

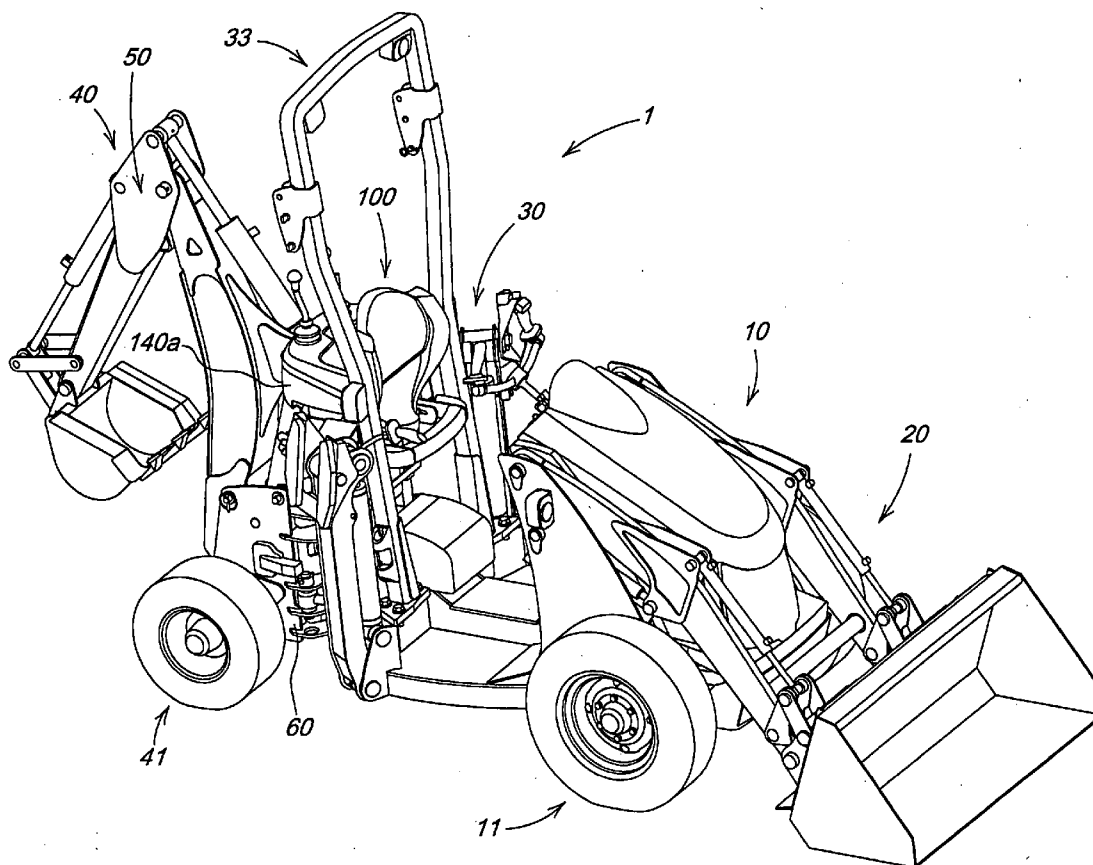


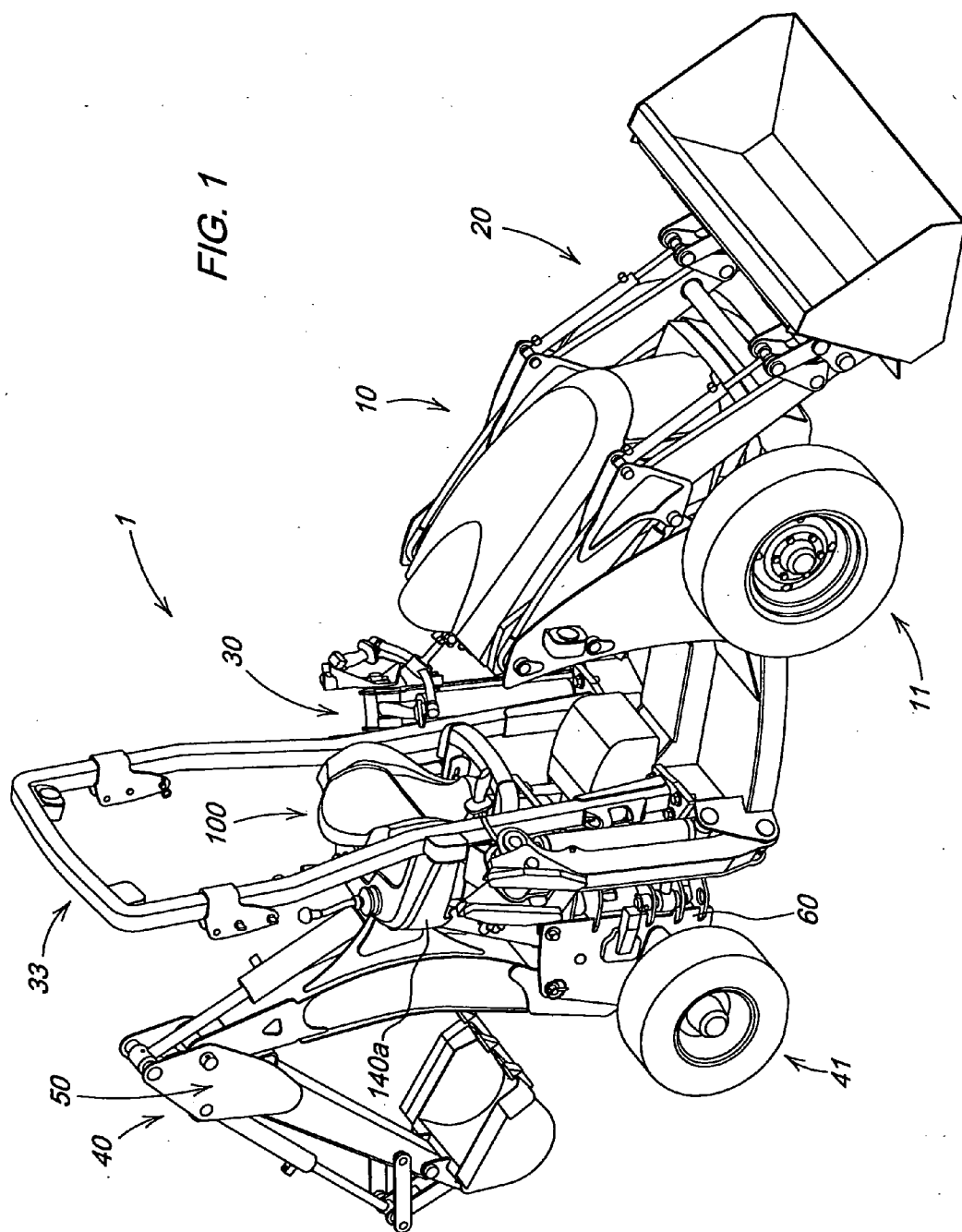
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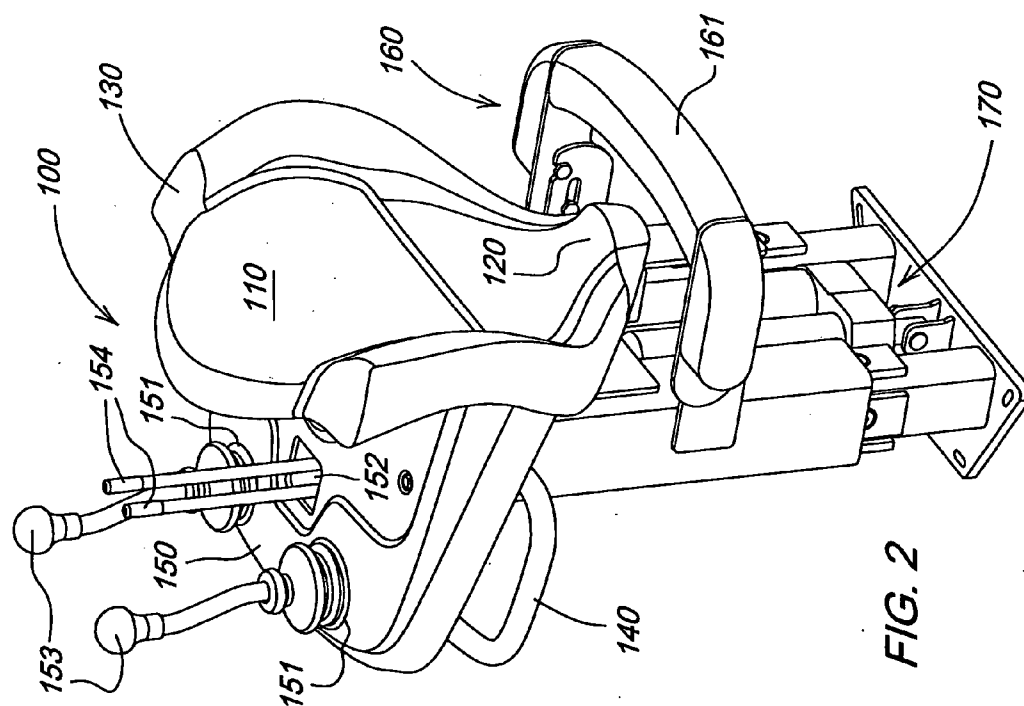
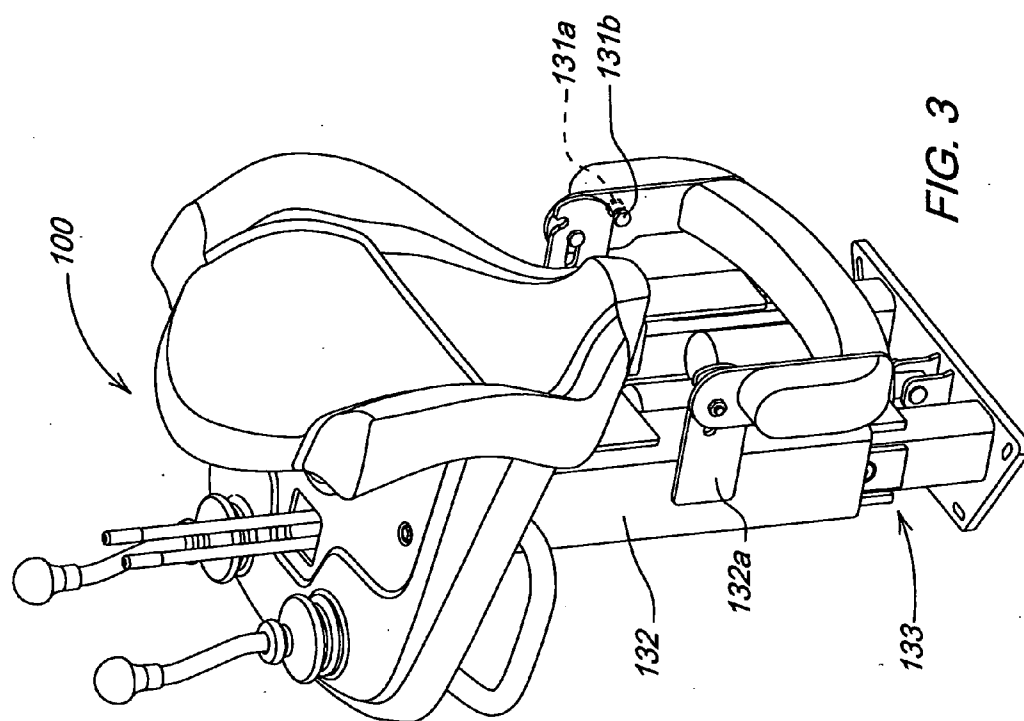
(19) **United States**(12) **Patent Application Publication**  
**Hendron et al.**(10) **Pub. No.: US 2006/0131941 A1**(43) **Pub. Date: Jun. 22, 2006**(54) **TWO WAY SEAT****Publication Classification**(76) Inventors: **Scott Svend Hendron**, Dubuque, IA (US); **Scott Edward Bender**, Cedar Falls, IA (US); **Jonathan Frederick Pope**, Hackensack, NJ (US); **Matt Raymond Branscomb**, Lakeville, MN (US)(51) **Int. Cl.**  
**A47C 1/12** (2006.01)  
(52) **U.S. Cl.** ..... **297/331**(57) **ABSTRACT**

A seating apparatus includes a torso rest and a semi-seat support or partial support for the seat of the operator of a work vehicle. The torso rest provides support for the torso when the operator leans against the torso rest in a semi standing position and is contoured to act as a backrest in a first operator position and as a front rest in a operator second position. The semi-seat support acts as a partial seat support only in the first operator position. The seating apparatus may also include an additional stowable seat support, armrests, a height adjustment assist mechanism and/or a control console.

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(21) Appl. No.: **11/013,974**(22) Filed: **Dec. 16, 2004**





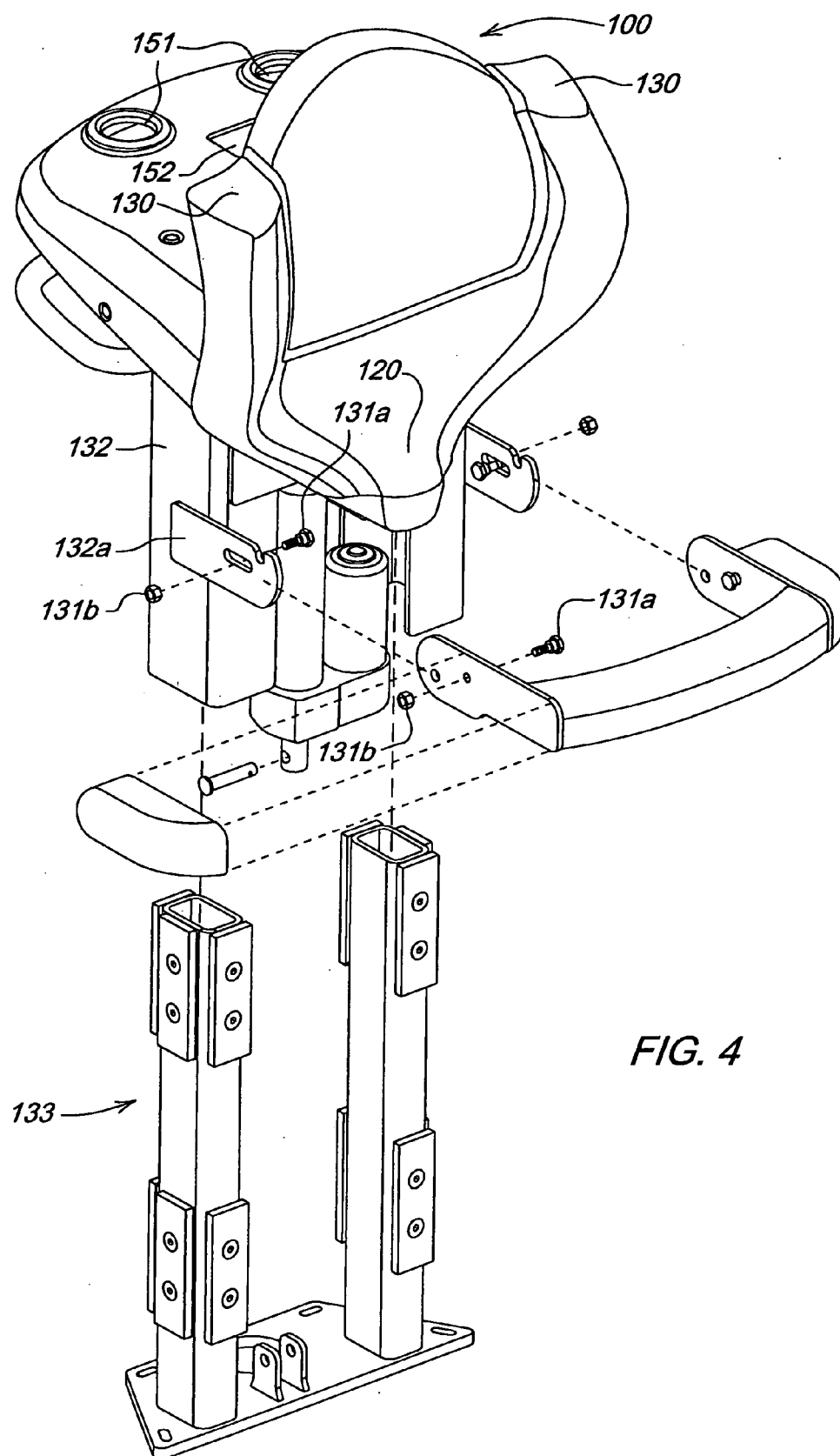


FIG. 4

## TWO WAY SEAT

### FIELD OF THE INVENTION

[0001] The invention relates to seats for work vehicles. More specifically, it relates to a device and method for comfortably supporting an operator in a multiuse work vehicle, such as a compact loader backhoe, having a first operating position and a second operating position where, for example, the first operating position is a loader operating position and the second operating position is a backhoe operating position.

### BACKGROUND OF THE INVENTION

[0002] Conventional seats for work vehicles are designed for vehicle operation from a fully seated operator position. In multiuse vehicles such as, for example, loader backhoes, in which the operator is required to control the work functions of the vehicle from different angular positions of the seat, the seats have traditionally been designed to rotate to each of the required angles. In many very compact vehicles in which space has been, traditionally, a problem, no seat is provided. In such cases the vehicle operator is required to operate the vehicle from a standing position.

### SUMMARY OF THE INVENTION

[0003] In multiuse compact vehicles wear work operations may take hours or days to complete, the full standing position is not practical as it is physically tiring. Further, the fully seated position is often not feasible as it requires a rotatable seat in a vehicle in which space is not available. Such a situation requires that the operator have the advantage of comfortably operating the vehicle from at least two angles relative to the vehicle with a space saving seating arrangement.

[0004] The invention provides a seating apparatus that affords the vehicle operator a semi standing position in multiple work positions conducive to operations on multiuse vehicles such as compact loader backhoes. The seating apparatus provides a first portion, or torso rest, and a second portion, or partial seat support integral to the torso rest. The torso rest is a relatively wide portion at a first end of the seating apparatus which is designed to act as a backrest in a first operator position and a front rest in a second operator position. When used as a backrest, the torso rest supports a rear portion of the operator's torso; when used as a front rest, the torso rest supports a front portion of the operator's torso. The first portion narrows and angles toward the operator to form a short support, i.e., a partial or semi-seat support at the second portion of the seating apparatus. The seating apparatus may include height adjustment to accommodate operators of different heights and builds. To transition from one mode of operation to another the operator is merely required to turn his/her body to the required position and use the torso rest as either a backrest or a front rest and use the semi-seat support as a partial seat support, as appropriate.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0005] Embodiments of the invention will be described in detail, with references to the following figures, wherein:

[0006] **FIG. 1** is an oblique view of a work vehicle including an exemplary embodiment of the invention;

[0007] **FIG. 2** is an oblique view of an exemplary embodiment of the invention in which a sit bar is extended;

[0008] **FIG. 3** is an oblique view of the embodiment of the two in which the sit bar is stowed; and

[0009] **FIG. 4** is an exploded view of the exemplary embodiment illustrated in **FIG. 2**.

### DESCRIPTION OF FIG PREFERRED EMBODIMENT

[0010] **FIG. 1** is an oblique view of a compact work vehicle, i.e., a compact articulated loader backhoe or swing steer 1 incorporating an exemplary embodiment of the invention (see seating apparatus 100). The swing steer 1 illustrated in **FIG. 1** includes a loader portion 10; a cab 30; and a backhoe portion 40. The loader portion 10 includes: front wheels 11 and a loader mechanism 20. Also included in the loader portion 10 are the engine (not shown), hydraulic pump (not shown) and the transmission (not shown). The backhoe portion 40 includes: rear wheels 41; a backhoe mechanism 50; and steering mechanism 60. The cab 30 includes: controls 31, 32; roll bar 33; and the seating apparatus 100.

[0011] **FIG. 2** is an oblique view of the seating apparatus 100 illustrated in **FIG. 1**. As shown in **FIG. 2**, the seating apparatus 100 of this exemplary embodiment of the invention includes: an integral operator rest 105 including a torso rest 110 and a semi-seat support 120; forearm rests 130; a plastic trim support 140; a control console molding 150 having apertures 151, 152 for control levers 153, 154; a sit bar assembly 160; and a height adjustment assist mechanism 170. The height adjustment assist mechanism 170 of this exemplary embodiment is a conventional hydraulic mechanism and, as such, is not detailed here. In this particular embodiment, height adjustment is ultimately accomplished via relative movements between a female slide 132, to which the torso rest is attached, and a male slide 133. The female slide 132 slides upon the male slide 133 during height adjustments.

[0012] The torso rest 110 is contoured to provide a comfortable backrest during loader operations, i.e., when the operator is facing the loader portion 10 and a comfortable front rest for the torso during backhoe operations, i.e., when the operator is facing the backhoe portion 40. Toward the top of and integral to the torso rest 110 are the arm rests 130. Toward the bottom of the torso rest 110, the operator rest 105 narrows and protrudes toward the loader portion 10 to form the semi-seat support 120. The semi-seat support 120 is shaped and dimensioned to provide partial support for the seat of the operator during loader operations and to provide little to no support and no interference during backhoe operations.

[0013] The torso rest 110 of this exemplary embodiment is rigidly attached to the control console 150 and the female slide 132 which includes rigidly attached sit bar support brackets 132a. The sit bar 161 of the sit bar assembly 160 is operatively attached to the support brackets 132a as illustrated in **FIGS. 2 and 3** and optionally affords additional support for the seat of the operator. As shown in **FIGS. 2 and 3**, the sit bar 161 as two positions; a support position as illustrated in **FIG. 2** which provides additional support for the seat of the operator, and a stowage position as illustrated in **FIG. 3** which avoids interference with the operator during backhoe operations.

[0014] Protruding from the torso rest 110 toward the backhoe portion 40 is the control console 150 including apertures 150, 151, 152 through which the controls 150a for backhoe operations protrude. Also, rigidly attached to the female slide 132 and the control console 150 is a plastic trim support 140 which supports and maintains the shape of the trim 140a illustrated in FIG. 1.

[0015] During work operations for the illustrated swing steer 1, the vehicle operator may merely assume a position facing the loader portion 10 or the backhoe portion 40 and lean against the torso rest 110, using it (the torso rest 110), respectively, as a backrest or a front rest. During loader operations, the semi-seat support 120 may partially support the seat of the operator; the sit bar 161 may optionally provide additional support for the seat of the operator in the support position illustrated in FIG. 2. During backhoe operations, the sit bar 161 is conveniently placed in the stowage position, as illustrated in FIG. 3, and the arms of the operator are placed on the arm rests 130 to provide comfortable access to the backhoe controls 150a and reduce potential operator arm fatigue.

[0016] Having described the illustrated embodiment, it will become apparent that various modifications can be made without departing from the scope of the invention as defined in the accompanying claims.

1. A two way seat comprising:  
a torso rest; and  
a semi-seat support, the torso rest being shaped to function as a backrest when an operator is in a first operator

position and as a front rest when the operator is in a second operator position, the semi-seat support being shaped to provide partial seat support when the operator is in the first operator position, the semi-seat support providing no support when the operator is in the second operator position, the semi-seat support and the torso rest being integrated.

2. The two way seat of claim 1, further comprising at least one arm rest, the armrest integral with the torso rest.

3. The two way seat of claim 2, wherein the at least one armrest is structured to be useful only when the operator is in the second operator position.

4. The two way seat of claim 1, further comprising a console integral with the torso rest, the console located on the second side of the torso rest.

5. The two way seat of claim 1, further comprising an adjustable sit bar.

6. The two way seat of claim 5, wherein the adjustable sit bar has two positions.

7. The two way seat of claim 6, wherein the two positions include a hip support position and a stowage position, the stowage position providing no support.

8. The two way seat of claim 1, wherein the first operator position is a near standing position.

9. The two way seat of claim 1, wherein the second operator position is a near standing position.

10. The two way seat of claim 1, further comprising a height adjustment assist mechanism.

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