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United States Patent	12391217
Kind Code	B2
Date of Patent	August 19, 2025
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Vehicle

Abstract

The vehicle includes a vehicle body having a power unit room at a front portion of the vehicle, an in-vehicle device (such as a brake device) provided in the power unit room, a hood covering the power unit room, and a central garnish. The in-vehicle device includes a liquid amount confirmation unit (a brake reserve tank or the like) configured to be able to confirm the amount of stored liquid. Further, the central garnish is provided independently of the hood and is detachable from the hood, and covers the liquid amount confirmation unit (brake reserve tank or the like).

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Appl. No.: **18/906180**

Filed: **October 04, 2024**

Prior Publication Data

Document Identifier	Publication Date
US 20250236267 A1	Jul. 24, 2025

Foreign Application Priority Data

JP	2024-007383	Jan. 22, 2024

Publication Classification

Int. Cl.: **B62D25/10** (20060101); **B60S1/50** (20060101); **B62D21/11** (20060101); **B62D25/08** (20060101)

U.S. Cl.:

CPC **B60S1/50** (20130101); **B62D21/11** (20130101); **B62D25/082** (20130101); **B62D25/10** (20130101);

Field of Classification Search

CPC: B62D (25/12); B62D (25/105); B62D (25/10); B60S (1/50)

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATION

(1) This application claims priority to Japanese Patent Application No. 2024-007383 filed on Jan. 22, 2024, incorporated herein by reference in its entirety.

BACKGROUND

1. Technical Field

(2) The present disclosure relates to a vehicle.

2. Description of Related Art

(3) Japanese Unexamined Patent Application Publication No. 11-180213 (JP 11-180213 A) discloses a vehicle in which a washer fluid amount can be checked easily. An engine compartment of the vehicle described in this document is provided with a washer tank that stores a washer fluid and a lamp for illuminating the washer tank. The body of the washer tank is made of a material that allows light to pass therethrough. The lamp is provided along an outer surface of the body of the washer tank. When the lamp is turned on and the inside of the body of the washer tank is illuminated, the remaining amount of the washer fluid (hereinafter simply referred to as "washer fluid amount") can easily be visually recognized.

SUMMARY

(4) In the vehicle described in JP 11-180213 A, it is necessary to open and close a hood covering the engine compartment to check the washer fluid amount. Therefore, in the vehicle described in JP 11-180213 A, there is room for improvement from the viewpoint of improving workability at the time of checking (improving serviceability).

(5) In view of the above fact, it is an object of the present disclosure to provide a vehicle in which workability at the time of checking can be improved.

(6) A vehicle of one aspect includes: a vehicle body including a power unit room at a front part of the vehicle; an in-vehicle device provided in the power unit room and including a liquid amount check unit configured such that an amount of stored liquid is checkable; a hood that covers the power unit room; and a cover member that is provided independently of the hood, that is attachable to and detachable from at least either of the vehicle body and the hood, and that covers the liquid amount check unit.

(7) In the vehicle of the above aspect, the in-vehicle device including the liquid amount check unit is provided in the power unit room, and the power unit room is covered with the hood. The cover member attachable to and detachable from at least either of the vehicle body and the hood is provided independently of the hood. By detaching the cover member, it is possible to visually recognize the liquid amount check unit. That is, by detaching the cover member without opening and closing the hood, it is possible to view and check the amount of liquid stored in the liquid amount check unit.

(8) In the vehicle of the above aspect, the cover member may be attached to the hood.

(9) In the vehicle of the above aspect, by detaching the cover member attached to the hood, it is possible to view and check the amount of liquid stored in the liquid amount check unit. Further, the cover member can have a function as part of the hood.

(10) In the vehicle of the above aspect, the power unit room may be provided with a plurality of in-vehicle devices, and a plurality of the liquid amount check units of the in-vehicle devices may be covered with the cover member common to the in-vehicle devices.

(11) In the vehicle of the above aspect, by detaching the common cover member, it is possible to view and check the amounts of liquid stored in the liquid amount check units of the in-vehicle devices.

(12) In the vehicle of the above aspect, a suspension tower may be provided outside the power unit room in a vehicle width direction, and the vehicle may include a second cover member that is provided independently of the hood, that is attachable to and detachable from at least either of the vehicle body and the hood, and that covers the suspension tower.

(13) In the vehicle of the above aspect, the suspension tower can be accessed by detaching the second cover member. Thus, it is possible to view and check, for example, the fastening state of a fastening member provided in the suspension tower.
(14) The vehicle according to the present disclosure has an excellent effect that workability at the time of checking can be improved.

Description

BRIEF DESCRIPTION OF THE DRAWINGS
(1) Features, advantages, and technical and industrial significance of exemplary embodiments of the disclosure will be described below with reference to the accompanying drawings, in which like signs denote like elements, and wherein:
(2) FIG. **1** is a plan view schematically showing a front part of a vehicle; and
(3) FIG. **2** is a cross-sectional side view schematically showing a cross section taken along II-II shown in FIG. **1**.
DETAILED DESCRIPTION OF EMBODIMENTS
(4) A vehicle **10** according to an embodiment of the present disclosure will be described with reference to FIGS. **1** and **2**. Note that the arrow FR appropriately shown in the drawings indicates the front side in the vehicle front-rear direction, the arrow UP indicates the vehicle up-down improvement side, the arrow RH indicates the right side in the vehicle width direction, and the arrow LH indicates the left side in the vehicle width direction. In addition, in the following description, only the front-rear direction, the left-right direction, and the up-down direction are used, unless otherwise specified, the front-rear direction of the vehicle front-rear direction, the left-right direction of the vehicle left-right direction (vehicle width direction), and the up-down direction of the vehicle vertical direction are shown.
(5) As shown in FIG. **1**, a power unit room **14** is provided at a front portion of a vehicle body **12** constituting the vehicle **10** of the present embodiment. Various in-vehicle devices described later in detail are provided in the power unit room **14**.
(6) Here, a pair of left and right suspension towers **26** that bulge toward the power unit room **14** side are provided on both side portions of the power unit room **14** in the vehicle width direction. A front wheel or the like is provided on the lower side of the pair of left and right suspension towers **26**.
(7) In the power unit room **14**, a main cooling device **28**, an air conditioner **40**, a brake device **42**, and a washer device **44** are provided. The main cooling device **28**, the air conditioner **40**, the brake device **42**, and the washer device **44** are examples of in-vehicle devices. Various devices **18**, **24**, **28**, **32**, **34**, **36**, and **38** constituting the vehicle are provided in the power unit room **14**.
(8) The main cooling device **28** includes two reserve tanks **30** serving as a liquid amount checking unit. In the present embodiment, one reserve tank **30** is provided on the front side of the right suspension tower **26**, and the other reserve tank **30** is provided on the front side of the left suspension tower **26**. The reserve tank **30** stores coolant supplied to a radiator or the like. Further, the reserve tank **30** is provided with a memory (not shown) for checking the amount of the coolant stored in the reserve tank **30**.
(9) The air conditioner **40** is for adjusting the temperature in the cabin **20**, and is formed in a box shape in which a fan for blowing air into the cabin **20**, a fan motor, and a heat exchanger are stored. The air conditioner **40** penetrates the dash panel **22** in the front-rear direction. Accordingly, a part of the air conditioner **40** is disposed in the power unit room **14**, and another part of the air conditioner **40** is disposed in the cabin **20**. In the present embodiment, the air conditioner **40** is disposed between the shaft **32**B and the auxiliary battery **36**.
(10) The brake device **42** includes a brake device main body **42**A for operating the brakes of the

respective wheels, and a brake reserve tank **42**B serving as a fluid quantity checking unit in which the fluid (brake fluid) supplied to the brake device main body **42**A is stored. The brake device main body **42**A is provided on the rear side of the attitude control device **34** and the upper side of the shaft **32**B. Further, the brake reserve tank **42**B is provided on the right side with respect to the brake device main body **42**A and on the upper side with respect to the left front end portion of the air conditioner **40**. Here, as shown in FIG. **2**, the brake reserve tank **42**B is a container formed using a transparent member. The brake reserve tank **42**B is provided with memories (not shown) for checking the fluid quantity of the brake fluid stored in the brake reserve tank **42**B. Further, a replenishment port **42**C for replenishing the brake fluid to the brake reserve tank **42**B is provided at an upper portion of the brake reserve tank **42**B. The replenishment port **42**C is closed by a cap (not shown).

(11) As shown in FIG. **1**, the washer device **44** includes a washer tank **44**A and a washer pump (not shown) provided in the washer tank **44**A. The washer tank **44**A is a liquid amount checking unit in which a cleaning liquid for cleaning the windshield glass or the like of the vehicle **10** is stored. The washer tank **44**A is a container formed using a transparent member like the brake reserve tank **42**B. An upper portion of the washer tank **44**A is provided with memories (not shown) for checking the amount of the cleaning liquid stored in the washer tank **44**A. Further, a refill port for refilling the washer tank **44**A with the cleaning liquid is provided at an upper portion of the washer tank **44**A. The refill port is closed by a cap (not shown). Further, in the present embodiment, the upper portion of the washer tank **44**A is provided above the right front end portion of the air conditioner **40**. Further, the upper portion of the washer tank **44**A and the brake reserve tank **42**B are arranged side by side in the left-right direction.

(12) The power unit room **14** described above is covered from the upper side by the hood **46**. By opening and closing the hood **46**, it is possible to access the various in-vehicle devices described above.

(13) Here, a rectangular central opening **46**A that penetrates the rear portion of the hood **46** in the up-down direction is formed in the center portion in the left-right direction at the rear portion of the hood **46**. With the hood **46** covering the power unit room **14** from above, the central opening **46**A vertically overlaps the area from the top of the washer tank **44**A to the brake device **42**.

(14) Further, cutout portions **46**B are formed on both left and right sides of the middle portion of the hood **46** in the front-rear direction so as to open the outer side in the vehicle-width direction. When the hood **46** covers the power unit room **14** from the upper side, the cutout portion **46**B on the right side vertically overlaps a range from the suspension tower **26** on the right side to the reserve tank **30** on the right side. Further, when the hood **46** covers the power unit room **14** from the upper side, the left cutout portion **46**B vertically overlaps a range from the left suspension tower **26** to the left reserve tank **30**.

(15) Further, a central garnish **48** as a covering member for closing the central opening **46**A is attached to the hood **46**. The central garnish **48** is formed in a shape corresponding to the central opening **46**A formed in the hood **46**, and is detachably attached to the hood **46**. In the present embodiment, as shown in FIG. **2**, the clip **50** fixed to the central garnish **48** is locked to the clip locking portion **46**C provided in the hood **46**, so that the central garnish **48** is detachably attached to the hood **46**.

(16) Further, a pair of left and right side garnishes **52** as a cover member and a second cover member that respectively close the pair of left and right cutout portions **46**B are attached to the pair of left and right suspension towers **26** constituting a part of the vehicle body **12**. The pair of left and right side garnishes **52** are formed in shapes corresponding to the pair of left and right cutout portions **46**B formed in the hood **46**, and are detachably attached to the suspension tower **26**. In the present embodiment, the clip fixed to the side garnish **52** is locked to the clip locking portion provided in the suspension tower **26**, so that the side garnish **52** is detachably attached to the suspension tower **26**.

Operation and Effect of Embodiment

(17) Next, operations and effects of the present embodiment will be described.

(18) As shown in FIGS. **1** and **2**, in the present embodiment described above, when the central garnish **48** is removed from the hood **46**, the brake reserve tank **42**B and the upper portion of the washer tank **44**A can be visually recognized through the central opening **46**A formed in the hood **46**. As a result, the amount of the brake fluid stored in the brake reserve tank **42**B can be checked, checked, and refilled, and the amount of the cleaning liquid stored in the washer tank **44**A can be checked, checked, and refilled. As described above, in the present embodiment, the amount of the brake fluid can be checked and checked without opening and closing the hood **46**, and the amount of the cleaning liquid stored in the washer tank **44**A can be checked and checked. Further, in the present embodiment, by removing one central garnish **48**, it is possible to check, check, and refill the amount of liquid stored in a plurality of in-vehicle devices (the brake device **42** and the washer device **44**).

(19) In the present embodiment, the central garnish **48** is attached to the hood **46**. In this configuration, the central garnish **48** may have a function as part of the hood **46**.

(20) Further, in the present embodiment, when the right side garnish **52** is removed from the right suspension tower **26**, the right reserve tank **30** and the right suspension tower **26** can be visually recognized through the right cutout portion **46**B formed in the hood **46**. As a result, the amount of the coolant stored in the reserve tank **30** on the right side can be checked, checked, and refilled. In addition, a fastening state of a fastening member (for example, a fastening member for fixing the right coil over to the right suspension tower **26**) provided in the right suspension tower **26** can be checked and checked. Similarly, when the left side garnish **52** is removed from the left suspension tower **26**, the left reserve tank **30** and the left suspension tower **26** are visible through the left cutout portion **46**B formed in the hood **46**. As a result, the amount of the coolant stored in the left reserve tank **30** can be checked, checked, and refilled. In addition, a fastening state of a fastening member (for example, a fastening member for fixing the left coil over to the left suspension tower **26**) provided in the left suspension tower **26** can be checked and checked.

(21) As described above, in the present embodiment, workability at the time of inspection of the vehicle **10** can be facilitated.

(22) In the present embodiment, an example has been described in which the fastening state of the fastening member provided in the suspension tower **26** can be checked and inspected by removing the side garnish **52**, but the present disclosure is not limited thereto. For example, the side garnish **52** and the cutout portion **46**B may not be provided when there is a restriction such as a design of the front portion of the vehicle **10**.

(23) Further, in the present embodiment, an example has been described in which the side garnish **52** is detachably attached to the vehicle body **12** and the central garnish **48** is detachably attached to the hood **46**, but the present disclosure is not limited thereto. For example, the side garnish **52** may be detachably attached to the hood **46**, and the central garnish **48** may be detachably attached to the vehicle body **12**. The side garnish **52** and the central garnish **48** may be detachably attached to at least one of the vehicle body **12** and the hood **46**.

(24) Further, in the present embodiment, a configuration has been described in which the central garnish **48** closes the central opening **46**A formed in the hood **46**, but the present disclosure is not limited thereto. For example, a notch may be provided at the rear end of the hood **46** so that the central garnish **48** closes the notch.

(25) Further, in the present embodiment, an example has been described in which the amount of the liquid stored in the plurality of in-vehicle devices (the brake device **42** and the washer device **44**) can be checked and inspected by removing one central garnish **48**, but the present disclosure is not limited thereto. For example, the cover member for checking the amount of the liquid stored in the brake device **42** and the cover member for checking the amount of the liquid stored in the washer device **44** may be provided independently of each other.

(26) Although an embodiment of the present disclosure has been described above, the present disclosure is not limited to the above, and it is needless to say that the present disclosure can be implemented with various modifications other than the above without departing from the gist thereof.

Claims

1. A vehicle comprising: a vehicle body including a power unit compartment at a front part of the vehicle; a plurality of in-vehicle devices provided in the power unit compartment, the in-vehicle devices including a plurality of fluid containers each of which is configured to allow stored liquid amount to be checked; a hood that covers the power unit compartment, the hood being provided with a plurality of openings, the openings are arranged to overlap with the fluid containers when viewed in a vehicle up-down direction; and a plurality of cover members provided independently of the hood, that is the cover members being attachable to and detachable from at least either of the vehicle body and the hood, and covering the respective openings, wherein the in-vehicle devices include a cooling device, a brake device, and a washer device, the fluid containers include a first reserve tank and a second reserve tank of the cooling device, a brake reserve tank of the brake device, and a washer reserve tank of the washer device, the brake reserve tank and the washer reserve tank being transparent, and the openings include a first opening arranged to overlap with the first reserve tank, a second opening arranged to overlap with the second reserve tank, a third opening arranged to overlap with the brake reserve tank and the washer reserve tank.
2. The vehicle according to claim 1, wherein the cover members are attached to the hood.
3. The vehicle according to claim 1, further comprising: a first suspension tower provided at a first side of the power unit compartment in a vehicle width direction; and a second suspension tower provided at a second side of the power unit compartment in the vehicle width direction, wherein the first opening and the second opening are further arranged to overlap with the first suspension tower and the second suspension tower, respectively, when viewed in the vehicle up-down direction.
4. The vehicle according to claim 1, wherein a shape of each of the openings is rectangular.
5. The vehicle according to claim 1, wherein the first reserve tank is provided at a left side of the power unit compartment in a vehicle width direction as viewed from rearward of the vehicle in a vehicle front-rear direction, the second reserve tank is provided at a right side of the power unit compartment in the vehicle width direction, the brake reserve tank is provided above a left front portion of an air conditioner in the vehicle width direction and the vehicle front-rear direction, the air conditioner provided in a rear side of the power unit compartment in the vehicle front-rear direction, and the washer reserve tank is provided above a right front portion of the air conditioner in the vehicle width direction and the vehicle front-rear direction.