

**SHANGHAI FAIVELEY RAILWAY TECHNOLOGY CO.**

**AMSTERDAM (Alstom)**

## **4 INSTALLATION**

# SHANGHAI FAIVELEY RAILWAY TECHNOLOGY CO.

## Release History

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Released by	Olaf.Giel	EH	22.11.2010	

## Revision Table

Revision	Date	Revised Sections, Description, Reason for changes
01	15.10.2010	First issue
02	22.11.2010	1),Modify the location of the 4 holes for fixing the unit;2)Add the description of the 6 holes for the noise damper;3)Correct the description of the holes for fixing the Cab aerotherm unit

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## Rolling stock

HVAC System

4 Installation

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## 4 INSTALLATION INSTRUCTIONS

### 4.1 GENERAL

The purpose of this instruction is to show how to install the Saloon HVAC units and Cab HVAC units to the car. It is very important to install the HVAC unit properly. If the unit is not installed properly, the performance and the structural integrity of the air conditioning unit can be degraded. The instruction and installation of the HVAC units shall be carried out by a qualified person(s) only by using the correct tools and testing instruments at their disposal.

### 4.2 SAFETY INSTRUCTION

It is absolutely necessary to follow the instruction to:

1. Prevent injury and death of users and other persons;
2. Ensure that the equipment is safe to use;
3. Avoid non-availability of equipment due to mal operation.

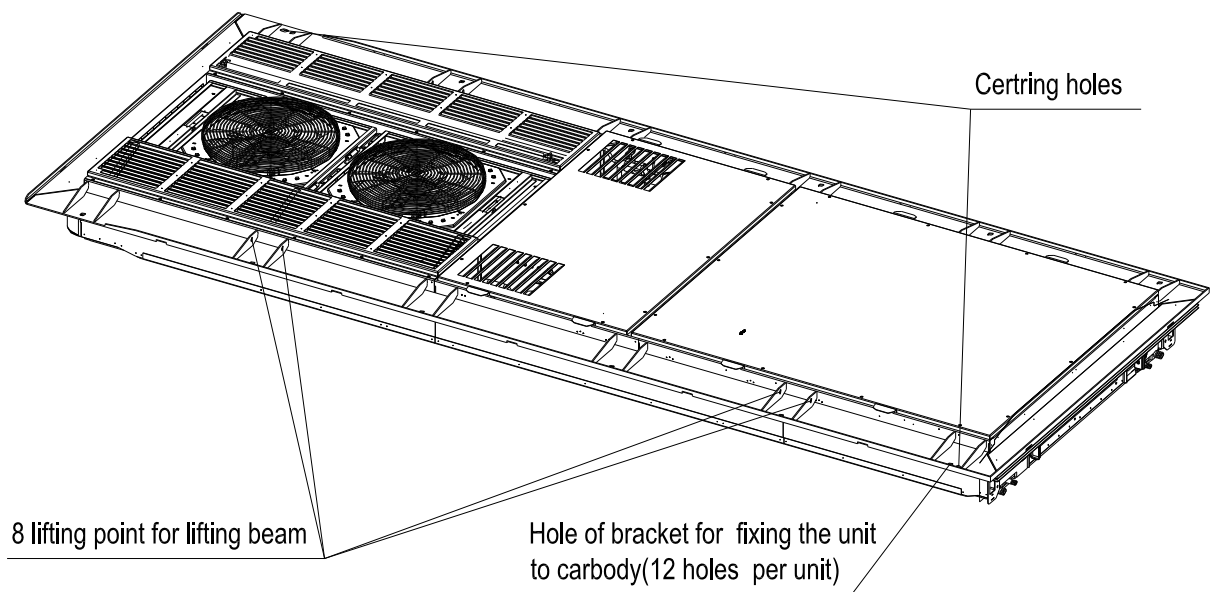
### 4.3 SPECIAL TOOLS

- Lifting beam (☞ Drawing-No. KS97A000.000-10A.Z3);

## 4.4 PROCEDURE

### 4.4.1 Installation of HVAC unit Saloon

- 1) Preparation of a new HVAC unit to be installed on the car

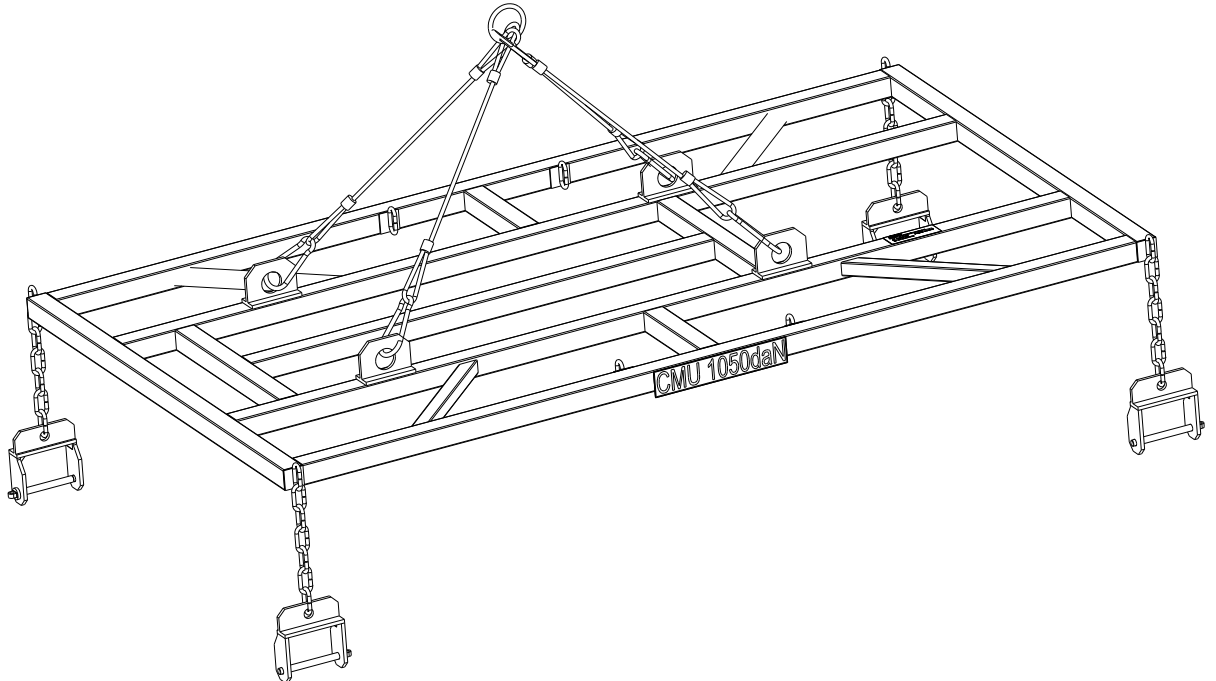


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#### 2) Prepare the lifting beam

- ☞ move the 4 chains in the right position to lift the Saloon unit

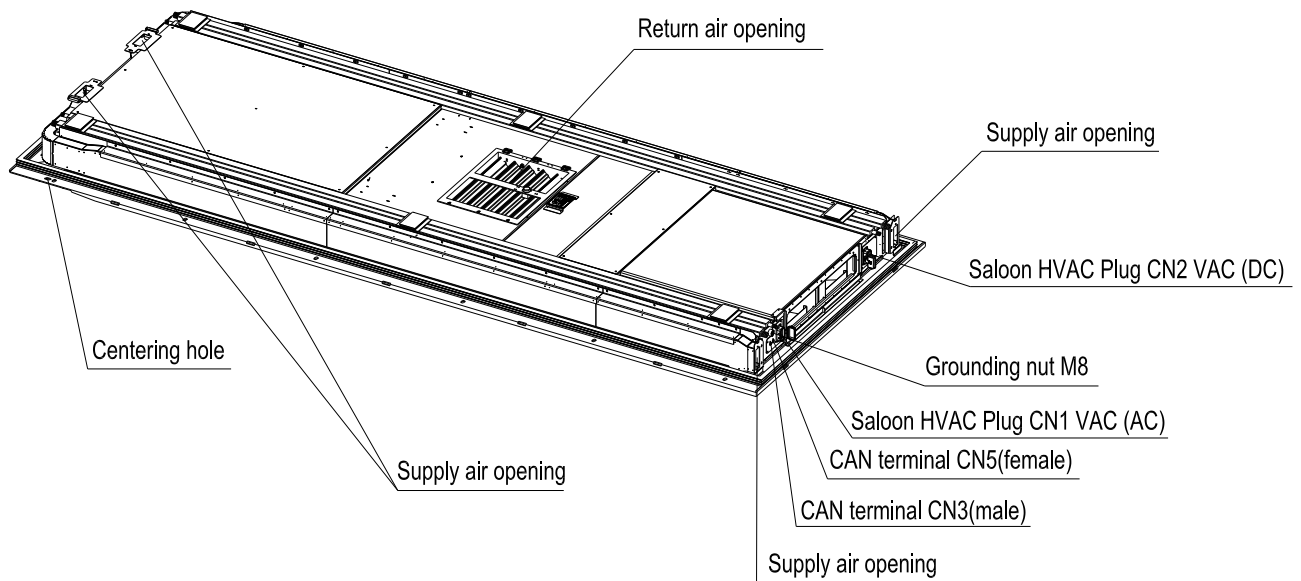


#### 3) Lift up the HVAC unit to the car roof

- ☞ use a crane to lift to unit to the roof top of the car
- ☞ Adjust the unit regarding the centring pins and centring holes
- ☞ drop down the unit slowly
- ☞ Check the right seat of the unit
- ☞ remove the chains from the unit
- ☞ Lift down the lifting beam

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- 4) Fix the HVAC unit onto the car body with 12x M16(Grade 8.8) bolts
  - ☞ Use of defined fixing material (washer)
  - ☞ Tighten the bolt with the required torque of 175 Nm
  - ☞ Use of the defined screw retention
- 5) Connect the grounding cable from the HVAC unit to car body with M8 screws
- 6) Connect the electrical connectors
  - ☞ 4 electrical connectors (Saloon HVAC Plug CN1 VAC (AC), Saloon HVAC Plug CN2 VAC (DC), CAN terminal CN3(male) and CAN terminal CN5(female)).

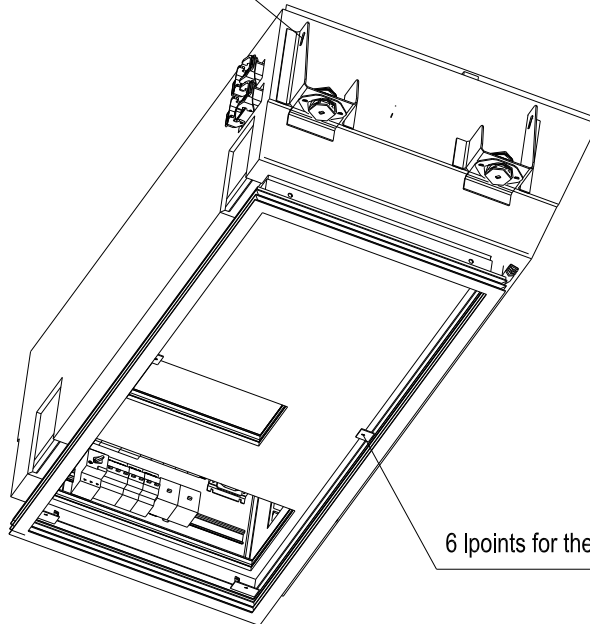
### 4.4.2 Installation of HVAC unit Cab

- 1) Preparation of a new HVAC unit to be installed on the car
  - ☞ Fix 4 eye bolts M20 to the lifting points of the HVAC unit

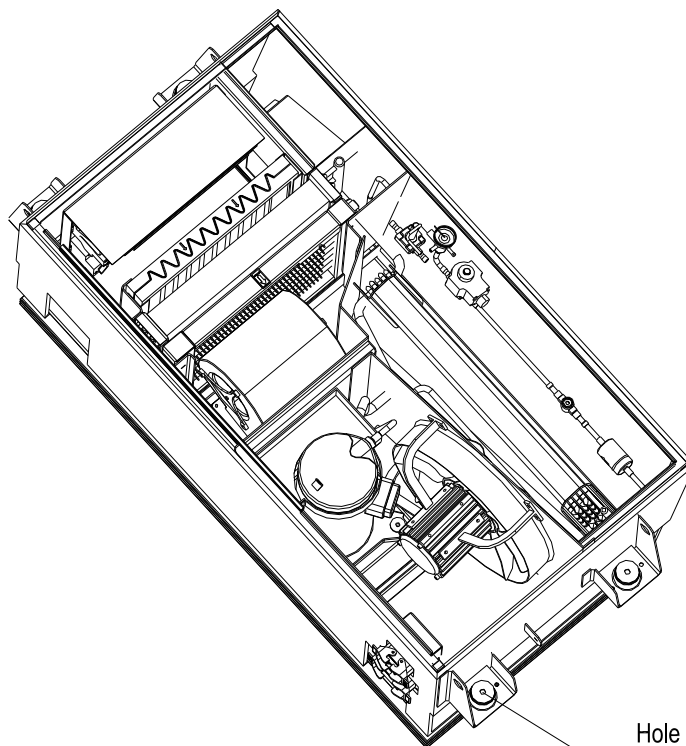
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4 lifting points for lifting beam



6 points for the noise damper



Hole for fixing the unit to car body(4 holes per unit)

### 2) Prepare the lifting beam

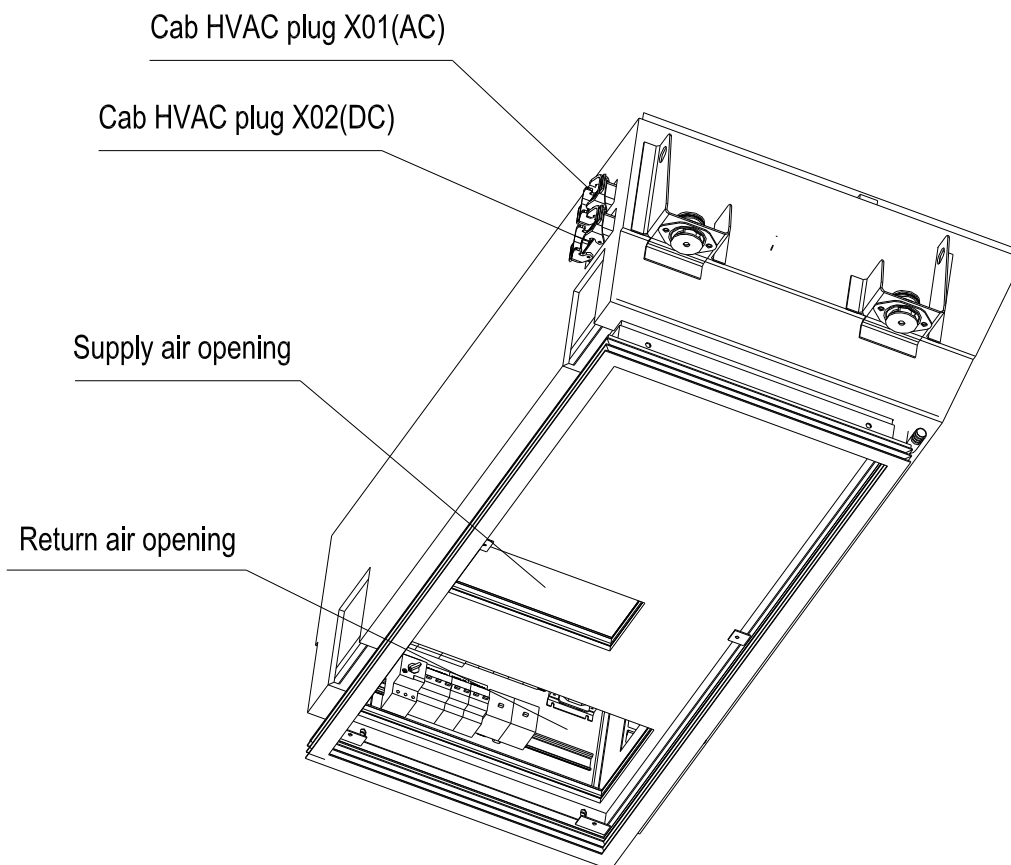
- ☞ move the 4 chains in the right position to lift the Cab unit, refer to 2) of

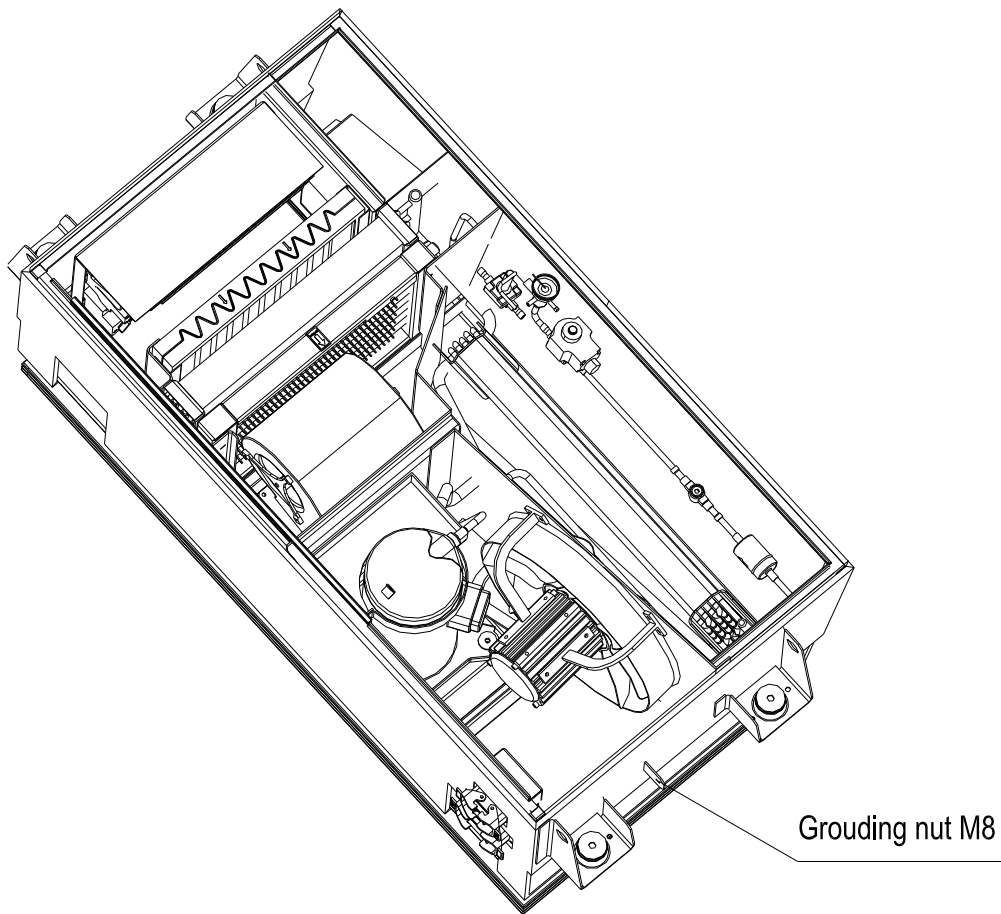
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chapter 4.4.1.

- 3) Lift up the HVAC unit to the car roof
  - ☞ use a crane to lift to unit to the roof top of the car
  - ☞ Adjust the unit regarding the centring pins and centring holes
  - ☞ drop down the unit slowly
  - ☞ Check the right seat of the unit
  - ☞ remove the chains from the unit
  - ☞ Lift down the lifting beam

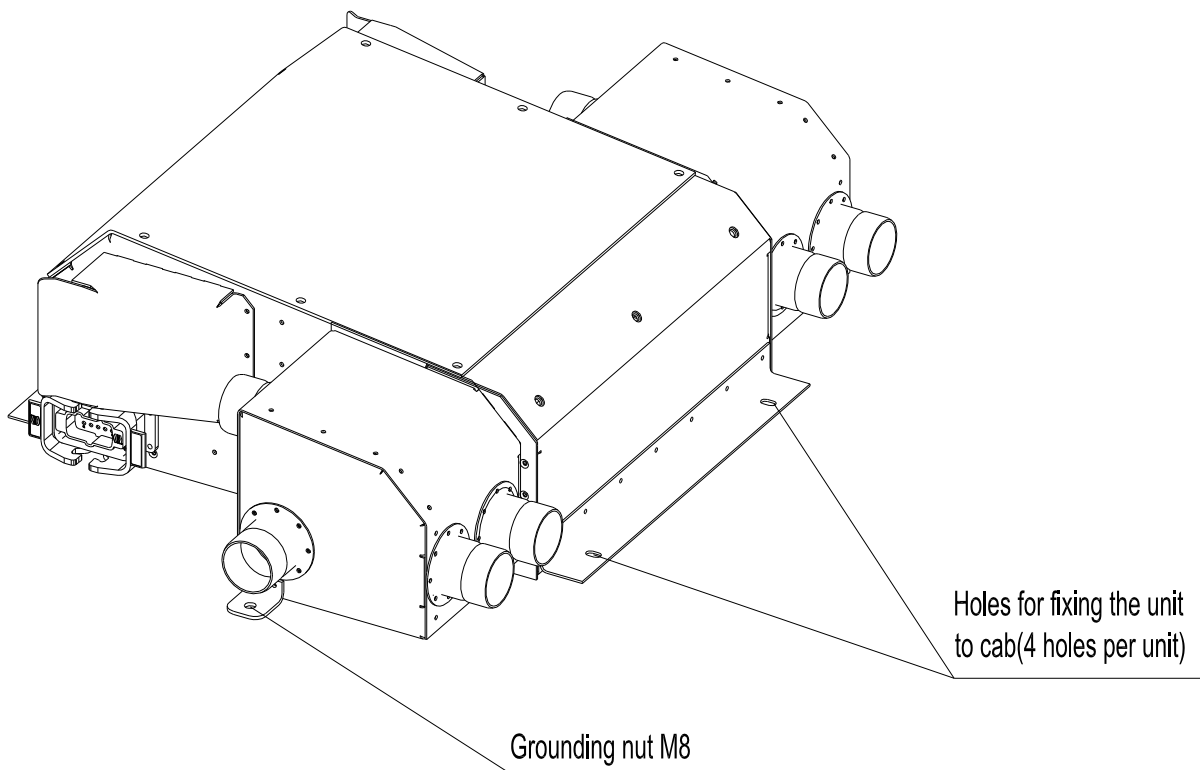




- 4) Fix the HVAC unit onto the car body with 4x M10 bolts
  - ☞ Use of defined fixing material (washer)
  - ☞ Tighten the bolt
  - ☞ Use of the defined screw retention
- 5) Connect the grounding cable from the HVAC unit to car body with M8 screws
- 6) Connect the electrical connectors
  - ☞ 2 electrical connectors (Cab HVAC plug X01(AC) and Cab HVAC plug X02(DC))

### 4.4.3 Installation of Cab aerotherm unit

- 1) Preparation of a new cab aerotherm unit to be installed on the car.
- 2) Place the cab aerotherm unit in the right place of the cab.
- 3) Fix the cab aerotherm unit with 8XM16 bolts. See the following figures.
  - ☞ Use of defined fixing material (washer)
  - ☞ Tighten the bolt
  - ☞ Use of the defined screw retention
- 4) Connect the grounding cable from the HVAC unit to car body with M8 screws. See the following figures.



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