



Sicherheitsunterweisung Modul I

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EPSON®

- Rauchen Sie nicht innerhalb des Gebäudes!
Es ist nur in einem ausgewiesenen Raucherbereich erlaubt!
- Verwenden Sie Ihr Smartphone / Mobiltelefon nicht.
Es ist nicht erlaubt, Fotos oder Videos zu erstellen.
Es ist nur erlaubt, Anrufe außerhalb der Trainingsumgebung entgegenzunehmen.
- Bitte verlassen Sie im Notfall das Gebäude als geschlossene Gruppe.
Finden Sie sich am Gruppensammelplatz zusammen
und folgen Sie den Anweisungen des Ausbilders oder den
verantwortlichen Helfern / Behörden.



Welche Personen dürfen mit oder am Roboter arbeiten? Was sagt das Handbuch?


"Achten Sie im Normalbetrieb darauf, dass nur eingewiesene Personen Zugriff auf das Robotersystem haben.

ACHTUNG!

Eine falsche Handhabung kann zu Fehlfunktionen, Zerstörung, Gefährdungen oder Unfällen führen.

Unterwiesene Personen sind Personen, die an einer Schulung des Herstellers teilgenommen haben oder bereits Erfahrung im Umgang mit Robotersystemen haben und alle zugehörigen Handbücher sorgfältig gelesen haben."

Anmerkung:



Während dieser Schulung dürfen Sie unter Aufsicht des Trainers mit diesem Robotersystem arbeiten. Nach erfolgreichem Abschluss dieser Schulung sind Sie in diesen Tätigkeiten unterwiesen und können diese Arbeiten selbstständig ausführen.

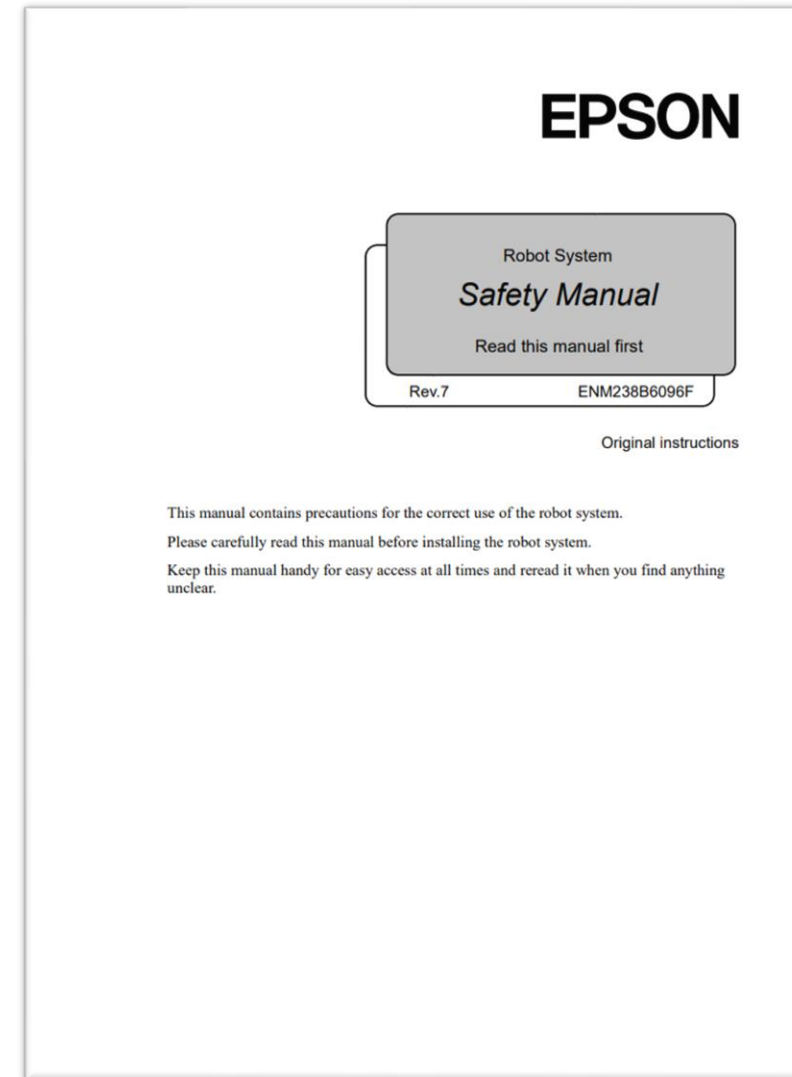


Umgang mit den Robotern während der praktischen Übungen.

- Jeder Roboter verfügt über mindestens einen Not-Halt-Schalter. Stellen Sie sicher, dass der Not-Halt-Zustand nicht zurückgesetzt werden kann, während sie sich im Arbeitsbereich des Roboters befinden.
- Beim Eindringen in den Arbeitsbereich des Roboters wird der Sicherheitslichtvorhang ausgelöst. Das bedeutet, dass die Funktion „**Schutztürkreis geöffnet**“ aktiviert wird. (**Safe Guard = Open**) In diesem Zustand können Sie den Roboter nur mit einem Teach-Pendant verfahren.
- Testen Sie den **Not-Halt-Schalter** und den **Lichtvorhang**, um sicherzustellen, dass diese funktionieren, bevor Sie mit Ihrer Arbeit am Robotersystem beginnen.
- Alle Programme, Funktionen und Programmänderungen werden nur im **Low-Power-Modus** getestet. Das Umschalten in den **High-Power-Modus** darf nur nach Rücksprache und durch die Freigabe des Trainers erfolgen.

Jetzt werfen wir einen Blick in das Sicherheitshandbuch. Dieser enthält eine Übersicht über alle relevanten Sicherheitshinweise.

In jedem Controller oder Manipulator Handbuch enthält das erste Kapitel einen Überblick über Sicherheitsvorkehrungen und Sicherheitshinweise.







Sicherheitshinweise zur Wartung für jeden Roboter und jede Steuerung finden Sie in Kapitel 1 des entsprechenden Handbuchs.

Bevor Sie mit der Arbeit am Roboter beginnen,
müssen Sie auf diese Hinweise,
Warnungen und Vorsichtsmaßnahmen achten!




Maintenance 1. Safety Precautions on Maintenance


1. Safety Precautions on Maintenance

NOTE
 Important safety considerations are indicated throughout the manual by the following symbols. Be sure to read the descriptions shown with each symbol.

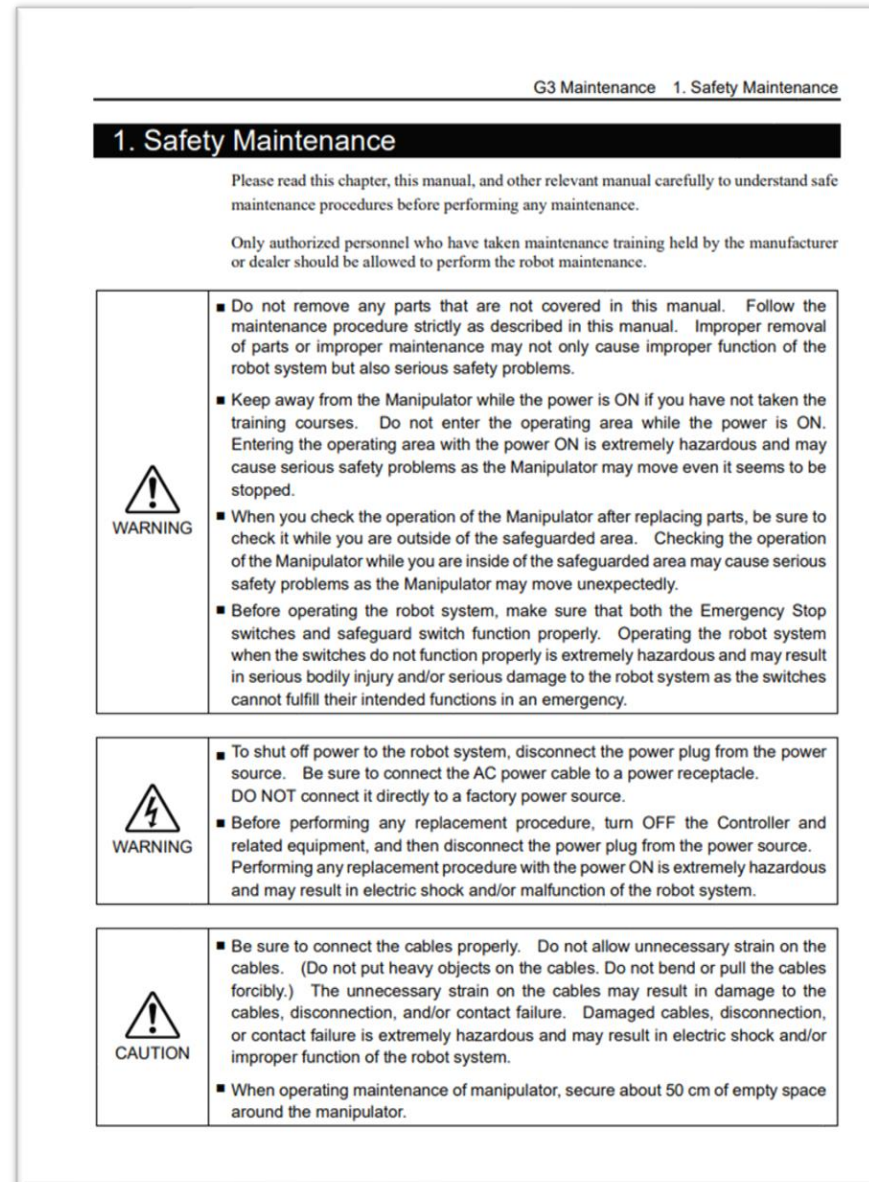
 WARNING	This symbol indicates that a danger of possible serious injury or death exists if the associated instructions are not followed properly.
 WARNING	This symbol indicates that a danger of possible harm to people caused by electric shock exists if the associated instructions are not followed properly.
 CAUTION	This symbol indicates that a danger of possible harm to people or physical damage to equipment and facilities exists if the associated instructions are not followed properly.

Maintenance 1. Safety Precautions on Maintenance

 WARNING	<ul style="list-style-type: none">■ Teaching robot system shall be performed by personnel who has taken robot system training held by us and suppliers■ Maintenance of robot system shall be performed by personnel who has taken robot system training held by us and suppliers.■ Make sure to use only dedicated/specified maintenance parts especially for the optional boards or any other parts in the Controller to be replaced. Using non-specified parts may cause serious damage to the robot system and/or serious safety problems.■ Do not remove any parts that are not covered in this manual. Follow the maintenance procedure strictly as described in this manual. Do not proceed using any methods other than described in this manual when you do replace a part or maintain the equipment. Improper removal of parts or improper maintenance may cause not only improper function of the robot system but also serious safety problems.
 WARNING	<ul style="list-style-type: none">■ Before performing any maintenance procedure, always make sure that the main power of the Controller is turned OFF, disconnect the power supply, and that the high voltage charged area is completely discharged. Performing any maintenance procedure while the main power is ON or the high voltage charged area isn't discharged completely is extremely hazardous and may result in electric shock and/or cause serious safety problems.
 CAUTION	<ul style="list-style-type: none">■ Do not touch the Motor Driver modules and Switching Power Supply directly in the Controller. The metal resistance of these can become very hot and may result in a burn. If you maintain them, examine the surface temperatures and wear protective gloves if necessary.■ Do not shock, shake, or drop any parts during maintenance. When the parts related with data are shocked physically, they may be damaged and may also cause data loss during data loading/saving.■ Do not lose the screws removed at maintenance. When the screw is dropped into the Controller, be sure to take it out. Leaving the screw in the Controller may cause short circuit and may result in equipment damage to the parts and/or robot system.■ Make sure that the power rating (wattage) of a new Motor Driver module is correct. Using a Motor Driver module with improper power rating (wattage) in the Controller may cause improper function of the robot system and errors.■ The serial number of the Manipulator that should be connected is indicated on the Connection Check Label on the Controller. Connect the Controller and the Manipulator correctly. Improper connection between the Controller and the Manipulator may cause not only improper function of the robot system but also serious safety problems.



NOTE
 Before performing maintenance on the Controller, all the data must be copied as a backup. The details of data backup/restore are described in the 4. Backup and Restore

Als Beispiel zeigt die Abbildung einige Sicherheitshinweise des Kapitel 1 im Wartungshandbuch für einen G3.



Für jeden Wartungsschritt gibt es Sicherheitshinweise am Anfang eines Kapitels.

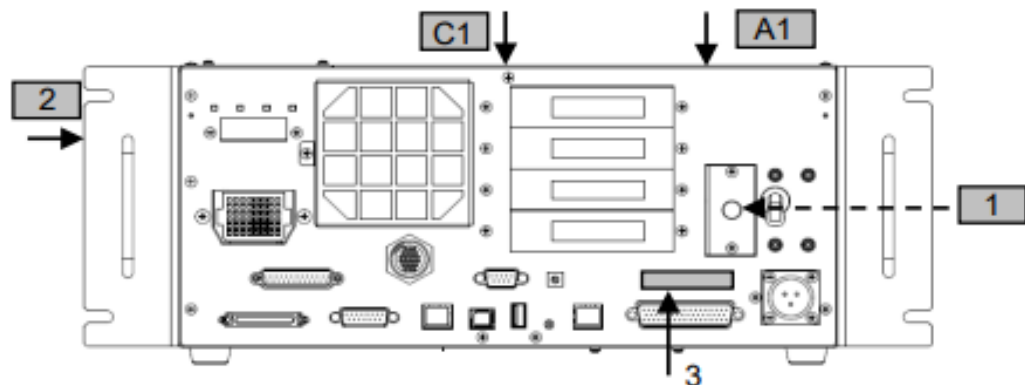
**Anmerkung:
Lesen Sie die Anweisungen vor Arbeitsbeginn
und befolgen Sie diese bei der Arbeit!**

5.3 Maintenance 2. General Maintenance	
2.3 Greasing	
The ball screw spline and reduction gear units need greasing regularly. Only use the grease specified in the following table.	
 CAUTION	<ul style="list-style-type: none">■ Keep enough grease in the Manipulator. Operating the Manipulator with insufficient grease will damage sliding parts and/or result in insufficient function of the Manipulator. Once the parts are damaged, a lot of time and money will be required for the repairs.
 CAUTION	<ul style="list-style-type: none">■ If grease gets into your eyes, mouth, or on your skin, follow the instructions below.<ul style="list-style-type: none">If grease gets into your eyes<ul style="list-style-type: none">: Flush them thoroughly with clean water, and then see a doctor immediately.If grease gets into your mouth<ul style="list-style-type: none">: If swallowed, do not induce vomiting. See a doctor immediately.: If grease just gets into your mouth, wash out your mouth with water thoroughly.If grease gets on your skin<ul style="list-style-type: none">: Wash the area thoroughly with soap and water.

Sicherheitskennzeichnung auf der Steuerung (Beispiel)



Labeling position: RC700-A Control Unit



Location	Warning label	Note
1		Hazardous voltage exists while the Manipulator is ON. Do not open the cover for 300 seconds after the Power is OFF. There is a risk of electric shock due to the residual voltage. Disconnect and lockout main power before performing maintenance and repair.
A		Residual voltage exists. To avoid electric shock, do not open the cover while the Power is ON, or for 5 minutes after the Power is OFF.

Location	Warning label	Note
B		Disconnect and lockout main power before performing maintenance and repair.
C		Do not connect the followings to the TP port of the controller. Connecting to the followings may result in malfunction of the device because pin assignments are different. OPTIONAL DEVICE dummy plug Operation Pendant OP500 Operator Pendant OP500RC Jog Pad JP500 Teaching Pendant TP-3** Operator Panel OP1
D		Hazardous voltage exists while the Manipulator is ON.



Location of Labels: G6 Common

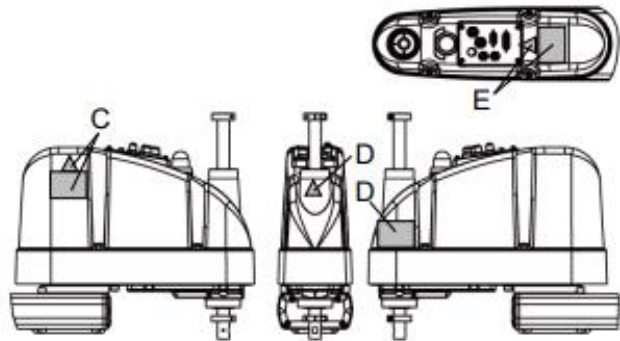
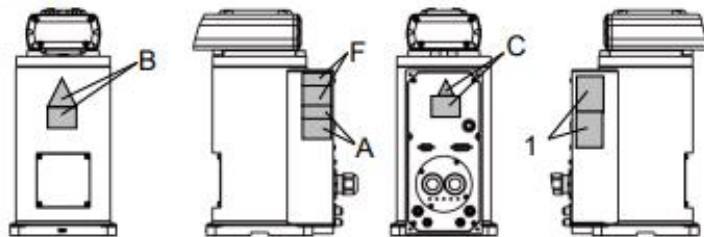






Table Top Mounting:



Location	Warning label	Note
	  <div><div>警告 警告 警告 경고</div><div>WARNING AVERTISSEMENT ADVERTENCIA ATENÇÃO ОСТОРОЖНО</div><div><div>当心落下 当心落下 転倒の危険 当心</div><div>TIP-OVER HAZARD RISQUE DE BASCULEMENT PELIGRO DE VUELCO PERIGO DE QUEDA ОПАСНОСТЬ СПРОКИДЫВАНИЯ</div></div></div>	<p>Before loosening the base mounting screws, hold the arm and secure it tightly with a band to prevent hands or fingers from being caught in the Manipulator.</p> <p>For installation and transportation of robots, follow the directions of each robot manuals.</p>
A	<div><div><div>警告 警告 警告 경고</div><div>WARNING AVERTISSEMENT ADVERTENCIA ATENÇÃO ОСТОРОЖНО</div><div><div>当心落下 当心落下 転倒の危険 当心</div><div>TIP-OVER HAZARD RISQUE DE BASCULEMENT PELIGRO DE VUELCO PERIGO DE QUEDA ОПАСНОСТЬ СПРОКИДЫВАНИЯ</div></div></div><div><div><div>警告 警告 警告 경고</div><div>WARNING AVERTISSEMENT ADVERTENCIA ATENÇÃO ОСТОРОЖНО</div><div><div>当心落下 当心落下 転倒の危険 当心</div><div>TIP-OVER HAZARD RISQUE DE BASCULEMENT PELIGRO DE VUELCO PERIGO DE QUEDA ОПАСНОСТЬ СПРОКИДЫВАНИЯ</div></div></div></div></div>	<p>To avoid the Manipulator from falling, support the Manipulator before removing the base mounting screws.</p> <p>For installation and transportation of robots, follow the directions of each robot manuals.</p>

Sicherheitskennzeichnung am Roboter (Beispiel)



Location of Labels: G6 Common

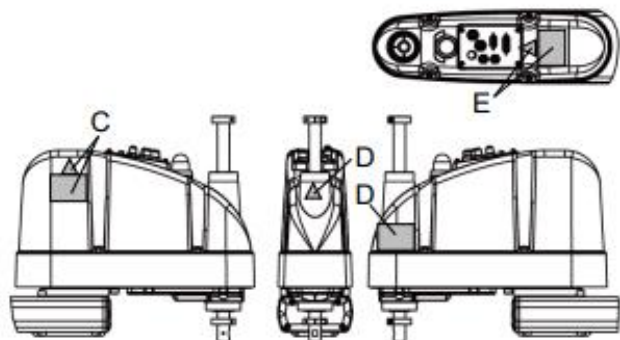
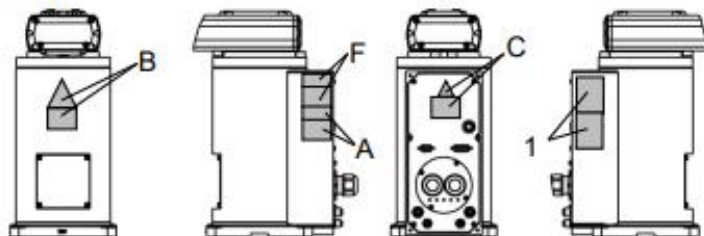








Table Top Mounting:



Location	Warning label	Note
E	   	<p>When releasing the brakes, be careful of the arm falling and rotation due to its own weight.</p> <p>This label is attached on the Manipulator and optional brake release unit as well.</p>
	 	<p>When releasing the brakes, be careful of the arm falling / rotation due to its own weight.</p>



Location of Labels: G6 Common

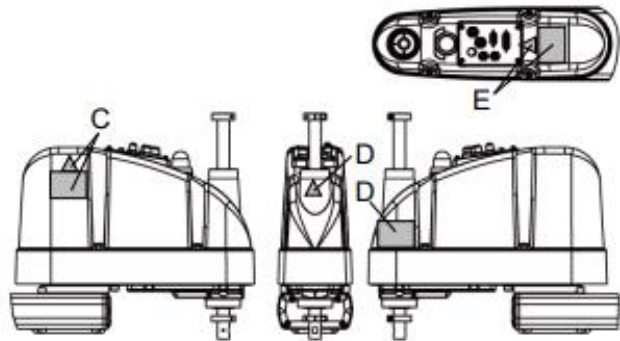
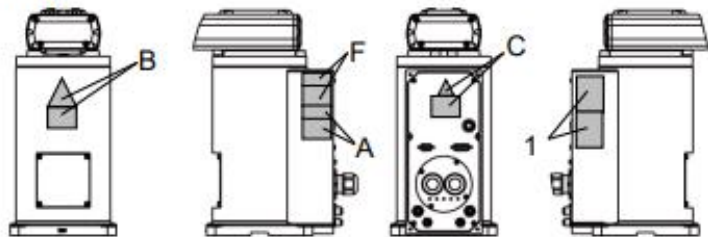


Table Top Mounting:



Location	Warning label	Note
G		HOT Be careful not to burn yourself.
H		Do not connect the followings to the TP port of the controller that attached this label. Connecting to the followings may result in malfunction of the device because pin assignments are different. OPTIONAL DEVICE dummy plug Operation Pendant OP500 Operator Pendant OP500RC Jog Pad JP500 Teaching Pendant TP-3** Operator Panel OP1
Location	Label	Note
1	-	The product name, model name, serial number, information which laws and regulations are supported, product specifications, manufacturer, importer, date of manufacture, country of manufacture, etc. are listed. For details, see the label affixed to the product.