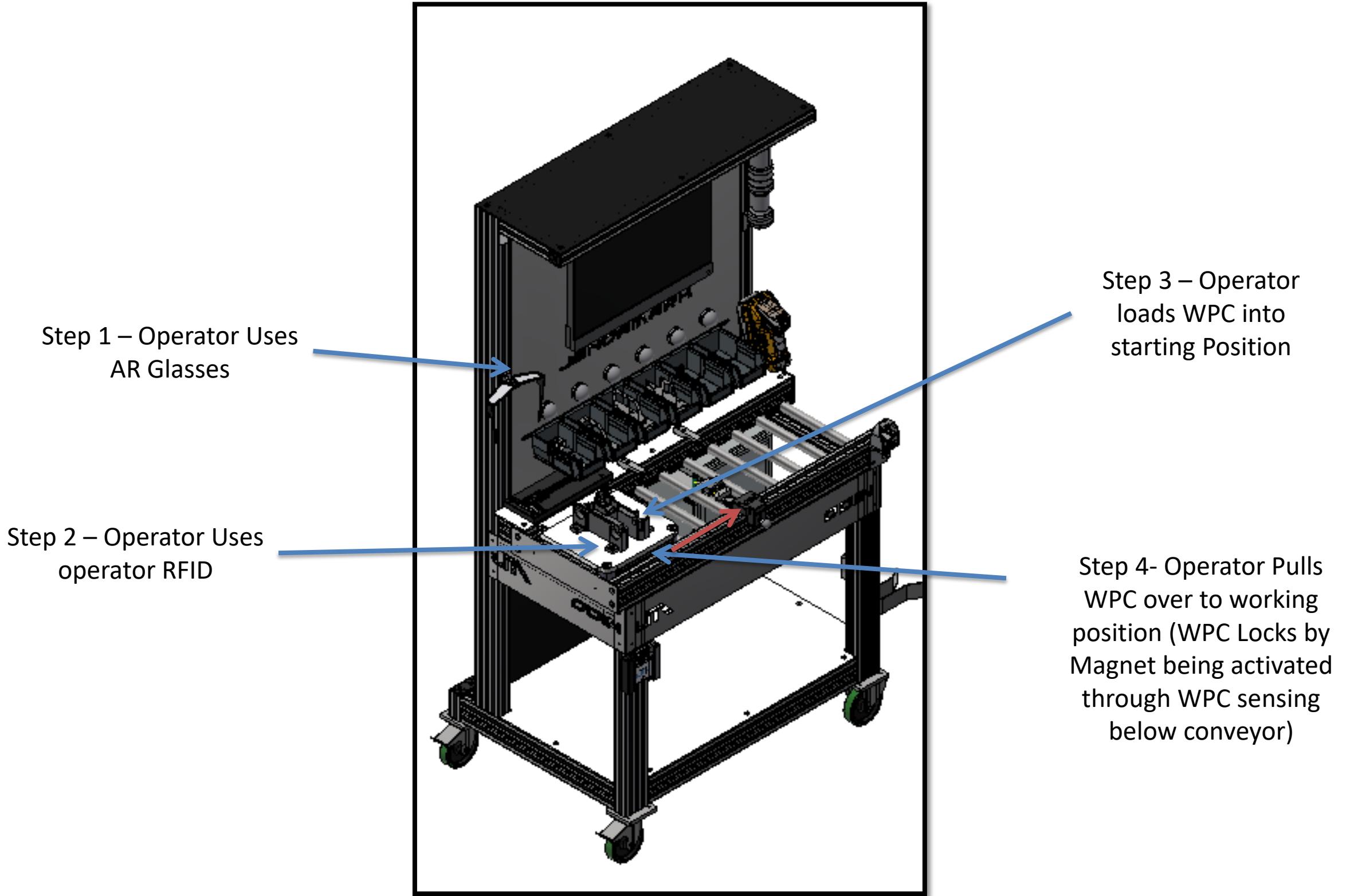


CSIR LEARNING FACTORY PROJECT A1626

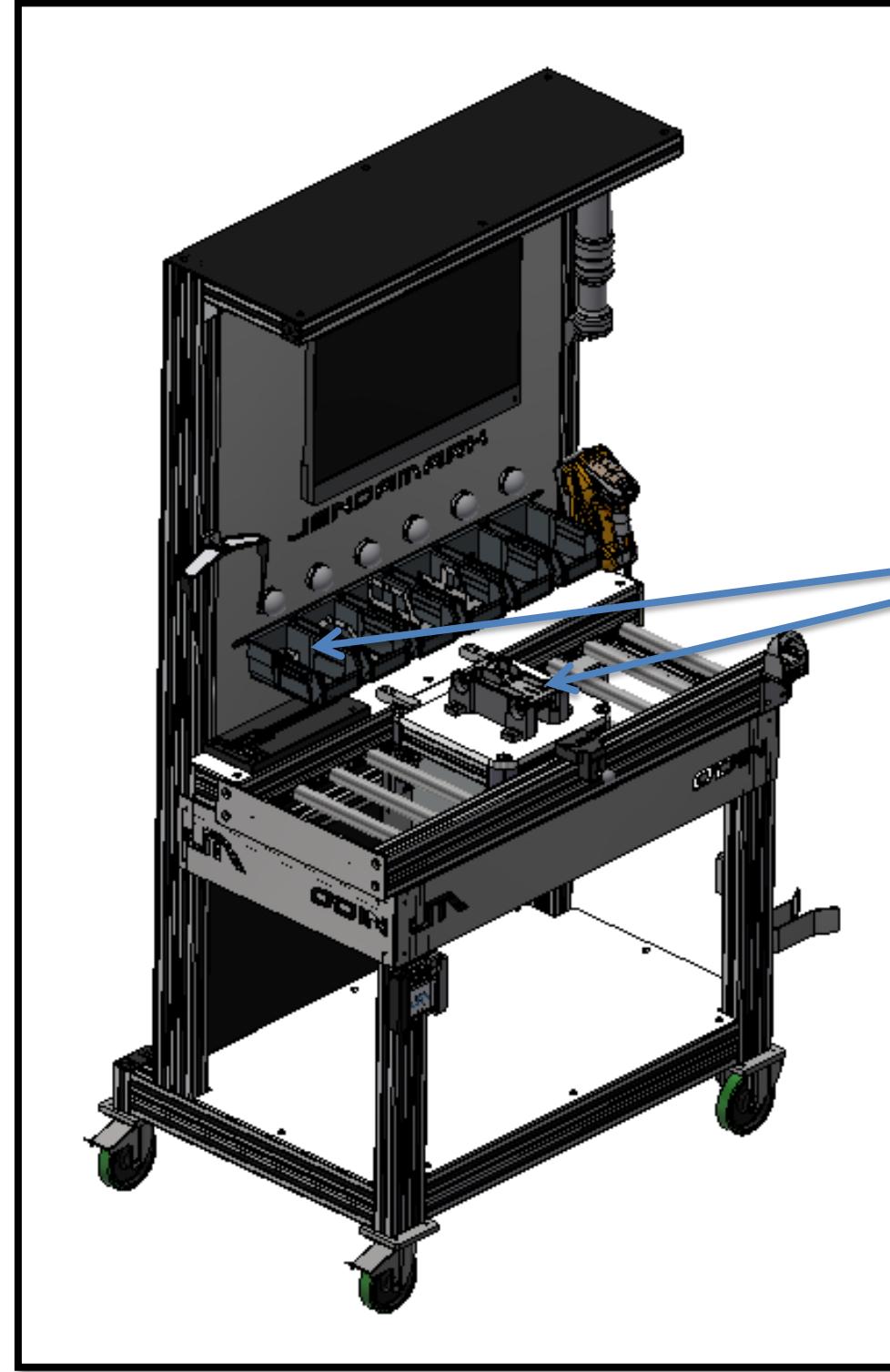
LINE CONCEPT

PROCESS STATION 1 – PRE-ASSEMBLY (VARIANT 2)



LINE CONCEPT

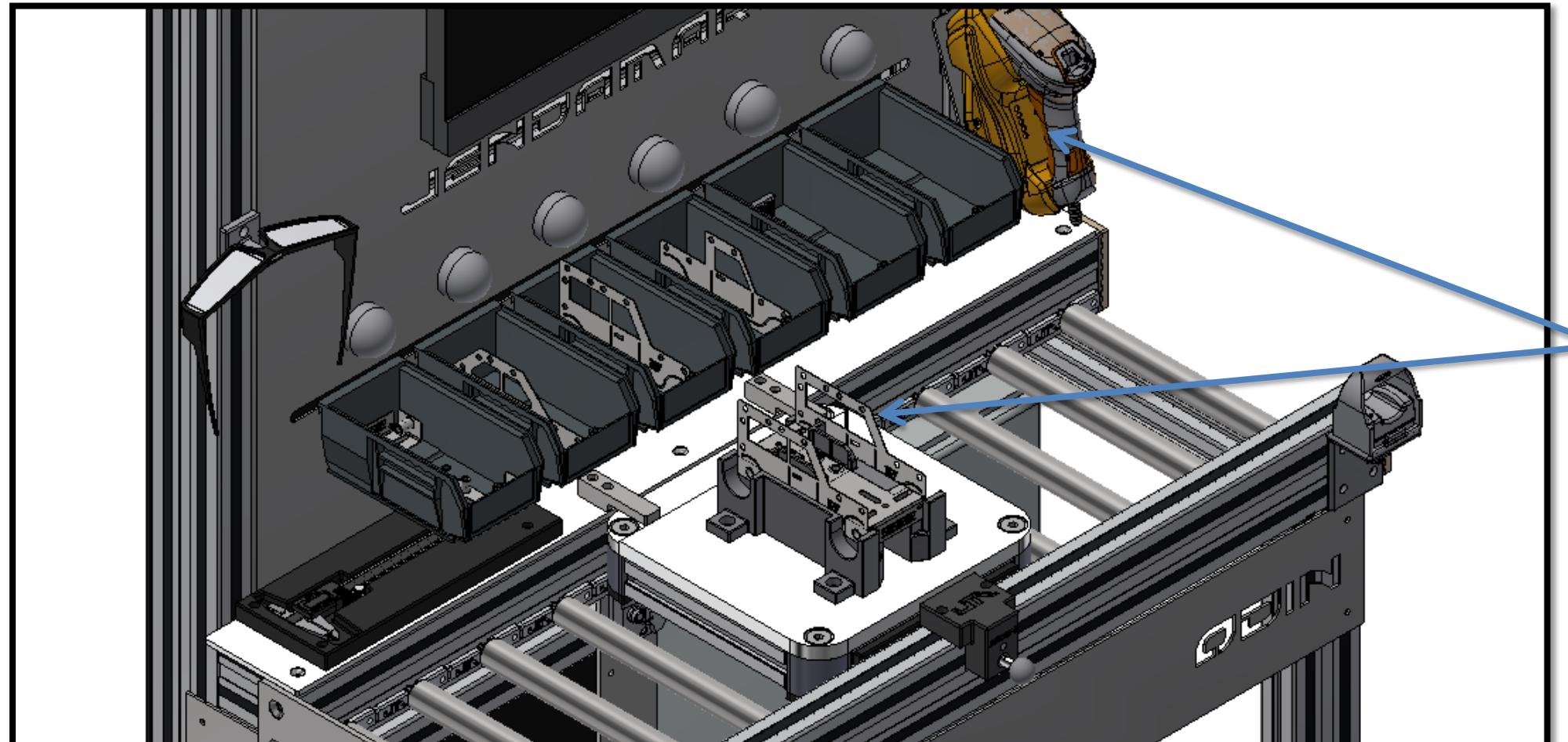
PROCESS STATION 1 – PRE-ASSEMBLY



Step 5 – Operator loads the first part by picking up part from 1st pick to light Lin-Bin (Chassis)

LINE CONCEPT

PROCESS STATION 1 – PRE-ASSEMBLY



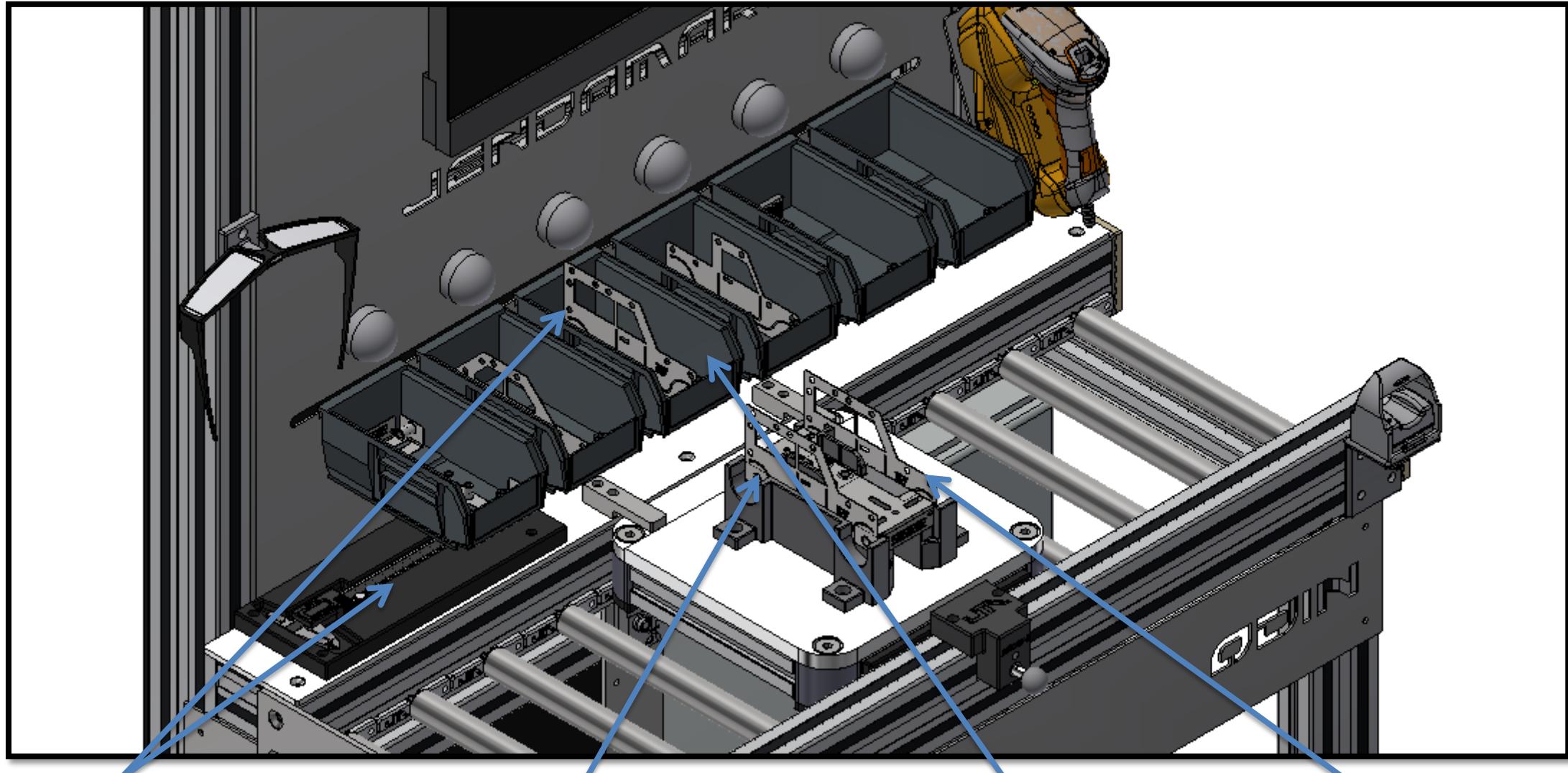
Step 6 – Operator uses Barcode Scanner to scan Variant 2's Sticker which was placed on the Side panel after Side panel was attached to Riser

LINE CONCEPT

PROCESS STATION 1 – PRE-ASSEMBLY



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Step 7 – Operator picks up part from 3rd Lin-Bin and uses Vernier to measure Height on the notches to ensure correct variant is running(Variant 2 Side Panel) & Manually Types in value on IPC

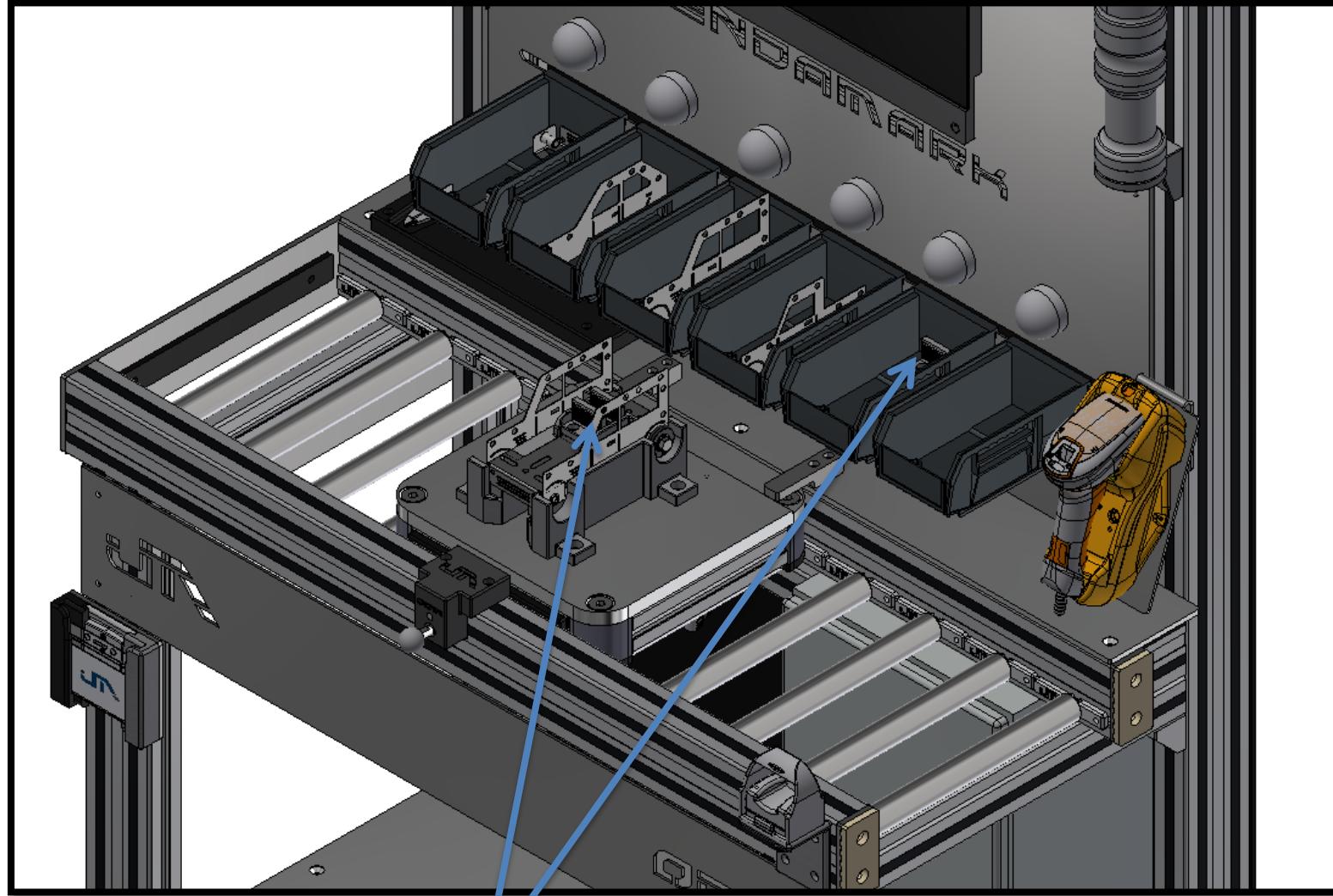
Step 8 – Operator loads the second part (Variant 2 Side Panel)

Step 9 – Operator picks up part from 3rd Lin-Bin and uses Vernier to measure Height on the notches to ensure correct variant is running(Variant 2 Side Panel) & Manually Types in value on IPC

Step 10 – Operator loads the third part (Variant 2 Side Panel)

LINE CONCEPT

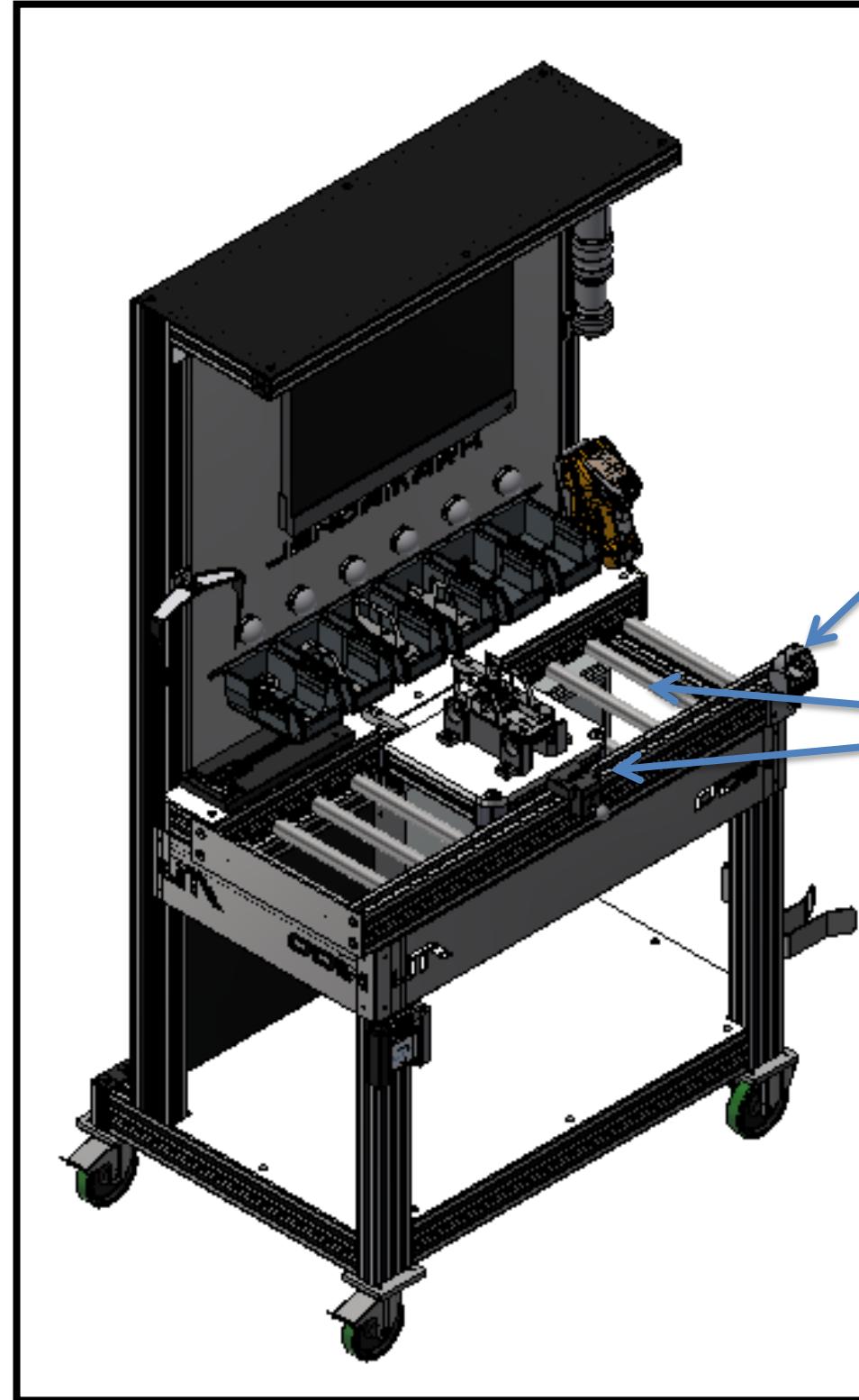
PROCESS STATION 1 – PRE-ASSEMBLY



Step 11 – Operator picks up 2x Parts from the 5th Lin –Bin which is the seats and place it into the fixture

LINE CONCEPT

PROCESS STATION 1 – PRE-ASSEMBLY

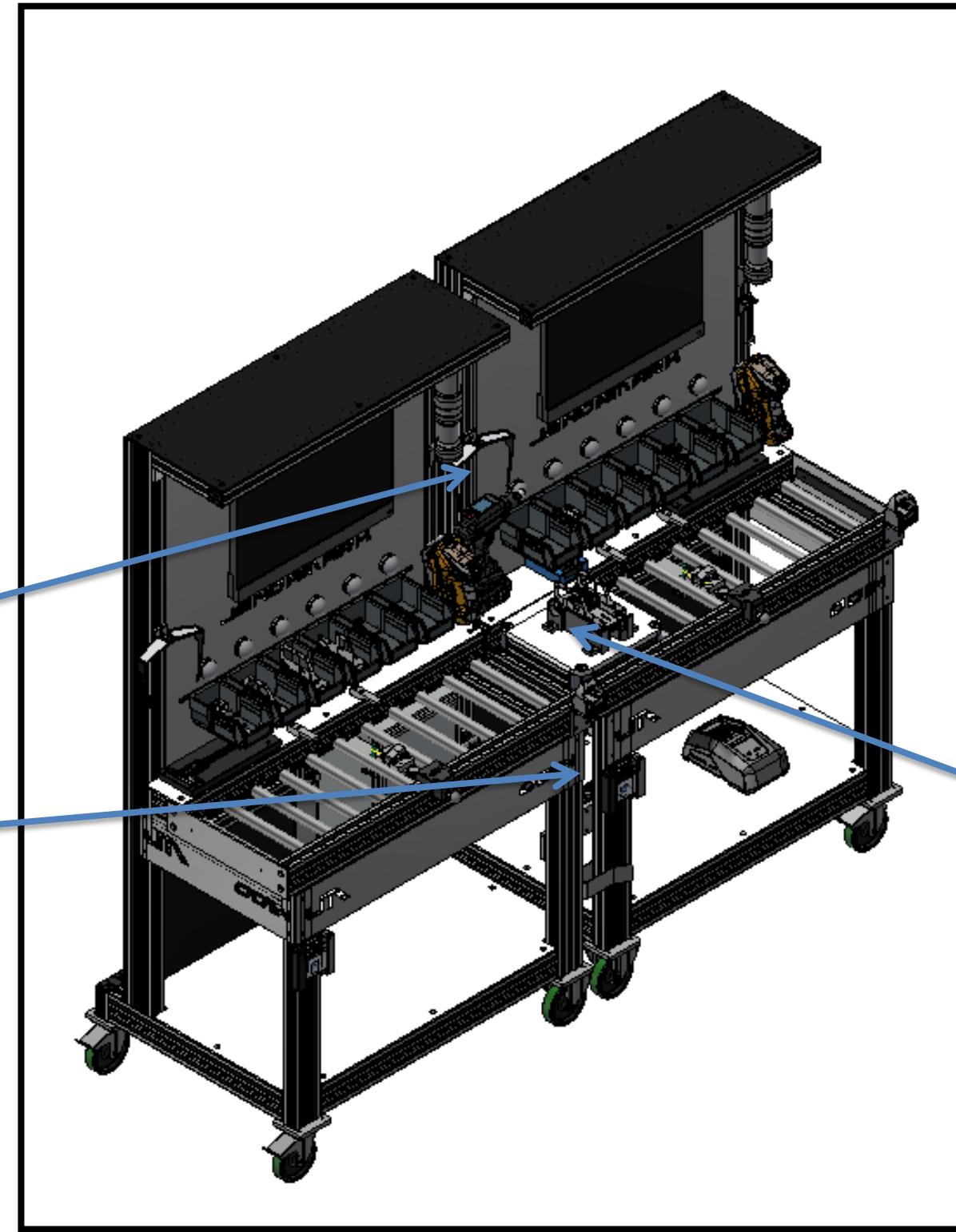


Step 12 – Process is completed on first station – Operator uses Push button which activates buzzer and Tower light to show operation is completed

Step 13 – Operator pulls electro magnet locking mechanism out of pocket and releases WPC which is then moved to ending position for station 1

LINE CONCEPT

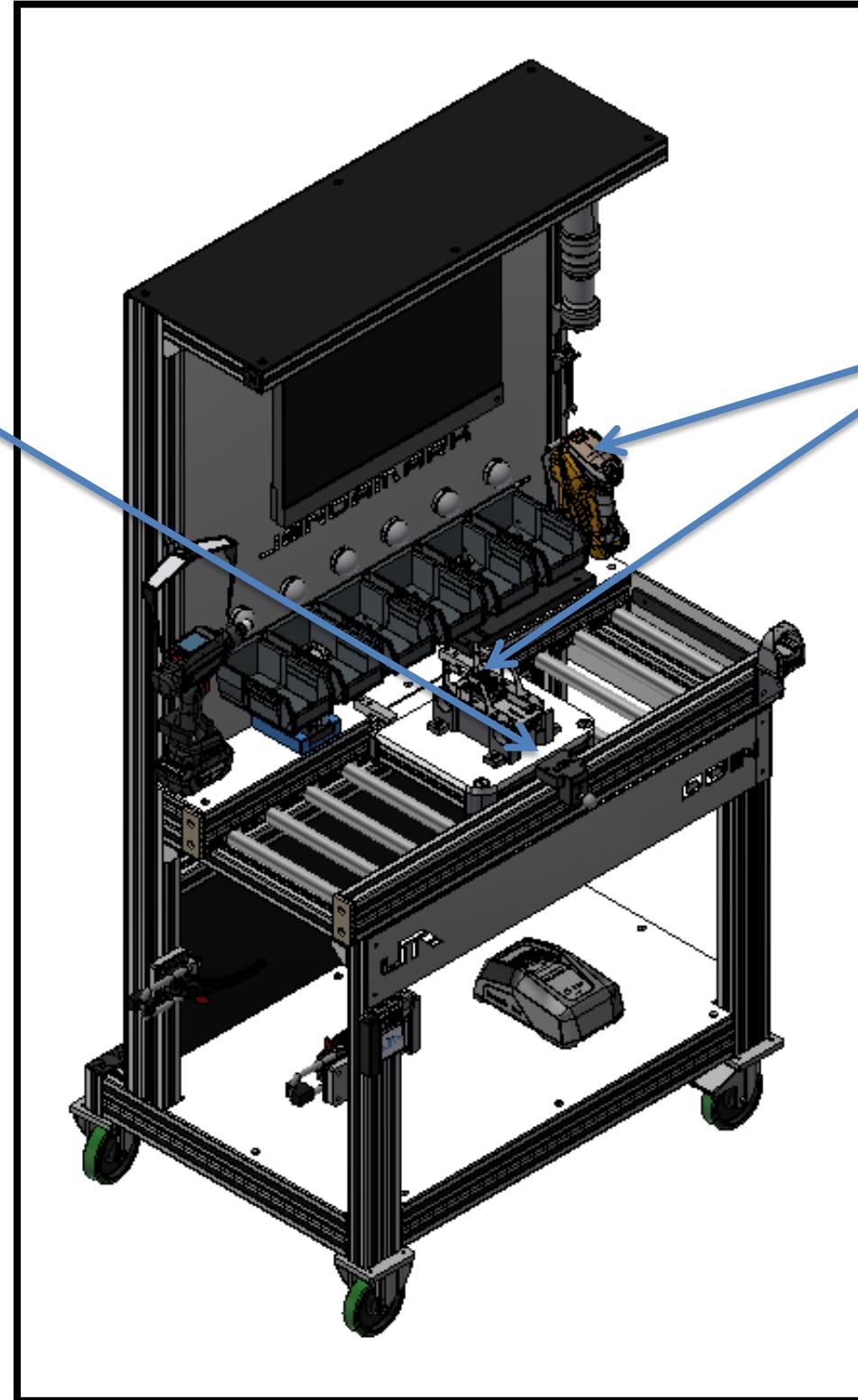
PROCESS STATION 2 – FINAL ASSEMBLY



LINE CONCEPT PROCESS STATION 2 – FINAL ASSEMBLY

Step 17 – WPC is pulled over to working position
(WPC Locks by Magnet being activated through WPC proxy below conveyor)

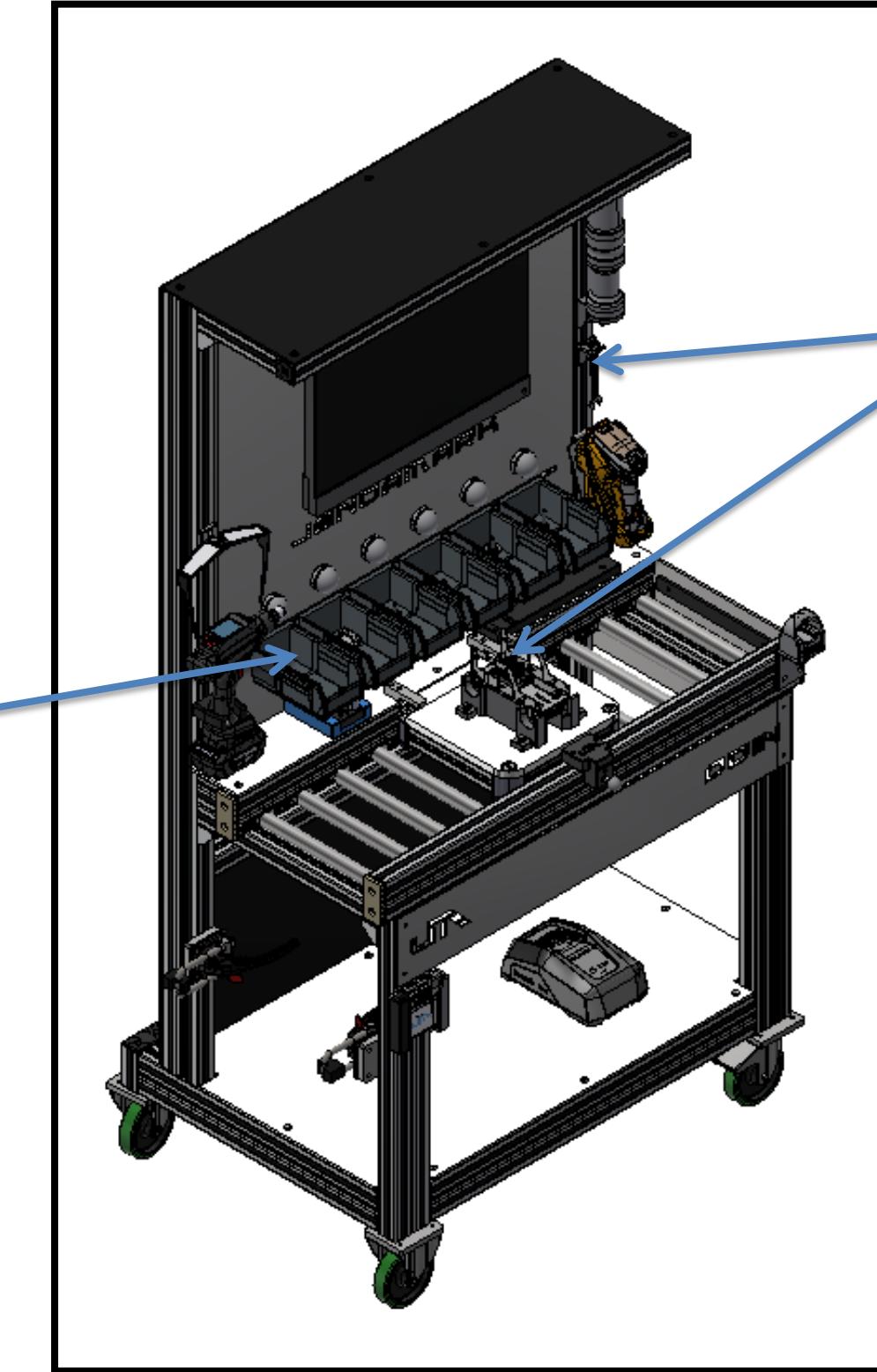
Step 18 – Operator uses Barcode Scanner to Communicate with station 2 that Variant 2 is at working position on Station 2



LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY

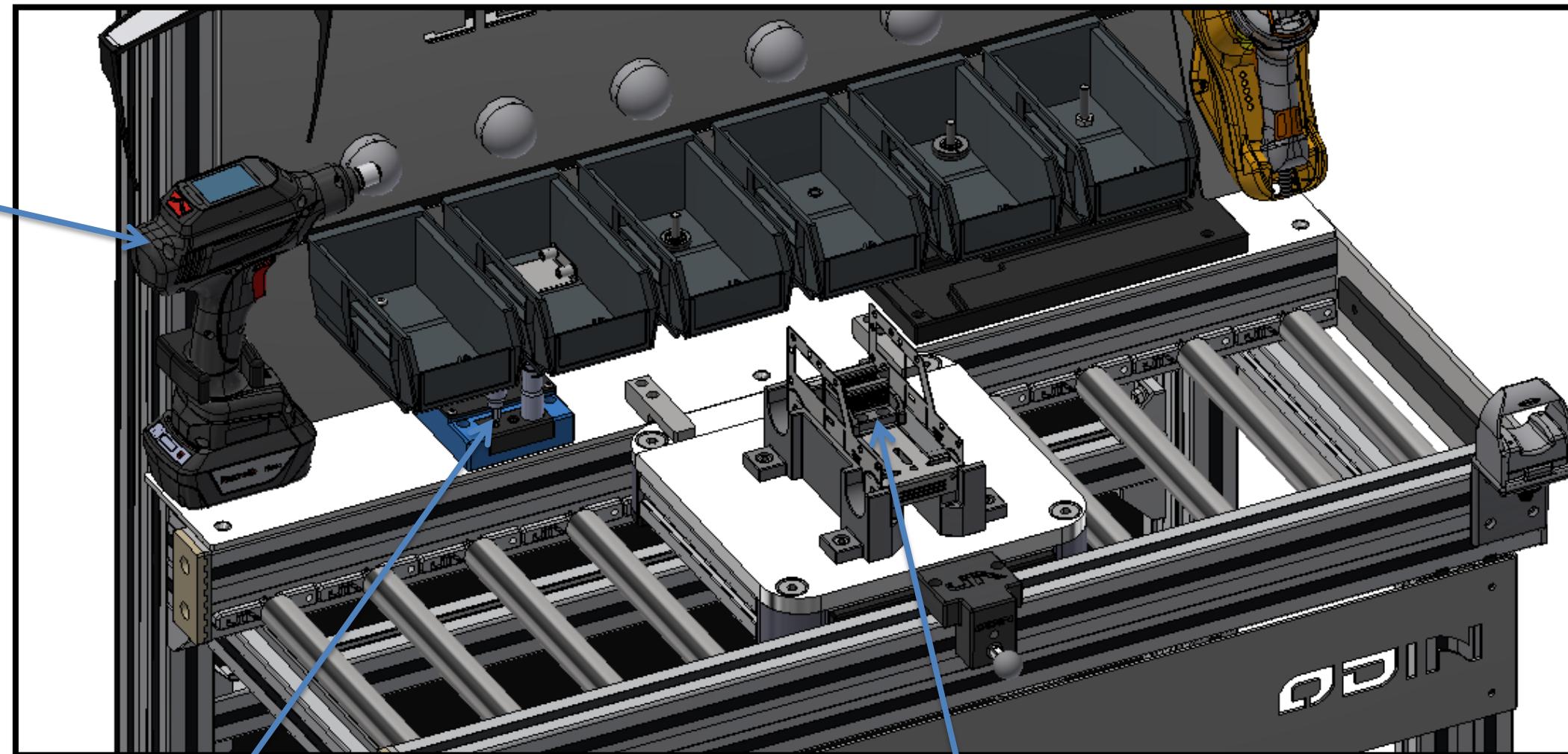
Step 19 – Operator picks up 4x parts from Lin-bin 1 which is Button Head Cap screws



Step 20 – Operator places Button heads into seat and hand tightens bolts with given allen key

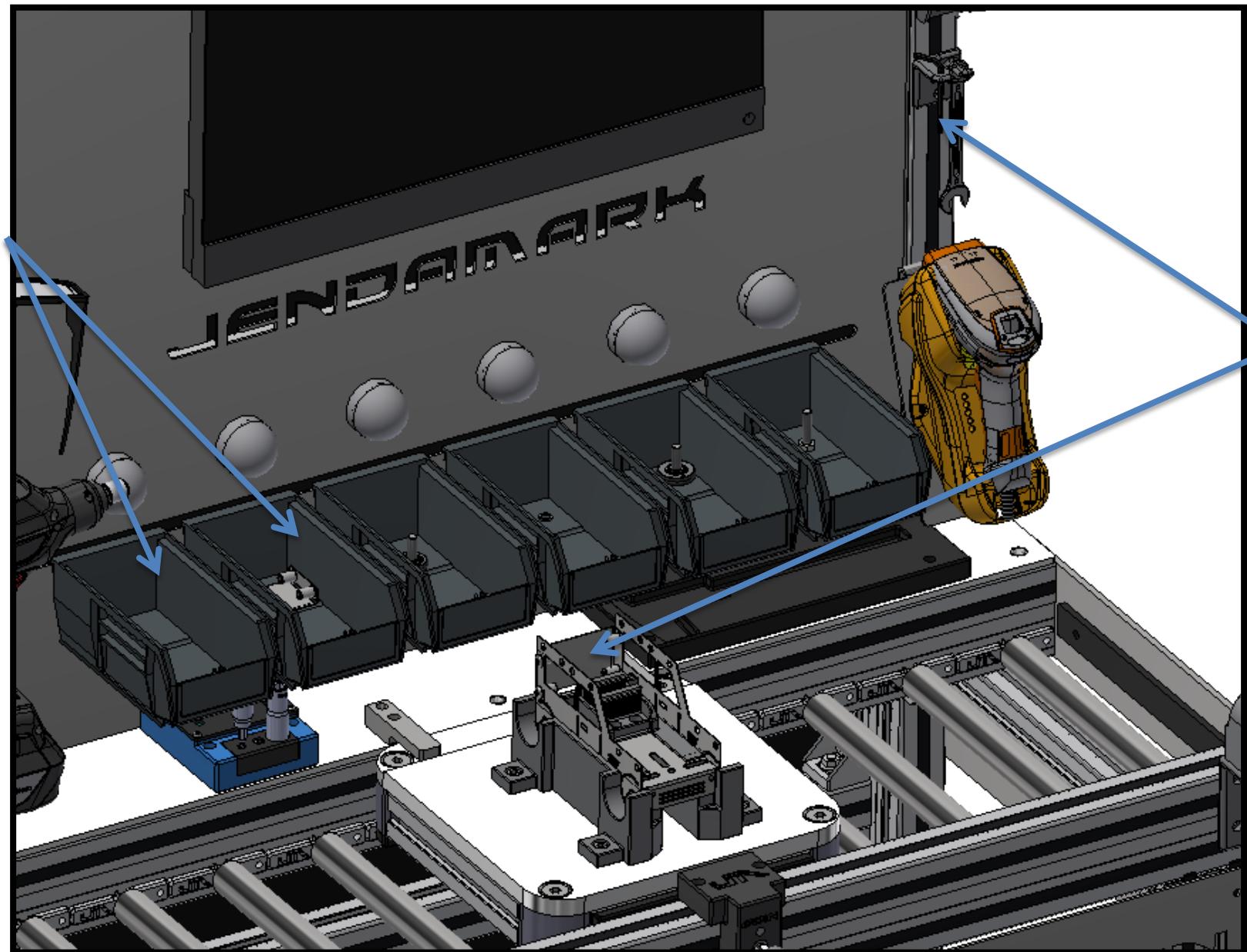
LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY



LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY



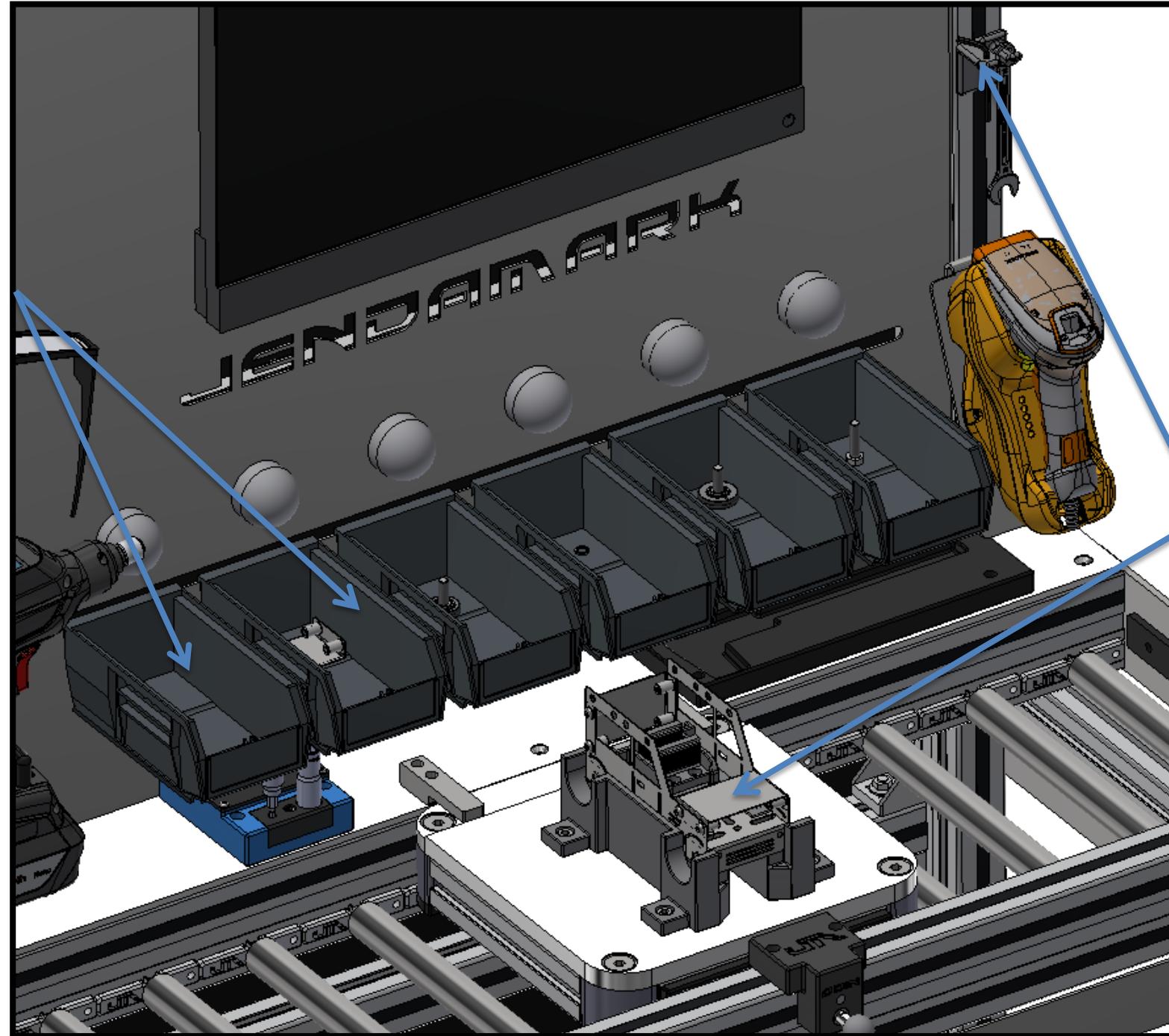
Step 24 – Operator picks up Part from 2nd Lin-Bin and Also picks up 4x Button Heads from Lin-Bin 1

Step 25 – Operator picks up Allen Key and Hand tightens parts onto frame

LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY

Step 26 – Operator picks up part from Lin-Bin 2 and 4x Button Heads from Lin-Bin 1

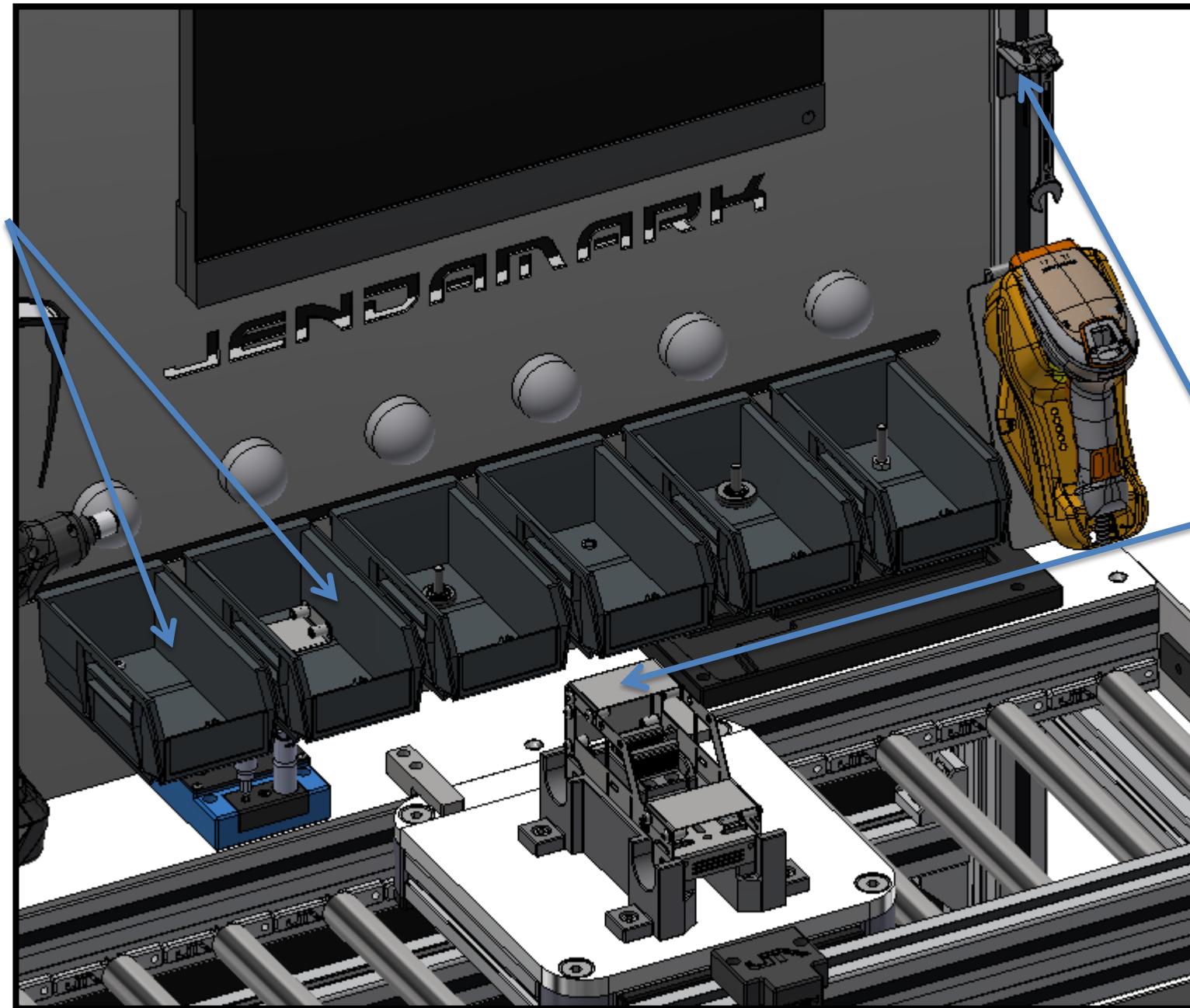


Step 27 – Operator pick allen key from the storage and hand Tightens bolts onto frame

LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY

Step 28 – Operator picks up part from the 2nd Lin-Bin and 4x Button Heads from the 1st Lin-Bin

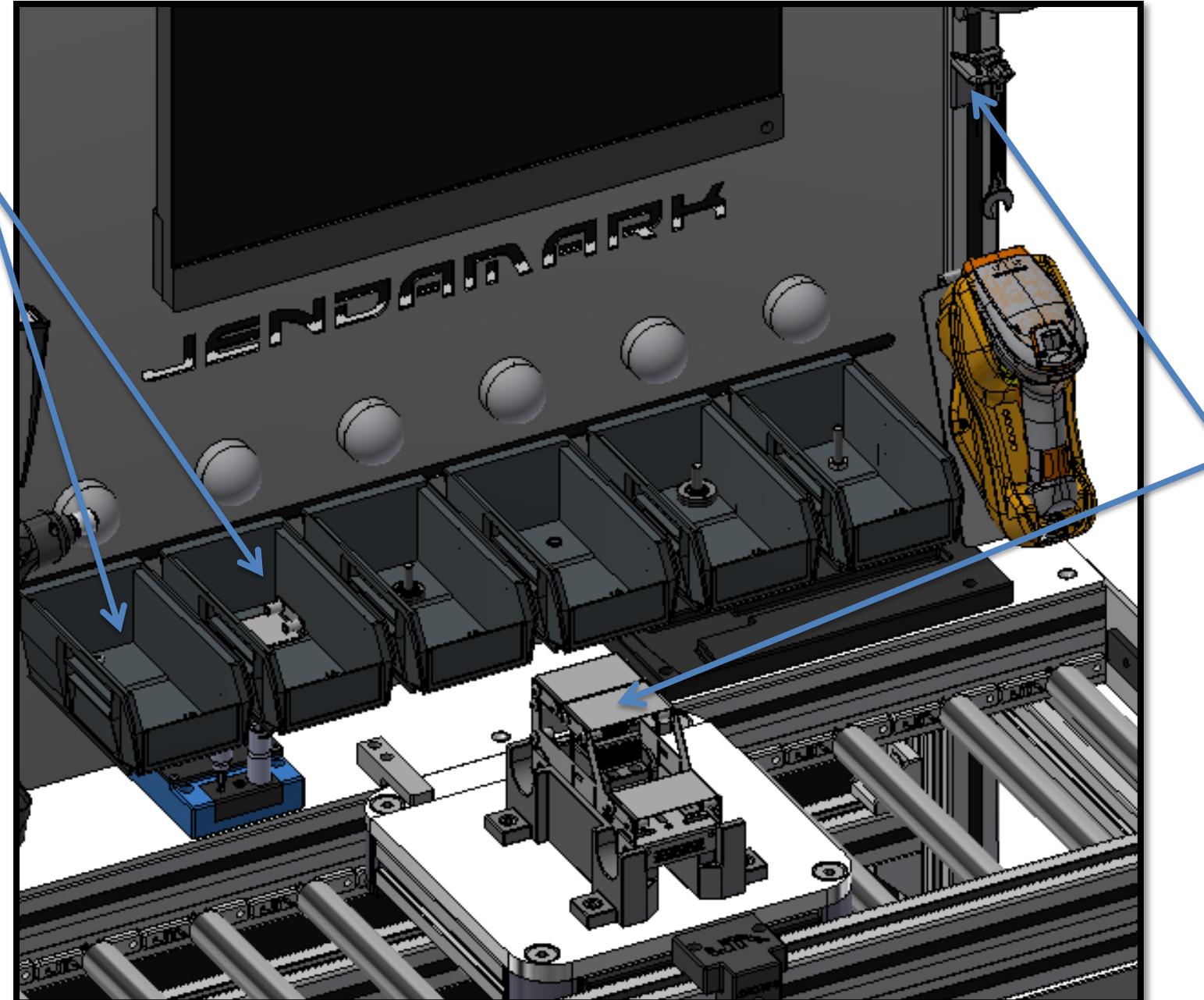


Step 29 – Operator picks up Allen Key from storage and Hand Tightens Bolts onto Frame

LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY

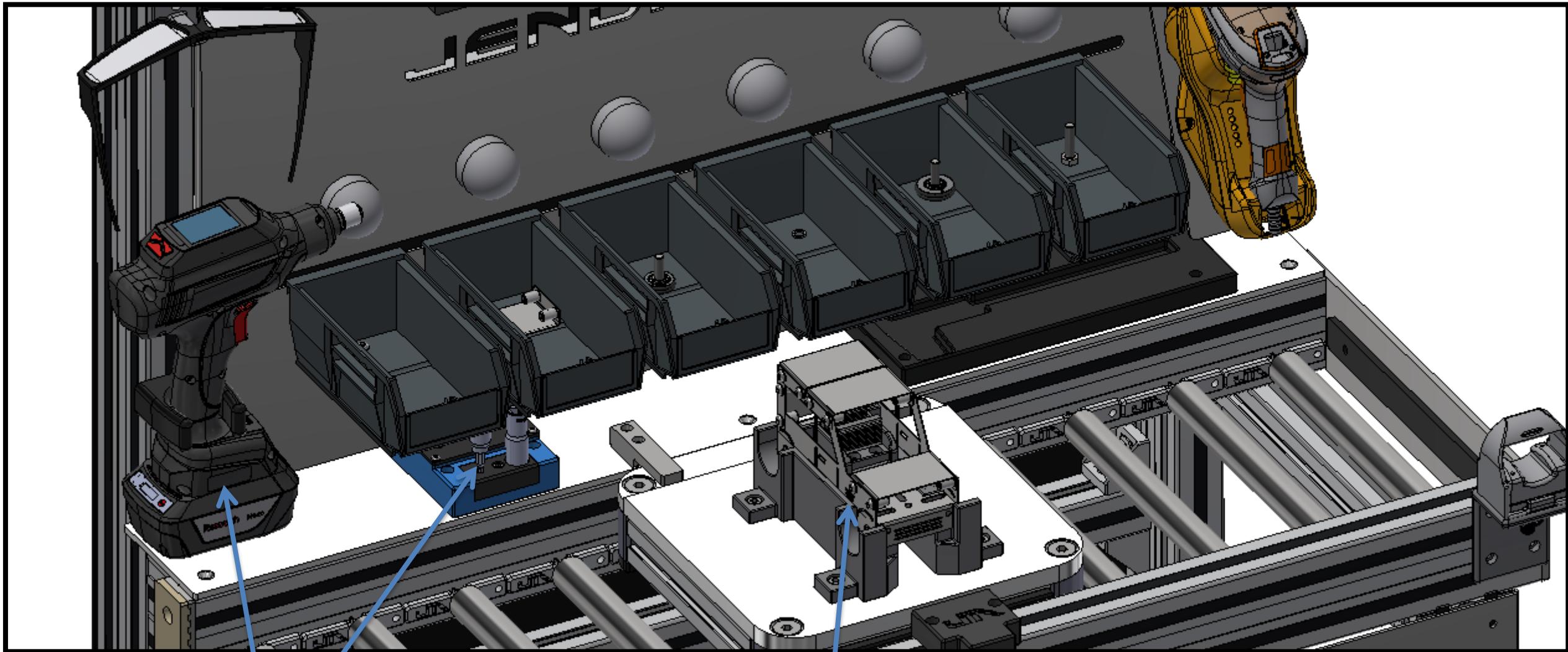
Step 30 – Operator picks up part from the 2nd Lin-Bin and 4x Button Heads from the 1st Lin-Bin



Step 31 – Operator picks up Allen Key from storage and Hand Tightens Bolts onto Frame

LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY



Step 32 – Operator picks up Bolting tool from Storage Clip & Picks up Allen Key socket from Socket Tray and attaches it to Bolting tool

Step 33 – Operator uses Bolting Tool to Bolt all 16xButton heads to correct Torque Spec

Step 34 – Operator removes Socket and places it back into socket tray and places Bolting tool into Storage clip

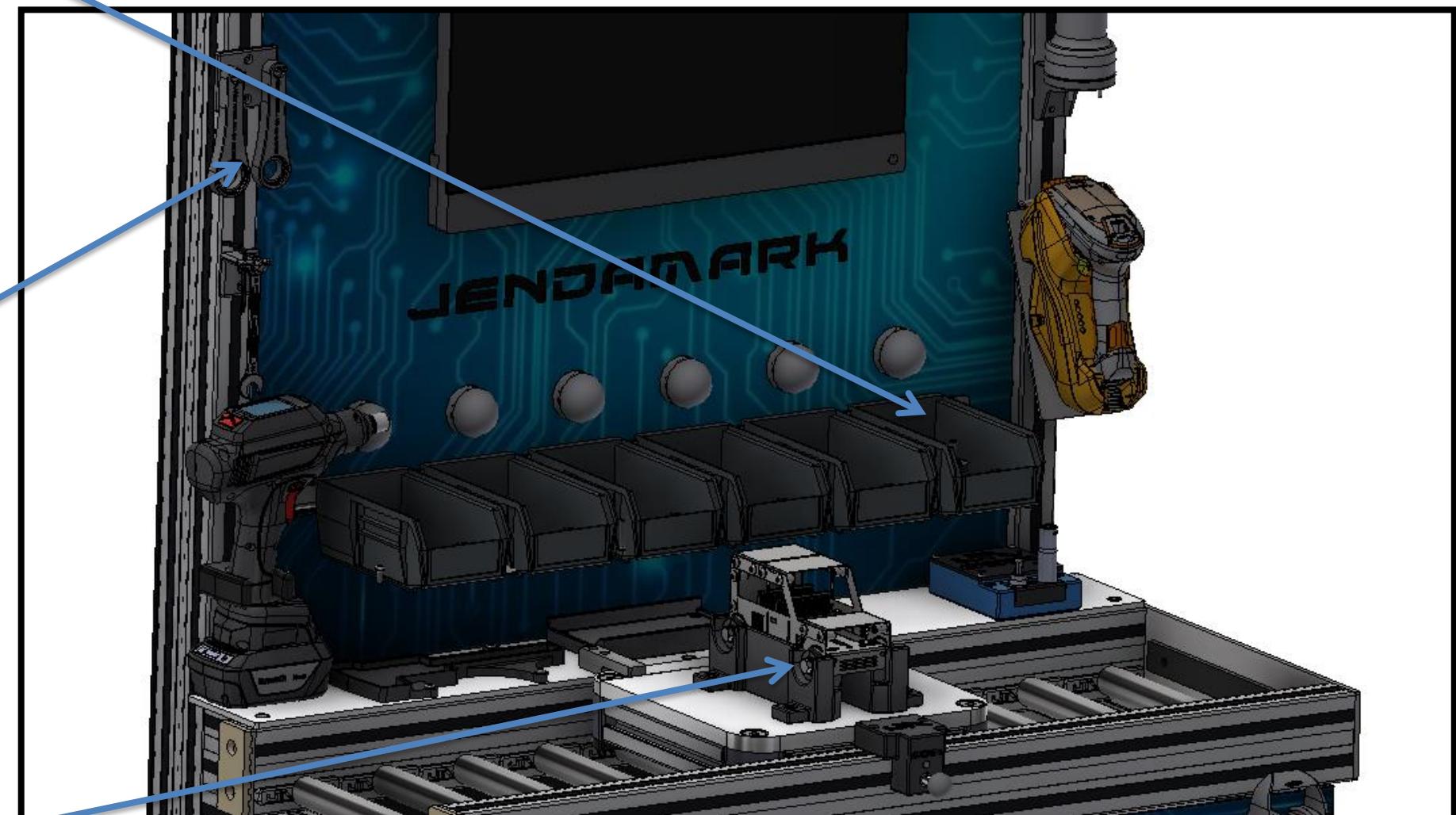
LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY

Step 35 –
Operator picks up
part from 6TH Lin-
Bin

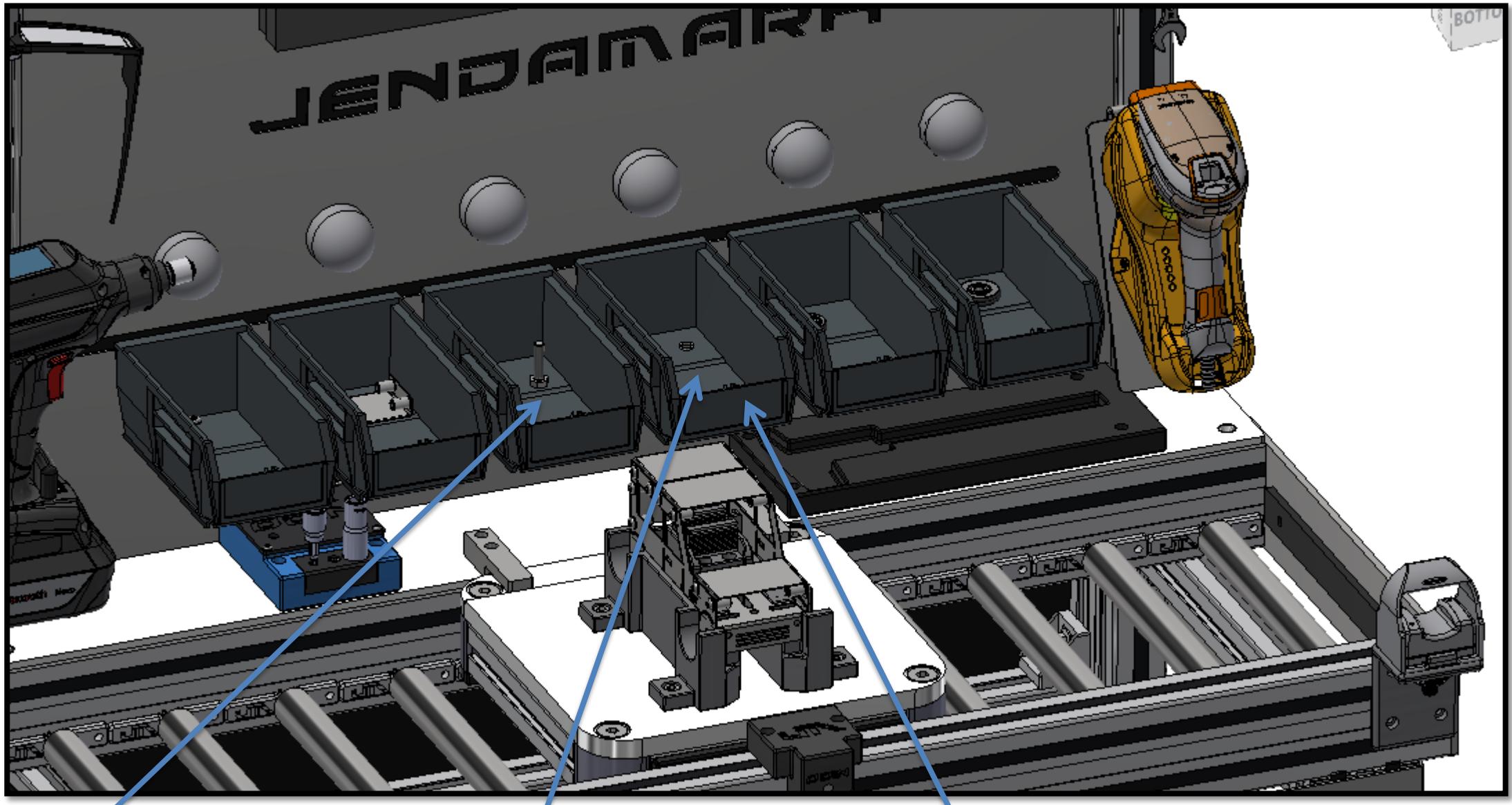
Step 36 –
Operator picks up
No-Go Gauge for
Large wheel
Assembly

Step 37 – Operator
inserts wheel
assembly into No-Go
Gauge to verify
correct wheel has
been chosen



LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY



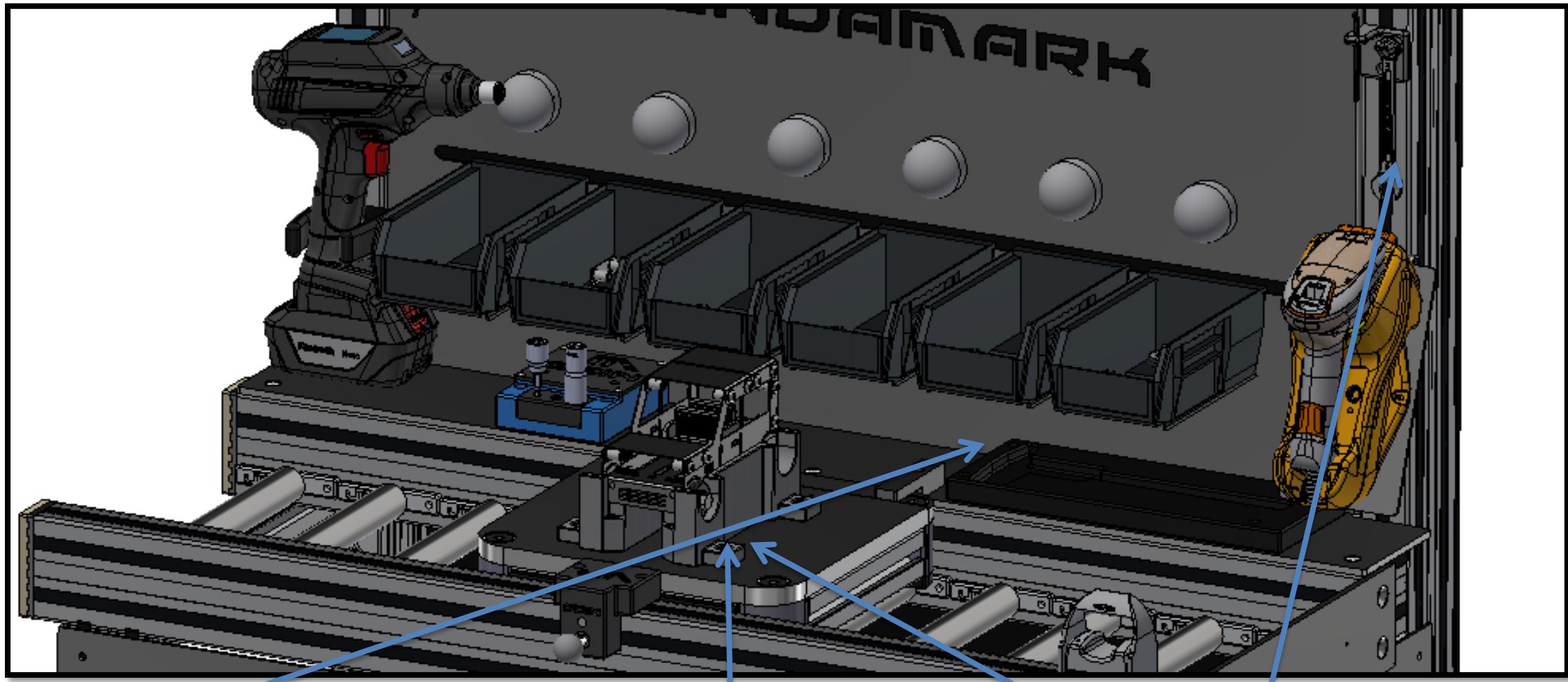
Step 38 – Operator picks up part from 3rd Lin-Bin(Hex Bolt) and keeps it in his/her hands

Step 39 – Operator picks up one part from the 4th Lin-Bin(Spacer) and places it over the Hex Bolt

Step 40 – Operator repeats Step 39 by adding another spacer to the wheel Assembly

LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY



Step 41 – Operator picks up feedback vernier and measures the stack height of the wheel assembly to ensure all components have been added

Step 42 – Operator mounts wheel assembly to frame

Step 43 – Operator takes spanner from storage and hand tightens Hex Bolt

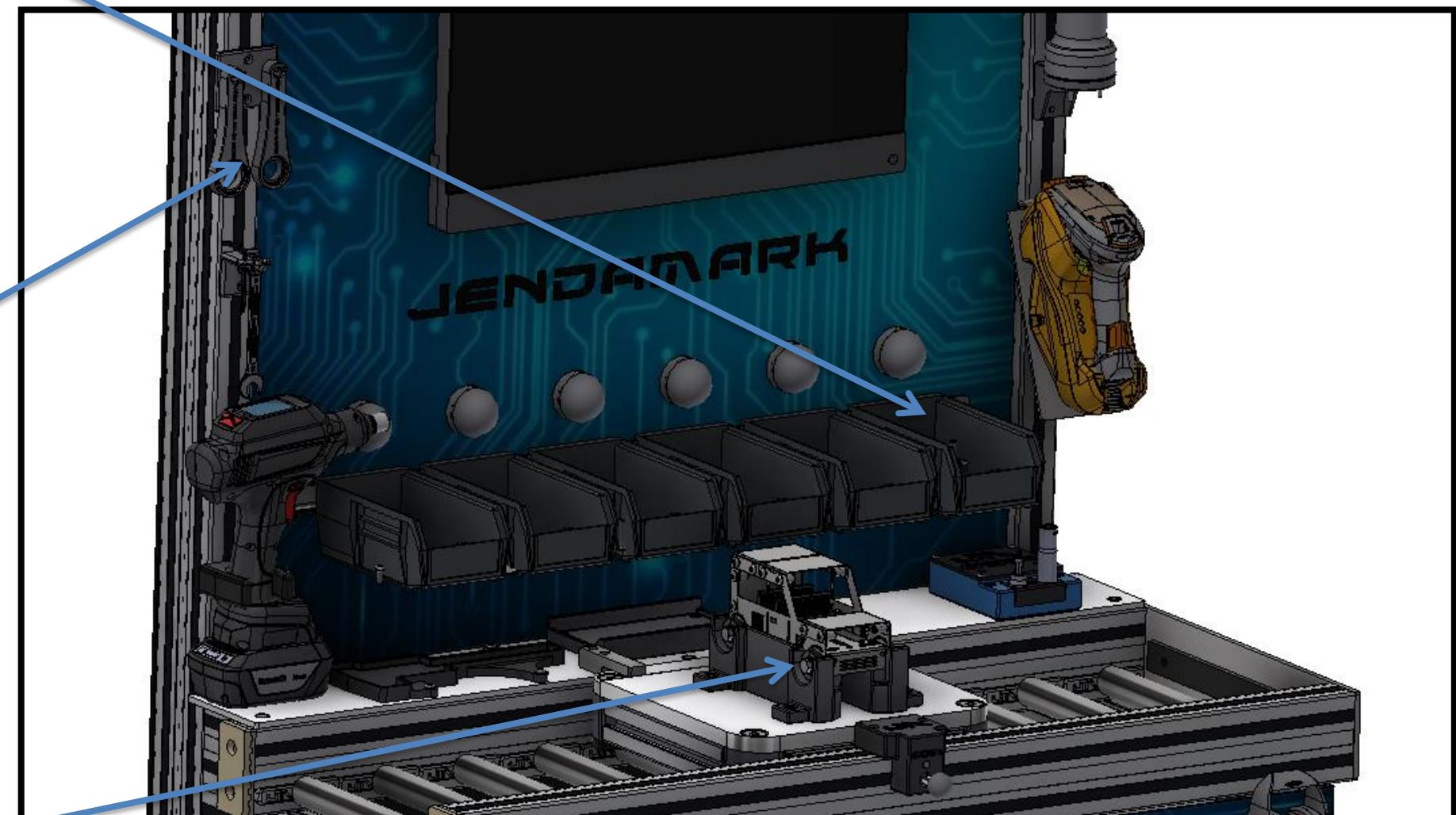
LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY

Step 44 –
Operator picks up
part from 6TH Lin-
Bin

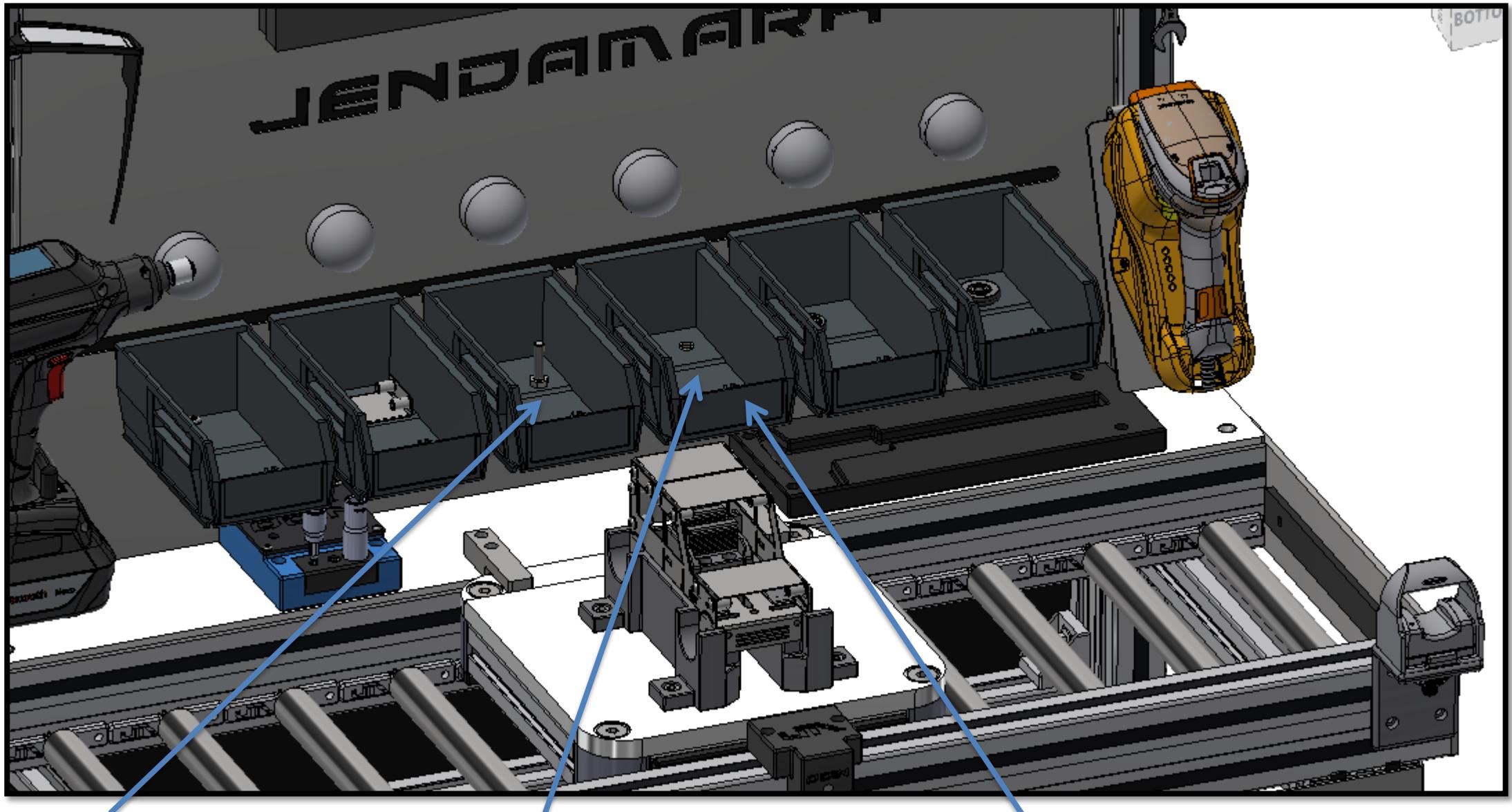
Step 45 –
Operator picks up
No-Go Gauge for
Large wheel
Assembly

Step 46 – Operator
inserts wheel
assembly into No-Go
Gauge to verify
correct wheel has
been chosen



LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY



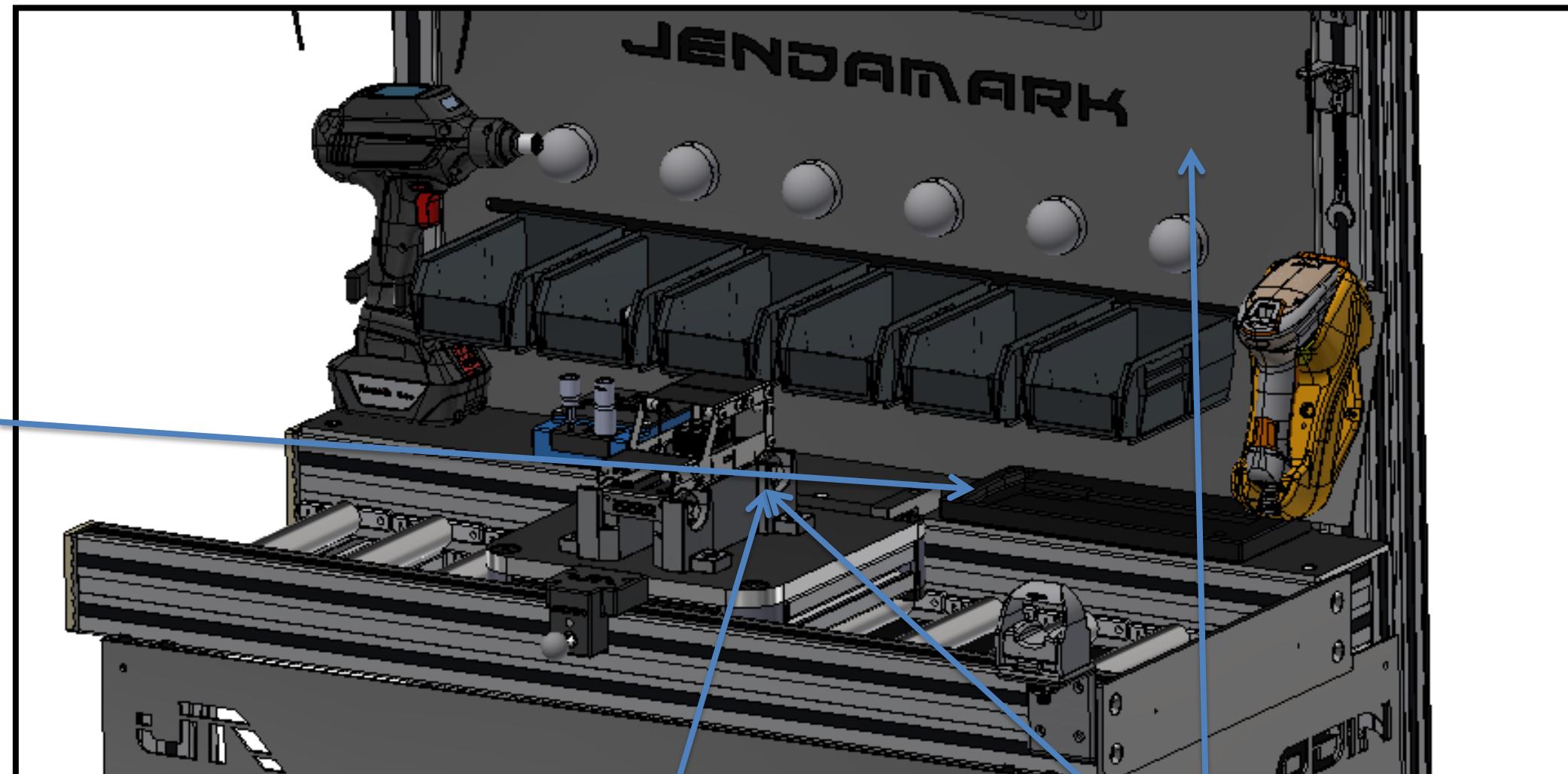
Step 47 – Operator picks up part from 3rd Lin-Bin(Hex Bolt) and keeps it in his/her hands

Step 48 – Operator picks up one part from the 4th Lin-Bin(Spacer) and places it over the Hex Bolt

Step 49 – Operator repeats Step 48 by adding another to the wheel Assembly

LINE CONCEPT PROCESS STATION 2 – FINAL ASSEMBLY

Step 50 – Operator picks up feedback vernier and measures the stack height of the wheel assembly to ensure all components have been added



Step 51 – Operator mounts wheel assembly to frame

Step 52 – Operator takes spanner from storage and hand tightens Hex Bolt

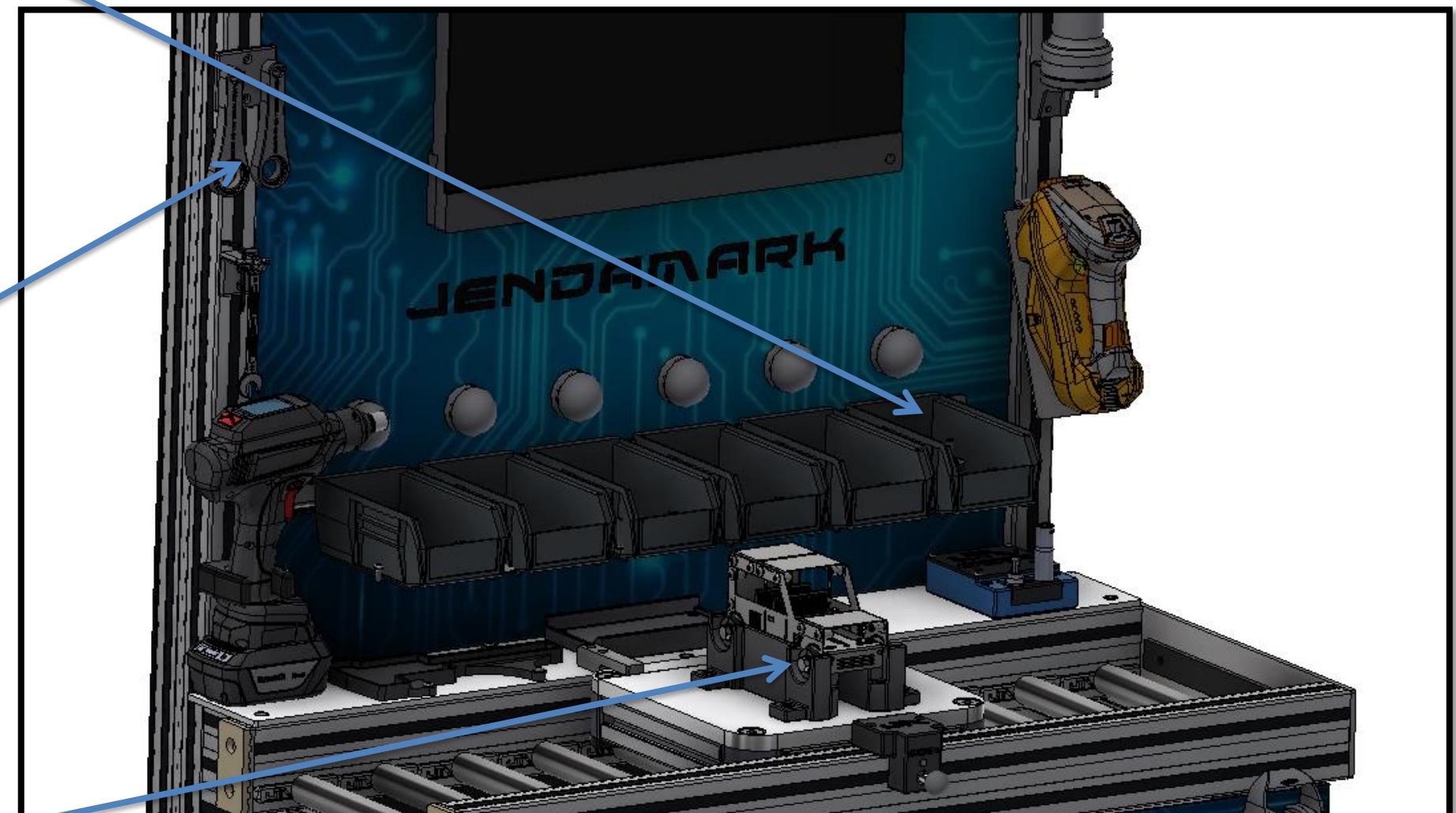
LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY

Step 53 –
Operator picks up
part from 6TH Lin-
Bin

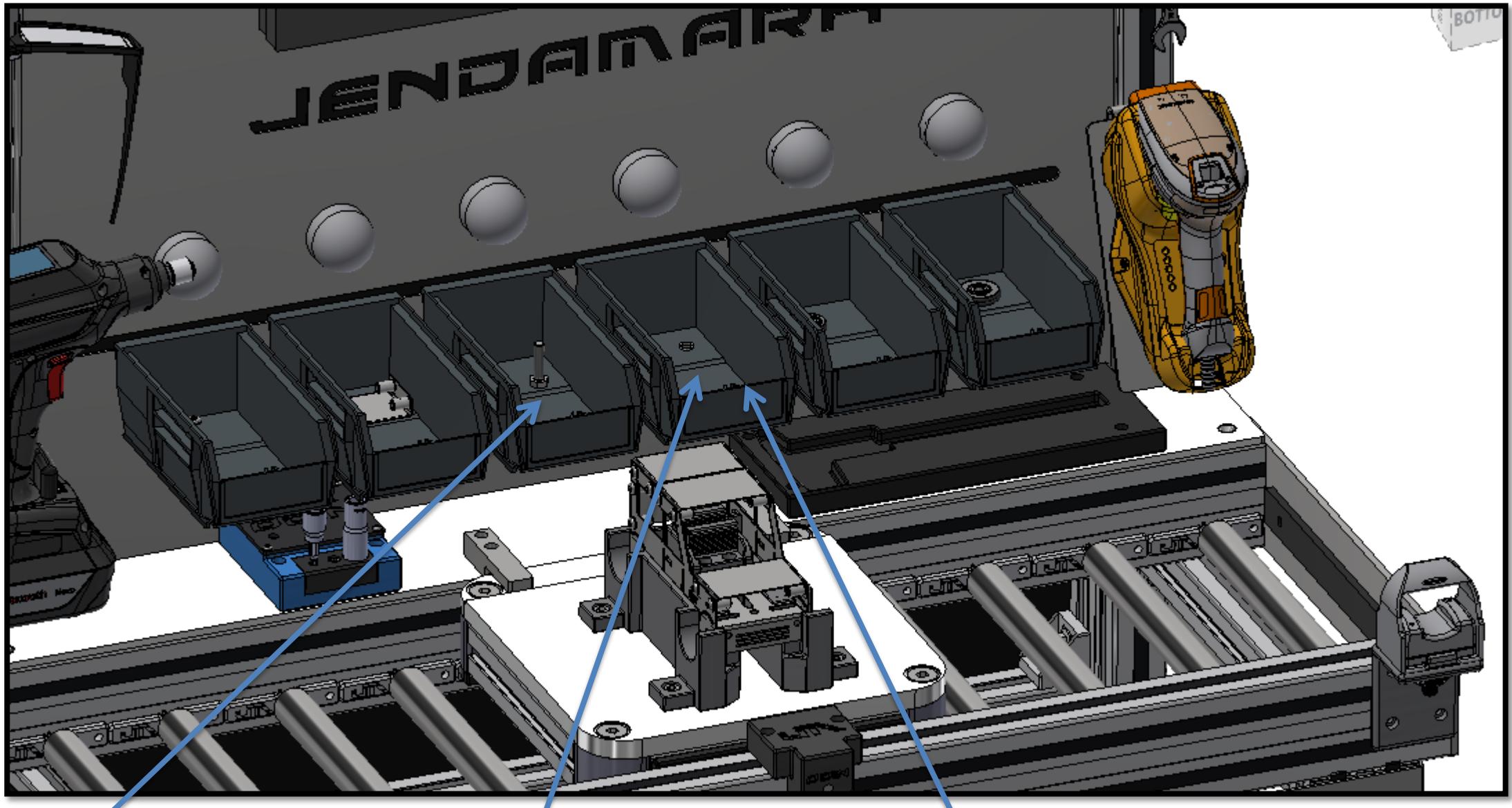
Step 54 –
Operator picks up
No-Go Gauge for
Large wheel
Assembly

Step 55 – Operator
inserts wheel
assembly into No-Go
Gauge to verify
correct wheel has
been chosen



LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY



Step 56 – Operator picks up part from 3rd Lin-Bin(Hex Bolt) and keeps it in his/her hands

Step 57 – Operator picks up one part from the 4th Lin-Bin(Spacer) and places it over the Hex Bolt

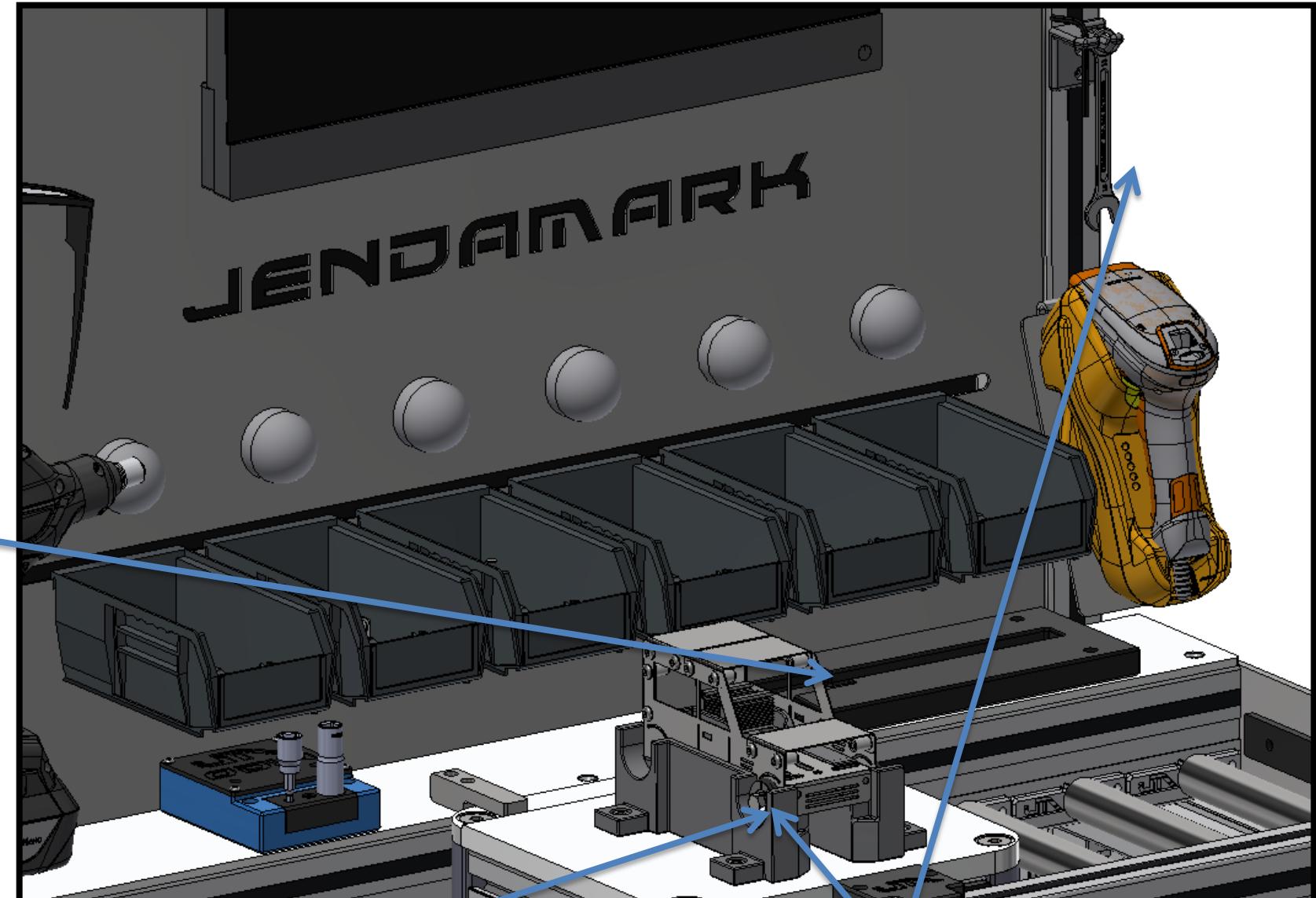
Step 58 – Operator repeats Step 57 by adding another to the wheel Assembly

LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY



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Step 59 – Operator picks up feedback vernier and measures the stack height of the wheel assembly to ensure all components have been added

Step 60 – Operator mounts wheel assembly to frame

Step 61 - Operator takes spanner from storage and hand tightens Hex Bolt

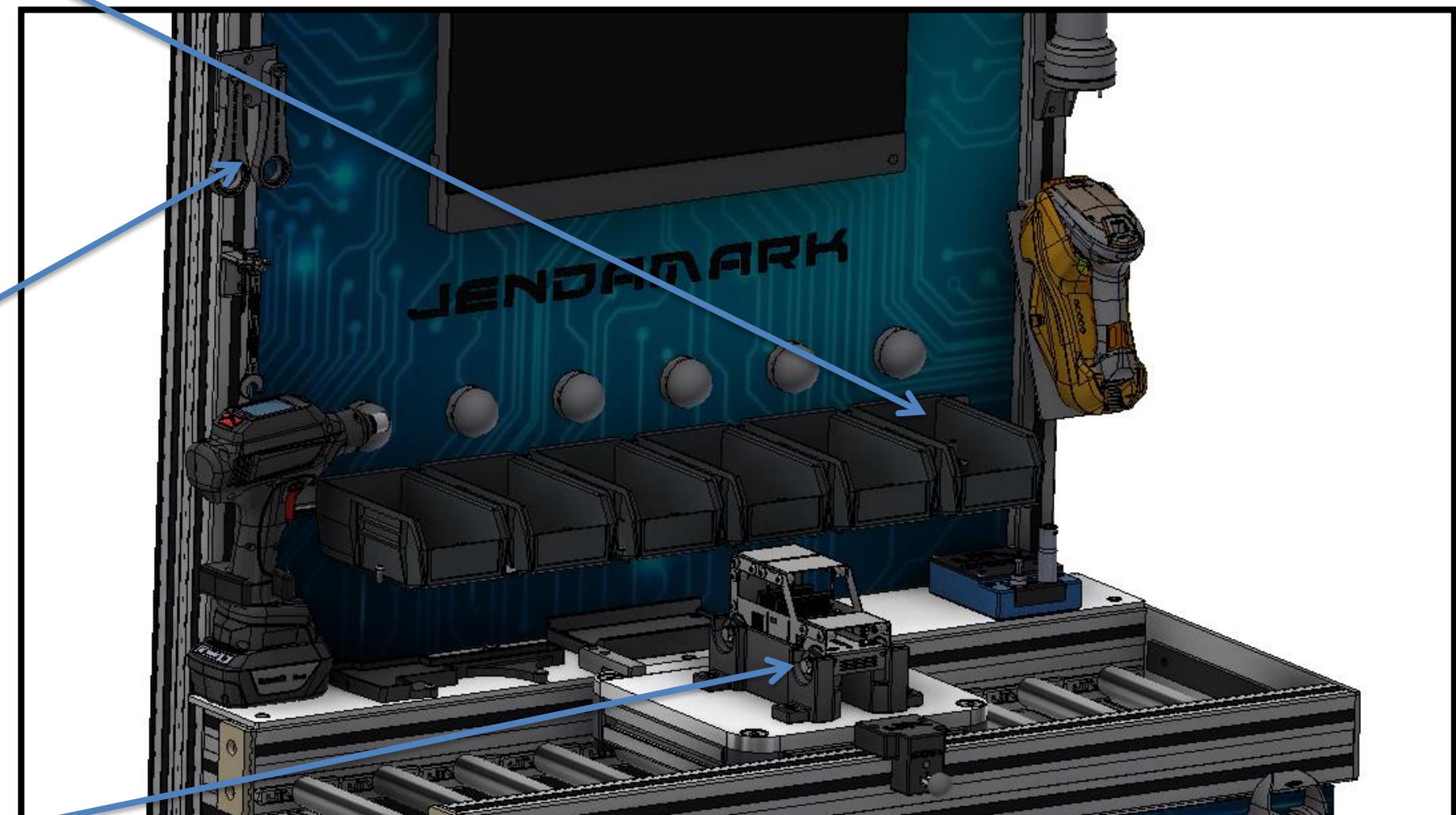
LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY

Step 62 –
Operator picks up
part from 6TH Lin-
Bin

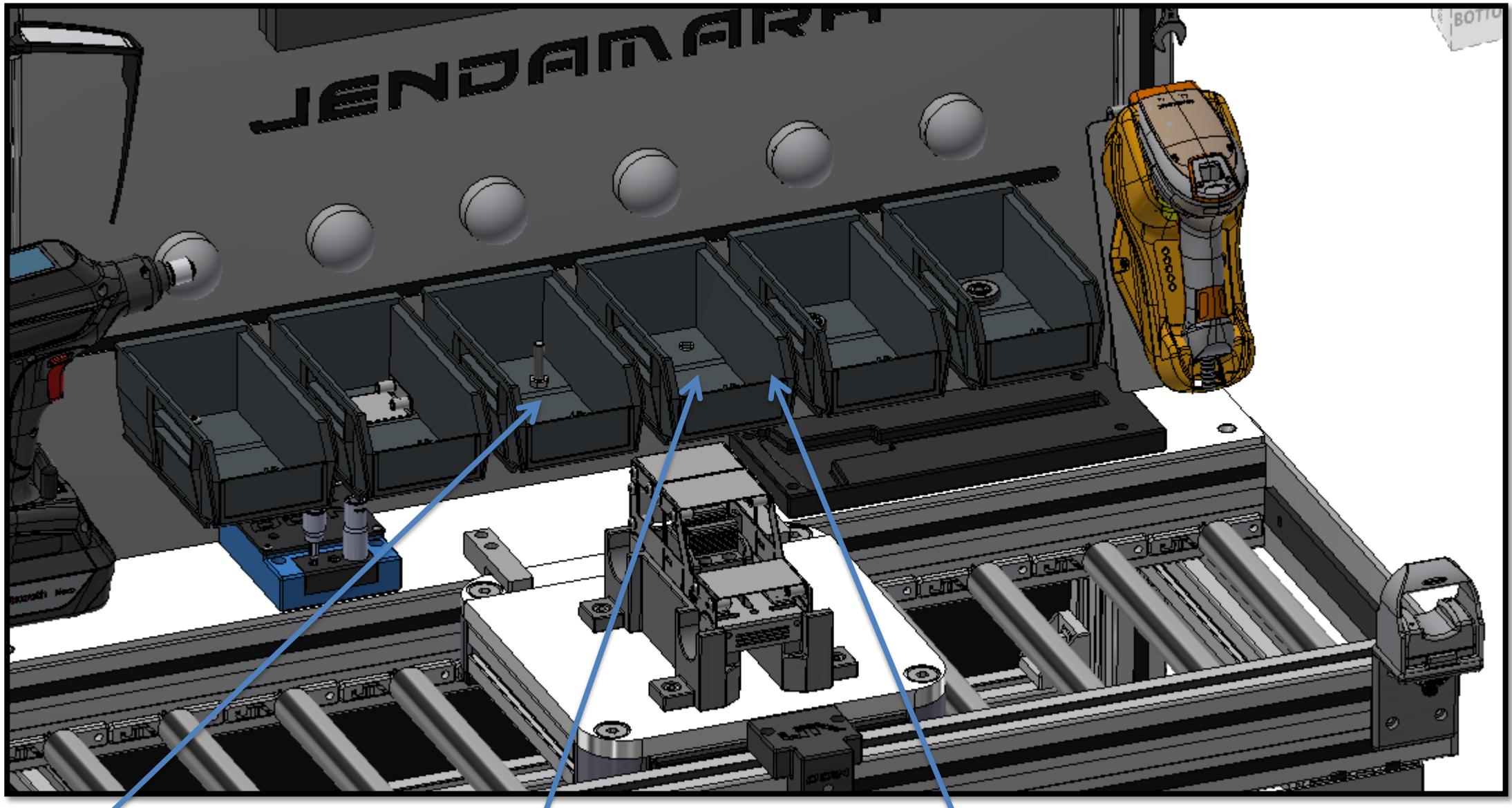
Step 63 –
Operator picks up
No-Go Gauge for
Large wheel
Assembly

Step 64 – Operator
inserts wheel
assembly into No-Go
Gauge to verify
correct wheel has
been chosen



LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY



Step 65 – Operator picks up part from 3rd Lin-Bin(Hex Bolt) and keeps it in his/her hands

Step 66 – Operator picks up one part from the 4th Lin-Bin(Spacer) and places it over the Hex Bolt

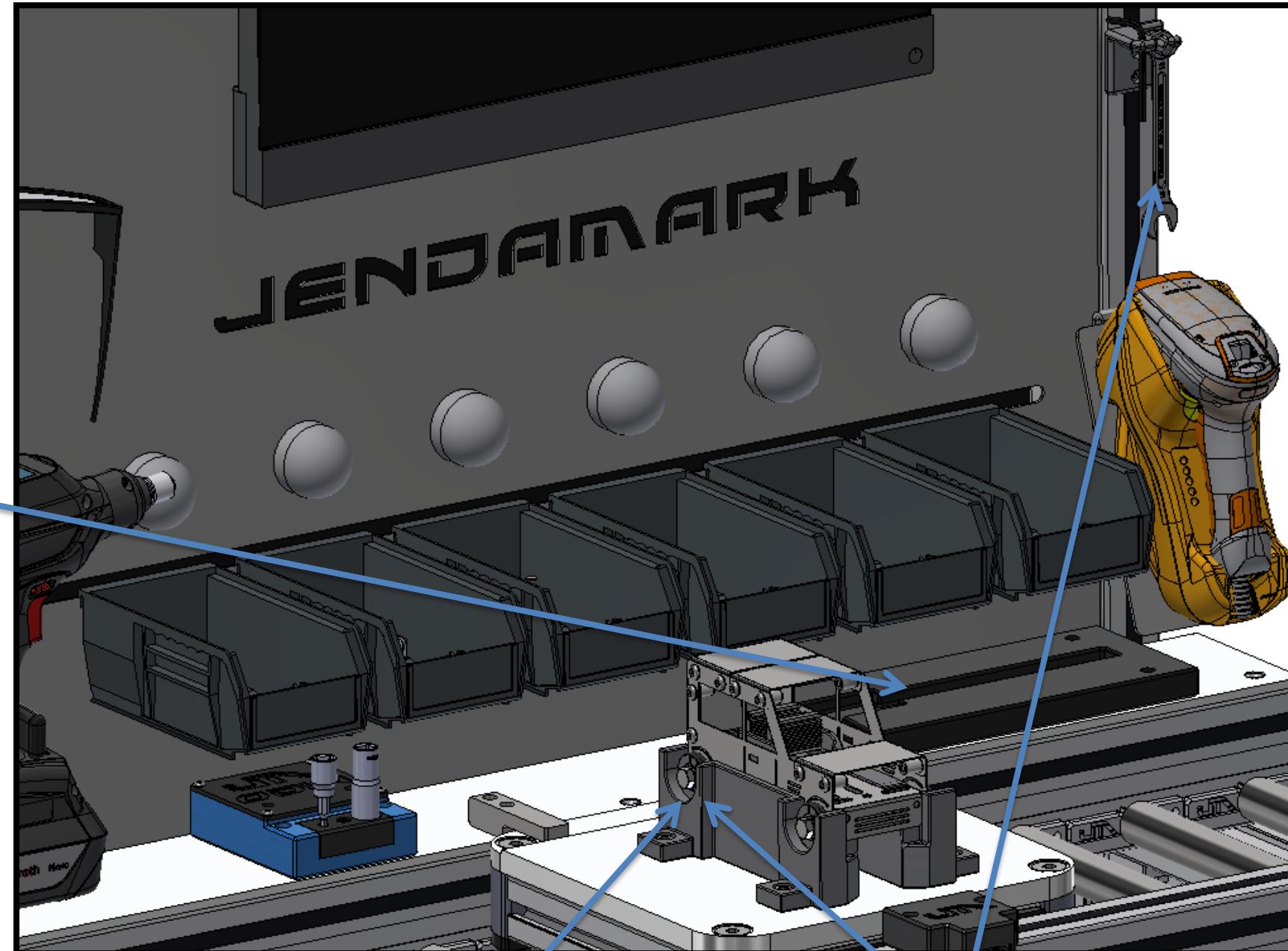
Step 67 – Operator repeats Step 66 by adding another to the wheel Assembly

LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY



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Step 68 – Operator picks up feedback vernier and measures the stack height of the wheel assembly to ensure all components have been added

Step 69 – Operator mounts wheel assembly to frame

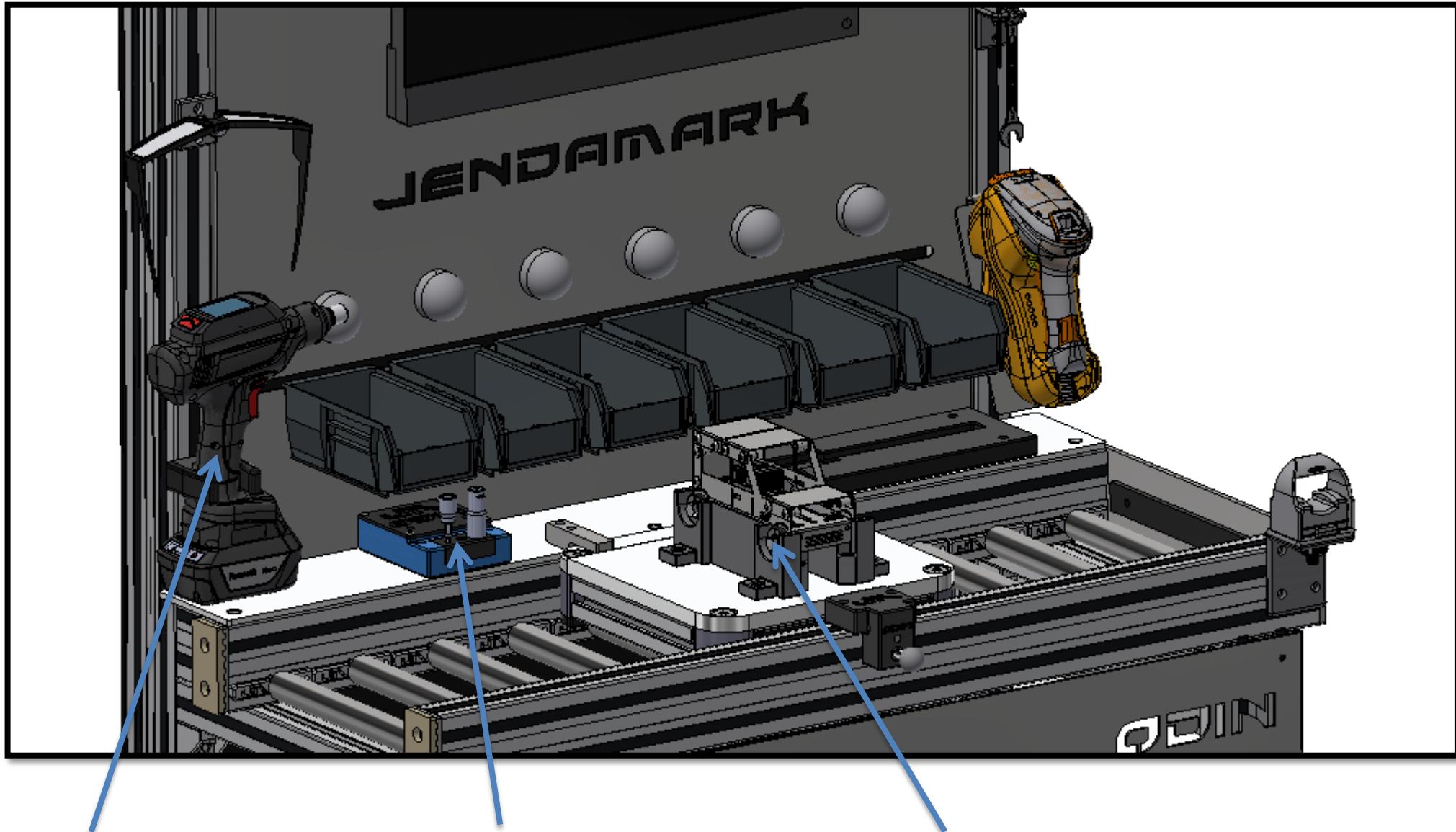
Step 70 - Operator takes spanner from storage and hand tightens Hex Bolt

LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY



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Step 71 – Operator takes bolting tool from storage clip

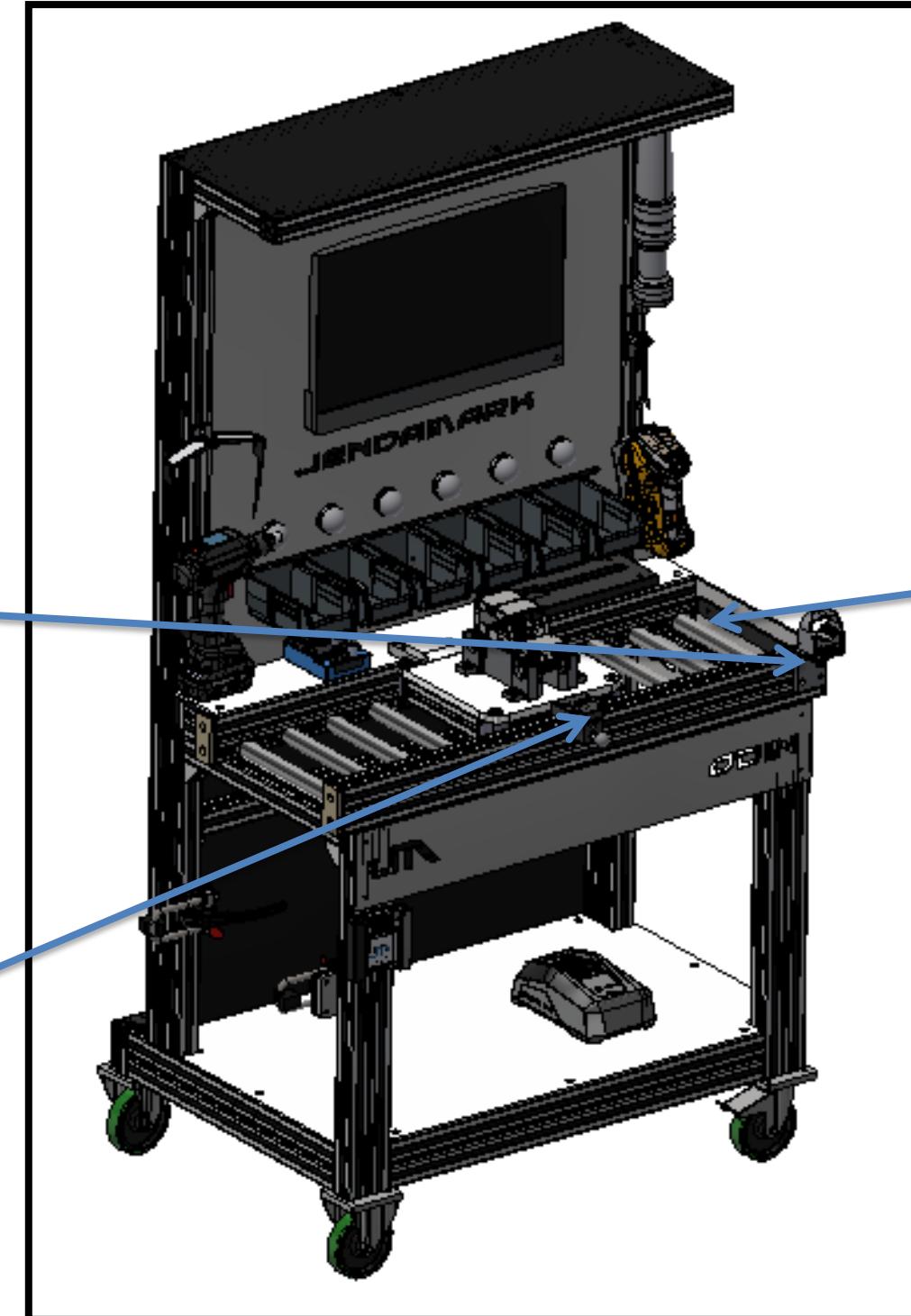
Step 72 – Operator takes the Hex socket from the socket tray and attaches it to the Bolting tool

Step 73 – The operator will then torque all 4x Wheel assemblies to the correct Torque spec

Step 74 – The operator will then place the socket back into the socket tray and the Bolting tool into the storage clip

LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY



Step 75 – Operator uses Push Button to indicate the process is complete and activate the tower light and Buzzer. The WPC Locking mechanism will also release

Step 76 – The Operator will then remove the WPC from the locking Mechanism by pulling the locking mechanism toward him/her

Step 77 – The operator will then move the WPC to the Final position

Step 78 – The operator can then remove the Variant from the Riser which is the final step of the process

LINE CONCEPT

PROCESS STATION 2 – FINAL ASSEMBLY



Note: If any step was done incorrectly or a step was skipped .

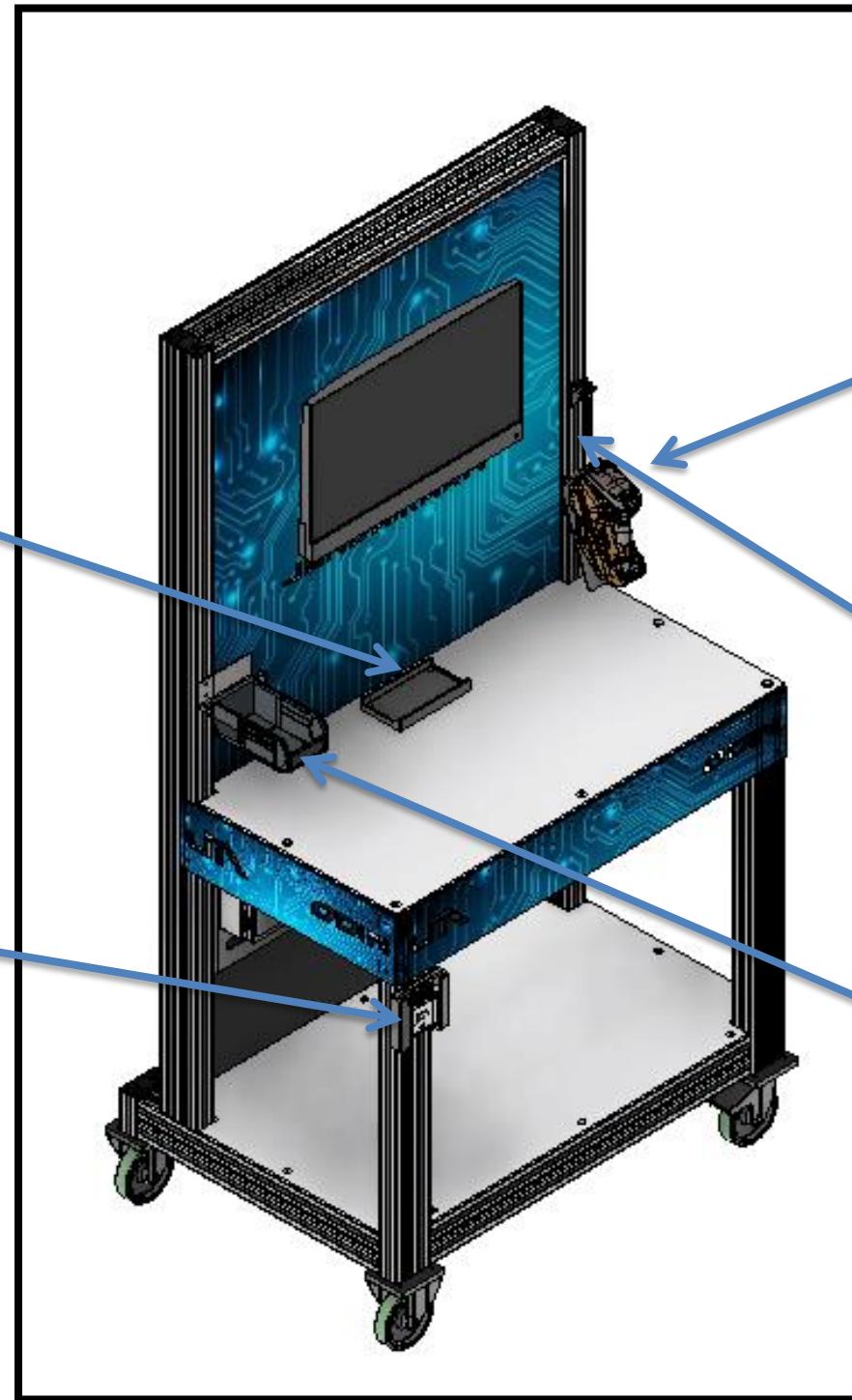
The system will then tell the operator on the Monitor to take the variant from the Riser to the Rework station where the Variant will be corrected to a certain point and can then continue process

LINE CONCEPT

PROCESS STATION 3 – DISASSEMBLY/REWORK

Step 1 – Operator will pick up the AR Glasses from the storage clip

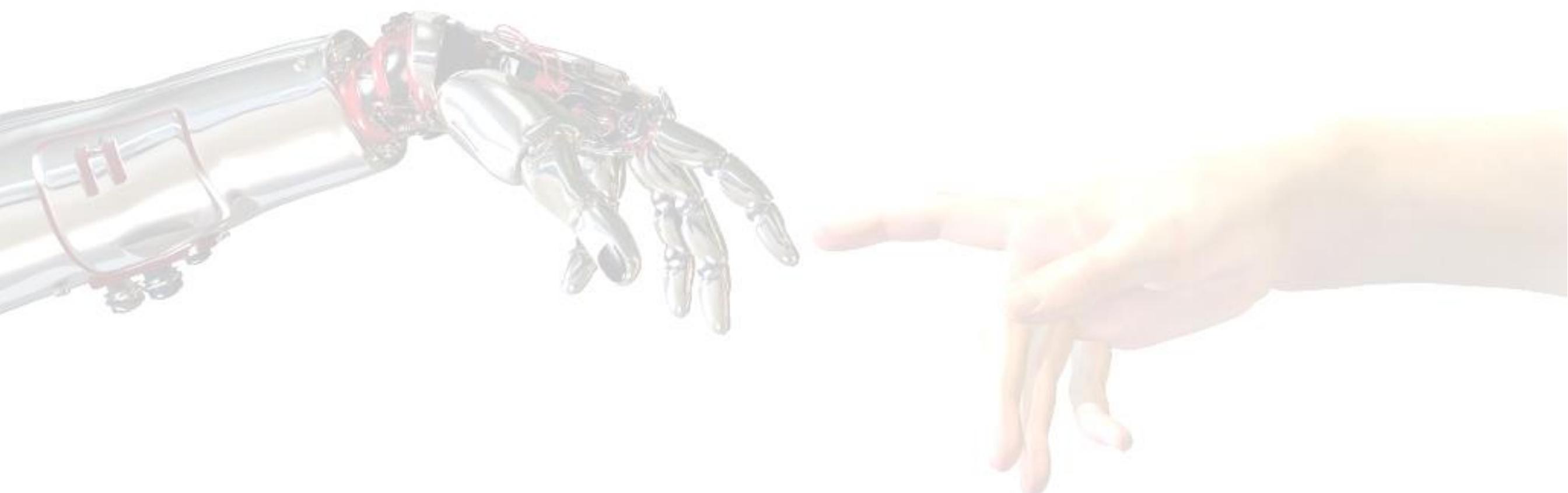
Step 2 – Operator will use the operator RFID



Step 3 – Operator will pick up the Barcode Scanner and scan the Variants Side panel to ensure the correct Variant is at the Rework station

Step 4 – Operator will pick up which ever tool is needed to go back to the specified point which is asked for by the system

Step 5 – Operator will disassemble parts and place into lin-bin



THANK YOU FOR YOUR TIME.