Title: BOLTABLE TAILGATE ASSEMBLY FOR A VEHICLE

Abstract: This invention relates to a boltatable tailgate assembly comprising a tailgate inner panel assembly (2), a tailgate outer panel (1) connected to said tailgate inner panel assembly (2); said assembly of inner and outer panel detachably attached to rear end of vehicle body and a method of assembling tailgate of a vehicle.


BOLTABLE TAILGATE ASSEMBLY FOR A VEHICLE

FIELD OF INVENTION

The present invention relates to the tailgates for vehicles and more particularly relates to boltable type tailgate assembly for vehicles.

BACKGROUND OF INVENTION

A conventional tailgate assembly comprises of inner tailgate and outer tailgate. This construction also facilitates fitment of glass. In operable tailgate, (Hatchback cars) tailgate is hinged at the top or on either side of the body, which can be opened and closed. It also has a latch at bottom or on either side of the body. In some old cars tailgate was a part of body which was welded. As described the first conventional scheme is too costlier and complex while the other method reduces the accessibility inside the vehicle from the tail end.

OBJECTS OF INVENTION

The main object of this invention is to provide a boltable tailgate assembly for a vehicle.

Yet another object of this invention is to provide a boltable tailgate assembly for a vehicle which requires minimum cycle time for assembly on a vehicle.

Yet another object of this invention is to provide a boltable tailgate assembly for a vehicle which is simple in construction and cost effective.
STATEMENT OF INVENTION

A bolttable tailgate assembly for a vehicle comprising:
a tailgate outer panel assembled together with a tailgate inner panel;
reinforcements with fixtures are provided at the bottom and top of the tailgate inner panel; plurality of slots are provided on the bottom and top of the vehicle body; said fixtures are inserted and fastened into tailgate inner panel.

BRIEF DESCRIPTION OF DRAWINGS

Fig 1 shows exploded view of tail gate assembly
Fig2 shows exploded view of assembly tail gate inner panel
Fig3 shows sectional view of tail gate assembly mounted on vehicle body from top side
Fig4 shows sectional view of tail gate assembly mounted on vehicle body from bottom side
Fig5 shows rear view of vehicle showing the provisions of mounting the tail gate in accordance with this invention.
Fig6 shows rear view of vehicle with tail gate assembly mounted therein.

DETAILED DESCRIPTION OF INVENTION

Referring now to the drawings and sectional views showings the areas, only for the purpose of illustrating the invention, and not for the purpose of limiting the same.

Referring figs 1 to 6
Fig. 1 shows exploded view of complete tailgate assembly. It comprises of tailgate outer panel (1) and tailgate inner panel (2). Tailgate outer panel and tailgate inner panel are clinched and welded together to form complete tailgate assembly.

Fig. 2 shows exploded view of tailgate inner panel (2). It consists of tailgate inner panel (3), assembly tailgate mounting reinforcement upper LH (4), assembly tailgate mounting reinforcement upper RH (5), assembly tailgate mounting reinforcement lower LH (6), assembly tailgate mounting reinforcement lower RH (7). Assembly tailgate mounting reinforcements at top LH and RH (4) and (5) consists of reinforcement and fastening means such as weld nuts while the assembly reinforcements at bottom LH and RH (6) and (7) consists of reinforcement and fixtures such as weld studs. All assembly reinforcements (4), (5), (6) and (7) are spot welded to the tailgate inner panel (3).

Fig. 3 shows sectional view of tailgate mounting scheme at top. Complete assembly tailgate (1) is bolted with help of wing bolt (13) from inner side of the body at top. Wing bolt passes through sleeve (12) which is welded with vehicle body (8) and gets fastened with fastening means such as weld nut of assembly tailgate mounting reinforcement top (4).

Fig. 4 shows sectional view of tailgate mounting scheme at bottom. Complete tailgate assembly is bolted with help of fastening means such as wing nut (14) at bottom. At bottom the fixtures such as studs of assembly reinforcement tailgate mounting bottoms passes through body and are fastened with fastening means such as wing nut (14) as shown from inside of the body.

Figure 5 shows rear view of vehicle. It shows tailgate mounting points (slots) on body (8), tail lamp (9), backlight glass (10) and rear bumper (11). As we can see after BIW
assembly body forms a frame like structure on which 4 mountings (slots) are given which facilitate bolting of tailgate assembly on body.

While fitment of assembly tailgate on vehicle the bottom fixtures or studs on complete tailgate assembly are inserted in the slots provided on vehicle body (8). These fixtures such as studs also help to confirm proper position of assembly tailgate (1) on the vehicle. Slots are provided on vehicle body (8) for adjustment of assembly tailgate (1). Once the tailgate is located inside the vehicle body (8) gap and flushness with adjacent parts like tail lamp (9), rear bumper (11) and backlight glass (10) are checked, and then it is tightened on bottom by fastening means such as wing nut (14) and at top by fixtures such as wing studs (13).

These fastening means such as wing nuts (14) and fixtures such as studs (13) are tightened by hand so no special tools are required which makes the fitment simpler.

Advantages:
1) Much more cost effective than any other conventional methods
2) Number of parts required are less compared to conventional vehicles
3) Very easy to assemble and dismantle the tailgate for service and customer point of view.
4) Cycle time required for assembly is much less.

The foregoing description is a specific embodiment of the present invention. It should be appreciated that this embodiment is described for purpose of illustration only, and that numerous alterations and modifications may be practiced by those skilled in the art without departing from the spirit and scope of the invention. It is intended that all such modifications and alterations be included insofar as they come within the scope of the invention as claimed or the equivalents thereof.
CLAIMS

1. A boltable tailgate assembly comprising a tailgate inner panel assembly, a tailgate outer panel connected to said tailgate inner panel assembly, said assembly of inner and outer panel detachably attached to rear end of vehicle body.

2. A boltable tailgate assembly as claimed in claim 1 wherein said tailgate inner panel assembly include reinforcements and fastening means at top and bottom.

3. A boltable tailgate assembly as claimed in claim 2 wherein said fastening means are weld stud at bottom and nut at top.

4. A boltable tailgate assembly as claimed in claim 1 wherein said tailgate inner panel assembly and outer panel are connected by hemming and welding.

5. A boltable tailgate assembly as claimed in claim 1 wherein said rear end of vehicle body having sleeves at top for maintaining the flushness and slots at bottom for locating and the said tailgate assembly.

6. Method of assembling tailgate of a vehicle comprising the steps of connecting outer panel to the inner panel assembly by hemming and welding, locating said assembly to rear end of vehicle body by weld stud at bottom, fastening said assembly to the vehicle body by wing nut at bottom and wing bolt at top.
A boltable tailgate assembly substantially as herein described with reference to the accompanying drawings.

Vehicle with boltable assembly as claimed in any of the preceding claims.
INTERNATIONAL SEARCH REPORT

A  CLASSIFICATION OF SUBJECT MATTER
IPC\(^8\): B62D 25/08 (2006.01)
According to International Patent Classification (IPC) or to both national classification and IPC

B  FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
IPC\(^8\): B62D 25/08, B60J 5/10

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPODOC, WPI, TXT

C  DOCUMENTS CONSIDERED TO BE RELEVANT

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<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No</th>
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<td>US 2004 066 061 A1 (ENGELS ET AL.) 8 April 2004 (08 04.2004) fig.2; paragraphs 57, 60;</td>
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<td>Y</td>
<td>US 5 580 121 A1 (DANGE ET AL.) 3 December 1996 (03.12.1996) column 4, lines 4-68; figs. 1-8</td>
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LJ  Further documents are listed in the continuation of Box C

\[\text{See patent family annex}\]

- Special categories of cited documents
  - "A" document defining the general state of the art which is not considered to be of particular relevance
  - "E" earlier application or patent but published on or after the international filing date
  - "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
  - "O" document referring to an oral disclosure, use, exhibition or other means
  - "P" document published prior to the international filing date but later than the priority date claimed

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