

Introduction of Products

Medium-sized Hydraulic Excavators Stress-free Cab PC200I-12

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The “Stress-free Cab” for medium-sized hydraulic excavators has been completely redesigned based on the concepts of “Improved Visibility,” “Intuitive Interface,” and “Universal Design,” and the newly developed cab has been introduced to the market with the PC200I-12 as the leading model. The main features of the product are as follows:

Key Words: PC200I-12, Hydraulic excavator, Stress-free, Intuitive interface, Universal design

1. Introduction

The cab for Komatsu medium-sized hydraulic excavators, whose basic design had remained unchanged until the current PC-11 model, has been significantly redesigned for the first time in about 20 years, with the PC200I-12 being introduced to the market as the flagship model.

Given the trend of model changes among competing machines, there is strong demand for model changes around the operator’s seat, which improves driving ease, productivity, and operator safety. We have developed a cab for medium-sized hydraulic excavators, incorporating the latest technology with “stress-free operation” listed as the keyword in this development. The outline is introduced in this report.

2. Aims of development

With “stress-free operation” as the keyword, the cab’s exterior and interior have been significantly redesigned relative to the current Dash 11.

Based on this keyword, the devices inside the cab were designed from the following three points of view. The first is “improved visibility,” which ensures maximum visibility for the operator while working; the second is “intuitive interface,” taking into consideration the layout and shape of equipment so that the operator can operate it intuitively; and the third is “universal design,” which provides an optimal operating environment for various body types. These improvements have led to the development of a cab for medium-sized excavators that deliver dramatically improved comfort.

3. New designed cab

The cab exterior has been redesigned to improve visibility by widening the cab and increasing the glass area. We also used high-contrast colors for handrails, door handles, and console and seat adjustment levers, which the operator uses daily to improve visibility. The interior features a design that prioritizes ease of use and excellent visibility, placing the touchscreen monitor and various switches within easy reach.



Fig. 1 New designed cab - Exterior



Fig. 2 Front part of the newly designed cab - Interior

4. Improved visibility

The machine monitor, located in front of the right A-pillar in the current Dash 11, has been relocated to the front of the right console, improving visibility to the right lower by 50% compared to the current Dash 11.

This has improved the visibility of the right track at the front, which was difficult to see on the current Dash 11.

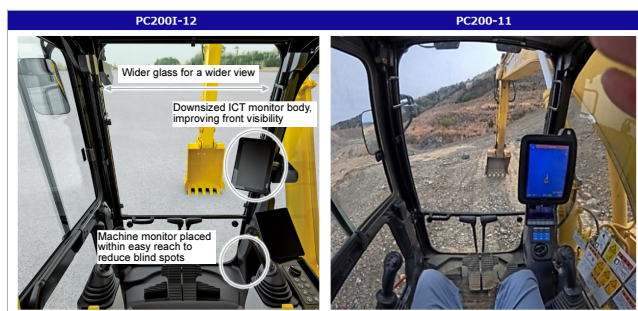


Fig.3 Comparison of forward visibility from the cab



Fig. 4 Visibility to the forward right lower from the cab

5. Intuitive interface

An interface that allows access and intuitive operation while sitting in position has been provided to realize stress-free machine operations and controls.

Specifically, operability has been improved by “placing the machine monitor within easy reach”; a new “switch cluster” has been developed; and the shape and switch layout of the “work equipment control levers” have been optimized.

The details are introduced below.

5.1 Machine monitor placed within easy reach

The machine monitor, located in front of the right A-pillar up to the current Dash 11, has been moved to the front of the right console in the newly designed cab, allowing it to be operated within easy reach without changing posture, reducing fatigue, and improving comfort.

In addition, an 8-inch touchscreen monitor enables intuitive switching between work modes and controlling the air conditioning and radio on the monitor.



Fig. 5 Machine monitor location

5.2 Switch cluster

The fuel control dial and switches frequently used during work have been consolidated into a newly developed switch cluster, positioned for visibility and ease of operation.

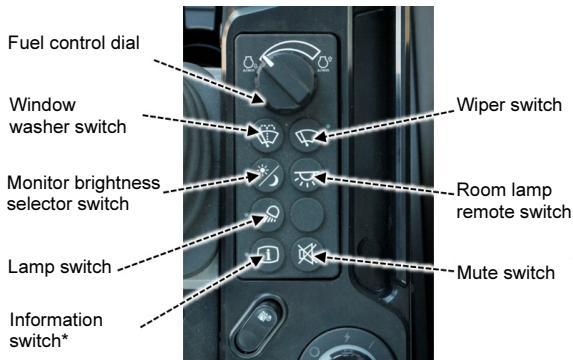


Fig. 6 Switch cluster

5.3 New design levers

New levers have been developed that reduce operating force by 14% and lever stroke by 30% compared with the current Dash 11, thereby reducing operator fatigue during extended operating hours. The lever shapes have also been designed with ergonomics in mind, making them highly fitting and easy to grip.

Each of the left and right levers has five switches positioned for easy operator access.



Fig. 7 New design levers

6. Universal design

Based on ergonomics, we have realized a driving environment that can be adapted to people of various physiques, from tall Western operators to short operators such as women.

Specifically, new left and right consoles were developed so operators can maintain a less tiring posture even during long hours of operation, and the lever height is adjustable.

A newly designed operator's seat has also been adopted, with an improved shape and new adjustable mechanisms.

6.1 New consoles

New left- and right-console tilt adjustment mechanisms have been added to the current Dash 11, allowing three levels of adjustment. Mechanisms to adjust the armrest heights steplessly were also added. As a result, operators of various body sizes can now work in a relaxed posture.

By adding a new tilt-up mechanism to the left console, the cab opening has been expanded by 70 mm, making it less likely that even large operators will get their bodies caught on the levers or console when entering the cab.



Fig. 8 New consoles



Fig. 9 Left console tilt-up mechanism

6.2 Operator's seat

The operator's seat features a new design and shape. Compared to the current Dash 11, a new fore-and-aft seat-cushion adjustment function has been added, providing six adjustment positions and making it suitable for larger operators, as well. Additionally, making air suspension a standard feature for the seat has significantly improved ride comfort. The adjustment levers are yellow to improve operator visibility.



Fig. 10 Operator's seat

7. Other items introduced to enhance comfort

In addition to the changes mentioned above, other improvements to operator comfort are introduced below.

7.1 Expanded legroom

The cab width has been increased by 60 mm compared to the current Dash 11. By relocating the machine monitor to the front of the right console, legroom has been expanded by 30% compared to the current Dash 11. This provides ample legroom for the operator, ensuring a more comfortable working environment.



Fig. 11 Legroom

7.2 Air conditioner vents in the ceiling

Vents have been provided in the ceiling, creating a new layout that allows air from the air conditioner to flow from the ceiling. This cools the operator's entire body and allows for efficient temperature regulation throughout the cab.



Fig. 12 Air conditioner vent layout

8. Conclusion

In this report, we introduced the "Stress-Free Cab," which was developed in conjunction with the full model change of Komatsu's next-generation medium-sized hydraulic excavators. We take pride in the fact that we have taken in many opinions and requests from the operator's perspective and finished the product to make our customers happy more than ever. In addition, our arrangement considering the design was so highly evaluated and the PC200L-12 won the 2025 Good Design Award. We will continue to focus on expanding the lineup of "Stress-free cabs" while receiving feedback from customers.

Introduction of the author



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[A comment from the author]

This development was challenging, as we had to integrate numerous sales features into the cab to align with the full model change. However, we have received positive feedback from customers about the comfort and ease of driving offered by the significantly revamped cab, and we feel that all the hard work during development has paid off. Without being content with this evaluation, we would like to continue to incorporate a lot of customers feedback and utilize it in product development that will satisfy customers. We would like to thank all the people involved in this development very much.