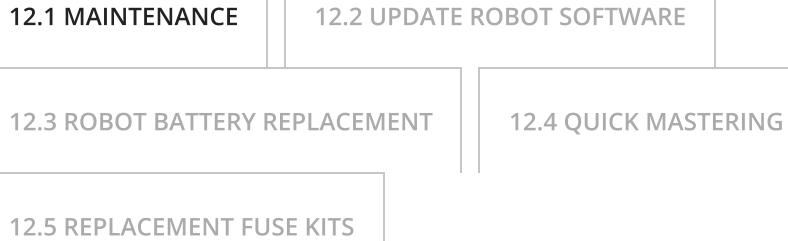




## 12 - HRP - Maintenance

# Haas Robot Package - Operator's/Service Manual



0 - HRP - Table of Contents

1 - HRP - Introduction

2 - HRP - Legal Information

3 - HRP - Safety

4 - HRP-7kg - Installation

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7 - HRP - Fence/Interlock Installation

8 - HRP - Area Scanner Installation

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10 - HRP - FANUC DCS Setup

11 - HRP - Operation

**12 - HRP - Maintenance**

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## Haas Robot Package - Maintenance Schedule

This page shows the recommended maintenance intervals.

### Maintenance

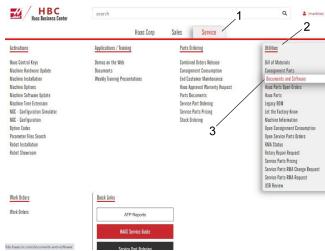
Maintenance Item	Interval
Inspect the grippers fingers for wear.	Every 6 Months or a new job is setup
Inspect the gripper airlines and fittings for wear or damage.	Every 6 Months or a new job is setup
Inspect the air regulator and airline for wear or damage.	Every 6 Months or a new job is setup
	HRP-1 - Every 4 years (15360 Hours)
Replace the axis grease/oil.	HRP-2/3 - Every 3 years (11520 Hours) <ul style="list-style-type: none"> <li><a href="#">HRP-1 - LR Mate 200iD/7L Mechanical Unit Operator's Manual 7.3.2</a></li> <li><a href="#">HRP-2 - M-20iD/25 Mechanical Unit Operator's Manual 7.3.2</a></li> <li><a href="#">HRP-3 - M-710iC/50 Mechanical Unit Operator's Manual 7.3.2</a></li> </ul>

### Battery Maintenance

**Note: First battery replacement time shoud start from build date because batteries are factory installed.**

ROBOT OPERATION	ROBOT BATTERIES	CONTROLLER BATTERY
<b>Stored or Powered Down</b>	Power on and inspect the batteries every 7 months	Replace every 4 years
<b>Active application</b>	Replace once every year	Replace every 4 years

### Software Download



1

Log on to the [HBC.HAASCNC.COM](https://HBC.HAASCNC.COM)

**Note:** Only Haas Certified Service technicians can log into this site.

**Note:** Make sure you have pop up blocker deactivated.

Select the Service tab [1].

Select Documents and Software [2].

Select Control Software [3].

Select Next Generation Control.

Select Robot Software.

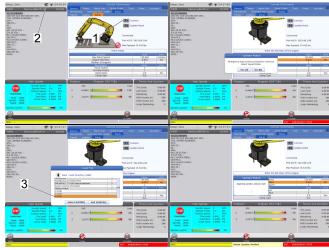
Select the file **RobotScriptsx-xx.zip** to download the software file.

Name	Date modified	Type	Size
RobotScriptsx-15.zip	6/7/2022 10:55 AM	Compressed (zipped)	51 KB
Haaskey.txt	5/23/2022 9:49 AM	Text Document	1 KB

2

Download and add the file to your USB memory device. This must be a service key.

## Update Robot Software



1

Insert the USB device to the control. The USB memory device must contain these items:

- Your HaasKey.txt file
- RobotScriptsx-xx.zip

**Note:** Make sure machine is in Service Mode. (DEBUG mode).

Press **[CURRENT COMMANDS]**.

Go to **Devices>Robot>Setup** tab.

Press **[E-Stop]**.

Press **[F1]** to connect the robot[1].

When connected the robot icon[2] will have a green check mark.

Press the **[Emergency Stop]** and press **[F2]** to update the robot.

Press **[Y]** to load the the robot software.

Navigate to the USB0 and select the **RobotScriptsx-xx.zip** and press **[Enter]**.

A pop-up Update Robot will display:

**Applying update, please wait.**

A message **Robot Update Verified** will also be displayed.

2

When complete the Update Robot pop-up will display:

### **Update Complete**

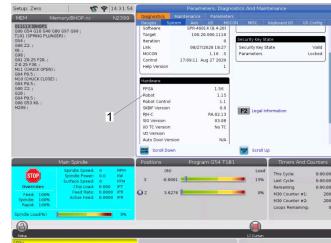
#### **Power cycle robot to complete update.**

If you try to reset alarms an alarm **9158 ROBOT COMMUNICATIONS LOST** will generate.

Power cycle the robot and reconnect to the robot.

3

Navigate to **Diagnostics>System** tab and press **Page Down** to the Hardware box and verify the Robot software was updated[1].



## **Haas Robot Package - Battery Replacement**

### **Under Construction**

## **Introduction**

This procedure outlines how to replace the batteries in the robot arm.

### **Recommendations:**

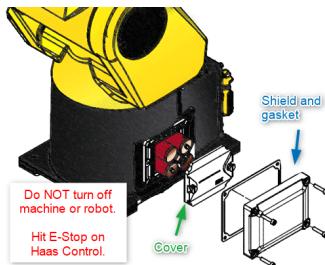
- Batteries should be changed once a year
- When changing the batteries, hit E-Stop on the Haas control to prevent unexpected robot motion

**Note: DO NOT turn off the robot or the Haas machine when changing the batteries.**

### **Tools Required:**

- Flathead screwdriver
- 3.00 mm allen key
- 4 high-quality C batteries, industrial batteries are recommended.

## **Replacement**

1

### **DO NOT turn off the machine or robot.**

Hit the E-Stop on the Haas control to prevent unexpected robot motion.

Use a 3 mm allen key to remove the hardware from the battery shield and take off the battery shield and gasket.

**Note: The battery shield may need to be pried off using a flathead screwdriver.**

Remove the compartment cover using a flathead screwdriver. Replace the batteries. Take note of the direction each battery is before removing the old batteries.

Put the compartment cover and battery shield back on, make sure the battery cover is secure tightly.

## Haas Robot Package - Quick Mastering

### Under Construction

## Introduction

This procedure outlines how to quick master the robot if the batteries have completely died.

#### Requirements:

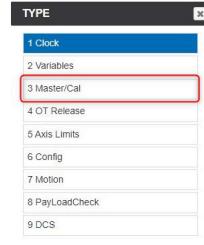
- Replace the batteries using the Battery Replacement procedure.
- A laptop is needed to connect to the virtual teach pendent.

**Only perform this procedure if the batteries have completely died or if the batteries were removed AND the robot or machine was turned off.**

## Quick Mastering

1

Follow this video to connect to the virtual teach pendent on a laptop.



2

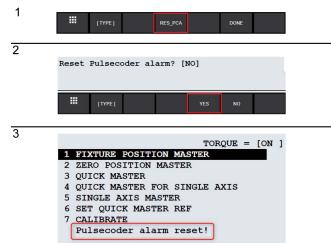
Go into the Navigate iPEndent to check Master/Cal is enabled.

Click *MENU>NEXT>SYSTEM>Master/Cal*, it will pop-up in the list on the screen as shown.

**Skip this step if Master/Cal is already enabled.**

If it is not enabled, follow these steps:

- Go to the System Variables screen:  
*MENU>NEXT>SYSTEM>Variables*
- Scroll down to \$MASTER\_ENB
- Set \$MASTER\_ENB to 1 by pressing 1 and pressing enter



3

#### Reset Pulsecoder Alarm

Go to the Master/Cal screen:  
*MENU>NEXT>SYSTEM>Master/Cal*

Click RES\_PCA [1], the pendent will display a message asking if you want to reset pulsecoder alarms.

Click Yes [2], a message will appear as shown that says 'PulseCoder alarm reset!' [3]

After the pulsecoder alarm has been reset, cycle power on the robot. **DO NOT** cycle power on the machine.



## 4

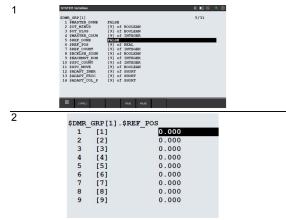
### Re-establish pulse for each axis

When axes lose power, the pulse on each axis needs to be re-established. This is done by jogging each joint at least 10-20 degrees in each direction.

Follow these steps to do this:

- Enter the Jogging iPendant from the Robot Homepage.
- Click the Jog Panel button [1] to open the Jog Panel, make sure the E-Stop on the machine is released.
- Click Reset [2] to reset all faults
- Click the switch [3] to turn it on
- Click Shift [4] and then jog the joints

**Note:** If an alarm pops up while jogging, reset the alarm and lower the jogging rate [5] until the arm is able to be jogged again. This will happen once the arm has left the DCS zone and it will need to be jogged at a slower rate.



## 5

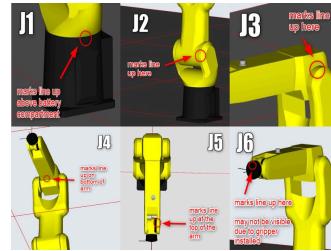
### Copy Master Count to Reference Count & Checking the Zero Reference Position

Go back to the Navigate iPendant.

Copy the Master Count values to the Reference Count values by doing the following:

- Go to the System Variables screen: **MENU>NEXT>SYSTEM>TYPE>Variables**
- Scroll down to \$DMR\_GRP (should be number 199) and once it is highlighted, hit ENTER twice and the variables shown in [1] should be on the screen.
- Scroll to \$MASTER\_COUNT and click DETAIL when it is highlighted. Take note of these values.
- Press PREV to go back to the variable list and then go into the \$REF\_COUNT by pressing DETAIL when it is highlighted. Copy the values from the \$MASTER\_COUNT by typing them in and pressing enter to change the values.
- Press PREV to go back to the variable list and set \$REF\_DONE to TRUE

While still inside \$DMR\_GRP[1] System Variables, go to \$REF\_POS and make sure the axis values are set to a value of 0 as shown in [2].



## 6

**Line Up Witness Marks**

Go back to the Jogging iPendant, open the Jog Panel and turn on the switch.

Jog each joint so that the witness marks line up, use the image shown to locate the positions of the witness marks on HRP-1.

For HRP-1 witness mark locations, see page 76 of the HRP-1 Mechanical Unit Operator's Manual in the link below.

For HRP-2 witness mark locations, see page 82 of the HRP-2 Mechanical Unit Operator's Manual in the link below.

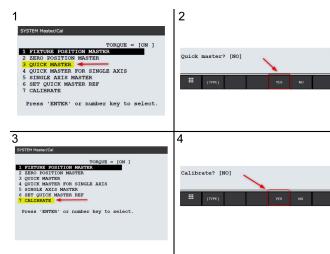
For HRP-3 witness mark locations, see page 117-118 of the HRP-3 Mechanical Unit Operator's Manual in the link below.

**Note:** The witness marks on Joint 6 may not be visible, remove the gripper and make sure the dowel pin hole is positioned upward.

HRP-1 FANUC ROBOT M-  
200ID MECHANICAL UNIT  
OPERATOR'S MANUAL

HRP-2 FANUC ROBOT M-  
20ID/25 MECHANICAL  
UNIT OPERATOR'S  
MANUAL

HRP-3 FANUC ROBOT M-  
710IC/50 MECHANICAL  
UNIT OPERATOR'S  
MANUAL



## 7

**Quick Master and Calibrate**

After lining up the witness marks, the robot is at its zero position.

Go to Master/Cal screen:  
MENU>NEXT>SYSTEM>Master/Cal

**Note: if Master/Cal is not showing up, go back to step 2 to enable it again.**

Scroll to QUICK MASTER and press ENTER to select [1].

A message will appear asking if you want to quick master, click YES [2].

A message will appear saying that the Robot has been mastered.

While still in Mast/Cal mode, scroll to CALIBRATE and press ENTER [3].

Click YES when the screen asks if you want to calibrate [4].

A message will display saying that the robot has been calibrated, then press DONE.

8**Apply DCS Parameters**

After quick mastering and calibrating, the robot will be in a faulted state until you apply DCS parameters.

Go into the Jogging iPending mode.

Go to the DCS menu: *MENU>NEXT>SYSTEM>DCS*

Scroll down to option 13 - Mastering parameters.

Click **APPLY** to apply the changes and press **OK**.

Enter 1111 for the Master Code.

Cycle power on the robot.

9**Verify Quick Mastering**

Move all joints to zero and check to see if the lines on both sides of the joint are lined up. If they are not lined up, repeat the procedure.

## **Haas Robot Package - Replacement Fuse Kits**

### **93-3378 - Fuse Kit 1**

FANUC PART NUMBER	QUANTITY
A60L-0001-0175/0.3A	1
A60L-0001-0175/3.2A	1
A60L-0001-0290/LM10C	1
A60L-0001-0290/LM20C	1
A60L-0001-0290/LM50C	1

### **93-3379 - Fuse Kit 2**

FANUC PART NUMBER	QUANTITY
A60L-0001-0290/LM05C	1
A60L-0001-0290/LM10	1
A60L-0001-0290/LM32C	1

### **93-3714 - Fuse Kit 3**

FANUC PART NUMBER	QUANTITY
A60L-0001-0046/1.0	1

A60L-0001-0046/7.5	1
A60L-0001-0175/0.5	1
A60L-0001-0290/LM32C	1
A60L-0001-0290/LM50C	1
A60L-0001-0450/8R0	1

[Feedback](#)