



5. Robotics Technician Manual

General Overview:

Standing experience.

- In robotics technician, the user will need to perform general maintenance and troubleshoot breakdowns of robot arms that produce cars.
- The user will need to oil rusty joints, replace old welding parts, fix split wires, put out fires and replace broken CPUs of three robot arms.
- The user will work in a large robotics facility where car frames are being produced in the background.

Macros / Shortcut keys:

T = turn teleportation on or off

Wrist Watch: The wrist watch is always on the user's left wrist. When a call is coming in for the user, the icon on the watch will be an orange vibrating phone (Image 1 below). They must place their right hand on top of the watch and a blue circular progress bar will fill up (Image 2 below). Once it is filled, the call will be answered and the watch icon will become a green chat bubble (Image 3 below). When the call is finished, the watch icon will become a yellow question mark (Image 4 below). When the yellow question mark is visible, the user can place their right hand on top of the watch and the narrator will repeat the last set of instructions.



Image 1



Image 2

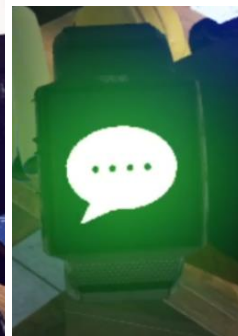


Image 3

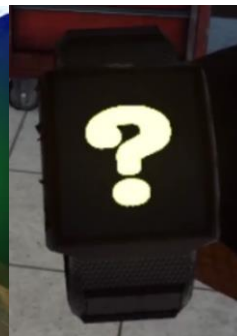
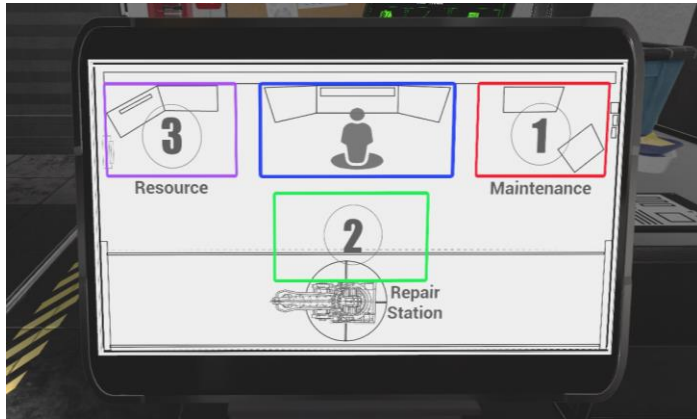


Image 4

Teleportation Map: A map tablet is at every location in the simulation. The user can move around the world using the map tablet when it is activated. When the VR hand is near the tablet, it will automatically point with an index finger which can be used to tap the screen. Tapping on the large boxes with numbers inside of them will move the user to that location. Each location is detailed on the map.



Facilitator Panel: The facilitator panel is an options menu that allows a simulation facilitator to adjust gameplay and accessibility options while a user is inside the experience. To access the facilitator panel during the simulation, press the TAB key.



There are five core options from this menu:

Hint Task: When pressed, the in-game narrator will repeat their most recent instruction, which is helpful if the user misses something or is distracted while in the simulation.

Print Screen: This button will save a screenshot of the current view that the user sees.

Settings: This will bring the facilitator into a separate menu screen where they have multiple options to change the experience. This is detailed below.

Restart: This will restart the simulation from the very beginning.

Quit: This will exit the experience.

Greyed out buttons: Finish Task & Restart Task - These functions are not currently working but will be implemented in the near future.

Settings: The gameplay settings have an additional set of toggles and sliders the facilitator can adjust during the simulation.



Force Grab: If someone is unable to reach something or is running the experience while seated, this option allows the user to grab objects without being directly next to them. The user can point their hands at objects that are far away and pulling the trigger will bring the object into their hand, grabbing it

Teleportation: This will turn on the granular teleportation around the game world. To use teleportation 1) hold down the center thumbpad button (Vive Pro) or push forward on the thumb joystick (Oculus Rift S) to create a blue teleportation arc 2) select a location to go by moving the controller until the blue circle at the end of the arc is in the desired location (A red line means that location is not valid or blocked) and 3) release the center thumbpad button (Vive and Vive Pro) or thumb joystick (Oculus Rift S) which will cause the screen will quickly fade to black and when it fades back in, the user will be in a new location.

Seated Experience: When turned on, this option will move the user's location in the game world to be higher up, so that if they are sitting down, their view will be similar to a standing position.

Language: This drop-down menu will allow the facilitator to change the language of the experience. When changing language, the simulation will need to restart.

Volume: This slider will adjust the master volume of the game. If the sliding bar is on the right side, the volume will be at 100% and on the left side, the volume will be set to 0%.

Full written walkthrough:

Quest	Task	Description
1	A	Answer your watch by holding your right hand above the watch icon on your left wrist.
1	B	Listen to an introduction from the narrator.

1 C	Move to the maintenance station by tapping location 1 on the teleportation map. When your hand is near the tablet, it will automatically point with your index finger which you use to tap the screen.
1 D	Grab a blue oil can from the desk.
1 E	With the oil can in your hand, move to the repair station by tapping location 2 on the teleportation map. When your hand is near the tablet, it will automatically point with your index finger which you use to tap the screen.
1 F	Spray the top joint of the robot arm with the oil can. Point the oil can towards the joint with one hand and press down on the top of the can with your other hand. When the joint is fully oiled, colourful confetti will burst from the top joint.
1 G	Move to the maintenance station by tapping location 1 on the teleportation map. When your hand is near the tablet, it will automatically point with your index finger which you use to tap the screen. Grab a new welding end piece from the briefcase on the desk.
1 H	With the welding end piece in your hand, move to the repair station by tapping location 2 on the teleportation map. When your hand is near the tablet, it will automatically point with your index finger which you use to tap the screen.
1 I	Listen to information about the release button.
1 I2	Grab the side panel and lift it up to expose the large green release button and blue wires. Press the release button.
1 J	Grab the unlocked old welding end piece from the right side of the robot arm. Replace that end piece with the new one you brought over from the maintenance station. When it is replaced with a new one, confetti will burst from that location.
1 K	Listen to information about submitting logs.
1 K2	Using the tablet on the tool chest, tap the "Submit Log" button, then when the confirmation window pops up, select "Yes". When your hand is near the tablet, it will automatically point with your index finger which you use to tap the screen.
1 L	Wait for a second robot arm to arrive at the repair station.
1 M	Repeat the same process as before. First, spray the top joint of the robot arm with an oil can. Point the oil can towards the joint with one hand and press down on the top of the can with your other hand. When the joint is fully oiled, confetti will burst from the top joint. Second, grab the side panel and lift it up to expose the large green release button. Press the release button. Grab the unlocked old welding end piece from the right side of the robot arm. Replace that end piece with a new one from the maintenance station. When it is replaced with a new one, confetti will burst from that location. Once both are finished, tap the "Submit Log" button on the tablet, then when the confirmation window pops up, select "Yes". When your hand

		is near the tablet, it will automatically point with your index finger which you use to tap the screen.
1	N	Listen to information from the narrator
2	A	Answer your watch by holding your right hand above the watch icon on your left wrist.
2	B	Listen to information from the narrator
2	C	Return to the center location by tapping on the home icon on the teleportation map. When your hand is near the tablet, it will automatically point with your index finger which you use to tap the screen. Using the center screen, tap the flashing red icon along the bottom of the screen. These tablets work similar to the teleportation map. Once you've tapped the flashing icon, two options will appear on the right screen, tap on the "Send Robot to Repair Bay" button.
2	D	Move to the repair station by tapping location 2 on the teleportation map. When your hand is near the tablet, it will automatically point with your index finger which you use to tap the screen. Once there, select the "Run Diagnostics" button on the tablet on the tool chest.
2	E	Move to the resource station by tapping location 3 on the teleportation map. When your hand is near the tablet, it will automatically point with your index finger which you use to tap the screen.
2	F	Use the touch screen here to look up both "Broken Wires" and "Replace CPU" by tapping on them and reading over the steps required to fix these issues. When your hand is near the screen, it will automatically point with your index finger which you use to tap the screen.
2	G & H	Move to the repair station by tapping location 2 on the teleportation map. When your hand is near the tablet, it will automatically point with your index finger which you use to tap the screen.
2	I	Grab the side panel and lift it up to expose the large green release button and blue wires. Grab the yellow wire strippers from the tool chest. Remove the plastic coating from the split in the wires by touching the split area with the tip of the wire strippers.
2	J	Grab a wire connector from the tool chest and attach it to the stripped section of wire.
2	K	Grab the blue wire crimpers from the tool chest and crimp the wire connector. To crimp the wires, touch the wire connector with the tip of the wire crimpers.
2	L	Select the "Run Diagnostics" button on the tablet on the tool chest. When your hand is near the tablet, it will automatically point with your index finger which you use to tap the screen.

2	M	Listen to information about how to replace the CPU
2	M2	Grab the drill from the tool chest and remove the four screws from the bottom panel. This drill will automatically tighten or loosen screws when it comes into contact with one. When the screws are fully removed, a yellow burst of confetti will appear. Grab the panel and pull it off the robot arm.
2	N	Grab and remove the old CPU from the inside of the panel. The CPU is in the top left corner of the motherboard.
2	O	Grab a replacement CPU from the tool chest or the resource station and insert it into the empty CPU slot on the motherboard. When it's in the right place, a small burst of yellow confetti will appear.
2	P	Put the bottom panel back on top of the motherboard. If you lose the panel, there are extra panels at the side of the tool chest and at the resources station. Grab the drill from the tool chest and tighten the four screws from the bottom panel. This drill will automatically tighten or loosen screws when it comes into contact with one. When the screws are fully tightened, a yellow burst of confetti will appear.
2	Q	Select the "Run Diagnostics" button on the tablet on the tool chest. When your hand is near the tablet, it will automatically point with your index finger which you use to tap the screen.
2	R	Using the tablet on the tool chest, tap the "Submit Log" button, then when the confirmation window pops up, select "Yes". When your hand is near the tablet, it will automatically point with your index finger which you use to tap the screen.
2	S	Return to the center location by tapping on the home icon on the teleportation map. When your hand is near the tablet, it will automatically point with your index finger which you use to tap the screen. Wait until the robot has returned to the floor, then another one will break. Using the center screen, tap the flashing red icon along the bottom of the screen. These tablets work similar to the teleportation map. Once you've tapped the flashing icon, two options will appear on the right screen, tap on the "Send Robot to Repair Bay" button.
3	A	Move to the repair station by tapping location 2 on the teleportation map. Running diagnostics on the robot arm when it arrives will display "On Fire" and "Speed Off". There is a fire extinguisher at the resources station behind the teleportation map. Move to the resources station using the teleportation map, grab the fire extinguisher and return to the repair station. Point the fire extinguisher towards the center joint of the robot arm, where the flames are coming from, and press down on the top with your other hand. When the fire is fully out, confetti will burst from the center. To fix the speed, tap the Down Arrow button next to the speed value until it reads 1.0. Once the speed is set to 1.0 and the fire has been put out, tap the

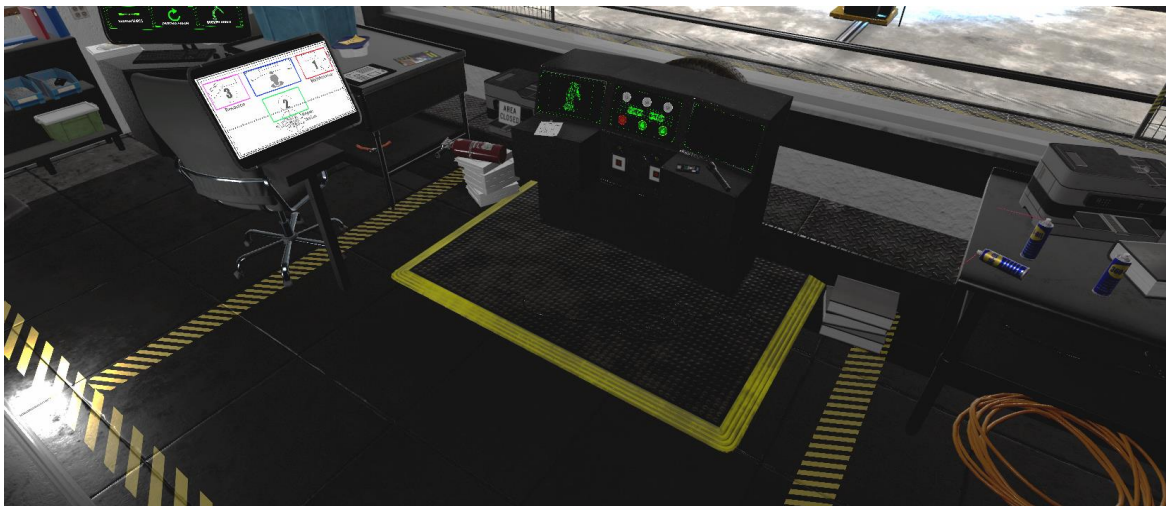
		"Submit Log" button, then when the confirmation window pops up, select "Yes".
3	B	Listen to the final tips from the narrator

Map

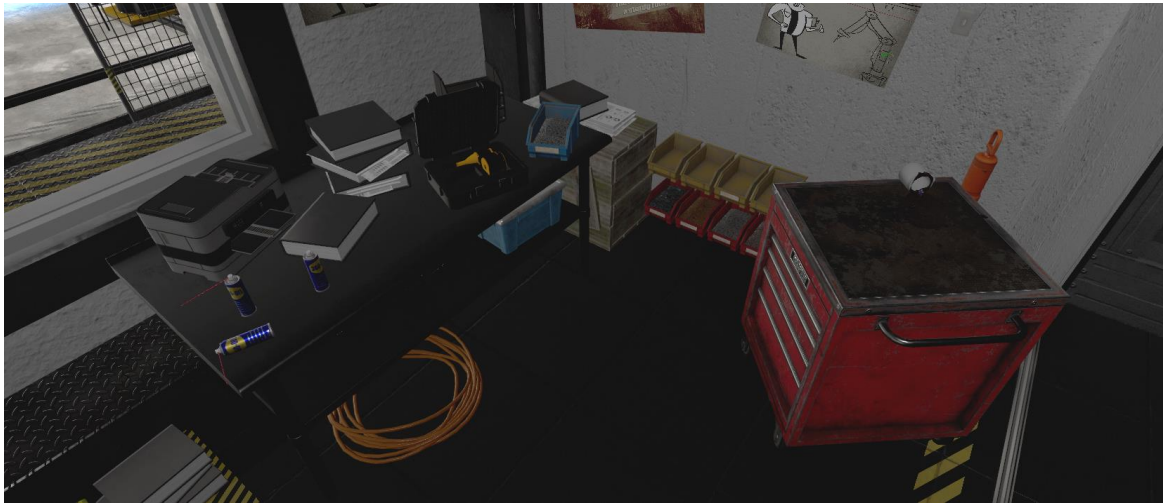
The user will be working in a large robotics facility where they bring robot arms into a repair bay to performance maintenance and repairs



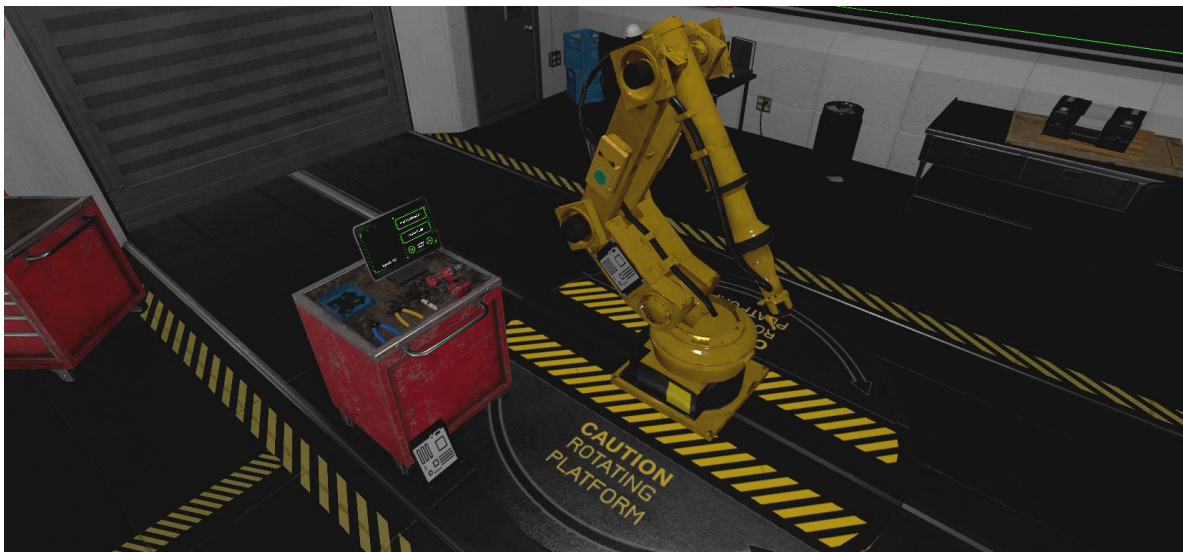
Home Location - Workstation: This is where the user begins the experience. They have access to a teleportation map and on the front desk, a diagnostic tablet and robot recall map tablets.



Location 1 - Maintenance Station: This location has a teleportation map that can be used to access the other locations and a desk with maintenance tools. These are oil cans and replacement welding end pieces for the robot arms.



Location 2 - Repair Station: This location is where the robot arms will come when recalled for maintenance or repair. The robot arm will move along a track from the production floor to this area. When it arrives, the user can perform maintenance or repair the robot arm. There is a tool chest with several useful tools resting on top (Some will not be visible at the start of the tutorial) and a diagnostic tablet. There is a teleportation map that the user can use to move to the other locations in the experience.



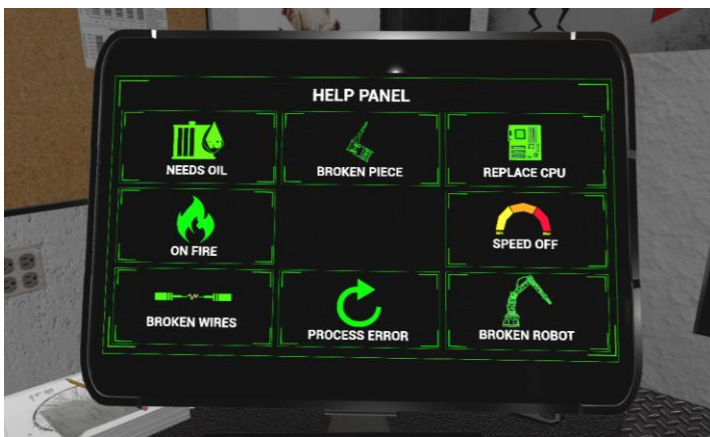
Location 3 - Resource Station: This location is where the user will find the breakdown computer, which details how to perform maintenance and fix all the common issues. There is also a fire extinguisher, replacement CPUs and side panels at this location. There is a teleportation map that the user can use to move to the other locations in the experience.



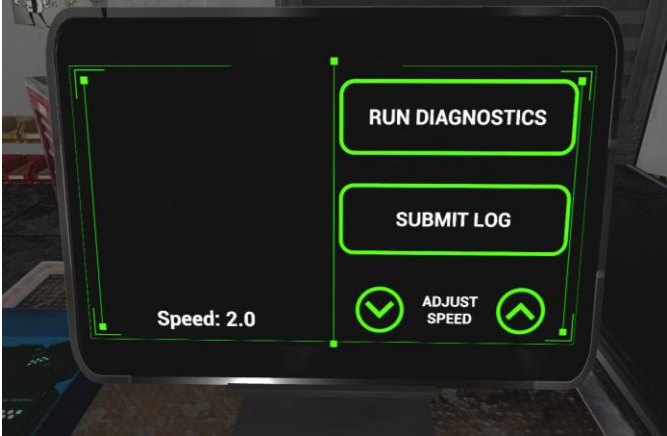
Key Objects

Note: Some tools will not be visible at the beginning of the tutorial and will only appear when they are required.

Breakdown Computer: The breakdown computer is at the resource station, location 3. When the user's hand is near the computer, it will automatically point with the index finger which is used to tap the screen. Tap on the boxes to show different bits of information. This computer shows the main breakdown types that can occur with the robot arms and includes a brief summary of how to fix them. The specific information for common breakdown is listed further down in this manual.



Diagnostics Tablet: The diagnostics tablet is at the home location and repair station, location 2. This tablet will inform the user what is wrong with the robot arm that has been recalled into the repair bay. The user can run diagnostics on the robot arm and if it is fixed, submit their log and it will return to the production floor. If something is still wrong with the robot arm, then pressing the submit log button will inform the user and run diagnostics automatically. When the VR hand is near the computer, it will automatically point with an index finger which can be used to tap the screen.



Robot Recall Map Tablet: The robot recall map is at the home location. This tablet uses two screens, the center screen and the right screen. When the VR hand is near the computer, it will automatically point with an index finger which can be used to tap the screen. The user can tap on one of the three robot arm icons along the bottom of the center screen and an options menu for that robot arm will appear on the right screen. These options are to send the robot arm to the repair bay or send the robot arm back to the production floor.



Robot Arms: There are three interactable robot arms that are on the main floor of the production facility. They can be recalled using the robot recall map tablet (center and right screens) at the home location. Some of the robot arms will automatically be sent to the repair station by the narrator. These have two maintenance and four main breakdowns that can occur that must be fixed by the user, detailed above. When the robot arm is in the repair station, there is a side panel that can be opened with the VR hands at the top. Underneath this is a button that unlocks /releases the welding end piece and three wires that might break. Below the side panel is the CPU panel. This can be removed with the drill, exposing the CPU underneath.



Tool Chest: There is a tool chest at the repair station, location 2. On top of it are most of the tools the user will need to fix common breakdowns. There is a diagnostics tablet on the tool chest that can be used for diagnosing the robot issues, submitting logs and adjusting speeds.



Drill: The drill is located on top of the tool chest and can tighten or loosen screws. There are four screws that hold the side CPU panel on the robot arm. This drill will automatically tighten or loosen screws when it comes into contact with one. When the screws are fully removed or secured, a yellow burst of confetti will appear.



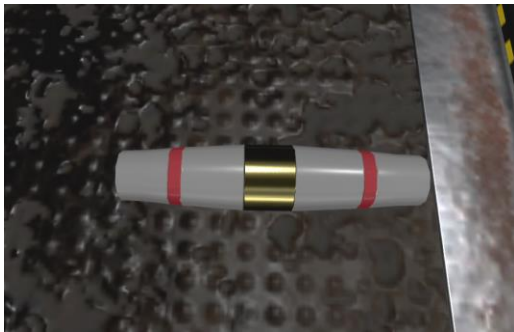
Screws: The screws are located on the side CPU panel of the robot arm. They cannot be grabbed or picked up and only interact with the tip of the drill. They can be loosened or tightened using the drill and a yellow burst of confetti will appear when they are fully loose or tight.



Wire Strippers: The yellow wire strippers are located on top of the tool chest. They can remove the plastic coating from split wires by picking up and then touching the split area with the tip of the wire strippers.



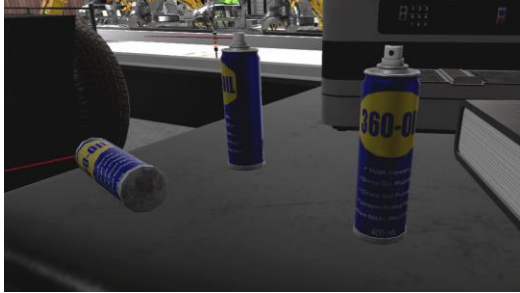
Wire Connector: The wire connectors are located in a box on top of the tool chest. They can attach to the stripped section of wire, fixing the split.



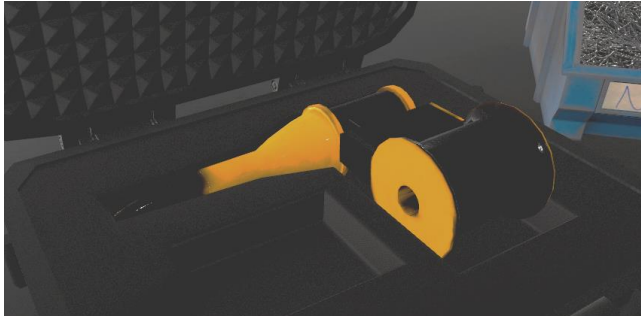
Wire Crimper: The blue wire crimpers are located on top of the tool chest and can crimp the wire connector. To crimp the wire connectors, grab the crimpers and then touch the wire connector with the tip of the wire crimpers.



Oil Can: The oil cans are located at the maintenance station, location 1 on the desk. The user can pick up the oil can and spray the top joint of the robot arm to fix the “Joints need oil” problem. To use the oil can, the user must point it towards the joint with one hand and press down on the top of the can with the other hand. When the joint is fully oiled, colourful confetti will burst from the top joint.



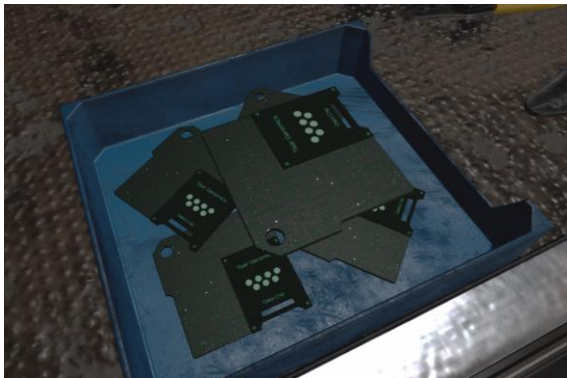
Robot Welding Endpiece: The robot welding endpieces are located at the maintenance station, location 1 in a briefcase on the desk. They can be brought over to the repair station, location 2 to replace the broken ones. Broken end pieces will have a lot of black blotches on them while the new ones are clean. To release the robot welding endpieces from the arms, the user must lift up the middle panel and press the release button.



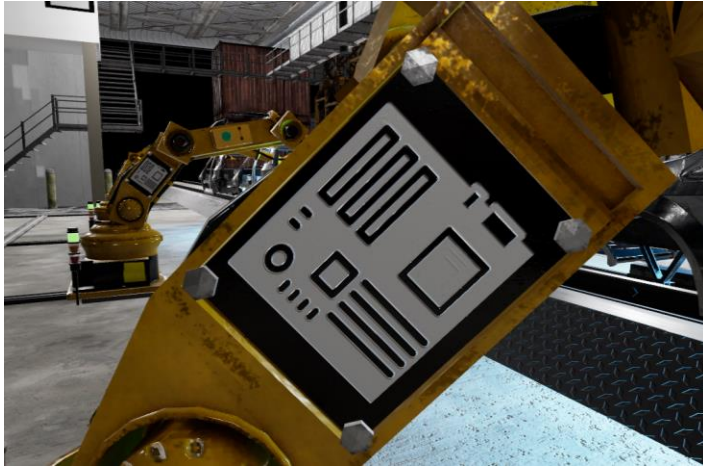
Fire Extinguisher: The fire extinguisher is located at the resource station, location 3 behind the teleportation map and an extra one is located near the front screen at the home location. To use the fire extinguisher, the user must grab it and point it towards the center joint of the robot arm, where the flames are coming from, and press down on the top with the other hand. When the fire is fully out, confetti will burst from the center



Robot Arm CPU: The CPU for the robot arm is located underneath the CPU Covering Panel in the top left corner of the motherboard. There are extra CPUs at the resource station and on the tool chest. To replace the CPU, grab the old one from the motherboard and replace it with a new one.



CPU Panel: This panel is located on the side of the robot arm, near the bottom. To remove the CPU panel, the user must loosen all four screws using the drill. There are extra panels at the resource station and next to the tool chest.



Robot Arm Breakdowns

Broken Wires: Grab the side panel and lift it up to expose the large green release button and blue wires. Grab the yellow wire strippers from the tool chest. Remove the plastic coating from the split in the wires by touching the split area with the tip of the wire strippers. Grab a wire connector from the tool chest and attach it to the stripped section of wire. Grab the blue wire crimpers from the tool chest and crimp the wire connector. To crimp the wires, touch the wire connector with the tip of the wire crimpers.

Replace CPU: Grab the drill from the tool chest and remove the 4 screws from the bottom panel. This drill will automatically tighten or loosen screws when it comes into contact with one. When the screws are fully removed, a yellow burst of confetti will appear. Grab the panel and pull it off the robot arm. Grab and remove the old CPU from the inside of the panel. The CPU is in the upper right corner of the motherboard. Grab a replacement CPU from the tool chest or the resource station and insert it into the empty CPU slot on the motherboard. When it's in the right place, a small burst of yellow confetti will appear. Put the bottom panel back on top of the motherboard. If the user loses the panel, there are extra panels at the side of the tool chest and at the resources station. Grab the drill from the tool chest and tighten the 4 screws from the bottom panel. This drill will automatically tighten or loosen screws when it comes into contact with one. When the screws are fully tightened, a yellow burst of confetti will appear.

Joints need Oil: Grab an oil can from the maintenance station, location 1. Bring that can to the repair station, location 2. Spray the top joint of the robot arm with an oil can. Point the oil can

towards the joint with one hand and press down on the top of the can with the other hand. When the joint is fully oiled, confetti will burst from the top joint.

Speed Off: To fix the speed, tap the Up or Down arrows button next to the speed value until it reads 1.0.

On Fire: There is a fire extinguisher at the resources station behind the teleportation map. Move to the resources station using the teleportation map, grab the fire extinguisher and return to the repair station. Point the fire extinguisher towards the center joint of the robot arm, where the flames are coming from, and press down on the top with the other hand. When the fire is fully out, confetti will burst from the center.

Replace End Piece: Grab the side panel and lift it up to expose the large green release button. Press the release button. Grab the unlocked old welding end piece from the right side of the robot arm. Replace that end piece with a new one from the maintenance station. When it is replaced with a new one, confetti will burst from that location.

Freeplay vs. Tutorial:

The tutorial mode will guide the user through general maintenance of two robot arms. This process involves oiling the top joint of the robot arm and replacing the welding endpiece. The narrator will guide the user through the first robot arm and then the user will need to complete the second one without guidance. Once two robot arms have had their maintenance completed, a robot arm will break down and the user will have to fix the split wires and replace a broken CPU, guided by the narrator. Once that robot arm has been fixed, the user will need to recall one more robot arm that has caught on fire. The user will need to put out the fire using the fire extinguisher and then adjust the speed parameter of the robot arm and return it to the production floor.

In freeplay, the user will have to perform maintenance and fix problems with the three main robot arms, which will break down.