention. Individual elements or features of a particular embodiment are generally not limited to that particular embodiment, but, where applicable, are interchangeable and can be used in a selected embodiment, even if not specifically shown or described. The same may also be varied in many ways. Such variations are not to be regarded as a departure from the invention, and all such modifications are intended to be included within the scope of the invention.

What is claimed is:

1. A seat assembly comprising:
   a support member including a first surface, a second surface, and an aperture disposed between said first surface and said second surface, said first surface being substantially coplanar with said second surface; and
   a recliner mechanism received between said first surface and said second surface and at least partially overlapping said aperture.

2. The seat assembly of claim 1, wherein at least a portion of said recliner mechanism extends into said aperture.

3. The seat assembly of claim 1, wherein said recliner mechanism includes an encapsulation ring extending at least partially around a perimeter of said recliner mechanism.

4. The seat assembly of claim 3, wherein a first end of said encapsulation ring at least partially extends into said aperture.

5. The seat assembly of claim 4, wherein said encapsulation ring includes a first helically shaped flange and said support member includes a second helically shaped flange disposed coaxially with said aperture, said first flange engaging said second flange.

6. The seat assembly of claim 4, wherein said first end is welded to said support member proximate to said aperture and proximate to at least one of said first surface and said second surface.

7. The seat assembly of claim 1, further comprising a flange integrally formed with said first surface and said second surface and defining a third surface substantially perpendicular to said first surface and said second surface.

8. The seat assembly of claim 7, wherein said recliner mechanism includes an encapsulation ring, said encapsulation ring extending into said aperture and substantially parallel to said third surface.

9. The seat assembly of claim 8, wherein said encapsulation ring is fixedly attached to said third surface of said flange.

10. The seat assembly of claim 1, wherein said support member includes a doubler plate and at least a portion of said recliner mechanism is fixedly attached to said doubler plate.

11. A seat assembly comprising:
   a support member including a first surface, a second surface, and an aperture disposed between said first surface and said second surface, said first surface being substantially coplanar with said second surface; and
   a recliner mechanism received between said first surface and said second surface and disposed substantially coaxial with said aperture; and
   an encapsulation member engaging said support member and said recliner mechanism.

12. The seat assembly of claim 11, wherein said encapsulation member engages said aperture in said support member.

13. The seat assembly of claim 12, wherein at least a portion of said recliner mechanism extends into said aperture.

14. The seat assembly of claim 12, wherein said encapsulation member includes a flange engaging said support member.
15. The seat assembly of claim 14, wherein said flange includes a substantially helical shape and engages a helically shaped member of said support member that is substantially coaxial with said aperture.

16. The seat assembly of claim 11, wherein said encapsulation member includes an annular portion extending at least partially around a perimeter of said recliner mechanism.

17. The seat assembly of claim 16, wherein a first end of said encapsulation ring at least partially extends into said aperture in said support member, said first end being welded to said support member proximate to said aperture and proximate to at least one of said first surface and said second surface.

18. The seat assembly of claim 11, further comprising a flange integrally formed with said first surface and said second surface and defining a third surface substantially perpendicular to said first surface and said second surface, said encapsulation member extending into said aperture and substantially parallel to said third surface.

19. The seat assembly of claim 11, wherein said support member includes a doubler plate and at least a portion of said recliner mechanism is fixedly attached to said doubler plate.

20. The seat assembly of claim 11, wherein said support member is a seatback support member.

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