ROTATABLE CHILD SEAT WITH REMOVABLE BOOSTER

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. Application No. 63/570,595, filed on March 27, 2024, U.S. Application No. 63/664,562, filed on June 26, 2024, U.S. Application No. 63/688,557, filed on August 29, 2024, U.S. Application No. 63/690,759, filed on September 4, 2024, U.S. Application No. 63/691,683, filed on September 6, 2024, U.S. Application No. 63/703,538, filed on October 4, 2024, U.S. Application No. 63/712,948, filed on October 28, 2024, and U.S. Application No. 63/759,771, filed on February 18, 2025, which is incorporated herein by reference in its entirety.

FIELD

[0001] Embodiments of the present disclosure relate to the art of child restraint systems for use in a vehicle, and more particularly to child car seats having multiple use configurations.

BACKGROUND

[0002] Some child car seats currently available on the market have multiple use configurations that allow for the seats to continue to be used as a child grows. For example, some child car seats can be selectively used in any one or more of: (1) a rear facing, reclined configuration for infants, (2) a forward facing, reclined configuration for toddlers, (3) a forward facing, high-back booster configuration for children weighing between, e.g., 40 pounds and 100 pounds, and (4) a forward facing, backless booster configuration for children weighing between, e.g., 50 pounds and 120 pounds.

BRIEF DESCRIPTION

[0003] According to an embodiment, a child seat system positionable on a vehicle seat includes a child seat positionable on a support base. The support base includes a base body sized to receive the child seat thereon and a seat belt lock-off assembly arranged at the base body. The seat belt lock-off assembly is operable to secure a vehicle belt of the vehicle seat to the support base and includes a belt lock-off member, and a first lock transitionable between a locked configuration in which the belt lock-off member is retained in a closed position, and an unlocked configuration, in which the belt lock-off member is movable between the closed position and an open position. A lock-off release actuator is operable to transition the first lock between the locked configuration and the unlocked configuration. The lock-off release actuator is arranged at a location spaced from the belt lock-off member and the first lock.

[0004] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is arranged at the base back.

[0005] In addition to one or more of the features described above, or as an alternative, in further embodiments the belt lock-off member is receivable within an opening formed in the base body and the lock-off release actuator is arranged proximate the opening.

[0006] In addition to one or more of the features described above, or as an alternative, in further embodiments the base body includes a base bottom positionable on the vehicle seat and a base back extending from the base bottom. The belt lock-off member is receivable within an opening formed in the base back.

[0007] In addition to one or more of the features described above, or as an alternative, in further embodiments a portion of the lock-off release actuator is arranged at an upper end of the base back.

[0008] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is connected to the child seat.

[0009] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator includes a key arranged at the child seat.

[0010] In addition to one or more of the features described above, or as an alternative, in further embodiments a secondary component is operably coupled to the first lock. The secondary component is positionable in overlapping arrangement with the lock-off release actuator.

[0011] In addition to one or more of the features described above, or as an alternative, in further embodiments the secondary component is movable between first position and a second position. The lock-off release actuator is accessible at the exterior of the base body when the secondary component is in the second position and the lock-off release actuator being inaccessible when the secondary component is in the first position.

[0012] In addition to one or more of the features described above, or as an alternative, in further embodiments the secondary component is rotatable about an axis between the first position and the second position.

[0013] In addition to one or more of the features described above, or as an alternative, in further embodiments the secondary component is translatable about an axis between the first position and the second position.

[0014] In addition to one or more of the features described above, or as an alternative, in further embodiments the secondary component includes a cover having a slot formed therein and a key is insertable into the slot to engage the lock-off release actuator.

[0015] In addition to one or more of the features described above, or as an alternative, in further embodiments the key is mounted to the support base.

[0016] In addition to one or more of the features described above, or as an alternative, in further embodiments the key is connected to the child seat.

[0017] In addition to one or more of the features described above, or as an alternative, in further embodiments a secondary component associated with the first lock. The secondary component being positionable to restrict operation of the lock-off release actuator.

[0018] In addition to one or more of the features described above, or as an alternative, in further embodiments the secondary component is movable between a first position and a second position. The first lock is transitionable from the locked configuration to the unlocked configuration only when the secondary component is in the second position.

[0019] According to an embodiment, a child seat system positionable on a vehicle seat includes a child seat positionable on a support base. The support base includes a base body sized to receive the child seat thereon and a seat belt lock-off assembly arranged at the base body and operable to secure a vehicle belt of the vehicle seat to the support base. The seat belt lock-off assembly includes a belt lock-off member and a first lock transitionable between a locked configuration in which the belt lock-off member is retained in a closed position, and an unlocked configuration, in which the belt lock-off member is movable between the closed position and an open position. A lock-off release actuator is operable to transition the first lock between the locked configuration and the unlocked configuration. The lock-off release actuator has an actuation surface spaced from the belt lock-off member about the base body.

[0020] In addition to one or more of the features described above, or as an alternative, in further embodiments base body includes a base bottom positionable on a vehicle seat and a base back extending from the base bottom. The seat belt lock-off assembly is arranged at at least one of the base bottom and the base body.

[0021] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is arranged at the base back.

[0022] In addition to one or more of the features described above, or as an alternative, in further embodiments the belt lock-off member is receivable within an opening formed in the base back. The lock-off release actuator is spaced from the opening.

[0023] In addition to one or more of the features described above, or as an alternative, in further embodiments the actuation surface is arranged at an upper end of the base back.

[0024] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is translatable to transition the first lock from the locked configuration to the unlocked configuration.

[0025] In addition to one or more of the features described above, or as an alternative, in further embodiments a second lock is associated with the first lock. The first lock is in the locked configuration when the second lock is in a first position.

[0026] In addition to one or more of the features described above, or as an alternative, in further embodiments the second lock is arranged at the base back between the belt lock-off member and the actuation surface.

[0027] In addition to one or more of the features described above, or as an alternative, in further embodiments the second lock is arranged at an upper end of the base back.

[0028] In addition to one or more of the features described above, or as an alternative, in further embodiments the second lock is movable between the first position and a second position and the first lock is transitionable from the locked configuration to the unlocked configuration only when the second lock is in the second position.

[0029] In addition to one or more of the features described above, or as an alternative, in further embodiments the second lock is movable between the first position and a second position and the lock-off release actuator is accessible only when the second lock is in the second position.

[0030] In addition to one or more of the features described above, or as an alternative, in further embodiments the second lock is a cover rotatable about an axis between the first position and a second position.

[0031] In addition to one or more of the features described above, or as an alternative, in further embodiments the second lock is translatable between the first position and a second position.

[0032] According to an embodiment, a child seat system positionable on a vehicle seat includes a child seat positionable on a support base. The support base includes a base body sized to receive the child seat thereon and a seat belt lock-off assembly arranged at the base body. The seat belt lock-off assembly is operable to secure a vehicle belt of the vehicle seat to the support base and includes a belt lock-off member and a first lock transitionable between a locked configuration in which the belt lock-off member is retained in a closed position, and an unlocked configuration, in which the belt lock-off member is movable between the closed position and an open position. A lock-off release actuator is configured to transition the first lock between the locked configuration and the unlocked configuration. A cover is associated

with the lock-off release actuator. The cover is transitionable between a first position in which the lock-off release actuator is inaccessible by a user, and a second position in which the lock-off release actuator is accessible by the user.

[0033] In addition to one or more of the features described above, or as an alternative, in further embodiments the cover is arranged at the belt lock-off member.

[0034] In addition to one or more of the features described above, or as an alternative, in further embodiments the belt lock-off member is receivable within an opening formed in the base body. The belt lock-off member and the cover in the first position, in combination, have a contour corresponding to the opening.

[0035] In addition to one or more of the features described above, or as an alternative, in further embodiments the cover is rotatably coupled to the belt lock-off member between the first position and the second position.

[0036] In addition to one or more of the features described above, or as an alternative, in further embodiments the cover is translatable relative to the belt lock-off member between the first position and the second position.

[0037] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is arranged at the belt lock-off member.

[0038] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is arranged at the base back.

[0039] In addition to one or more of the features described above, or as an alternative, in further embodiments the base body includes a base bottom positionable on the vehicle seat and a base back extending from the base bottom. The seat belt lock-off assembly is arranged at at least one of the base body and the base bottom.

[0040] In addition to one or more of the features described above, or as an alternative, in further embodiments the cover is movably mounted at the lock-off release actuator.

[0041] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator includes a user engagement feature. The user engagement feature is inaccessible by the user when the cover is in the first position and the user engagement feature is accessible by the user when the cover is in the second position.

[0042] In addition to one or more of the features described above, or as an alternative, in further embodiments the cover is translatable relative to the user engagement feature between the first position and the second position.

[0043] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is coupled to the belt lock-off member.

[0044] In addition to one or more of the features described above, or as an alternative, in further embodiments the cover is arranged at the base back.

[0045] In addition to one or more of the features described above, or as an alternative, in further embodiments the cover is rotatable relative to the base back between the first position and the second position.

[0046] In addition to one or more of the features described above, or as an alternative, in further embodiments the cover is flush with an adjacent surface of the base back when in the first position.

[0047] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is arranged at the base back.

[0048] According to an embodiment, a child seat system positionable on a vehicle seat includes a child seat positionable on a support base. The support base includes a base body sized to receive the child seat thereon and a seat belt lock-off assembly arranged at the base body. The seat belt lock-off assembly is operable to secure a vehicle belt of the vehicle seat to the support base and includes a belt lock-off member, and a first lock transitionable between a locked configuration in which the belt lock-off member is retained in a closed position, and an unlocked configuration, in which the belt lock-off member is movable between the closed position and an open position. A second lock is transitionable between a first position, in which the first lock is retained in the locked configuration, and a second position, in which the first lock is movable between the locked configuration and the unlocked configuration.

[0049] In addition to one or more of the features described above, or as an alternative, in further embodiments the first lock is movable along a path of movement between the locked configuration and the unlocked configuration. The second lock in the first position obstructs the path of movement.

[0050] In addition to one or more of the features described above, or as an alternative, in further embodiments a lock-off release actuator is operable to transition the first lock between the locked configuration and the unlocked configuration.

[0051] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is affixed to and is movable in unison with a portion of the first lock.

[0052] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is movable relative to the first lock.

[0053] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is movable to transition the first lock

between the locked configuration and the unlocked configuration only when the second lock is in the second position.

[0054] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is coupled to the belt lock-off member.

[0055] In addition to one or more of the features described above, or as an alternative, in further embodiments the second lock is movably mounted at the lock-off release actuator.

[0056] In addition to one or more of the features described above, or as an alternative, in further embodiments in the first position, the second lock is directly engaged with the belt lock-off member.

[0057] In addition to one or more of the features described above, or as an alternative, in further embodiments the second lock is movably mounted to the belt lock-off member at a position remote from the lock-off release actuator.

[0058] In addition to one or more of the features described above, or as an alternative, in further embodiments the base body includes a base bottom positionable on the vehicle seat and a base back extending from the base bottom. The seat belt lock-off assembly is arranged at at least one of the base bottom and the base back.

[0059] In addition to one or more of the features described above, or as an alternative, in further embodiments the second lock is arranged at the base back, at a position remote from the belt lock-off member.

[0060] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is arranged at the base back.

[0061] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator has an actuation surface that is accessible by a user. The actuation surface is arranged at an upper edge of the base back. The second lock is positioned between the belt lock-off member and the actuation surface of the lock-off release actuator.

[0062] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator has an actuation surface that is accessible by a user. The actuation surface is arranged at an upper edge of the base back. The second lock is positioned at the upper edge of the base back proximate the actuation surface.

[0063] In addition to one or more of the features described above, or as an alternative, in further embodiments the second lock is translatable between the first position and the second position.

[0064] According to an embodiment, a child seat system positionable on a vehicle seat includes a child seat positionable on a support base. The support base includes a base body sized to receive the child seat thereon and a seat belt lock-off assembly arranged at the base body. The seat belt lock-off assembly is operable to secure a vehicle belt of the vehicle seat to the support base and includes a belt lock-off member, and a first lock transitionable between a locked configuration in which the belt lock-off member is retained in a closed position, and an unlocked configuration, in which the belt lock-off member is movable between the closed position and an open position. A lock-off release actuator includes a flexible member. The flexible member is movable between a first position in which the first lock is retained in the locked configuration and a second position in which the first lock is free to move. The flexible member is biased toward the second position.

[0065] In addition to one or more of the features described above, or as an alternative, in further embodiments the flexible member is integrally formed with the lock-off release actuator.

[0066] In addition to one or more of the features described above, or as an alternative, in further embodiments the flexible member is formed from a resilient material such that the flexible member is biased toward the second position.

[0067] In addition to one or more of the features described above, or as an alternative, in further embodiments a catch is arranged proximate the flexible member. The flexible member is engaged with the catch when in the second position.

[0068] In addition to one or more of the features described above, or as an alternative, in further embodiments a pocket is proximate the catch and the flexible member is receivable within the pocket when in the second position.

[0069] In addition to one or more of the features described above, or as an alternative, in further embodiments the catch is arranged at the belt lock-off member. The pocket is defined between the catch and a surface of the belt lock-off member.

[0070] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is arranged at the belt lock-off member.

[0071] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is affixed to and is movable in unison with a portion of the first lock.

[0072] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is movable relative to the first lock.

[0073] In addition to one or more of the features described above, or as an alternative, in further embodiments a biasing mechanism is operably coupled to the first lock. The biasing mechanism is operable to bias the first lock toward the locked configuration.

[0074] According to an embodiment, a child seat system positionable on a vehicle seat includes a child seat positionable on a support base. The support base includes a base body sized to receive the child seat thereon and a seat belt lock-off assembly arranged at the base body. The seat belt lock-off assembly is operable to secure a vehicle belt of the vehicle seat to the support base and includes a belt lock-off member movable between an open position and a closed position. The belt lock off member is receivable within an opening formed in the base body in the closed position. A first lock is transitionable between a locked configuration in which the belt lock-off member is retained in the closed position, and an unlocked configuration, in which the belt lock-off member is movable between the closed position and the open position. A lock-off release actuator is operable to transition the first lock between the locked configuration and the unlocked configuration. An engagement member is associated with the first lock and is positionable within the opening when the belt lock-off member is in the closed position. When the engagement member is arranged within the opening, the first lock is retained within the locked configuration.

[0075] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is inaccessible by a user when the engagement member is arranged within the opening, and the lock-off release actuator is accessible by the user when the engagement member is remote from the opening.

[0076] In addition to one or more of the features described above, or as an alternative, in further embodiments the engagement member is tethered to the support base.

[0077] In addition to one or more of the features described above, or as an alternative, in further embodiments the engagement member is tethered to the child seat.

[0078] In addition to one or more of the features described above, or as an alternative, in further embodiments the lock-off release actuator is movably mounted to the belt lock-off member. The lock-off release actuator is positionable within the opening when the belt lock-off member is in the closed position.

[0079] In addition to one or more of the features described above, or as an alternative, in further embodiments the engagement member installed within the opening is in overlapping arrangement with the lock-off release actuator.

[0080] In addition to one or more of the features described above, or as an alternative, in further embodiments the engagement member includes a first feature and the lock-off release

actuator includes a second feature. The first feature is engageable with the second feature to restrict movement of the lock-off release actuator.

[0081] In addition to one or more of the features described above, or as an alternative, in further embodiments the base body includes a base bottom positionable on the vehicle seat and a base back extending from the base bottom. The opening in which the belt lock off member is receivable is formed in the base back.

[0082] According to an embodiment, a child seat system positionable on a vehicle seat includes a child seat positionable on a support base. The support base includes a base body and a seat belt lock-off assembly arranged at the base body. The seat belt lock-off assembly is configured to secure a vehicle belt of the vehicle seat to the base body. The seat belt lock-off assembly includes a belt lock-off member having a plurality of ribs configured to engage the vehicle belt within an opening formed in the base body. At least one belt guide is mounted to the base body. The at least one belt guide has at least one guide rib configured to engage the vehicle belt at a location remote from the opening.

[0083] In addition to one or more of the features described above, or as an alternative, in further embodiments the base body includes a base bottom positionable on the vehicle seat and a base back extending from the base bottom. The opening in which the belt lock off member is receivable is formed in the base back.

[0084] In addition to one or more of the features described above, or as an alternative, in further embodiments the opening is formed in the base back.

[0085] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one belt guide is arranged at a front surface of the base back.

[0086] In addition to one or more of the features described above, or as an alternative, in further embodiments a clearance is formed between the at least one belt guide and the front surface. The vehicle belt is receivable within the clearance.

[0087] In addition to one or more of the features described above, or as an alternative, in further embodiments the clearance is defined between the at least one guide rib and the front surface.

[0088] In addition to one or more of the features described above, or as an alternative, in further embodiments a configuration of the at least one guide rib varies over the at least one belt guide.

[0089] In addition to one or more of the features described above, or as an alternative, in further embodiments the belt-lock off member includes a first central wall and a second

central wall. The plurality of ribs are arranged at at least one of the first central wall and the second central wall.

[0090] In addition to one or more of the features described above, or as an alternative, in further embodiments the plurality of ribs are arranged at an outwardly facing surface of at least one of the first central wall and the second central wall.

[0091] In addition to one or more of the features described above, or as an alternative, in further embodiments a first portion of the plurality of ribs is arranged at the first central wall and a second portion of the plurality of ribs is arranged at the second central wall. The first portion of the plurality of ribs being aligned with the second portion of the plurality of ribs.

[0092] In addition to one or more of the features described above, or as an alternative, in further embodiments a first portion of the plurality of ribs is arranged at the first central wall and a second portion of the plurality of ribs is arranged at the second central wall. The first portion of the plurality of ribs being staggered relative to the second portion of the plurality of ribs.

[0093] In addition to one or more of the features described above, or as an alternative, in further embodiments at least one of the plurality of ribs is a protrusion extending from at least one of the first central wall and the second central wall.

[0094] In addition to one or more of the features described above, or as an alternative, in further embodiments at least one of the plurality of ribs is a groove formed in at least one of the first central wall and the second central wall.

BRIEF DESCRIPTION OF THE DRAWINGS

[0095] The following descriptions should not be considered limiting in any way. With reference to the accompanying drawings, like elements are numbered alike:

[0096] FIG. 1A is a perspective view of a child seat system mounted to a vehicle seat according to an embodiment;

[0097] FIG. 1B is a side view of the child seat system of FIG. 1A positioned on a vehicle seat according to an embodiment;

[0098] FIG. 2A is a side view of a child seat of the child seat system of FIGS. 1A-1B according to an embodiment;

[0099] FIG. 2B is a front view of the child seat of FIG. 2A according to an embodiment;

[0100] FIG. 3 is a perspective view of a support base of a child seat system of FIGS. 1A-1B according to an embodiment;

[0101] FIG. 4 is a front view of a portion of the support base of a child seat system including a seat belt lock-off assembly according to an embodiment;

[0001] FIG. 5A is a perspective view of a portion of the support base of FIG. 4 when a secondary component is in a first position and a belt lock-off member is in a closed position according to an embodiment;

[0002] FIG. 5B is a perspective view of a portion of the support base of FIG. 4 when a secondary component is in a second position and the belt lock-off member is in an open position according to an embodiment;

[0102] FIG. 6 is a front view of the support base of a child seat system of FIG. 4 according to an embodiment;

[0103] FIG. 7 is a detailed view of the secondary component of the seat belt lock-off assembly according to an embodiment;

[0104] FIG. 8A is a cross-sectional view of the support base of FIG. 6 taken along line 8A-8A when the belt lock-off member is in an open position according to an embodiment;

[0105] FIG. 8B is a detailed view of a compartment of the support base of FIG. 8A including a tether according to an embodiment;

[0106] FIG. 9 is a perspective view of a portion of a child seat system having a support base including a seat belt lock-off assembly according to an embodiment;

[0107] FIG. 10 is a detailed perspective view of a secondary component of the seat belt lock-off assembly according to an embodiment;

[0108] FIG. 11A is a perspective view of the support base of FIG. 9 when a first lock of the seat belt lock-off assembly is in a locked configuration according to an embodiment;

[0109] FIG. 11B is a perspective view of the support base of FIG. 11A with a key inserted into the opening formed in the secondary component according to an embodiment;

[0110] FIG. 11C is a perspective view of the support base of FIG. 11A-11B when the first lock is in an unlocked configuration and the belt lock-off member is in an open position according to an embodiment;

[0111] FIG. 12A is a front view of a support base including a seat belt lock-off assembly with the belt lock-off member removed according to an embodiment;

[0112] FIG. 12B is a detailed front view of a portion of opening formed in the support base according to an embodiment;

[0113] FIG. 13 is a perspective view of the belt lock-off member of the seat belt lock-off assembly of FIG. 12A according to an embodiment;

[0114] FIG. 14 is a perspective view of a lock-off release actuator of the seat belt lock-off assembly of FIG. 12A according to an embodiment;

[0115] FIG. 15 is a cross-sectional view of the support base of FIG. 12A according to an embodiment;

[0116] FIG. 16A is a detailed view of the first lock of the seat belt lock-off assembly of FIG. 15 when the first lock is in a locked configuration according to an embodiment;

[0117] FIG. 16B is a detailed view of the first lock of the seat belt lock-off assembly of FIG. 15 as the first lock transitions toward an unlocked configuration according to an embodiment;

[0118] FIG. 16C is a detailed view of the first lock of the seat belt lock-off assembly of FIG. 15 in an unlocked configuration according to an embodiment;

[0119] FIG. 17 is a perspective view of the support base of FIG. 15 with a secondary component of the seat belt lock-off assembly arranged at a front of the support base according to an embodiment;

[0120] FIG. 18 is a perspective view of the support base of FIG. 15 with a secondary component of the seat belt lock-off assembly arranged at an upper edge of the support base according to an embodiment;

[0121] FIG. 19A is a schematic diagram of the secondary component of FIGS. 17 and 18 in a locked position according to an embodiment;

[0122] FIG. 19B is a schematic diagram of the secondary component of FIGS. 17 and 18 in an unlocked position according to an embodiment;

[0123] FIG. 20A is a perspective view of a portion of a child seat system having a support base including a seat belt lock-off assembly according to another embodiment;

[0124] FIG. 20B is a front view of the support base of FIG. 20A according to an embodiment;

[0125] FIG. 20C is a side view of the support base of FIG. 20A according to an embodiment;

[0126] FIG. 21A is a perspective of the support base of FIGS. 20A-20C with the belt lock-off member in an open position and the secondary component in an open position according to an embodiment;

[0127] FIG. 21B is a detailed perspective of the first lock of seat belt lock-off assembly of FIG. 21A according to an embodiment;

[0128] FIG. 22 is a cross-sectional view of the support base of FIG. 20B taken along line 22-22 according to an embodiment;

[0129] FIG. 23A is a cross-sectional view of a first lock of a seat belt lock-off assembly is in a locked configuration and a secondary component in a closed position according to an embodiment;

[0130] FIG. 23B is a cross-sectional view of the seat belt lock-off assembly of FIG. 23A as the first lock transitions toward an unlocked configuration according to an embodiment;

[0131] FIG. 23C is a cross-sectional view of the seat belt lock-off assembly of FIG. 23A with the first lock in an unlocked configuration according to an embodiment;

[0132] FIG. 24A is a perspective view of a seat belt lock-off assembly of a support base including a secondary component in a closed position according to an embodiment;

[0133] FIG. 24B is a perspective view of the seat belt lock-off assembly of FIG. 24A including a secondary component in an open position according to an embodiment;

[0134] FIG. 24C is a perspective view of the seat belt lock-off assembly of FIG. 24A including a secondary component in an open position and a lock-off release actuator operated according to an embodiment;

[0135] FIG. 25 is a perspective view of a belt lock-off member according to an embodiment;

[0136] FIG. 26 is a front view of the support base of FIG. 24A-24C with the belt lock-off member removed according to an embodiment;

[0137] FIG. 27A is a perspective view of a portion of a child seat system having a support base including a seat belt lock-off assembly according to another embodiment;

[0138] FIG. 27B is a front view of the support base of FIG. 27A according to an embodiment;

[0139] FIG. 27C is a side view of the support base of FIG. 27A according to an embodiment;

[0140] FIG. 28A is a perspective of the support base of FIGS. 27A-27C with the belt lock-off member in a closed position and the secondary component in an uncovered position according to an embodiment;

[0141] FIG. 28B is a perspective view of the support base of FIGS. 27A-27C with the belt lock-off member in an open position according to an embodiment;

[0142] FIG. 29 is a perspective view of a belt lock-off member having a secondary component and a lock-off release actuator coupled thereto according to an embodiment;

[0143] FIG. 30A is a side view of a belt lock-off member of FIG. 27A-27C according to an embodiment;

[0144] FIG. 30B is an exploded perspective view of the belt lock-off member of FIG. 30A according to an embodiment;

[0145] FIG. 31A is a cross-sectional view of the first lock of the seat belt lock-off assembly of FIGS. 27A-27C in a locked configuration and a secondary component in a covered position according to an embodiment;

[0146] FIG. 31B is a cross-sectional view of the first lock of FIG. 31A, the first lock being in a locked configuration and the secondary component being in an uncovered position according to an embodiment;

[0147] FIG. 31C is a cross-sectional view of the first lock of FIG. 31A with the lock-off release actuator operated according to an embodiment;

[0148] FIG. 31D is a cross-sectional view of the first lock of FIG. 31A, the first lock being in an unlocked configuration according to an embodiment;

[0149] FIG. 32A is a perspective view of a support base including a seat belt lock-off assembly, the secondary component of the seat belt lock-off assembly in a covered position according to an embodiment;

[0150] FIG. 32B is a perspective view of the support base of FIG. 32A with the secondary component of the seat belt lock-off assembly in an uncovered position according to an embodiment;

[0151] FIG. 32C is a perspective view of the support base of FIG. 32A with the secondary component of the seat belt lock-off assembly in an uncovered position and a lock-off release actuator operated according to an embodiment;

[0152] FIG. 33 is a perspective view of a support base including a seat belt lock-off assembly according to an embodiment;

[0153] FIG. 34 is a cross-sectional view of a lock-off release actuator of the seat belt lock-off assembly of FIG. 33 according to an embodiment;

[0154] FIG. 35 is a perspective view of a lock-off release actuator and a secondary component of the seat belt lock off assembly of FIG. 33 according to an embodiment;

[0155] FIG. 36A is a perspective view of a seat belt lock-off assembly including a secondary component in a locked position according to an embodiment;

[0156] FIG. 36B is a perspective view of the seat belt lock-off assembly of FIG. 36A with the secondary component of the seat belt lock-off assembly in an unlocked position according to an embodiment;

[0157] FIG. 36C is a perspective view of the seat belt lock-off assembly of FIG. 36A with the secondary component of the seat belt lock-off assembly in an unlocked position and a lock-off release actuator operated according to an embodiment;

[0158] FIG. 37 is a perspective view of a support base including a seat belt lock-off assembly according to another embodiment;

[0159] FIG. 38A is a perspective view of a portion of a child seat system having a support base including a seat belt lock-off assembly according to another embodiment;

[0160] FIG. 38B is a front view of the support base of FIG. 38A according to an embodiment;

[0161] FIG. 38C is a side view of the support base of FIG. 38A according to an embodiment;

[0162] FIG. 39A is a side view of a belt lock-off member of FIG. 38A-38C according to an embodiment;

[0163] FIG. 39B is an exploded perspective view of the belt lock-off member of FIG. 39A according to an embodiment;

[0164] FIG. 40 is a cross-sectional view of the first lock of the seat belt lock-off assembly of FIGS. 38A-38C in a locked configuration and a secondary component in a locked position according to an embodiment;

[0165] FIG. 41A is a perspective view of a seat belt lock-off assembly with the first lock in a locked configuration and the secondary component in an unlocked position according to an embodiment;

[0166] FIG. 41B is a cross-sectional view of the first lock of FIG. 41A according to an embodiment;

[0167] FIG. 42A is a perspective view of a seat belt lock-off assembly with the lock-off release actuator operated according to an embodiment;

[0168] FIG. 42B is a cross-sectional view of the first lock of FIG. 42A with the lock-off release actuator operated according to an embodiment;

[0169] FIG. 43A is a perspective view of a seat belt lock-off assembly with the first lock being in an unlocked configuration according to an embodiment according to an embodiment;

[0170] FIG. 43B is a cross-sectional view of the first lock of FIG. 43A, the first lock being in an unlocked configuration according to an embodiment;

[0171] FIG. 44A is a perspective view of a portion of a child seat system having a support base including a seat belt lock-off assembly according to another embodiment;

[0172] FIG. 44B is a front view of the support base of FIG. 44A according to an embodiment;

[0173] FIG. 44C is a side view of the support base of FIG. 44A according to an embodiment;

[0174] FIG. 45A is a side view of a belt lock-off member of FIG. 44A-44C according to an embodiment;

[0175] FIG. 45B is an exploded perspective view of the belt lock-off member of FIG. 45A according to an embodiment;

[0176] FIG. 46 is a perspective view of the belt lock-off member of FIG. 45A according to an embodiment;

[0177] FIG. 47A is a cross-sectional view of the first lock of the seat belt lock-off assembly of FIGS. 44A-44C in a locked configuration and a secondary component in a locked position according to an embodiment;

[0178] FIG. 47B is a cross-sectional view of the first lock of FIG. 47A according to an embodiment;

[0179] FIG. 47C is a cross-sectional view of the first lock of FIG. 47A with the lock-off release actuator operated according to an embodiment;

[0180] FIG. 47D is a cross-sectional view of the first lock of FIG. 47A, the first lock being in an unlocked configuration according to an embodiment;

[0181] FIG. 48A is a front view of a support base including a seat belt lock-off assembly including a removable secondary component according to an embodiment;

[0182] FIG. 48B is a front view of the support base of FIG. 48A with the secondary component in an unlocked position according to an embodiment;

[0183] FIG. 49A is a cross-sectional perspective view of a belt lock-off member including a lock-off release actuator having a flexible member in a first position according to an embodiment;

[0184] FIG. 49B is a cross-sectional perspective view of the belt lock-off member of FIG. 49A including a lock-off release actuator having a flexible member in a second position according to an embodiment;

[0185] FIG. 50 is a perspective view of a support base of a child seat system, including a seat belt lock-off assembly according to an embodiment;

[0186] FIG. 51A is a schematic diagram of the child seat system when the child seat is in a first configuration relative to the support base according to an embodiment;

[0187] FIG. 51B is a schematic diagram of the child seat system of FIG. 51A when the child seat is in a second configuration relative to the support base according to an embodiment;

[0188] FIG. 52A is a perspective view of a portion of a child seat system having a support base including a seat belt lock-off assembly according to another embodiment;

[0189] FIG. 52B is a side view of the support base of FIG. 52A according to an embodiment;

[0190] FIG. 53 is a detailed view of a portion of the seat belt lock-off assembly of FIG. 52B according to an embodiment;

[0191] FIG. 54A is a front view of a belt lock-off member of a seat belt lock-off assembly according to an embodiment;

[0192] FIG. 54B is a detailed front view of a portion of the belt lock-off member of FIG. 54A according to an embodiment;

[0193] FIG. 55A is a perspective view of an upper belt guide according to an embodiment;

[0194] FIG. 55B is another perspective view of the upper belt guide of FIG. 55A according to an embodiment;

[0195] FIG. 56A is a perspective view of a support base having a belt lock-off member of a seat belt lock-off assembly in an open position according to an embodiment;

[0196] FIG. 56B is a perspective view of the support base of FIG. 56A with the belt lock-off member in a closed position according to an embodiment;

[0197] FIG. 57A is a side view of a child seat system according to an embodiment; and

[0198] FIG. 57B is a perspective view of the support base of the child seat system of FIG. 57A according to an embodiment.

DETAILED DESCRIPTION

[0199] A detailed description of one or more embodiments of the disclosed apparatus and method are presented herein by way of exemplification and not limitation with reference to the Figures.

[0200] With reference now to the FIGS. 1A-2B, an example of a child seat system 20 is illustrated. In the illustrated, non-limiting embodiment, the child seat system 20 includes a support base 22 that can be detachably fixed to a vehicle seat 10 (see FIG. 1B), such as via a latch or anchor mechanism, not shown in the FIGS. This latch or anchor system often used is sometimes referred to as a “lower anchor and tether for children” e.g., LATCH system.

Alternatively, or in addition, the support base 22 may be detachably fixed to a vehicle seat 10 via a vehicle belt associated with the vehicle seat 10.

[0201] The child seat system 20 additionally includes a child seat 24 associated with the support base 22. In an embodiment, the child seat 24 is detachably coupled to the support base 22, thereby allowing the child seat 24 to be separated from the support base 22. Alternatively, the support base 22 and at least a portion of the child seat 24 may be permanently connected or affixed together, as will be described in more detail below. As used herein the term "permanently connected" identifies embodiments where the child seat 24 or a portion thereof is not intended to be disassembled from the support base 22 by a user.

[0202] The child seat 24 includes a seat back portion 26 and a seat pan portion 28 arranged at an angle relative to the seat back portion 26. The seat pan portion 28 may but need not be configured to removably couple to the seat back portion 26. In an embodiment, one or more of the seat back portion 26 and the seat pan portion 28 may be configured as a booster portion that is separable from the remainder of the child seat 24. In the illustrated, non-limiting embodiments, the seat back portion 26 includes a seat back having an upright support surface 30 generally facing forward and that extends from a first end or top 32 of the seat back portion 26 to a second, opposite end or bottom 34 of the seat back portion 26.

[0203] A first upright side member 36 may be arranged at a first side 38 of the upright support surface 30 and a second upright side member 40 may be arranged at a second, opposite side 42 of the upright support surface 30. The first and second upright side members 36, 40 therefore form the left side and the right side of the seat back portion 26, respectively. As shown, the first and second upright side members 36, 40 extend forward from the upright support surface 30. The first and second upright side members 36, 40 may extend generally orthogonally to the upright support surface 30 or alternatively, may extend therefrom at another angle, such as an angle greater than 90° for example. Accordingly, the upright support surface 30 and the first and second upright side members 36, 40 define a backrest region or upright support cavity within which an upper body of a child is received.

[0204] The upright side members 36, 40 may facilitate the correct positioning of a vehicle belt during one or more modes of operation when the child seat 24 is installed within a vehicle. Although not shown, in some embodiments, each upright side member 36, 40 has an opening formed therein. The openings may be configured to receive a vehicle belt (not shown) to secure the child seat 24 to a vehicle seat 10 in a forward-facing configuration or to secure an upper body of a child located within the cavity.

[0205] In the illustrated, non-limiting embodiments, the seat back portion 26 of the child seat 24 includes a headrest 46. The headrest 46 may be attached to or integral with the seat back portion 26 or may be removably coupled thereto. The headrest 46 may be stationary, or in some embodiments, may be configured to move relative to the upright support surface 30. For example, the headrest 46 may be configured to translate relative to the upright support surface 30 between a retracted position and an extended position, allowing for adjustment based on the size of the child positioned within the child seat 24. However, it should be appreciated that embodiments where the seat back portion 26 does not include a headrest 46 are also contemplated herein.

[0206] The seat pan portion 28 of the child seat 24 may include a seat support surface 50 facing generally upwardly and that extends from a first end or front 52 to a second end or back 54 of the seat pan portion 28. A first seat side member 56 may be arranged at a first side 58 of the seat support surface 50 and a second seat side member 60 may be arranged at a second, opposite side 62 of the seat support surface 50. The first seat side member 56 and the second seat side member 60 extend upwardly and from the left side and the right side of the seat portion. The seat support surface 50 and the first and second seat side members 56, 60 in combination define a region within which at least part of a lower body of a child may be received.

[0207] As shown, the seat side members 56, 60 extend at an angle from the seat support surface 50. The angle of the first seat side member 56 relative to the seat support surface 50 may but need not be the same as the angle of the first upright side member 36 relative to the upright support surface 30. Similarly, the angle of the second seat side member 60 relative to the seat support surface 50 may but need not be the same as the angle of the second upright side member 40 relative to the upright support surface 30.

[0208] In the illustrated, non-limiting embodiment, each seat side member 56, 60 has a slot 66 formed therein configured to function as a belt guide for the lap portion of a vehicle belt and in some embodiments the shoulder portion of a vehicle belt, during at least one mode of use of the child seat 24. In some modes of operation of the child seat 24, the slot 66 may be configured to receive and position a lap belt portion of a vehicle restraint or a separate restraint belt to secure a child within the child seat 24. As will be described in more detail below, a rotational configuration and/or an incline of the child seat 24 may be adjusted when the child seat 24 is connected to the support base 22.

[0209] The support base 22 is operable to mount the child seat 24 about a vehicle seat and includes a base body 70 having a base seat or base bottom 72 and a base back 74. Suitable

materials for making the base body 70 include but are not limited to rigid plastic or composite materials for example. The base bottom 72 and the base back 74 may be integrally formed as a unitary body, or alternatively, may be formed by separate components removably or permanently connected together. With continued reference to FIGS. 1A and 1B, in the illustrated, non-limiting embodiment, the support base 22 includes a first base member 76 having a bottom surface 78 suitable for placement on a support surface, such as a vehicle seat for example, and a second base member 80 coupled to the first base member 76. In the illustrated, non-limiting embodiment, at least a portion of the second base member 80 is positioned in overlapping arrangement with an upper surface 82 of the first base member 76. In the embodiments shown, the base back 74 of the support base 22 is formed solely by the second base member 80, and the base bottom 72 of the support base 22 is formed by the first base member 76 and the second base member 80, in combination.

[0210] The child seat 24 may be detachably couplable to the support base 22, thereby allowing the child seat 24 to be separated from the support base 22 by a user. Alternatively, the support base 22 and the child seat 24 may be permanently connected or affixed together. As used herein the term "permanently connected" represents embodiments where the child seat 24 is not intended to be disassembled from the support base 22 by a user.

[0211] With continued reference to FIGS. 1A-2B and further reference to FIG. 3, in the illustrated, non-limiting embodiment, the support base 22 includes a seat receiving assembly 84. The seat receiving assembly 84 is configured to receive and couple at least one child seat, such as child seat 24 for example, to the support base 22. The child seat 24 may be a convertible child seat or an infant child seat. As used herein, the term "convertible child seat" refers to a seat that may be used in both a rearward and forward-facing direction such as suitable for use by a child between 5 and 65 pounds, and/or up to 49" in height. The convertible child seat may also be referred to herein as an upright child seat or a toddler seat. Similarly, as used herein, the term "infant child seat" refers to such a seat as would be defined by one of ordinary skill in the art. For example, an infant child seat may be described as a seat for use by an infant or child too small to use a convertible child seat and may include a carrying handle to allow for portability of the infant child seat external to the vehicle. However, embodiments where another type of child seat is alternatively or additionally connectable to the seat receiving assembly 84 are also contemplated herein. In an exemplary embodiment, the support base 22 may receive a convertible child seat or an infant child seat.

[0212] The seat receiving assembly 84 includes an opening 86 for receiving a portion of the child seat therein 24. Although the opening 86 is illustrated as being formed in the base

bottom 72 of the second base member 80, embodiments where the opening 86 is formed in another member of the support base 22 are also within the scope of the disclosure. A bottom end 90 of the child seat 24 is receivable within the opening 86. In the illustrated, non-limiting embodiment, an annular collar 88 is arranged at the bottom end 90 of the seat pan portion 28 of the child seat 24 and an outer diameter of the collar 88 is generally equal to or slightly smaller than the diameter of the opening 86. When positioned within the opening 86, the bottom end 90 of the child seat 24 may be affixed to the support base 22, thereby restricting separation of the child seat 24 from the support base 22.

[0213] As shown in FIG. 2A, a shaft 92, may be arranged at a center of the collar 88, oriented parallel to a longitudinal axis of the collar 88. In an embodiment, the shaft 92 is defined by a bolt and/or may have a threaded region 97, such as arranged at a distal end thereof for example. The shaft 92 may be used to affix the child seat 24 to the support base 22. With reference to FIG. 4, in an embodiment, the support base 22 additionally includes a pivot plate 94 arranged within the interior of the support base 22, in alignment with the opening 86. In an embodiment, the pivot plate 94 is fixedly mounted relative to the support base 22. The center of the pivot plate 94 includes an opening or through hole 96 through which the shaft 92 of the child seat 24 is extendable. Coupling the shaft 92 to the pivot plate 94 prevents separation of the child seat 24 from the support base 22. A fastening assembly (not shown), such as including a nut for example, may be operably coupled to the shaft 92 to couple the child seat 24 to the support base 22. In an embodiment, the child seat 24 is not removable from the support base 22 when affixed thereto via the fastening assembly.

[0214] The child seat 24 may be rotatable relative to the support base 22 between a plurality of configurations. For example, the child seat 24 may be rotatable between a first rotational configuration, such as a configuration in which the child seat 24 is in a facing-forward position and a second rotational configuration, such as a configuration in which a child seat 24 is in a rearward-facing position. However, it should be appreciated that embodiments where the child seat 24 is positionable in one or more additional configurations between the first rotational configuration and a second rotational configuration are also within the scope of the disclosure.

[0215] In an embodiment, the child seat 24 is rotatable relative to both the first and second base members 76, 80 of the support base 22. For example, the engagement between the shaft 92 and the pivot plate 94 may define a path of rotation of the child seat 24 relative to the support base 22. In an embodiment, the shaft 92 defines an axis of rotation X and both the child seat 24 and the shaft 92 are rotatable about the axis X relative to the support base 22. For

example, a non-threaded portion of the shaft 92 is disposed within the central opening 96 formed in the pivot plate 94. Accordingly, the child seat 24 and the shaft 92 may be freely rotatable about the axis of rotation X defined by the shaft 92 relative to the pivot plate 94, and therefore the support base 22. However, in other embodiments, the shaft 92 can be rotatably fixed to the support base 22 such that the child seat 24 rotates about the axis of rotation X relative to both the shaft 92 and the support base 22.

[0216] Although not shown, a spin locking mechanism may be associated with the support base 22. Such a locking mechanism may be operable to selectively lock the child seat 24 in one of the plurality of rotational configurations, including the first rotational configuration and the second rotational configuration. When the spin locking mechanism is engaged, rotation of the child seat 24 about the axis of rotation X is restricted. It should be appreciated that the spin locking mechanism may be operable to lock the child seat 24, and, at only the first and second rotational configurations, or alternatively, at any suitable position along the path of rotation between the first rotational configuration and the second rotational configuration. A spin release actuator may be operable to selectively disengage the spin locking mechanism and therefore allow rotation of the child seat about the rotation axis X.

[0217] With continued reference to FIG. 3 and further reference to FIGS. 4-8B, in an embodiment, the support base 22 includes a seat belt lock-off assembly 100 positioned on at least one of the base bottom 72 and the base back 74. The seat belt lock-off assembly 100 is operable to secure a vehicle belt of the vehicle seat to the support base 22. The seat belt lock-off assembly 100 may include a belt lock-off member 101. In the illustrated, non-limiting embodiment, an opening 102 is formed at a front surface 104 of the base back 74, and the belt lock-off member 101 is receivable within the opening 102. A contour of the interior surface of the sidewalls 103 (see FIG. 5B) that define the opening 102 may be complementary to a contour of the belt lock-off member 101 such that the substantial entirety of the belt lock-off member 101 is receivable within the opening 102. A vehicle belt 10 (see FIG. 4) associated with the vehicle seat 10 is positionable along a belt receiving path defined between the base back 74 of the support base 22 and the belt lock-off member 101. In an embodiment, the belt lock-off member 101 is selectively movable relative to the front 104 of the base back 74 to adjust the tension applied to the vehicle belt along the vehicle belt receiving path. For example, the belt lock-off member 101 may be configured to pivot about at least one axis X between an open position (FIG. 5B) and a closed position (FIGS. 4, 5A, and 6) to selectively tension the portion of the vehicle belt sandwiched between the belt lock-off member 101 and the opening 102. When a vehicle belt 10 extends across the front surface 104 of the base back 74, over the

opening 102, rotation of the belt lock-off member 101 to the closed position presses the vehicle belt into the opening 102, thereby tensioning the vehicle belt 10. This tension couples the support base 22 to the vehicle belt, thereby restricting movement of the child seat 24 and support base 22 relative to the vehicle seat 10.

[0218] A belt lock-off member locking assembly 110 (FIGS. 5B and 8A) may be used to retain the belt lock-off member 101 in the closed position. The belt lock-off member locking assembly 110 may include a first lock 112 transitionable between a locked configuration and an unlocked configuration. When the first lock 112 is in the locked configuration, the belt lock-off member 101 is retained in a closed position generally within the opening 102, and when the first lock 112 is in the unlocked configuration, the belt lock-off member 101 is freely movable between the closed position and the open position.

[0219] The first lock 112 may include a pin or shaft 120 (FIG. 8A) and at least one locking pawl 122 (FIGS. 5B and 8A) configured to receive the shaft 120. For example, the first lock 112 may include two coaxially located locking pawls 122 spaced apart from one another. In such embodiments, the locking pawls 122 may but need not be operably coupled such that they move in unison. In some embodiments including a plurality of locking pawls 122, the plurality of locking pawls 122 are integrally formed. In the illustrated, non-limiting embodiment, the shaft 120 is fixedly mounted to the belt lock-off member 101 and the at least one locking pawl 122 is arranged within the opening 102. However, embodiments where the shaft 120 is fixedly mounted within the opening 102 and the at least one locking pawl 122 is mounted to the movable belt lock-off member 101 are also contemplated herein. In either instance, the shaft 120 and at least one locking pawl 122 are positioned such that the shaft 120 is receivable within the at least one locking pawl 122 as the belt lock-off member 101 moves along its path of rotation.

[0220] As shown, the at least one locking pawl 122 has a throat 126 (FIG. 8A) for receiving the shaft 120 therein. In an embodiment, the at least one locking pawl 122 is rotatable about an axis between an engaged position and a disengaged position. Further, the at least one locking pawl 122 may be biased by a biasing mechanism 129 (FIG. 8A) toward the engaged position. As the belt lock-off member 101 is rotated towards the opening 102, the shaft 120 may engage a surface 128 of the at least one locking pawl 122. In the illustrated, non-limiting embodiment, the surface 128 of the locking pawl 122 is contoured, for example sloped, such that the engagement between the shaft 120 and the surface 128 opposes the biasing force of the biasing mechanism 129. Accordingly, this engagement may rotate the at least one locking pawl 122 from the engaged position toward the disengaged position. Once the shaft 120 reaches a

specific location, such as once the shaft 120 is received within the throat 126 of the locking pawl 122 for example, the shaft 120 no longer opposes the biasing force of the biasing mechanism 129. As a result, the bias acting on the locking pawl 122 causes the locking pawl 122 to rotate into the engaged position. Accordingly, when the shaft 120 is arranged within the throat 126 of the at least one locking pawl 122 and the at least one locking pawl 122 is in the engaged position, the first lock 112 is in a locked configuration.

[0221] A lock-off release actuator 130 associated with the first lock 112 may be operable to transition the first lock 112 from the locked configuration to an unlocked configuration. For example, the lock-off release actuator 130 may be operably coupled to the at least one locking pawl 122 to rotate the at least one locking pawl 122 to the disengaged position. The lock-off release actuator 130 includes an actuation surface 132 engageable by a user to operate the lock-off release actuator 130. The lock-off release actuator 130 including the actuation surface 132 may be located at the base back 74, adjacent to the at least one locking pawl 122 of the first lock 112. In the illustrated, non-limiting embodiment, the lock-off release actuator 130 and its actuation surface 132 are arranged within the opening 102 directly adjacent to the at least one locking pawl 122. However, it should be appreciated that embodiments where the lock-off release actuator 130 and/or the actuation surface 132 of the lock-off release actuator 130 is located remotely therefrom are also within the scope of the disclosure.

[0222] The lock-off release actuator 130 is movably mounted to the support base 22. For example, the lock-off release actuator 130 may be rotatable about an axis Y1 in response to application of a force to the actuation surface 132. The lock-off release actuator 130 may be movable into engagement with a portion of the at least one locking pawl 122. When a force is applied to the actuation surface 132 of the lock-off release actuator 130, such as when the lock-off release actuator 130 is rotatably depressed for example, the force is transmitted to the at least one locking pawl 122. The force transmitted to at least one locking pawl 122 opposes the bias of the biasing mechanism 129, thereby driving rotation of the at least one locking pawl 122 toward the disengaged position. Once the at least one locking pawl 122 is in the disengaged position, the belt lock-off member 101 may be moved away from the opening 102. When the at least one locking pawl 122 is in the disengaged position and/or when the shaft 120 is not arranged within the throat 126 of the at least one locking pawl 122, the first lock 112 is in an unlocked configuration.

[0223] In the illustrated, non-limiting embodiment, the belt lock-off member locking assembly 110 additionally includes a secondary component 114 (see FIGS. 4, 5A-5B, and 7) operable to selectively obstruct or hinder access to the actuation surface 132 of the lock-off

release actuator 130. Accordingly, by covering the actuation surface 132, the secondary component 114 is operable to prevent the unintended release of the belt lock-off member 101 from the at least one locking pawl 122 of the first lock 112 via operation of the lock-off release actuator 130. As shown, the secondary component 114 is a cover 140 having a body similar in shape to a corresponding portion of the opening 102. The cover 140 may be a substantially solid body, or in some embodiments, may include a window or transparent region 142 through which the lock-off release actuator 130 of the first lock 112 and/or the engagement between the at least one locking pawl 122 and the shaft 120 is visible.

[0224] The cover 140 may be movably mounted to the belt lock-off member 101. In the illustrated, non-limiting embodiment, the cover 140 includes a first arm 144 having a first protrusion 146 engageable with a corresponding opening (not shown) formed in the belt lock-off member 101 and a second arm 148 having a second protrusion 150 engageable with another opening (not shown) formed in the belt lock-off member 101. The engagement between the protrusions 146, 150 and the belt lock-off member 101 may define an axis Z1 of rotation about which the cover 140 is rotatable relative to the belt lock-off member 101 between a first, covered position or locked position (FIGS. 4 and 6), in which the cover 140 obstructs the actuator 130 and a second, uncovered position or unlocked position (FIGS. 5A and 5B), in which the cover 140 does not obstruct the actuator 130. A biasing mechanism 152 (FIG. 8A), such as a leaf spring for example, may be operable to bias the cover 140 toward the covered position. In other embodiments, the biasing mechanism 152 may be operable to bias the cover 140 toward the uncovered position once the cover 140 has rotated about the axis Z1 more than halfway in an opening direction and may be operable to bias the cover 140 toward the covered position once the cover 140 has rotated about the axis Z1 more than halfway in a closing direction. In such embodiment, the biasing mechanism 152 is operable to bias the cover 140 in two rotational directions.

[0225] In the covered position, the cover 140 is generally aligned with or is oriented parallel to a longitudinal axis L2 of the belt lock-off member 101. Further, when the belt lock-off member 101 is closed (i.e., the shaft 120 is retained by the at least one locking pawl 122), the closed cover 140 overlaps the exposed surface of the lock-off release actuator 130. Accordingly, when both the belt lock-off member 101 and the cover 140 are closed, the lock-off release actuator 130 is not exposed at an exterior of the support base 22. In the uncovered position, the cover 140 is arranged at a non-parallel angle relative to the longitudinal axis L1 of the belt lock-off member 101. For example, the cover 140 may protrude outwardly, in a

direction away from the base back 74 when in the uncovered position. When the cover 140 is open, the lock-off release actuator 130 is accessible by an operator.

[0226] Accordingly, to install the support base 22 by coupling the support base 22 to a vehicle belt, a user positions the vehicle belt between the open belt lock-off member 101 and the front surface 104 of the support base 22 including the opening 102. A user removes any slack from the vehicle belt and then rotates the belt lock-off member 101 to the closed position, thereby sandwiching or pinching the vehicle belt between a surface of the support base 22 and the belt lock-off member 101. With the belt lock-off member 101 in the closed position, the first lock 112 is in a locked configuration, thereby restricting any movement of the belt lock-off member 101 relative to the support base 22.

[0227] To release the vehicle belt from the support base 22, a user must first operate the second lock 114 by transforming the cover 140 from the first, covered position to the uncovered position. To open the cover 140, a user may apply a force to a portion 154 of the cover 140, distal from the axis Z1, thereby causing the cover 140 to rotate about the Z1 axis relative to the belt lock-off member 101 and away from the support base 22. With the cover 140 in the second, uncovered position and the belt lock-off member 101 in the closed position, as shown in FIG. 5A, a user may then operate the lock-off release actuator 130. A user applies a force to the now exposed actuation surface 132 to transform the first lock 112 to the unlocked configuration. As previously described, application of a force to the lock-off release actuator 130 will cause the at least one locking pawl 122 to transition to a disengaged position, in which the belt lock-off member 101 may be rotated away from the opening 102 to the open position (FIG. 5B).

[0228] The support base 22 of a child seat system 20 may include a tether 160 operable to wrap around a top of a vehicle seat and couple to the vehicle seat. In embodiments where the lock-off release actuator 130 of the first lock 112 is arranged within the opening 102, the tether 160 may be proximate the opening 102. As shown in FIG. 8B, an end 162 of the tether 160 may be affixed within a compartment 164 formed in the support base 22 vertically offset from the first lock 112. In the illustrated, non-limiting embodiment, the compartment 164 is arranged vertically above the lock-off release actuator 130 associated with the first lock 112, proximate an upper end 166 of the support base 22. Further, the tether 160 may extend to an exterior of the support base 22 through an opening 168 formed at or directly adjacent to the upper end 166 of the support base 22.

[0229] With reference now to FIGS. 9-11C, another example of a support base 202 of a child seat system 200 having a seat belt lock-off assembly 203 is illustrated. As in the previous

embodiment, the seat belt lock-off assembly 203 includes an opening 208 formed at a front surface 206 of a base back 204 of the support base 202 and a belt lock-off member 210 receivable within the opening 208. A contour of the interior surface of the sidewalls 209 (see FIG. 11C) that define the opening 208 may be complementary to a contour of the belt lock-off member 210 such that the substantial entirety of the belt lock-off member 210 is receivable within the opening 208. The belt lock-off member 210 is selectively movable, for example pivotable about an axis X2, relative to the front 206 of the base back 204 between an open position and a closed position to adjust a tension applied to the vehicle belt positioned along a vehicle belt receiving path extending between the front 206 of the base back 204 and the belt lock-off member 210. As in the previous embodiment, the belt lock-off member 210 may be mounted to the base back 204 or to a base bottom (not shown) of the support base 202, and when in the closed position, pushes a vehicle belt, such as vehicle belt 10 for example, into the opening 208, thereby applying tension to the vehicle belt.

[0230] As in the previous embodiment, a belt lock-off member locking assembly 220 be used to restrict movement of the belt lock-off member 210 relative to the support base 202. The belt lock-off member locking assembly 220 may include a first lock 222 transformable between a locked configuration and an unlocked configuration. When the first lock 222 is in the locked configuration, the belt lock-off member 210 is retained in a closed position within the opening 208, and when the first lock 222 is in the unlocked configuration, the belt lock-off member 210 is movable between the closed position and the open position. In an embodiment, the first lock 222 is substantially identical to the first lock 112 described in the previous embodiment of FIGS 3-8B. For example, the first lock 222 may include a pin or shaft (not shown) and at least one locking pawl 230 configured to receive the shaft. The shaft and at least one locking pawl 230 are positioned such that the shaft is receivable within the at least one locking pawl 230 as the belt lock-off member 210 moves along its path of rotation about the X2 axis. In the illustrated, non-limiting embodiment, the shaft is affixed to the belt lock-off member 210 and the at least one locking pawl 230 is arranged within the opening 208. However, embodiments where the shaft is fixedly mounted within the opening 208 and the at least one locking pawl 230 is mounted to the movable belt lock-off member 210 are also contemplated herein.

[0231] As in the previous embodiment, the at least one locking pawl 230 may have a throat 234 for receiving the shaft therein. The at least one locking pawl 230 is movable, for example rotatable, about an axis between an engaged or locked position and a disengaged or unlocked position. As the belt lock-off member 210 is rotated towards the opening 208, the

shaft may engage a surface (not shown) of the at least one locking pawl 230 to oppose a biasing force of a biasing mechanism (not shown) acting on the at least one locking pawl 230, thereby rotating the at least one locking pawl 230 to the unlocked position. Once arranged within the throat 234, the shaft separates from the surface such that the bias acting on the at least one locking pawl 230 rotates the at least one locking pawl 230 into the engaged position to lock the shaft in position.

[0232] A lock-off release actuator 240 may be arranged to transition the first lock 222 from the locked configuration in which the at least one locking pawl 230 is in the engaged position to an unlocked configuration in which the at least one locking pawl 230 is in the disengaged position. In an embodiment, rotation of the lock-off release actuator 240 about an axis Y2 drives a similar rotation of the at least one locking pawl 230 to the disengaged position to release the belt lock-off member 210. The lock-off release actuator 240 includes an actuation surface 241 engageable by a user to operate the lock-off release actuator 240.

[0233] The lock-off release actuator 240 may be located at the base back 204 proximate the at least one locking pawl 230 of the first lock 222. In the illustrated, non-limiting embodiment, the actuation surface 241 of the lock-off release actuator 240 is arranged within at opening 208, such as directly adjacent to the at least one locking pawl 230. When a force is applied to the actuation surface 241 of the lock-off release actuator 240, the force is transmitted to the at least one locking pawl 230 causing rotation of the at least one locking pawl 230 toward the disengaged position. Once the at least one locking pawl 230 reaches the disengaged position, the belt lock-off member 210 may be moved away from the opening 208 to the open position.

[0234] With continued reference to FIGS. 9-11C, the belt lock-off member locking assembly 220 may include a secondary component 242 operable to hinder access to the actuation surface 241 of the lock-off release actuator 240. Accordingly, the secondary component 242 is selectively operable to prevent the unintended actuation of the lock-off release actuator 240 and the unlocking of the first lock 222. As shown, the secondary component 242 is a cover having a body similar in size and/or shape to a corresponding portion of the opening 208. As shown, the cover 242 may be fixedly connected to the belt lock-off member 210, such as a distal end 211 thereof for example. However, in other embodiments, the cover 242 may be an integral part of the belt lock-off member 210. In such embodiments, the cover 242 may form the distal end 211 of the belt lock-off member 210. In the illustrated, non-limiting embodiment, the cover 242 is oriented such that an exterior surface 243 of the

cover 242 is generally coplanar with an adjacent exterior surface 213 of the belt lock-off member 210.

[0235] The cover 242 is movable with the belt lock-off member 210 about the axis X2. As shown, when the belt lock-off member 210 is in the closed position, the cover 242 is positioned in a first position in overlapping arrangement with the actuation surface 241 of the lock-off release actuator 240. In such a configuration, a user cannot access the actuation surface 241. When the belt lock-off member 210 is in the open position, the cover 242 is at a second position, spaced away from the lock-off release actuator 240 such that the actuation surface 241 is exposed.

[0236] In an embodiment, the cover 242 includes a through opening or slot 244 configured to receive a key 250 and the slot 244 is positioned in overlapping arrangement with a portion of the lock-off release actuator 240 offset from the axis of rotation Y2. The key 250 is receivable within the slot 244 formed in the cover 242 and is engageable with the actuation surface 241 of the lock-off release actuator 240 to operate the lock-off release actuator 240. To decouple a vehicle seat belt from the support base 202, a user inserts the key 250 into the slot 244 formed in the cover 242. As the key 250 is inserted into the slot 244, the key 250 engages and operates the lock-off release actuator 240 associated with the first lock 222, thereby transforming the first lock 222 to the unlocked configuration. Because a key 250 is necessary in the illustrated, non-limiting embodiment, to operate the lock-off release actuator 240 when the belt lock-off member 210 is closed, the key 250 may be considered part of the lock-off release actuator 240.

[0237] The key 250 may be arranged at the support base 202. For example, the key 250 may be tethered to a surface of the support base 202 at a position easily accessible by a user. Alternatively, the key 250 may be arranged at a child seat 201 (FIG. 9) connectable to the support base 202. In the illustrated, non-limiting embodiment, the key 250 is integrated into a portion of a harness associated with the child seat 201. For example, the harness includes a strap 252 having an end to which a user may apply a force to tighten the harness about an occupant of the child seat 201. As shown, a key 250 may be arranged at the end of the strap 252.

[0238] With reference now to FIGS. 12A-16C, a support base 302 of a child seat system 300 having a seat belt lock-off assembly 304 according to another embodiment is illustrated. The support base 302 includes a base back 306 and a base bottom 308, the base back extending from the base bottom 308 at an angle. The seat belt lock-off assembly 304 includes an opening 310 formed at a front surface 312 of the base back 306 of the support base 302, as well as a

belt lock-off member 314 (see FIG. 13) receivable within the opening 310. Although the belt lock-off member 314 is illustrated as extending from the base back 306, it should be understood that embodiments where the belt lock-off member 314 extends from the base bottom 308 are also contemplated herein.

[0239] A contour of the interior surface of the sidewalls 311 (see FIG. 12B) that define the opening 310 may be complementary to a contour of the belt lock-off member 314 such that the substantial entirety of the belt lock-off member 314 is receivable within the opening 310. The belt lock-off member 314 is selectively movable, for example pivotable about an axis X3, relative to the front 312 of the base back 306 between an open position (FIG. 16C) and a closed position (FIGS. 12A, 15, and 16A) to adjust a tension applied to the vehicle belt positioned along a vehicle belt receiving path extending between the front 312 of the base back 306 and the belt lock-off member 314.

[0240] As in the previous embodiments described with reference to FIGS. 4-11C, the seat belt lock-off assembly 304 includes a belt lock-off member locking assembly 320 having a first lock 322 transitionable between a locked configuration and an unlocked configuration. When the first lock 322 is in the locked configuration (see FIGS. 12A, 15, and 16A), the belt lock-off member 314 is retained in a closed position within the opening 310, and when the first lock 322 is in the unlocked configuration, the belt lock-off member 314 is movable between the closed position and the open position. In the illustrated, non-limiting embodiment, the first lock 322 includes a pin or shaft 324 (FIGS. 13 and 16A-16C) and at least one locking pawl 330 (FIGS. 12B and 16A-16C) configured to receive the shaft 324. The shaft 324 and at least one locking pawl 330 are positioned such that the shaft 324 is receivable by the at least one locking pawl 330 as the belt lock-off member 314 moves along its path of rotation. In the illustrated, non-limiting embodiment, the shaft 324 is arranged at the belt lock-off member 314 and the at least one locking pawl 330 is arranged within the opening 310.

[0241] In the illustrated, non-limiting embodiment, the at least one locking pawl 330 includes an engagement member 332 and an actuation member 334. The engagement member 332 and the actuation member 334 may be arranged at a non-parallel angle relative to one another. As shown, the engagement member 332 may have a curved configuration, such as defining a throat for example, and is operable to engage the shaft 324. The at least one locking pawl 330 including the engagement member 332 is rotatable about an axis between an engaged or locked position and a disengaged or unlocked position. In an embodiment, a biasing mechanism (not shown) is operably coupled to the at least one locking pawl 330 and is operable to bias the at least one locking pawl 330 toward the engaged position.

[0242] As the belt lock-off member 314 is rotated towards the opening 310, the shaft 324 may engage a surface 336 (FIG. 12B) of the engagement member 332 to oppose a biasing force acting on the at least one locking pawl 330, thereby rotating the at least one locking pawl 330 to the disengaged position. Once the shaft 324 separates from the surface 336, the bias acting on the at least one locking pawl 330 is operable to rotate the at least one locking pawl 330 into the engaged position to lock the shaft 324 in position.

[0243] A lock-off release actuator 340 associated with the first lock 322 is operable to transform the first lock 322 from the locked configuration to the unlocked configuration. The lock-off release actuator 340 may be operable to drive rotation of the at least one locking pawl 330 to the disengaged position, thereby releasing the belt lock-off member 314 from the first lock 322. The lock-off release actuator 340 may be arranged at the base back 306 proximate the at least one locking pawl 330 of the first lock 322. However, an actuation surface 342 of the lock-off release actuator 340 accessible by a user to operate the lock-off release actuator 340 may be arranged at a distal end or upper edge 316 of the base back 306, remote from both the belt lock-off member 314 and the first lock 322. In the illustrated, non-limiting embodiment, the lock-off release actuator 340 includes an elongated body 341 having a sloped or angled engagement surface 344 configured to cooperate with the actuation member 334 of the at least one locking pawl 330. Although the engagement surface 344 configured to cooperate with the at least one locking pawl 330 is illustrated as being arranged at an opposite end of the body 341 as the actuation surface 342 exposed at an exterior of the support base 302, embodiments where the engagement surface 344 is arranged at another position about the body 341 of the lock-off release actuator are also contemplated herein.

[0244] In response to application of a force to the exposed actuation surface 342 of the lock-off release actuator 340, the engagement surface 344 of the lock-off release actuator 340 contacts a portion of the actuation member 334. In the illustrated, non-limiting embodiment, the lock-off release actuator 340 is translatable relative to the support base 302 in response to application of a force to the actuation surface 342. As the lock-off release actuator 340 translates, the slope of the engagement surface 344 causes the actuation member 334, and therefore the at least one locking pawl 330, to rotate about its axis in a direction opposite the biasing force acting on the locking pawl 330. Accordingly, application of a force to the exposed actuation surface 342 rotates the at least one locking pawl 330 including the engagement member 332 toward the disengaged position, thereby unlocking the first lock 322. With the at least one locking pawl 330 in the disengaged position, the shaft 324 is separable therefrom,

allowing movement of the belt lock-off member 314 away from the opening 310 to the open position.

[0245] With continued reference to FIGS. 12A-16C and further reference to FIGS. 17-19B, in some embodiments, the belt lock-off member locking assembly 320 includes a secondary component 350 operable to prevent unintended operation of the lock-off release actuator 340 associated with the first lock 322. Accordingly, the second component 350 may prevent the unintended release of the belt lock-off member 314 from the closed position. In the non-limiting embodiment illustrated in FIGS. 17-19B, the second component is a lock 350, also referred to herein as a second lock, including a body 352 having an engagement feature 354 arranged at an exterior of the support base 302 accessible by a user and a locking feature 356 selectively engageable with the lock-off release actuator 340. In the illustrated, non-limiting embodiment, an opening 358 is formed in the body 341 of the lock-off release actuator 340 and the locking feature 356 is selectively receivable within the opening 358. When the second lock 350 is in a locked position, the locking feature 356 is arranged within the opening 358. With the locking feature 356 in the opening 358, the lock-off release actuator 340 is prevented from moving into engagement with at least one locking pawl 330, such as in response to application of a force to the actuation surface 342 of the lock-off release actuator 340. When the second lock 350 is in an unlocked position, the locking feature 356 is removed from the opening 358, thereby allowing the lock-off release actuator 340 to move into engagement with at least one locking pawl 330. Although the second lock 350 is illustrated and described herein as being translatable, it should be appreciated that the second lock 350 may be movable in another suitable manner. Further, although the second lock 350 is described as being operable to restrict translation of the lock-off release actuator 340, it should be appreciated that in other embodiments, the second lock 350 may be used to restrict another type of movement of the lock-off release actuator 340 to unlock the first lock 322, such as rotation of the lock-off release actuator 340 for example.

[0246] The engagement feature 354 of the second lock 350 may be slidably mounted within a slot 360 formed in the support base 302. In the non-limiting embodiment of FIG. 17, the slot 360 is arranged at the front surface 312 of the base back 306, such as at a location between the opening 310 and the actuation surface 342 of the lock-off release actuator 340. In another embodiment, shown in FIG. 18, the slot 360 is arranged at the upper periphery 316 of the base back 306 proximate the actuation surface 342 of the lock-off release actuator 340. It should be understood that the positions of the slot 360 and engagement feature 354 are intended

as an example only and that the second lock 350 may be arranged at any suitable position at an exterior of the support base 302.

[0247] When the second lock 350 is in a first, locked position, the engagement feature 354 may be arranged near a first end of the slot 360 (FIG. 19A), and the locking feature 356 is engaged with and restricts movement of the lock-off release actuator 350. When the second lock 350 is in a second, unlocked position, the engagement feature 354 may be arranged near a second, opposite end of the slot 360 (FIG. 19B) and the locking feature 356 is separated from and therefore is not engaged with the lock-off release actuator 340. When the locking feature 356 is separated from the lock-off release actuator 340, a user may apply another force to the lock-off release actuator 340 to unlock the first lock 322, such as via movement of the at least one locking pawl 330 to the disengaged position as previously described. A biasing mechanism 362 may be operably coupled to the body 352 to bias the locking feature 356 into engagement with the lock-off release actuator 340.

[0248] With reference now to FIGS. 20A-23B, another embodiment of a support base 402 of a child seat system having a seat belt lock-off assembly 404 according to another embodiment is illustrated. The support base 402 includes a body having a base back 406 and a base bottom 408. The seat belt lock-off assembly 404 includes an opening 410 formed at a front surface 412 of the base back 406 of the support base 402 and a belt lock-off member 414 receivable within the opening 410. Although the belt lock-off member 414 is illustrated as extending from the base back 406, it should be understood that embodiments where the belt lock-off member 414 extends from the base bottom 408 are also contemplated herein.

[0249] As in the previous embodiments, a contour of the interior surface of the sidewalls 411 (see FIG. 21B) that define the opening 410 may be complementary to a contour of the belt lock-off member 414 such that the substantial entirety of the belt lock-off member 414 is receivable within the opening 410. The belt lock-off member 414 is selectively movable, for example pivotable about an axis X4, relative to the front 412 of the base back 406 between an open position (FIGS. 21A and 21B) and a closed position (FIG. 20A-20C) to adjust a tension applied to the vehicle belt positioned along a vehicle belt receiving path extending between the front 412 of the base back 406 and the belt lock-off member 414.

[0250] The seat belt lock-off assembly 404 includes a belt lock-off member locking assembly 420 operable to retain the belt lock-off member 414 in the closed position. The belt lock-off member locking assembly 420 may have any suitable configuration. In an embodiment, the belt lock-off member locking assembly 420 includes a first lock 422 substantially identical to the first lock 322 described in the previous embodiment illustrated in

FIGS. 12A-16C. As previously described, the first lock 422 may include a pin or shaft 424 (see FIGS. 23A-23C) and at least one locking pawl 430 configured to receive the shaft 424. The shaft 424 and at least one locking pawl 430 are positioned such that the shaft 424 is receivable by the at least one locking pawl 430 as the belt lock-off member 414 rotates about its axis X3. In the illustrated, non-limiting embodiment, the shaft 424 is located at and movable with the belt lock-off member 414 and the at least one locking pawl 430 is arranged within the opening 410.

[0251] In the non-limiting embodiment shown in FIGS. 23A-23C, the at least one locking pawl 430 includes an engagement member 432 and an actuation member 434. The engagement member 432 and the actuation member 434 may be arranged at a non-parallel angle relative to one another. As shown, the engagement member 432 may have a curved configuration and is operable to engage and retain the shaft 424. The at least one locking pawl 430 including the engagement member 432 is rotatable between an engaged or locked position (FIG. 23A) and a disengaged or unlocked position (FIG. 23B). In an embodiment, a biasing mechanism 436 is operably coupled to the at least one locking pawl 430 and is operable to bias the at least one locking pawl 430 toward the engaged position. It should be understood that the at least one locking pawl 430 illustrated and described herein is intended as an example only and that a locking pawl 430 having any suitable configuration is within the scope of the disclosure.

[0252] As the belt lock-off member 414 is rotated towards the opening 410, the shaft 424 may engage a surface 438 of the engagement member 432 to oppose a biasing force of the biasing mechanism 436 acting on the at least one locking pawl 430. This engagement may therefore rotate the at least one locking pawl 430 toward the disengaged position. Once the shaft 424 moves beyond the surface 438, the biasing force acting on the at least one locking pawl 430 is operable to rotate the at least one locking pawl 430 back to the engaged position to restrict movement of the shaft 424.

[0253] A lock-off release actuator 440 associated with the first lock 422 may be operable to transition the first lock 422 from the locked configuration to the unlocked configuration. In an embodiment, the lock-off release actuator 440 is operable to drive rotation of the at least one locking pawl 430 to the disengaged position. The lock-off release actuator 440 may be arranged within the base back 406 proximate the at least one locking pawl 430 of the first lock 422. In an embodiment, an actuation surface 442 of the lock-off release actuator 440 accessible by a user to operate the lock-off release actuator 440 is located remotely from the belt lock-off member 414 and the first lock 422. The lock-off release actuator 440 may be

similar to the lock-off release actuator 340 of FIGS. 12A-16C in that it includes a sloped or angled engagement surface 444 configured to cooperate with a portion of the at least one locking pawl 430, such as the actuation member 434 for example. When a force is applied to the actuation surface 442 of the lock-off release actuator 440, the engagement surface 444 of the lock-off release actuator 440 contacts the actuation member 434 causing the at least one locking pawl 430 to rotate. The rotation of the at least one locking pawl 430 opposes the biasing force acting on the locking pawl 430, thereby unlocking the first lock 422. With the at least one locking pawl 430 in the disengaged position, the shaft 424 is separable from the at least one locking pawl 430, allowing rotation of the belt lock-off member 414 to the open position.

[0254] The belt lock-off member locking assembly 420 may additionally a include a secondary component 450 operable to cover the actuation surface 442 of the lock-off release actuator 440 associated with the first lock 422. The secondary component 450 may therefore prevent the unintentional unlocking of the first lock 422. The secondary component 450 is a cover, such as having a body similar in size and/or shape to a corresponding portion of the support base 402. As shown, the cover 450 may be affixed to a surface of the support base 402 proximate the actuation surface 442 of the lock-off release actuator 440. In the illustrated, non-limiting embodiment, the cover 450 is affixed to base back 406, such as to the front surface 412 thereof, at a position between the opening 410 and the actuation surface 442 of the lock-off release actuator 440. However, in other embodiments, the cover 450 may be affixed to another surface of the base back 406 of the support base 402.

[0255] The cover 450 may be movably mounted to the support base 402. In the illustrated, non-limiting embodiment, the cover 450 is rotatable or pivotable relative to the support base 402 about an axis Z4 between a first, covered position or locked position (FIGS. 20A-20C) and a second, uncovered position or unlocked position (FIGS. 21A-21B). Although not shown, a biasing mechanism may be operable to bias the cover 450 toward the covered position. In other embodiments, a biasing mechanism may be operable to bias the cover 450 to both the covered position and the uncovered position once the cover 450 has rotated about the axis Z4 more than halfway in either an opening direction or a closing direction, respectively.

[0256] In an embodiment, a cutout or recess 460 is formed in the support base 402 and the actuation surface 442 of the lock-off release actuator 440 is arranged within the cutout 460. In such embodiments, the cover 450 may have a size and/or shape complementary to the cutout 460 formed in the support base 402. Further, when the cover 450 is in the covered position, an exterior surface 452 of the cover 450 may be substantially flush with the adjacent surface of the support base 402. In the covered position, the cover 450 overlaps the exposed actuation

surface 442 of the lock-off release actuator 440 such that the lock-off release actuator 440 is not exposed at an exterior of the support base 402. In the uncovered position, the cover 450 is rotated about its axis away from the surface 412 of the support base 402. When cover 450 is rotated away from the support base 402, the actuation surface 442 of the lock-off release actuator 440 is exposed at a surface of the support base 402 and is accessible by an operator.

[0257] To release a vehicle belt from the support base 402, a user must first operate the second lock 450 by transforming the cover 450 from the locked position to the unlocked position by opening the cover 450. To open the cover 450, a user may apply a force to an end 454 of the cover 450, distal from the rotational axis Z4. This force causes the cover 450 to rotate about the axis Z4 away from the surface 412 of the support base 402. With the cover 450 in the uncovered position, a user may then apply a force to the actuation surface 442 of the lock-off release actuator 440, to transform the first lock 422 to the unlocked configuration.

[0258] Yet another embodiment of a support base 502 of a child seat including a seat belt lock-off assembly 504 is illustrated in FIGS. 24A-26. The support base 502 includes a base back 506 and a base bottom 508 (FIG. 26). The seat belt lock-off assembly 504 includes an opening 510 formed at a front surface 512 of the base back 506 and a belt lock-off member 514 receivable within the opening 510. It should be appreciated that the belt lock-off member 514 may be affixed to the base back 506 or the base bottom 508. A contour of the interior surface of the sidewalls 511 (see FIG. 26) that define the opening 510 may be complementary to a contour of the belt lock-off member 514 such that the substantial entirety of the belt lock-off member 514 is receivable within the opening 510. As shown, the belt lock-off member 514 is movable, for example pivotable about an axis X5, relative to the front 512 of the base back 506 between an open position (not shown) and a closed position (FIGS. 24A-26) to adjust a tension applied to the vehicle belt positioned along a vehicle belt receiving path extending between the front 512 of the base back 506 and the belt lock-off member 514.

[0259] The seat belt lock-off assembly 504 includes a belt lock-off member locking assembly 520 operable to restrict movement of the belt lock-off member 514 relative to the support base 502 from the closed position. The belt lock-off member locking assembly 520 may have any suitable configuration. In an embodiment, the belt lock-off member locking assembly 520 includes a first lock 522 having a configuration similar to the first lock 112, 222, 322, 422 previously described herein. The first lock 522 may include a pin or shaft 524 (FIG. 26) and at least one locking pawl 530 (FIG. 25) configured to receive the shaft 524. The shaft 524 and at least one locking pawl 530 are positioned such that the shaft 524 is receivable by the at least one locking pawl 530 as the belt lock-off member 514 moves along its path of

rotation. Unlike the previous embodiments, in the illustrated, non-limiting embodiment, the shaft 524 is mounted within the opening 510 formed in the support base 502 and the at least one locking pawl 530 is affixed to and is movable with the belt lock-off member 514 relative to the support base 502.

[0260] The at least one locking pawl 530 may have a throat 532 for receiving the shaft 524 therein. In an embodiment, the at least one locking pawl 530 is rotatable about an axis between an engaged position and a disengaged position. Further, the at least one locking pawl 530 may be biased by a biasing mechanism (not shown) toward the engaged position. As the belt lock-off member 514 is rotated towards the opening 510, a surface (not shown) of the at least one locking pawl 530 engages the shaft 524. The surface of the at least one locking pawl 530 may be contoured such that the engagement between the shaft 524 and the surface causes the locking pawl 530 to move toward the disengaged position. Once the shaft 524 reaches a specific location relative to the at least one locking pawl 530, the at least one locking pawl is biased to the engaged position. When the shaft 524 is arranged within the throat 532 of at least one locking pawl 530 in the engaged position, the first lock 522 is in a locked configuration.

[0261] A lock-off release actuator 540 is operable to transform the first lock from a locked configuration to an unlocked configuration. The lock-off release actuator 540 may be operably coupled to the at least one locking pawl 530 and may transform the first lock 522 by moving the at least one locking pawl 530 to the disengaged position. In some embodiments, the lock-off release actuator 540 may be arranged at the support base 502, such as at the base back 506 proximate the shaft 524. However, in the illustrated, non-limiting embodiment, the lock-off release actuator 540 is connected to and is movable with the belt lock-off member 514 relative to the support base 502. For example, a notch 516 may be formed in the belt lock-off member 514 and at least a portion of the lock-off release actuator 540 is arranged within the notch 516. As in the previous embodiments, the lock-off release actuator 540 may be movable relative to the at least one locking pawl 530, or alternatively, may be affixed to the at least one locking pawl 530 such that the lock-off release actuator 540 and the at least one locking pawl 530 move in unison relative to the belt lock-off member 514.

[0262] Application of a force to an actuation surface 542 (FIG. 25) of the lock-off release actuator 540, such as rotation of the lock-off release actuator 540 about axis Y5 for example, is transmitted to the at least one locking pawl 530 causing the at least one locking pawl 530 to rotate in a direction against the bias of the biasing mechanism to the disengaged position. With the at least one locking pawl 530 in the disengaged position, the first lock 522

is in the unlocked configuration and the belt lock-off member 514 may be rotated about its axis X5 away from the opening 510.

[0263] In the illustrated, non-limiting embodiment, the belt lock-off member locking assembly 520 additionally includes a secondary component 550 operable to selectively obstruct or hinder access to the lock-off release actuator 540, such as to the actuation surface 542 of the lock-off release actuator 540. As shown, the secondary component 550 is a cover having a body that may be similar in size and or shape to a corresponding portion of the opening 510. The cover 550 may be movably mounted to the support base 502, proximate the opening 510 such as to selectively cover the lock-off release actuator 540 when the belt lock-off member 514 is in the closed position. In other embodiments, such as shown in FIGS 24A-26, the cover 550 is movably mounted to the belt lock-off member 514. In the illustrated, non-limiting embodiment, the cover 550 is translatable relative to the belt lock-off member 514 between a first, covered position or locked position (FIG. 24A) and a second, uncovered position or unlocked position (FIG. 24B). A biasing mechanism may be operable to bias the cover 550 toward the covered position. However, embodiments that do not include a biasing mechanism associated with the cover 550 are also contemplated herein.

[0264] In the closed position, the cover 550 is in overlapping arrangement with the lock-off release actuator 540, such as the actuation surface 542 for example, so that the lock-off release actuator 540 is not exposed or accessible at an exterior of the support base 502. When the cover 550 is in the uncovered position, the cover 550 is offset from the lock-off release actuator 540. For example, the cover 550 may be translatable in a direction parallel to the longitudinal axis L5 of the belt lock-off member 514 between the covered position and the uncovered position. When the cover 550 is open or in the uncovered position, the lock-off release actuator 540 is accessible by an operator to unlock the first lock 522, so that the belt lock-off member 514 is freely movable to an open position.

[0265] Another embodiment of a support base 602 including a seat belt lock-off assembly 604 is illustrated in FIGS. 27A-31D. The support base 602 includes a base back 606 and a base bottom 608. The seat belt lock-off assembly 604 includes an opening 610 formed at a front surface 612 of the base back 606 and a belt lock-off member 614 receivable within the opening 610. It should be appreciated that the belt lock-off member 614 may be affixed to the base back 606 or the base bottom 608. A contour of the interior surface of the sidewalls 611 (see FIG. 28B) that define the opening 610 may be complementary to a contour of the belt lock-off member 614 such that the substantial entirety of the belt lock-off member 614 is receivable within the opening 610. As shown, the belt lock-off member 614 is movable, for

example pivotable about an axis X6, relative to the front 612 of the base back 606 between an open position (FIG. 28B) and a closed position (FIGS. 27A-27C and 28A) to adjust a tension applied to the vehicle belt positioned along a vehicle belt receiving path extending between the front 612 of the base back 606 and the belt lock-off member 614.

[0266] As in the previous embodiment described with respect to FIGS. 24A-26, the seat belt lock-off assembly 604 includes a belt lock-off member locking assembly 620 having a first lock 622 transformable between a locked configuration and an unlocked configuration. The first lock 622 may include a pin or shaft 624 (FIGS. 28 A and 31A-31D) and at least one locking pawl 530 (FIGS. 31A-31D) configured to receive the shaft 624. The shaft 624 and at least one locking pawl 630 may be positioned such that the shaft 624 is receivable by the at least one locking pawl 630 as the belt lock-off member 614 moves along its path of rotation about the axis X6. As in the embodiment illustrated in FIGS. 24A-26, the shaft 624 may be mounted within the opening 610 formed in the support base 602 and the at least one locking pawl 630 may be affixed to the belt lock-off member 614.

[0267] The at least one locking pawl 630 may have a throat 632 for receiving the shaft 624 therein. In an embodiment, the at least one locking pawl 630 is rotatable between an engaged position and a disengaged position. The at least one locking pawl 630 may be biased by a biasing mechanism (not shown) toward the engaged position. As the belt lock-off member 614 rotates closed, a surface 634 of the at least one locking pawl 630 engages the shaft 624. The surface 634 of the at least one locking pawl 630 may be contoured such that the locking pawl 630 moves toward the disengaged position in response to this engagement. Once the shaft 624 reaches a specific location relative to the at least one locking pawl 630, the at least one locking pawl 630 is biased back to the engaged position. When the shaft 624 is arranged within the throat 632 of at least one locking pawl 630 in the engaged position, the first lock 622 is in a locked configuration.

[0268] A lock-off release actuator 640 operably coupled to the first lock 622 may be arranged at the belt lock-off member 614. The lock-off release actuator 640 is movable, for example rotatable about an axisY6, relative to the belt lock-off member 614 to transform the first lock 622 from a locked configured to an unlocked configuration, such as by rotating the at least one locking pawl 630. A shaft 624 (FIGS. 28-29) of the first lock 622 is separable from the at least one locking pawl 630 when the first lock 622 is in the unlocked configuration.

[0269] The belt lock-off member locking assembly 620 may additionally include a secondary component 650 operable to selectively obstruct the lock-off release actuator 640 from exposure at an exterior of the support base 602. Accordingly, the secondary component

650 may be operable to prevent the unintended unlocking of the first lock 622. The secondary component 650 may be a cover having a body 652 that may be similar in size and/or shape to an adjacent portion of the lock-off release actuator 640 or a corresponding portion of the opening 610. In the illustrated, non-limiting embodiment, the cover 650 is movable, for example rotatable about an axis Z6, relative to the belt lock-off member 614 between a first, covered position or locked position (FIG. 27A-27C) and a second, uncovered position or unlocked position (FIG. 28A-28B). As shown in FIGS. 30A-31D, the axis Z6 may be arranged proximate, but offset from an end of the cover 650. However, in other embodiments, as shown in FIG. 29, the axis Z6 may be arranged at an end of the cover 650. In some embodiments, a biasing mechanism 653 (see FIGS. 30A-30B) is operable to bias the cover 650 toward the covered position. The biasing mechanism 653 associated with the cover 650 may be the same biasing mechanism or may be a different biasing mechanism from the biasing mechanism associated with the at least one locking pawl 630.

[0270] In embodiment where the axis Z6 is near a central portion of the cover 650, the body 652 may include a first region 654 and a second region 656. The first region 654 generally extends from the axis Z in a first direction, and the second region 656 generally extends from the axis Z6 in a second direction. The first region 654 and the second region 656 may be arranged at a non-parallel angle relative to one another. In an embodiment, the angle between the first region 654 and the second region 656 is an obtuse angle, such as greater than 120 degrees and less than 180 degrees for example.

[0271] When the cover 650 is in the covered position, the first region 654 of the body 652 may be generally parallel to a longitudinal axis L6 of the belt lock-off member 614 and the second region 656 of the body 652 may be arranged at a non-parallel angle relative to the longitudinal axis L6 of the belt lock-off member 614. Similarly, when the cover 650 is in the uncovered position, the second region 656 of the body 652 may be generally parallel to the longitudinal axis L6 of the belt lock-off member 614 and the first region 654 of the body 652 may be arranged at a non-parallel angle relative to the longitudinal axis L6 of the belt lock-off member 614. Accordingly, when the belt lock-off member 614 is retained in the closed position by the first lock 622, the cover 650 in the first, covered position overlaps the lock-off release actuator 640, preventing access to the lock-off release actuator 640. As shown in FIG. 28B, when the cover 650 is in the second, uncovered position, the lock-off release actuator 640 is exposed, and therefore is accessible by an operator such that the first lock 622 may be unlocked and the belt lock-off member 614 may be rotated to the open position. The cover 650, when in the covered position, is therefore operable to retain the first lock 622 in the locked configuration

and when the cover 650 is in the uncovered position, the first lock 622 is freely transformable between the locked configuration and the unlocked configuration.

[0272] FIGS. 32A-32C illustrate another embodiment of a seat belt lock-off assembly 704 associated with a support base 702 and including a belt lock-off member 714 movable between a closed position and an open position. The seat belt lock-off assembly 704 includes an opening 710 formed at a front surface 712 of the base back 706 and a belt lock-off member 714 is receivable within the opening 710. A contour of the interior surface of the sidewalls 711 (see FIG. 32C) that define the opening 710 may be complementary to a contour of the belt lock-off member 714 such that the substantial entirety of the belt lock-off member 714 is receivable within the opening 710. As in the previous embodiments, the belt lock-off member 714 is movable, for example pivotable about an axis, relative to the front 712 of the base back 706 between an open position and a closed position (FIGS. 32A-32C) to adjust a tension applied to the vehicle belt positioned along a vehicle belt receiving path extending between the front 712 of the base back 706 and the belt lock-off member 714.

[0273] As described in previous embodiments, the seat belt lock-off assembly 704 includes a belt lock-off member locking assembly 720 having a first lock (not shown) and a lock-off release actuator 740 associated with the first lock. Although not shown, it should be appreciated that a configuration of the first lock may be substantially identical to either first lock 522 or 622 previously described herein. A portion of the first lock and the lock-off release actuator 740 are mounted to and are movable with the belt lock-off member 714 relative to the support base 702. In the illustrated, non-limiting embodiment, the lock-off release actuator 740 is arranged at, and may extend beyond a distal end 715 of the belt lock-off member 714. When the belt lock-off member 714 is in the closed position, both the belt lock-off member and the lock-off release actuator 740, in combination, are receivable within the opening 710.

[0274] The lock-off release actuator 740 is movable, for example rotatable about an axis Y7, relative to the belt lock-off member 714 to transform the first lock from a locked configured to an unlocked configuration. The belt lock-off member 714 is rotatable from the closed position to the open position only when the first lock is in the unlocked configuration. In an embodiment, a user engagement feature 744, such as a groove for example, may be formed at an exposed actuation surface 742 of the lock-off release actuator 740. The user engagement feature 744 may provide an area for a user to engage and operate the lock-off release actuator 740.

[0275] In the illustrated, non-limiting embodiment, the belt lock-off member locking assembly 720 additionally includes a secondary component 750 operable to selectively hinder

operation of the lock-off release actuator 740 and therefore the unintentional unlocking of the first lock. As shown, the secondary component 750 may be a cover movable between a first, covered position or locked position (FIG. 32A) and a second, uncovered position or unlocked position (FIG. 32B). Although the cover 750 is illustrated as being mounted to the lock-off release actuator 740, embodiments where the cover 750 is mounted to the belt lock-off member 714, or even to the support base 702 are also contemplated herein. The cover 750 may be similar in size and/or shape to a portion of the lock-off release actuator 740, such as to the user engagement feature 744 formed in the lock-off release actuator 740 for example. In an embodiment, the cover 750 is larger than the user engagement feature 744.

[0276] In the illustrated, non-limiting embodiment, the cover 750 is translatable relative to the lock-off release actuator 740 between the first covered position and the second uncovered position. However, embodiments where the cover 750 moves in another manner are also contemplated herein. When in the covered position, the cover 750 substantially overlaps the user engagement feature 744 formed in the lock-off release actuator 740. In this configuration, the cover 750 prevents access to the user engagement feature 744, thereby impeding operation of the lock-off release actuator 740. When the cover 750 is in the uncovered or unlocked position, the cover 750 is at least partially, and in some embodiments, wholly offset from the user engagement feature 744. In such a position, a user is freely able to access the user engagement feature 744 to transform the first lock from the locked configuration to the unlocked configuration via the lock-off release actuator 740. Once the first lock is in the unlocked configuration, the belt lock-off member 714 is movable between the open and closed positions.

[0277] With reference now to FIGS. 33-36C, a belt lock-off member 814 moveable relative to a support base 802 between an open position, in which the belt lock-off member 814 is spaced from an opening 810 formed in the support base 802, and a closed position, in which the belt lock-off member 814 is received within the opening 810 formed in the support base 802, is illustrated according to another embodiment. A contour of the interior surface of the sidewalls 811 (see FIG. 33) that define the opening 810 may be complementary to a contour of the belt lock-off member 814 such that the substantial entirety of the belt lock-off member 814 is receivable within the opening 810. The belt lock-off member 814 is movable, for example pivotable about an axis, relative to the support base 802 to adjust a tension applied to the vehicle belt positioned along a vehicle belt receiving path extending between a front surface 812 of the support base 802 and the belt lock-off member 814.

[0278] As in the previous embodiments, a first lock (not shown) of a belt lock-off member locking assembly 820 may be used to retain the belt lock-off member 814 in the closed position. The first lock may have a configuration substantially identical to either first lock 522 or first lock 622 described herein. A portion of a first lock and a lock-off release actuator 840 associated with the first lock may be arranged at and may be movable with the belt lock-off member 814. The lock-off release actuator 840 is arranged near an end 815 of the belt lock-off member 814. In the illustrated, non-limiting embodiment, a notch 816 is formed at the end of the 815 of the belt lock-off member 814 and the lock-off release actuator 840 is arranged within the notch 816 at a position operably coupled to the portion of the first lock arranged at the belt lock-off member 814.

[0279] The lock-off release actuator 840 is movable, for example rotatable about an axis Y8, relative to the belt lock-off member 814 to transform the first lock from a locked configured to an unlocked configuration. The belt lock-off member 814 is rotatable from the closed position to the open position only when the first lock is in the unlocked configuration. In the illustrated, non-limiting embodiment, the belt lock-off member locking assembly 820 additionally includes a secondary component 850, such as a second lock for example, operably coupled to the lock-off release actuator 840. The second lock 850 is operable to prevent the unintended release of the belt lock-off member 814 from the first lock.

[0280] In the illustrated, non-limiting embodiment of FIGS. 33-36C, the second lock 850 is located at the lock-off release actuator 840. With continued reference to FIGS. 33-36C, the second lock 850 includes a body 852 having an engagement feature 854 arranged at an exterior of the lock-off release actuator 840 and that is accessible by a user. The body 852 of the second lock 850 additionally includes a locking feature 856 selectively engageable with a portion of the belt lock-off member 814, such as with an opening 858 formed in a sidewall of the belt lock-off member 814 for example. When the locking feature 856 is arranged within the opening 858, the lock-off release actuator 840 is prevented from rotating about its axis Y8 relative to the belt lock-off member 814. The engagement feature 854 of the second lock 850 may be slidably mounted within a slot 860 formed in a portion of the lock-off release actuator 840. In some embodiments, a biasing mechanism 862 (FIG. 34) may be operable to bias the locking feature 856 into engagement with the opening 858 formed in the belt lock-off member 814.

[0281] When the second lock 850 is in the first locked position, the engagement feature 854 may be arranged near a first end of the slot 860 (FIG. 36A), and the locking feature 856 is engaged the belt lock-off member 814, thereby restricting movement of the lock-off release

actuator 840. When the second lock 850 is in a second, unlocked position, the engagement feature 854 may be near a second, opposite end of the slot 860 (FIG. 35B) and the locking feature 856 is separated from the opening 858 formed in the belt lock-off member 814. With the engagement feature 854 arranged such that the second lock 850 is unlocked, a user may apply a force to the lock-off release actuator 840 to transform the first lock 822 from the locked configuration to the unlocked configuration as described in previous embodiments.

[0282] Although the second lock 850 is illustrated as being arranged at the lock-off release actuator 840 and engageable with the belt lock-off member 814 to restrict operation of the lock-off release actuator 840, in other embodiments, as shown in FIG. 37, the second lock 850 may be located remotely from the lock-off release actuator 840. For example, in the non-limiting embodiment, the second lock 850 is arranged at the belt lock-off member 814 such that a clearance extends between the engagement feature 854 of the second lock 850 and the lock-off release actuator 840 (FIGS. 36A-C). In such embodiments, the locking feature 856 of the second lock 850 may be movable by a user in and out of engagement with an opening (not shown) formed in the lock-off release actuator 840 to selectively restrict rotation of the lock-off release actuator 840 about its axis to unlock the first lock 822. Alternatively, the second lock 850 may be movable by a user in and out of engagement with an opening (not shown), similar to opening 858, formed in the belt lock-off member 814. In such embodiments, the second lock 850 may operate independently from the first lock, to restrict movement of the belt lock-off member 814 from the closed position.

[0283] A support base 902 of a child seat system according to another embodiment is illustrated in FIGS. 38A-40. Similar to the previous embodiments, the support base 902 may include a seat belt lock-off assembly 904. As shown, the support base 902 includes a base back 906 and a base bottom 908 and the seat belt lock-off assembly 904 includes an opening 910 formed at a front surface 912 of the base back 906. A belt lock-off member 914 is receivable within the opening 910. A contour of the interior surface of the sidewalls 911 (see FIG. 43A-43B) that define the opening 910 may be complementary to a contour of the belt lock-off member 914 such that the substantial entirety of the belt lock-off member 914 is receivable within the opening 910. The belt lock-off member 914 is selectively movable, for example pivotable about an axis X9, relative to the front 912 of the base back 906 between an open position and a closed position to adjust a tension applied to the vehicle belt positioned along a vehicle belt receiving path extending between the front 912 of the base back 906 and the belt lock-off member 914. The belt lock-off member 914 may be mounted to the base back 906 or to the base bottom 908 of the support base 902.

[0284] A belt lock-off member locking assembly 920 may be used to selectively lock movement of the belt lock-off member 914 relative to the support base 902. The belt lock-off member locking assembly 920 may include a first lock 922 transformable between a locked configuration and an unlocked configuration. When the first lock 922 is in the locked configuration, the belt lock-off member 914 is retained in a closed position within the opening 910, and when the first lock 922 is in the unlocked configuration, the belt lock-off member 914 is movable between the closed position and the open position. The first lock 922 of the belt lock-off member locking assembly 920 may include a pin or shaft 924 and at least one locking pawl 930 operable to receive the shaft 924. The shaft 924 and at least one locking pawl 930 are positioned such that the shaft 924 is receivable within the at least one locking pawl 930 as the belt lock-off member 914 moves along its path of rotation. In the illustrated, non-limiting embodiment, the shaft 924 is fixedly mounted within the opening 910 formed in the support base 902 and the at least one locking pawl 930 is affixed to and is movable with the belt lock-off member 914.

[0285] The at least one locking pawl 930 may have a throat 932 for receiving the shaft 924 therein. In an embodiment, the at least one locking pawl 930 is rotatable about an axis between an engaged position and a disengaged position. Further, the at least one locking pawl 930 may be biased by a biasing mechanism 936 toward the engaged position. As the belt lock-off member 914 is rotated towards the opening 910, a surface 934 of the at least one locking pawl 930 engages the shaft 924. The surface 934 of the at least one locking pawl 930 may be contoured such that the engagement between the shaft 924 and the surface 934 opposes the biasing force of the biasing mechanism 936 causing the locking pawl 930 to move toward the disengaged position. Once the shaft 924 reaches a specific location relative to the at least one locking pawl 930, for example once the shaft 924 is received within the throat 932 of the locking pawl 930, the shaft 924 no longer opposes the biasing force of the biasing mechanism 936. As a result, the biasing force biases the locking pawl 930 back to the engaged position. Accordingly, when the shaft 924 is arranged within the throat 932 of at least one locking pawl 930 in the engaged position, the first lock 922 is in a locked configuration.

[0286] A lock-off release actuator 940 may be operable to transform the first lock 922 from the locked configuration to the unlocked configuration, such as by moving the at least one locking pawl 930 to the disengaged position. The lock-off release actuator 940 may be movably connected to the belt lock-off member 914. In an embodiment, a notch 916 is formed in the belt lock-off member 914 and the lock-off release actuator 940 is arranged within the notch 916, such as at a position proximate the portion of the first lock 922 arranged at the belt

lock-off member 914. In some embodiments, the lock-off release actuator 940 is movable relative to the at least one locking pawl 930. However, in other embodiments, the lock-off release actuator 940 may be rotatably coupled to the at least one locking pawl 930, as shown, such that the lock-off release actuator 940 and the at least one locking pawl 930 move in unison relative to the belt lock-off member 914.

[0287] Application of a force to the lock-off release actuator 940, such as rotation of the lock-off release actuator 940 about its axis Y9 for example, causes the at least one locking pawl 930 to rotate in a direction against the bias of the biasing mechanism 936 to the disengaged position. With the at least one locking pawl 930 in the disengaged position, the belt lock-off member 914 may be rotated about its axis X9 away from the opening 910 toward the open position.

[0288] In the illustrated, non-limiting embodiment, the belt lock-off member locking assembly 920 additionally includes a secondary component 950 operable to selectively lock the lock-off release actuator 940 relative to the belt lock-off member 914. Accordingly, the secondary component 950 is operable to prevent the unintentional unlocking of the first lock 922. The secondary component 950 may be a second lock having a body 952 movably mounted to the belt lock-off member 914 proximate the lock-off release actuator 940. In the illustrated, non-limiting embodiment, the body 952 is rotatable about an axis Z9 relative to the belt lock-off member 914 between a first, locked position (FIGS. 38A-38C and 40) and a second, unlocked position (FIG. 41A-41B). As shown, the axis Z9 about which the body 952 is rotatable may be disposed near a center of the body 952 rather than proximate an end thereof. Further, in an embodiment, the axis Z9 is parallel to the axis X9 of the belt lock-off member 914. A biasing mechanism may be operable to bias the body 952 toward the locked position. In some embodiments, the biasing mechanism 936 operably coupled to the at least one locking pawl 930 is also operably coupled to the body 952 via the lock-off release actuator 940.

[0289] The body of the second lock 950 may but need not be aligned with a central longitudinal axis L9 of the belt lock-off member 914. The body 952 may include a first region 954 and a second region 956 arranged at a non-parallel angle relative to one another. The first region 954 may extend generally from the axis of rotation Z9 in a first direction and the second region 956 may extend generally from the axis Z9 in a second direction. In an embodiment, the angle between the first region 954 and the second region 956 is an obtuse angle, such as greater than 120 degrees and less than 180 degrees for example.

[0290] When the second lock 950 is in the first, locked position, the first region 954 of the body 952 may be generally parallel to an adjacent surface 915 of the belt lock-off member

914 and the second region 956 of the body 952 may be arranged at a non-parallel angle relative to the adjacent surface 915 of the belt lock-off member 914. Similarly, when the second lock 950 is in the second, unlocked position, the second region 956 of the body 952 may be generally parallel to an adjacent surface 915 of the belt lock-off member 914 and the first region 954 of the body 952 may be arranged at a non-parallel angle relative to the adjacent surface 915 of the belt lock-off member 914. Alternatively or in addition, a distance between the first region 954 and the belt lock-off member 914 may be less than the distance between the second region 956 and the belt lock-off member 914 when the second lock 950 is in the locked position and the distance between the first region 954 and the belt lock-off member 914 may be greater than the distance between the second region 956 and the belt lock-off member 914 when the second lock 950 is in the unlocked position.

[0291] When in the locked position, a portion of the body 952 of the second lock 950, such as the first region 954 for example, is engaged with or is arranged within the path of movement of the lock-off release actuator 940. As a result, the body 952 in the locked position restricts movement of the lock-off release actuator 940 relative to the belt lock-off member 914. The second lock 950 may be transformed to the unlocked position by applying a force to the second region 956 of the body 952. This force causes the body 952 to pivot about the axis Z9, moving the first region 954 of the body 952 out of the path of movement of the lock-off release actuator 940. Accordingly, when the second lock 950 is in the unlocked position, the lock-off release actuator 940 is movable to unlock the first lock 922. Upon removal of the force from the second region 956 of the body 952, the second lock may be biased back to the locked position in which the lock-off release actuator 940 is not movable.

[0292] With continued reference to FIGS. 38A-43B, the belt lock-off member 914 may be formed by a lock-off tube 960 and a lock-off cover 962 fixedly positioned about one or more sides of the lock-off tube. In the non-limiting embodiment illustrated in FIGS.40-43B, the second lock 950 is pivotally coupled to the lock-off tube 960 of the belt lock-off member 914. In other embodiments, as will be described in more detail below, the body of the second lock may be rotatably mounted to the lock-off cover.

[0293] Another embodiment of a support base 1002 of a child seat system is illustrated in FIGS. 43A-47D. The support base 1002 may include a seat belt lock-off assembly 1004. As shown, the support base 1002 includes a base back 1006 and a base bottom 1008 and the seat belt lock-off assembly 1004 includes an opening 1010 formed at a front surface 1012 of the base back 1006. A belt lock-off member 1014 is receivable within the opening 1010. A contour of the interior surface of the sidewalls 1011 (see FIG. 47A-47D) that define the opening 1010

may be complementary to a contour of the belt lock-off member 1014 such that the substantial entirety of the belt lock-off member 1014 is receivable within the opening 1010. The belt lock-off member 1014 is selectively movable, for example pivotable about an axis X10, relative to the front 1012 of the base back 1006 between an open position and a closed position to adjust a tension applied to the vehicle belt positioned along a vehicle belt receiving path extending between the front 1012 of the base back 1006 and the belt lock-off member 1014. The belt lock-off member 1014 may be mounted to the base back 1006 or to the base bottom 1008 of the support base 1002. In an embodiment, the belt lock-off member 1014 includes a lock-off tube 1060 and a lock-off cover 1062 positioned about one or more surfaces of the lock-off tube 1060.

[0294] A belt lock-off member locking assembly 1020 may be used to selectively lock the belt lock-off member 1014 in the closed position. The belt lock-off member locking assembly 1020 may include a first lock 1022 transformable between a locked configuration and an unlocked configuration. When the first lock 1022 is in the locked configuration, the belt lock-off member 1014 is retained in a closed position within the opening 1010, and when the first lock 1022 is in the unlocked configuration, the belt lock-off member 1014 is movable between the closed position and the open position. The first lock 1022 of the belt lock-off member locking assembly 1020 may include a pin or shaft 1024 and at least one locking pawl 1030 configured to receive the shaft 1024. The shaft 1024 and at least one locking pawl 1030 are positioned such that the shaft 1024 is receivable within the at least one locking pawl 1030 as the belt lock-off member 1014 moves along its path of rotation. In the illustrated, non-limiting embodiment, the shaft 1024 is fixedly mounted within the opening 1010 formed in the support base 1002 and the at least one locking pawl 1030 is affixed to and is movable with the belt lock-off member 1014.

[0295] The at least one locking pawl 1030 may have a throat 1032 for receiving the shaft 1024 therein. In an embodiment, the at least one locking pawl 1030 is rotatable about an axis between an engaged position and a disengaged position. Further, the at least one locking pawl 1030 may be biased by a biasing mechanism 1036 toward the engaged position. As the belt lock-off member 1014 is rotated closed, a surface 1034 of the at least one locking pawl 1030 engages the shaft 1024. The surface 1034 of the at least one locking pawl 1030 may be contoured such that the engagement between the shaft 1024 and the surface 1034 opposes the biasing force of the biasing mechanism 1036 causing the locking pawl 1030 to move toward the disengaged position. Once the shaft 1024 reaches a specific location relative to the at least one locking pawl 1030, for example once the shaft 1024 is received within the throat 1032 of

the locking pawl 1030, the shaft 1024 no longer opposes the biasing force of the biasing mechanism 1036. As a result, the biasing force biases the locking pawl 1030 back to the engaged position. Accordingly, when the shaft 1024 is arranged within the throat 1032 of at least one locking pawl 1030 in the engaged position, the first lock 1022 is in a locked configuration.

[0296] A lock-off release actuator 1040 associated with the first lock 1022 is operable to transform the first lock 1022 from the locked configuration to the unlocked configuration such as via engagement with the at least one locking pawl 1030. In an embodiment, the lock-off release actuator 1040 is movably connected to the belt lock-off member 1014. A notch 1016 may be formed in the belt lock-off member 1014 and the lock-off release actuator 1040 may be arranged within the notch 1016. In some embodiments, the lock-off release actuator 1040 is movable relative to the at least one locking pawl 1030. In other embodiments, the lock-off release actuator 1040 is movably coupled to the at least one locking pawl 1030, as shown, such that the lock-off release actuator 1040 and the at least one locking pawl 1030 move in unison relative to the belt lock-off member 1014. Application of a force to the lock-off release actuator 1040, such as rotation of the lock-off release actuator 1040 for example, causes the at least one locking pawl 1030 to rotate in a direction against the bias of the biasing mechanism 1036 to the disengaged position. With the at least one locking pawl 1030 in the disengaged position (and therefore the first lock 1022 in the unlocked configuration), the belt lock-off member 1014 is freely rotatable about its axis X10 between the closed position and the open position.

[0297] In the illustrated, non-limiting embodiment, the belt lock-off member locking assembly 1020 additionally includes a secondary component 1050 operable to selectively lock the lock-off release actuator 1040 to prevent the unintentional unlocking of the first lock 1022. The secondary component 1050 may be a second lock including a body 1052 movably mounted to the belt lock-off member 1014 near the lock-off release actuator 1040. The body 1052 of the second lock 1050 may but need not be aligned with the central longitudinal axis L10 of the belt lock-off member 1014. In the illustrated, non-limiting embodiment, the body 1052 is rotatably mounted to the lock-off cover 1062 of the belt lock-off member 1014, such as proximate an opening or hole 1064 formed in the lock-off cover 1062. The body 1052 is rotatable about an axis Z10 relative to the belt lock-off member 1014 between a first, locked position (FIGS. 44A-C and 47A) and a second, unlocked position (FIG. 47B and 47C). As shown, the axis Z10 of the second lock 1050 may be disposed near a center of the body 1052 rather than proximate an end thereof. Further, in an embodiment, the axis Z10 about which the second lock 1050 is rotatable may be parallel to the axis X10 of the belt lock-off member 1014.

[0298] A biasing mechanism 1058 may be operable to bias the second lock 1050 toward the locked position. In the illustrated, non-limiting embodiment, the biasing mechanism 1058 includes a spring clip. However, other types of biasing mechanisms are also contemplated herein. As shown, the biasing mechanism 1058 may be at least partially mounted within an interior of the lock-off tube 1060 of the belt lock-off member 1014. In some embodiments, the biasing mechanism 1058 includes a protrusion or button 1059 extendable through an opening 1061 formed in the lock-off tube 1060 and a corresponding opening formed in the lock-off cover 1062.

[0299] The body 1052 of the belt lock-off member 1014 may include a first region 1054 and a second region 1056 arranged at a non-parallel angle relative to one another. In an embodiment, the angle between the first region 1054 and the second region 1056 is an obtuse angle, such as greater than 120 degrees and less than 180 degrees for example. When the second lock 1050 is in a first, locked position, the first region 1054 of the body 1052 may be generally parallel to the longitudinal axis L10 of the belt lock-off member 1014 and the second region 1056 of the body 1052 may be arranged at a non-parallel angle relative to the longitudinal axis L10 of the belt lock-off member 1014. In the locked position, the button 1059 of the biasing mechanism 1058 extends through the opening 1061 formed in the lock-off tube 1060 and through the opening 1064 of the lock-off cover 1062 proximate the second region 1056 of the body 1052. Engagement between the button 1059 and the second region 1056 of the body 1052 biases the body 1052 of the second lock 1050 to the first, locked position.

[0300] When the second lock 1050 is in a second, unlocked position, the second region 1056 of the body 1052 may be generally parallel to the longitudinal axis L10 of the belt lock-off member 1014 and the first region 1054 of the body 1052 may be arranged at a non-parallel angle relative to the longitudinal axis L10 of the belt lock-off member 1014. In the unlocked position, the second region 1056 of the body 1052 is engaged with and applies a force to the biasing mechanism 1058 via the button 1059. Accordingly, the distance between the second region 1056 and a surface 1015 of the lock-off cover 1062 when the second lock 1050 is in the locked position may be greater than the distance between the second region 1056 and a surface 1015 of the lock-off cover 1062 when the second lock 1050 is in the unlocked position.

[0301] In the locked position, a portion of the body 1052, such as the first region 1054 for example, is engaged with or is arranged within the path of movement of the lock-off release actuator 1040. As a result, the positioning of the body 1052 is operable to restrict movement of the lock-off release actuator 1040 to unlock the first lock 1022. The second lock 1050 is transformable to the unlocked position via application of a force to the second region 1056 of

the body 1052. This force causes the body 1052 to pivot about its axis Z10 against the biasing force of the biasing mechanism 1058. The rotation of the body 1052 moves the first region 1054 away from and out of the path of movement of the lock-off release actuator 1040, thereby allowing the lock-off release actuator 1040 to rotate about its axis Y10 to unlock the first lock 1022. Upon release of the force from the second region the body 1052 of the second lock 1050, the second lock 1050 is biased by the biasing mechanism 1058 back to the locked position in which the lock-off release actuator 1040 is not movable about its axis Y10.

[0302] With reference now to FIGS. 48A-48B, another embodiment of a support base 1102 of a child seat system 1100 is illustrated. As in the previous embodiments, the support base 1102 may include a seat belt lock-off assembly 1104 including a belt lock-off member 1114 movable between a closed position and an open position. A contour of the interior surface of the sidewalls (not shown) that define the opening 1110 may be complementary to a contour of the belt lock-off member 1114 such that the substantial entirety of the belt lock-off member 1114 is receivable within the opening 1110. The seat belt lock-off assembly 1104 includes a belt lock-off member locking assembly 1120 having a first lock (not shown) and a lock-off release actuator 1140 associated therewith. The configuration of the first lock may be substantially identical to the any of the first locks 522, 622, 922, 1022 illustrated in FIGS. 24A-31D and 38a-47D and described herein. The lock-off release actuator 1140 is movable, for example rotatable about an axis Y11, relative to the belt lock-off member 1114 to transform the first lock from a locked configured to an unlocked configuration. In an embodiment, a notch 1116 is formed in the belt lock-off member 1114 and the lock-off release actuator 1140 is positioned within the notch 1116.

[0303] In the illustrated, non-limiting embodiment, the belt lock-off member locking assembly 1120 additionally includes a second lock 1150 selectively operable to restrict movement of the lock-off release actuator 1140 relative to the belt lock-off member 1114, and therefore, the unintentional unlocking of the first lock. In the illustrated, non-limiting embodiment, the second lock 1150 is an engagement member 1152 insertable into the opening 1110, adjacent to the belt lock-off member 1114. When the belt lock-off member 1114 is in the closed position and the lock-off release actuator 1140 is not operated, a clearance is defined between the lock-off release actuator 1140 and one or more sidewalls defining the opening 1110. The engagement member 1152 may be receivable within this clearance. In an embodiment, the engagement member 1152 has a size and shape complementary to the clearance formed between the lock-off release actuator 1140 and the one or more sidewalls defining the opening 1110. In an embodiment, the engagement member 1152 is tethered to a

portion of the support base 1102 or a child seat (not shown) connectable to the support base to ensure that the engagement member 1152 is easily accessible by a user and to prevent accidental loss of the engagement member 1152.

[0304] The engagement member 1152 may function similar to a plug. Engagement between the engagement member 1152 installed within the opening 1110 and the unoperated lock-off release actuator 1140 when the belt lock-off member 1114 is in the closed position restricts operation of the lock-off release actuator 1140. When the engagement member is installed, the engagement member 1152 may be considered to be in an engaged position relative to the first lock 1122 and/or the lock-off release actuator 1140. The engagement member 1152 may be positionable in overlapping arrangement with at least a portion of the lock-off release actuator 1140 within the opening 1110. In some embodiments, the lock-off release actuator 1140 is inaccessible by a user when the engagement member 1152 is arranged within the opening 1110. Accordingly, a user must first disengage the second lock 1150 by removing the engagement member 1152 from the opening 1110 and out of engagement with the lock-off release actuator 1140 before operating the lock-off release actuator 1140 to unlock the first lock and transform the belt lock-off member 1114 from a closed position to an open position. With the engagement member 1152 separated or located remotely from the opening 1110, the lock-off release actuator 1140 is accessible by a user.

[0305] A portion of the engagement member 1152 may have a contour complementary to a corresponding surface of the lock-off release actuator 1140 to selectively restrict movement thereof. In an embodiment, as shown in the FIGS., the lock-off release actuator 1140 may include a first feature, such as a groove or notch 1142 formed therein, and the engagement member 1152 may have a complementary second feature, such as a protrusion 1154 for example, receivable within the groove 1142. However, embodiments where a body of the engagement member 1152 absent such a feature is operable to engage and restrict movement of the lock-off release actuator 1140 are also contemplated herein.

[0306] With reference to FIGS. 49A-49B, an example of a belt lock-off member 1214 of a seat belt lock-off assembly 1204 according to another embodiment is illustrated. As in the previous embodiments, a belt lock-off member locking assembly 1220 associated with the belt lock-off member 1214 may be used to selectively lock the belt lock-off member 1214 in a position relative to a support base (not shown). The belt lock-off member locking assembly 1220 may include a first lock 1222 transformable between a locked configuration (FIG. 49A) and an unlocked configuration (FIG. 49B). When the first lock 1222 is in the locked configuration, the belt lock-off member 1214 is retained in the closed position and when the

first lock 1222 is in the unlocked configuration, the belt lock-off member 1214 is movable between the closed position and the open position. The first lock 1222 of the belt lock-off member locking assembly 1220 may be substantially identical to the first locks 522, 622, 922, 1022 illustrated in FIGS. 24A-31D and 38A-47D and described herein. The first lock 1222 includes a shaft 1224 (see FIG. 49A) and at least one locking pawl 1230, the shaft 1224 being receivable by at least one locking pawl 1030. The shaft 1224 is receivable within the at least one locking pawl 1230 as the belt lock-off member 1214 moves along its path of movement relative. In the illustrated, non-limiting embodiment, the shaft 1224 is fixedly mounted at the support base and the at least one locking pawl 1230 is affixed to and is movable with the belt lock-off member 1214 relative to the support base.

[0307] The at least one locking pawl 1230 may have a throat 1232 for receiving the shaft 1224 therein. In an embodiment, the at least one locking pawl 1230 is rotatable about an axis between an engaged position (FIG. 49A) and a disengaged position (FIG. 49B). Further, the at least one locking pawl 1230 may be biased by a biasing mechanism 1236 toward the engaged position. As the belt lock-off member 1214 moves toward a closed position, the shaft 1224 engages a surface 1234 of the at least one locking pawl. The surface 1234 of the at least one locking pawl 1230 may be contoured such that the engagement opposes the biasing force of the biasing mechanism 1236 causing the locking pawl 1230 to move toward the disengaged position. Once the shaft 1224 reaches a specific location relative to the at least one locking pawl 1230, for example once the shaft 1224 is received within the throat 1232 of the locking pawl 1230, the shaft 1224 no longer opposes the biasing force of the biasing mechanism 1236. As a result, the biasing force biases the locking pawl 1230 back to the engaged position. Accordingly, when the shaft 1224 is arranged within the throat 1232 of at least one locking pawl 1230 in the engaged position, the first lock 1222 may be in a locked configuration.

[0308] A lock-off release actuator 1240 may be operably coupled to the at least one locking pawl 1230 to rotate the at least one locking pawl 1230 to the disengaged position and release the belt lock-off member 1214. The lock-off release actuator 1240 may be movably connected to the belt lock-off member 1214. In some embodiments, the lock-off release actuator 1240 is rotatably coupled to the at least one locking pawl 1230, such that the lock-off release actuator 1240 and the at least one locking pawl 1230 move in unison relative to the belt lock-off member 1214. Application of a force to the lock-off release actuator 1240, such as rotation of the lock-off release actuator 1240 for example, causes the at least one locking pawl 1230 to rotate in a direction against the bias of the biasing mechanism 1236 to the disengaged

position. With the at least one locking pawl 1230 in the disengaged position, the belt lock-off member 1214 may be rotated to the open position.

[0309] In the illustrated, non-limiting embodiment, the lock-off release actuator 1240 includes a flexible member 1242. The flexible member 1242 may but need not be integrally formed with the lock-off release actuator 1240. The flexible member 1242 is movable with the lock-off release actuator 1240 between a first, locked position and a second, unlocked position. While the flexible member 1242 is illustrated as being arranged at an end of the lock-off release actuator 1240 embodiments where the flexible member 1242 is arranged at any suitable location about the lock-off release actuator 1240 are contemplated herein. The flexible member 1242 may be formed from a resilient material and may be contoured to have an inherent bias or spring force. As shown, the flexible member 1242 may extend at a non-parallel angle relative to the adjacent surface of the belt-lock off-member 1214, such that a gap or clearance is defined therebetween.

[0310] The belt lock-off member 1214 may further include a catch 1250 configured to cooperate with the flexible member 1242 to restrict operation of the lock-off release actuator 1240. In an embodiment, the catch 1250 defines a pocket 1252 proximate the belt lock-off member 1214. When the flexible member 1242 is in the first, locked position (FIG. 49A), a portion of the flexible member 1242 is engaged with a surface of the catch 1250. For example, an end of the flexible member 1242 may abut against a front surface 1254 of the catch 1250. The engagement between the flexible member 1242 and the catch 1250 restricts movement of the lock-off release actuator 1240, thereby preventing the first lock 1222 from being unlocked.

[0311] To transition the first lock 1222 to an unlocked configuration, the first lock 1222, a force is applied to the flexible member 1242 in a direction opposing the resilience of the flexible member 1242. In an embodiment, the force is applied to the flexible member 1242, such as in an inward direction toward the belt lock-off member 1215. With the force applied, the flexible member 1242 is moved out of engagement with the surface 1254 of the catch 1250 and is aligned with the pocket 1252 formed underneath the catch 1250. While in this configuration, a force may be applied to the remainder of the lock-off release actuator 1240, such as a rotational force for example, to move the at least one locking pawl 1230 of the first lock 1222 to the disengaged position. As the lock-off release actuator 1240 is operated, the flexible member 1242 is received within the pocket 1252 during movement toward the disengaged position. Once the first lock 1222 is unlocked, the belt-lock-off member 1214 may be rotated to the open position to release a vehicle belt. Upon removal of the forces from the lock-off release actuator 1240, the biasing mechanism 1236 will bias the at least one locking

pawl 1230, and therefore the lock-off release actuator 1240, toward the engaged position. As the lock-off release actuator 1240moves toward the engaged position, the flexible member 1242 is released from the pocket 1252. Once separated from the pocket, the resiliency of the flexible member 1242 will bias the flexible member 1242 back into engagement with the surface 1254 of the catch 1250, thereby locking the lock-off release actuator 1240 in position.

[0312] With reference now to FIGS. 50-51B, another support base 1302 having a seat belt lock-off assembly 1304 according to another embodiment is illustrated. As in the previous embodiments, the support base 1302 includes a base back 1306 and a base bottom (not shown). The seat belt lock-off assembly 1304 includes an opening 1310 formed at a front surface 1312 of the base back 1306 of the support base 1302 and a belt lock-off member 1314 receivable within the opening 1310. Although the belt lock-off member 1314 is illustrated as extending from the base bottom, it should be understood that embodiments where the belt lock-off member 1314 extends from the base back 1306 are also contemplated herein.

[0313] A contour of the interior surface of the sidewalls (not shown) that define the opening 1310 may be complementary to a contour of the belt lock-off member 1314 such that the substantial entirety of the belt lock-off member 1314 is receivable within the opening 1310. The belt lock-off member 1314 is selectively movable, for example pivotable about an axis X13, relative to the front 1312 of the base back 1306 between an open position and a closed position to adjust a tension applied to the vehicle belt positioned along a vehicle belt receiving path between the front 1312 of the base back 1306 and the belt lock-off member 1314.

[0314] As in the previous embodiment, a belt lock-off member locking assembly 1320 may include a first lock (not shown) transformable between a locked configuration and an unlocked configuration. When the first lock is in the locked configuration, the belt lock-off member 1314 is retained in a closed position within the opening 1310, and when the first lock is in the unlocked configuration, the belt lock-off member 1314 is movable between the closed position and the open position. A configuration of the first lock may be substantially identical to the first lock 522, 622, 922, 1022 described in any of embodiments shown in FIGS. 24A-31D and 38A-47D. Although not shown, it should be appreciated that the first lock may have a pin and at least one locking pawl engageable with the pin to restrict relative movement of the shaft and the locking pawl. A lock-off release actuator 1340 associated with the first lock is operable to transform the first lock from a locked configuration to an unlocked configuration. The lock-off release actuator 1340 is movable, for example rotatable about an axis Y13, relative to the belt lock-off member 1314 to transform the first lock from a locked configured to an unlocked configuration.

[0315] The belt lock-off member locking assembly 1320 may additionally include a secondary component 1350 selectively operable to restrict movement of the belt lock-off member 1314 relative to the support base 1302. In the illustrated, non-limiting embodiment, the secondary component 1350 is a second lock located remotely from the first lock 1322 and from the lock-off release actuator 1340 associated with the first lock 1322. The second lock 1350 may be located at the belt lock-off member 1314. As shown, a protrusion or first feature 1352 may extend from an exterior surface 1315 of the belt lock-off member 1314 facing toward the child seat, generally illustrated as 1303. At least one protrusion or second feature 1354 may similarly be fixedly arranged at the child seat 1303. As shown, the at least one protrusion or second feature 1354 may extend radially outward from an exterior surface of the child seat 1303. In an embodiment, the child seat 1303 is rotatable about an axis C relative to the support base 1302. Accordingly, the second feature 1354 is movable, for example rotatable, with the child seat 1303 in and out of alignment with the first feature 1352 of the support base 1302.

[0316] The first and second features 1352, 1354 may be configured such that when the belt lock-off member 1314 is in the closed position and the first and second features 1352, 1354 are aligned, the second feature 1354 engages or contacts a surface of the first feature 1352. This engagement restricts movement of the belt lock-off member 1314 relative to the support base 1302, such as toward the open position. The one or more second features 1354 may be arranged about the child seat 1303 such that a second feature 1354 is in alignment with the first feature 1352 when the child seat 1303 is in one or more specific orientations relative to the support base 1302. For example, in the non-limiting embodiment illustrated in FIG. 51A, the second feature 1354 is positioned about the child seat 1303 such that when the child seat 1303 is in a side-facing configuration relative to the support base 1302, the second feature 1354 is engaged with the first feature 1352. As the child seat 1303 is rotated away from the side-facing configuration, such as toward a forward-facing configuration or a rearward-facing configuration (FIG. 51B), the second feature 1354 moves with the child seat 1303 out of engagement with the first feature 1352. When the first and second features are not aligned, the child seat 1303 does not restrict movement of the belt lock-off member 1314 from the closed position.

[0317] With reference now to FIGS. 52A-55, another example of a support base 1402 is illustrated in more detail. As in the previous embodiments, the support base 1402 may include a seat belt lock-off assembly 1404. As shown, the support base 1402 includes a base back 1406 and a base bottom 1408 and the seat belt lock-off assembly 1004 includes an opening 1410 formed at a front surface 1412 of the base back 1406. A belt lock-off member 1414 is

receivable within the opening 1410. A contour of the interior surface of the sidewalls (not shown) that define the opening 1410 may be complementary to a contour of the belt lock-off member 1414 such that the substantial entirety of the belt lock-off member 1414 is receivable within the opening 1410. The belt lock-off member 1414 is selectively movable, for example pivotable about an axis X14, relative to the front 1412 of the base back 1406 between an open position and a closed position to adjust a tension applied to the vehicle belt positioned along a vehicle belt receiving path extending between the front 1412 of the base back 1406 and the belt lock-off member 1414. The belt lock-off member 1414 may be mounted to the base back 1406 or to the base bottom 1408 of the support base 1402.

[0318] The belt lock-off member 1414 is illustrated in more detail in FIGS 53-54B. As shown, the belt lock-off member 1414 includes an elongated body having a length measured along a longitudinal axis L14 that is greater than the width of a vehicle belt strap. The body of the belt lock-off member 1414 includes a first central wall 1416 and a second central wall 1418 laterally spaced from the first central wall 1416. As shown, the first and second central walls 1416, 1418 may be oriented parallel to one another, at opposite sides of the central longitudinal axis L14. However, embodiments where the first and a second central walls 1416, 1418 have another configuration are also within the scope of the disclosure. As previously described, a lock-off tube (not shown) may but need not be arranged within the gap formed between the first and second central walls 1416, 1418. A flange 1420 is connected to an end of both the first and second central walls 1416, 1418. As shown, the flange 1420 extends laterally beyond both the first and second central walls 1416, 1418. The overall depth of the belt lock-off member 1414 defined by the flange 1420 and the first and second central walls 1416, 1418 is less than the depth of the opening formed in the support base 1402 within which the belt lock-off member 1414 is receivable in the closed position.

[0319] In the non-limiting embodiment illustrated, a plurality of ribs 1422a, 1422b are formed in the belt lock-off member 1414 and are engageable with a vehicle seat belt. As shown, the plurality of ribs 1422a, 1422b may be formed at an outwardly facing surface of the first central wall 1416 and/or the second central wall 1418. Although each rib 1422a formed at the first central wall 1416 is illustrated as being aligned with a corresponding rib 1422b formed at the second central wall 1418, embodiments where the ribs 1422a at the first central wall 1418 are offset or staggered relative to the ribs 1422b formed at the second central wall 1418 are also contemplated herein. The ribs 1422a, 1422b may be formed as protrusions extending outwardly from a surface of a corresponding central wall 1416, 1418. In other embodiments, as shown in the FIGS., the ribs 1422a, 1422b may be defined by notches formed in the surface

of a corresponding central wall 1416, 1418. As the belt lock-off member 1414 is moved toward the closed position to couple the support base 1402 to a vehicle belt, the outwardly facing surfaces of the first and second central walls 1416, 1418, and therefore the ribs 1422a, 1422b formed thereat, engage a surface of the adjacent vehicle belt. It should be appreciated that any of the belt lock-off members 101, 210, 314, 414, 514, 614, 714, 814, 914, 1014, 1114, 1214, and 1314 described herein may have a configuration corresponding to belt lock-off member 1414.

[0320] With continued reference to FIG. 52A-52B and further reference to FIGS. , at least one belt guide 1430, 1432 may be arranged at the support base 1402. The belt guides 1430, 1432 are engageable with a vehicle belt at an exterior of the support base 1402, separate from the seat belt lock-off assembly 1404. In the illustrated, non-limiting embodiment, the support base 1402 includes at least one upper belt guide 1430 positioned at the base back 1406 of the support base 1402, such as proximate the opening 1410 for receiving the belt lock-off member 1414. Alternatively, or in addition, the support base 1402 may include at least one lower belt guide 1432 arranged at a lower region of the support base 1402, such as proximate an interface between the base back 1406 and the base bottom 1408. An upper belt guide 1430 may be operable to receive a shoulder belt portion of a vehicle belt and a lower belt guide 1432 may be operable to receive a lap belt of a vehicle belt.

[0321] Although substantially identical belt guides 1430, 1432 are illustrated as being arranged at opposite sides of the support base 1402, it should be appreciated that embodiments having a single upper belt guide 1430 and/or a single lower belt guide 1432 are within the scope of the disclosure. Further, in embodiments including a plurality of belt guides 1430, 1432, the belt guides 1430, 1432 may have varying configurations and/or may be arranged at different vertical and lateral positions based on the vehicle belt path relative to the support base 1402. It should be appreciated that any of support bases 22, 202, 302, 402, 502, 602, 702, 802, 902, 1002, 1102, 1302 may have one or more of an upper belt guide 1430 and a lower belt guide 1432 as described herein.

[0322] With continued reference to FIGS. 52A-52B, and further reference to FIGS. 55A-55B, an example of an upper belt guide 1430 is illustrated in more detail. As shown, upper belt guide 1430 includes a main body 1440 and a mounting region 1442 extending at a non-parallel angle relative to the main body 1440. The mounting region 1442 is operable to connect the upper belt guide 1430 to the support base 1402. For example, the mounting region 1442 may include a mounting post receivable within a corresponding opening formed at the support base 1402. As installed, the main body 1440 of the upper belt guide 1430 is offset from a

surface of the support base 1402, such as front surface 1412 for example. The clearance 1444 defined between the main body 1440 and the adjacent surface 1412 of the support base 1402 forms a slot within which the vehicle belt is receivable.

[0323] The upper belt guide 1430 may include a one or more features 1450 that facilitate receipt of the vehicle belt and further guide it about the support base 1402. In the illustrated, non-limiting embodiment, the one or more features includes one or more guide ribs 1450 arranged at an underside of the main body 1440, facing toward the front surface 1412 of the support base 1402. Accordingly, the clearance 1444 for receiving the vehicle belt may be defined between the at least one guide rib 1450 and the front surface 1412 of the support base 1402. Inclusion of the guide ribs 1450 may provide additional stiffness and strength to the upper belt guide 1430 at a region where the vehicle belt presses against the upper belt guide 1430. As shown, a contour of each guide rib 1450 may vary over a length of the main body 1440. For example, a distance that the guide rib 1450 protrudes from an adjacent surface of the main body 1440 may decrease in a direction away from the mounting region 1442.

[0324] With reference now to FIGS. 56A-57B, additional examples of a support base 1500, 1600 of a child seat system are provided. In the illustrated, non-limiting embodiments, each of the support bases 1502, 1602 is intended for use with an infant car seat. An infant car seat is removably connectable to the support base 1502, 1602 and has a handle affixed thereto for carrying the infant car seat while an occupant is seated therein.

[0325] With reference to FIGS. 56A and 56B, the support base 1502 is illustrated as having a body in the form of a base bottom 1504 having a bottom surface 1506 positionable in contact with a vehicle seat. In the illustrated, non-limiting embodiment, the support base 1502 does not have a base back extending from the base bottom 1504 as described in the previous embodiments. One or more openings 1508 defining a vehicle belt path may be formed in the support base 1502. The openings 1508 may extend from the bottom surface 1506 to a top surface 1510 of the base bottom 1504. Accordingly, a vehicle belt 1501 may extend from the bottom surface 1506 of the support base 1502, through a first opening 1508, overlap a portion of the top surface 1508 of the support base 1502, and extend through a second opening 1508 to the bottom surface 1506 of the support base 1502 proximate an opposite side thereof.

[0326] A seat belt lock-off assembly 1520 is associated with a support base 1502 and includes a belt lock-off member 1522 movable between an open position (FIG. 56A) a closed position (FIG. 56B). The seat belt lock-off assembly 1520 includes an opening 1524 formed at the top surface 1508 of the base bottom 1504 and the belt lock-off member 1522 is receivable within the opening 1524. A contour of the interior surface of the sidewalls 1526 that define the

opening 1524 may be complementary to a contour of the belt lock-off member 1522 such that the substantial entirety of the belt lock-off member 1522 is receivable within the opening 1524. As in the embodiments previously described herein, the belt lock-off member 1522 is movable, for example pivotable about an axis X15, relative to the top surface 1508 of the base bottom 1506 between an open position and a closed position to adjust a tension applied to the vehicle belt 1501 positioned along a vehicle belt receiving path extending between the top surface 1508 of the base bottom 1504 and the belt lock-off member 1522.

[0327] As in the previously described embodiments, the seat belt lock-off assembly 1520 includes a belt lock-off member locking assembly 1530 having a first lock (not shown) and a lock-off release actuator 1540 associated with the first lock. Although not shown, it should be appreciated that a configuration of the first lock may be substantially identical to any of the first locks previously described herein. A portion of the first lock and the lock-off release actuator 1540 are mounted to and are movable with the belt lock-off member 1522 relative to the support base 1502. In the illustrated, non-limiting embodiment, the lock-off release actuator 1540 is arranged at, and may extend beyond a distal end 1528 of the belt lock-off member 1522. When the belt lock-off member 1522 is in the closed position, both the belt lock-off member 1522 and the lock-off release actuator 1540 may be receivable within the opening 1524.

[0328] The lock-off release actuator 1540 is movable, for example translatable and/or rotatable, relative to the belt lock-off member 1522 to transform the first lock from a locked configured to an unlocked configuration. The belt lock-off member 1522 is rotatable from the closed position to the open position only when the first lock is in the unlocked configuration. In an embodiment, a user engagement feature 1542, such as a groove for example, may be formed at an exposed actuation surface 742 of the lock-off release actuator 1540. The user engagement feature 1542 may provide an area for a user to engage and operate the lock-off release actuator 1540.

[0329] With reference now to FIG. 57A, an example a child seat system 1600 is illustrated. The child seat system 1600 includes a support base 1602 and a child seat, such as an infant car seat 1604, removably connectable to the support base 1602. The non-limiting embodiment of a support base 1602 illustrated in the FIGS. includes a base back 1610 and a base bottom 1612, the base back 1610 extending at an angle from the base bottom 1612. In embodiments where the support base 1602 is configured to receive an infant car seat 1604, the base back 1610 of the support base 1602 may have a reduced height compared to the embodiments illustrated in FIGS. 1-52B. For example, the maximum height of the base back

1610 may be less than 16 inches from a bottom surface 1614 of the base bottom 1612, and in some embodiments, less than 12 inches. As shown, the base back 1610 does not extend beyond the front end 1606 of the child seat 1604, where a child's legs are positioned, when the child seat 1604 is mounted to the support base 1602.

[0330] The support base 1602 may include a seat belt lock-off assembly 1620 including an opening 1622 formed at a front surface 1616 of the base back 1610 of the support base 1602, as well as a belt lock-off member 1624 receivable within the opening 1622 (as shown). In the illustrated, non-limiting embodiment, the belt lock-off member 1624 is illustrated as extending from the base bottom 1612; however, it should be understood that embodiments where the belt lock-off member 1624 extends from the base back 1610 are also contemplated herein.

[0331] A contour of the interior surface of the sidewalls (not shown) that define the opening 1622 may be complementary to a contour of the belt lock-off member 1624 such that the substantial entirety of the belt lock-off member 1624 is receivable within the opening 1622. The belt lock-off member 1624 is selectively movable, for example pivotable about an axis (not shown), relative to the support base 1602 between an open position and a closed position (FIG. 57B) to adjust a tension applied to a vehicle belt 1601 positioned along a vehicle belt receiving path extending between the front 1616 of the base back 1610 and the belt lock-off member 1622. Further, due to the positioning of the belt lock-off member 1624 relative to the support base 1602, the vehicle belt receiving path may extending between a top 1618 of the base bottom 1612 and the belt lock-off member 1622.

[0332] In the illustrated, non-limiting embodiment, the end (not shown) of the belt lock-off member 1624 at or positioned closest to the base bottom 1612 is rotatably coupled to the support base 1602. However, in other embodiments, an opposite end of the belt lock-off member 1624, such as the end 1626 positioned closes to a top 1619 of the base back 1610 for example, may be rotatably coupled to the support base 1602. Although not shown, the seat belt lock-off assembly 1620 may additionally include a belt lock-off member locking assembly having a first lock and a corresponding lock-off release actuator associated with operation of the first lock. The belt lock-off member locking assembly may be any of the configurations previously described herein with respect to FIGS. 1-51B.

[0333] With reference again to FIGS. 56A-57B, it should be appreciated that belt lock-off member locking assemblies (not shown) of the seat belt lock-off assemblies 1520, 1620 may additionally include a secondary component, such as a cover or second lock as described herein, operable to obstruct access to the corresponding lock-off release actuator 1540 or restrict movement of the lock-off release actuator 1540. In the non-limiting embodiment of

FIGS 57A and 57B, the support base 1602 additionally includes a seat receiving element 1650 movably mounted to the base bottom 1612. The seat receiving element 1650 may be translatable rotatable relative to the support base 1602 to adjust an incline of the child seat 1604 mounted thereto and/or may be rotatable relative to the support base 1602. The seat receiving element 1650 may be rotatable between a use position (shown) and an access position, rotated about 90 degrees relative to the use position. In an embodiment, the seat receiving element 1650 is operable as a secondary component to restrict movement of the belt lock-off member 1624 and/or hinder operation of the lock-off release actuator. When the belt lock-off member 1624 is in the closed position, the seat receiving element 1650 in the use position may restrict or block movement of the belt lock-off member 1624 relative to the support base 1602, such as toward the open position. In such embodiments, the belt lock-off member 1624 may only be transformable to the open position when the seat receiving element 1650 is rotated relative to the use position, such as in an access position for example.

[0334] The term "about" is intended to include the degree of error associated with measurement of the particular quantity based upon the equipment available at the time of filing the application. As used herein, the term "substantially" and derivatives thereof, and words of similar import, when used to describe a size, shape, orientation, distance, spatial relationship, or other parameter includes the stated size, shape, orientation, distance, spatial relationship, or other parameter, and can also include a range up to 10% more and up to 10% less than the stated parameter, including 5% more and 5% less, including 3% more and 3% less, including 1% more and 1% less.

[0335] The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the present disclosure. As used herein, the singular forms "a," "an" and "the" are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms "comprises" and/or "comprising," when used in this specification, 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, element components, and/or groups thereof.

[0336] While the present disclosure has been described with reference to an exemplary embodiment or embodiments, it will be understood by those skilled in the art that various changes may be made, and equivalents may be substituted for elements thereof without departing from the scope of the present disclosure. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the present disclosure without

departing from the essential scope thereof. Therefore, it is intended that the present disclosure not be limited to the particular embodiment disclosed as the best mode contemplated for carrying out this present disclosure, but that the present disclosure will include all embodiments falling within the scope of the claims.

What is claimed is:

1. A support base of a child seat system, the child seat system being positionable on a vehicle seat and including a child seat positionable on the support base, the support base comprising:

a base body sized to receive the child seat thereon;

a seat belt lock-off assembly arranged at the base body, the seat belt lock-off assembly being operable to secure a vehicle belt of the vehicle seat to the support base, the seat belt lock-off assembly including:

a belt lock-off member;

a first lock transitionable between a locked configuration in which the belt lock-off member is retained in a closed position, and an unlocked configuration, in which the belt lock-off member is movable between the closed position and an open position, and

a lock-off release actuator operable to transition the first lock between the locked configuration and the unlocked configuration, wherein the lock-off release actuator is arranged at a location spaced from the belt lock-off member and the first lock.

2. The support base of claim 1, wherein the lock-off release actuator is arranged at the base back.

3. The support base of claim 2, wherein the belt lock-off member is receivable within an opening formed in the base body, the lock-off release actuator being arranged proximate the opening.

4. The support base of claim 2, wherein the base body further comprises a base bottom positionable on the vehicle seat and a base back extending from the base bottom, the belt lock-off member being receivable within an opening formed in the base back.

5. The support base of claim 4, wherein a portion of the lock-off release actuator is arranged at an upper end of the base back.

6. The support base of claim 1, wherein the lock-off release actuator is connected to the child seat.

7. The support base of claim 6, wherein the lock-off release actuator includes a key arranged at the child seat.

8. The support base of claim 1, further comprising a secondary component operably coupled to the first lock, the secondary component being positionable in overlapping arrangement with the lock-off release actuator.

9. The support base of claim 8, wherein the secondary component movable between first position and a second position, the lock-off release actuator being accessible at the exterior of the base body when the secondary component is in the second position and the lock-off release actuator being inaccessible when the secondary component is in the first position.

10. The support base of claim 9, wherein the secondary component is rotatable about an axis between the first position and the second position.

11. The support base of claim 9, wherein the secondary component is translatable about an axis between the first position and the second position.

12. The support base of claim 8, wherein the secondary component includes a cover having a slot formed therein and a key is insertable into the slot to engage the lock-off release actuator.

13. The support base of claim 12, wherein the key is mounted to the support base.

14. The support base of claim 12, wherein the key is connected to the child seat.

15. The support base of claim 1, further comprising a secondary component associated with the first lock, the secondary component being positionable to restrict operation of the lock-off release actuator.

16. The support base of claim 15, wherein the secondary component is movable between a first position and a second position, the first lock being transitionable from the locked configuration to the unlocked configuration only when the secondary component is in the second position.

17. A support base of a child seat system, the child seat system being positionable on a vehicle seat and including a child seat positionable on the support base, the support base comprising:

a base body sized to receive the child seat thereon;

a seat belt lock-off assembly arranged at the base body, the seat belt lock-off assembly being operable to secure a vehicle belt of the vehicle seat to the support base, the seat belt lock-off assembly including:

a belt lock-off member;

a first lock transitionable between a locked configuration in which the belt lock-off member is retained in a closed position, and an unlocked configuration, in

which the belt lock-off member is movable between the closed position and an open position, and

a lock-off release actuator operable to transition the first lock between the locked configuration and the unlocked configuration, the lock-off release actuator having an actuation surface spaced from the belt lock-off member along the base body.

18. The support base of claim 17, wherein the base body further comprises a base bottom positionable on a vehicle seat and a base back extending from the base bottom, the seat belt lock-off assembly being arranged at at least one of the base bottom and the base body.

19. The support base of claim 18, wherein the lock-off release actuator is arranged at the base back.

20. The support base of claim 18, wherein the belt lock-off member is receivable within an opening formed in the base back, the lock-off release actuator being spaced from the opening.

21. The support base of claim 18, wherein the actuation surface is arranged at an upper end of the base back.

22. The support base of claim 18, wherein the lock-off release actuator is translatable to transition the first lock from the locked configuration to the unlocked configuration.

23. The support base of claim 18, further comprising a second lock associated with the first lock, wherein the first lock is in the locked configuration when the second lock is in a first position.

24. The support base of claim 23, wherein the second lock is arranged at the base back between the belt lock-off member and the actuation surface.

25. The support base of claim 23, wherein the second lock is arranged at an upper end of the base back.

26. The support base of claim 23, wherein the second lock is movable between the first position and a second position and the first lock is transitionable from the locked configuration to the unlocked configuration only when the second lock is in the second position.

27. The support base of claim 23, wherein the second lock is movable between the first position and a second position and the lock-off release actuator is accessible only when the second lock is in the second position.

28. The support base of claim 23, wherein the second lock is a cover, the cover being rotatable about an axis between the first position and a second position.

29. The support base of claim 23, wherein the second lock is translatable between the first position and a second position.

30. A support base of a child seat system, the child seat system being positionable on a vehicle seat and including a child seat positionable on the support base, the support base comprising:

a base body sized to receive the child seat thereon;

a seat belt lock-off assembly arranged at the base body, the seat belt lock-off assembly being operable to secure a vehicle belt of the vehicle seat to the support base, the seat belt lock-off assembly including:

a belt lock-off member;

a first lock transitionable between a locked configuration in which the belt lock-off member is retained in a closed position, and an unlocked configuration, in which the belt lock-off member is movable between the closed position and an open position, and

a lock-off release actuator being configured to transition the first lock between the locked configuration and the unlocked configuration, and

a cover associated with the lock-off release actuator, the cover being transitionable between a first position in which the lock-off release actuator is inaccessible by a user, and a second position in which the lock-off release actuator is accessible by the user.

31. The support base of claim 28, wherein the cover is arranged at the belt lock-off member.

32. The support base of claim 29, wherein the belt lock-off member is receivable within an opening formed in the base body, wherein the belt lock-off member and the cover in the first position, in combination, have a contour corresponding to the opening.

33. The support base of claim 29, wherein the cover is rotatably coupled to the belt lock-off member between the first position and the second position.

34. The support base of claim 29, wherein the cover is translatable relative to the belt lock-off member between the first position and the second position.

35. The support base of claim 29, wherein the lock-off release actuator is arranged at the belt lock-off member.

36. The support base of claim 29, wherein the lock-off release actuator is arranged at the base back.

37. The support base of claim 28, wherein the base body further comprises a base bottom positionable on the vehicle seat and a base back extending from the base bottom, the seat belt lock-off assembly being arranged at at least one of the base body and the base bottom.

38. The support base of claim 37, wherein the cover is movably mounted at the lock-off release actuator.

39. The support base of claim 38, wherein the lock-off release actuator includes a user engagement feature, the user engagement feature being inaccessible by the user when the cover is in the first position and the user engagement feature being accessible by the user when the cover is in the second position.

40. The support base of claim 39, wherein the cover is translatable relative to the user engagement feature between the first position and the second position.

41. The support base of claim 38, wherein the lock-off release actuator is coupled to the belt lock-off member.

42. The support base of claim 37, wherein the cover is arranged at the base back.

43. The support base of claim 42, wherein the cover is rotatable relative to the base back between the first position and the second position.

44. The support base of claim 42, wherein the cover is flush with an adjacent surface of the base back when in the first position.

45. The support base of claim 42, wherein the lock-off release actuator is arranged at the base back.

46. A support base of a child seat system, the child seat system being positionable on a vehicle seat and including a child seat positionable on the support base, the support base comprising:

a base body sized to receive the child seat thereon;

a seat belt lock-off assembly arranged at the base body, the seat belt lock-off assembly being operable to secure a vehicle belt of the vehicle seat to the support base, the seat belt lock-off assembly including:

a belt lock-off member;

a first lock transitionable between a locked configuration in which the belt lock-off member is retained in a closed position, and an unlocked configuration, in

which the belt lock-off member is movable between the closed position and an open position, and

a second lock transitionable between a first position, in which the first lock is retained in the locked configuration, and a second position, in which the first lock is movable between the locked configuration and the unlocked configuration.

47. The support base of claim 43, wherein the first lock is movable along a path of movement between the locked configuration and the unlocked configuration, the second lock in the first position obstructs the path of movement.

48. The support base of claim 43, further comprising a lock-off release actuator operable to transition the first lock between the locked configuration and the unlocked configuration.

49. The support base of claim 45, wherein the lock-off release actuator is affixed to and is movable in unison with a portion of the first lock.

50. The support base of claim 45, wherein the lock-off release actuator is movable relative to the first lock.

51. The support base of claim 45, wherein the lock-off release actuator is movable to transition the first lock between the locked configuration and the unlocked configuration only when the second lock is in the second position.

52. The support base of claim 45, wherein the lock-off release actuator is coupled to the belt lock-off member.

53. The support base of claim 49, wherein the second lock is movably mounted at the lock-off release actuator.

54. The support base of claim 50, wherein in the first position, the second lock is directly engaged with the belt lock-off member.

55. The support base of claim 49, wherein the second lock is movably mounted to the belt lock-off member at a position remote from the lock-off release actuator.

56. The support base of claim 45, wherein the base body further comprises a base bottom positionable on the vehicle seat and a base back extending from the base bottom, the seat belt lock-off assembly being arranged at at least one of the base bottom and the base back.

57. The support base of claim 36, wherein the second lock is arranged at the base back, at a position remote from the belt lock-off member.

58. The support base of claim 57, wherein the lock-off release actuator is arranged at the base back.

59. The support base of claim 58, wherein the lock-off release actuator has an actuation surface that is accessible by a user, the actuation surface being arranged at an upper edge of the base back, the second lock being positioned between the belt lock-off member and the actuation surface of the lock-off release actuator.

60. The support base of claim 58, wherein the lock-off release actuator has an actuation surface that is accessible by a user, the actuation surface being arranged at an upper edge of the base back, the second lock being positioned at the upper edge of the base back proximate the actuation surface.

61. The support base of claim 46, wherein the second lock is translatable between the first position and the second position.

62. A support base of a child seat system, the child seat system being positionable on a vehicle seat and including a child seat positionable on the support base, the support base comprising:

a base body sized to receive the child seat thereon;

a seat belt lock-off assembly arranged at the base body, the seat belt lock-off assembly being operable to secure a vehicle belt of the vehicle seat to the support base, the seat belt lock-off assembly including:

a belt lock-off member;

a first lock transitionable between a locked configuration in which the belt lock-off member is retained in a closed position, and an unlocked configuration, in which the belt lock-off member is movable between the closed position and an open position, and

a lock-off release actuator including a flexible member, the flexible member being movable between a first position in which the first lock is retained in the locked configuration and a second position in which the first lock is free to move, wherein the flexible member is biased toward the second position.

63. The support base of claim 62, wherein the flexible member is integrally formed with the lock-off release actuator.

64. The support base of claim 62, wherein the flexible member is formed from a resilient material such that the flexible member is biased toward the second position.

65. The support base of claim 62, further comprising a catch arranged proximate the flexible member, the flexible member being engaged with the catch when in the second position.

66. The support base of claim 65, further comprising a pocket proximate the catch, the flexible member being receivable within the pocket when in the second position.

67. The support base of claim 66, wherein the catch is arranged at the belt lock-off member, the pocket being defined between the catch and a surface of the belt lock-off member.

68. The support base of claim 65, wherein the lock-off release actuator is arranged at the belt lock-off member.

69. The support base of claim 62, wherein the lock-off release actuator is affixed to and is movable in unison with a portion of the first lock.

70. The support base of claim 62, wherein the lock-off release actuator is movable relative to the first lock.

71. The support base of claim 58, further comprising a biasing mechanism operably coupled to the first lock, the biasing mechanism being operable to bias the first lock toward the locked configuration.

72. A support base of a child seat system, the child seat system being positionable on a vehicle seat and including a child seat positionable on the support base, the support base comprising:

a base body sized to receive the child seat thereon;

a seat belt lock-off assembly arranged at the base body, the seat belt lock-off assembly being operable to secure a vehicle belt of the vehicle seat to the support base, the seat belt lock-off assembly including:

a belt lock-off member movable between an open position and a closed position, the belt lock off member being receivable within an opening formed in the base body in the closed position;

a first lock transitionable between a locked configuration in which the belt lock-off member is retained in the closed position, and an unlocked configuration, in which the belt lock-off member is movable between the closed position and the open position, and

a lock-off release actuator operable to transition the first lock between the locked configuration and the unlocked configuration, and

an engagement member associated with the first lock, the engagement member being positionable within the opening when the belt lock-off member is in the closed position, wherein when the engagement member is arranged within the opening, the first lock is retained within the locked configuration.

73. The support base of claim 72, wherein the lock-off release actuator is inaccessible by a user when the engagement member is arranged within the opening, and the lock-off release actuator is accessible by the user when the engagement member is remote from the opening.

74. The support base of claim 72, wherein the engagement member is tethered to the support base.

75. The support base of claim 72, wherein the engagement member is tethered to the child seat.

76. The support base of claim 72, wherein the lock-off release actuator is movably mounted to the belt lock-off member, the lock-off release actuator being positionable within the opening when the belt lock-off member is in the closed position.

77. The support base of claim 72, wherein the engagement member installed within the opening is in overlapping arrangement with the lock-off release actuator.

78. The support base of claim 72, wherein the engagement member includes a first feature and the lock-off release actuator includes a second feature, the first feature is engageable with the second feature to restrict movement of the lock-off release actuator.

79. The support base of claim 72, wherein the base body further comprises a base bottom positionable on the vehicle seat and a base back extending from the base bottom, the opening in which the belt lock off member is receivable being formed in the base back.

80. A support base of a child seat system, the child seat system being positionable on a vehicle seat and including a child seat positionable on the support base, the support base comprising:

a base body;

a seat belt lock-off assembly arranged at the base body, the seat belt lock-off assembly being configured to secure a vehicle belt of the vehicle seat to the base body, the seat belt lock-off assembly including a belt lock-off member having a plurality of ribs configured to engage the vehicle belt within an opening formed in the base body; and

at least one belt guide mounted to the base body, the at least one belt guide having at least one guide rib configured to engage the vehicle belt at a location remote from the opening.

81. The support base of claim 80, wherein the base body further comprises a base bottom positionable on the vehicle seat and a base back extending from the base bottom, the opening in which the belt lock off member is receivable being formed in the base back.

82. The support base of claim 81, wherein the opening is formed in the base back.

83. The support base of claim 80, wherein the at least one belt guide is arranged at a front surface of the base back.

84. The support base of claim 83, wherein a clearance is formed between the at least one belt guide and the front surface, the vehicle belt being receivable within the clearance.

85. The support base of claim 84, wherein the clearance is defined between the at least one guide rib and the front surface.

86. The support base of claim 80, wherein a configuration of the at least one guide rib varies over the at least one belt guide.

87. The support base of claim 80, wherein the belt-lock off member includes a first central wall and a second central wall, the plurality of ribs being arranged at at least one of the first central wall and the second central wall.

88. The support base of claim 87, wherein the plurality of ribs are arranged at an outwardly facing surface of at least one of the first central wall and the second central wall.

89. The support base of claim 87, wherein a first portion of the plurality of ribs is arranged at the first central wall and a second portion of the plurality of ribs is arranged at the second central wall, the first portion of the plurality of ribs being aligned with the second portion of the plurality of ribs.

90. The support base of claim 87, wherein a first portion of the plurality of ribs is arranged at the first central wall and a second portion of the plurality of ribs is arranged at the second central wall, the first portion of the plurality of ribs being staggered relative to the second portion of the plurality of ribs.

91. The support base of claim 87, wherein at least one of the plurality of ribs is a protrusion extending from at least one of the first central wall and the second central wall.

92. The support base of claim 87, wherein at least one of the plurality of ribs is a groove formed in at least one of the first central wall and the second central wall.