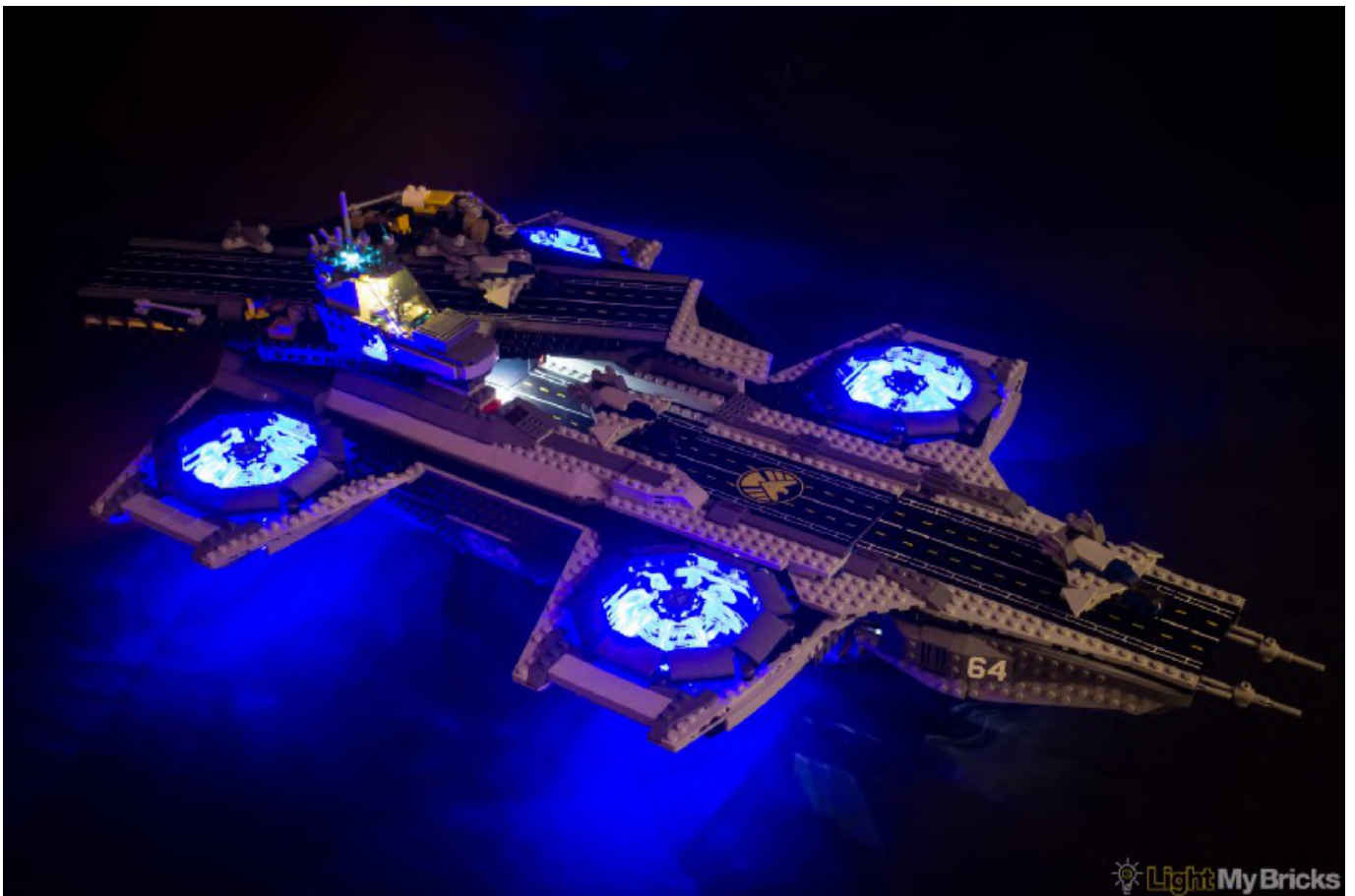


Light My Bricks : LEGO The SHIELD Helicarrier Lighting Kit



Here is the instructions document for the LEGO The SHIELD Helicarrier LED lighting kit. Please read and follow the steps carefully to ensure this lighting kit is installed properly.



If you run into any issues, please refer to the troubleshooting guide.

Package contents:

- 3x White Strip Lights
- 8x Blue Strip Lights
- 17x White 30cm Bit Lights
- 1x Flashing White 30cm Bit Light
- 1x Multi-Effects Board (3-effects)
- 3x 6-Port Expansion Boards
- 2x 12-Port Expansion Boards
- 5x 5cm Connecting Cables
- 11x 15cm Connecting Cables
- 8x Adhesive Squares
- 1x AA Battery Pack (requires 3x AA Batteries)

LEGO Pieces

- 3x Plate 1×6
- 1x Plate 6×6
- 1x Brick 2×2

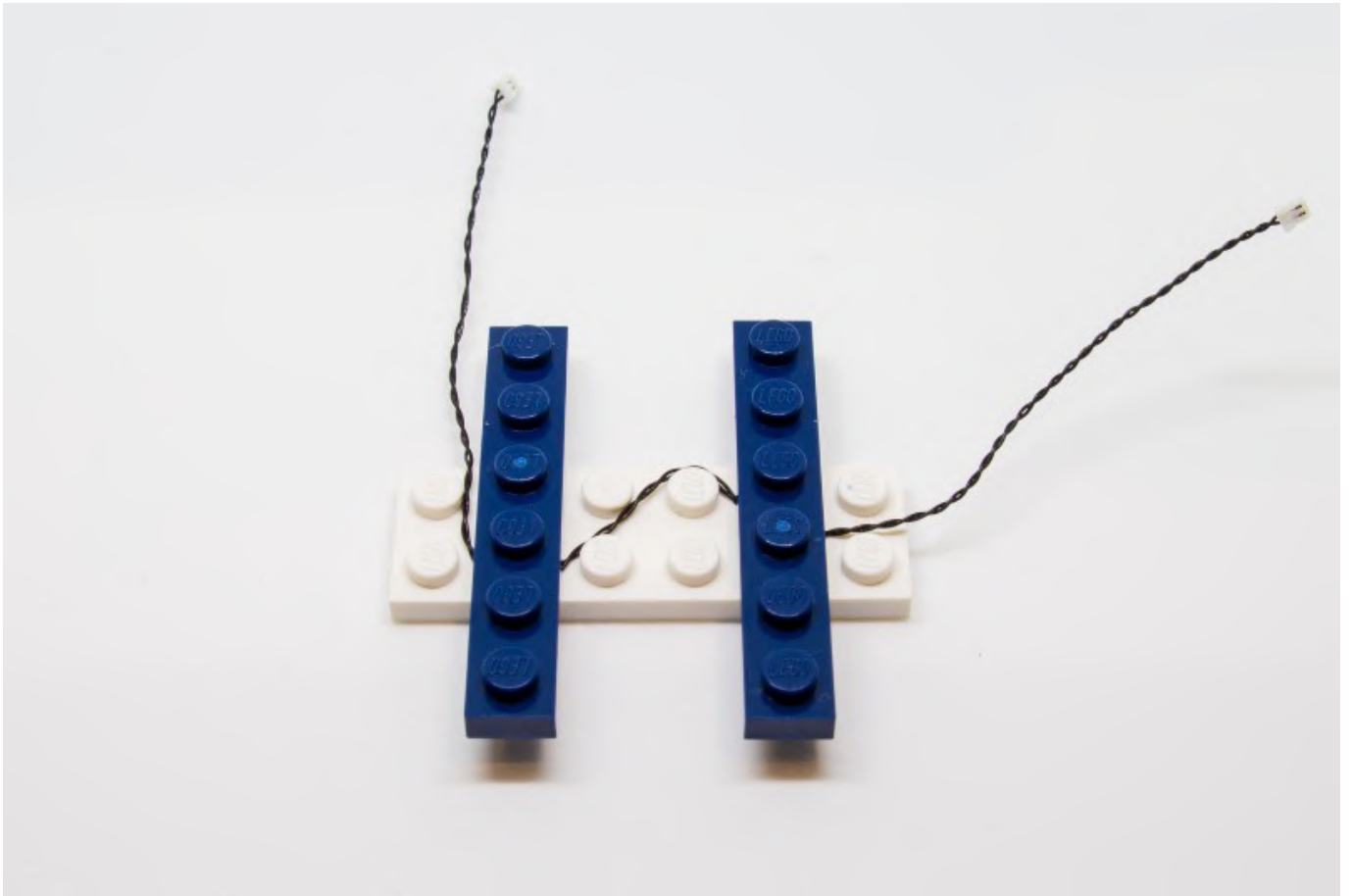
Important things to note:

Laying cables in between and underneath bricks

Cables can fit in between and underneath LEGO® bricks, plates, and tiles providing they are laid correctly between the LEGO® studs. Do NOT forcefully join LEGO® together around cables; instead ensure they are laying comfortably

in between each stud.



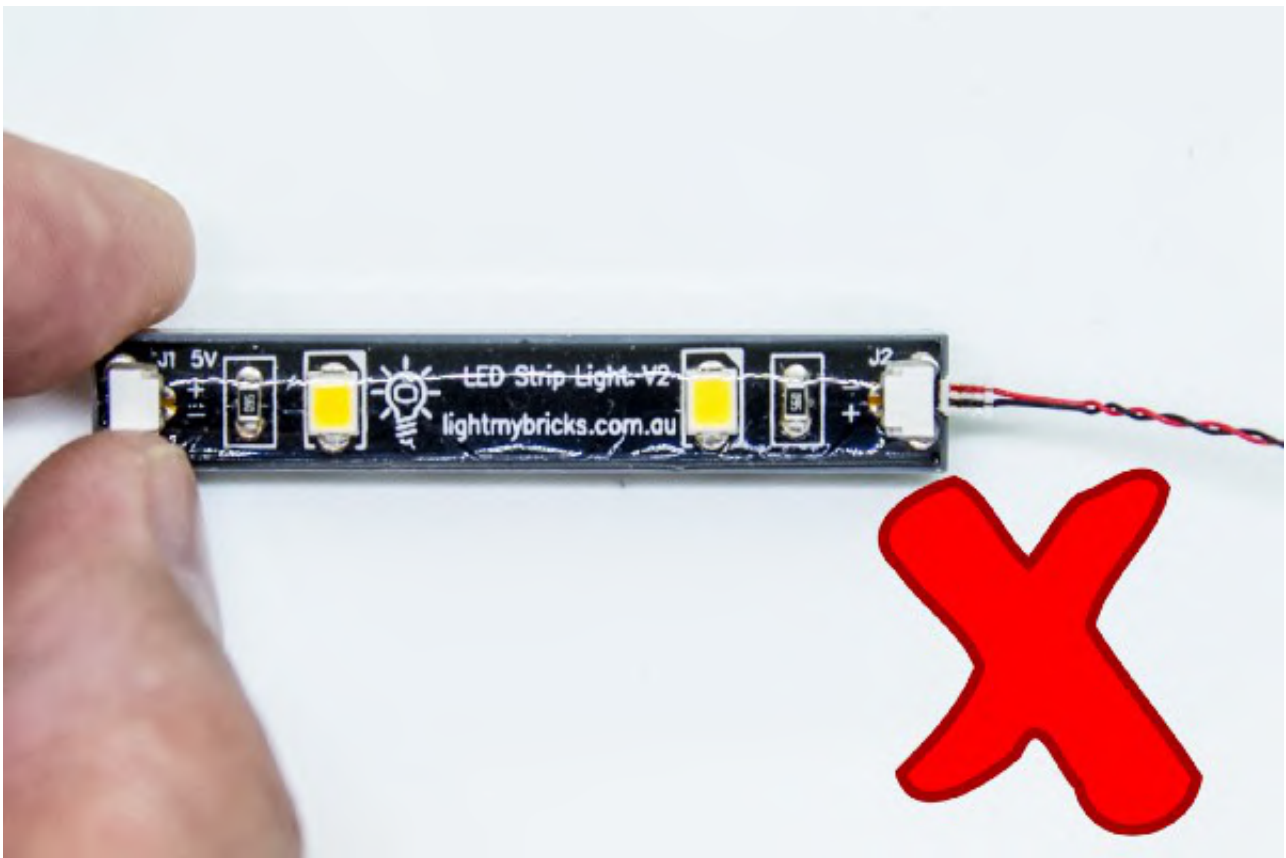
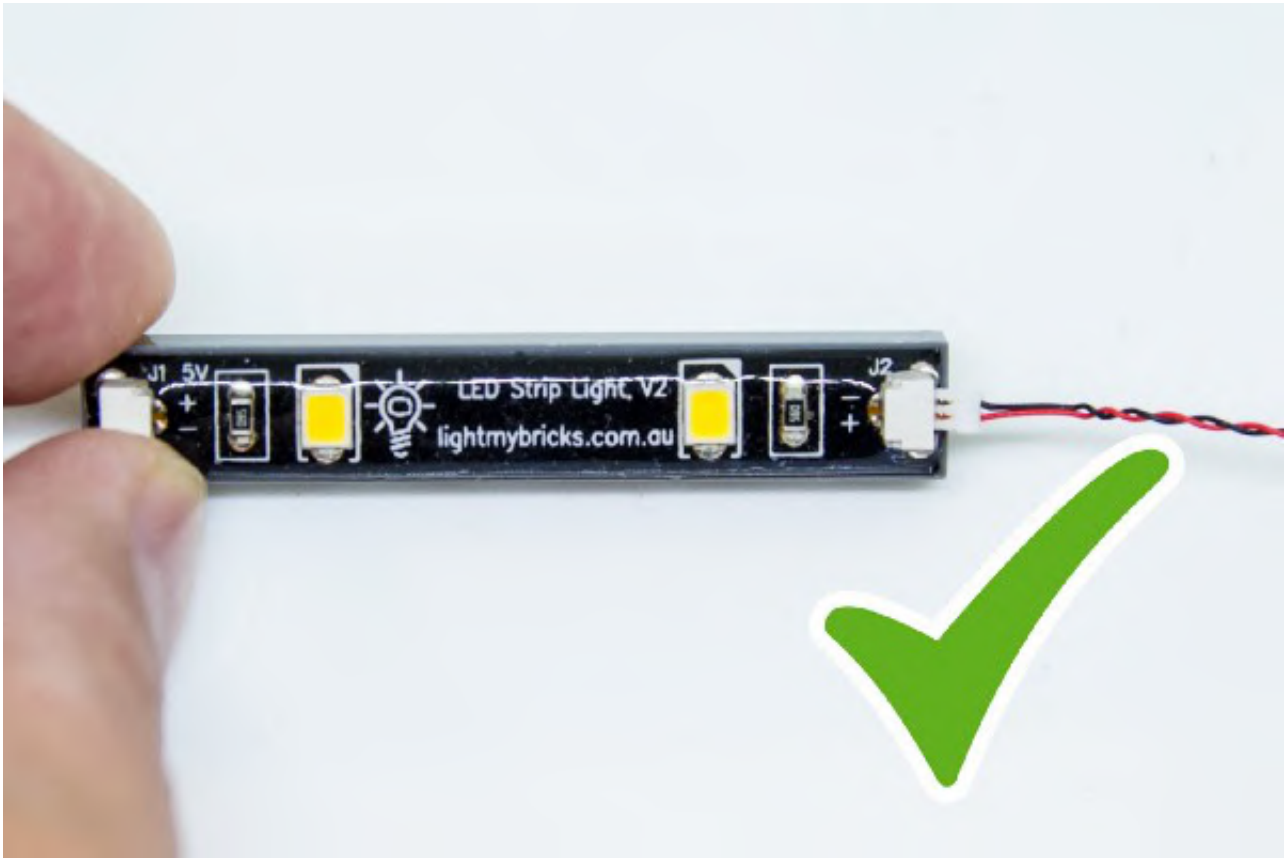


“

CAUTION: Forcing LEGO® to connect over a cable can result in damaging the cable and light.

Connecting cable connectors to Strip Lights

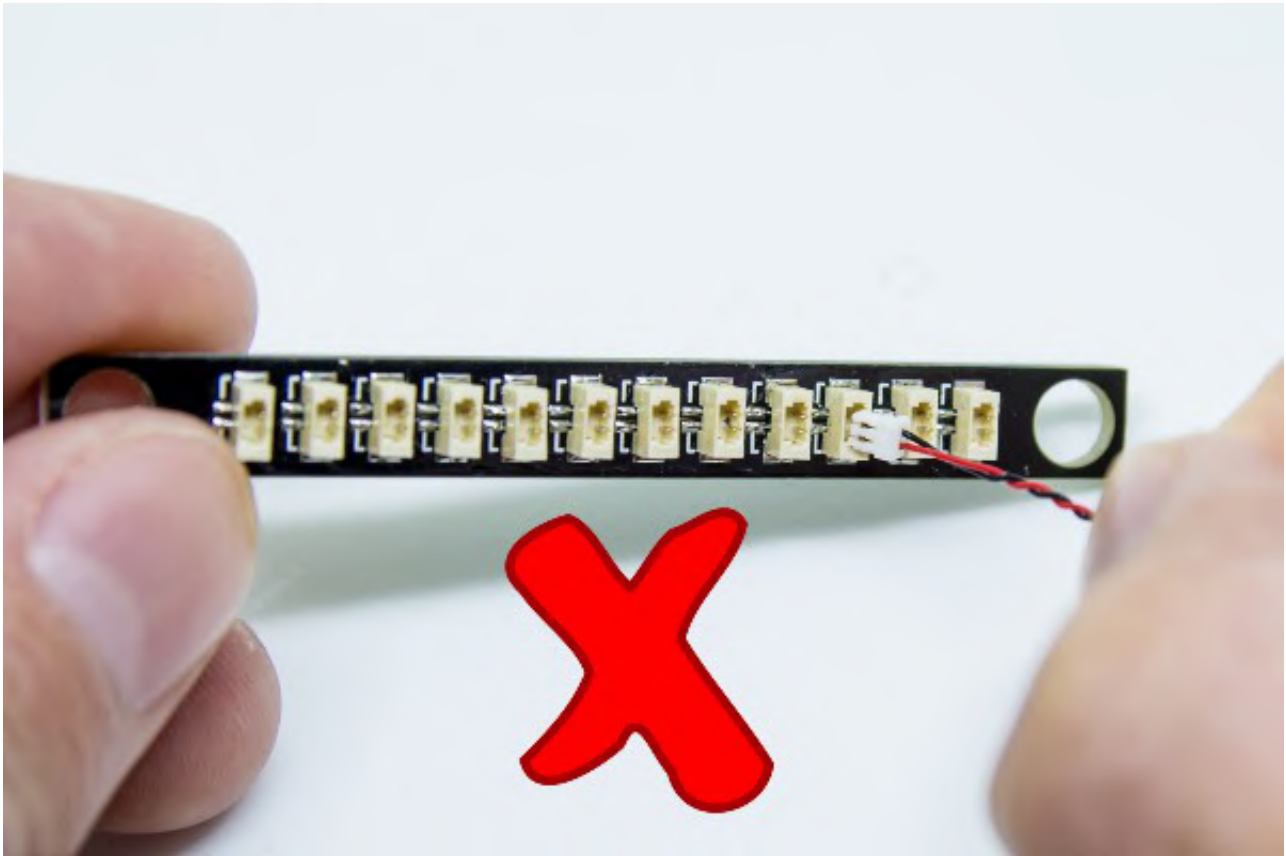
Take extra care when inserting connectors to ports on the Strip Lights. Connectors can be inserted only one way. With the Strip Light facing up, ensure the side of the connector with the wires exposed is facing down. If a plug won't fit easily into a port connector, don't force it. Doing so will damage the plug and the connector.



Connecting cable connectors to Expansion Boards

Take extra care when inserting connectors to ports of Expansion Boards. Connectors can be inserted only one way. With the expansion board facing up, look for the soldered “=” symbol on the left side of the port. The connector side with the wires exposed should be facing toward the soldered “=” symbol as you insert into the port. If a plug won’t fit easily into a port connector, do not force it.



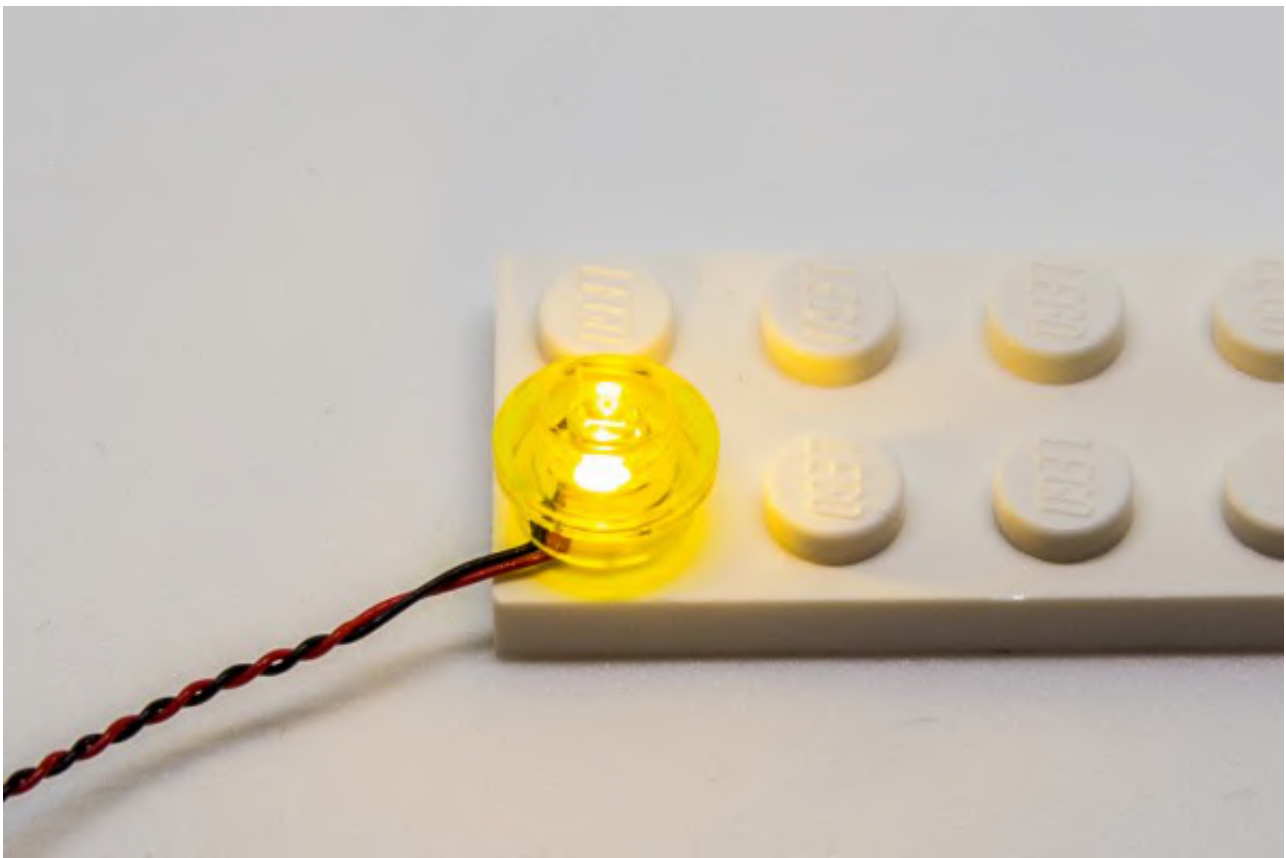
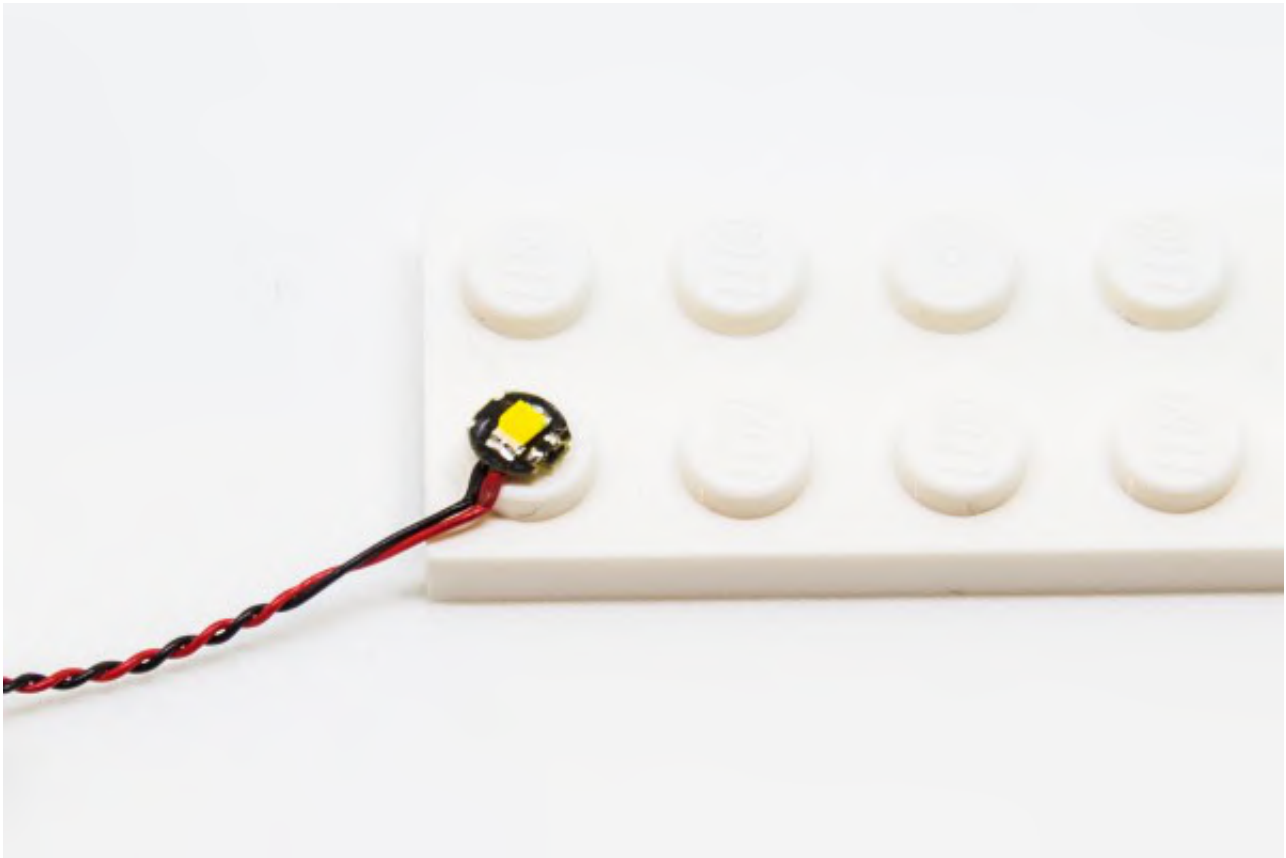


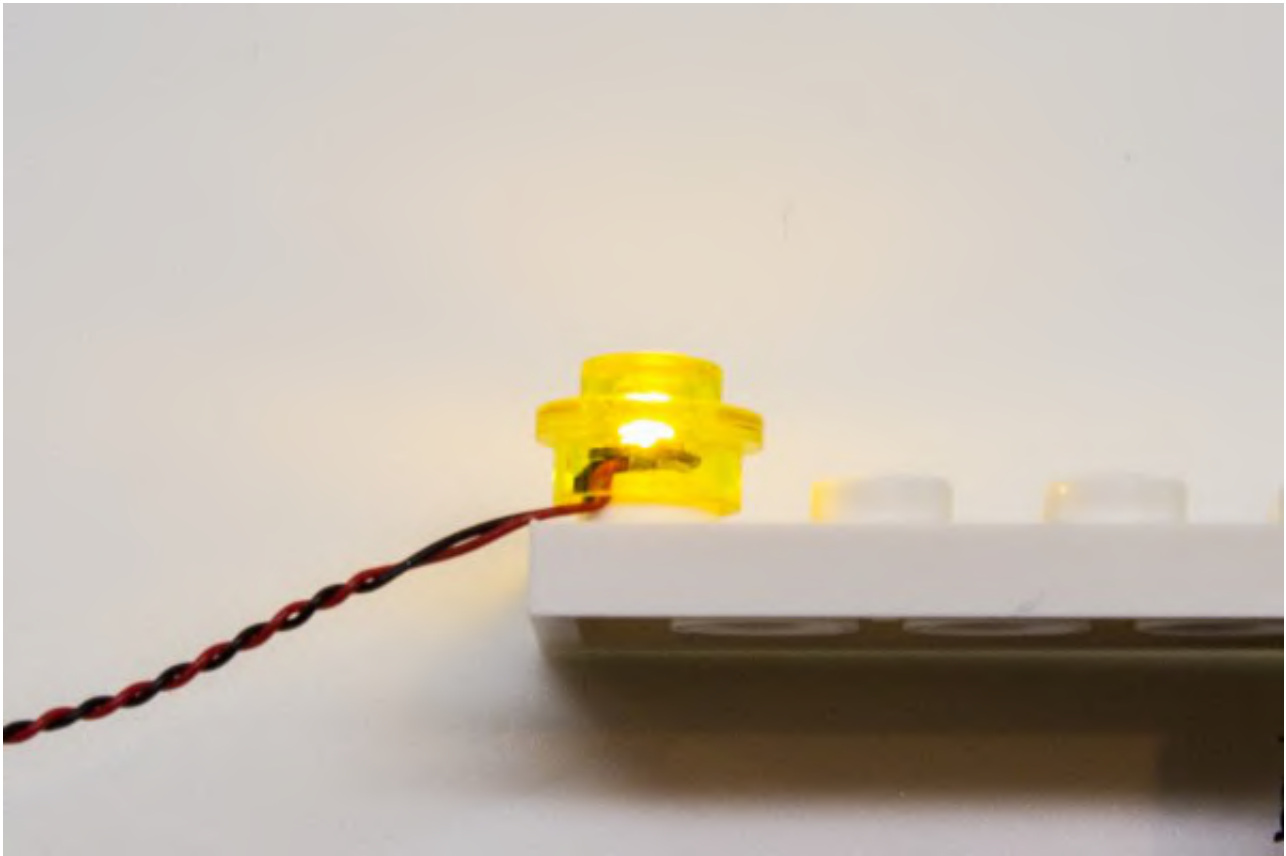
“

WARNING: Incorrectly inserting the connector can result in bent pins inside the port or possible overheating of the expansion board when connected.

Installing Bit Lights under LEGO® bricks and plates.

When installing Bit Lights under LEGO® pieces, ensure they are placed the correct way up (Yellow LED component exposed). You can either place them directly on top of LEGO® studs or in between.



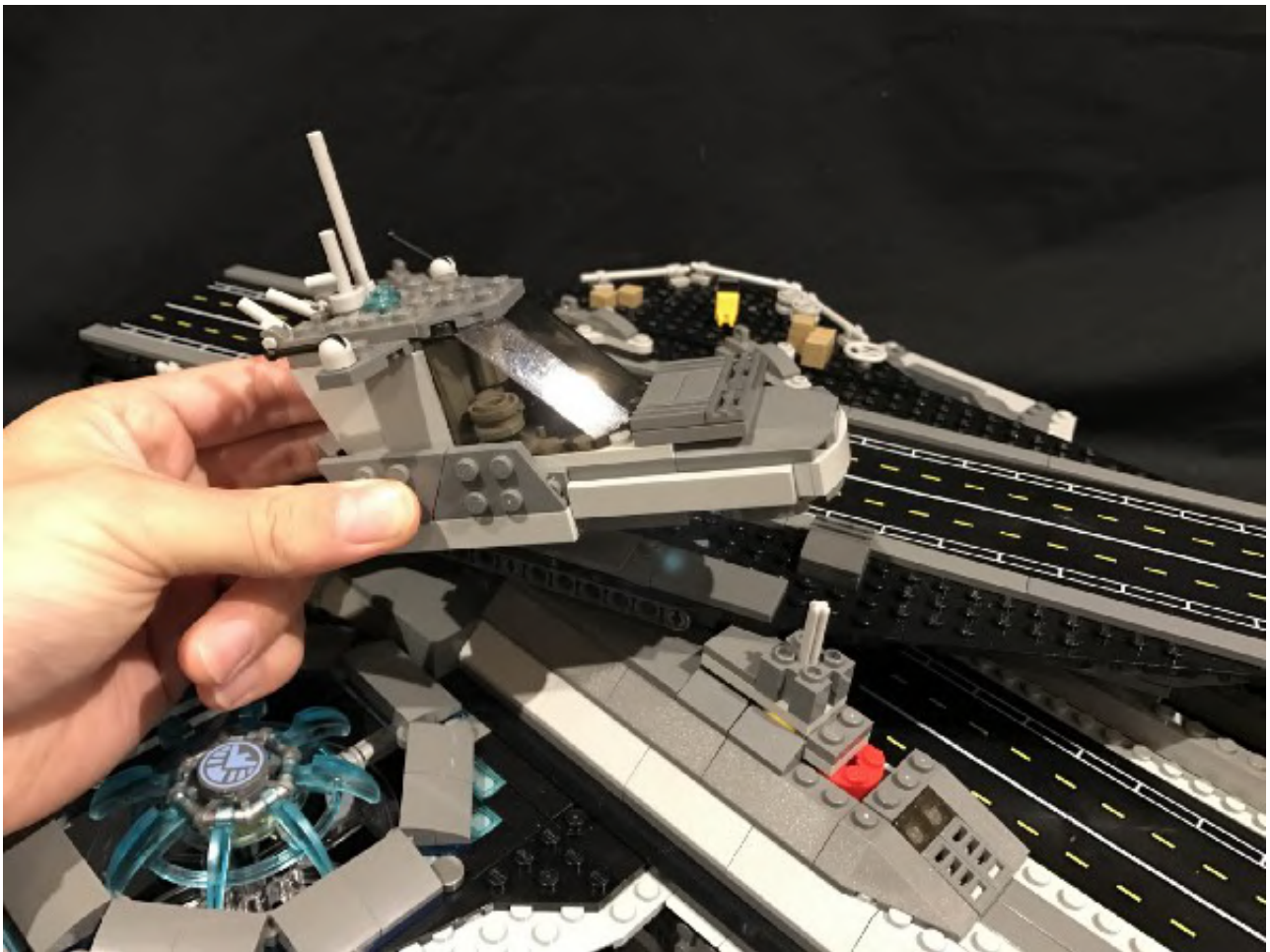
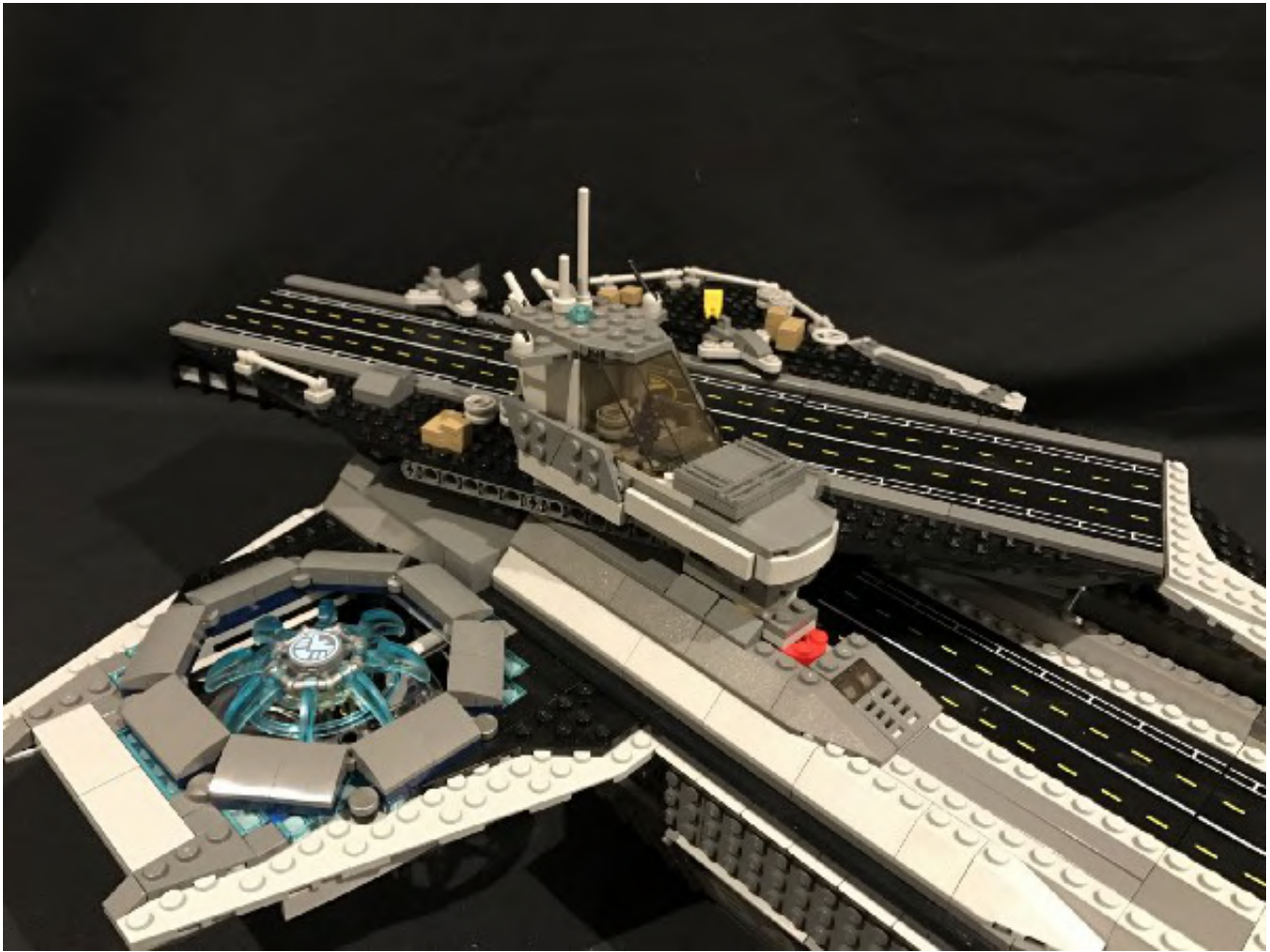


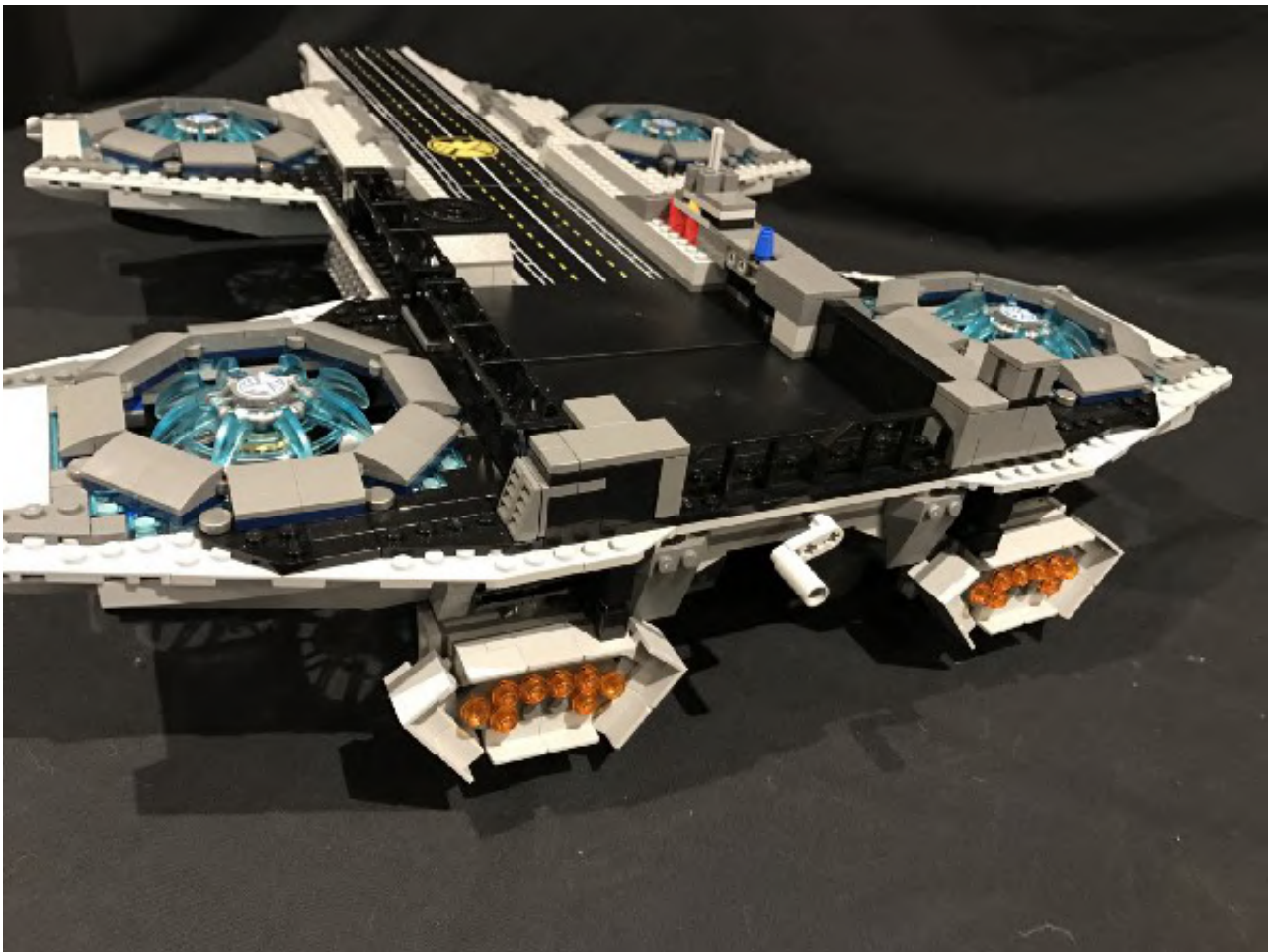
OK, Let's Begin!

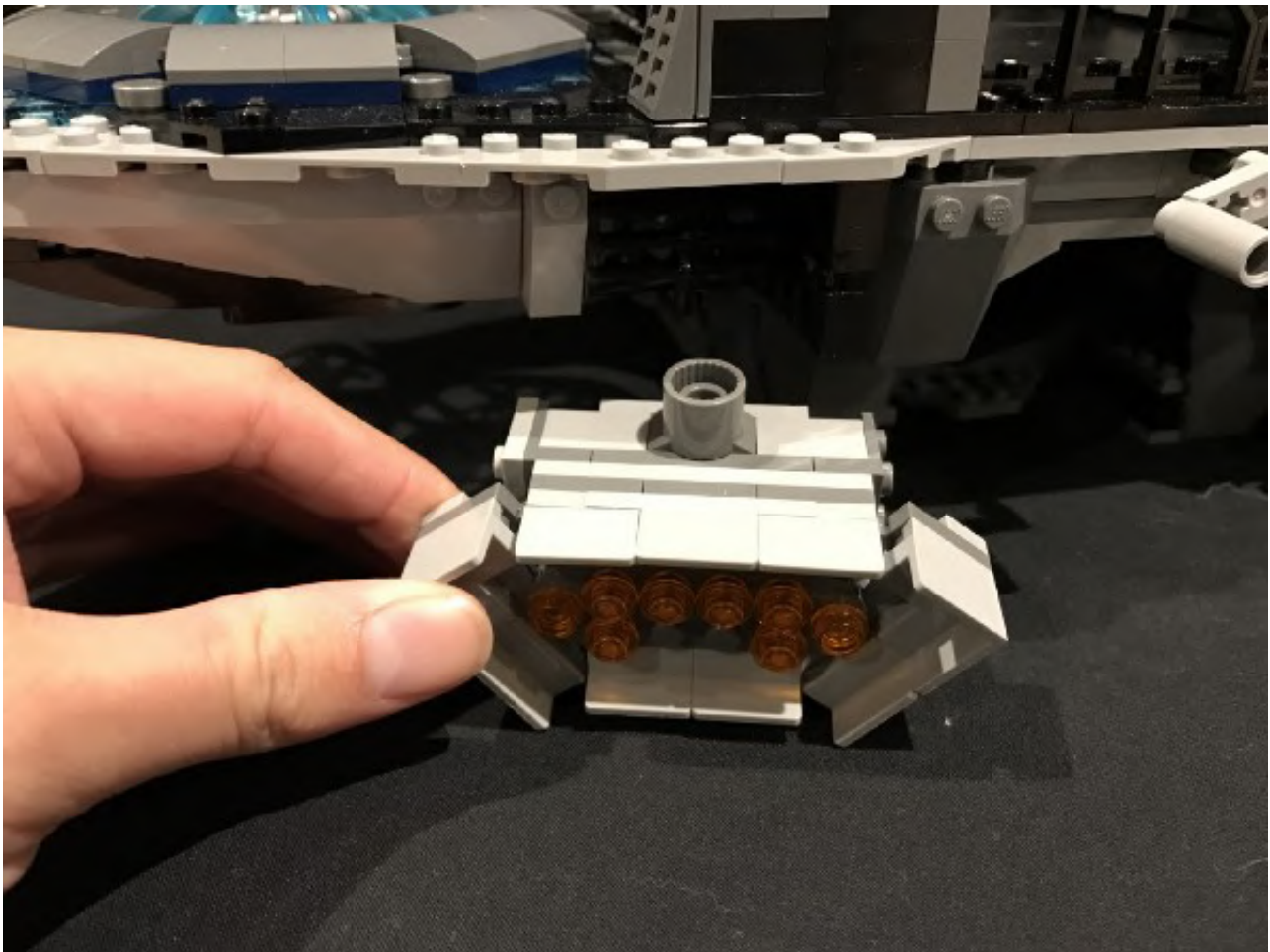
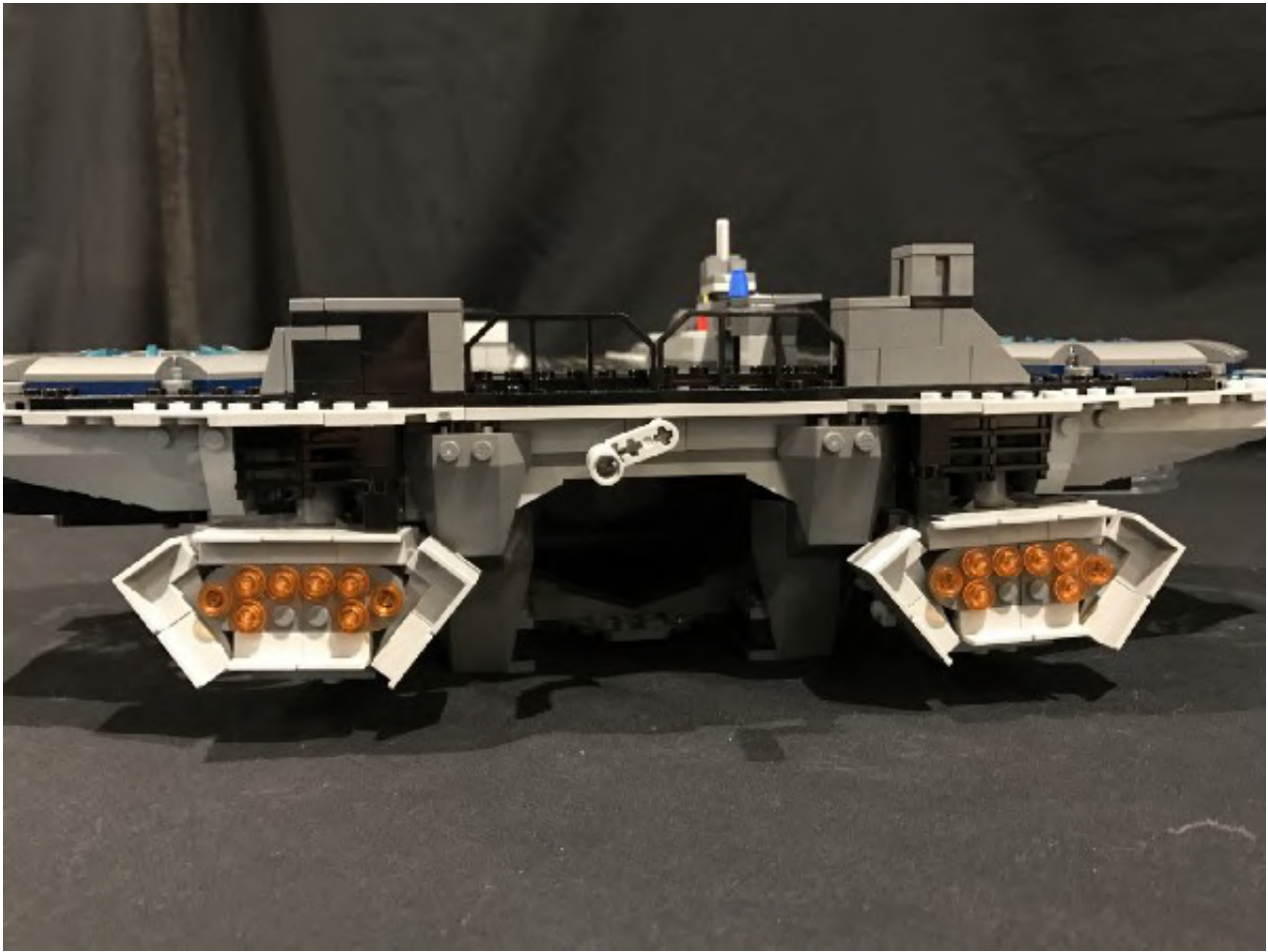
Instructions for installing this kit

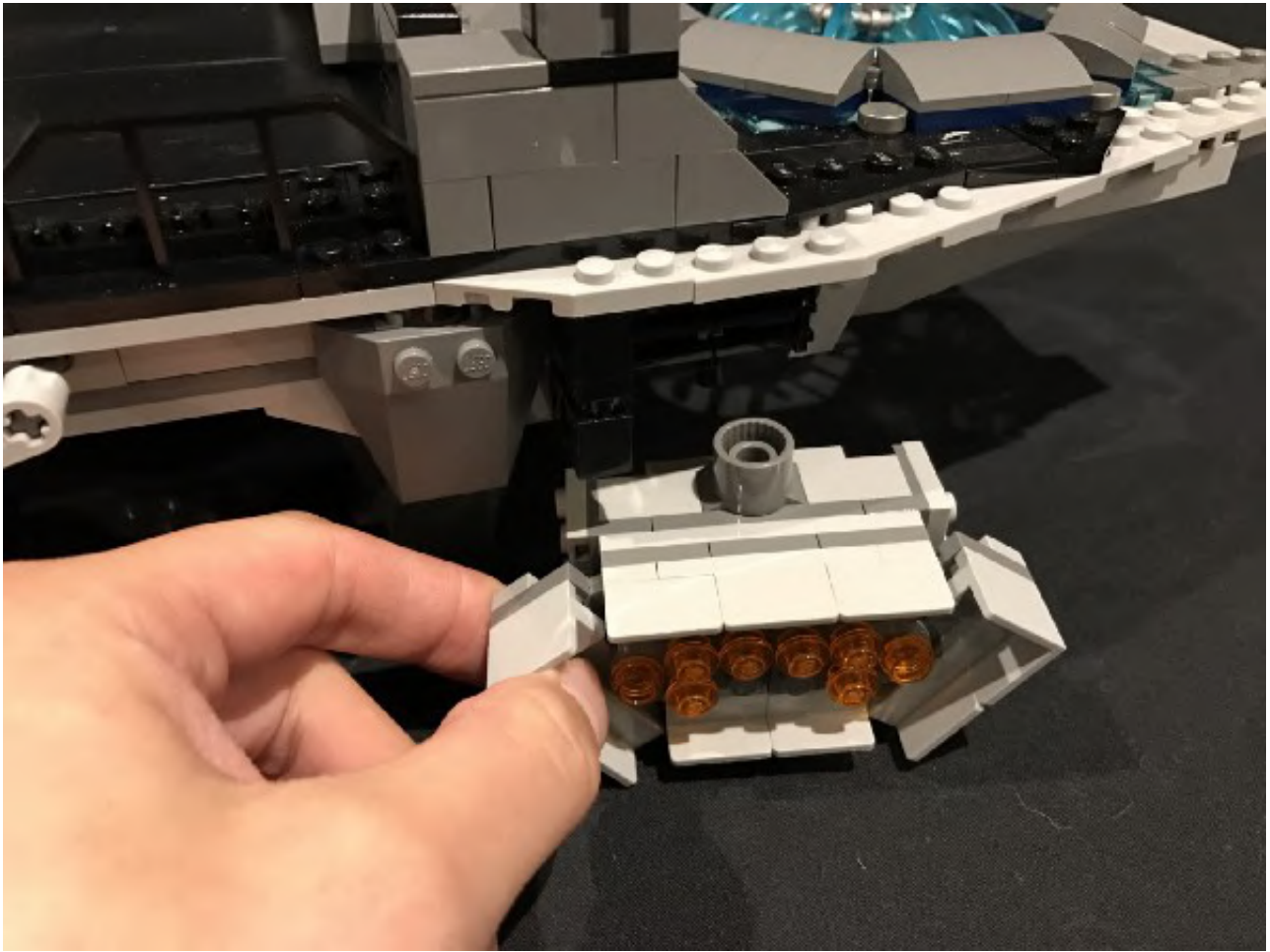
1.) We will first install lights to the 2 jets at the back of the helicarrier. First remove the following sections from above then turn around to the back to remove the jet sections.





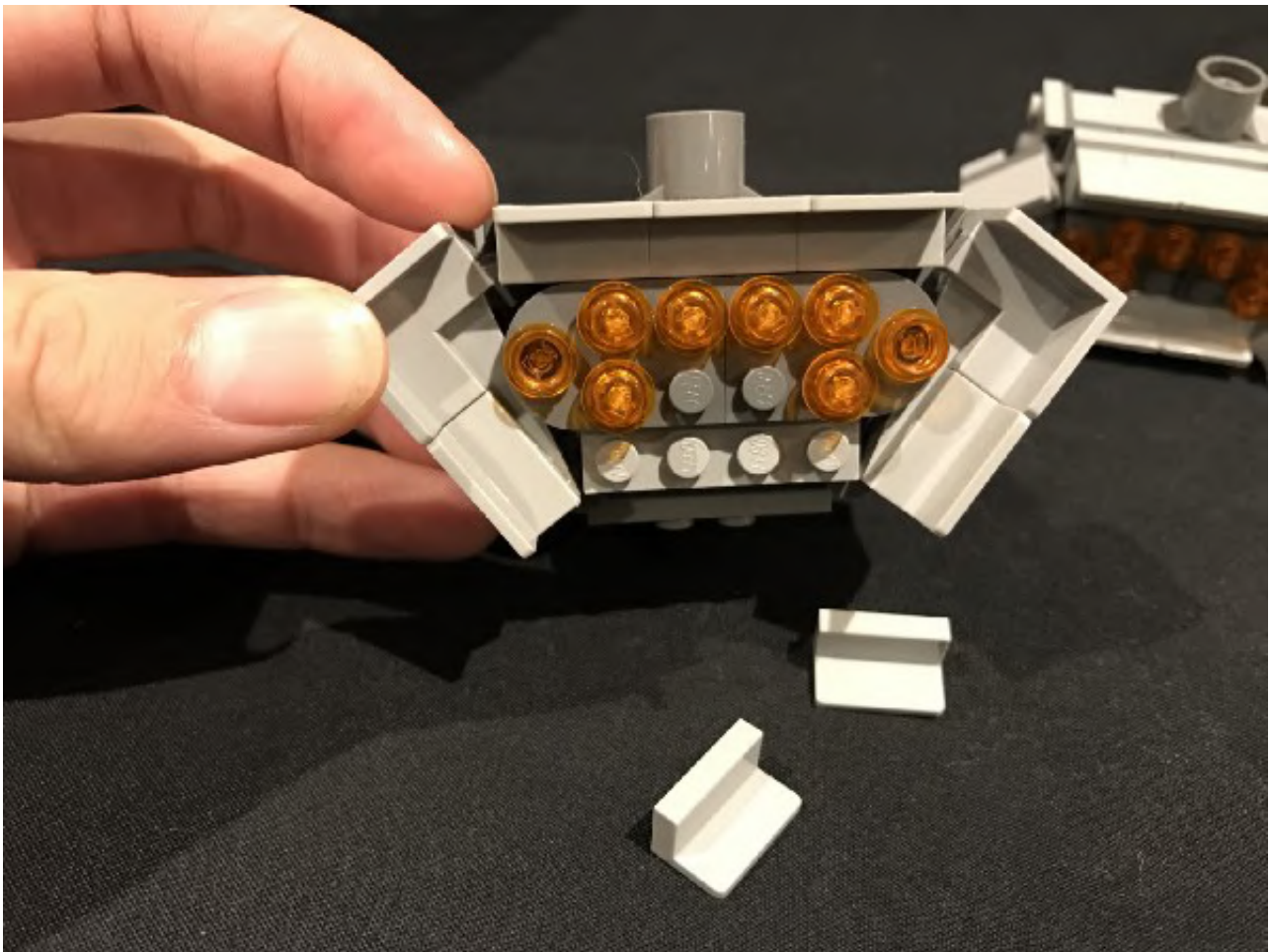
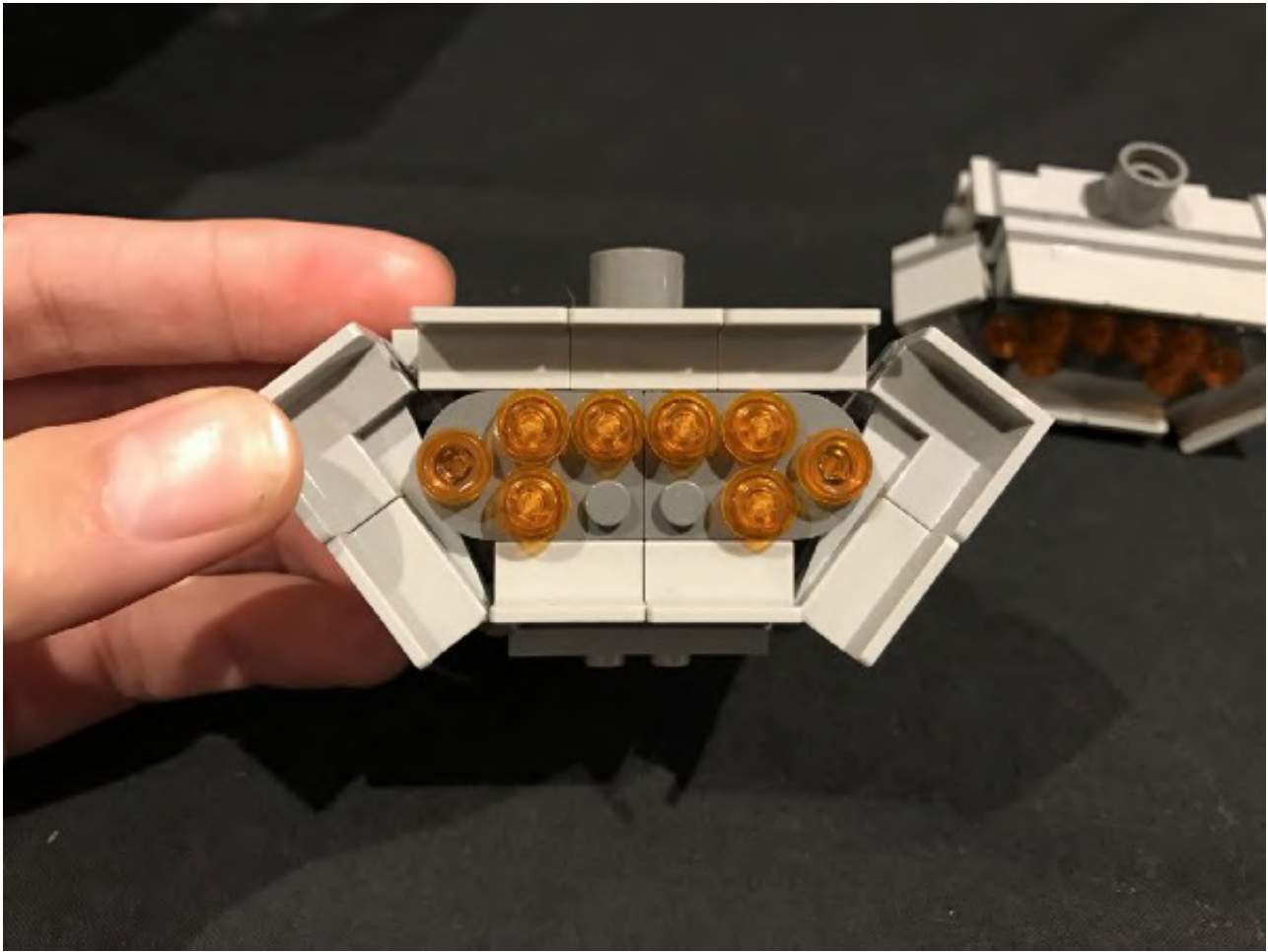


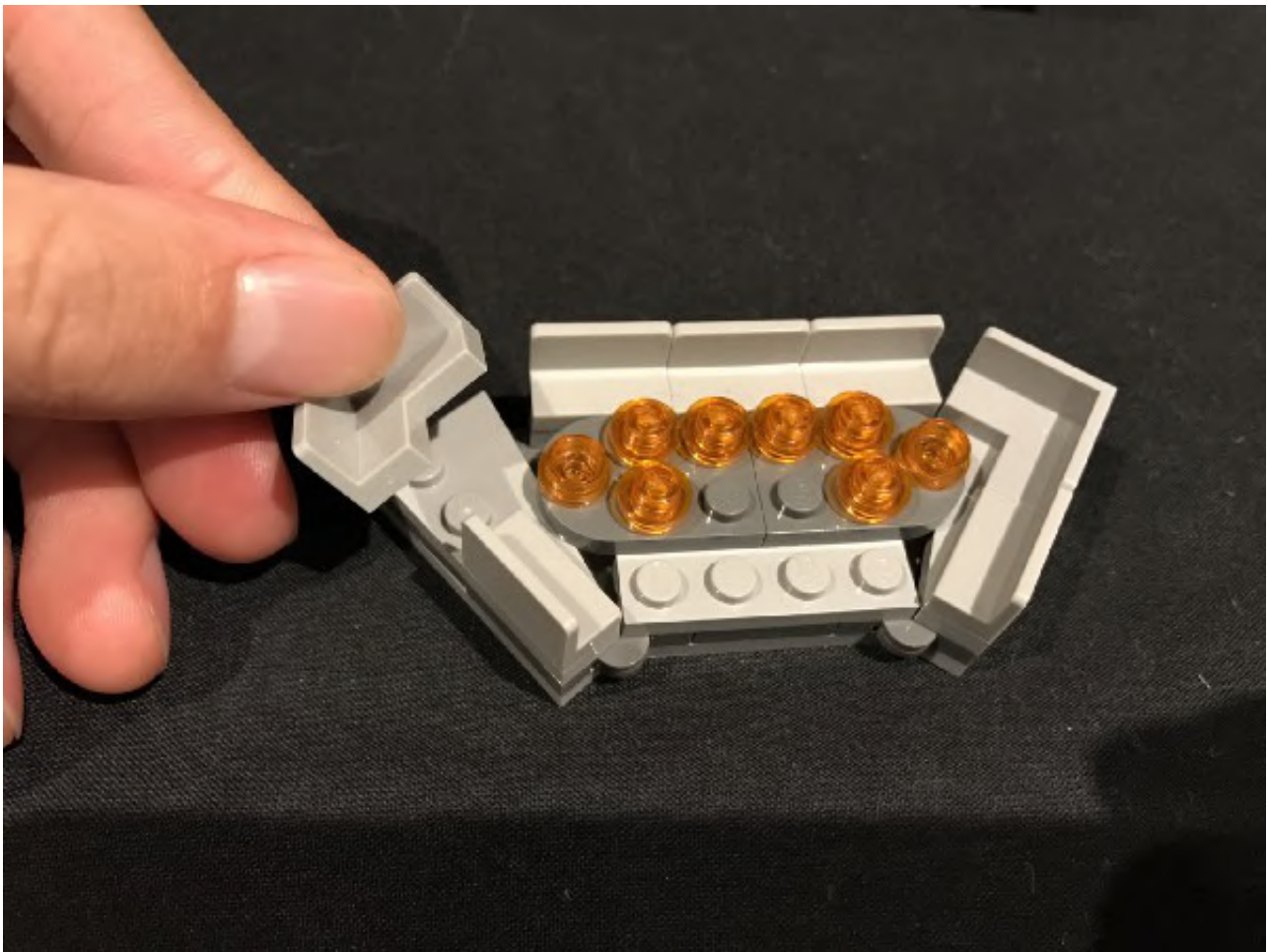
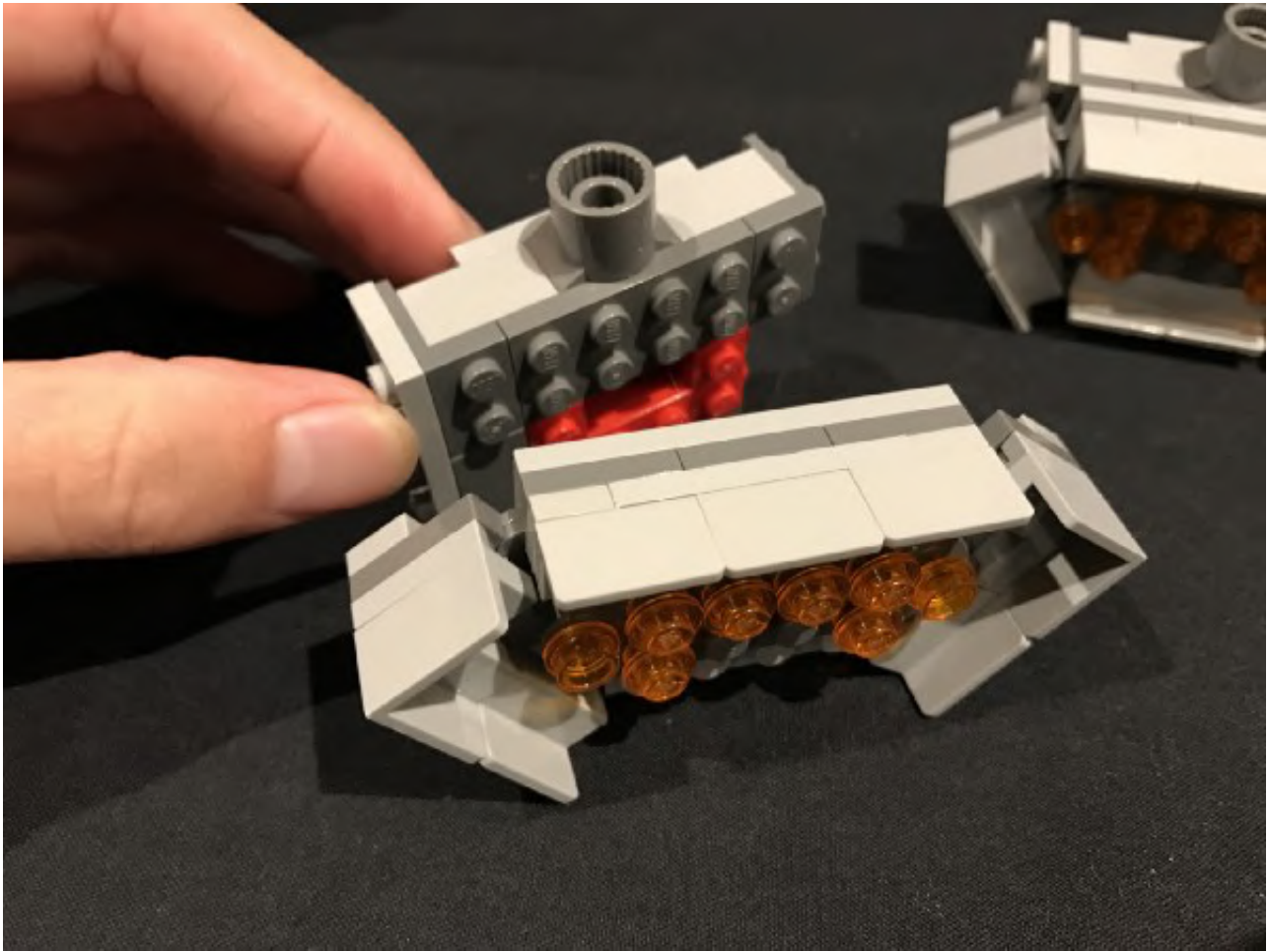


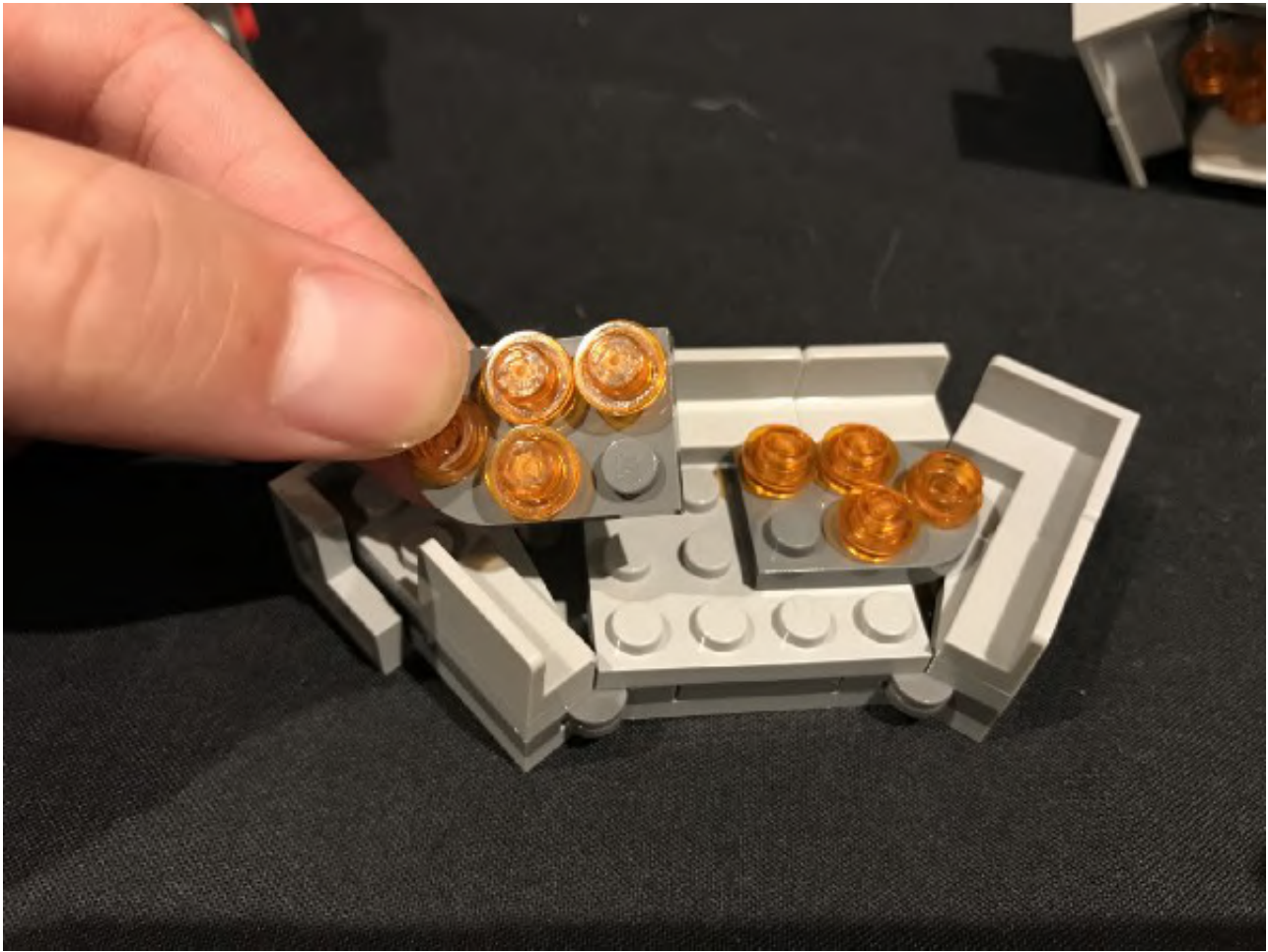


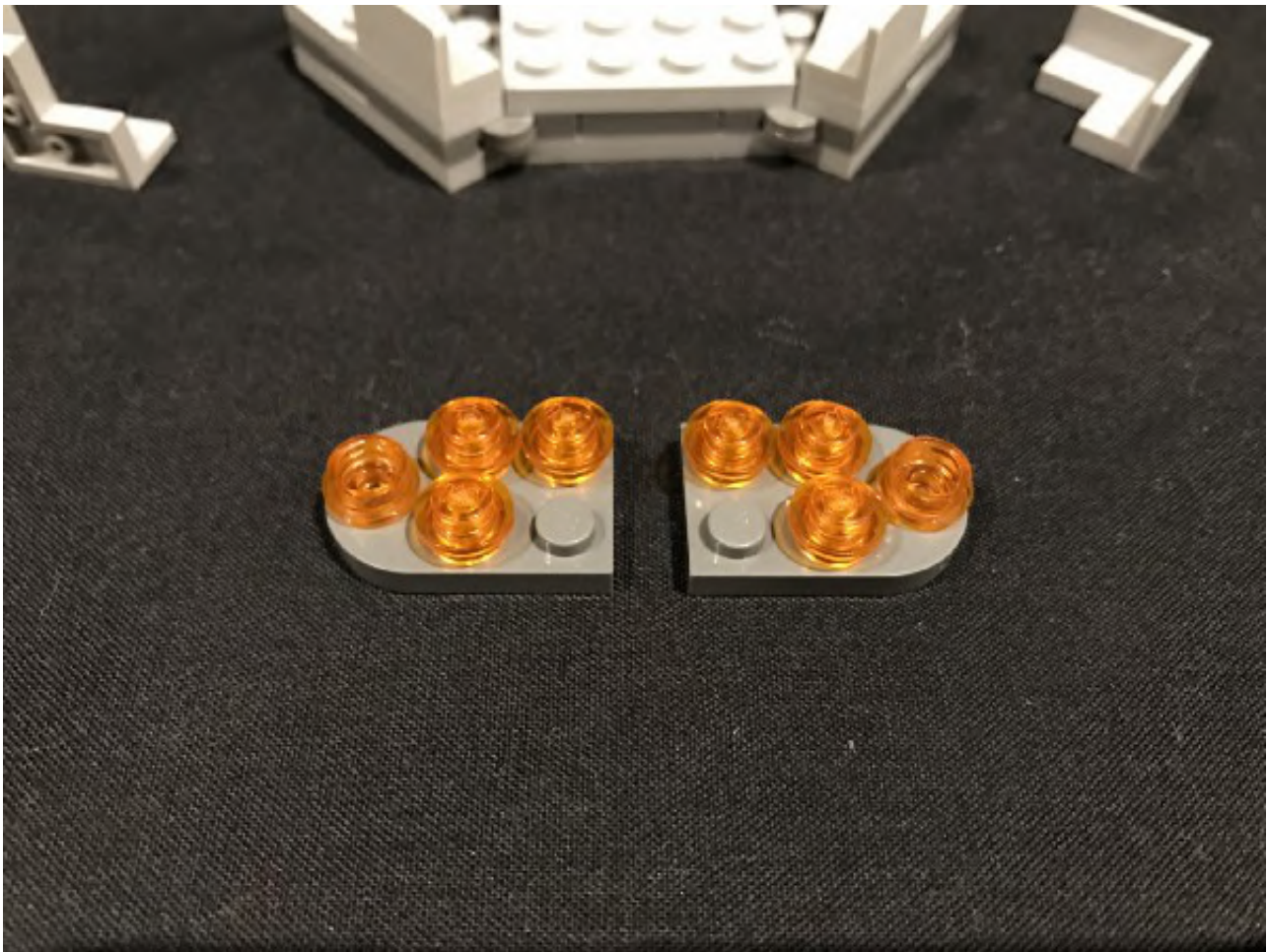
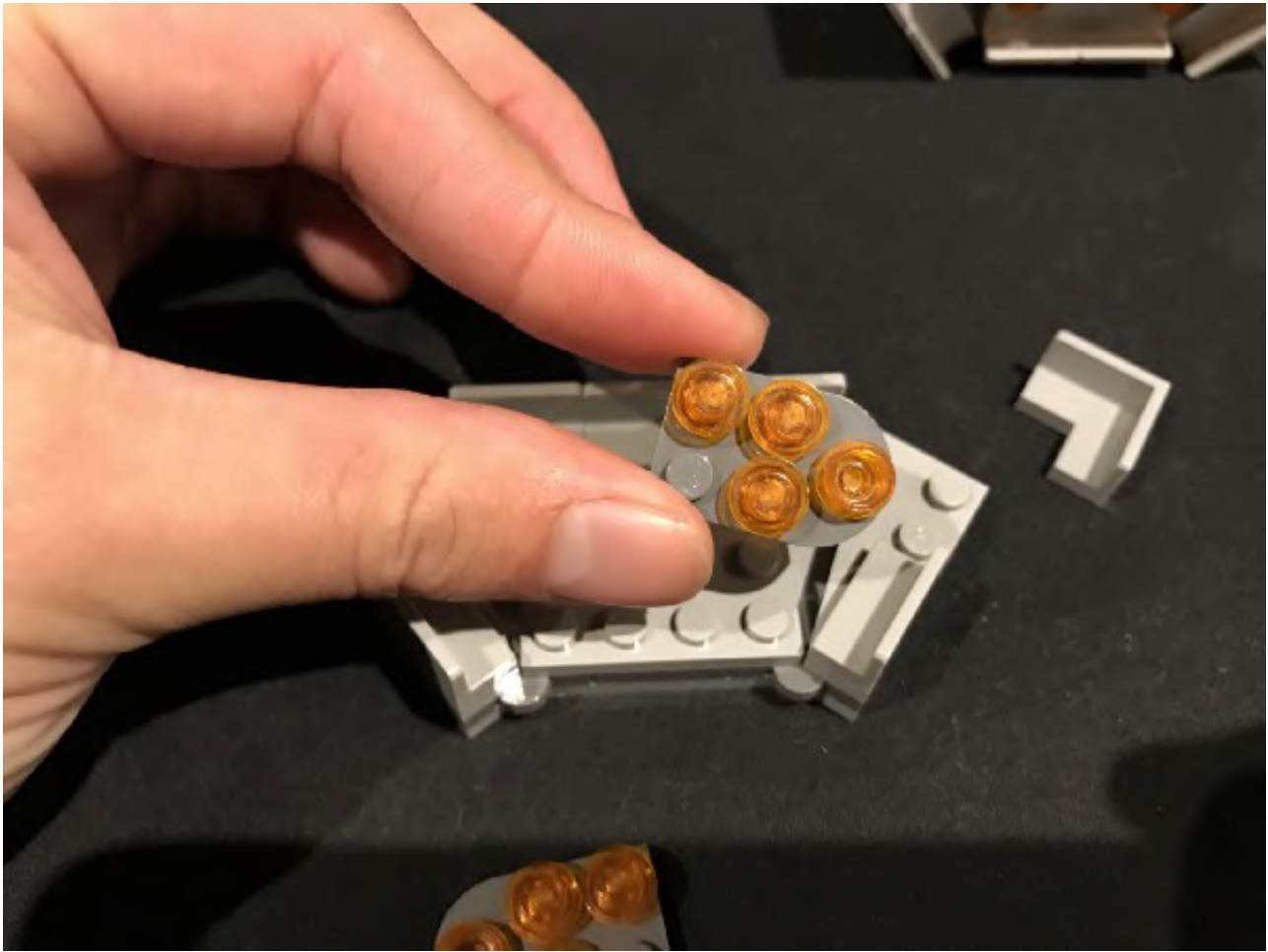


2.) Take one of the back jet sections and then disassemble and remove the following LEGO pieces.



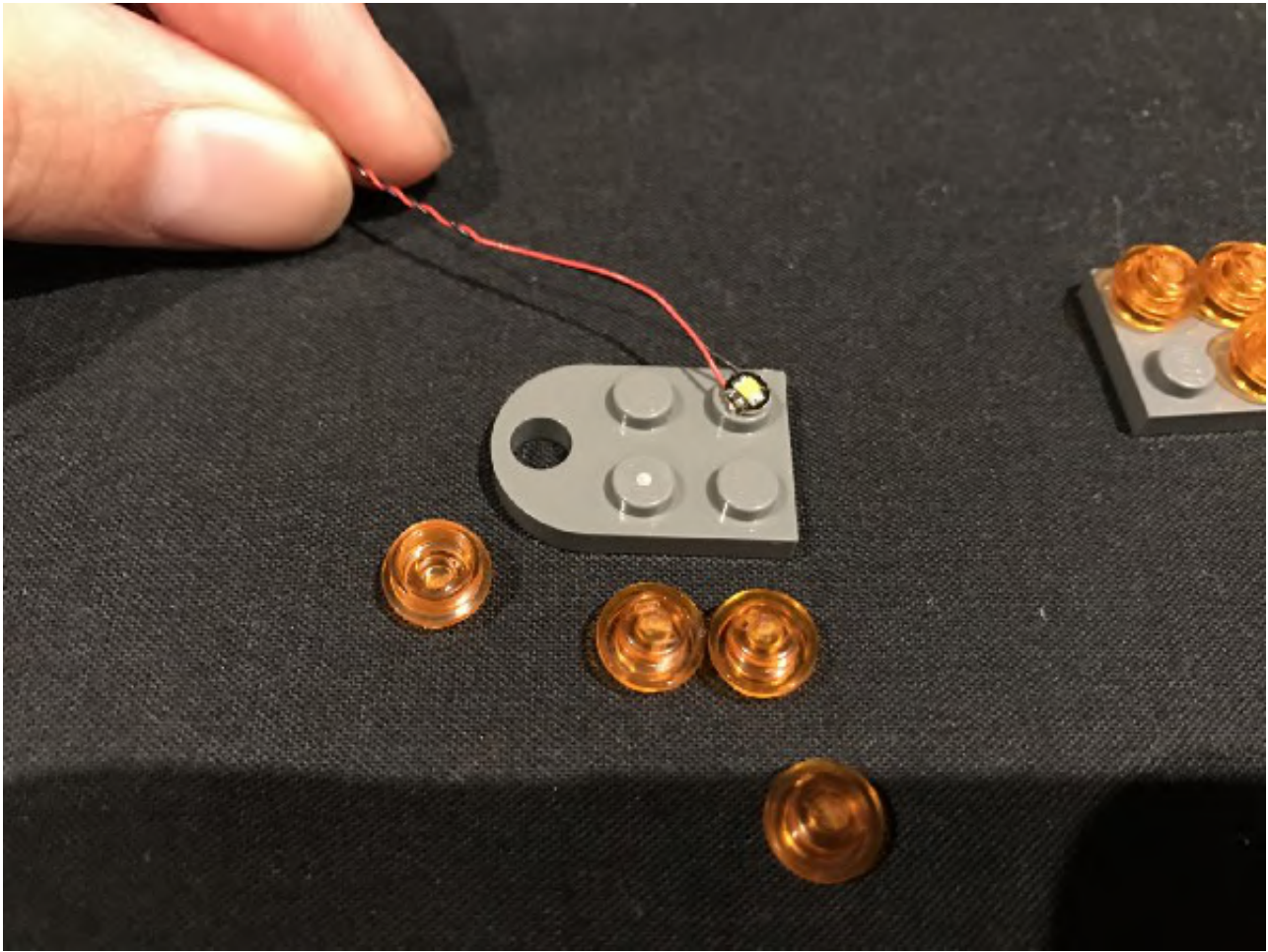




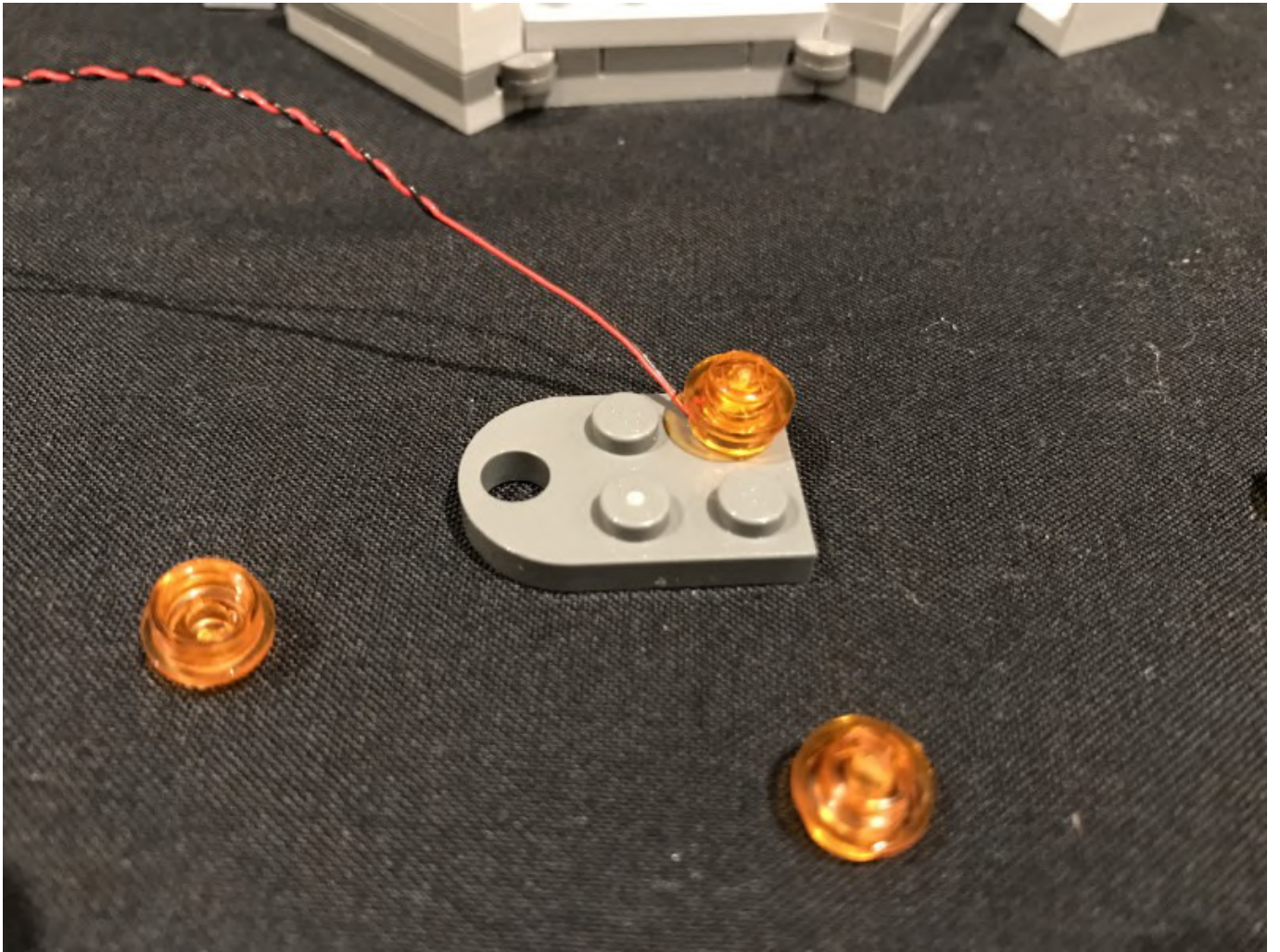


Take the left plate of trans-orange plates and remove them, then take a **White 30cm Bit Light** and place it directly over the following stud as per below:

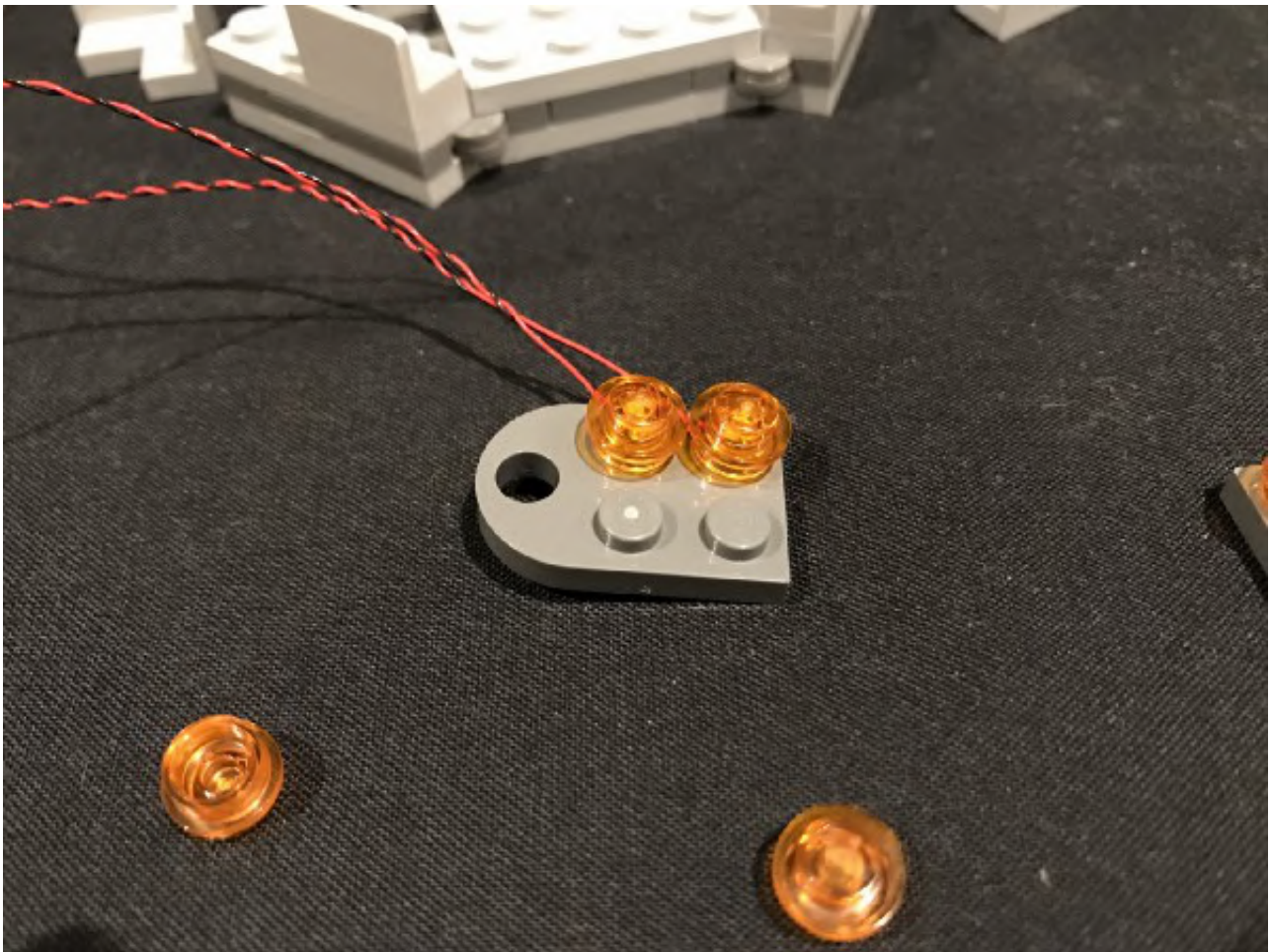
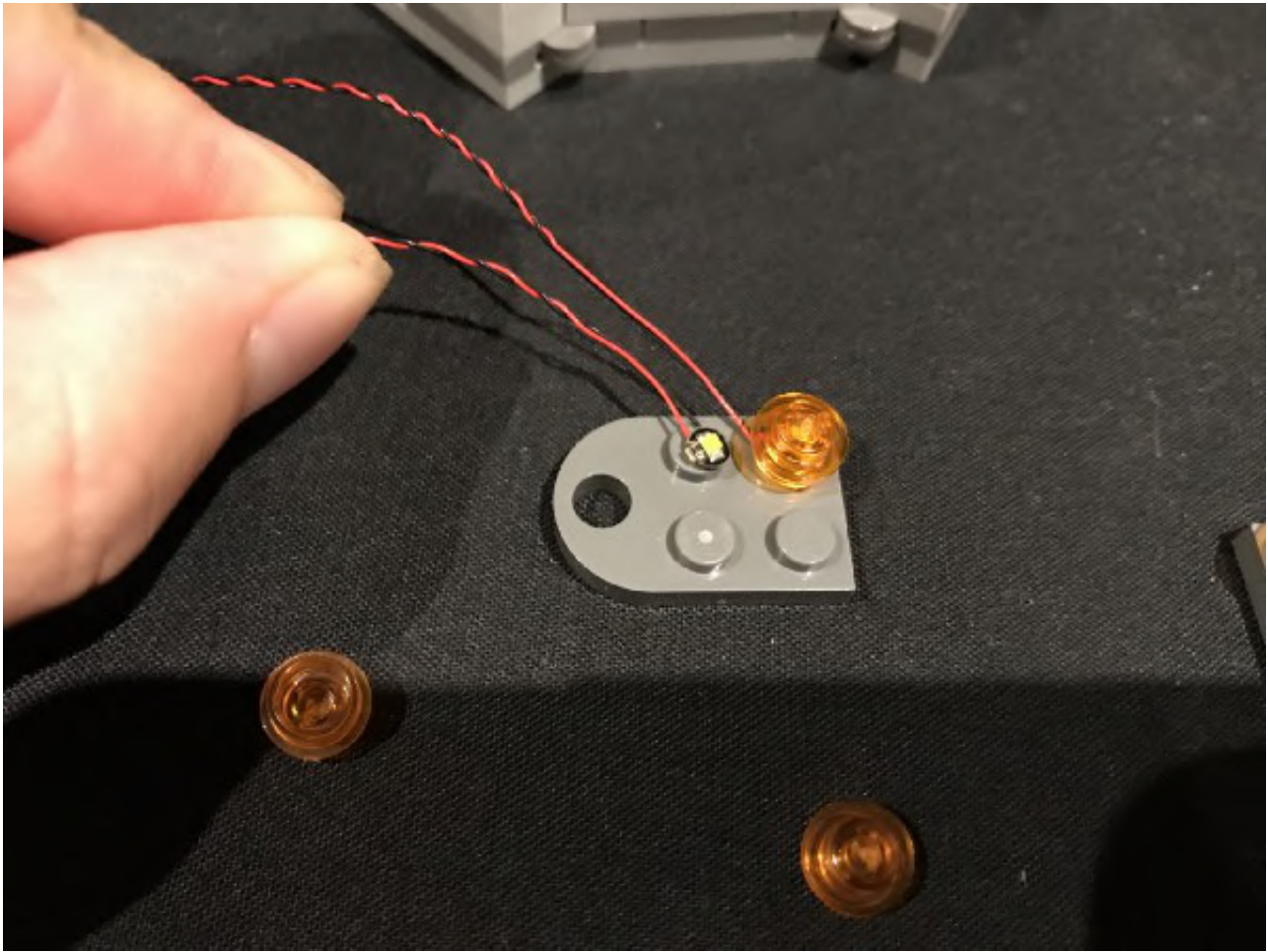


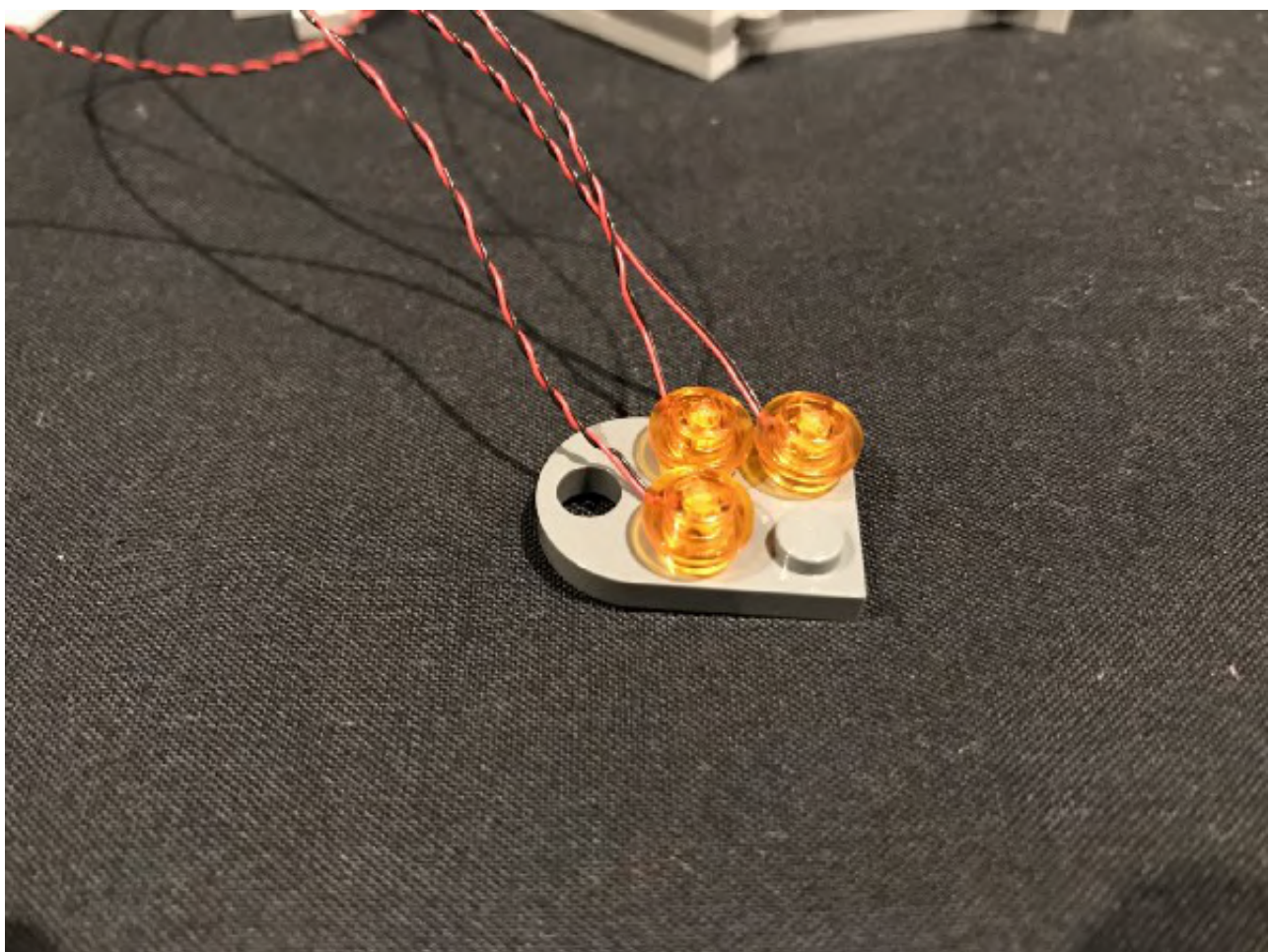
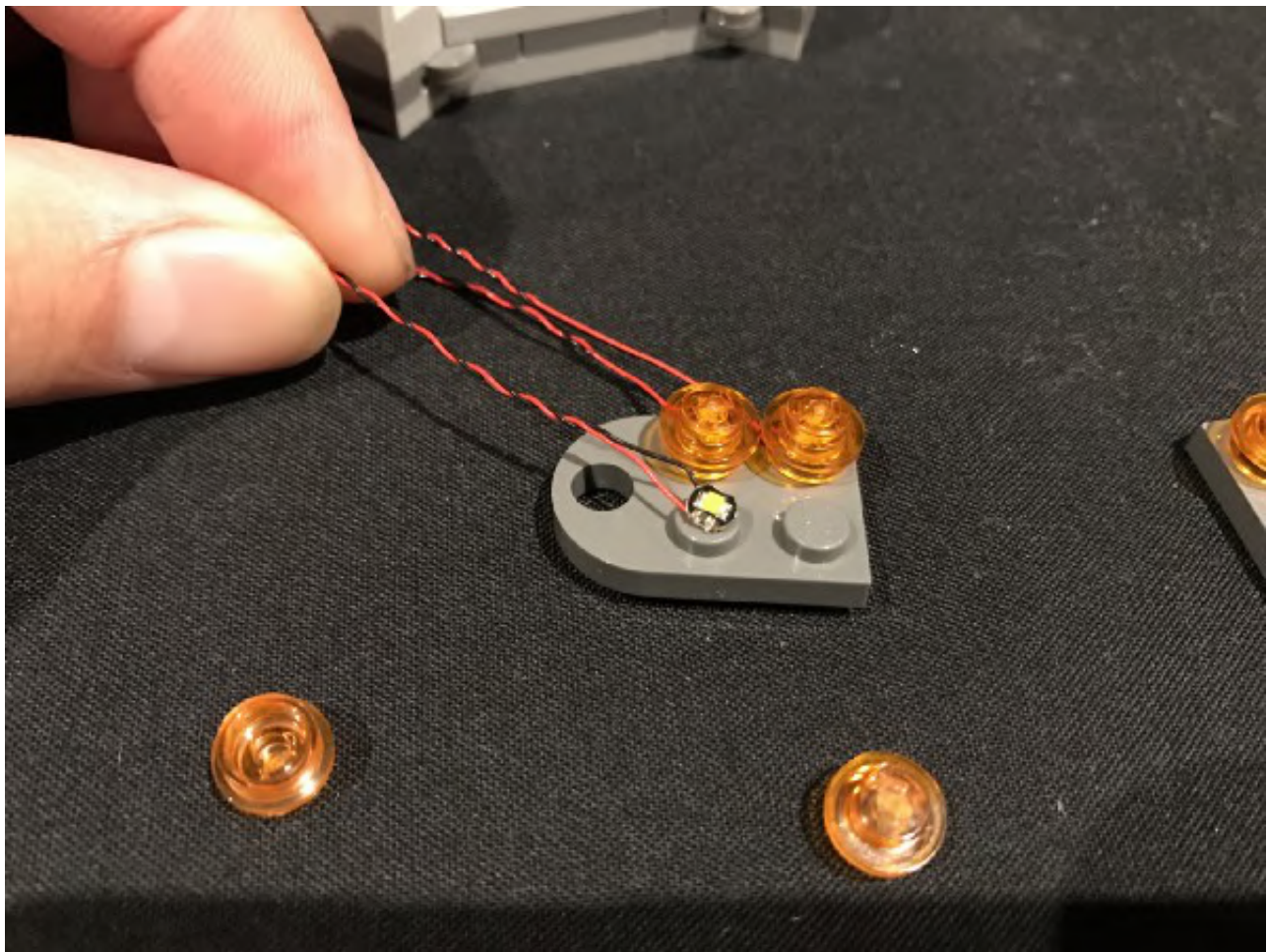


Ensure the cable is facing toward the top left, then secure the Bit Light in place by reconnecting one of the trans-orange plates over the top.

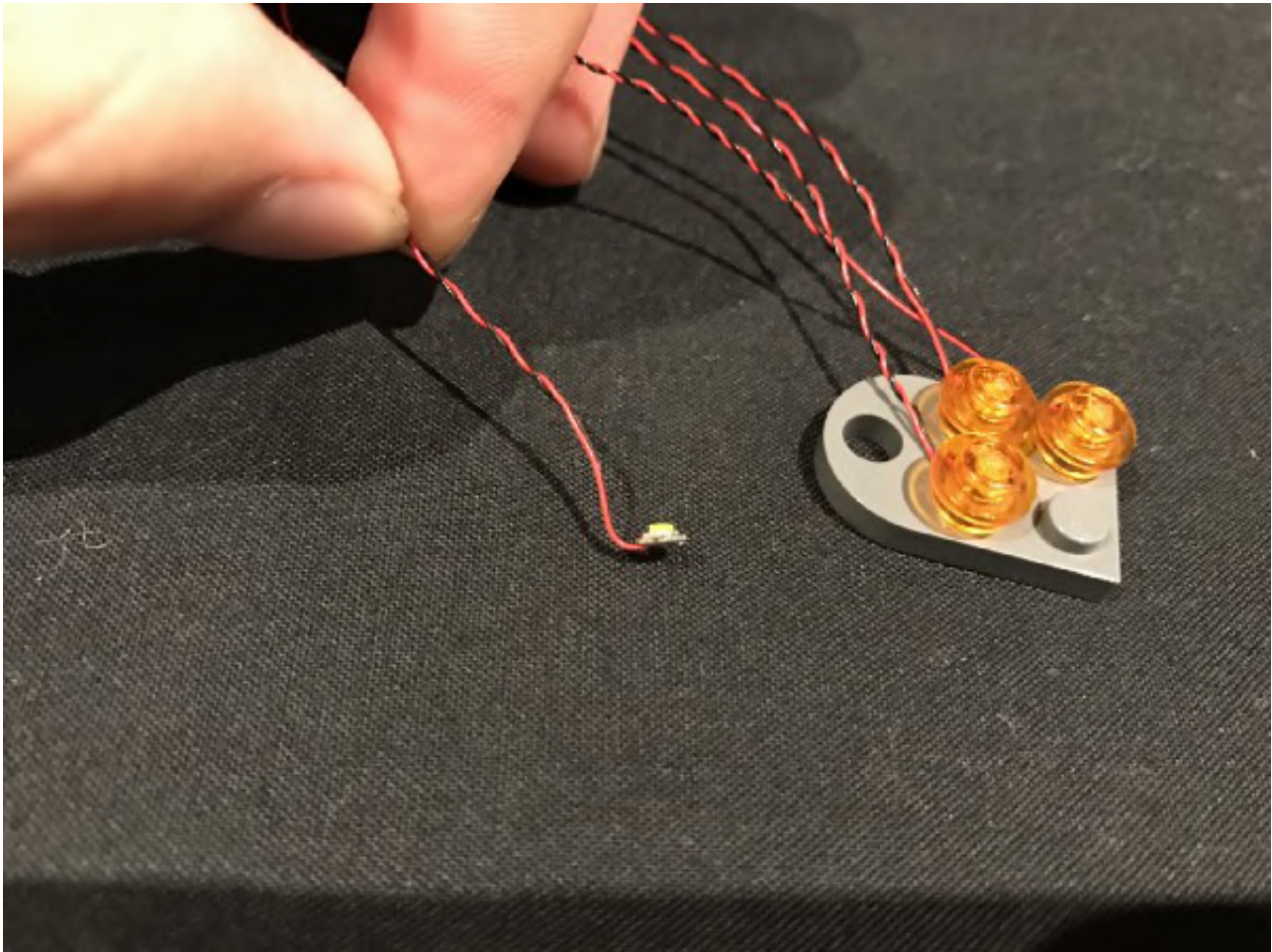


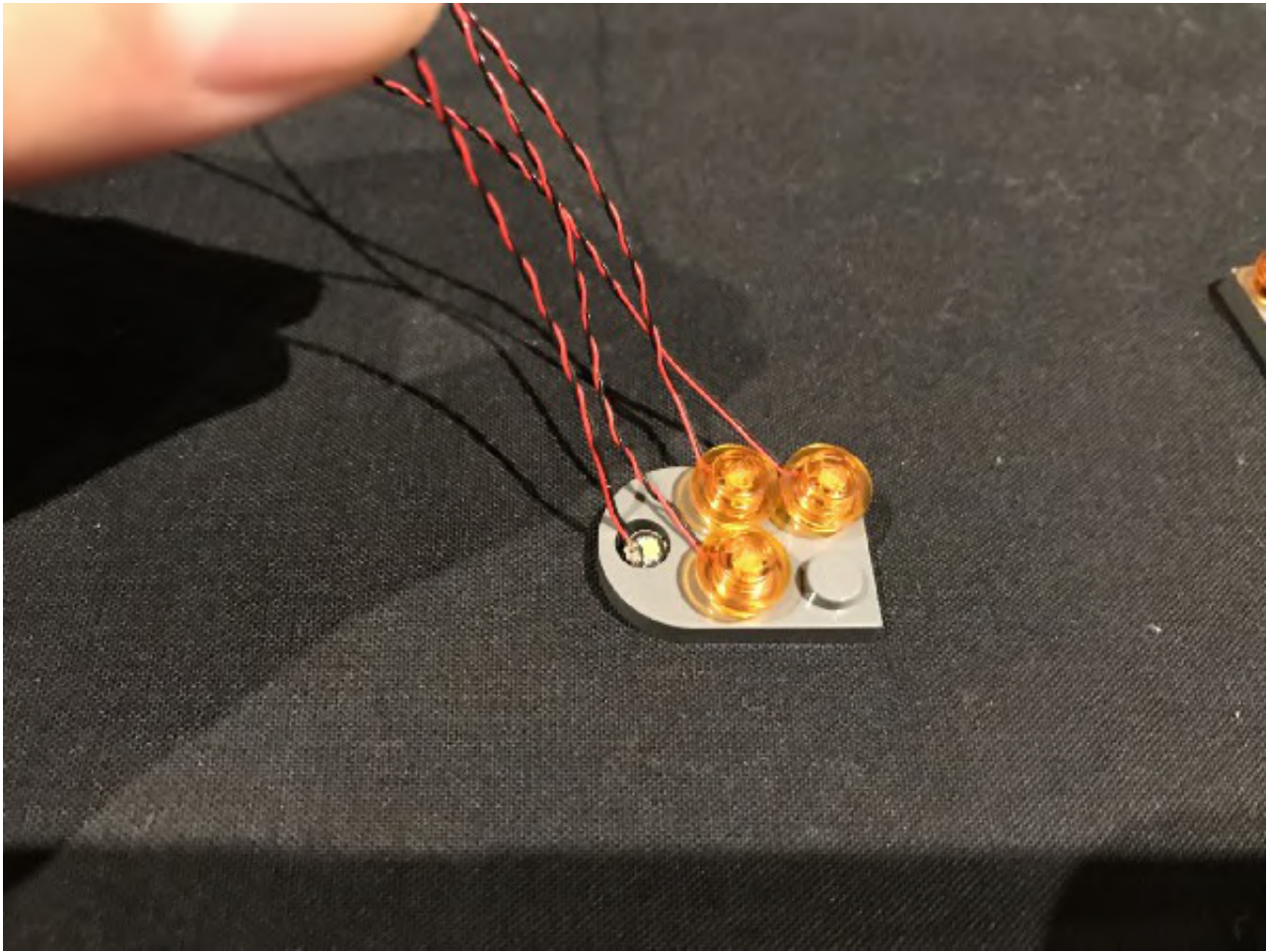
Install another 2x **White 30cm Bit Lights** to the below studs, following the same method we just used.



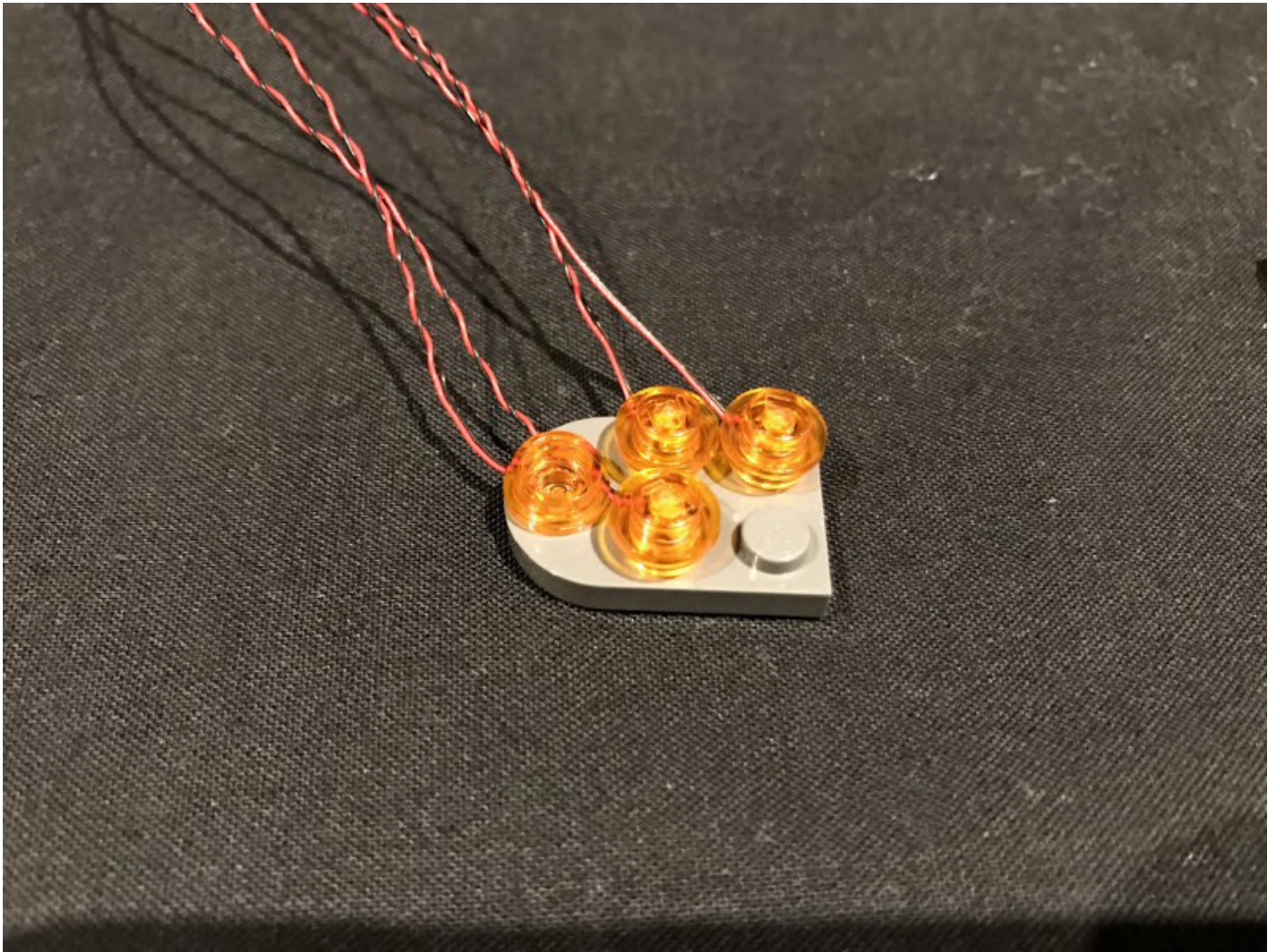


To install a Bit Light to the trans orange plate that connects to the “hole”, take another **White 30cm Bit Light** and then bend it up on a 90 degree angle and then place it inside the “hole” as per below:

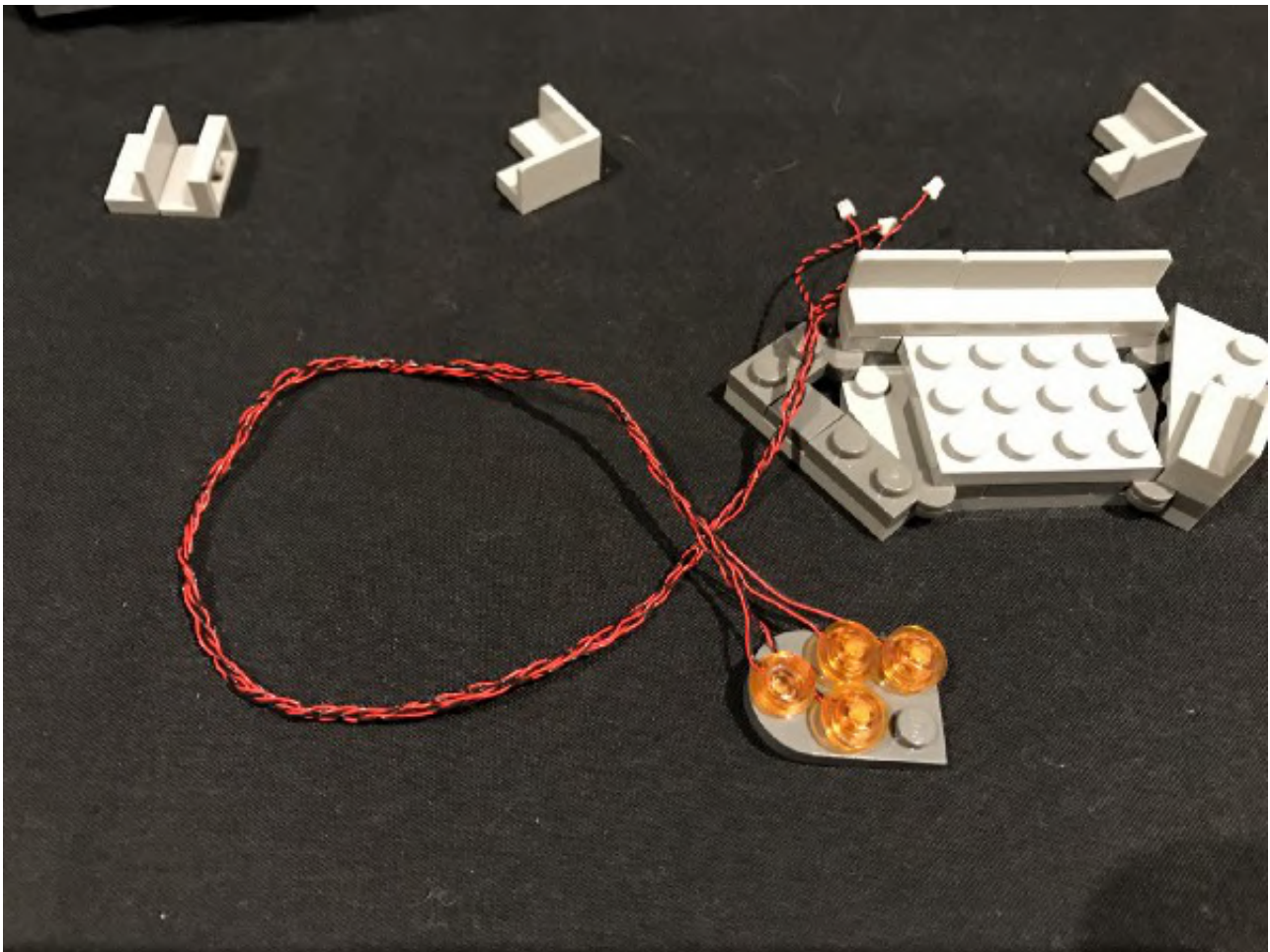
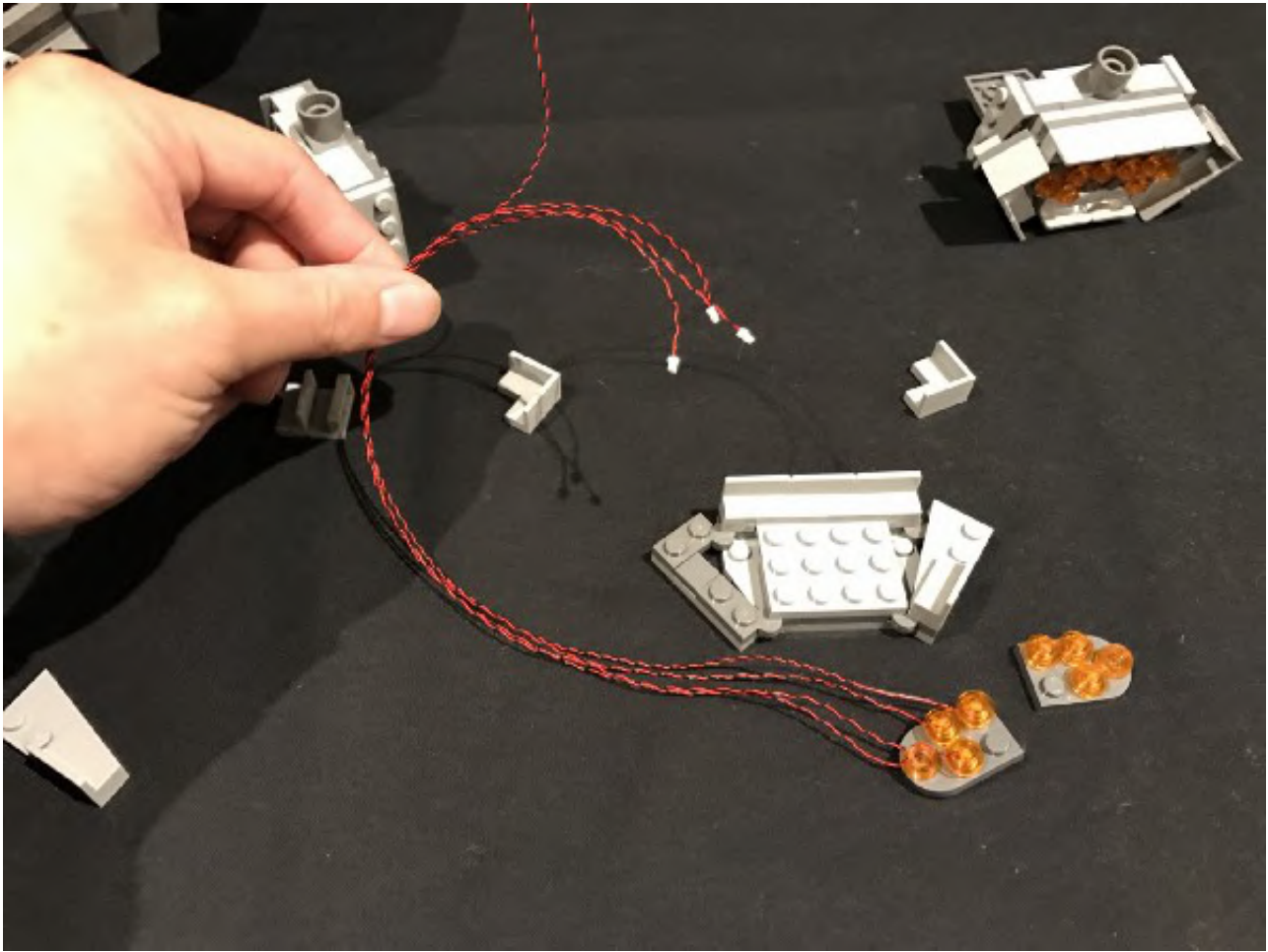




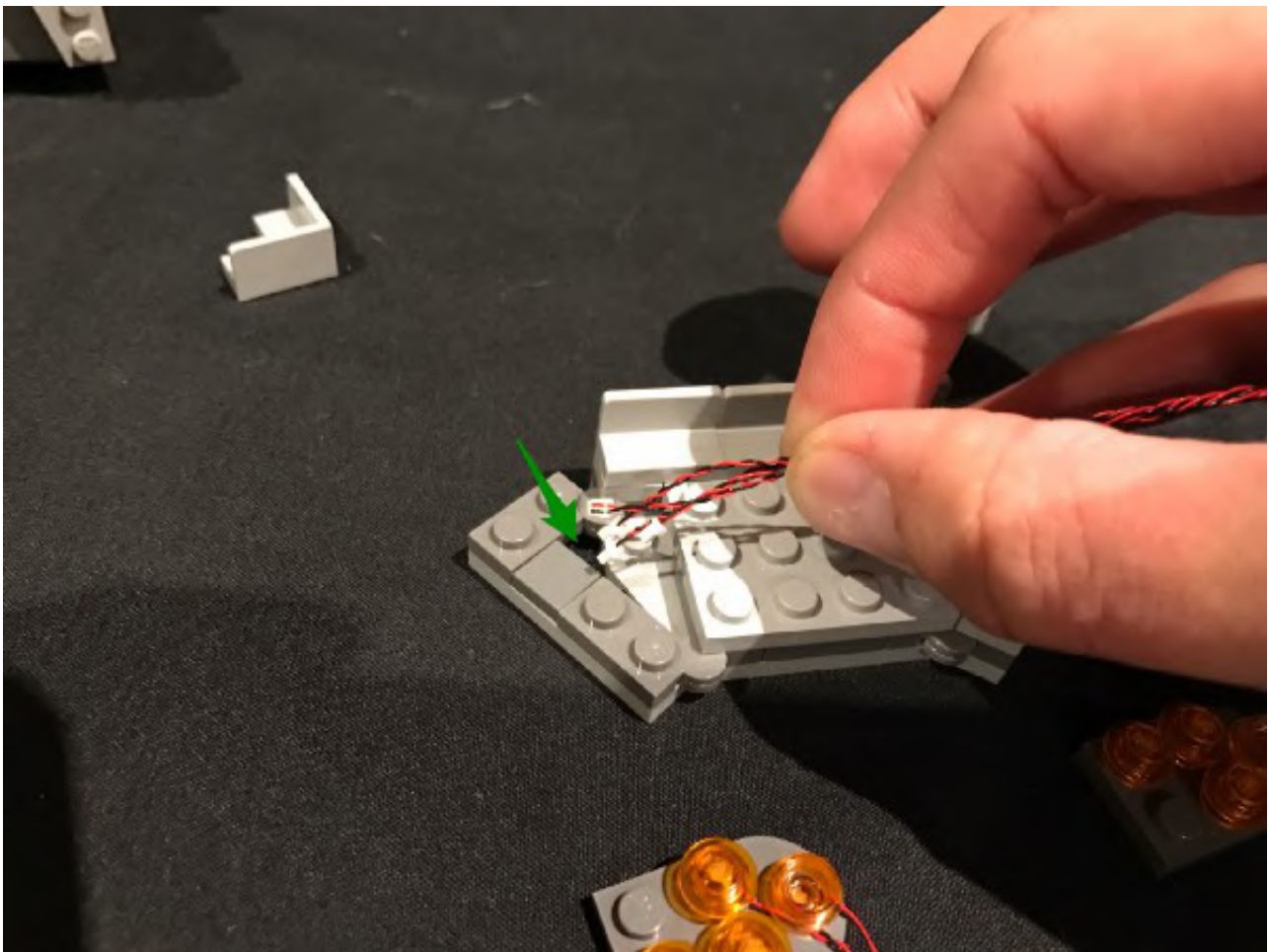
Reconnect the trans-orange plate over the top (upside down) ensuring the cable is facing the same way as the below image.

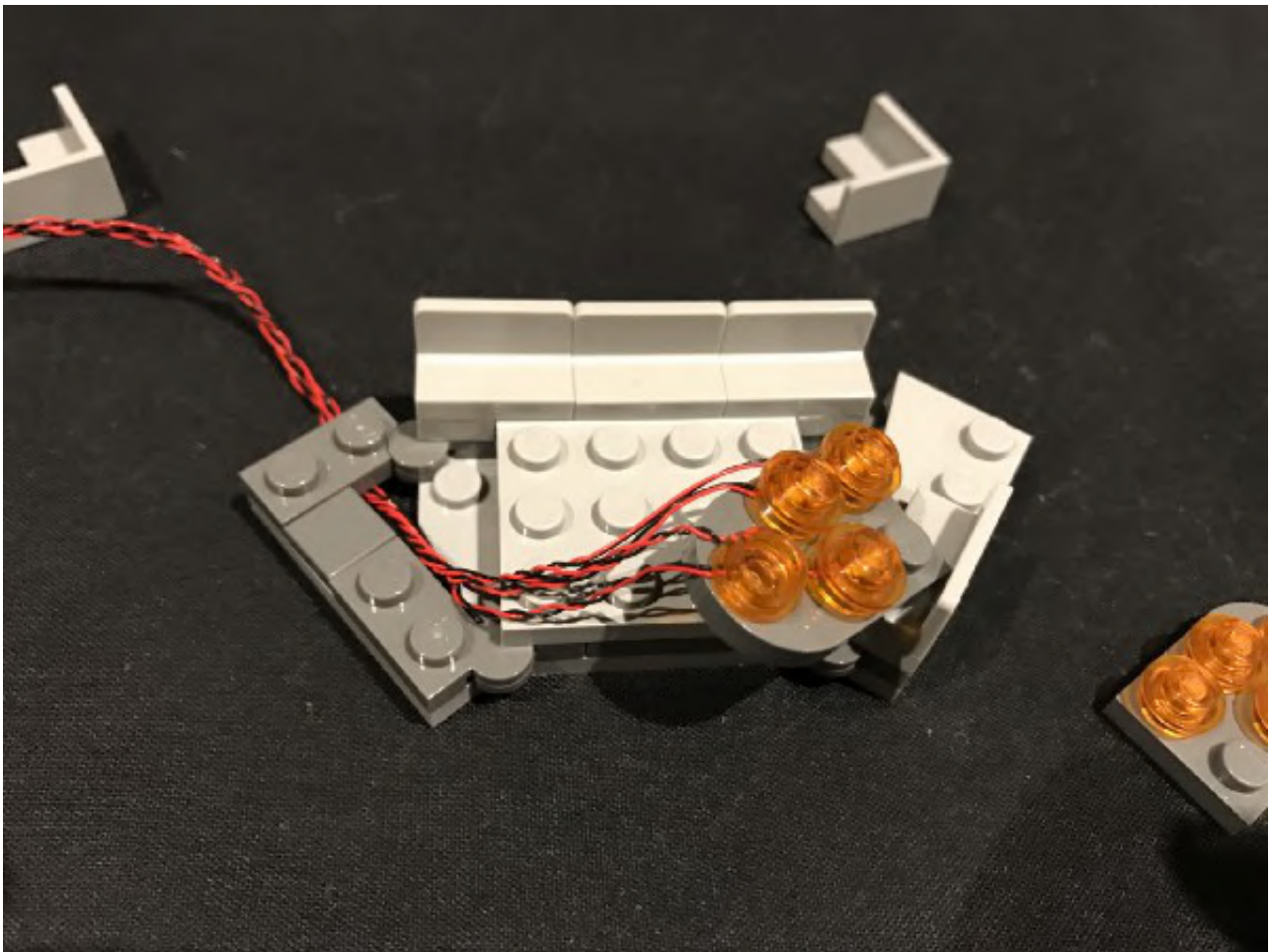
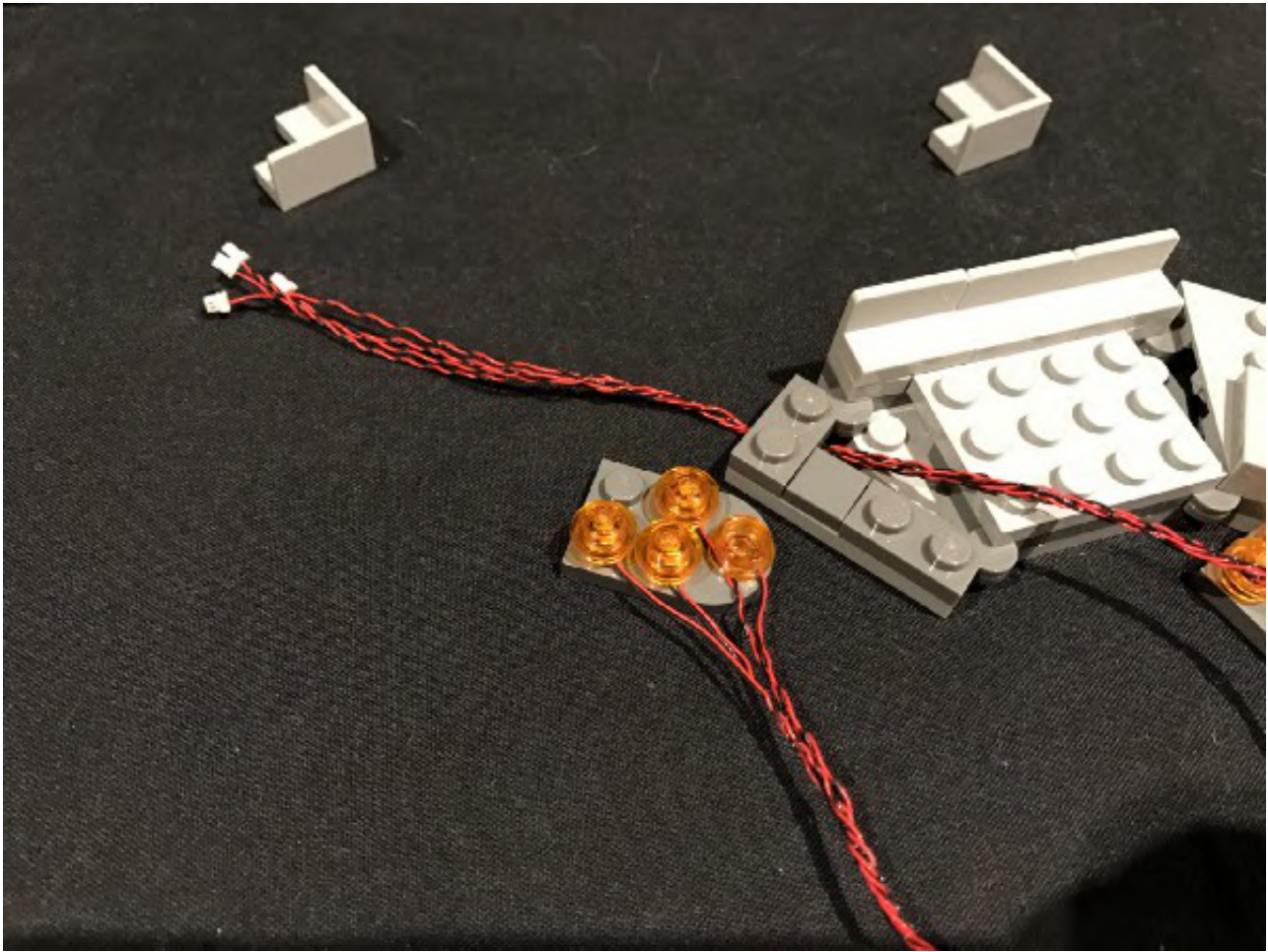


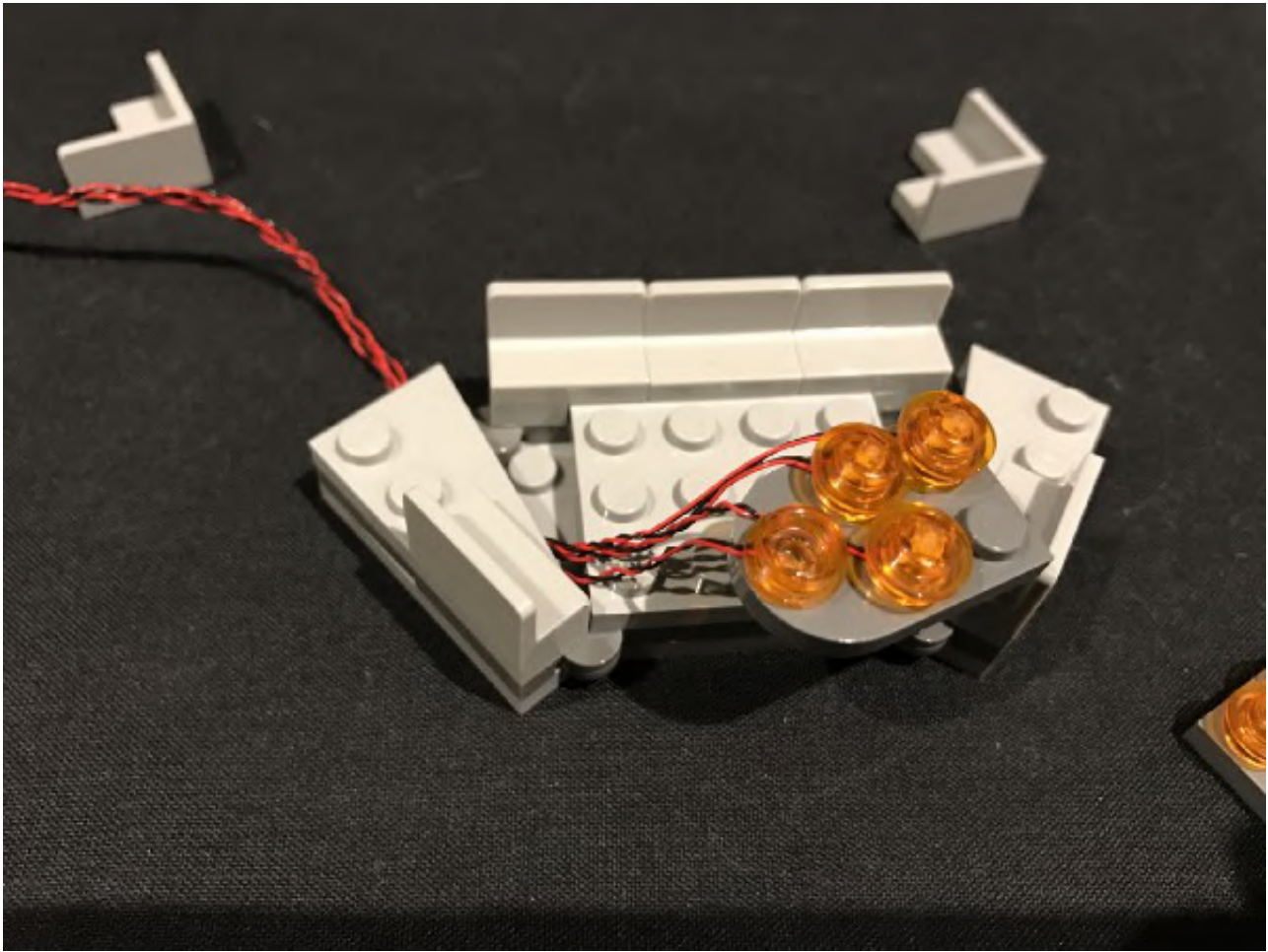
Take all the cables from the Bit Lights we just installed and then twist/wind them together so they form one large cable.



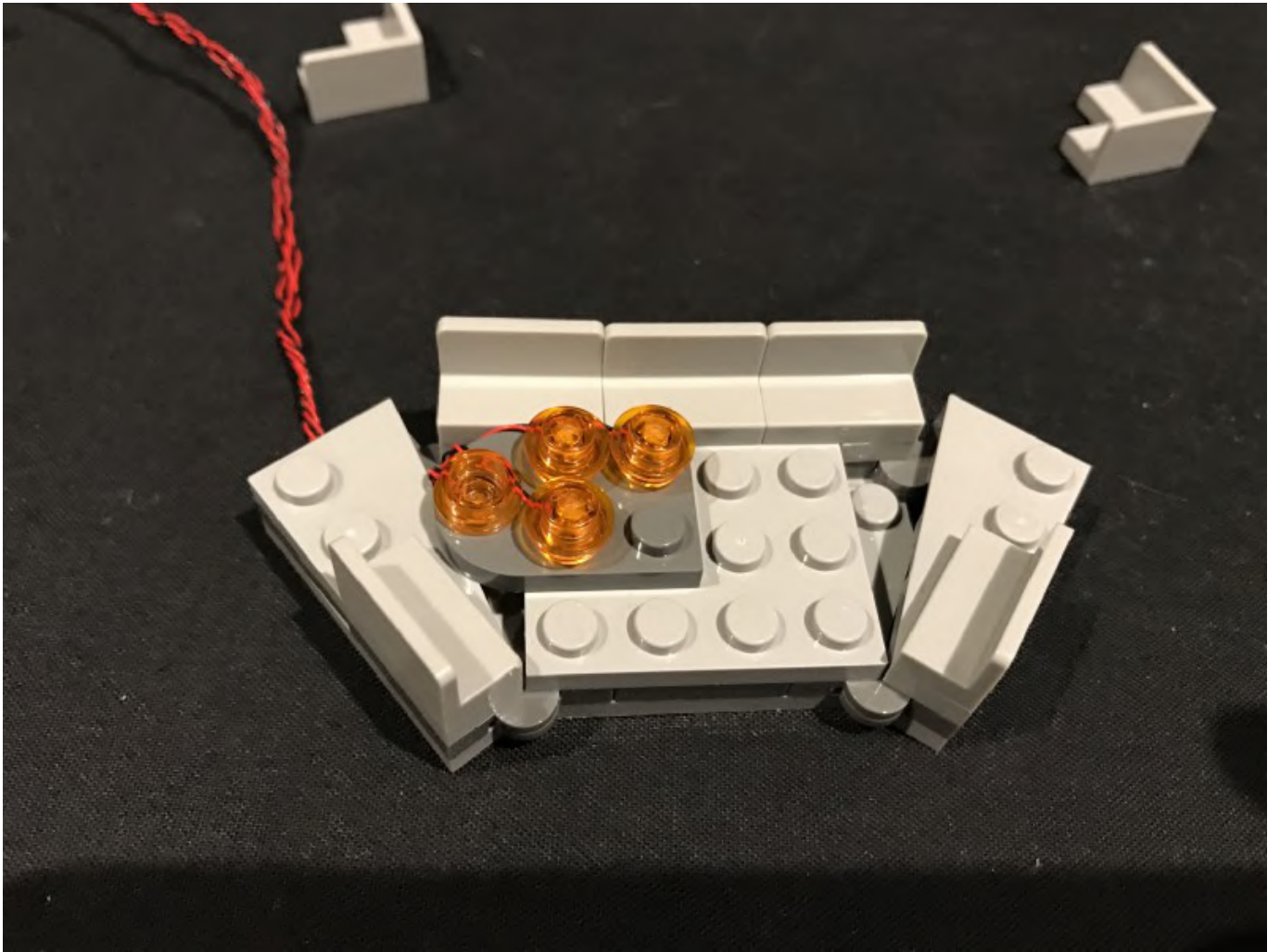
Thread the cables all the way through from the outside toward the back (via the space behind) and then reconnect one of the LEGO sections we removed earlier.



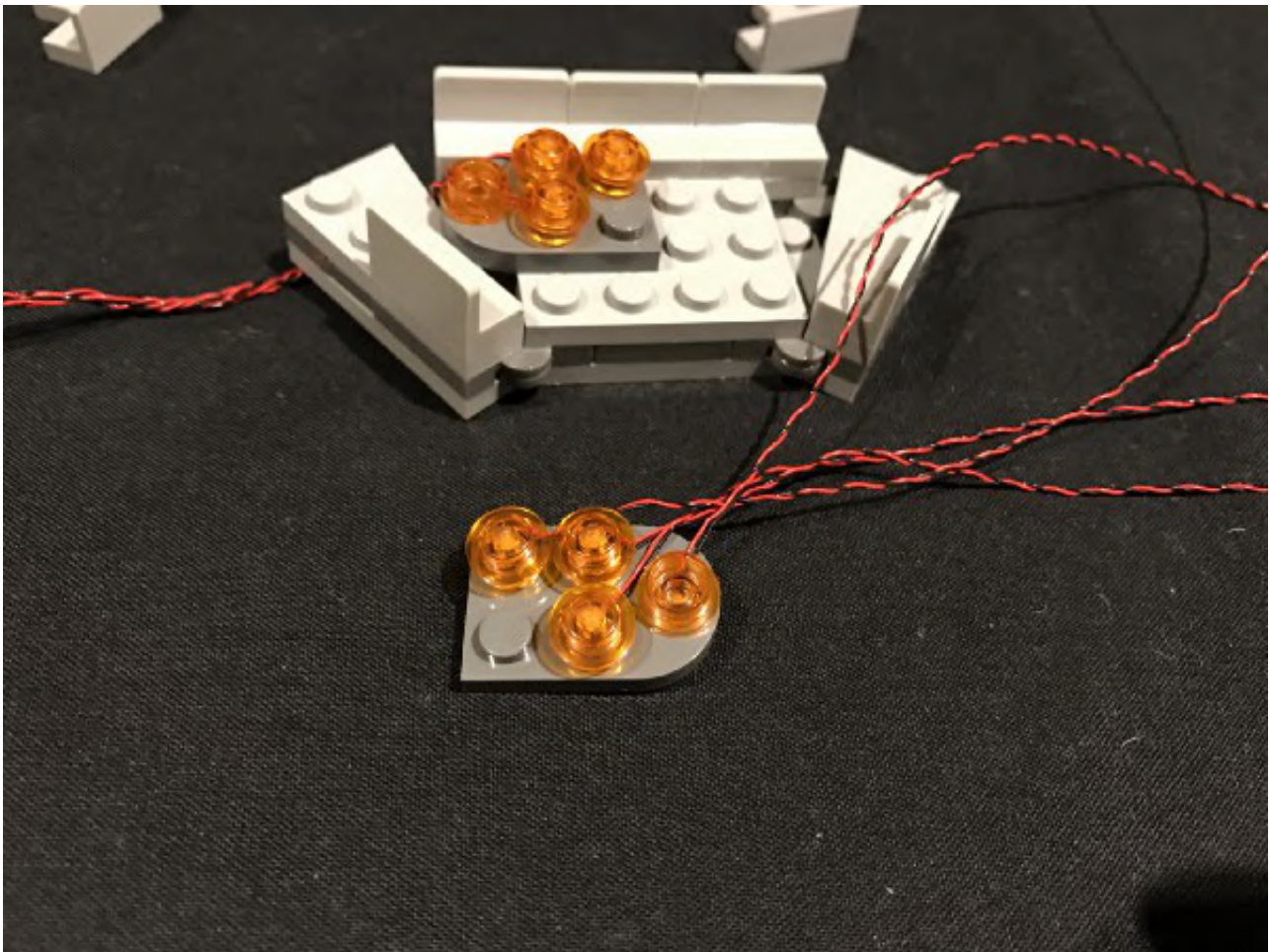
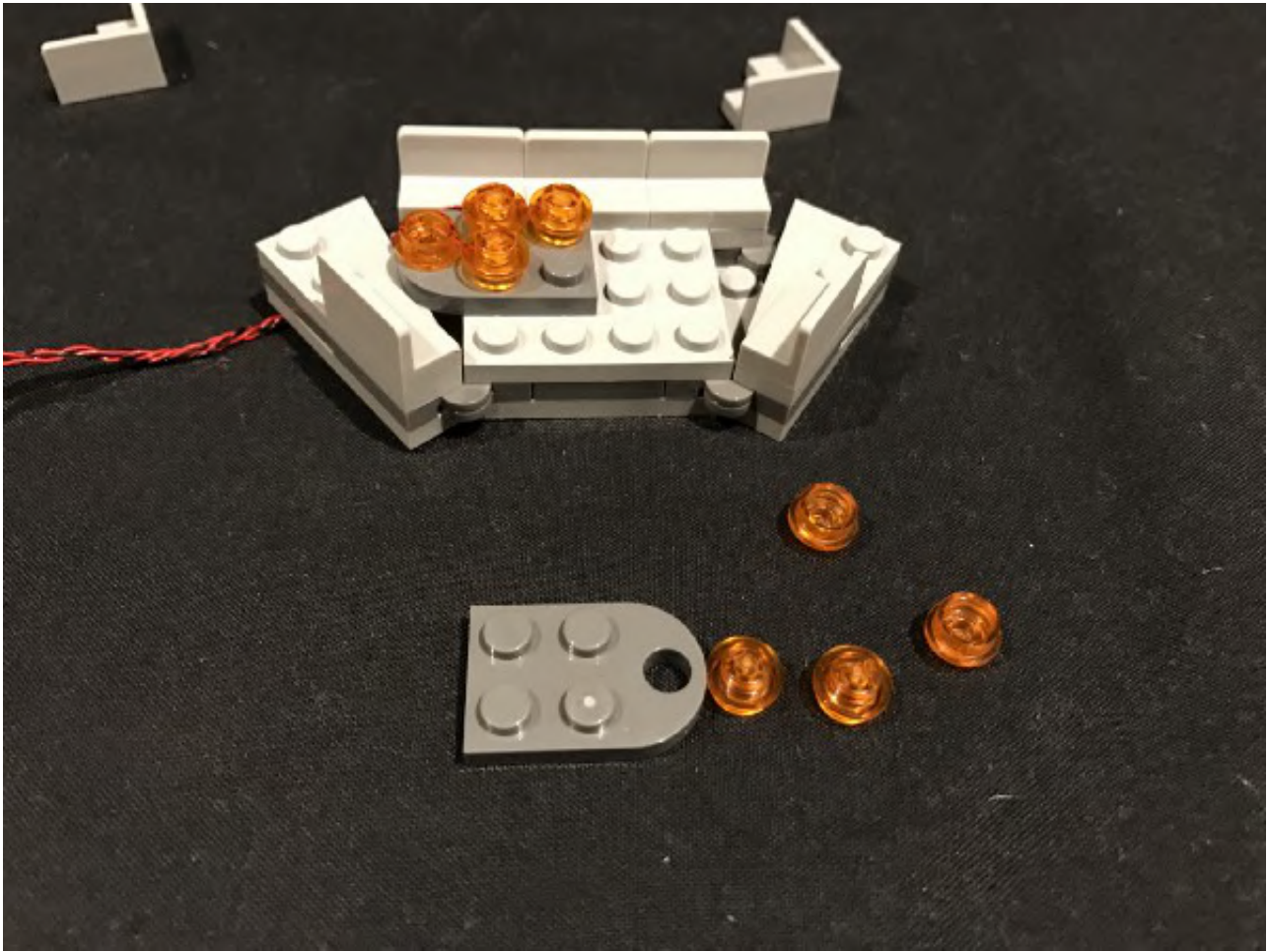


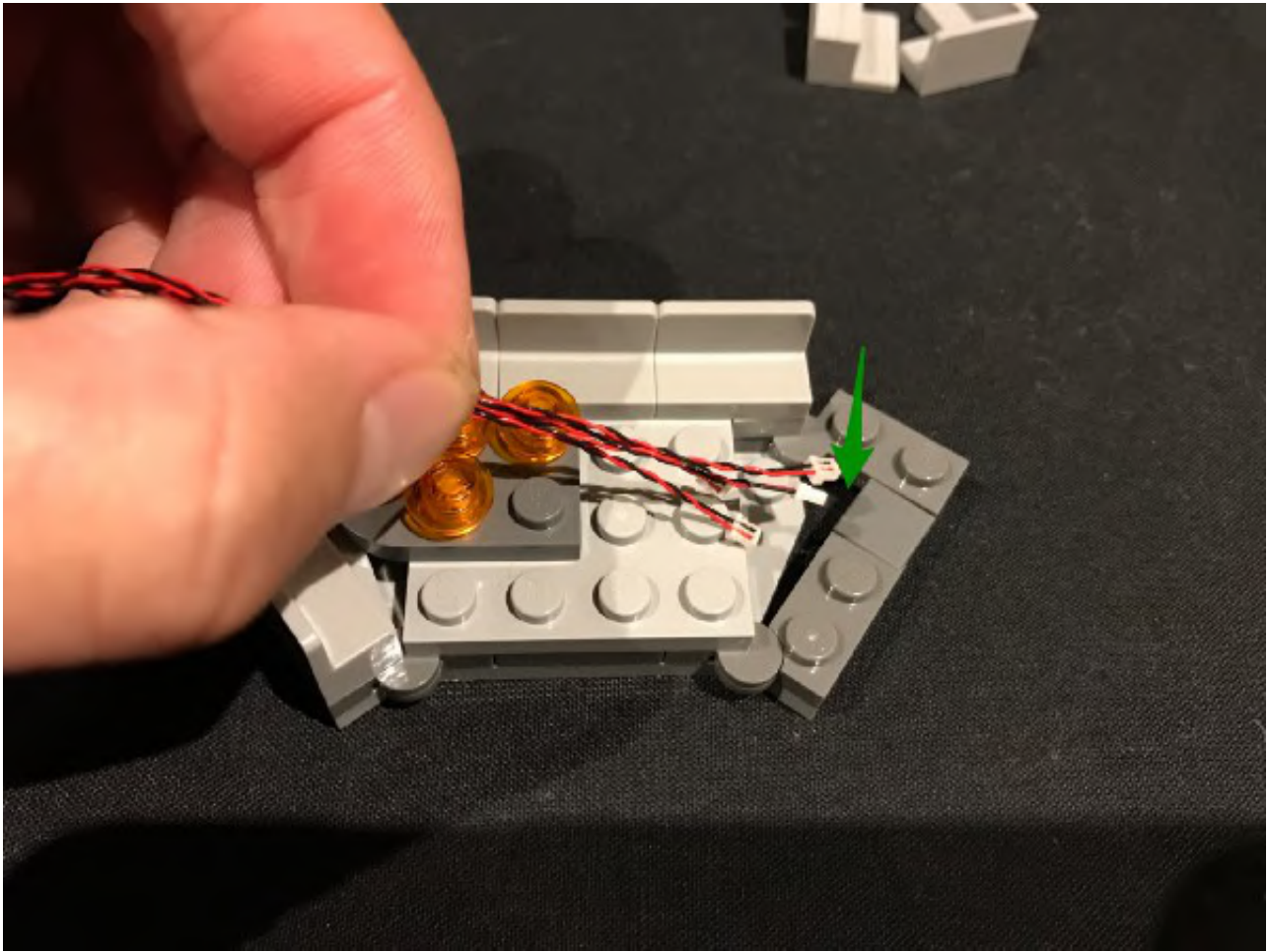


We can now reconnect in place the dark grey plate with bit lights installed.

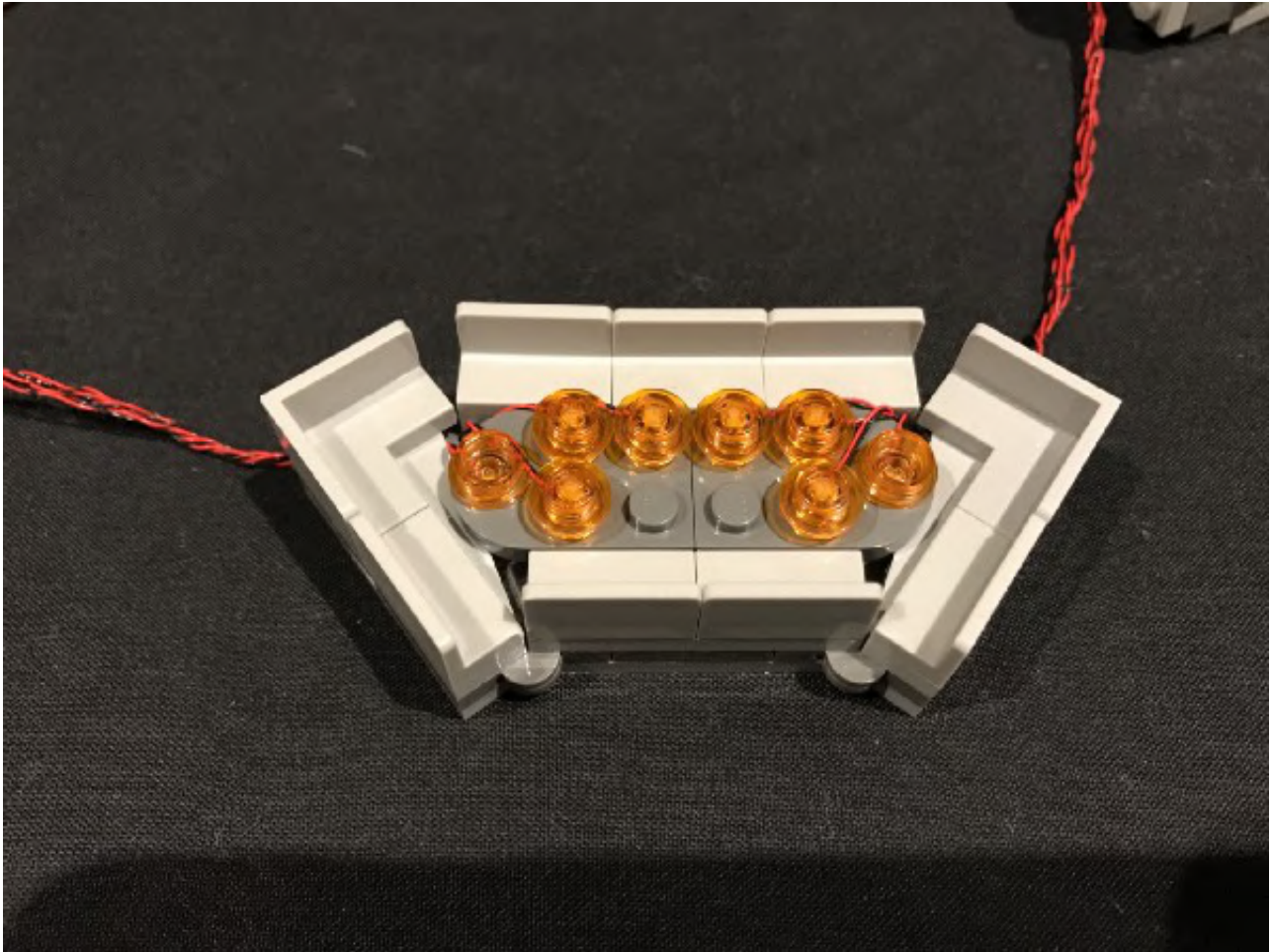


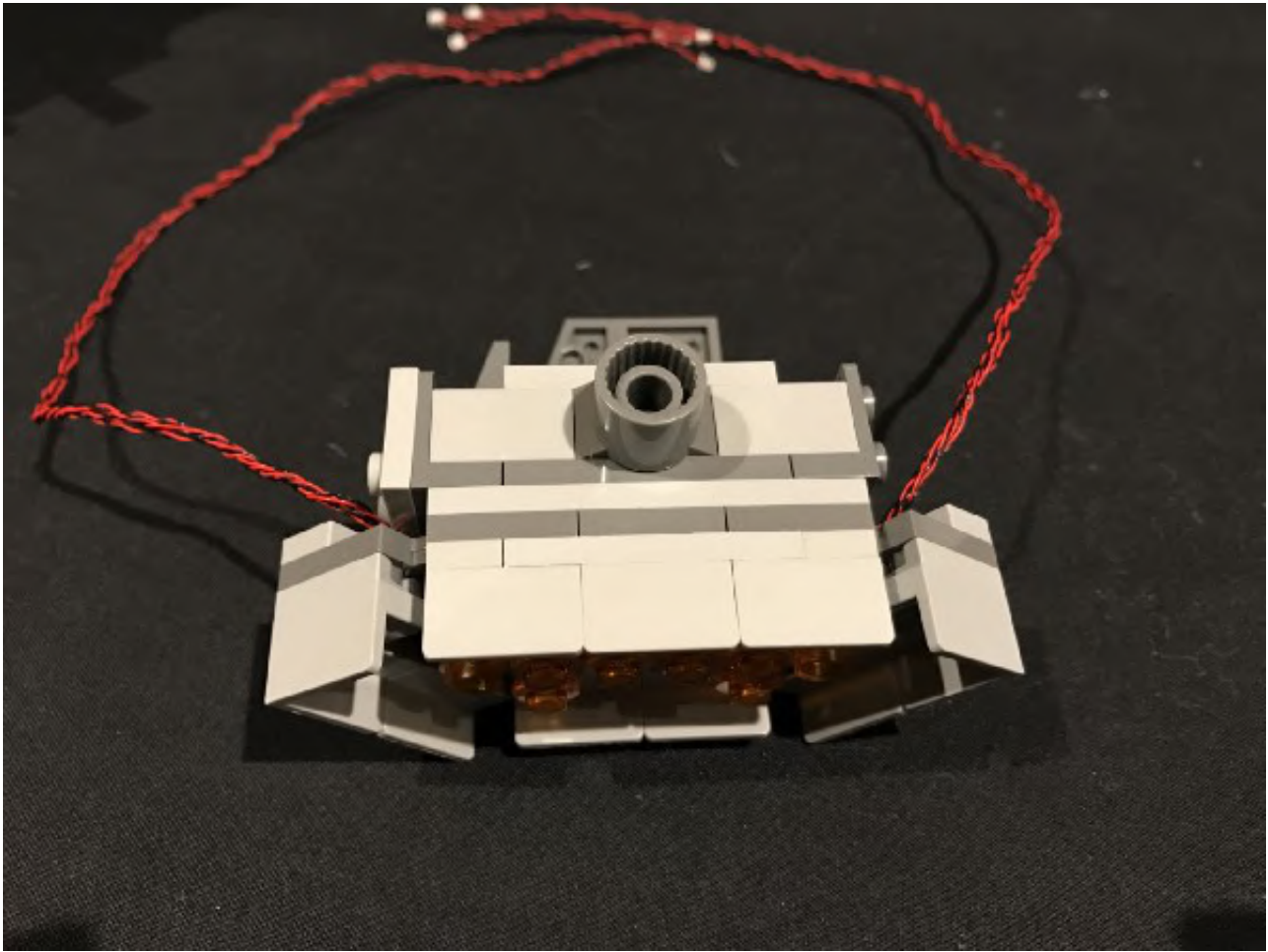
Follow this same method to install another **4x White 30cm Bit Lights** to the dark grey plate on the right side of this section.



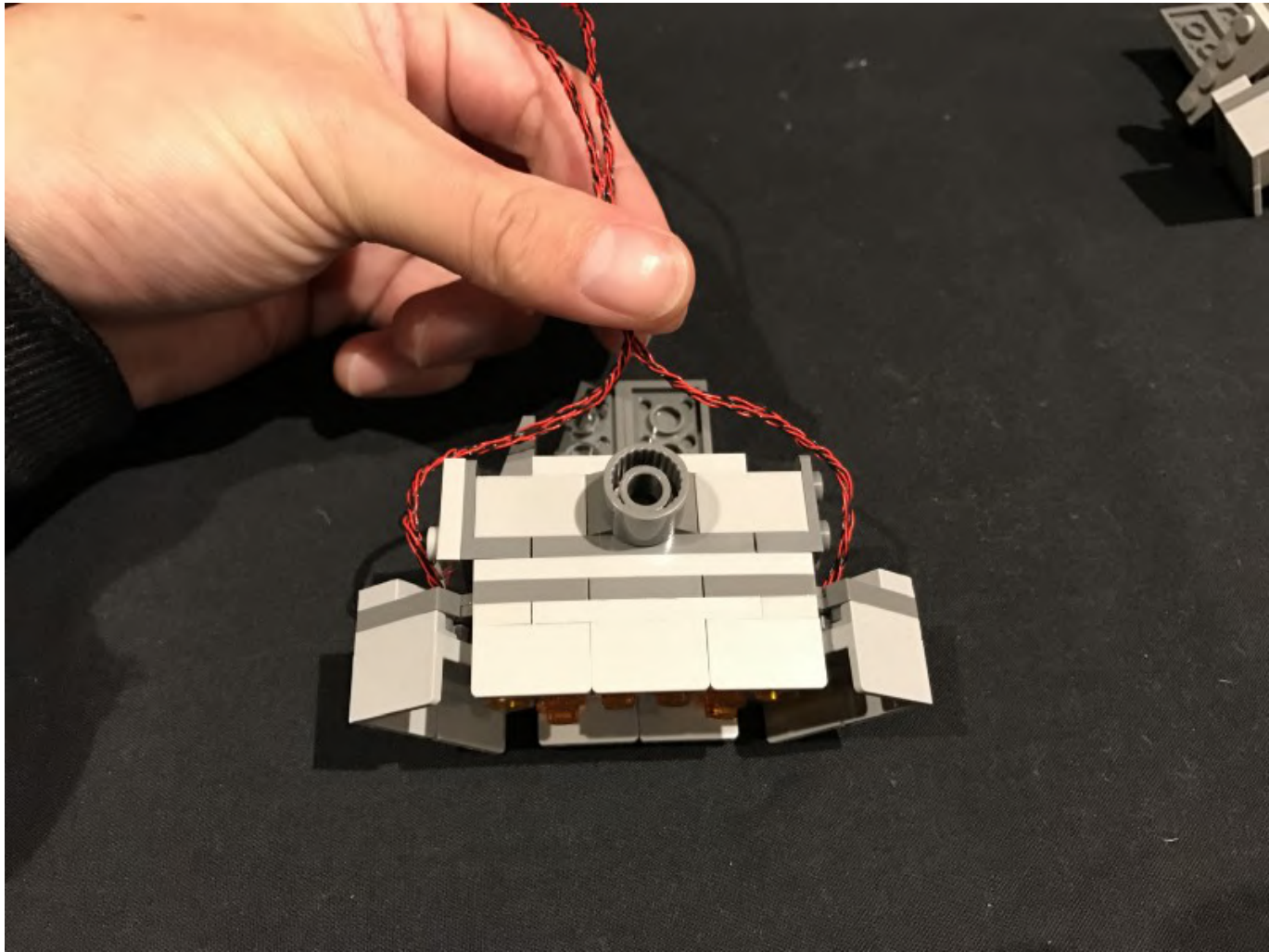


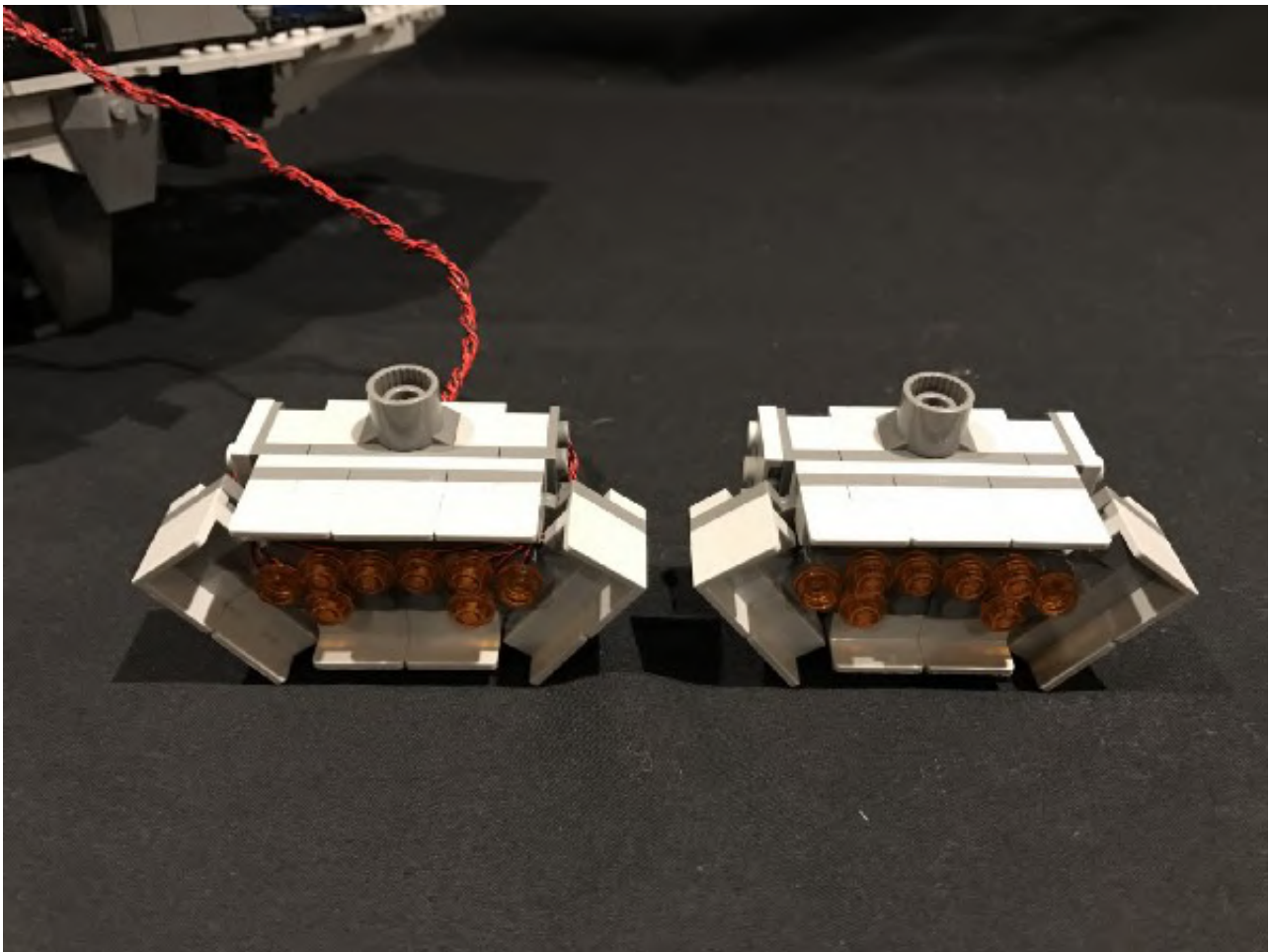
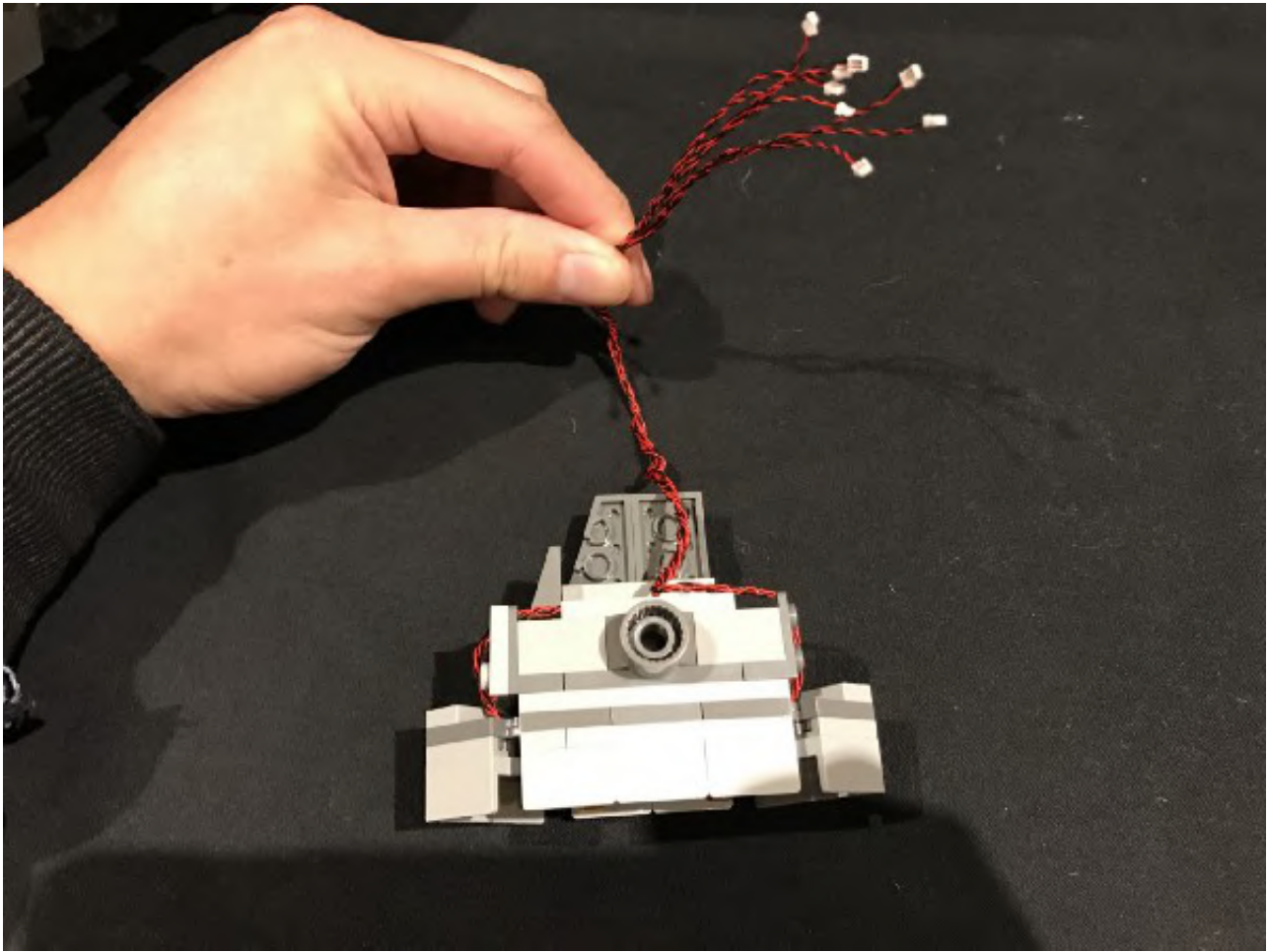
Reconnect pieces we removed earlier.



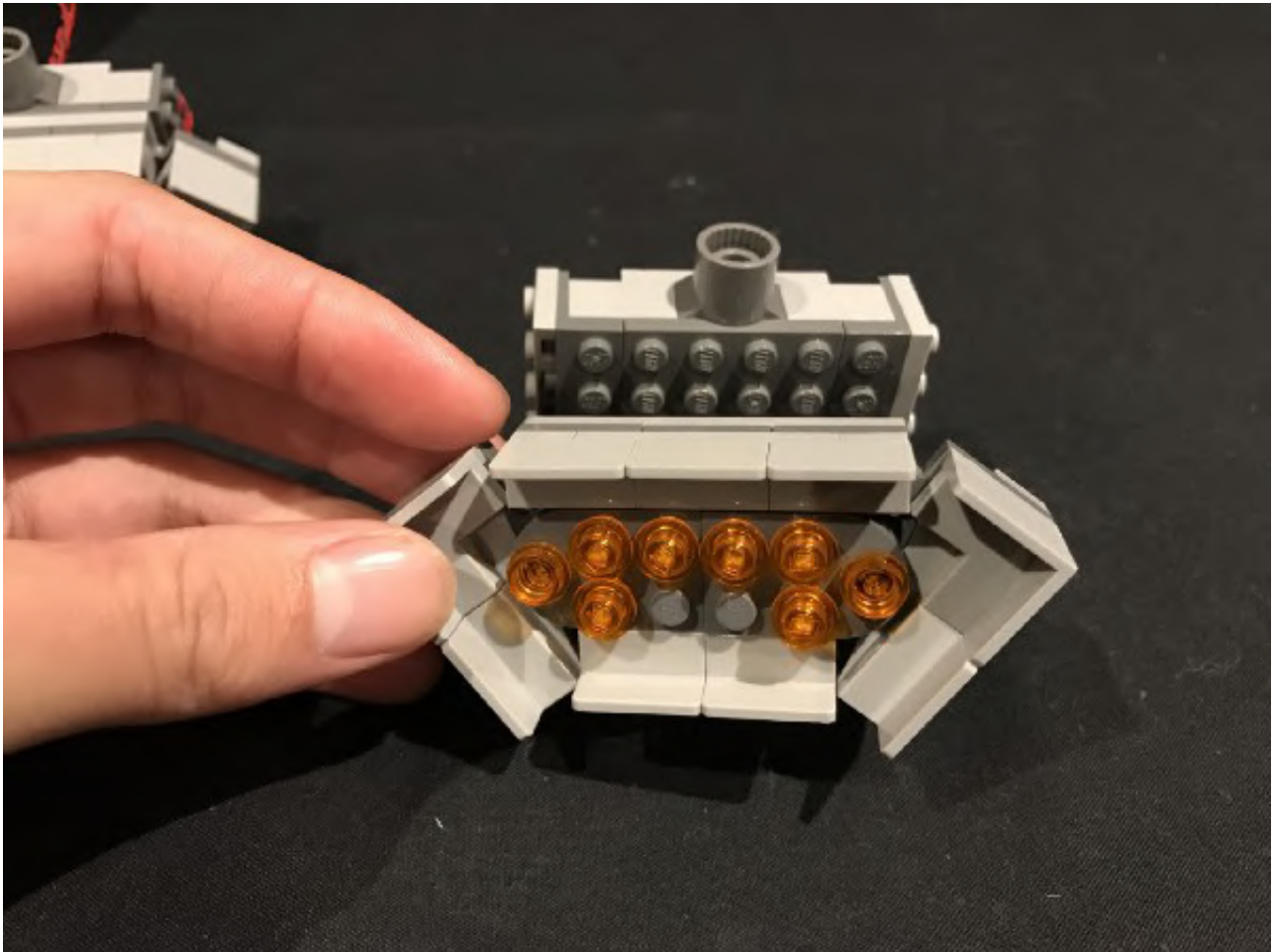


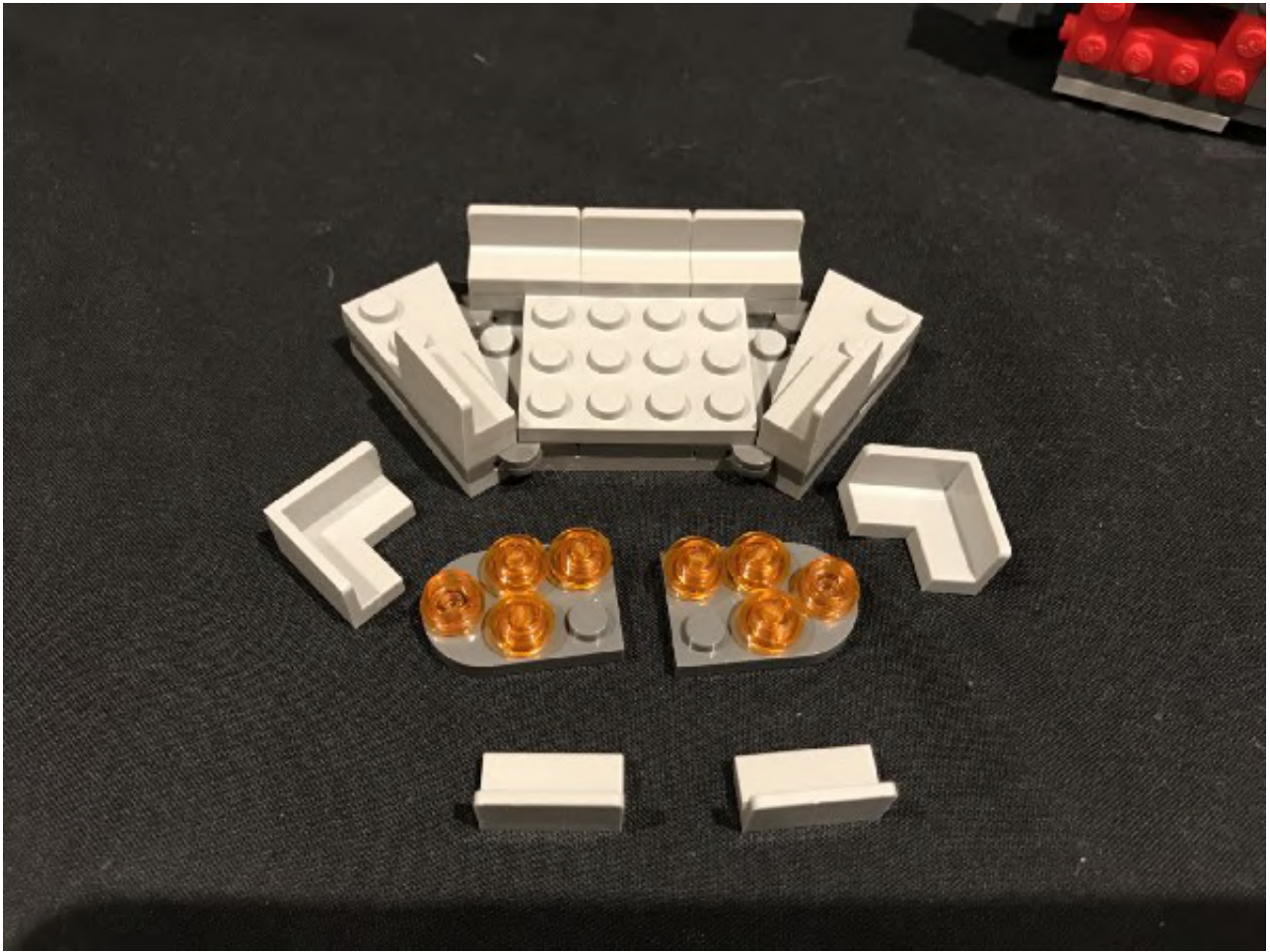
Take the 2 groups of cables and then pull them behind and twist/wind them together.

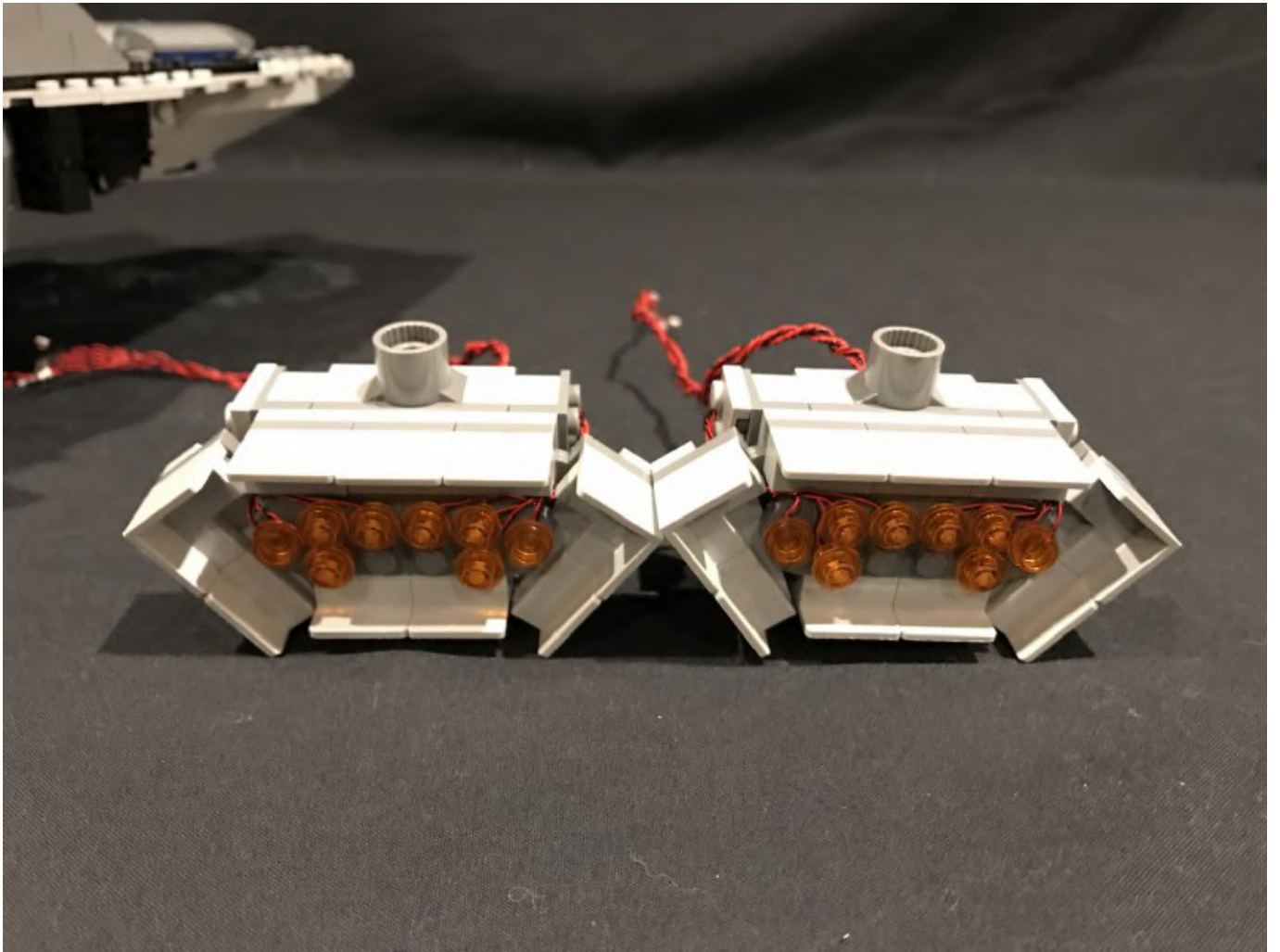




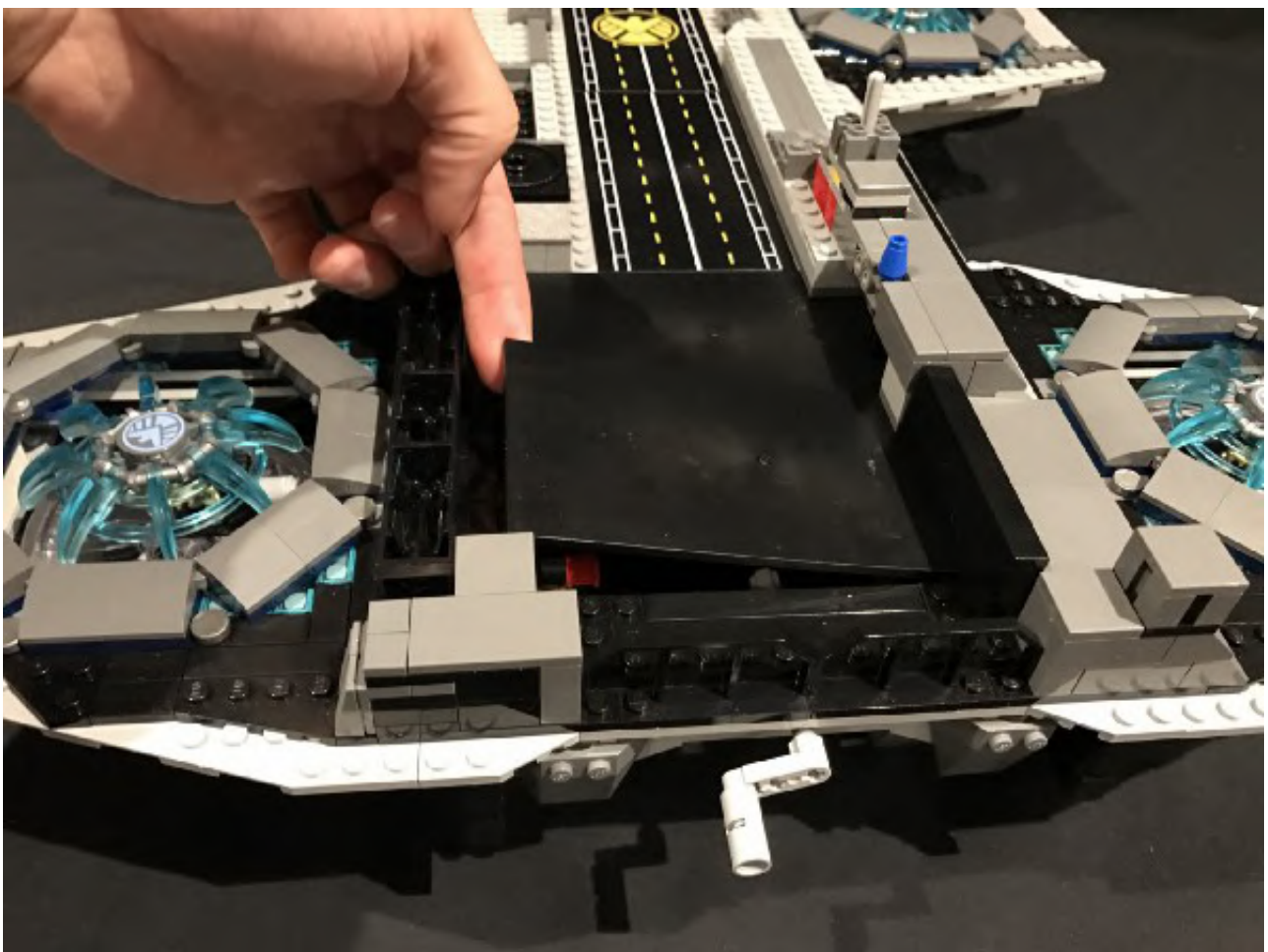
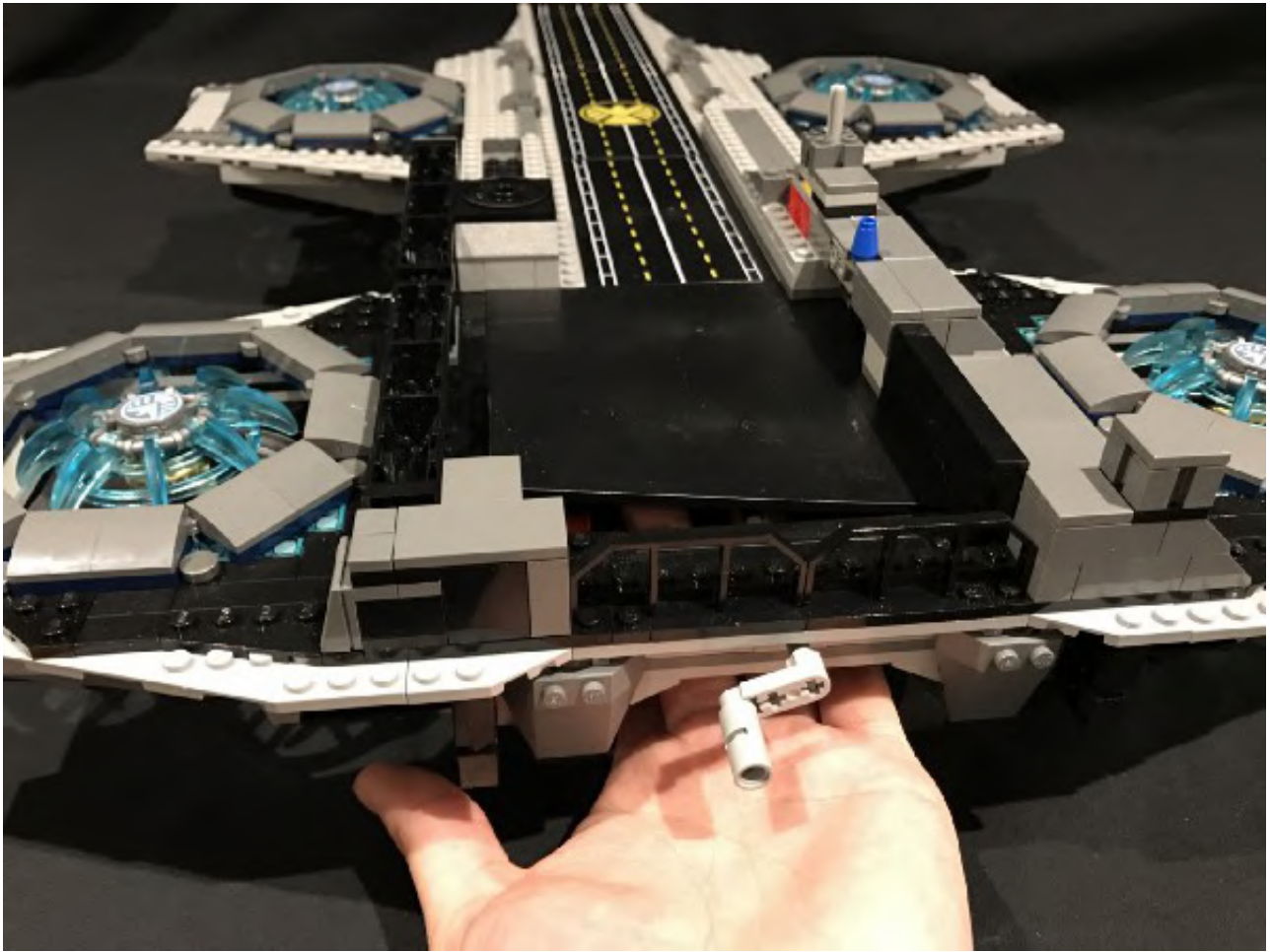
This completes installation of lights to one of the back jet sections. Now, using the same method, install another **8x White 30cm Bit Lights** to the next back jet section.

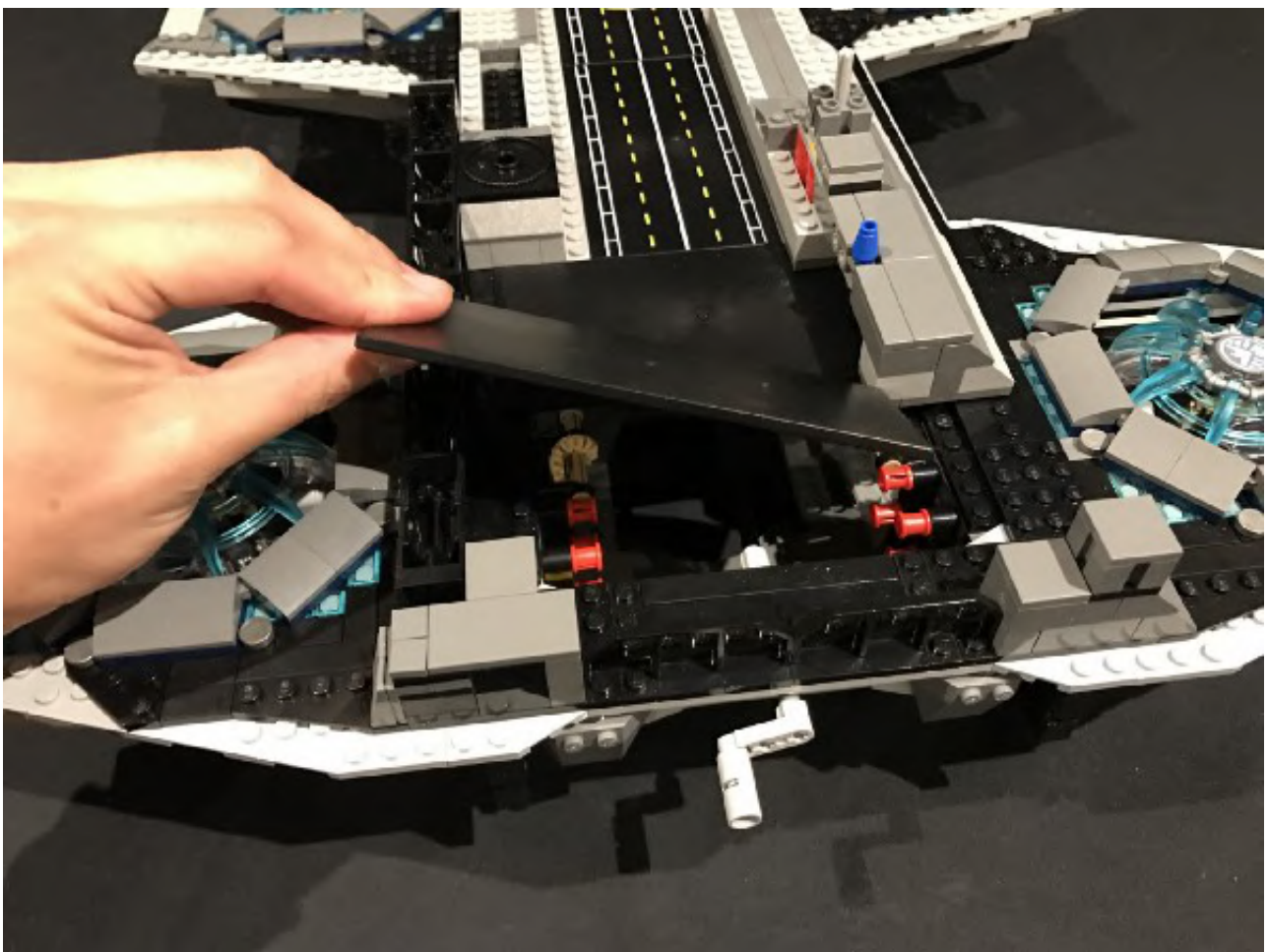
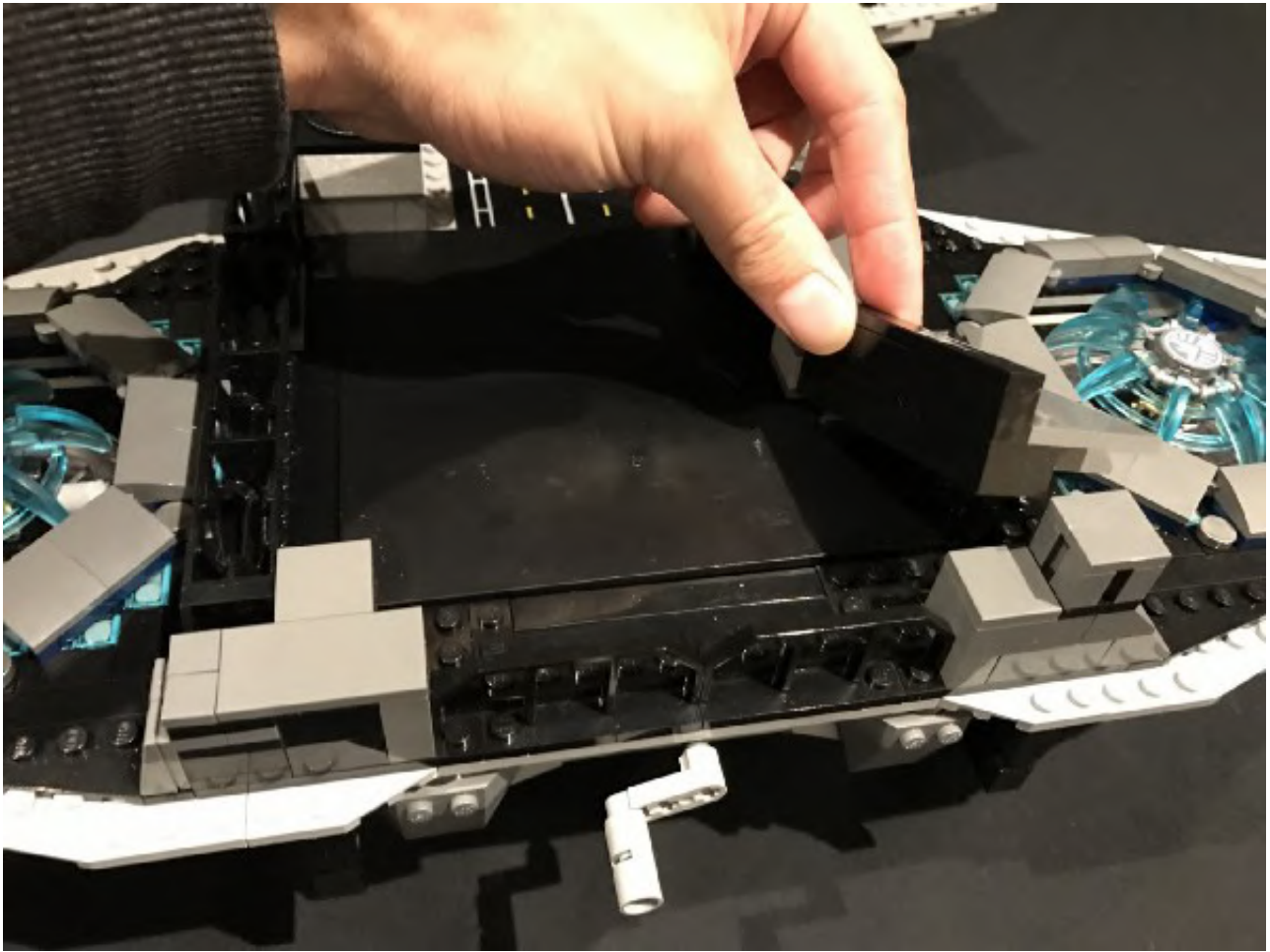


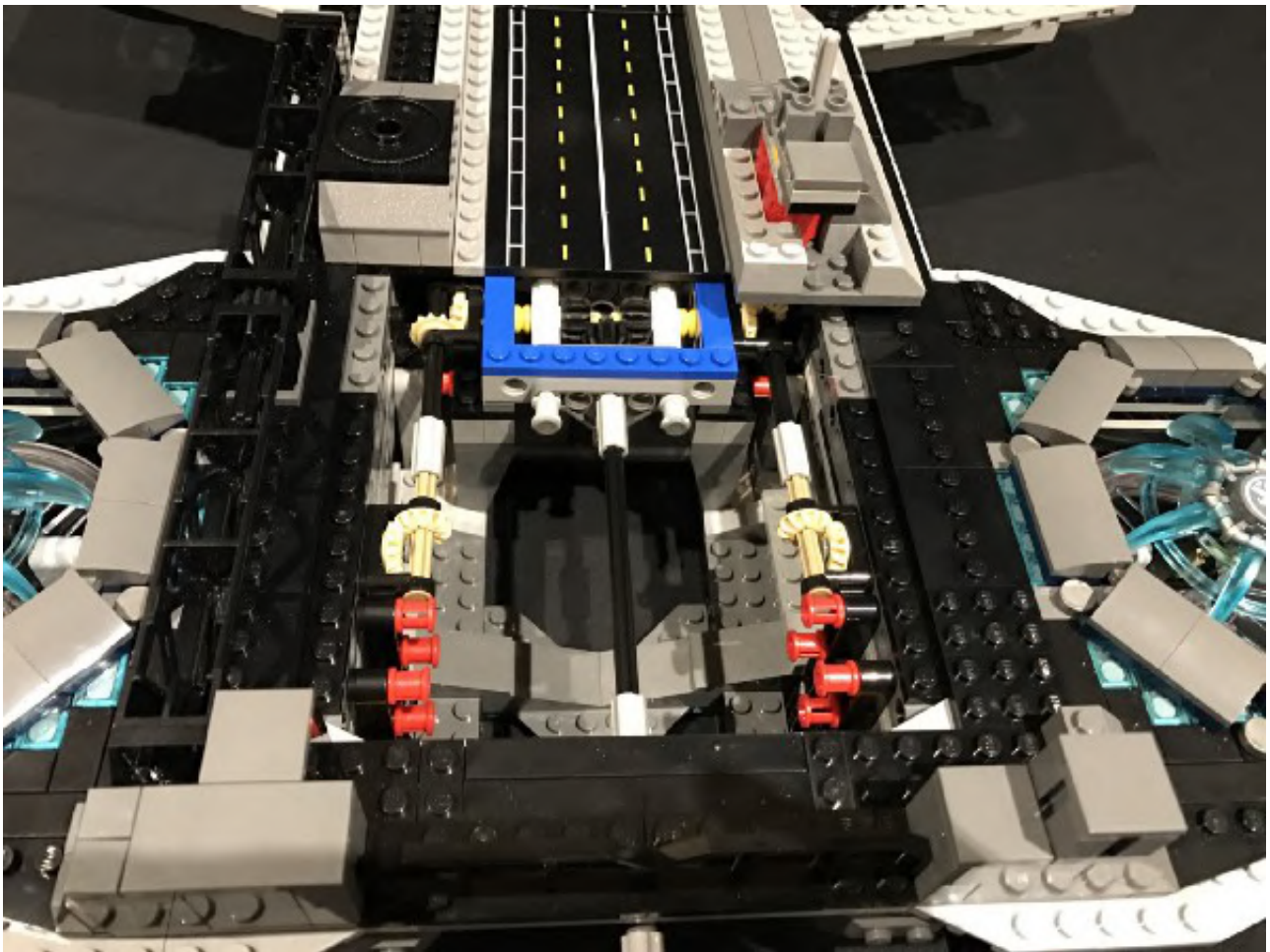
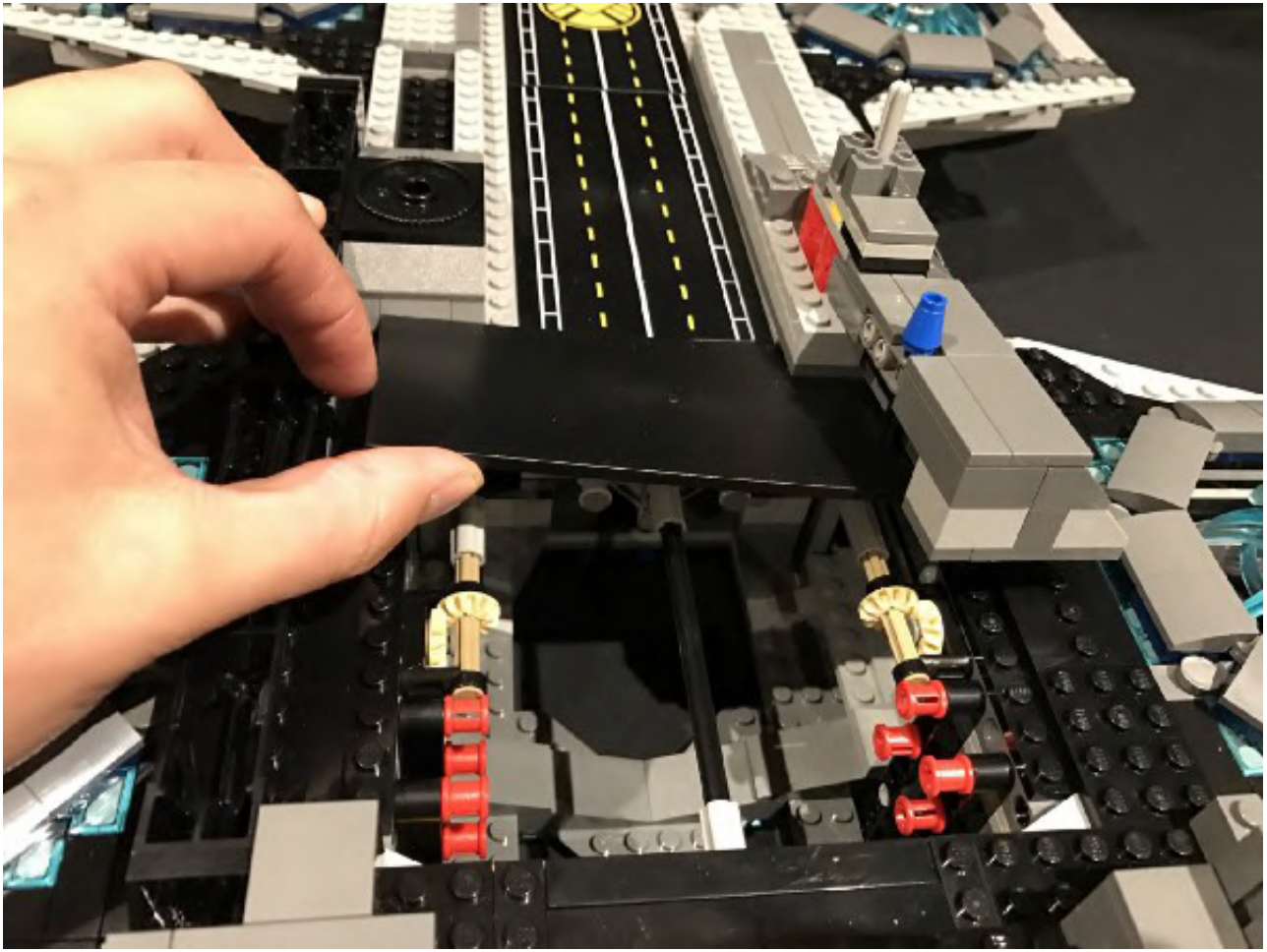




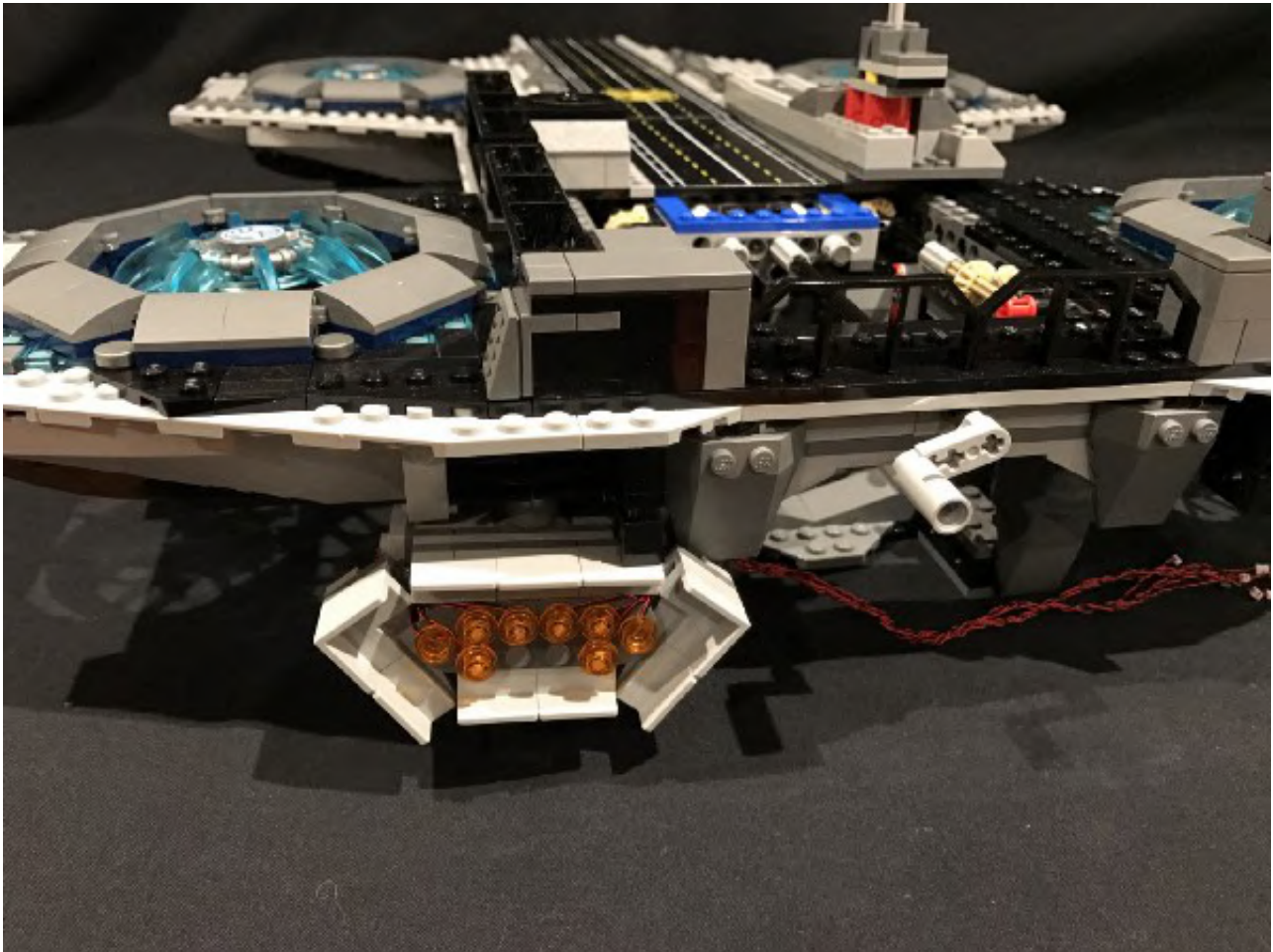
3.) Remove the following LEGO road plates and other sections from the top of the helicarrier.

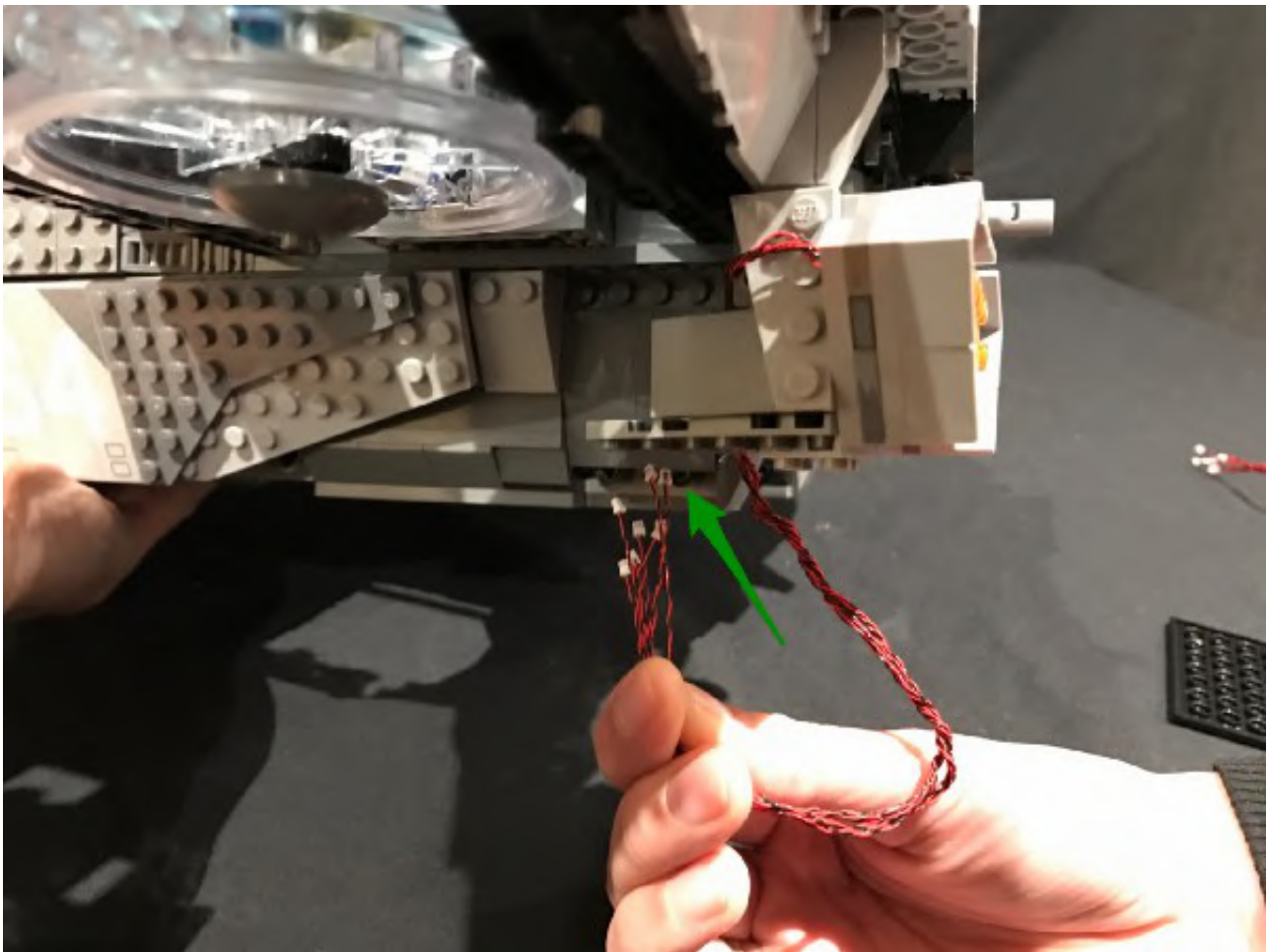
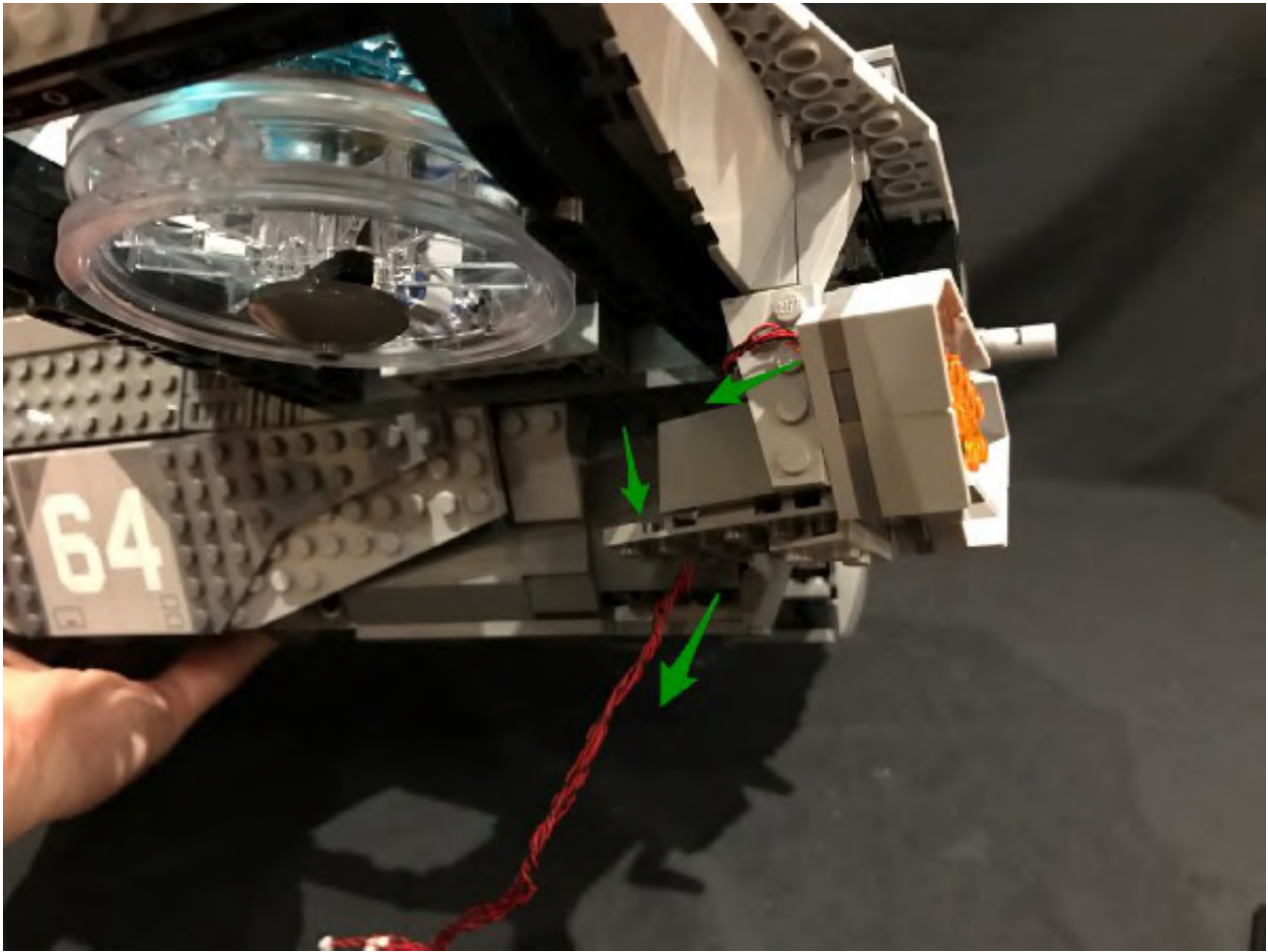


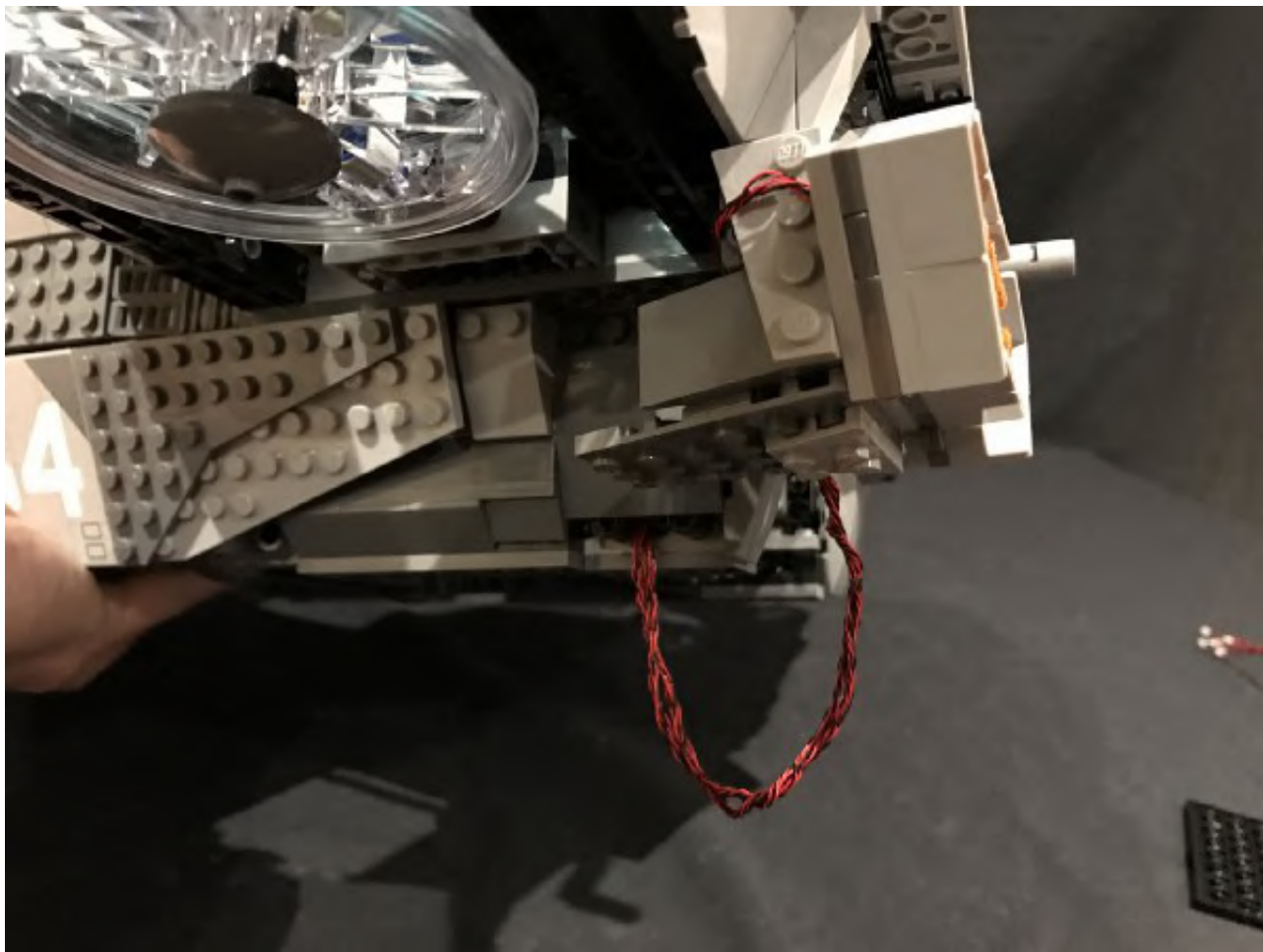


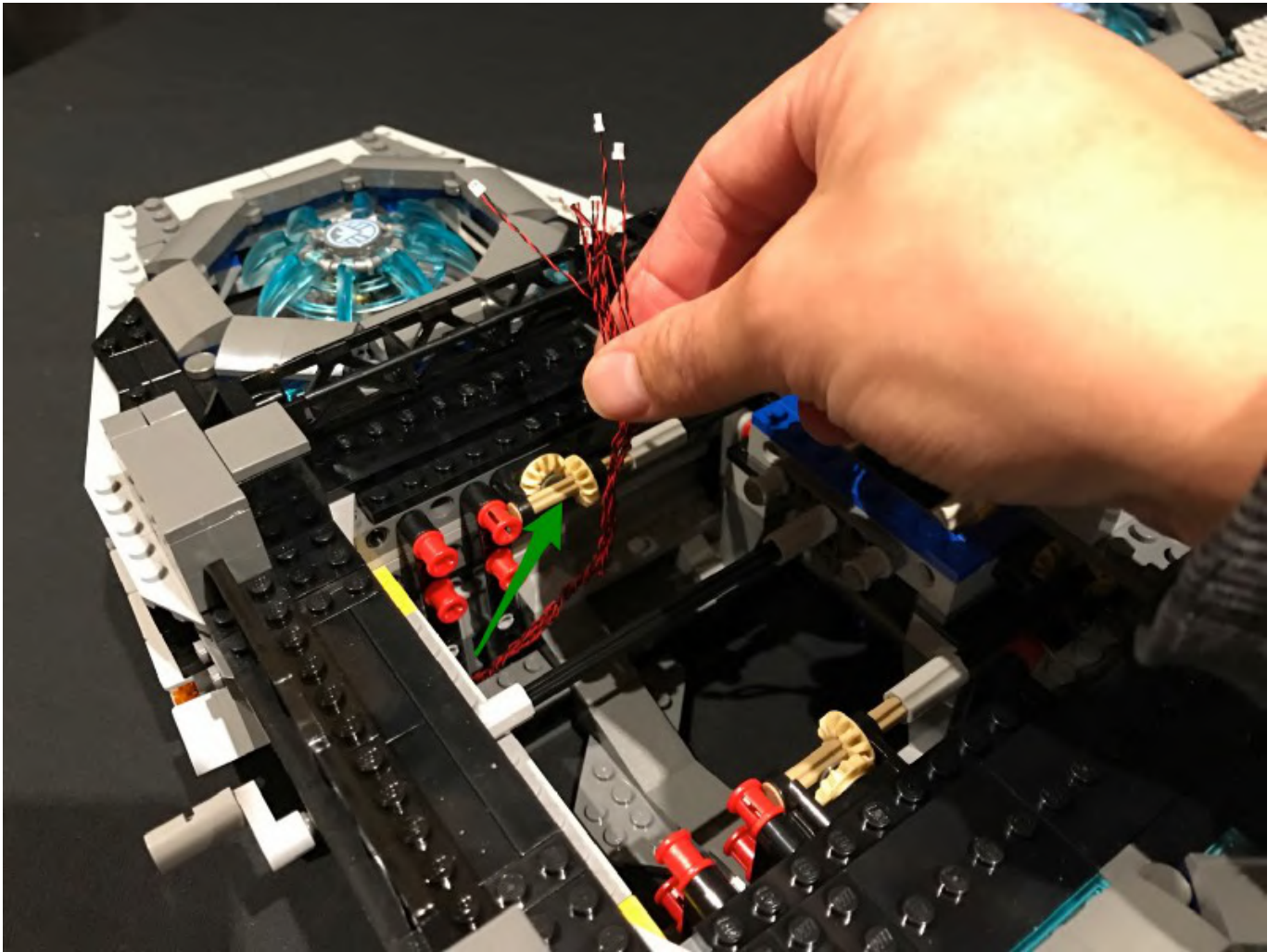


Reconnect one of the back jets and then loop the cable behind and then thread back up into the gap underneath which leads back into the inside of the helicARRIER.

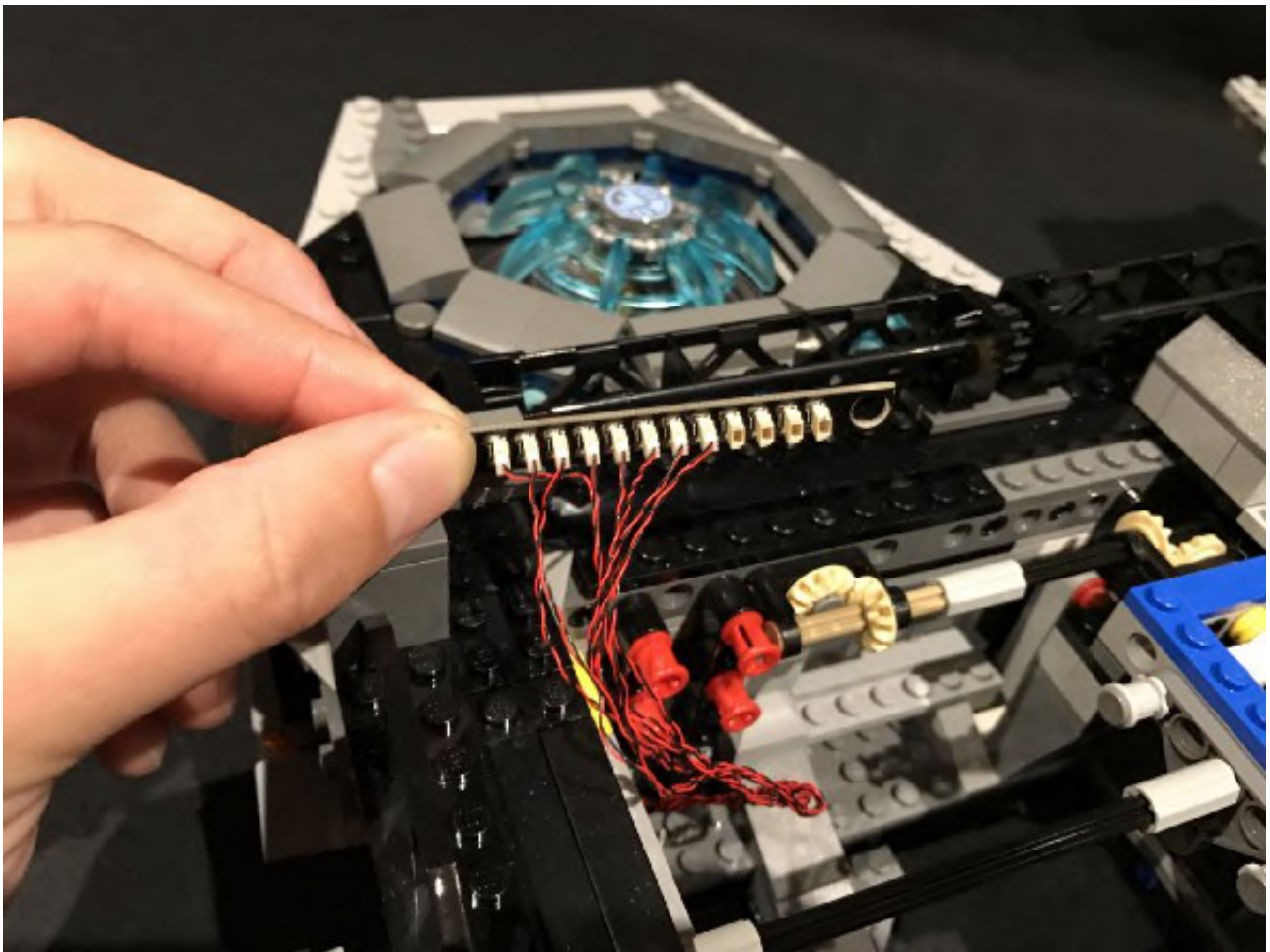
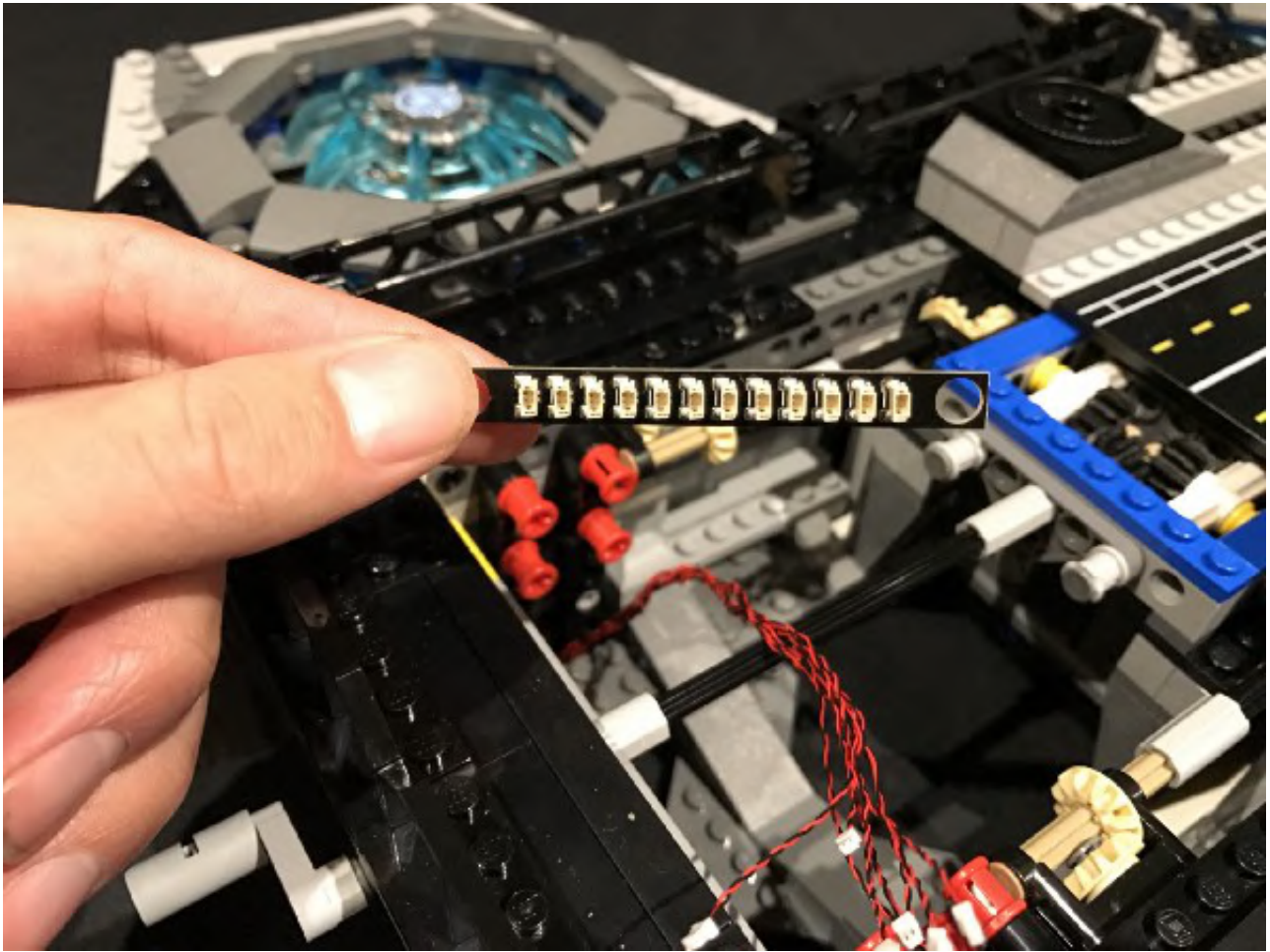




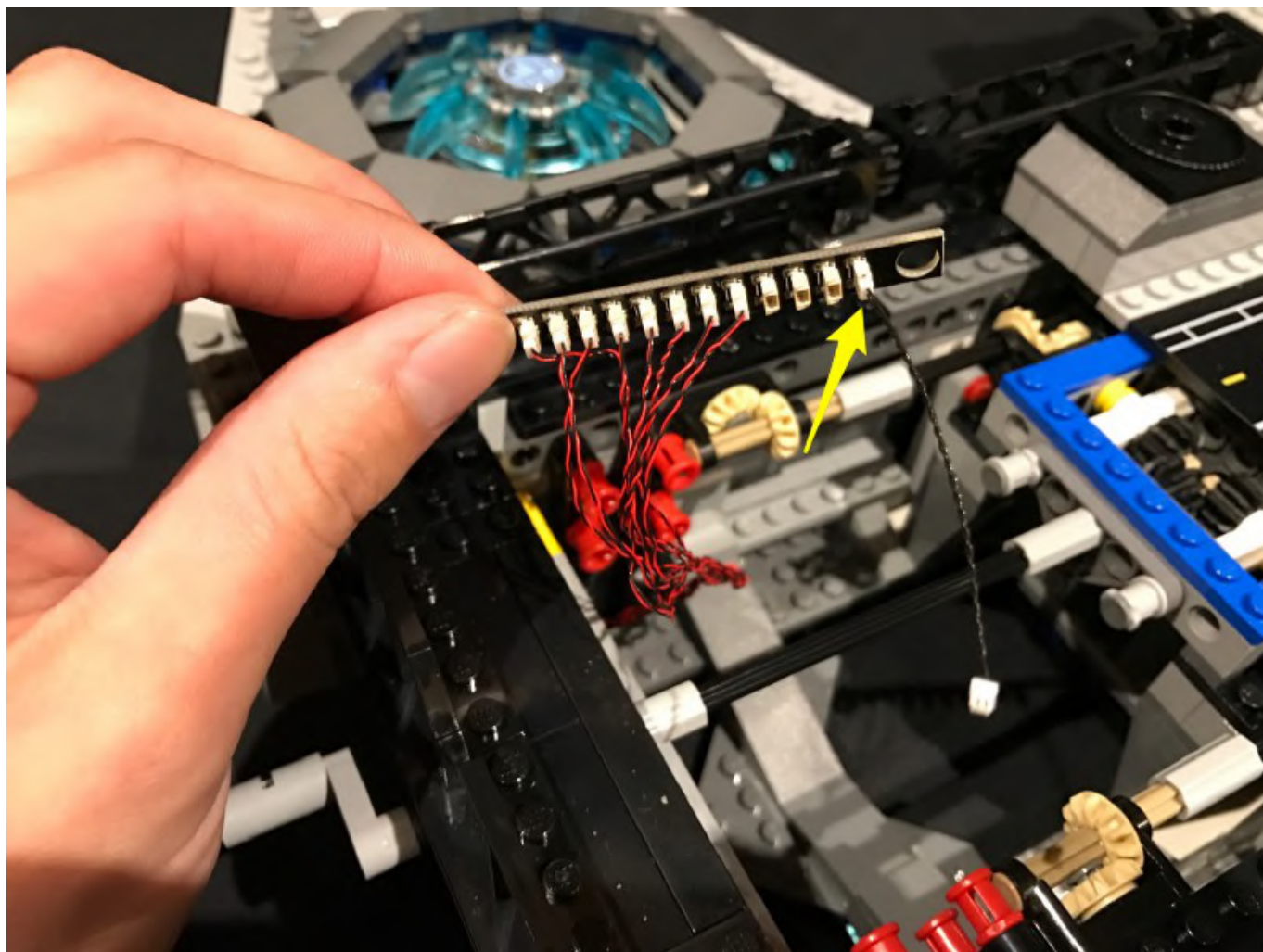




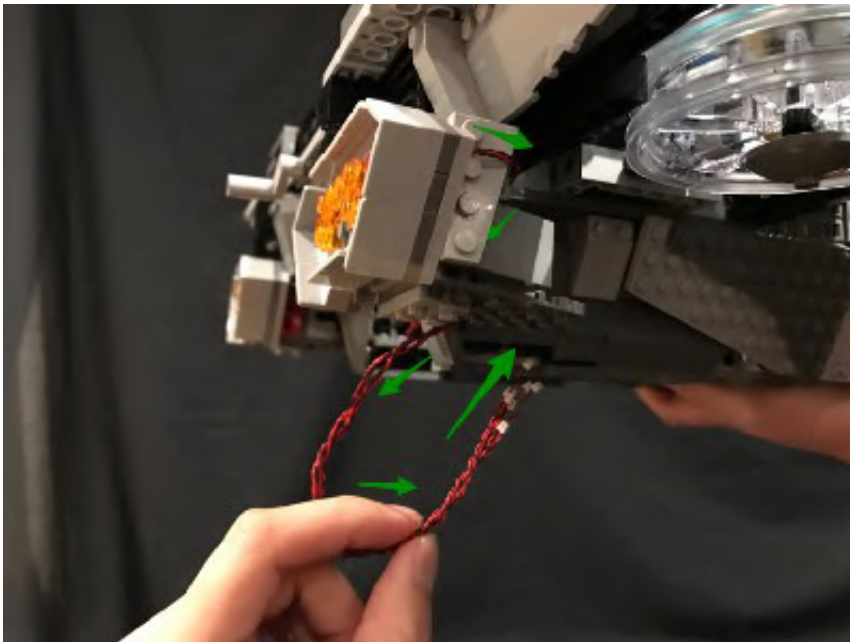
Connect all the cables to a **12-port Expansion Board**

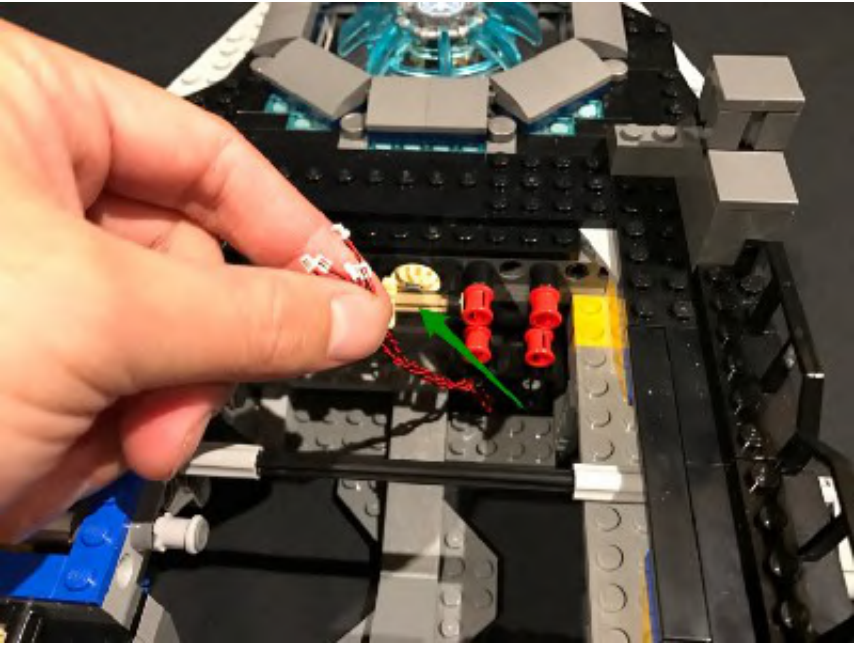
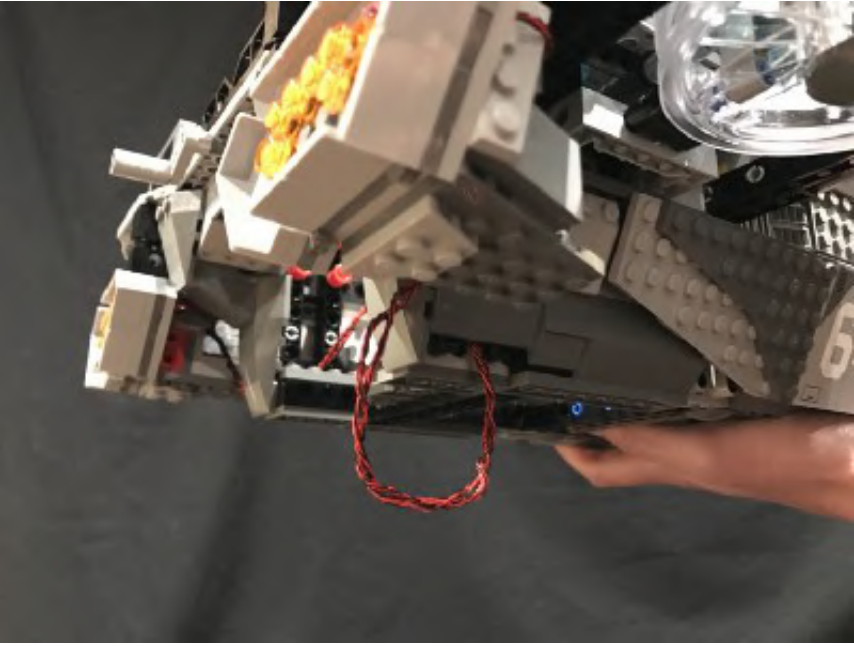


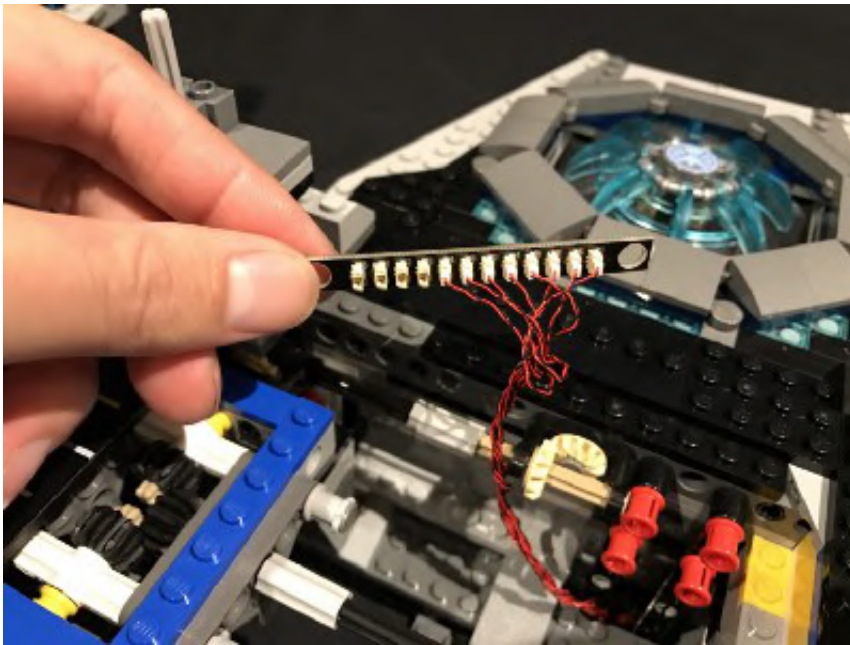
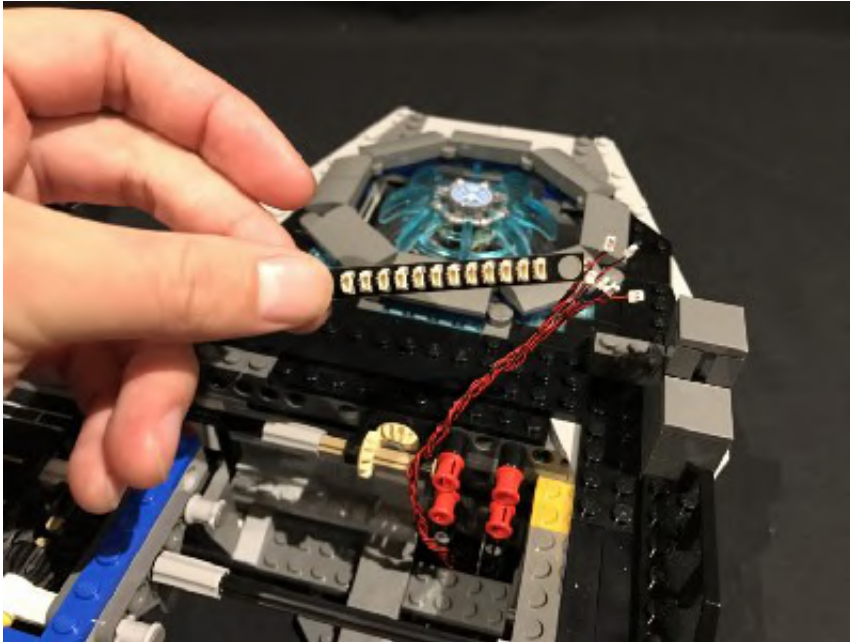
Take a **5cm connecting cable** and then connect this to a spare port on the expansion board.

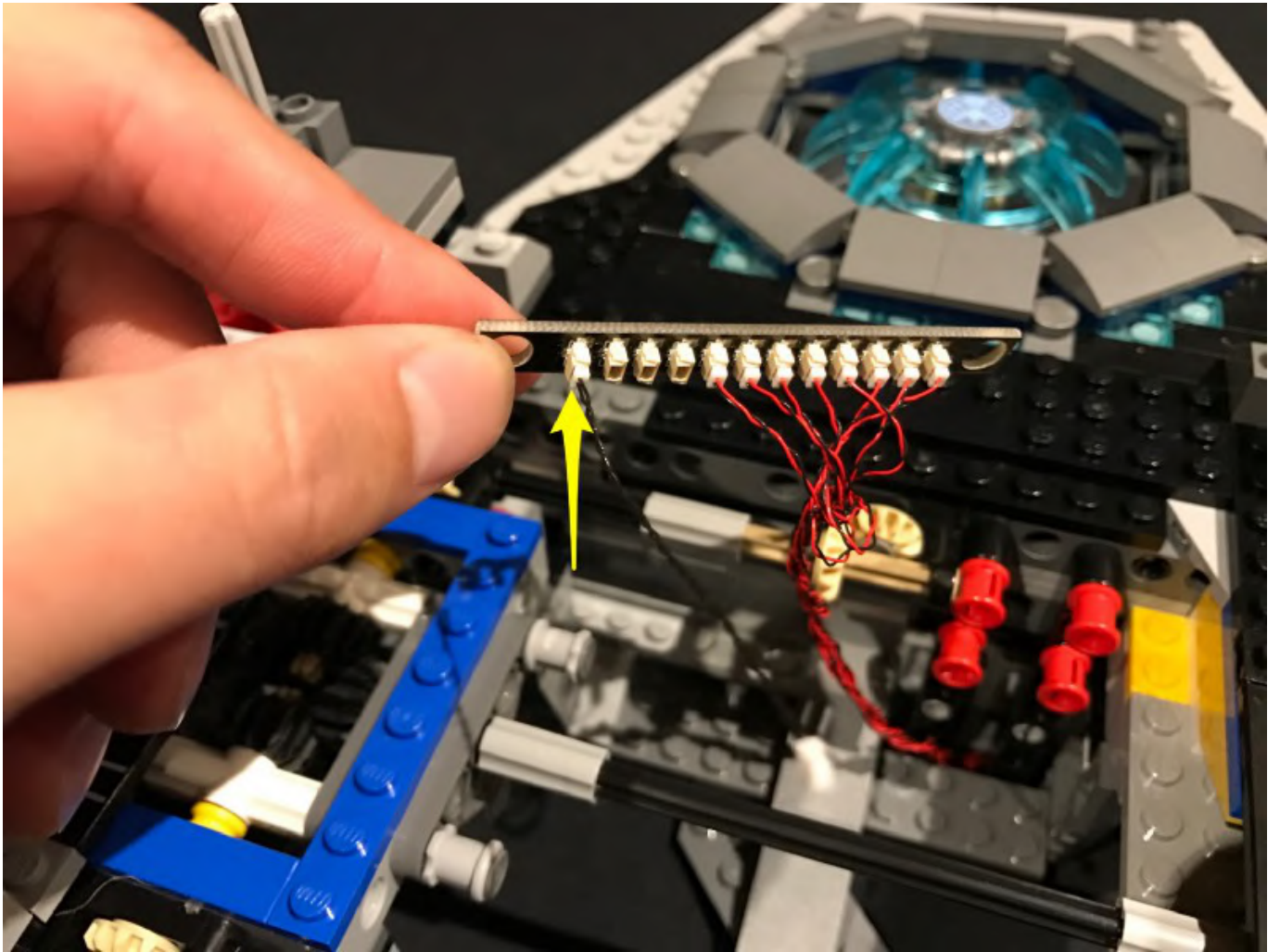


Repeat this step to reconnect the other back jet to the helicARRIER, then connect the cables to another **12-port Expansion Board** as well as another **5cm connecting cable**.

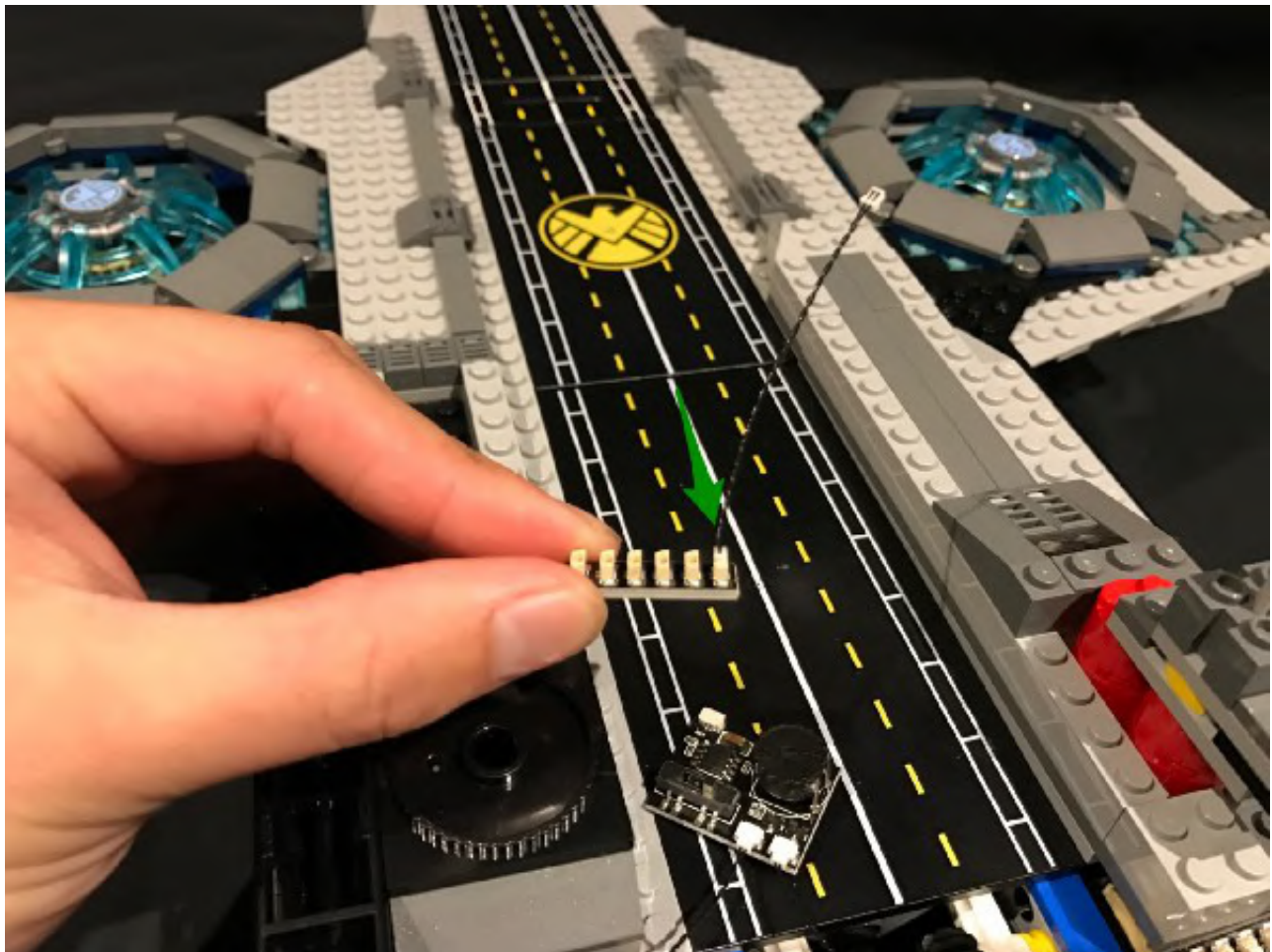
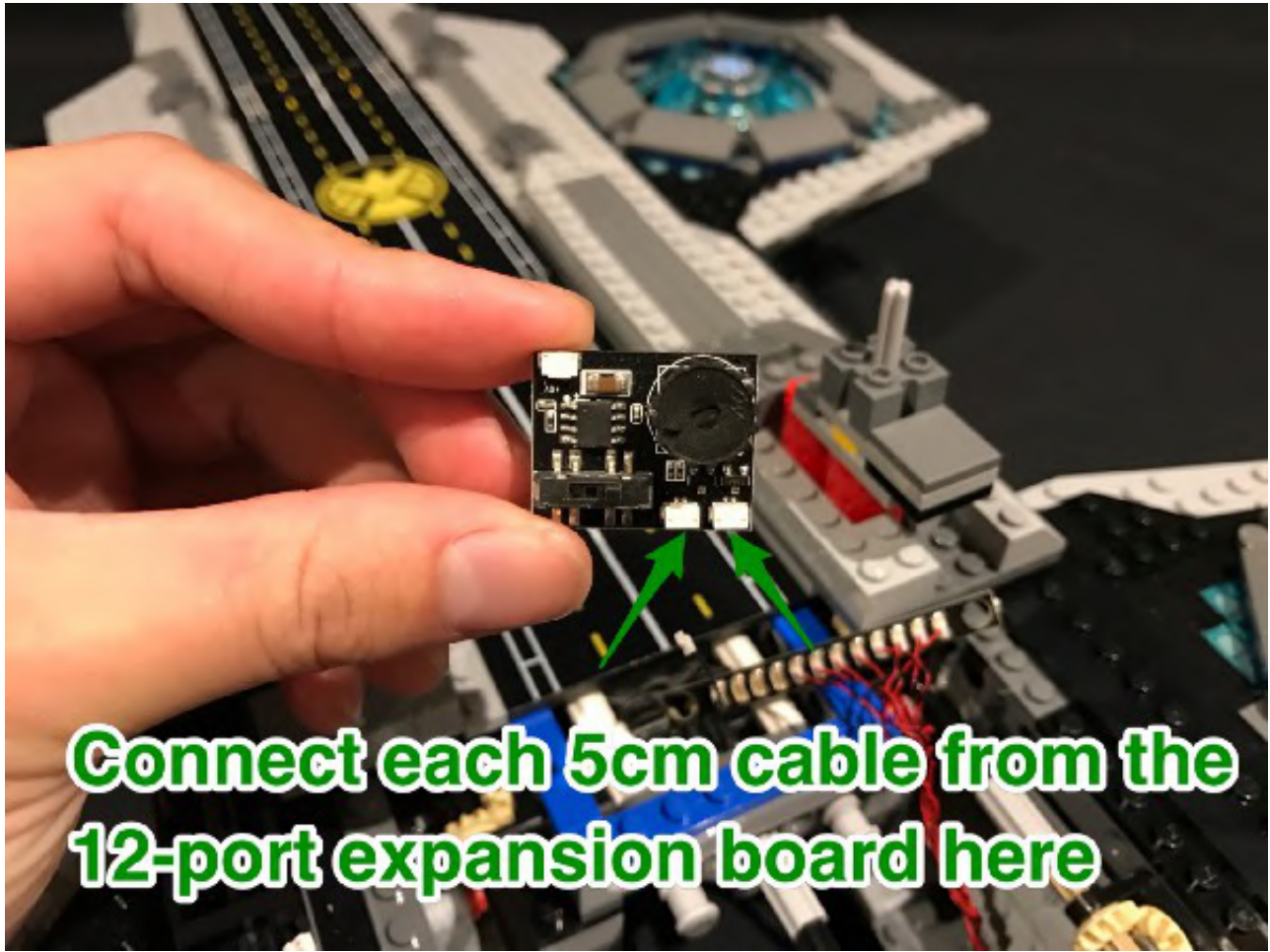


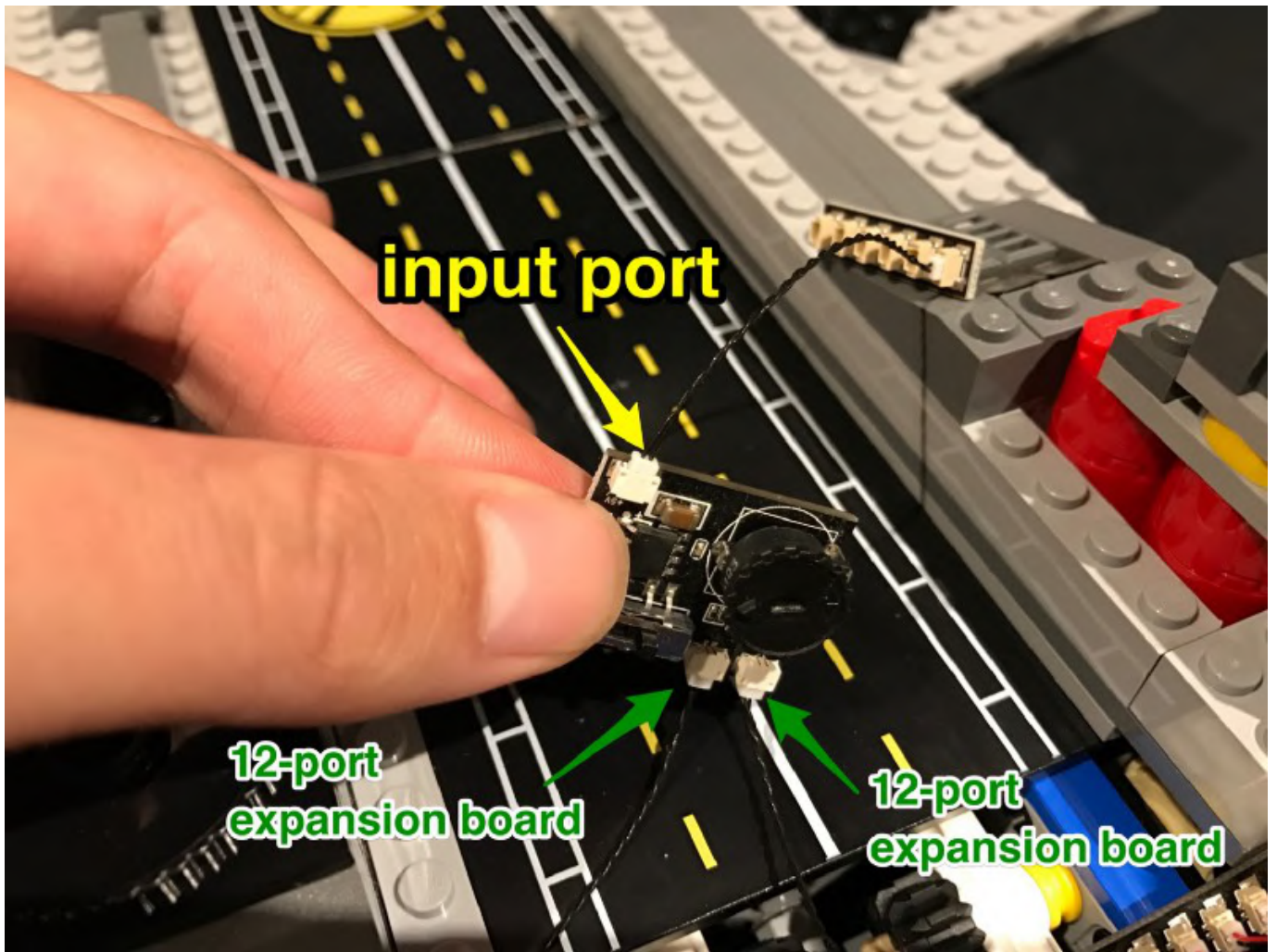




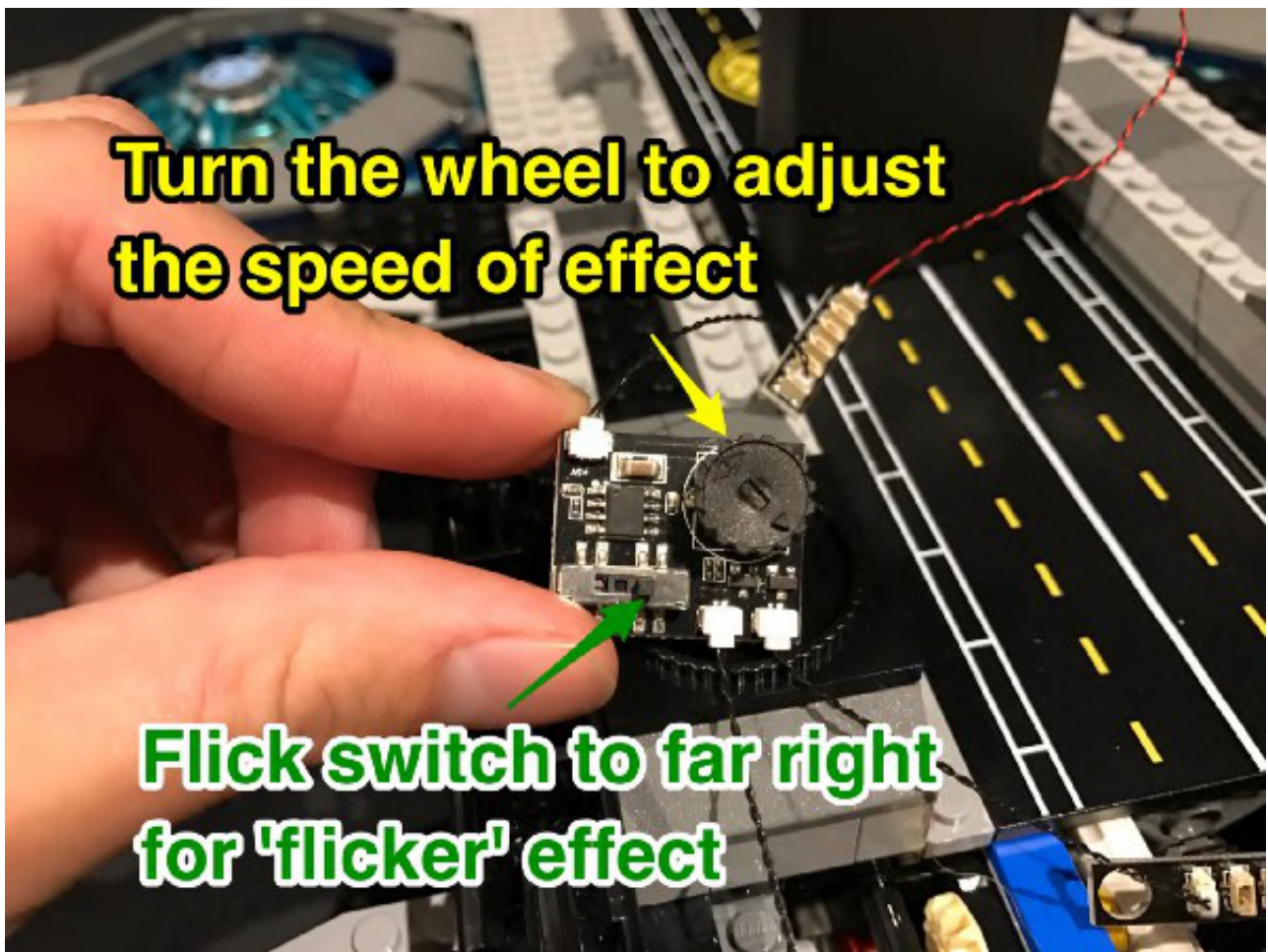
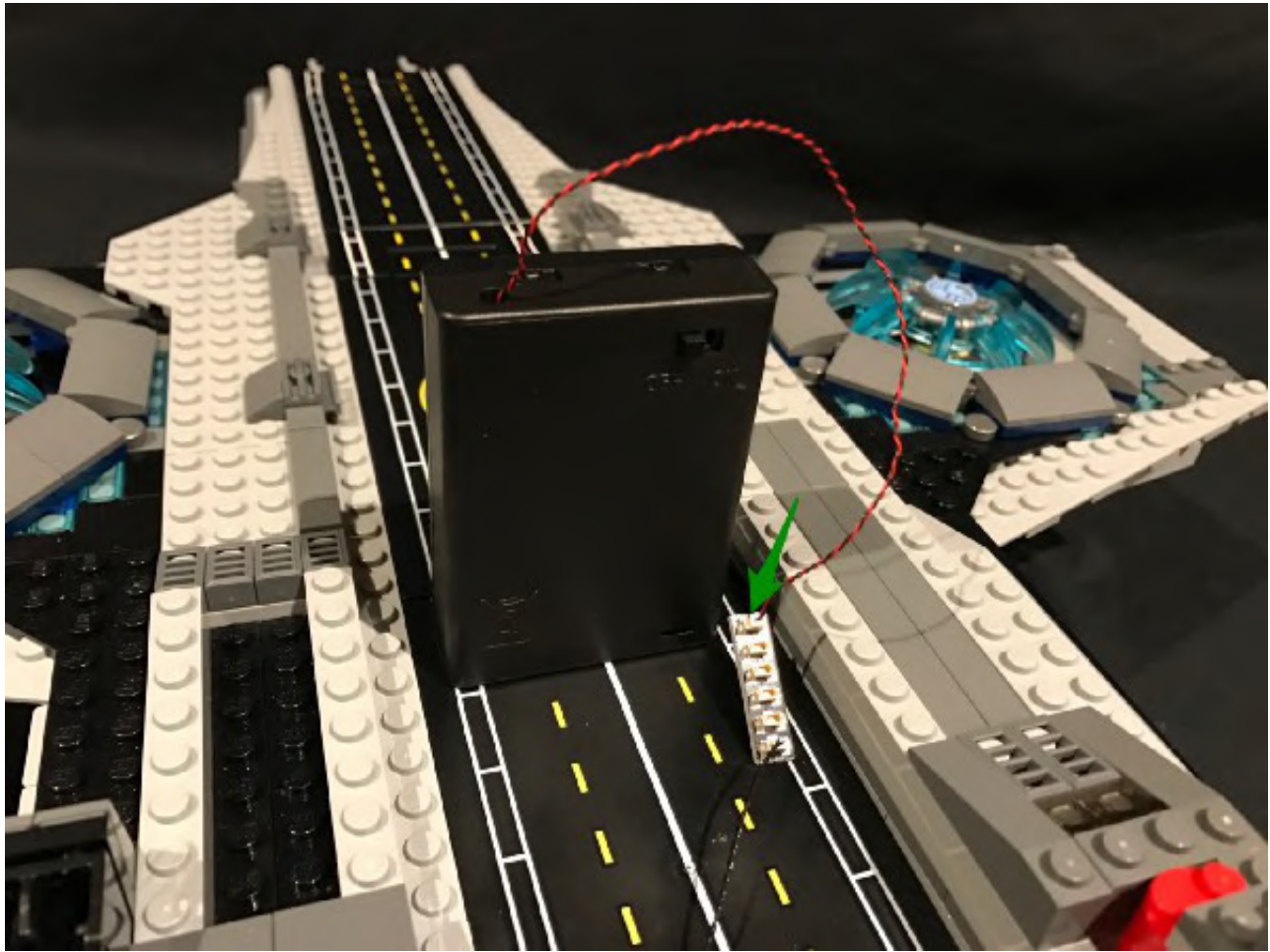


4.) Connect the two 12-port expansion boards (with the other end of each 5cm cable) to the each “output” port on the **Multi-Effects Board** (side with 2 ports). Take another **5cm connecting cable** and then connect it to a **6-port Expansion Board**. Connect the other end of this 5cm connecting cable to the “input” port on the Multi Effects Board.





We can now test the lights we have installed with the chosen effect to ensure all is working ok. To do this, take the **AA Battery pack** and insert 3x AA batteries to it. Connect the battery pack cable to a spare port on the expansion board and then turn on and check that all lights on the back jets are working. Flick the switch on the effects board to far right for the 'flicker' effect (or choose your desired effect). You can adjust the speed of the effect by turning the wheel on the effects board.



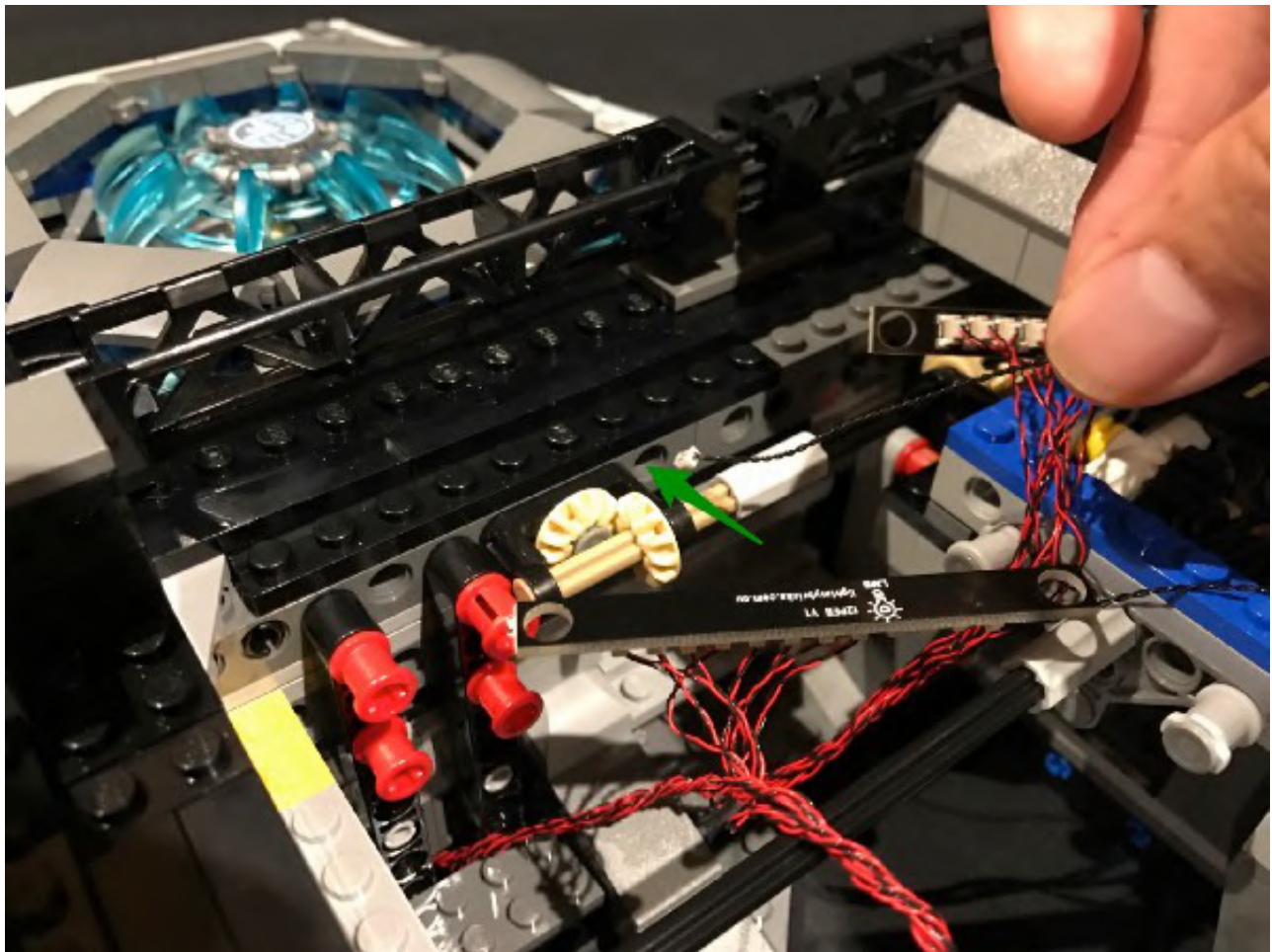
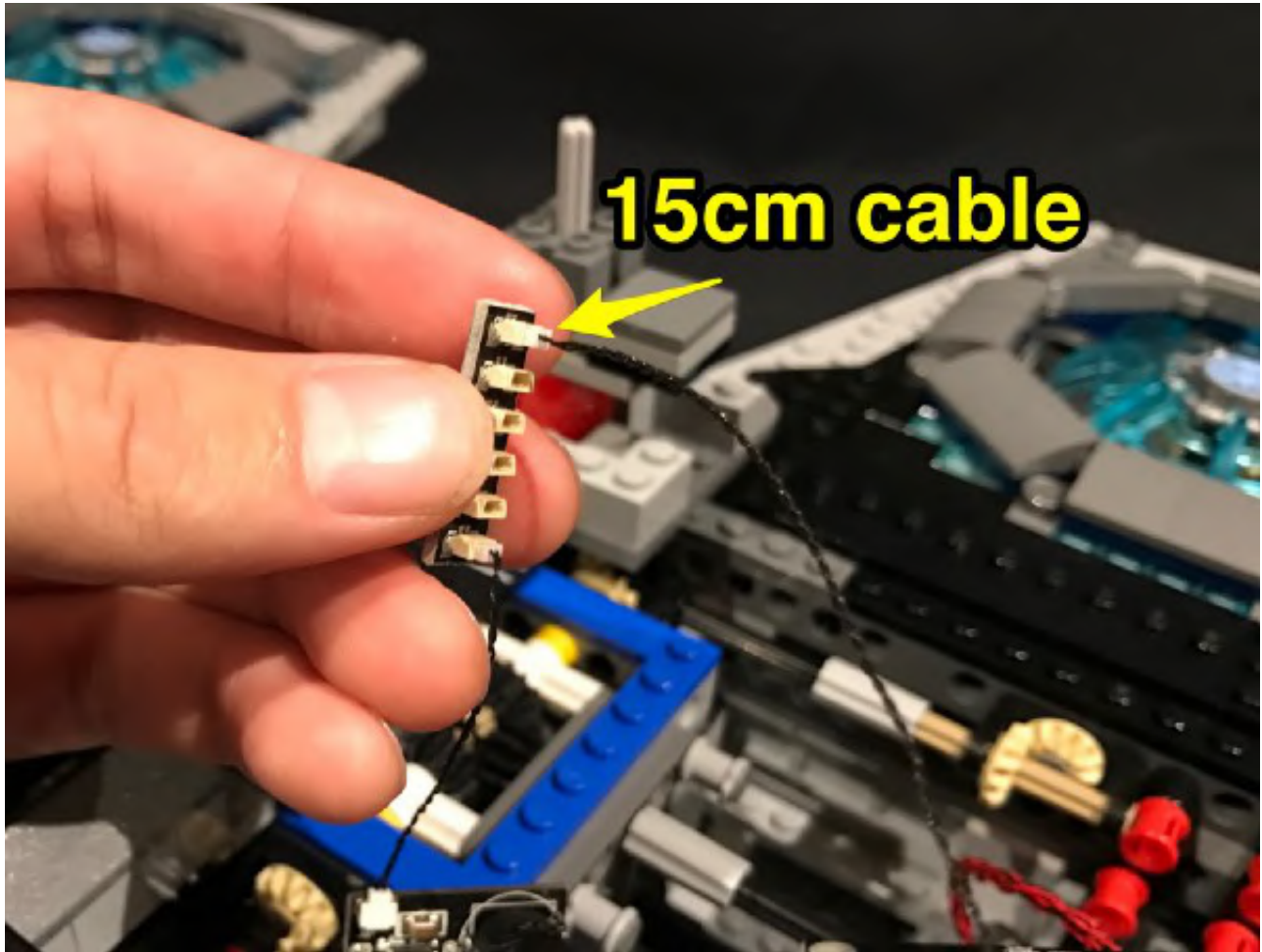
Turn the wheel to adjust the speed of effect

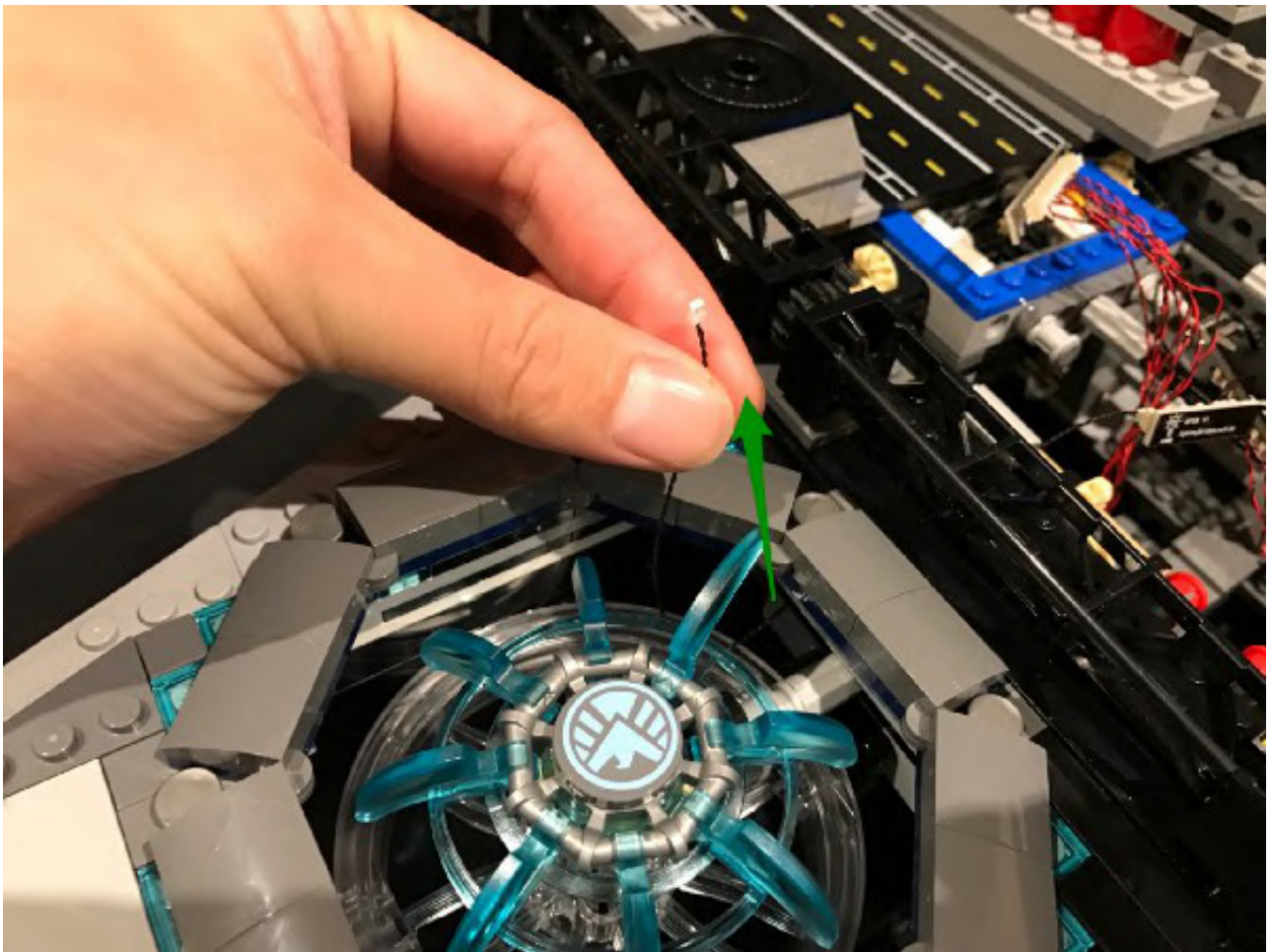
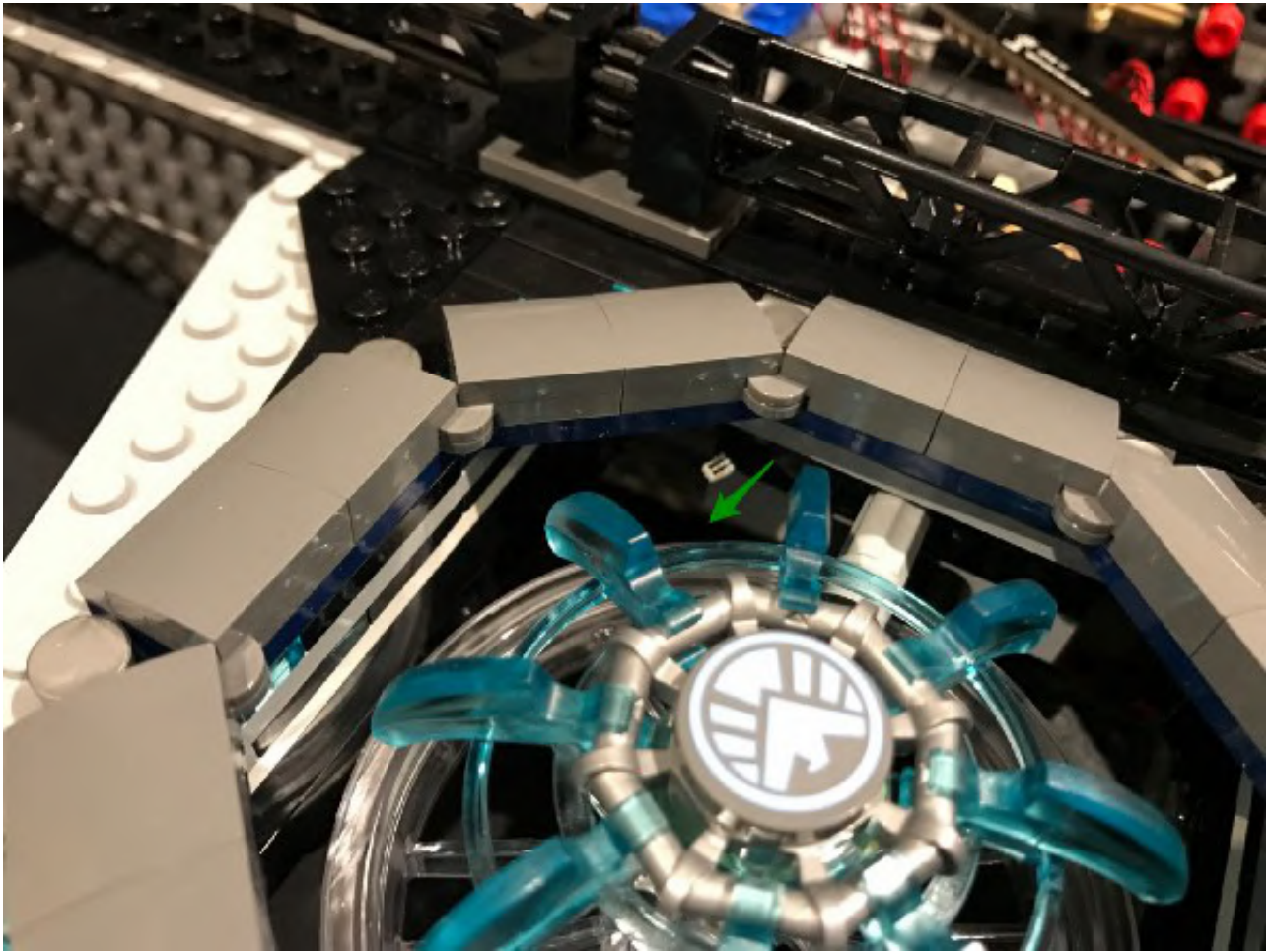
Flick switch to far right for 'flicker' effect



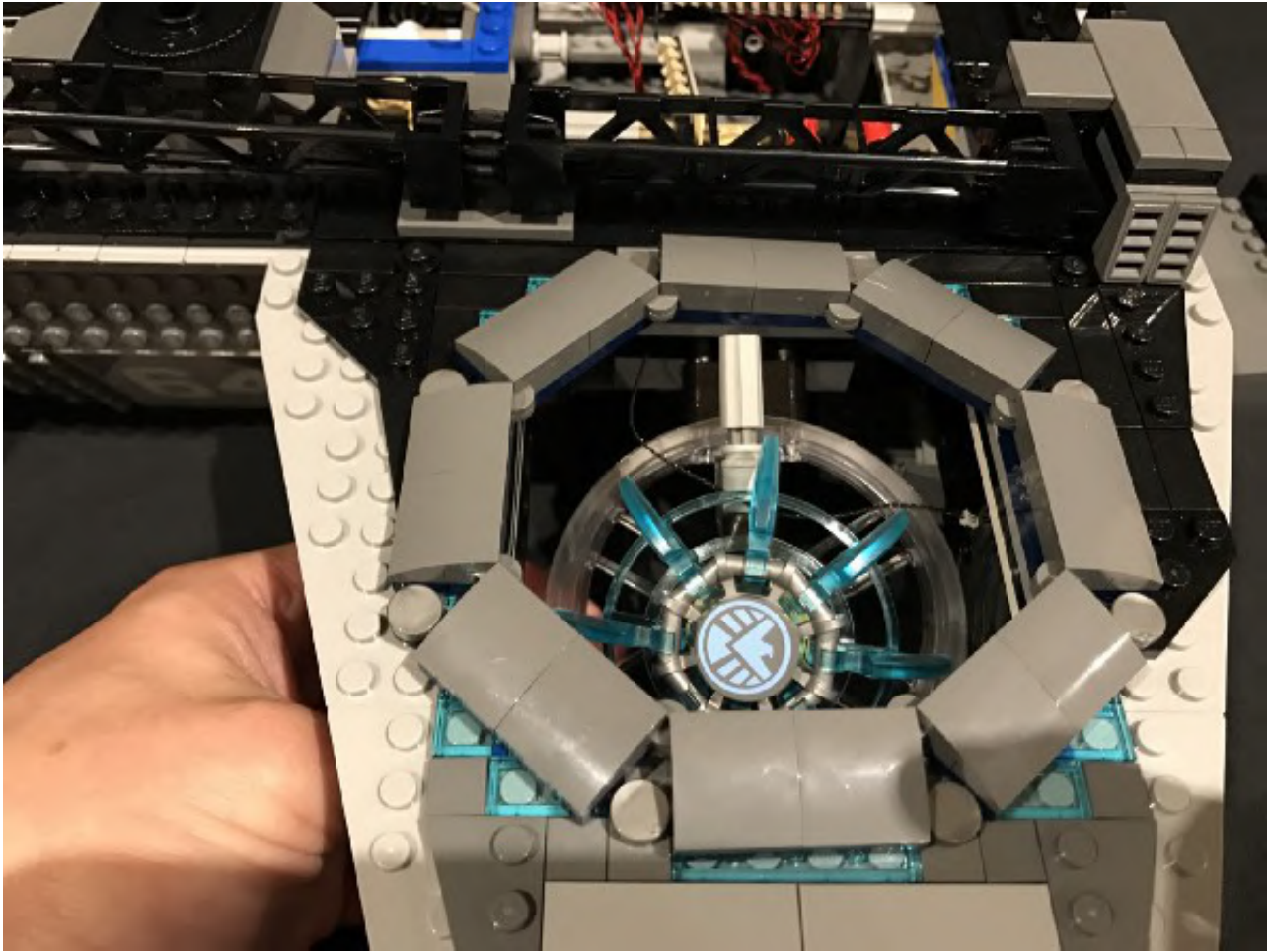
Once you are happy with the speed of the effect, disconnect the battery pack and then move onto the next step.

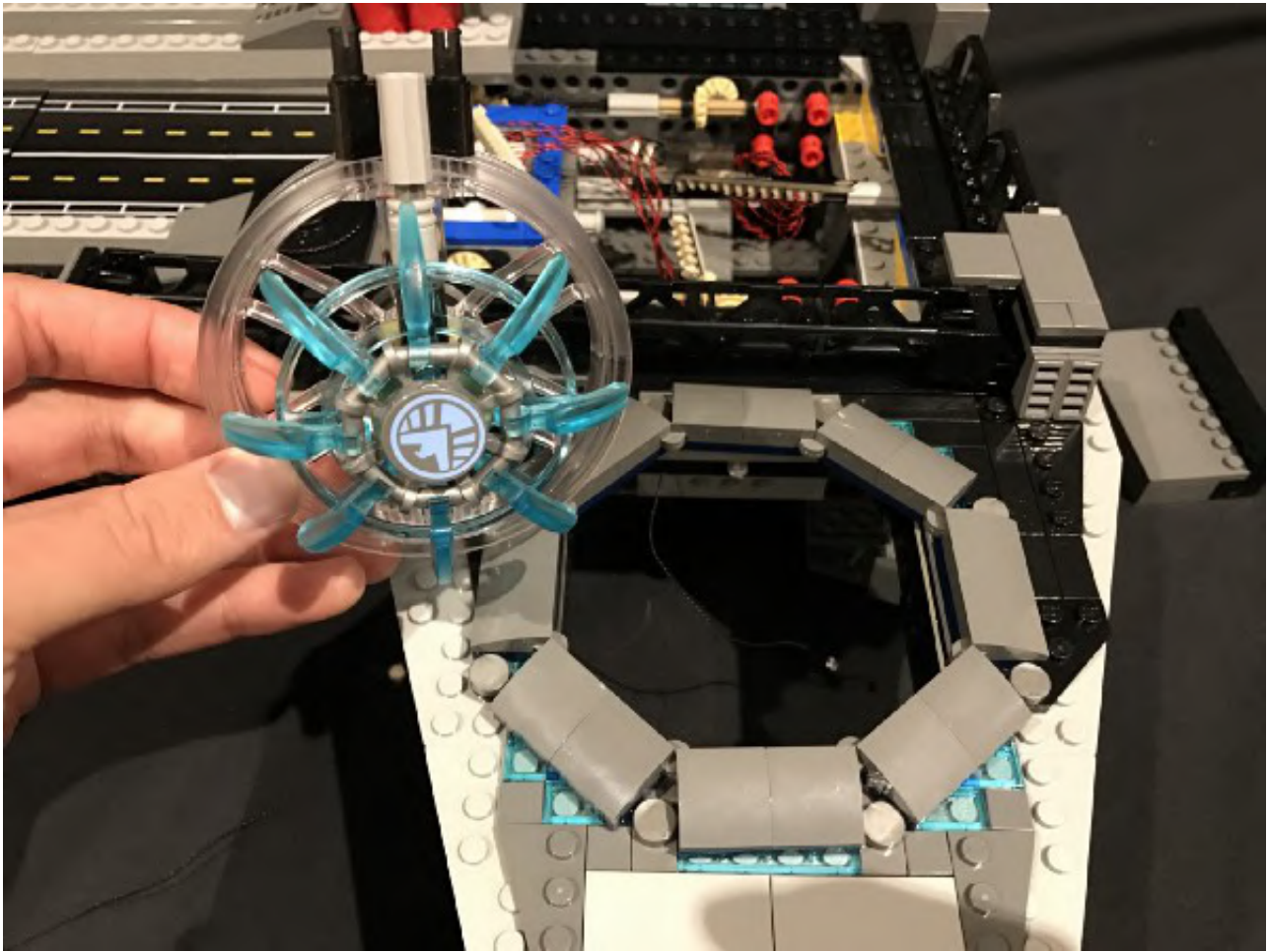
5.) We will now install lights to light up the 2 back propeller sections. First take a **15cm connecting cable** and connect it to the 6-port expansion board we connected earlier. Thread the other end of the cable through the following hole on the back left, which leads to the inside of back left propeller. Pull the cable up from underneath the inside of the propeller.



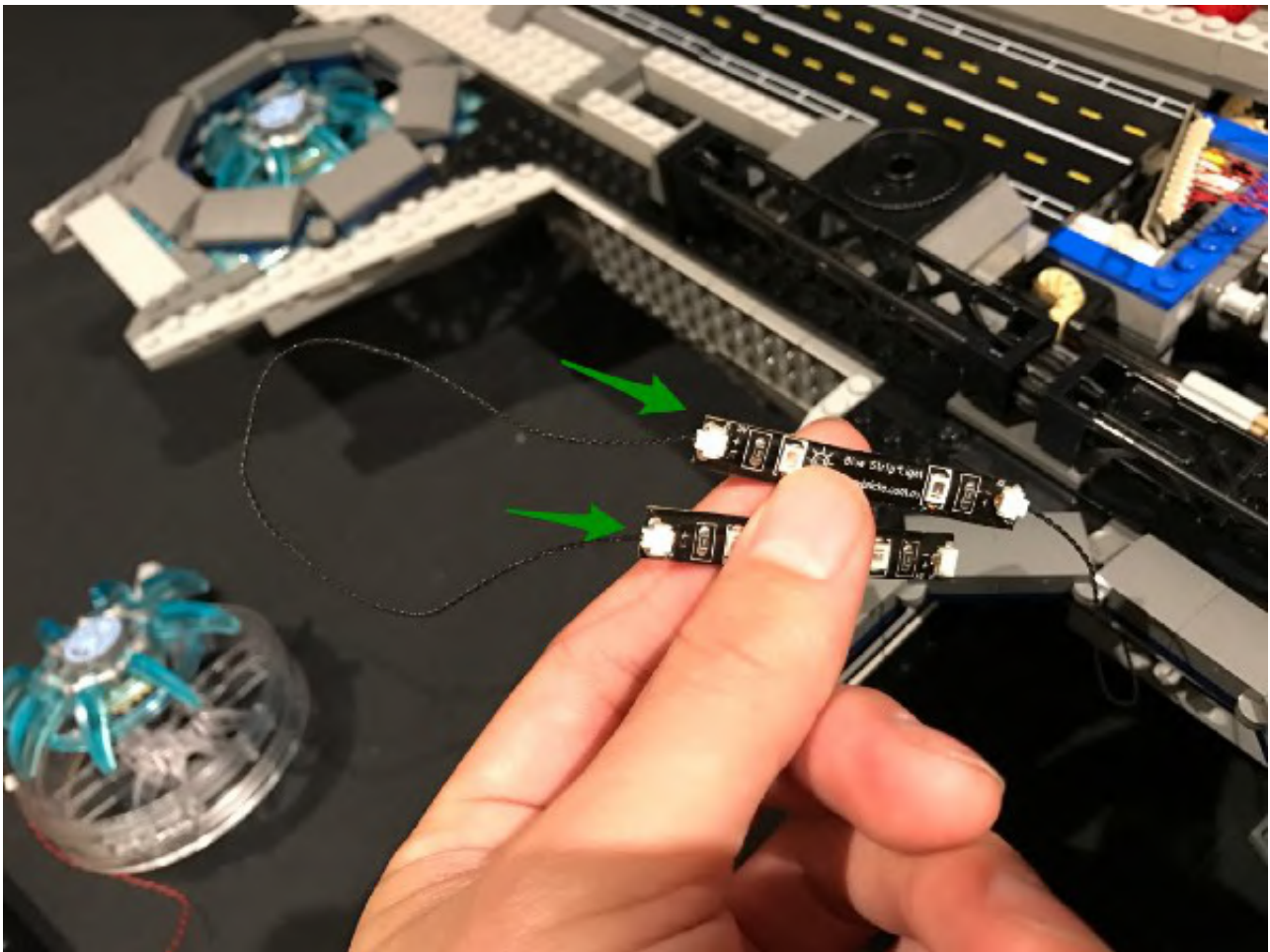
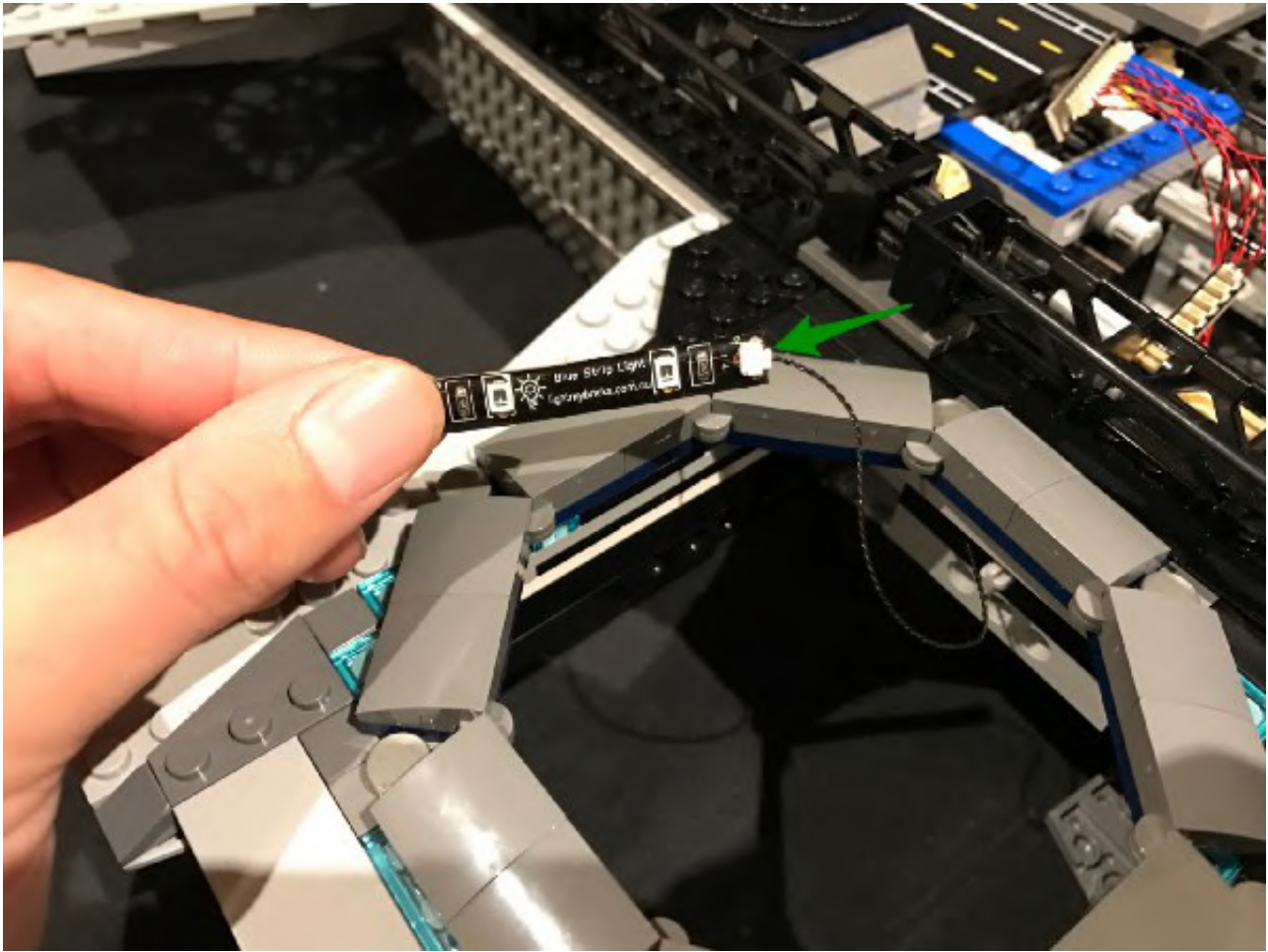


Disconnect the propeller section by pulling it out and then downward to remove it from underneath.

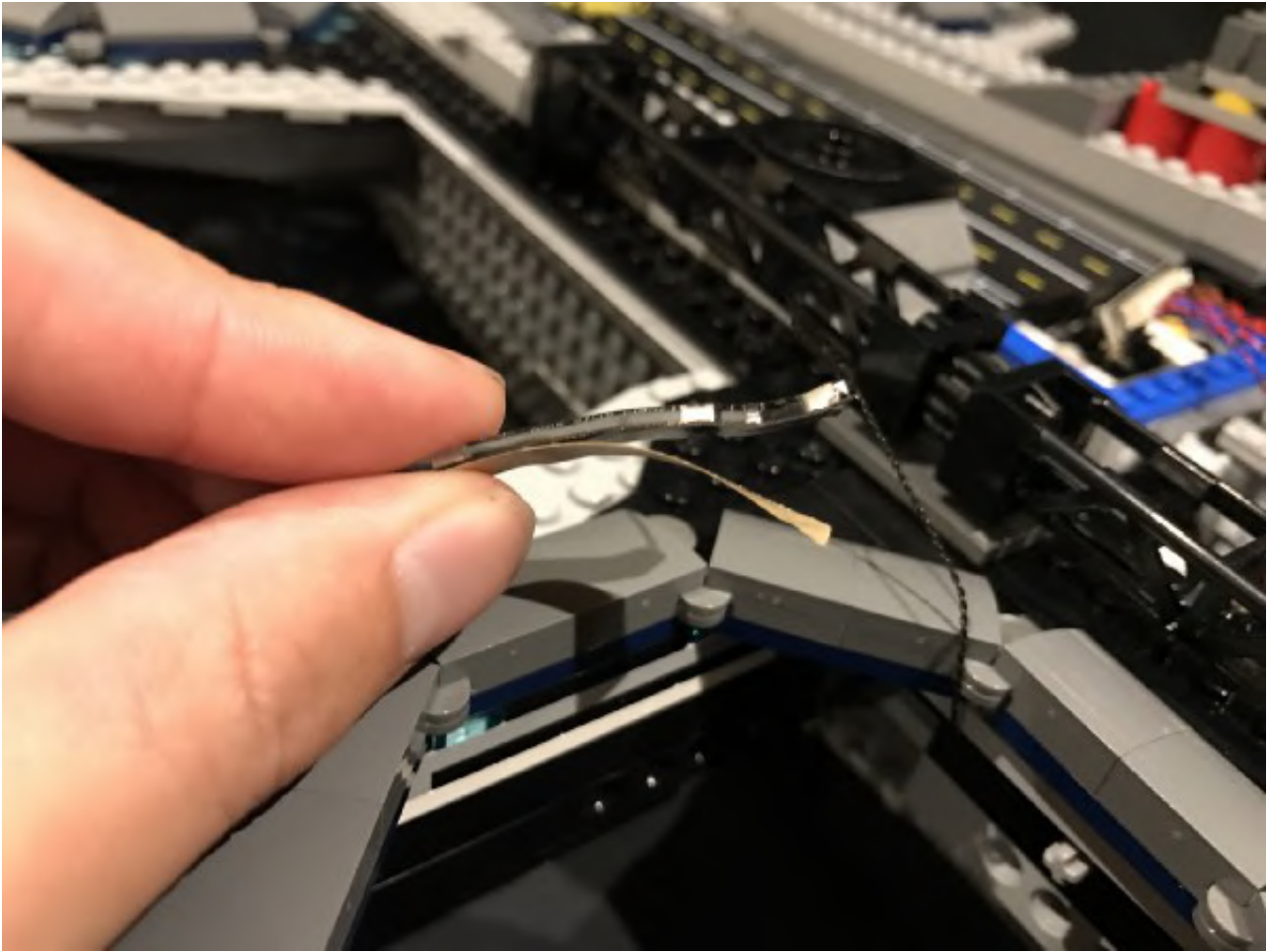


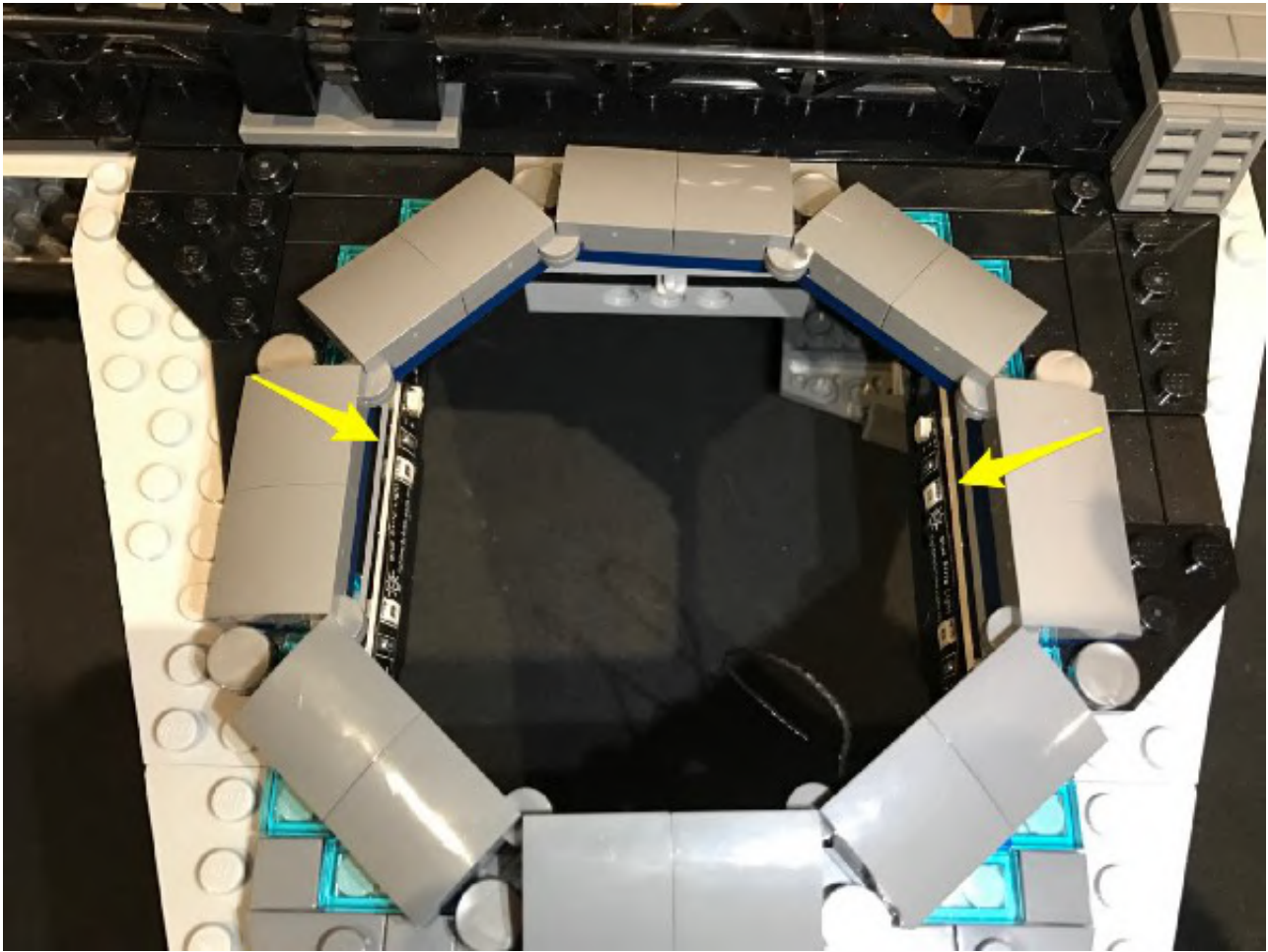


6.) Take a **Blue Strip Light** and then connect the 15cm cable we pulled through to the right port. Take another **Blue Strip Light** and **15cm connecting cable** and connect them to the first Blue Strip Light as per below.

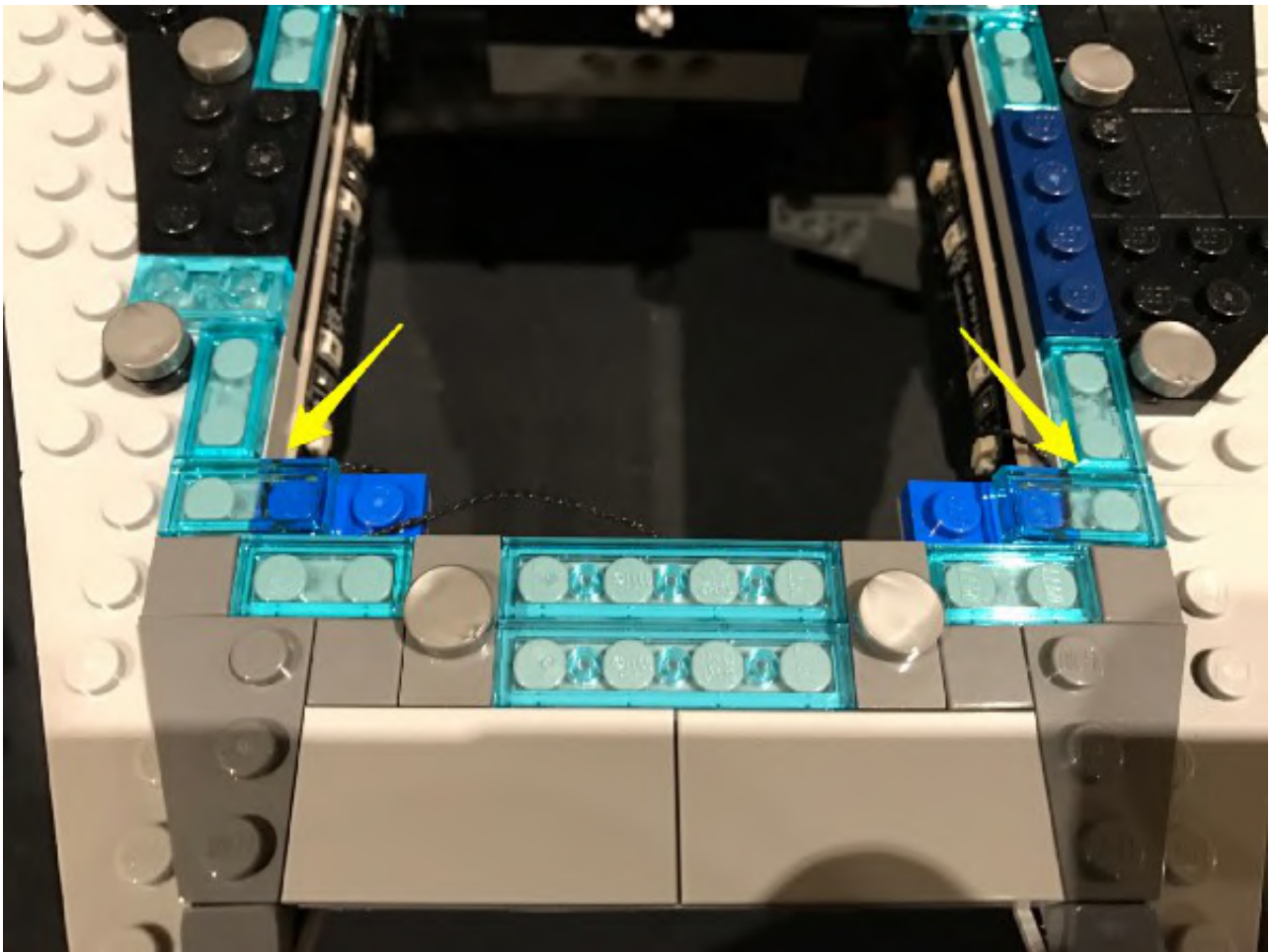
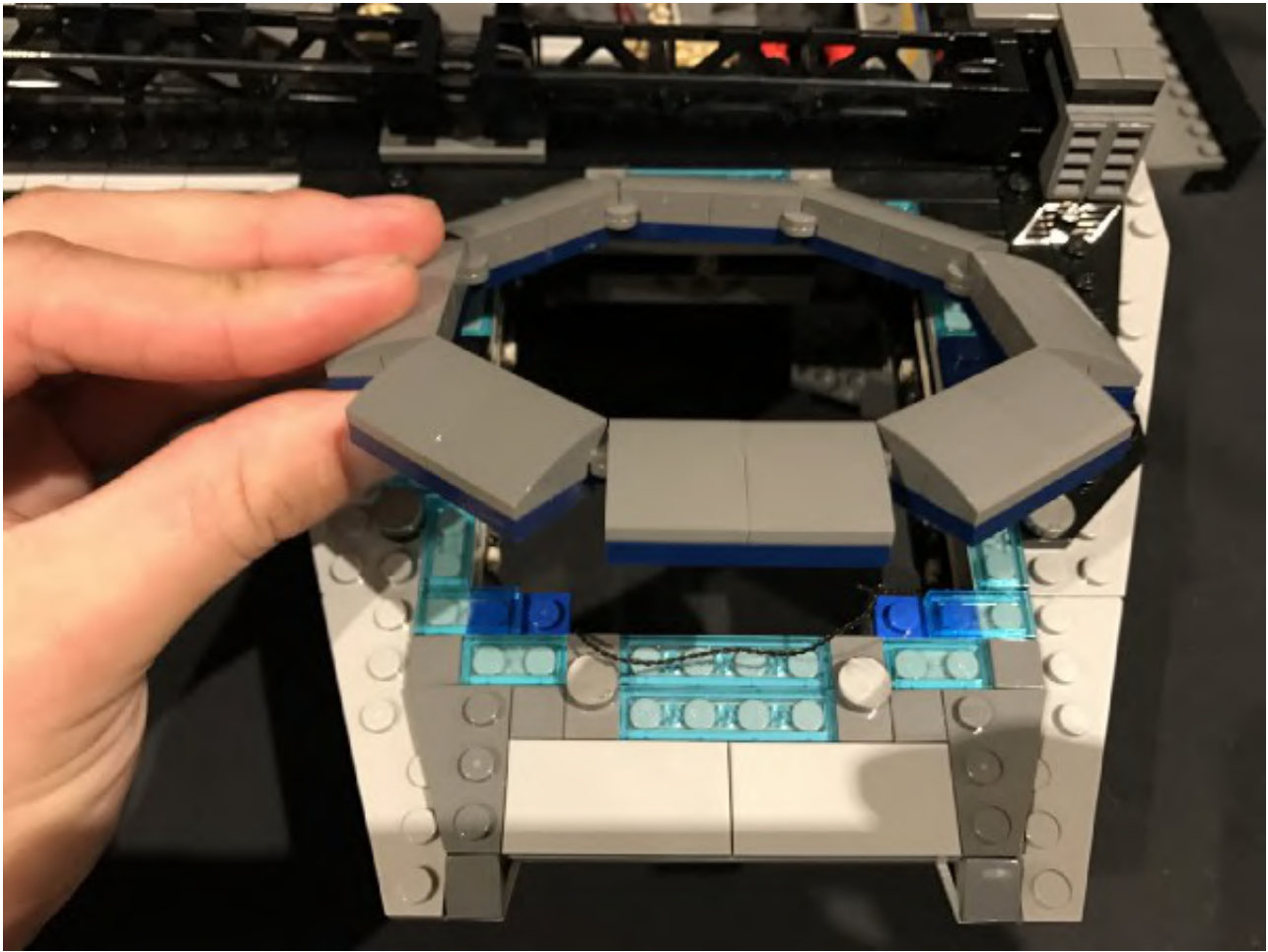


Using the adhesive backing for each strip light, stick them to the sides on the inside of this section.

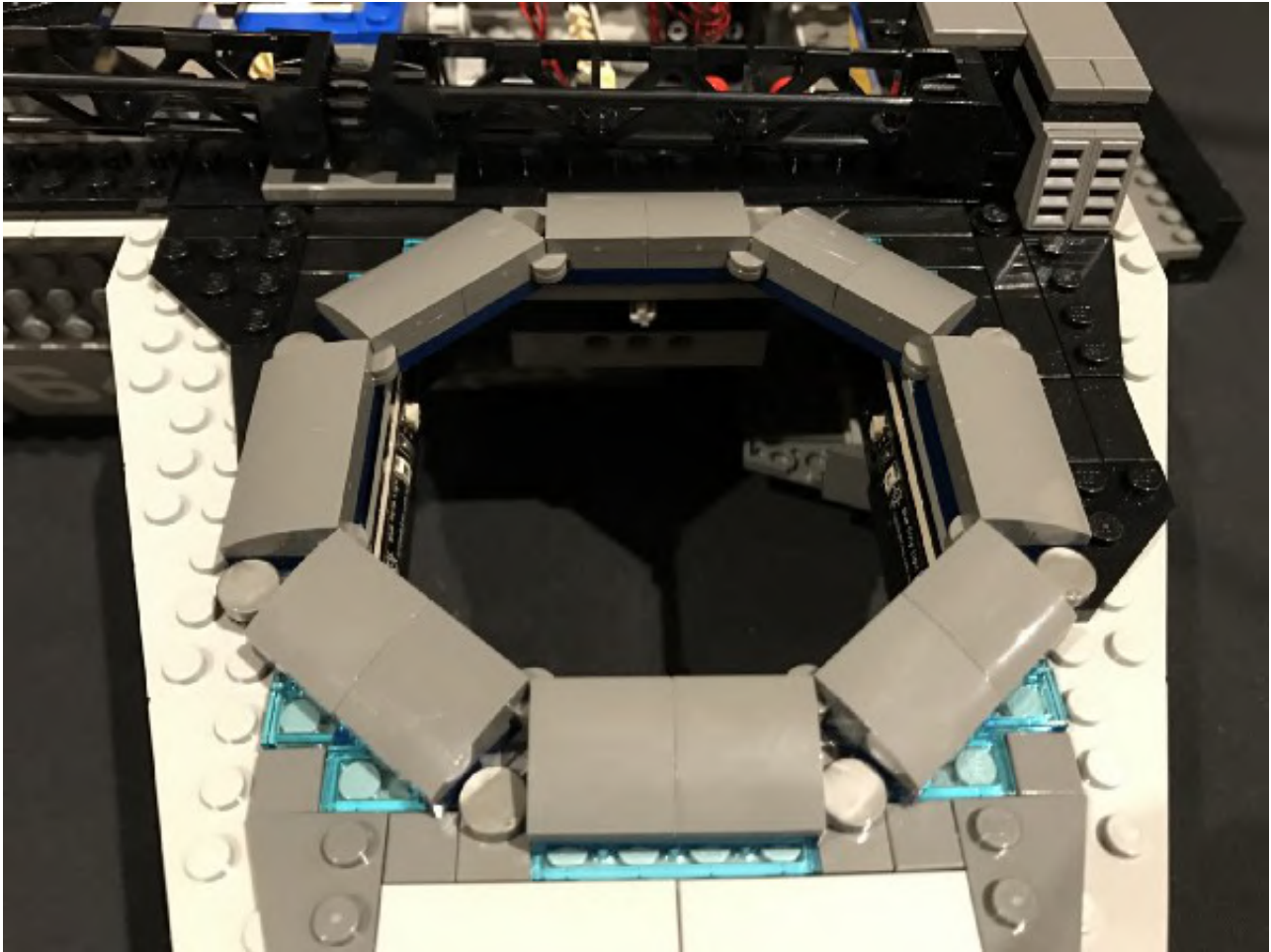


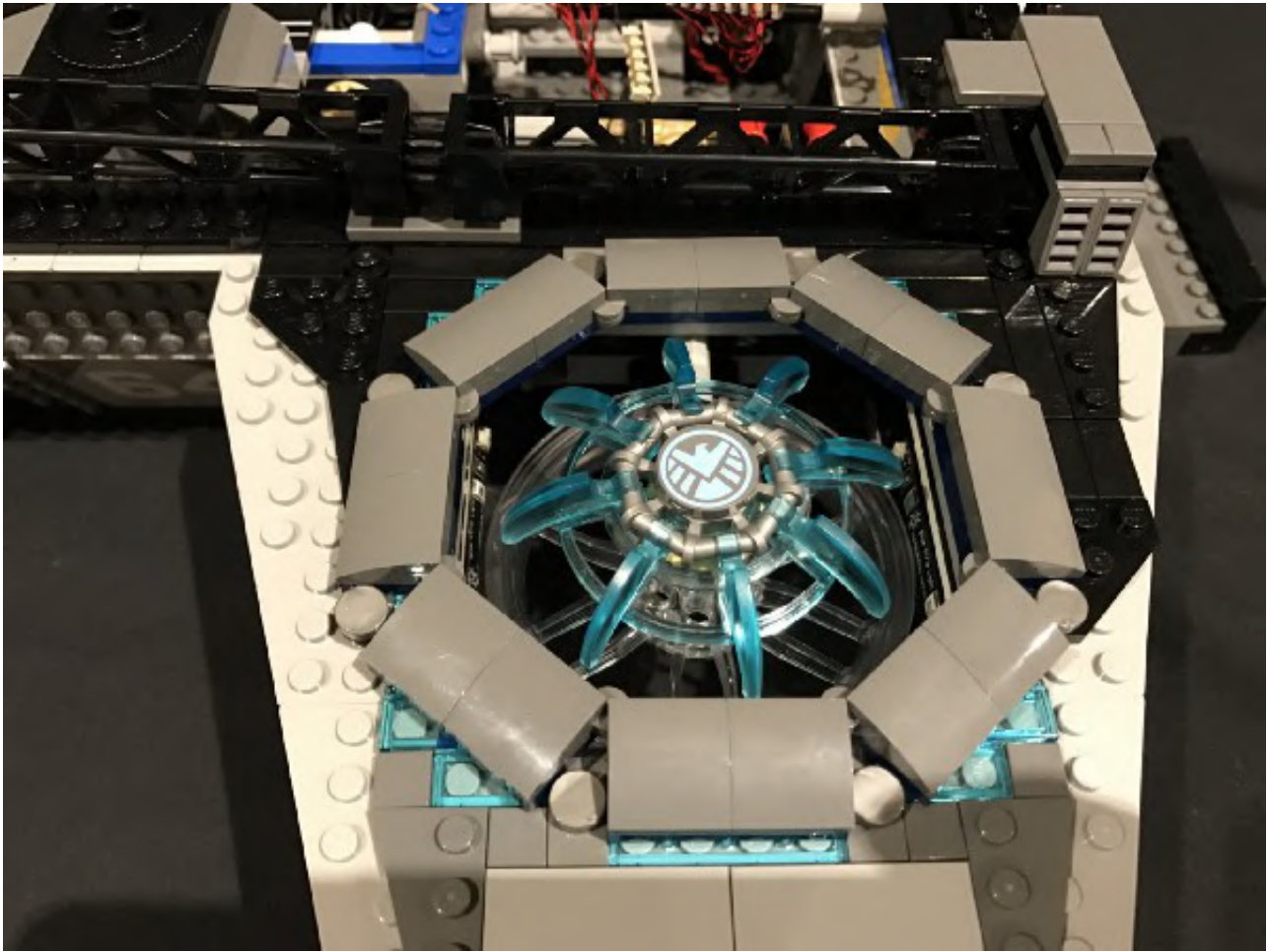


To eliminate excess cable from showing, remove the octagon ring and then secure the cables underneath the following plates (disconnect plate, lay cable between stud, reconnect plate).

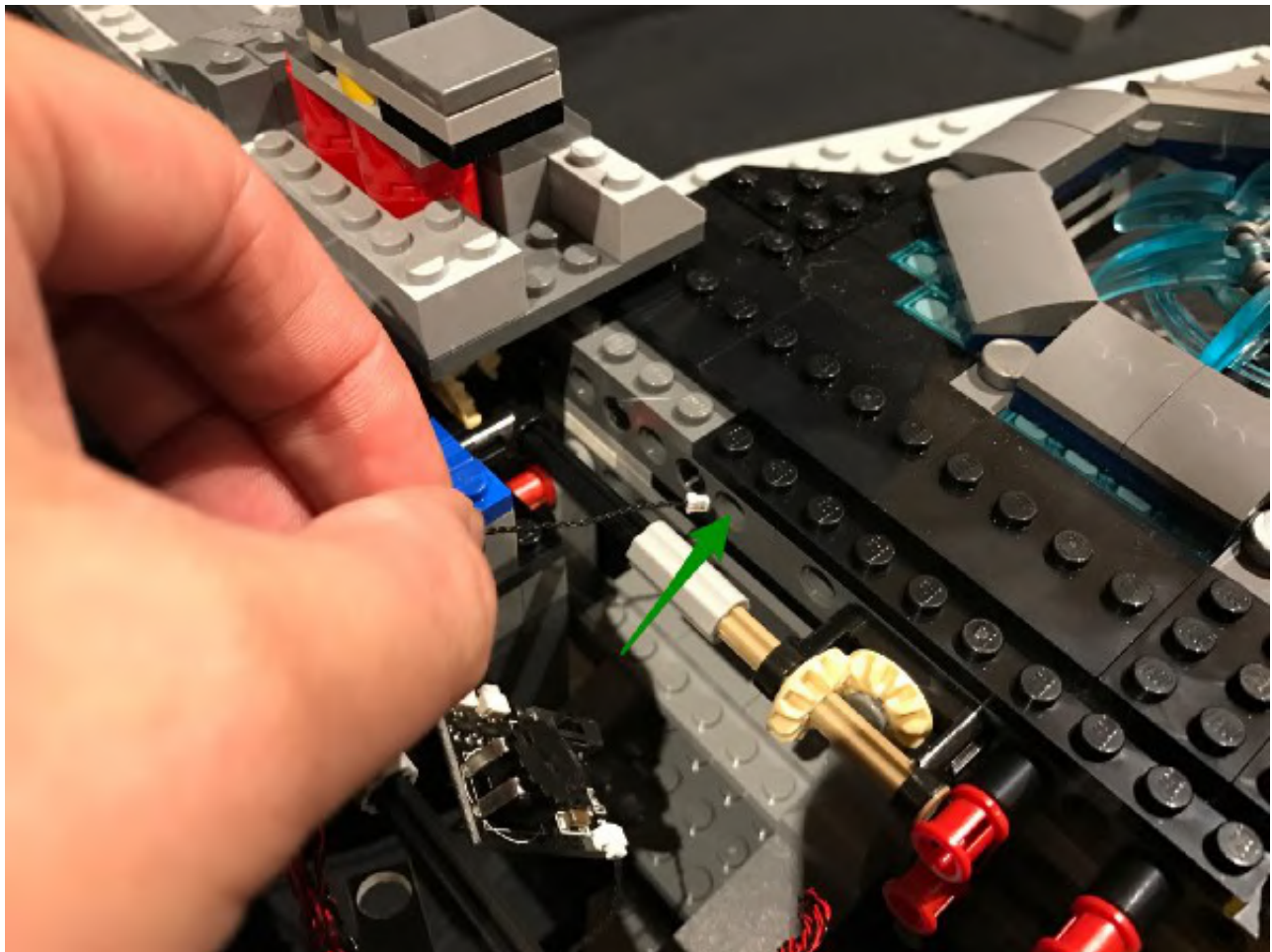
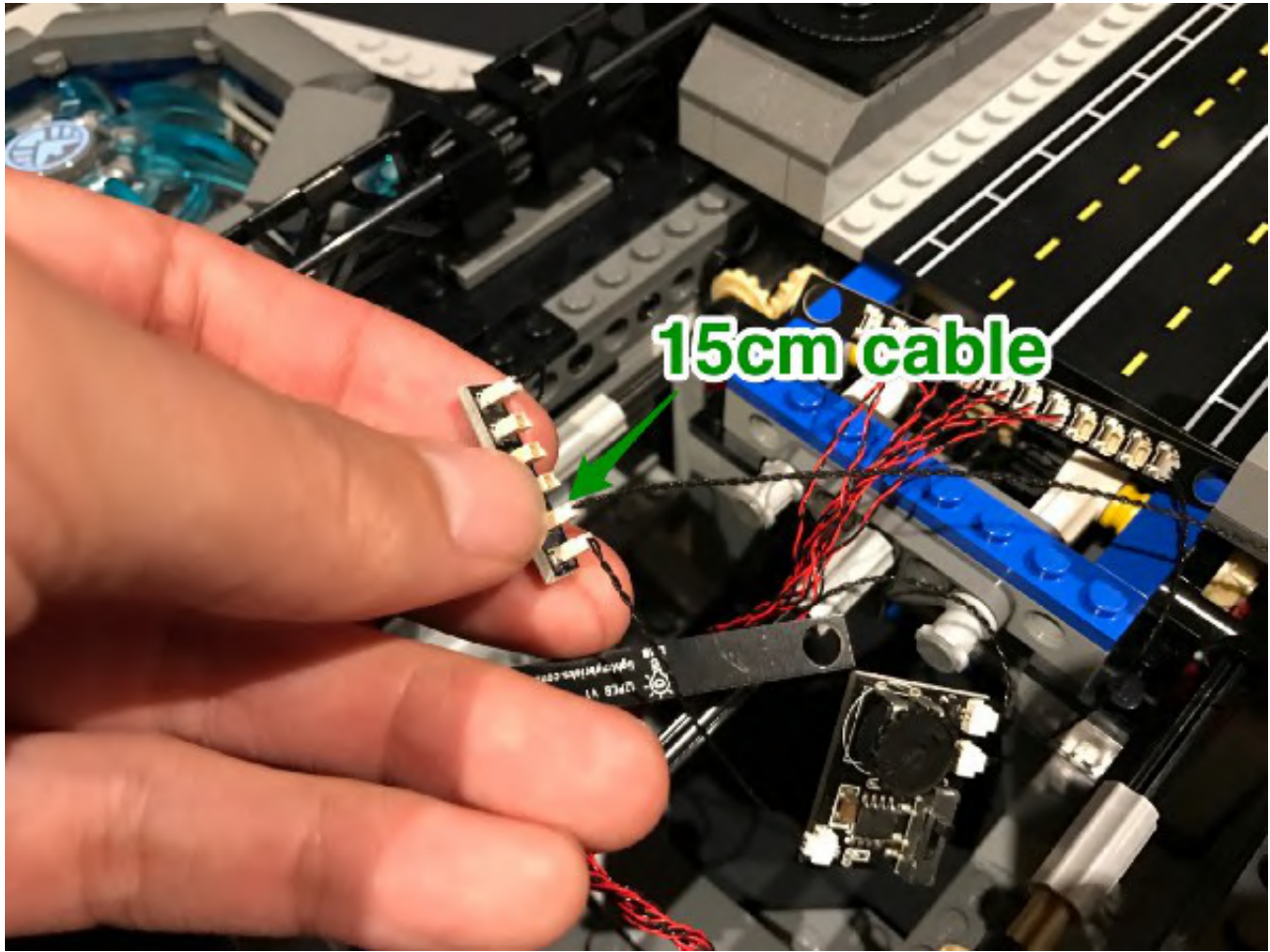


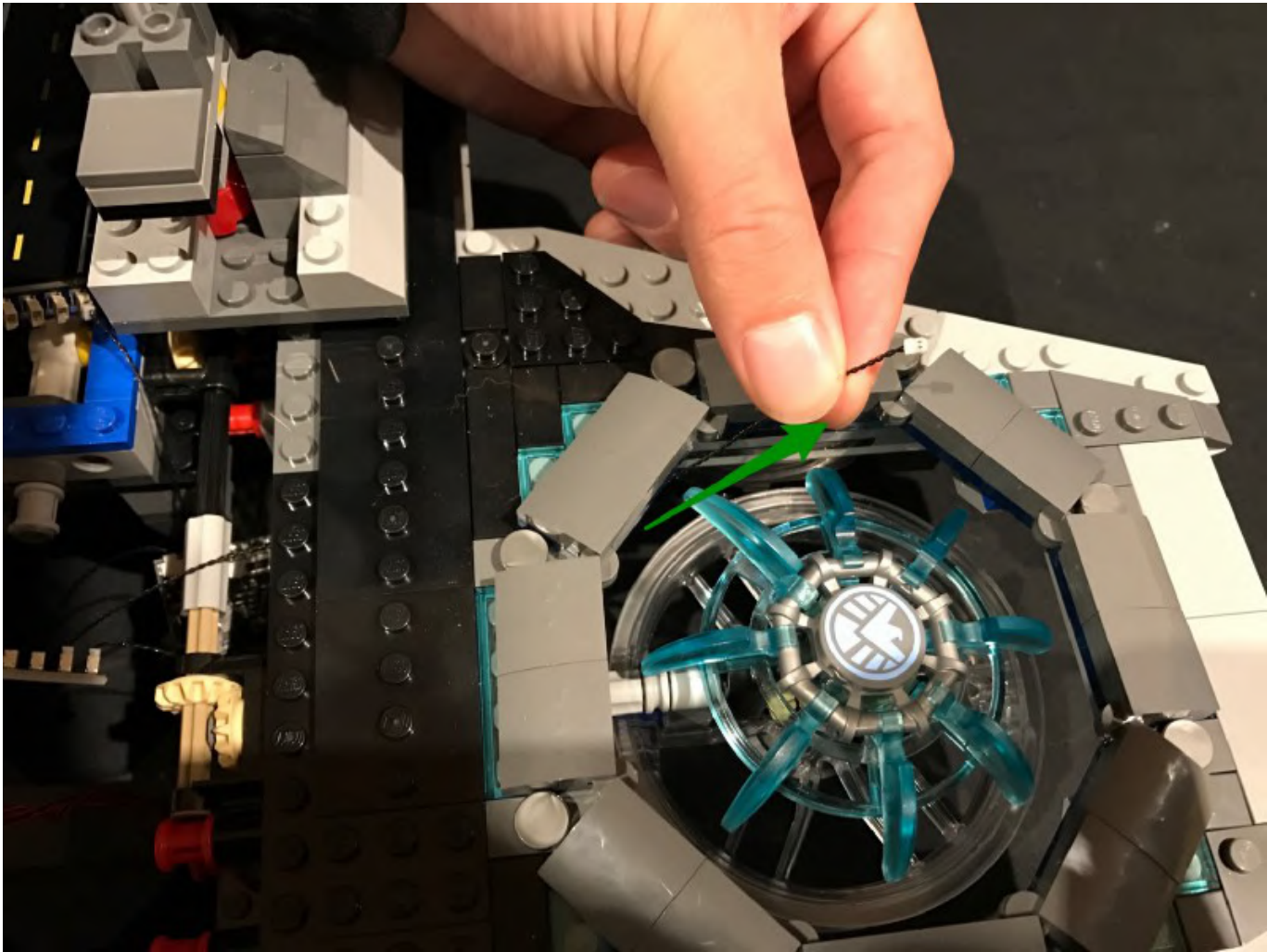
Reconnect the octagon ring and then reconnect the propeller.



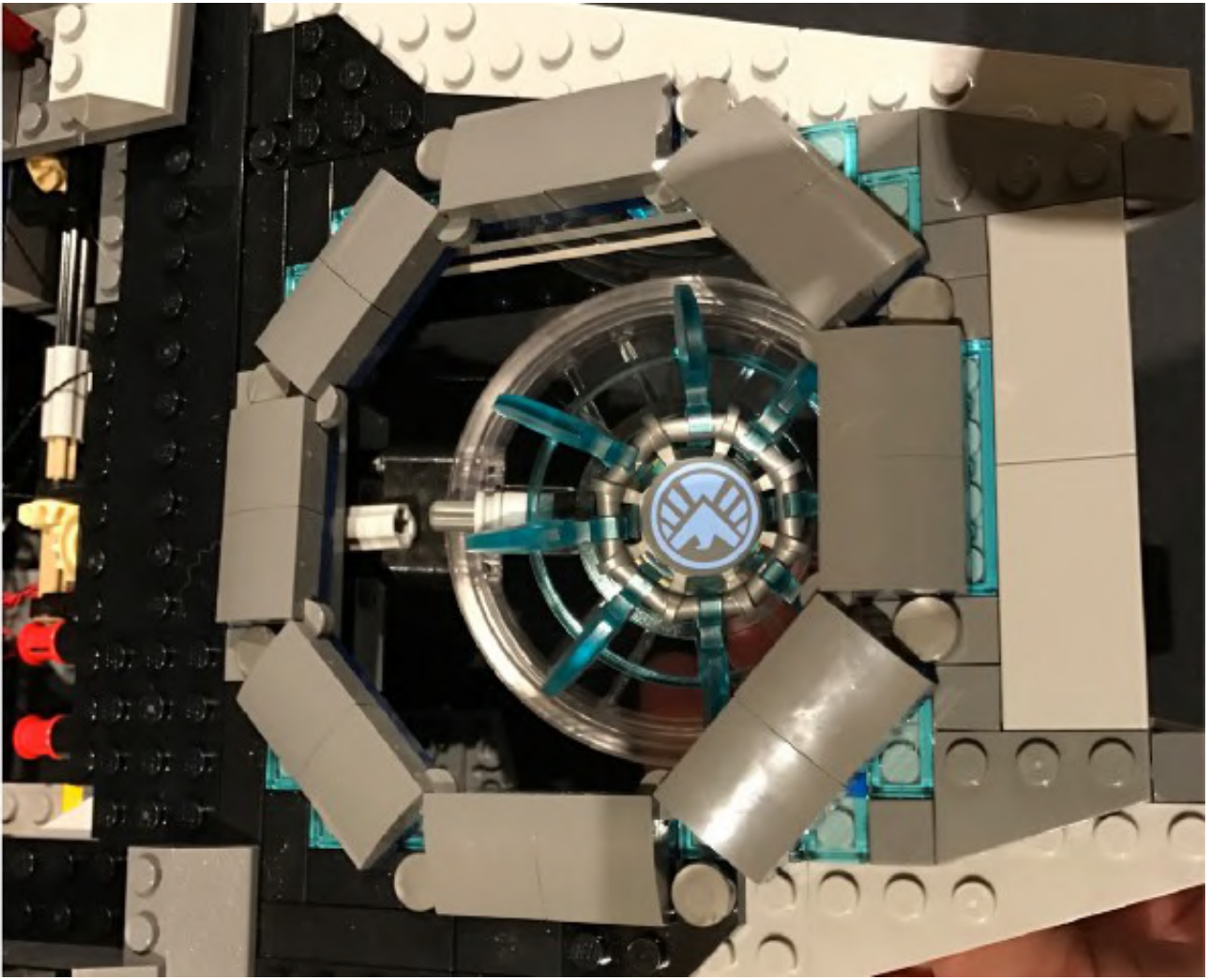


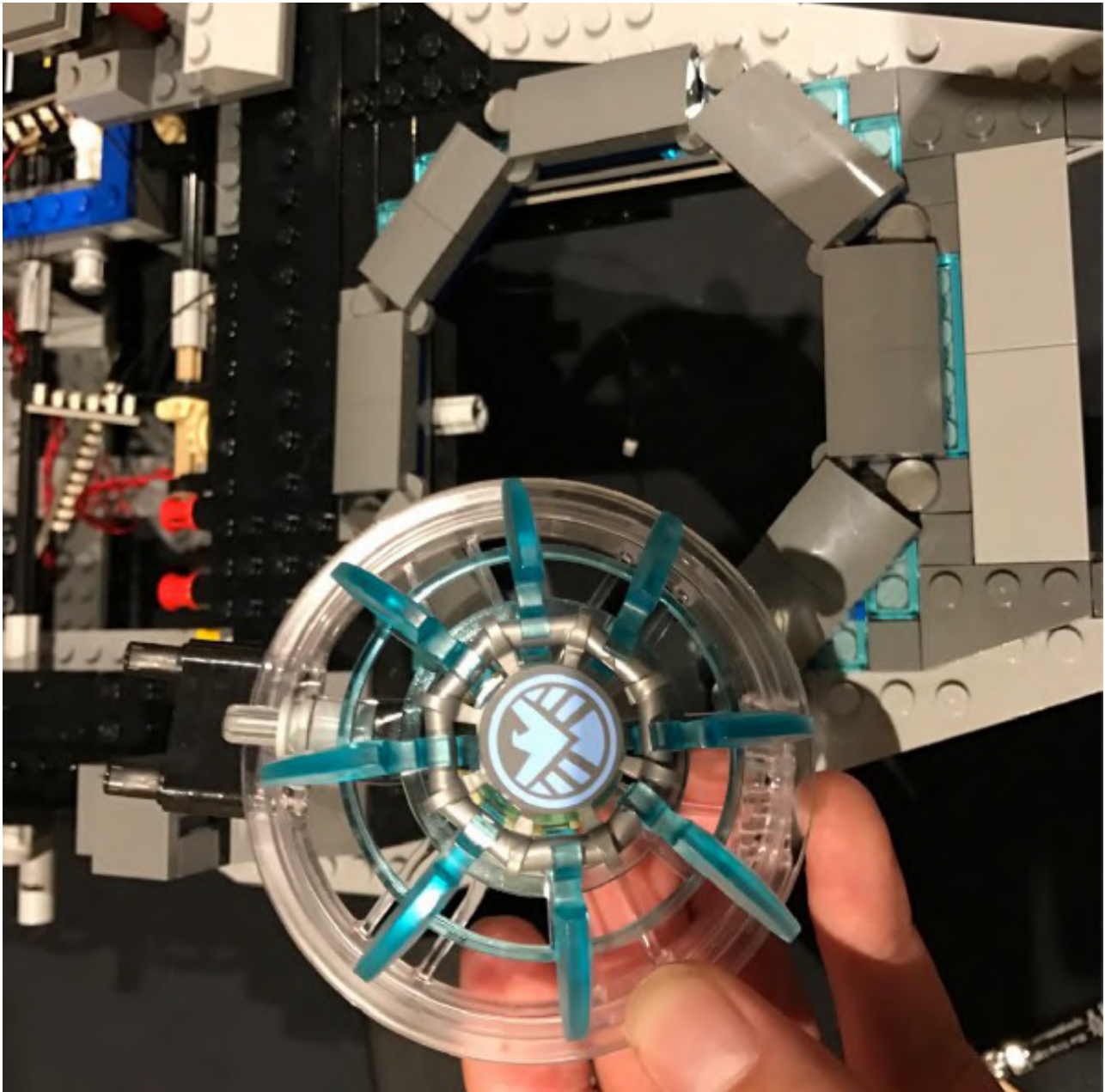
We will now install another 2 blue lights to the back right propeller section. Take another **15cm connecting cable** and connect to the 6-port expansion board, then thread other end through one of the holes which leads inside to the right propeller.



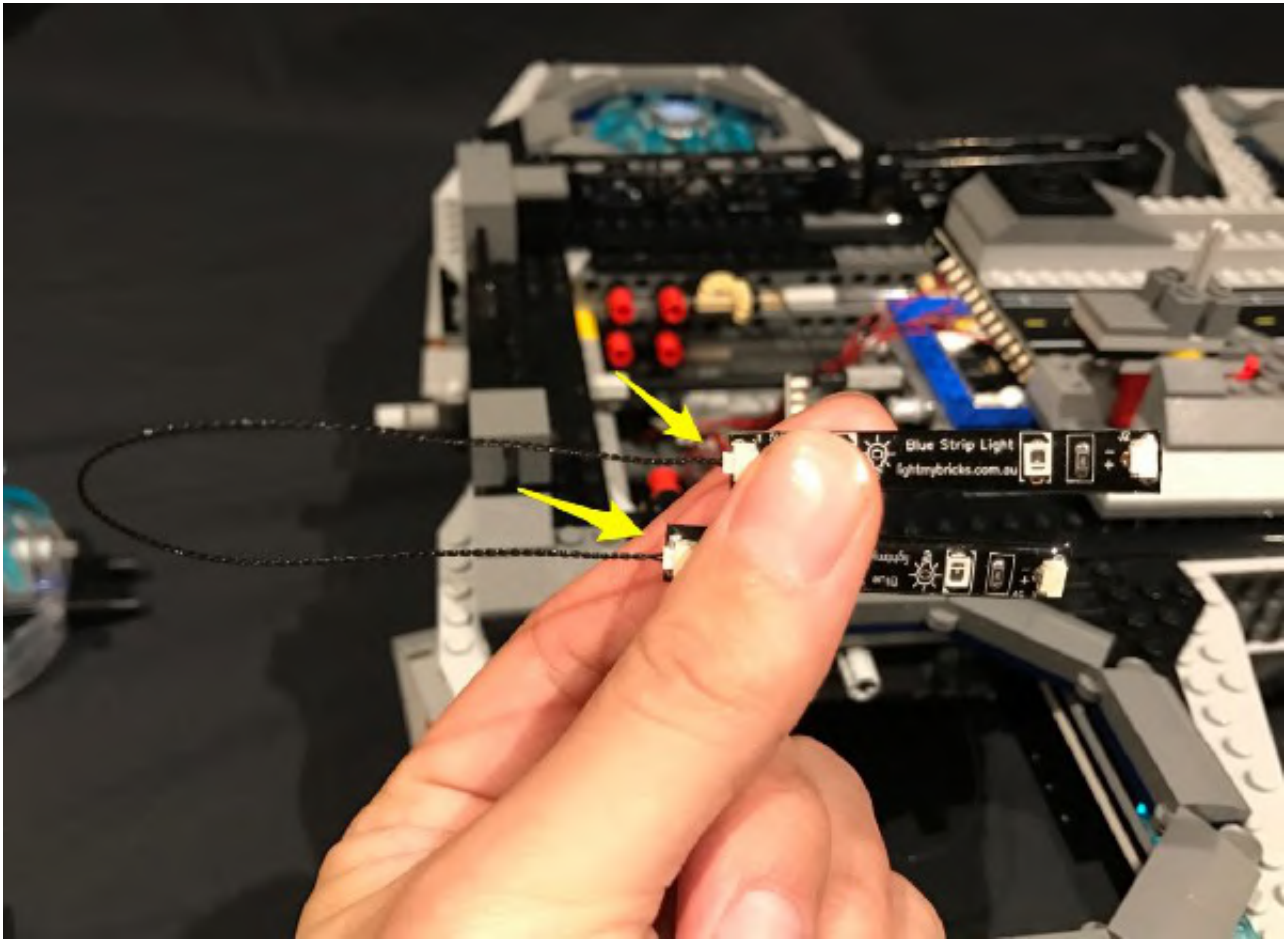


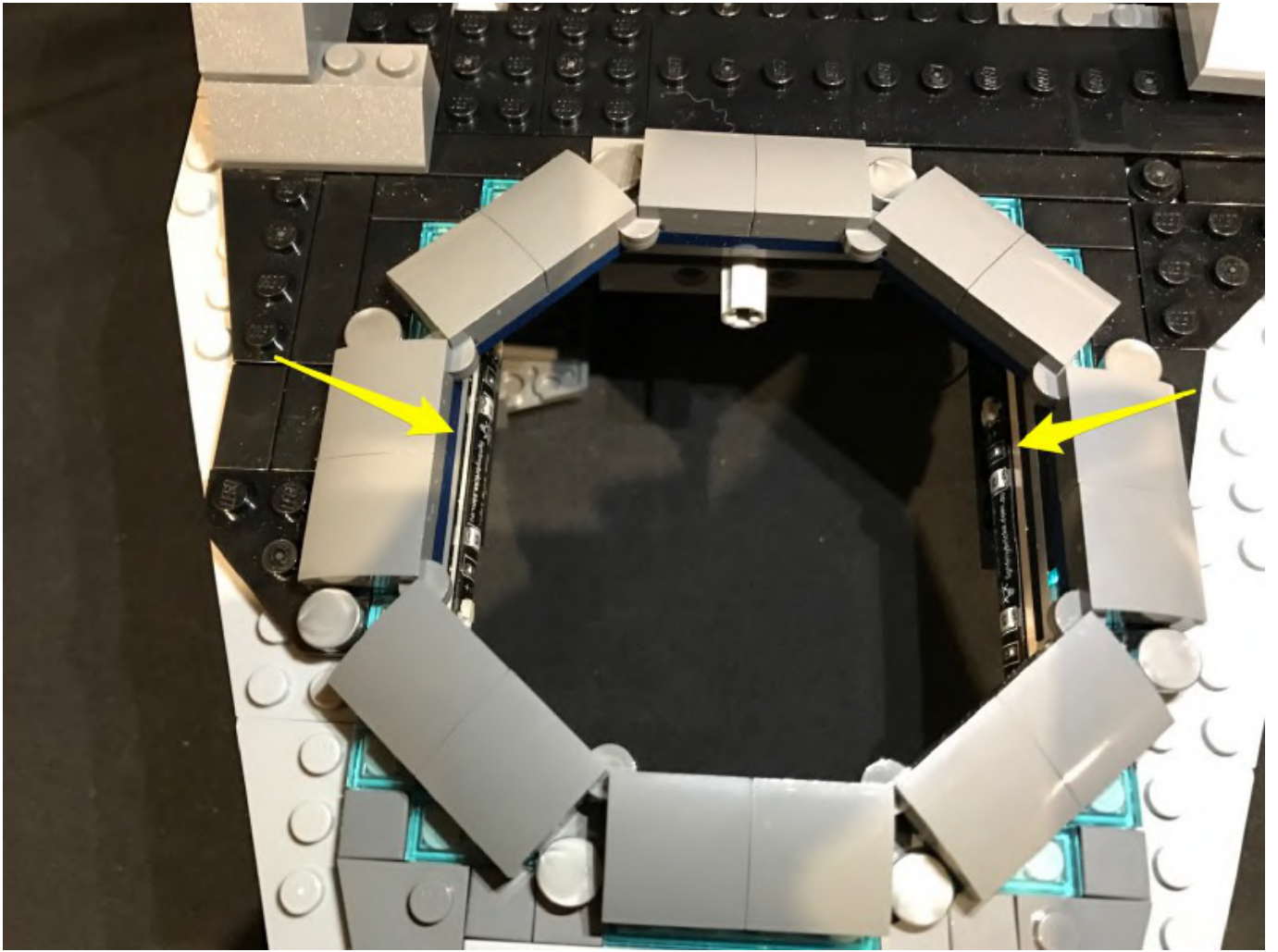
Remove the propeller.



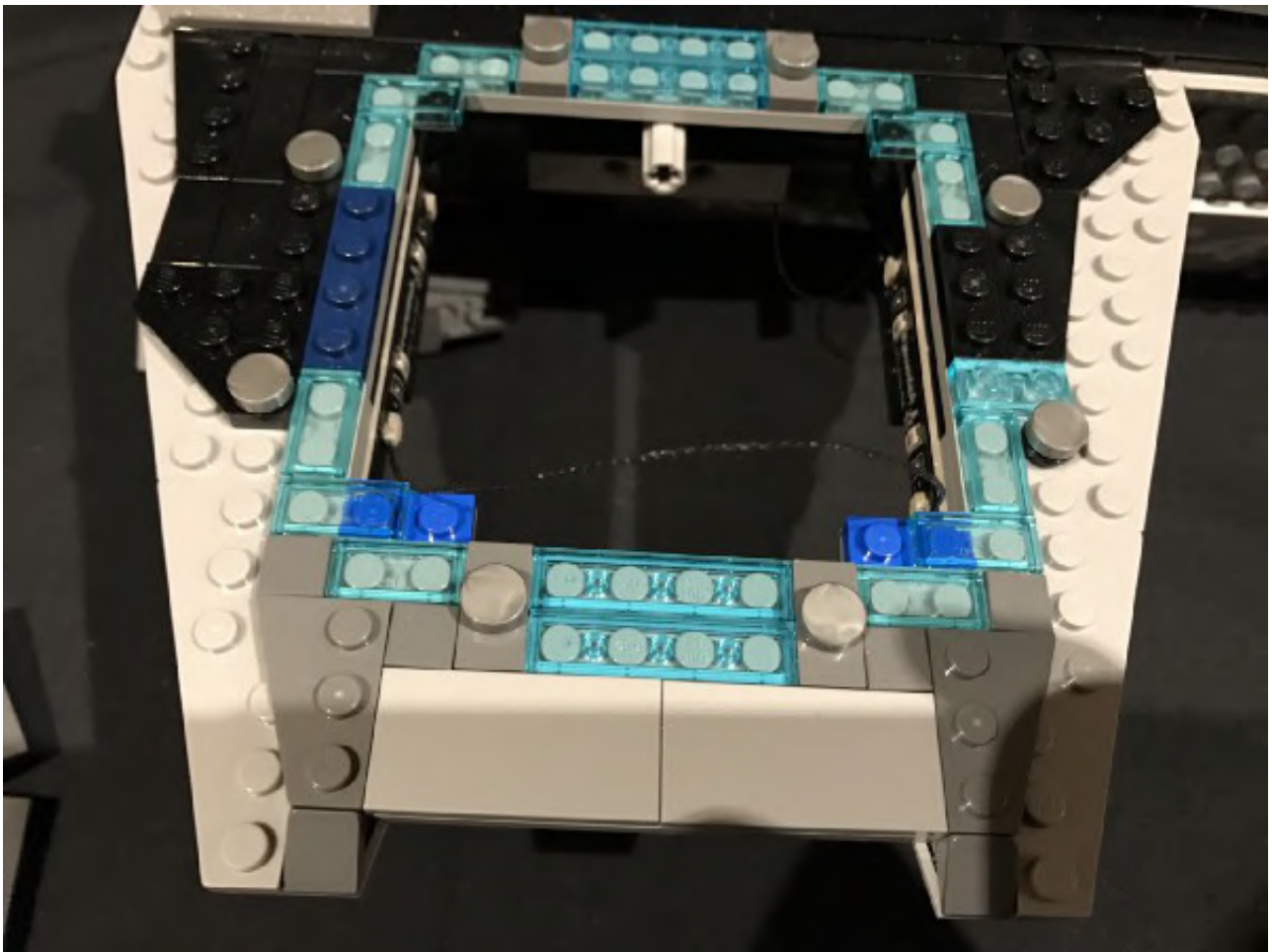
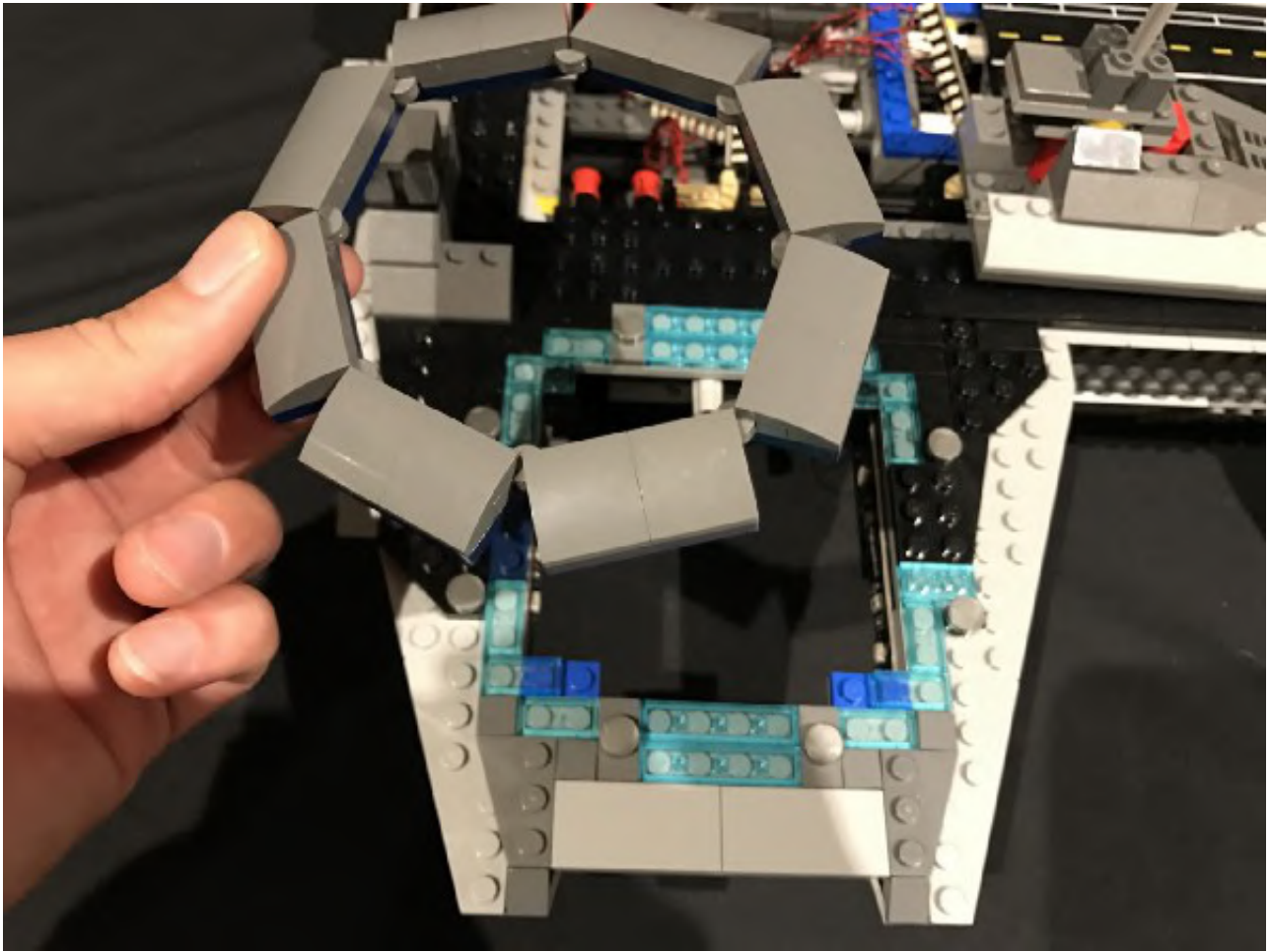


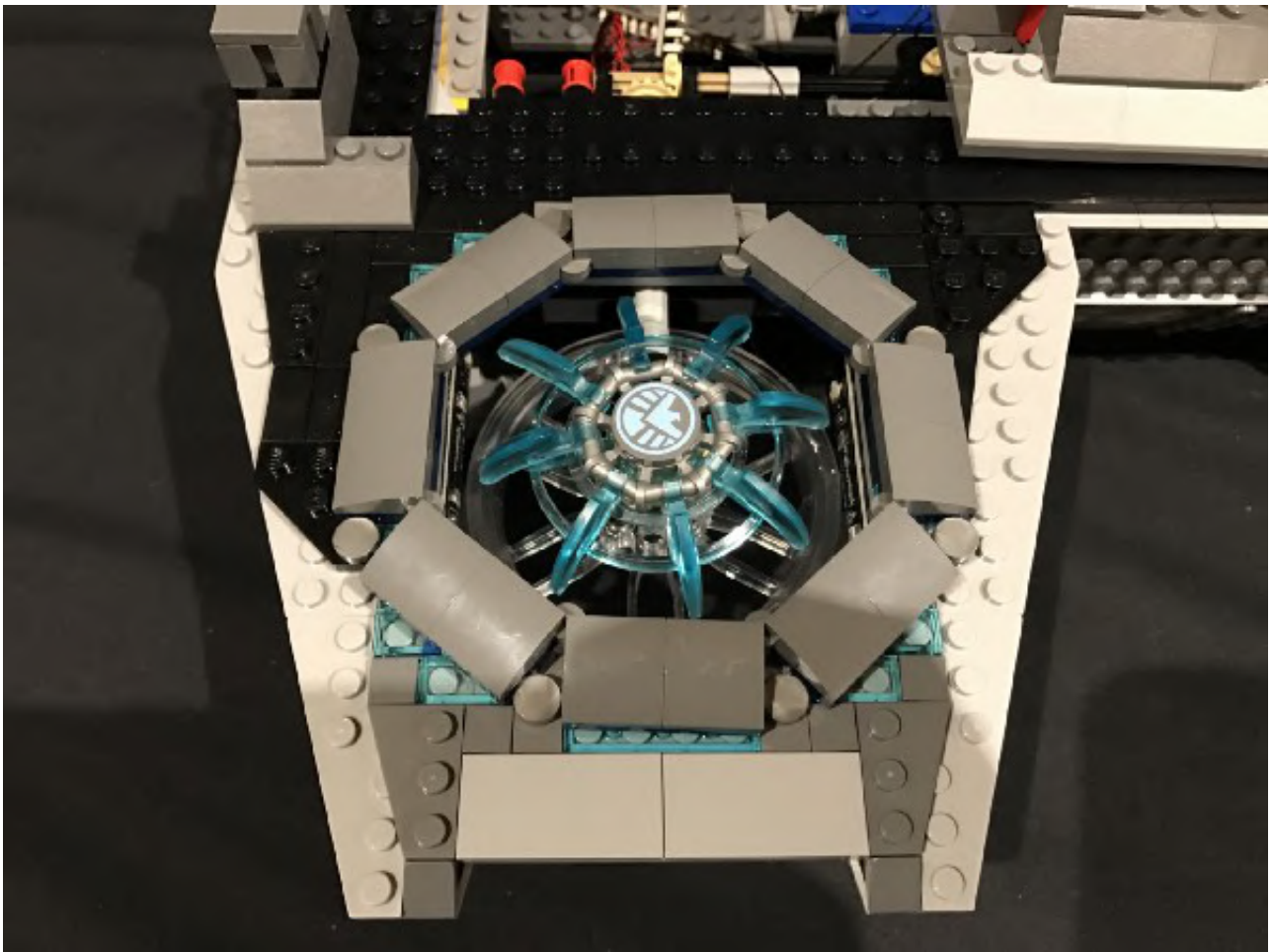
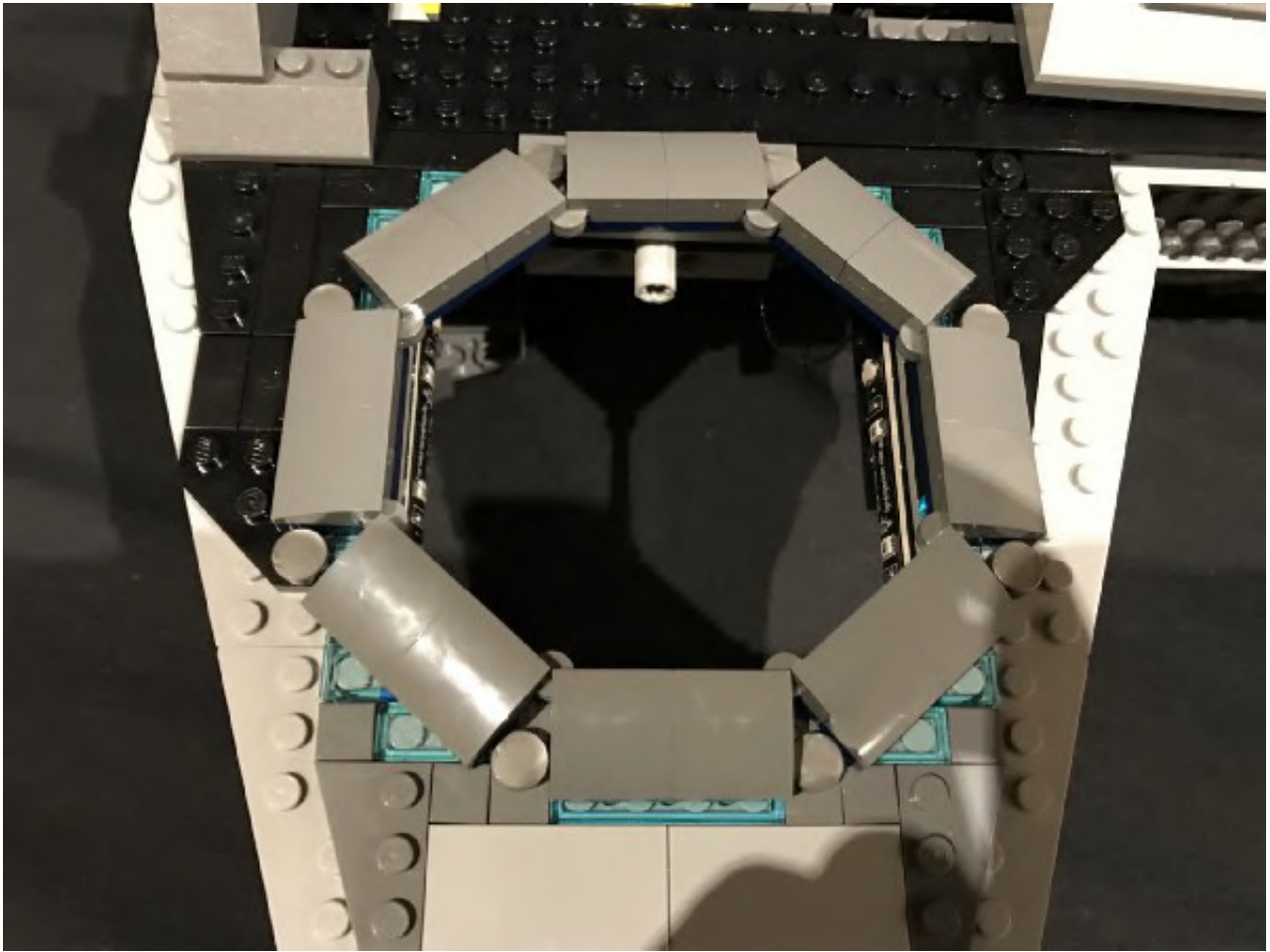
Take 2x **Blue Strip Lights** and connect them together using another **15cm connecting cable**. Connect the 15cm cable we threaded through to one of the Blue Strip Lights and then stick them to the sides on the inside in the following position.





Eliminate excess cable by connecting under LEGO plates and then reconnect propeller.

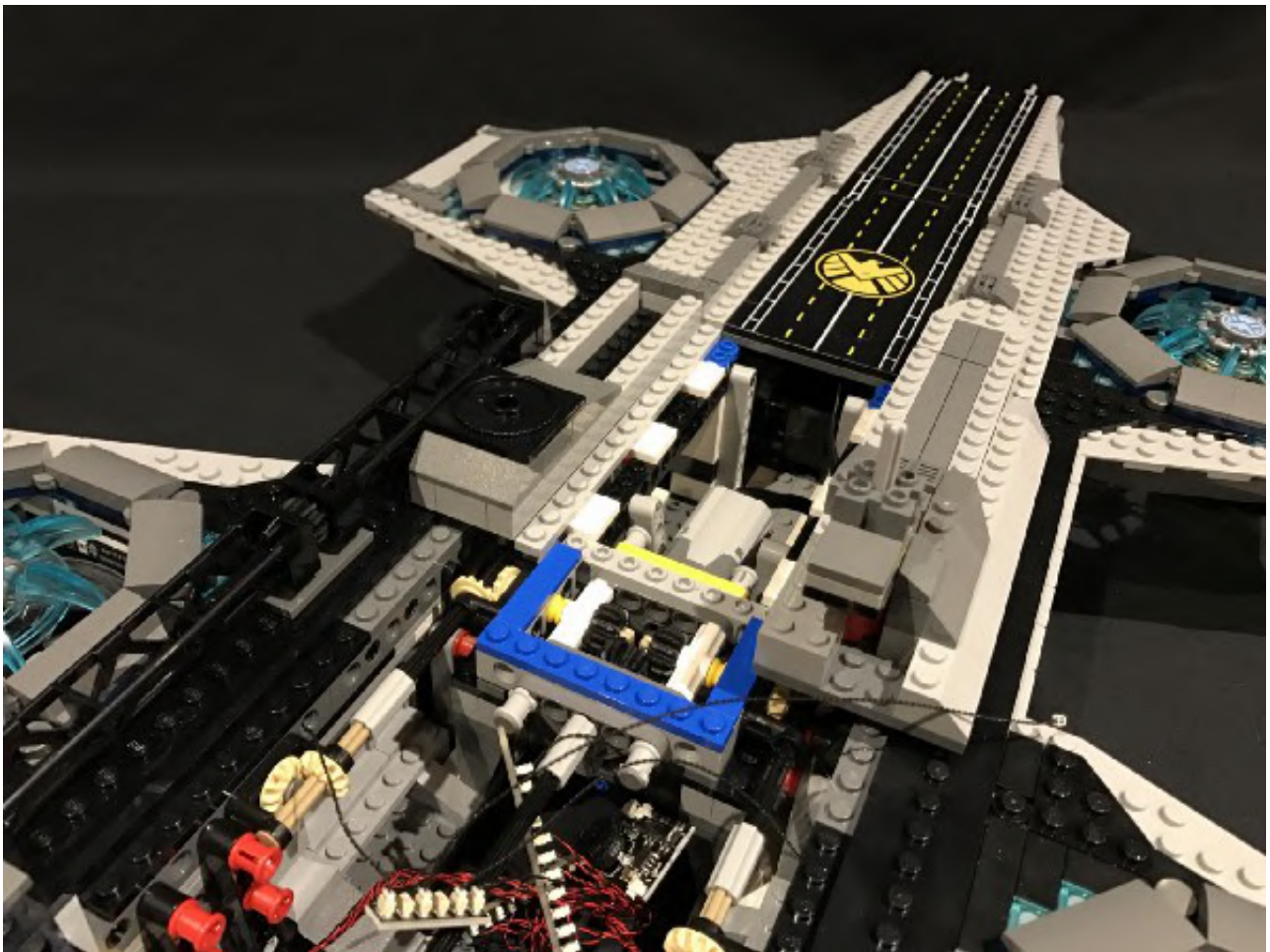
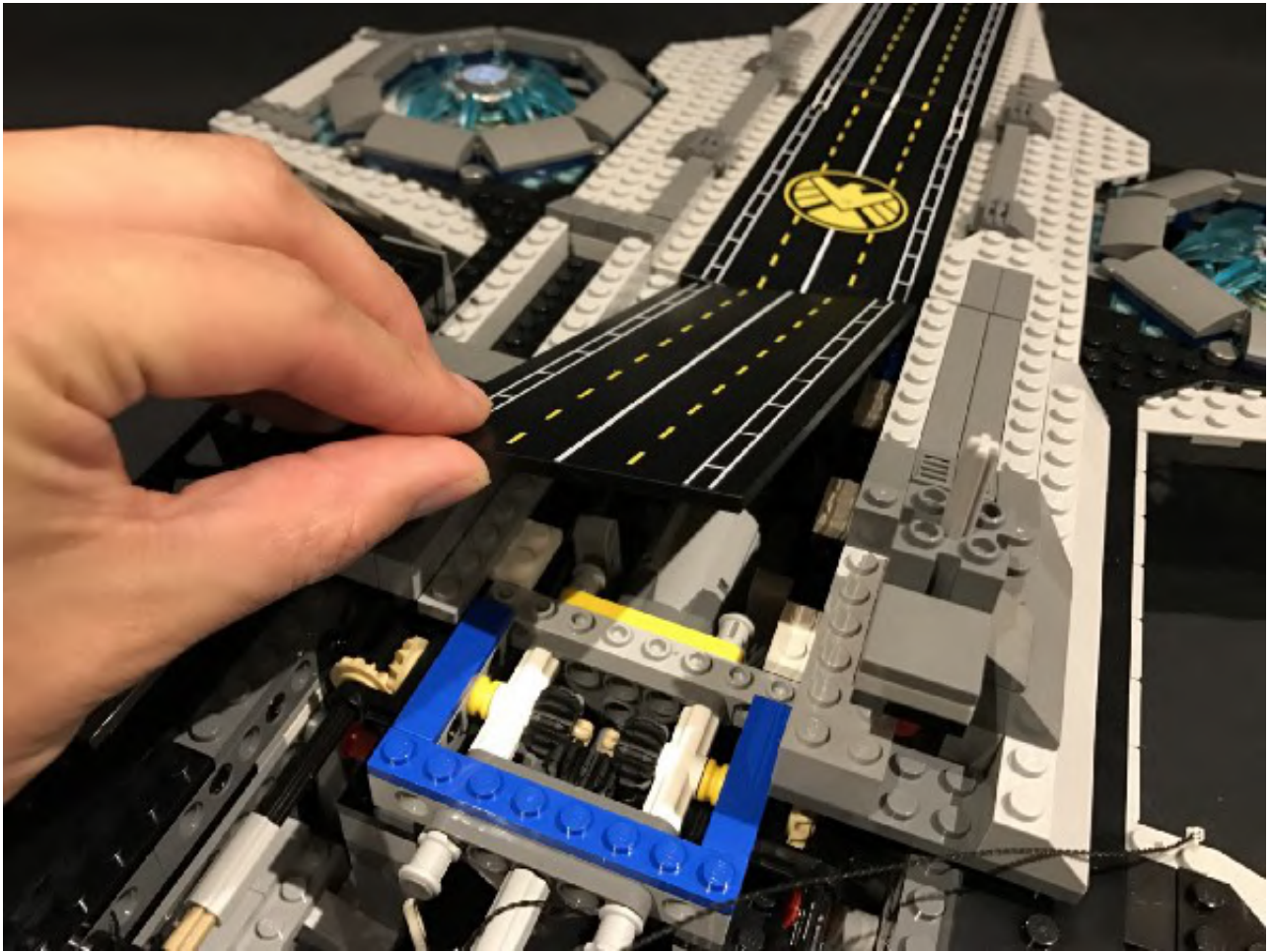


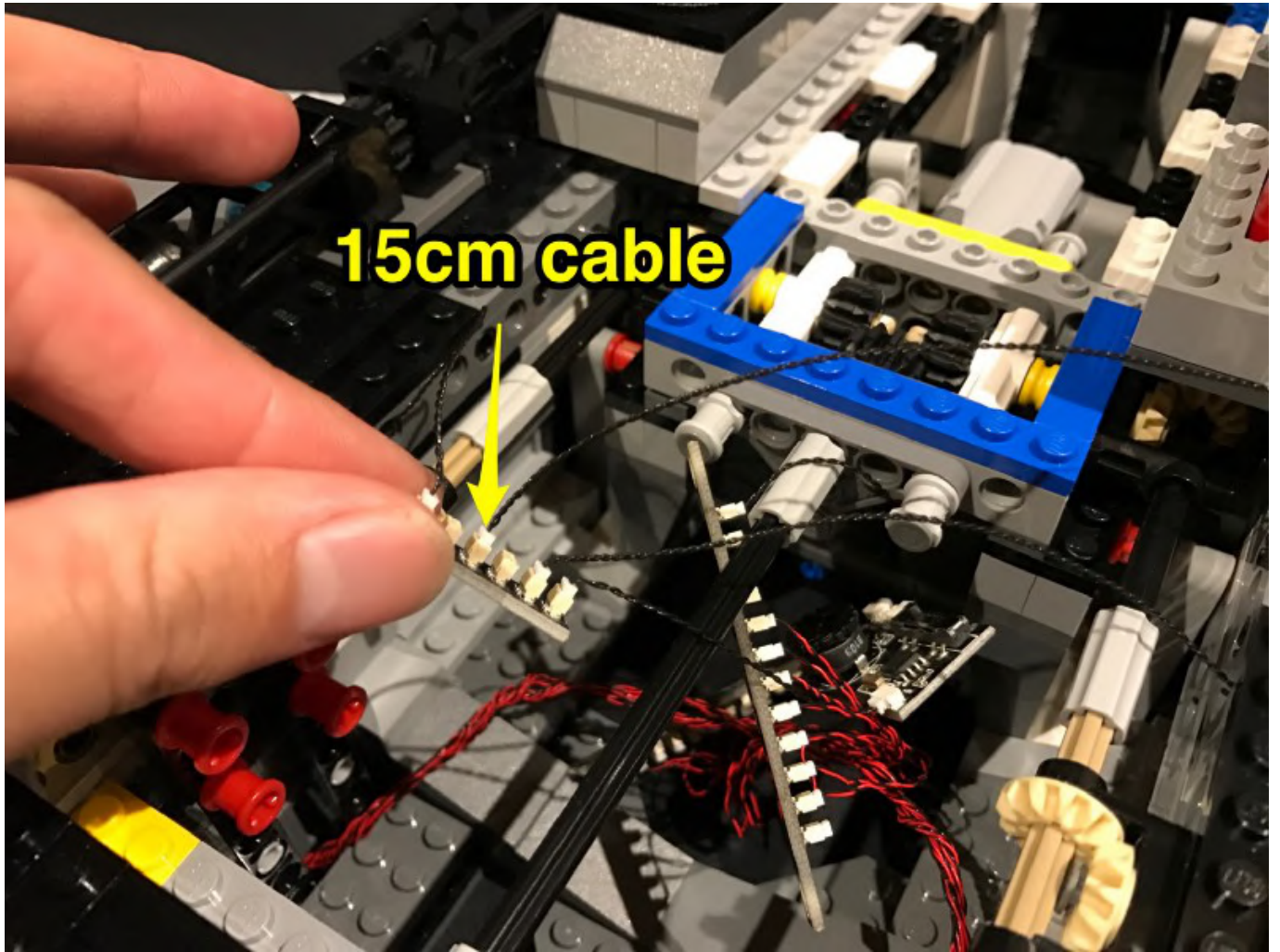


Connect the battery pack to the 6-port expansion and check that the propeller lights are working OK.

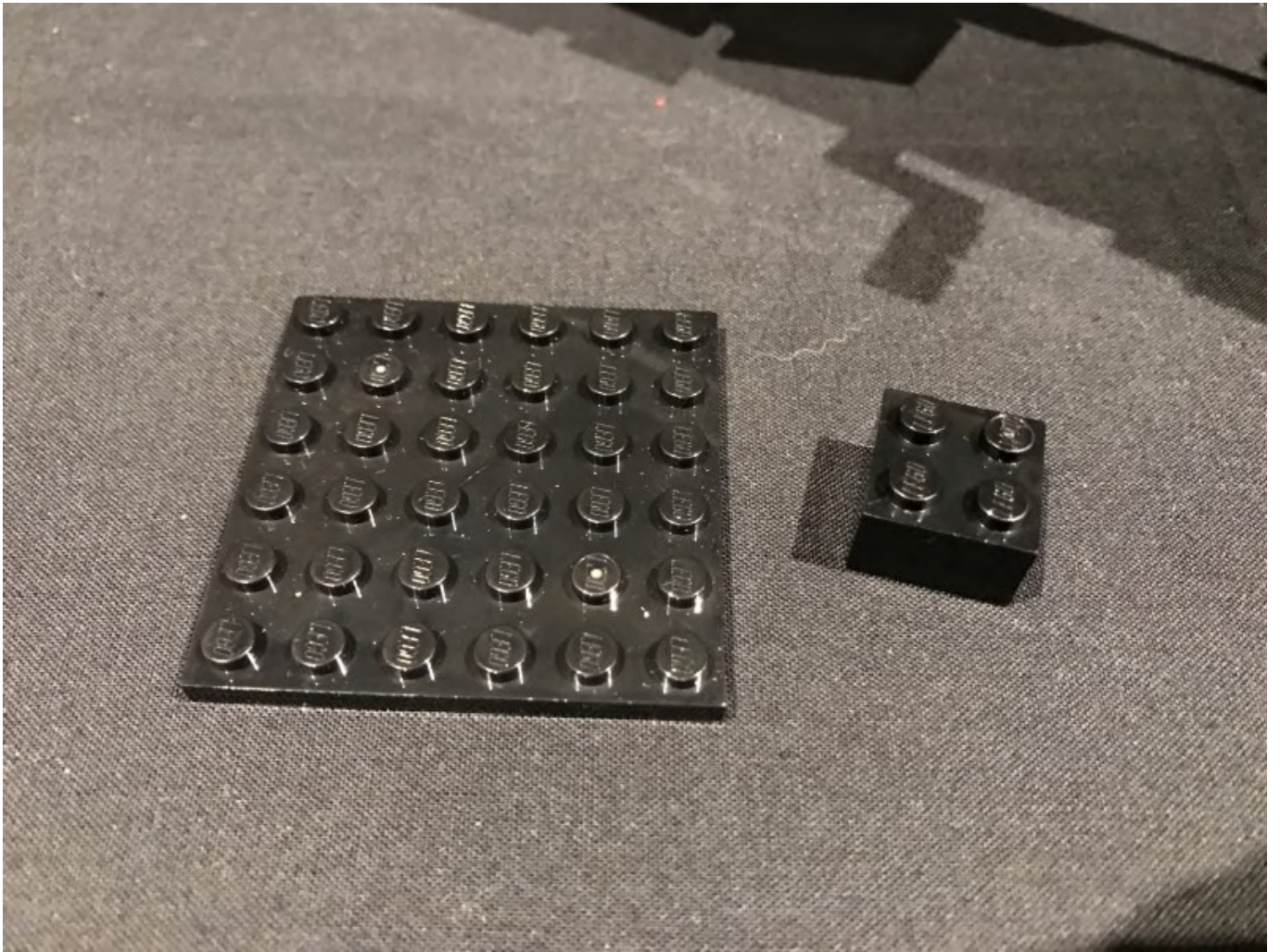


7.) Remove another LEGO road plate and then take another **15cm connecting cable** and connect it to the 6-port expansion board. This cable will be used to connect this sections of lights to the front half of the helicARRIER.

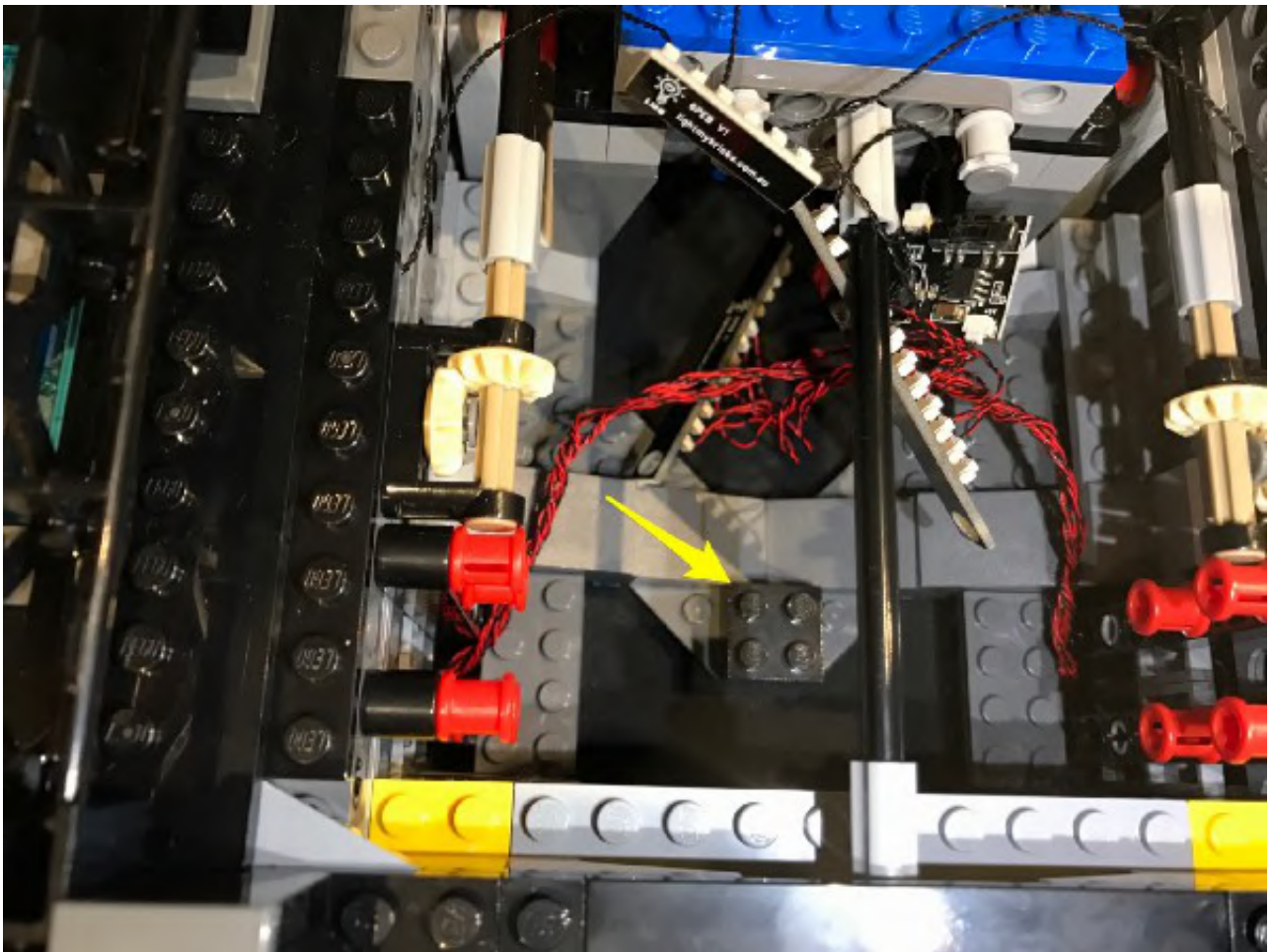
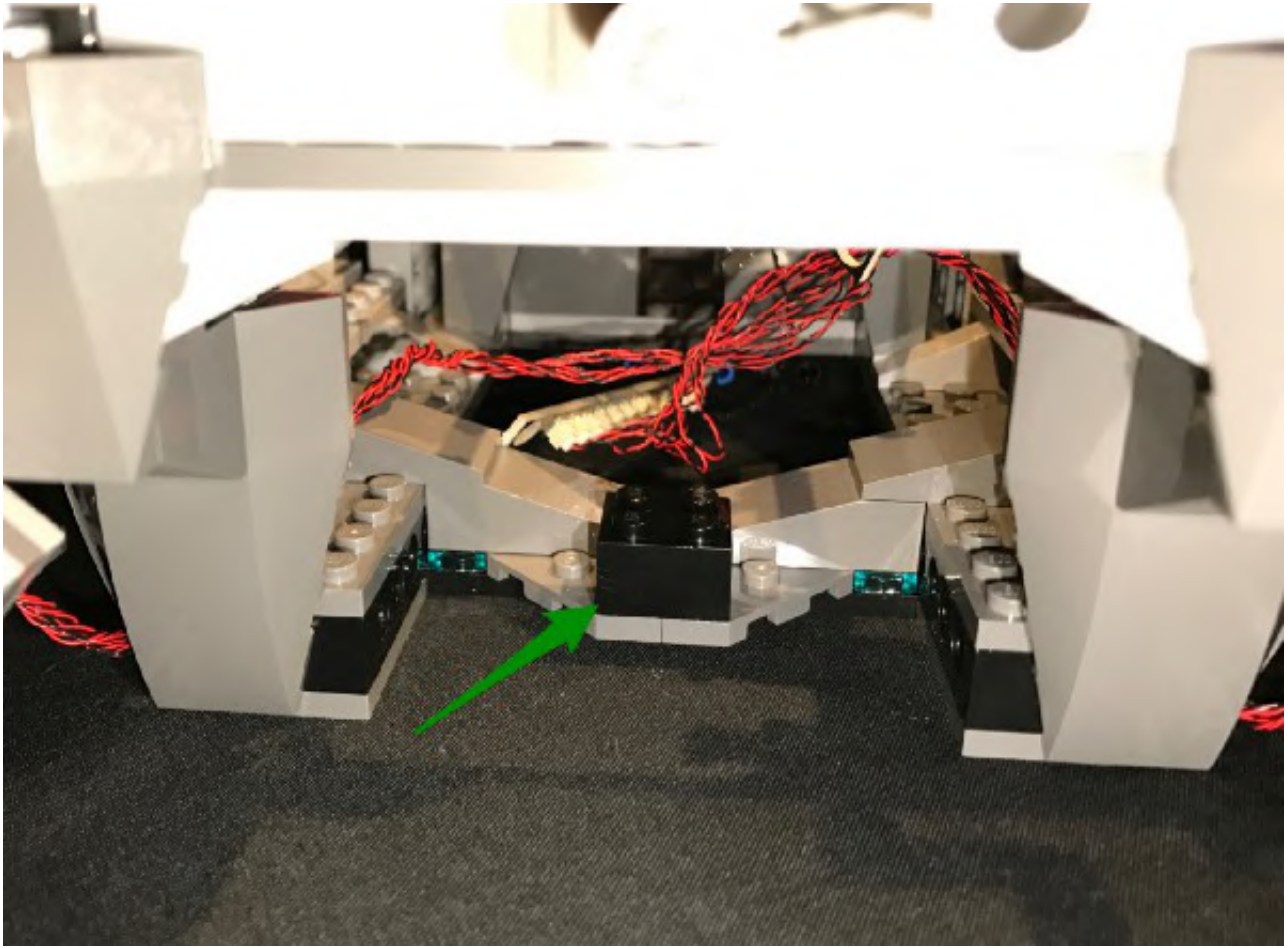




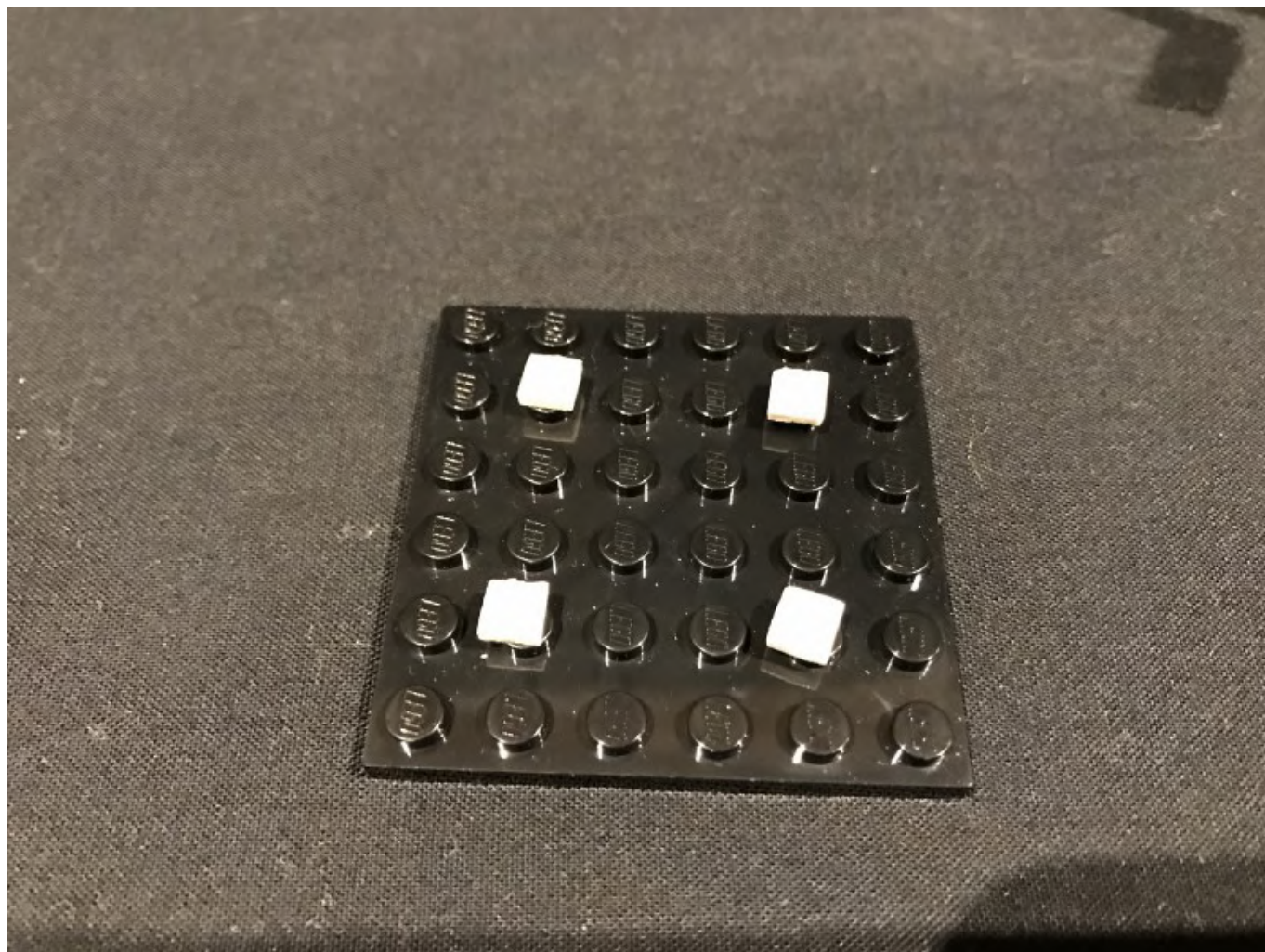
8.) We will now mount the AA Battery pack in a fixed position. First locate the following provided LEGO pieces: **6×6 Plate** and **2×2 Brick**. (colours may vary)

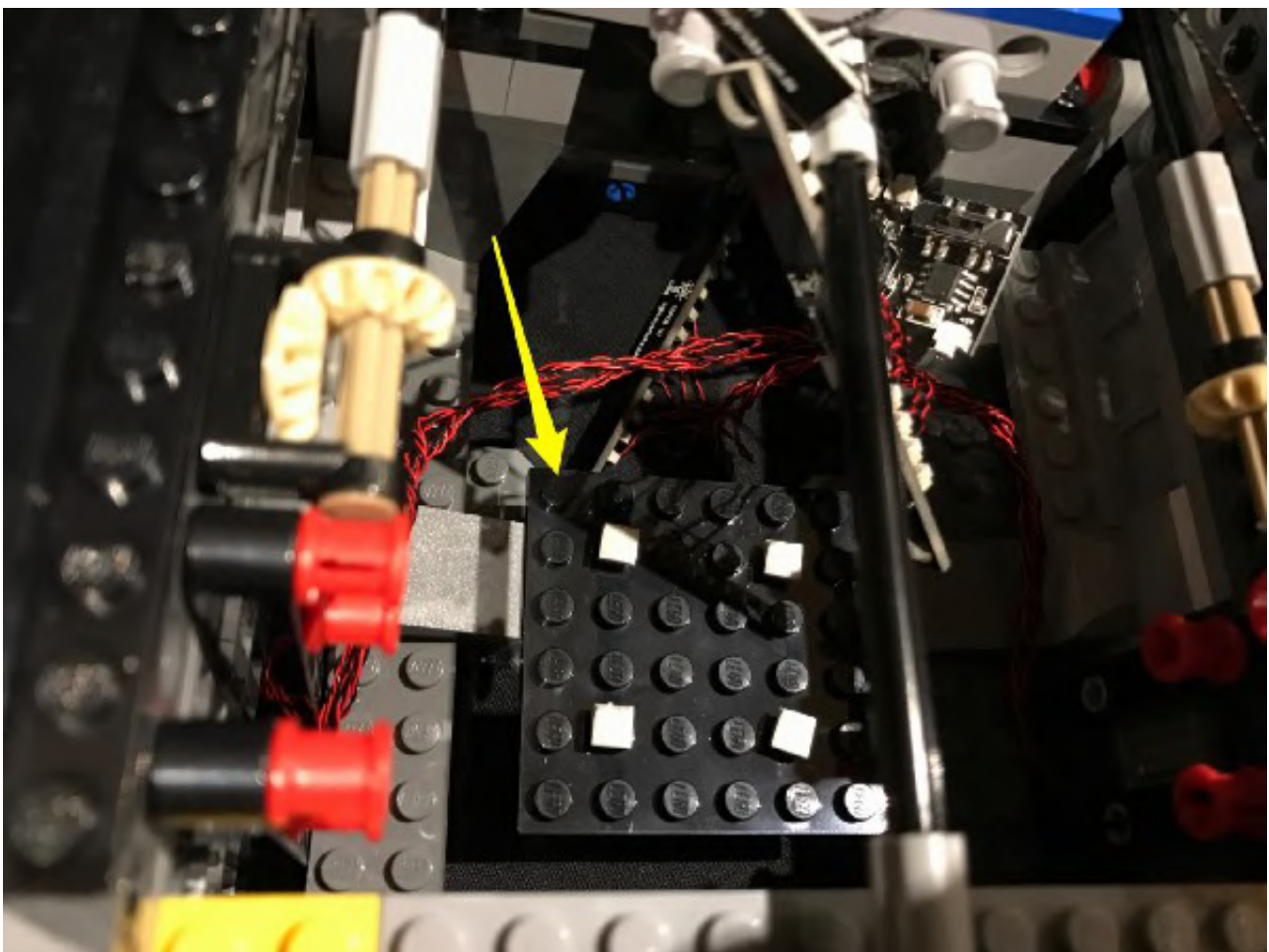
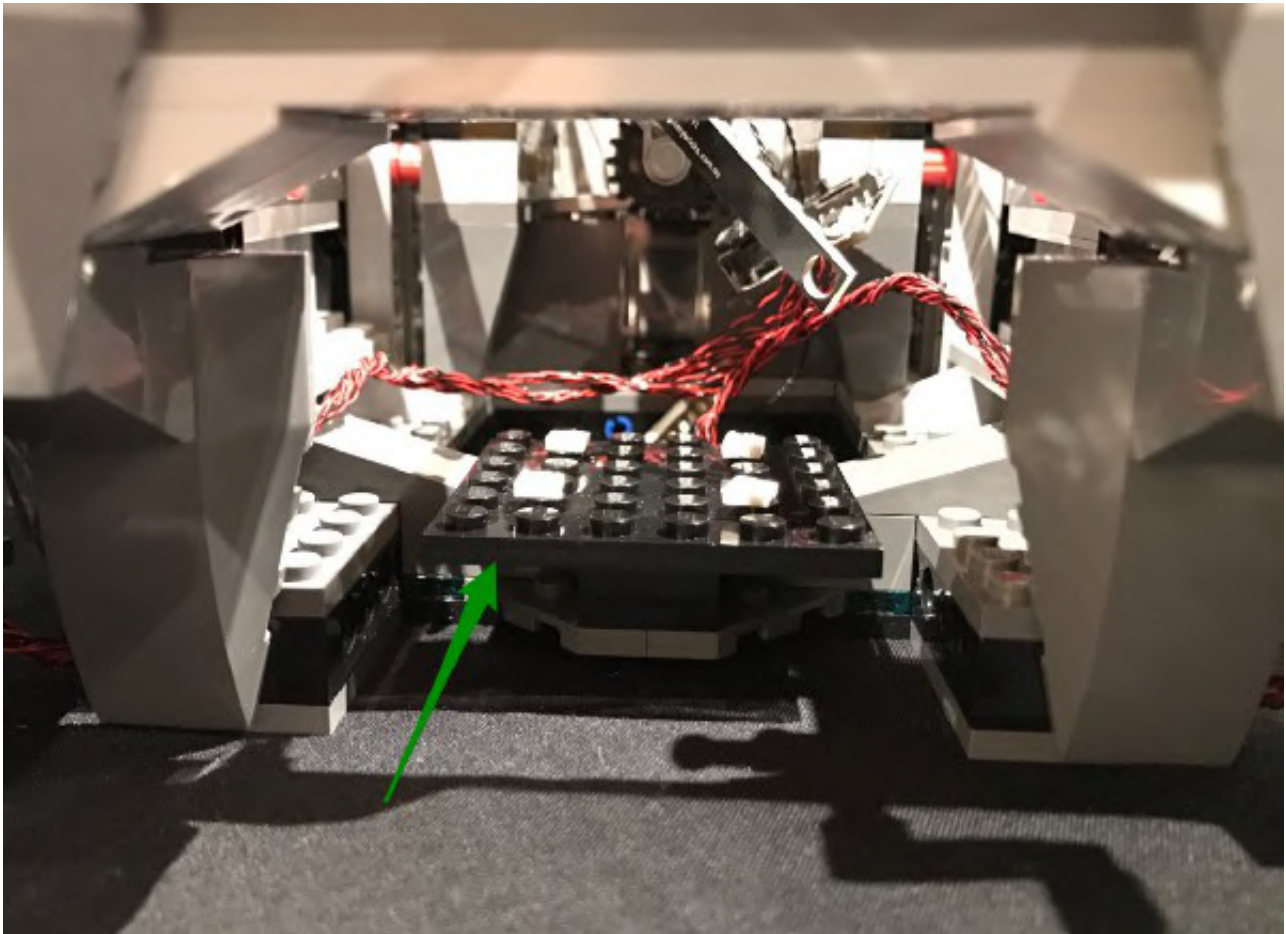


Connect the 2x2 brick to the following position inside the back of the helicARRIER.

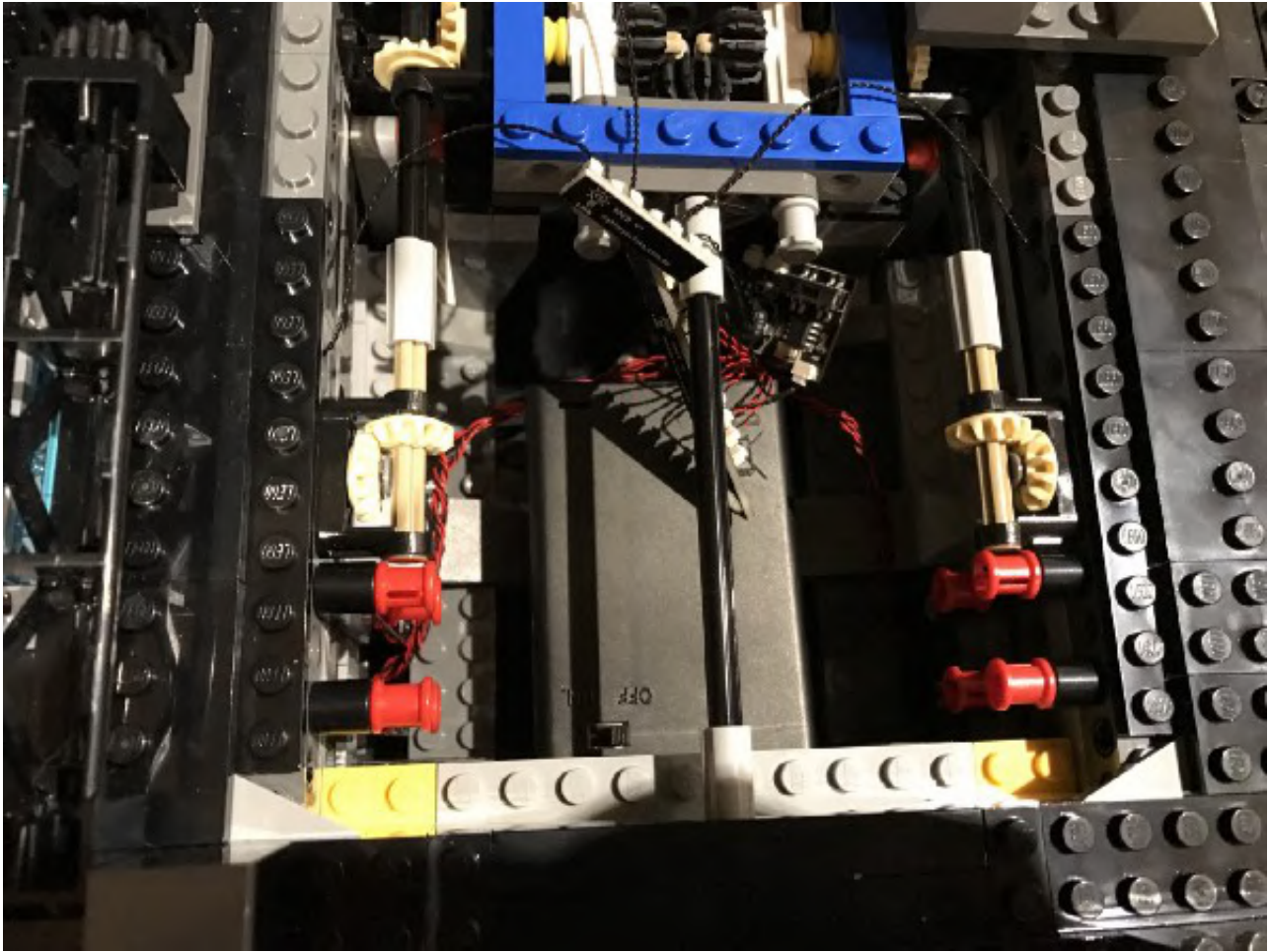


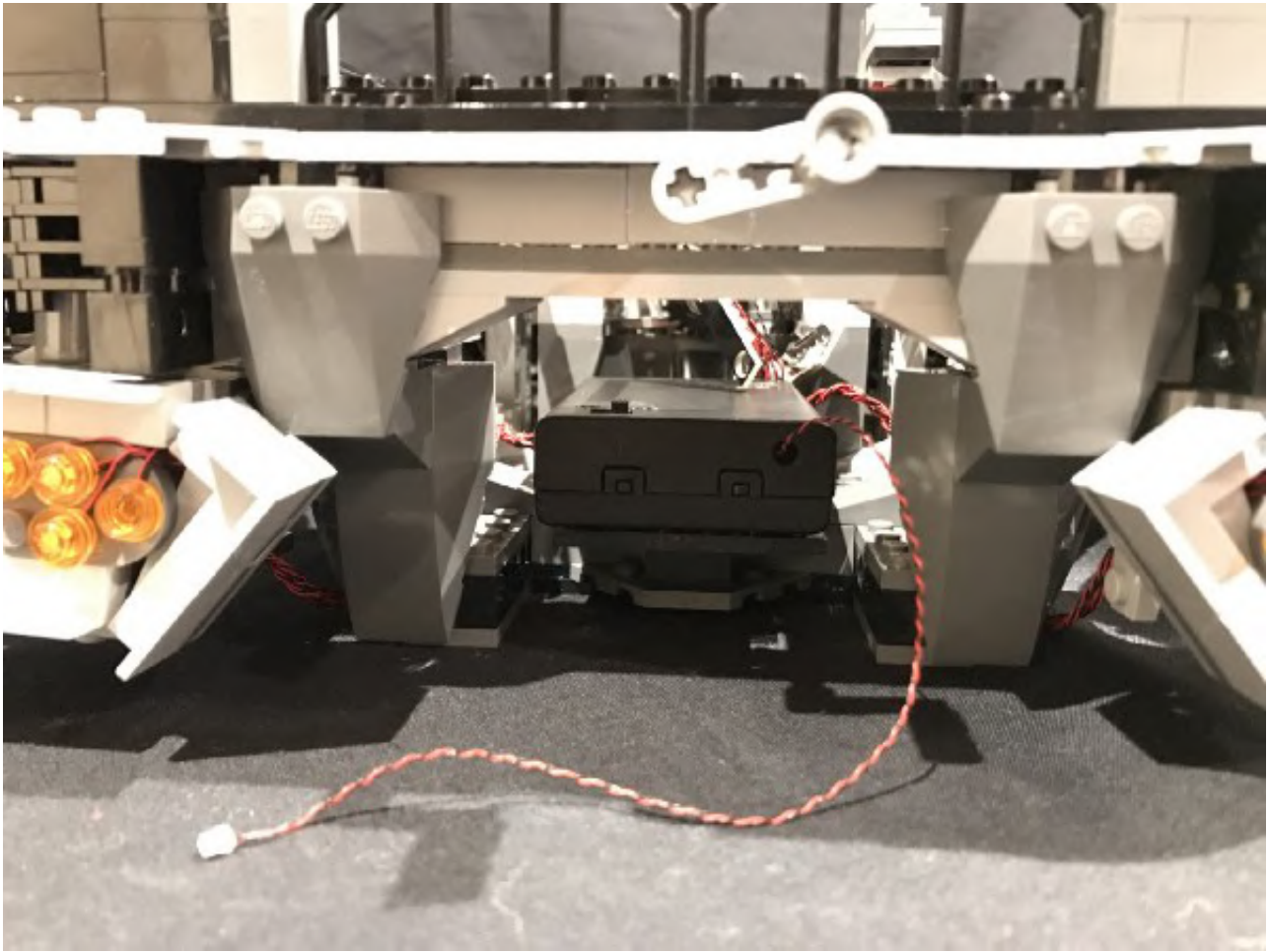
Take 4x adhesive squares and stick them to the following studs on the 6x6 plate, then connect the plate to the 2x2 brick as per below.



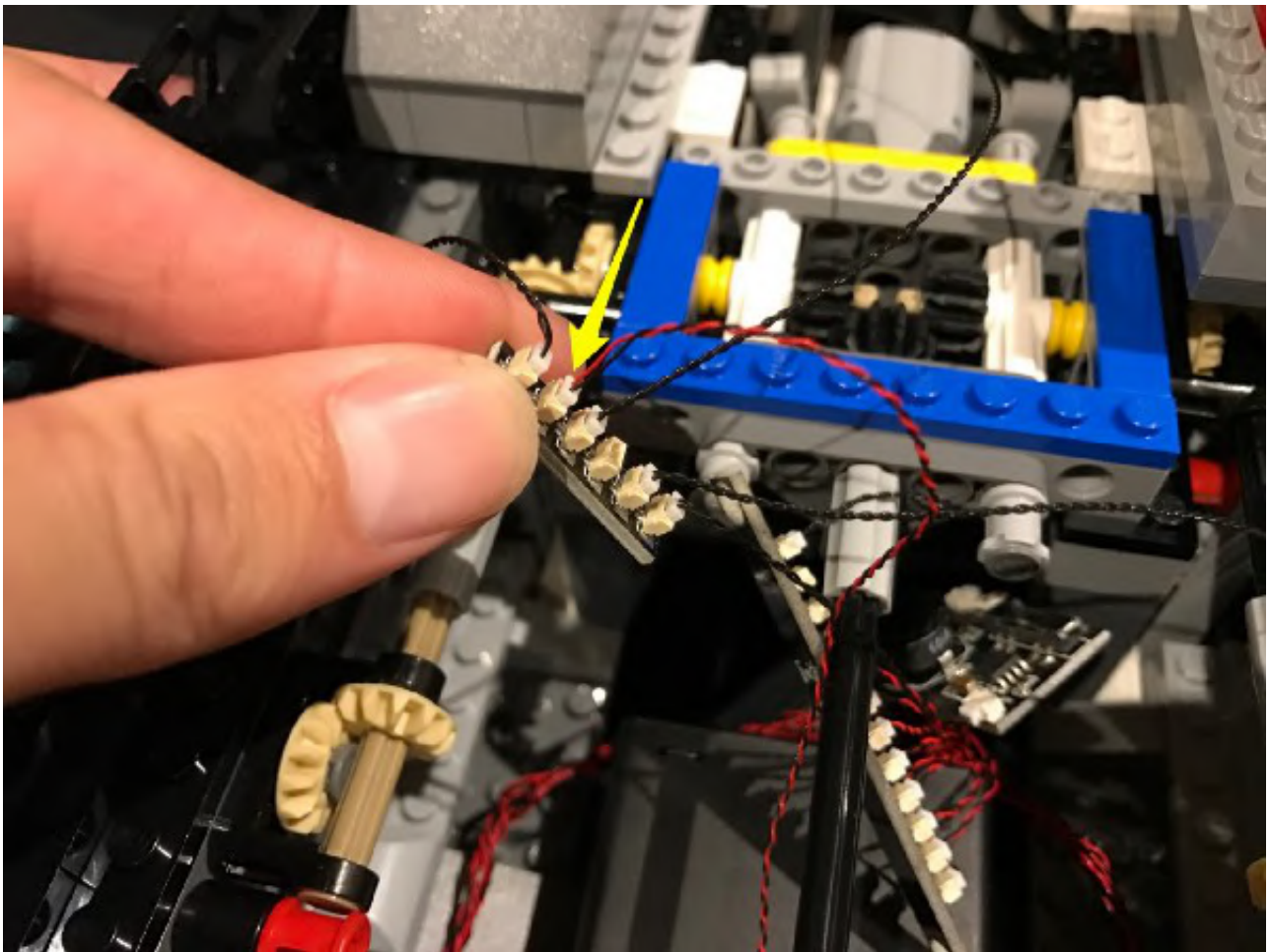
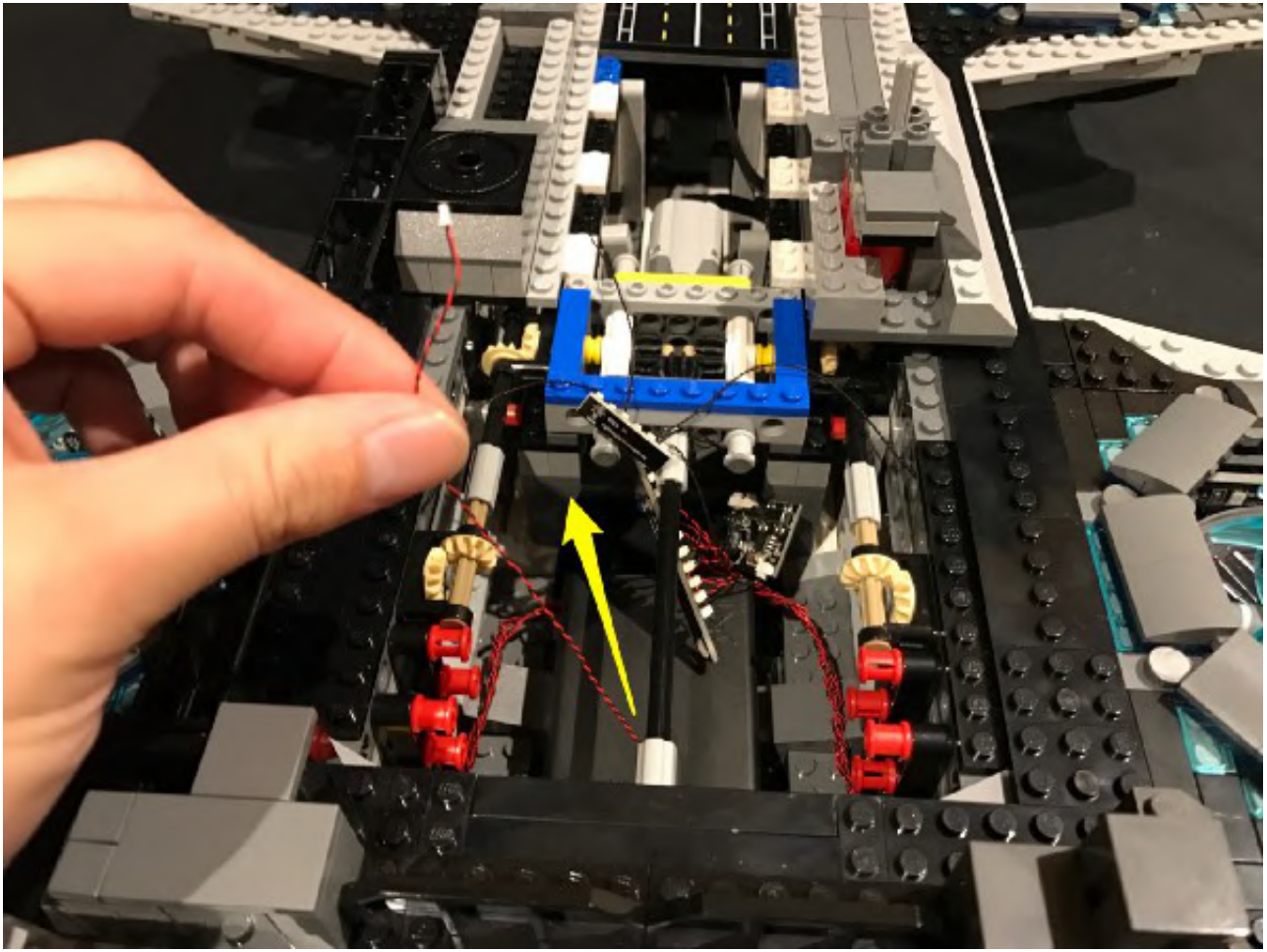


Place the AA Battery Pack on top of the 6×6 plate and secure down ensuring it is well mounted to the plate underneath.

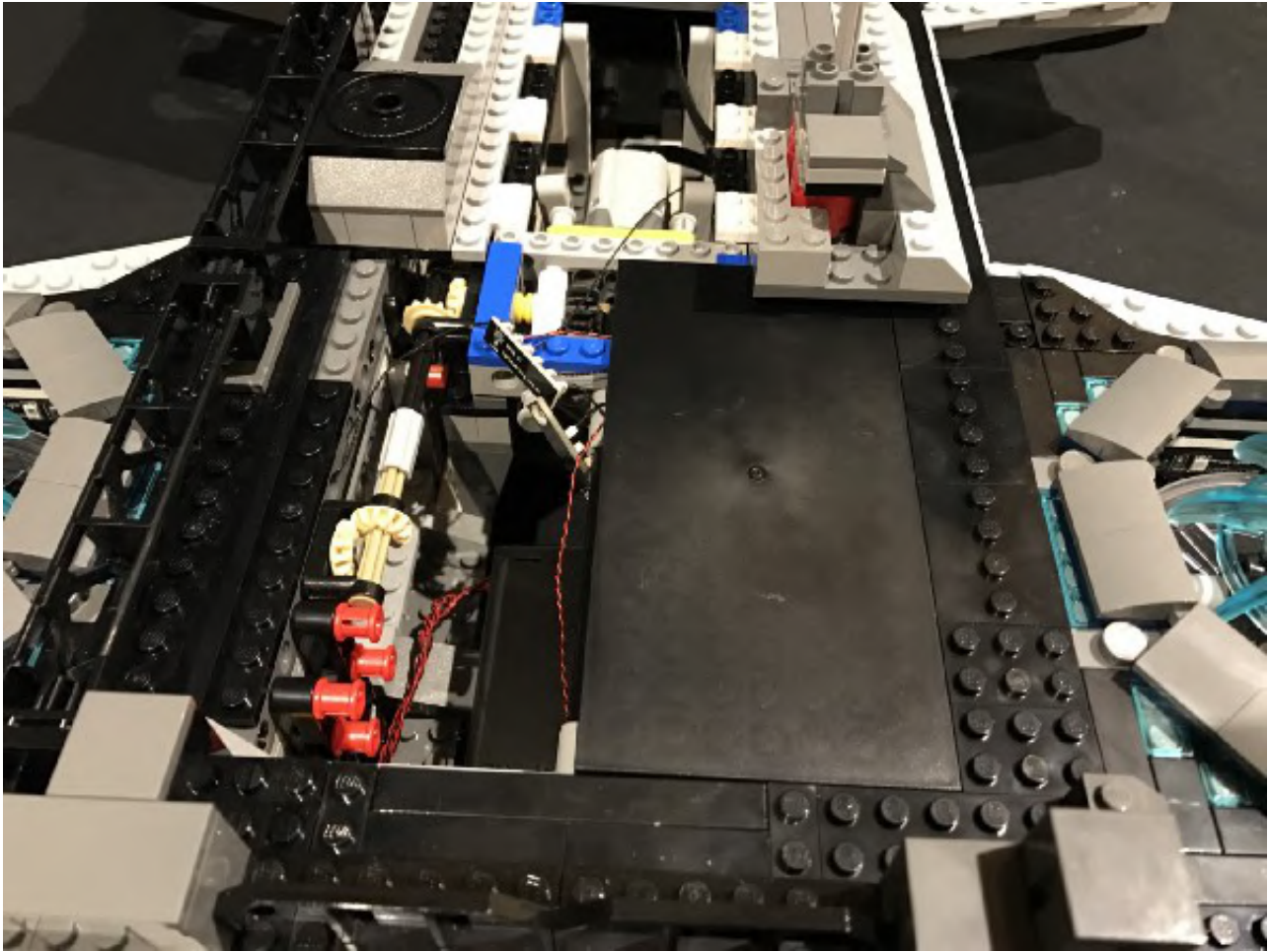


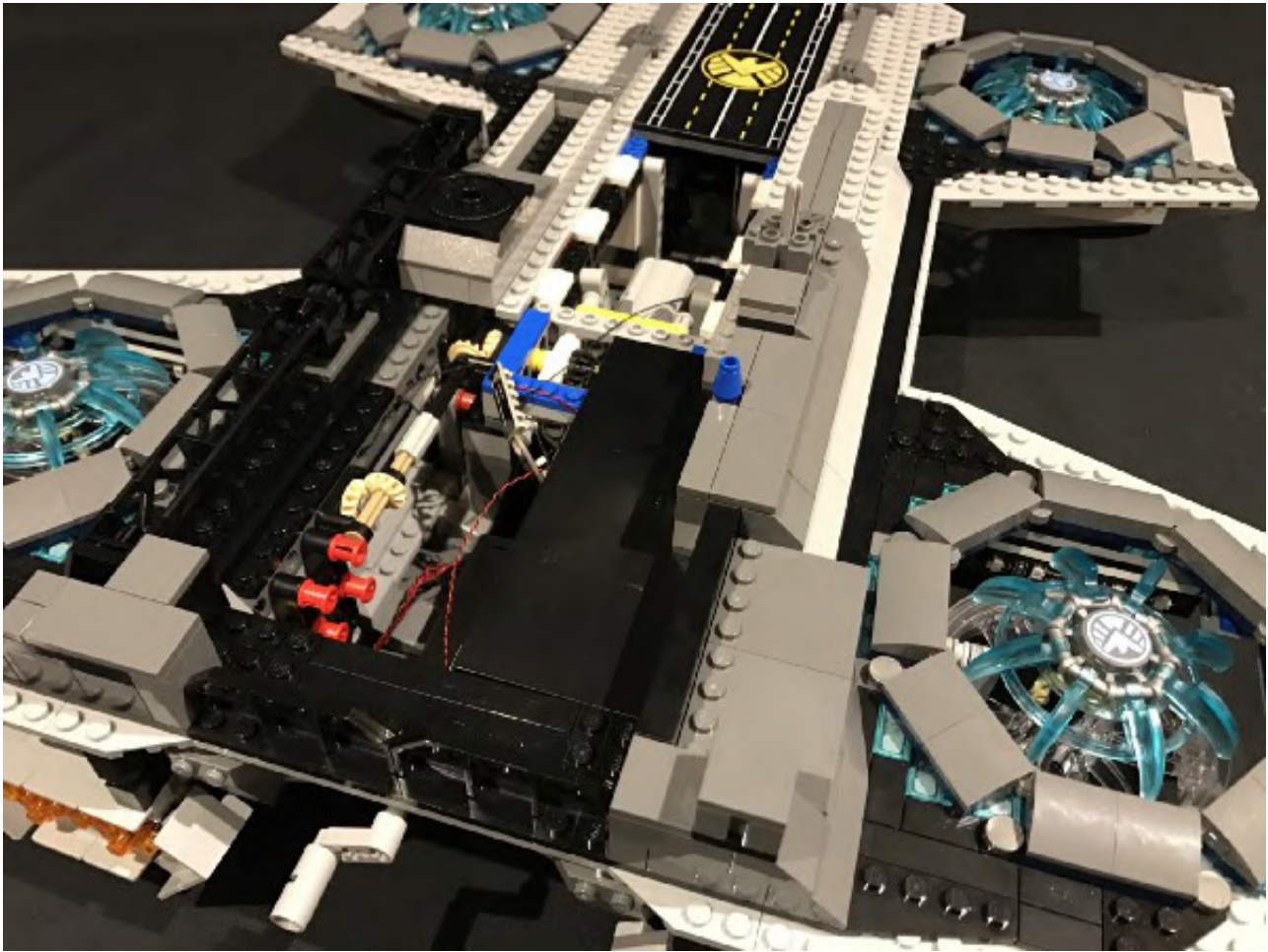


Thread the battery pack cable back inside and then pull up from the inside and then connect it to the 6-port expansion board.

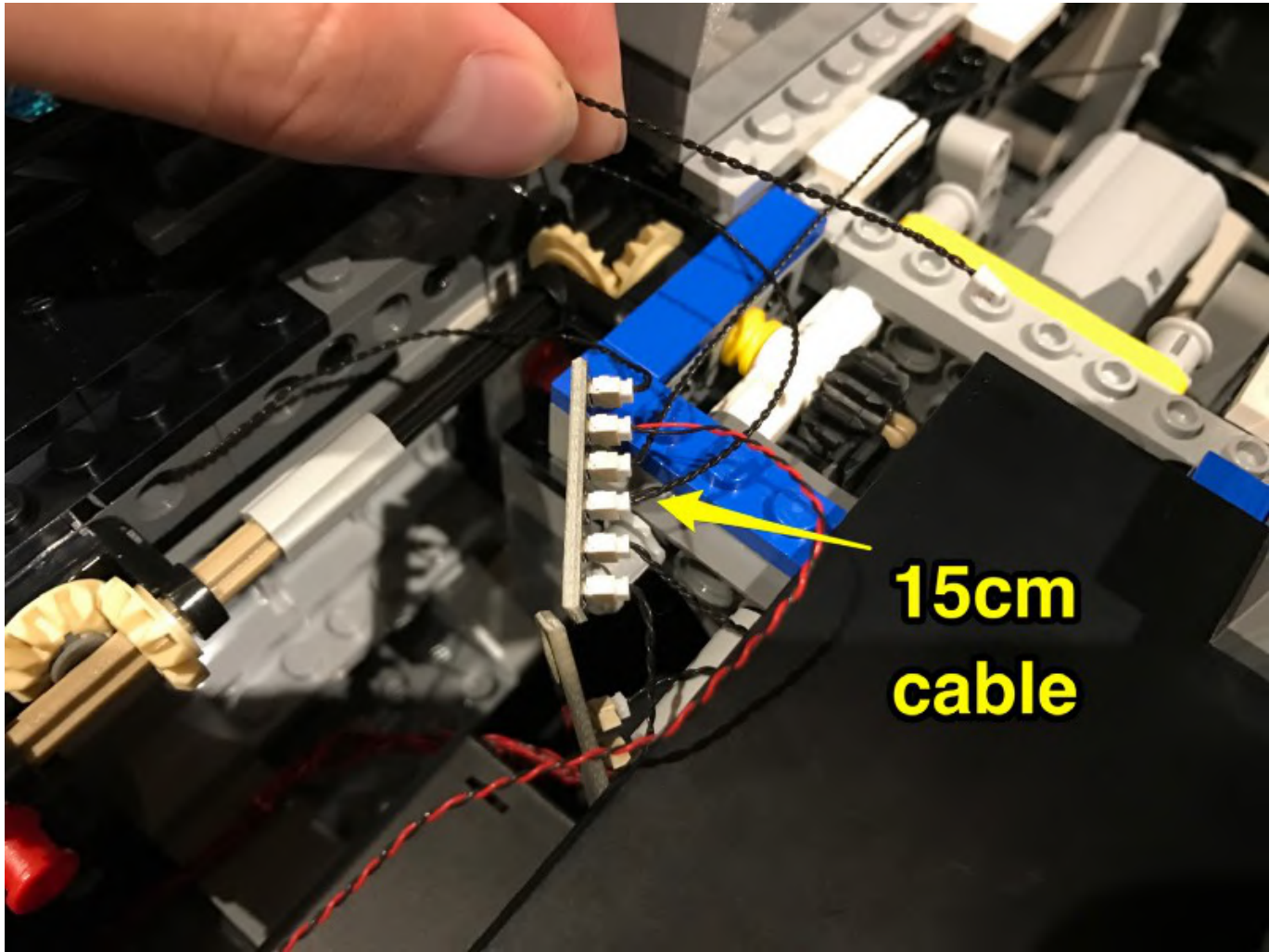


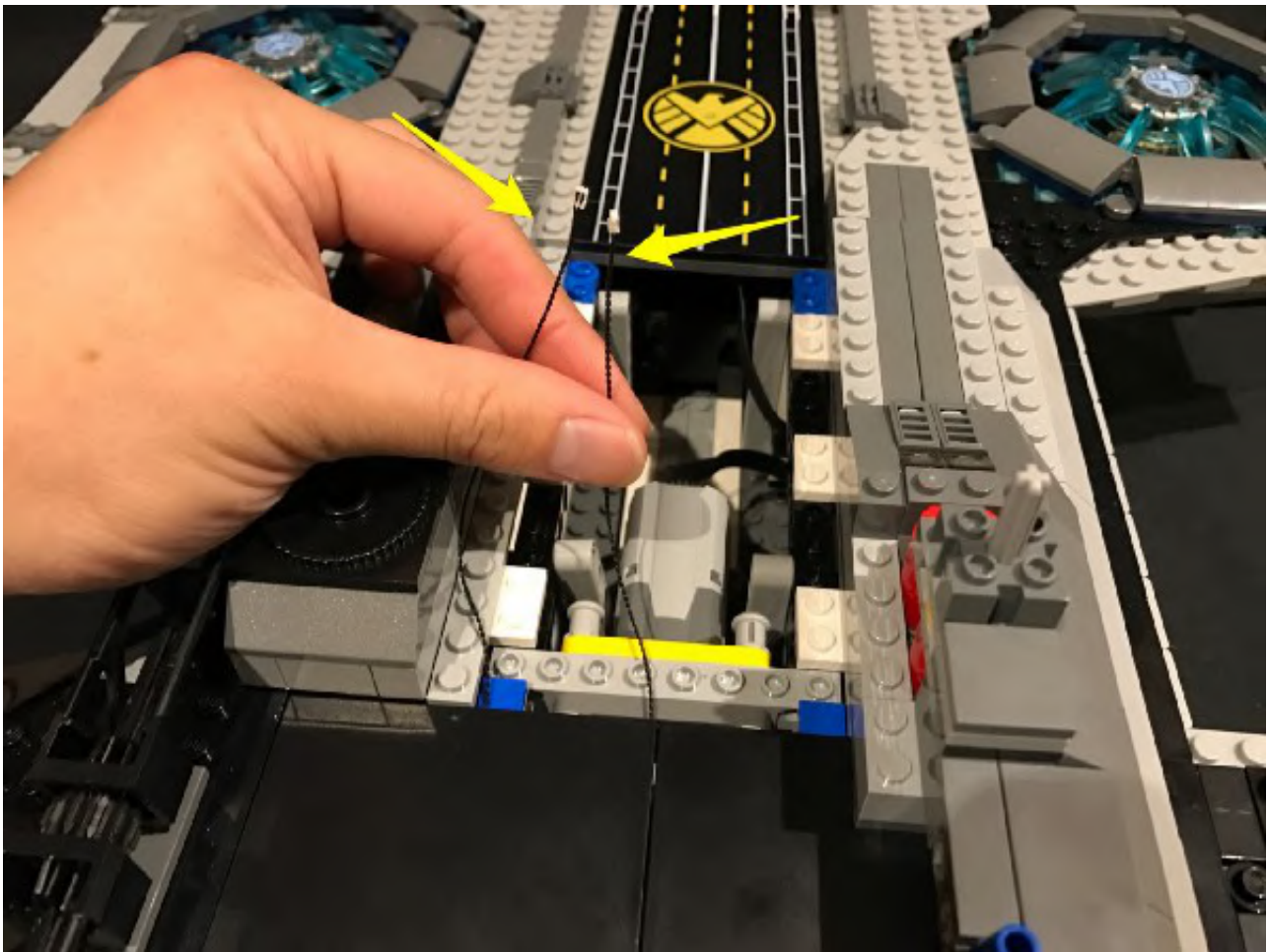
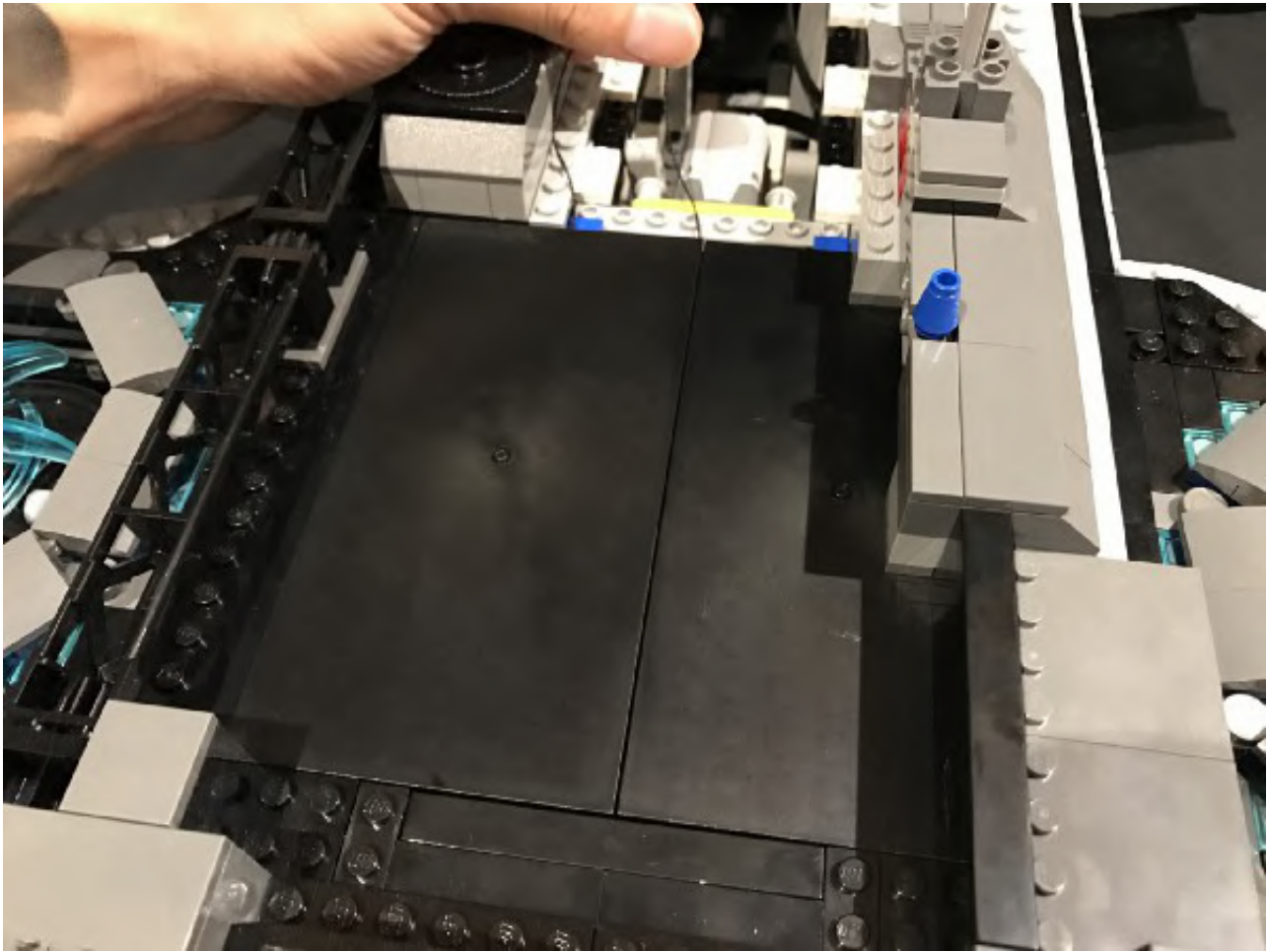
9.) Reconnect back the right LEGO road plate we removed earlier, followed by surrounding LEGO sections.



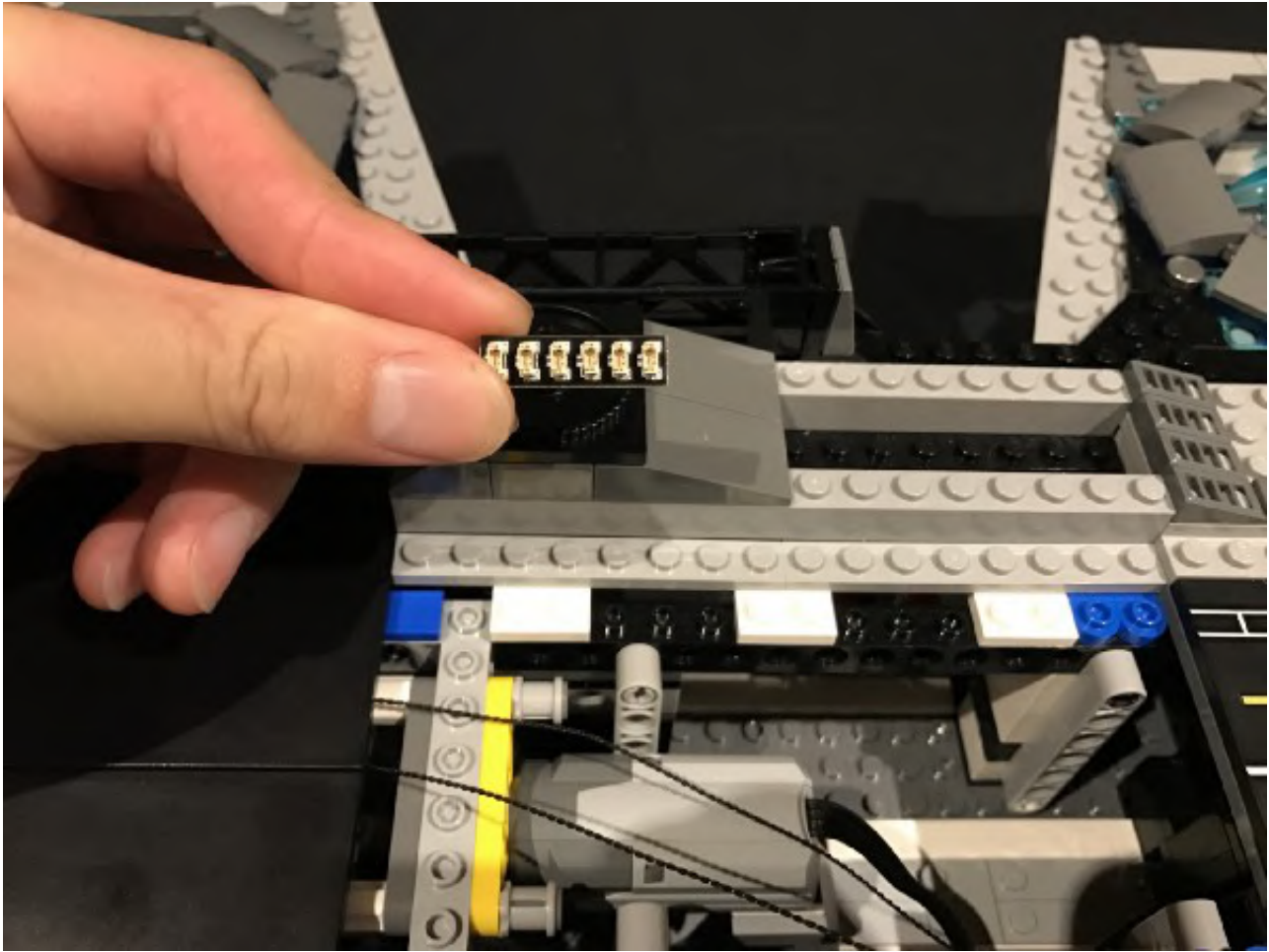


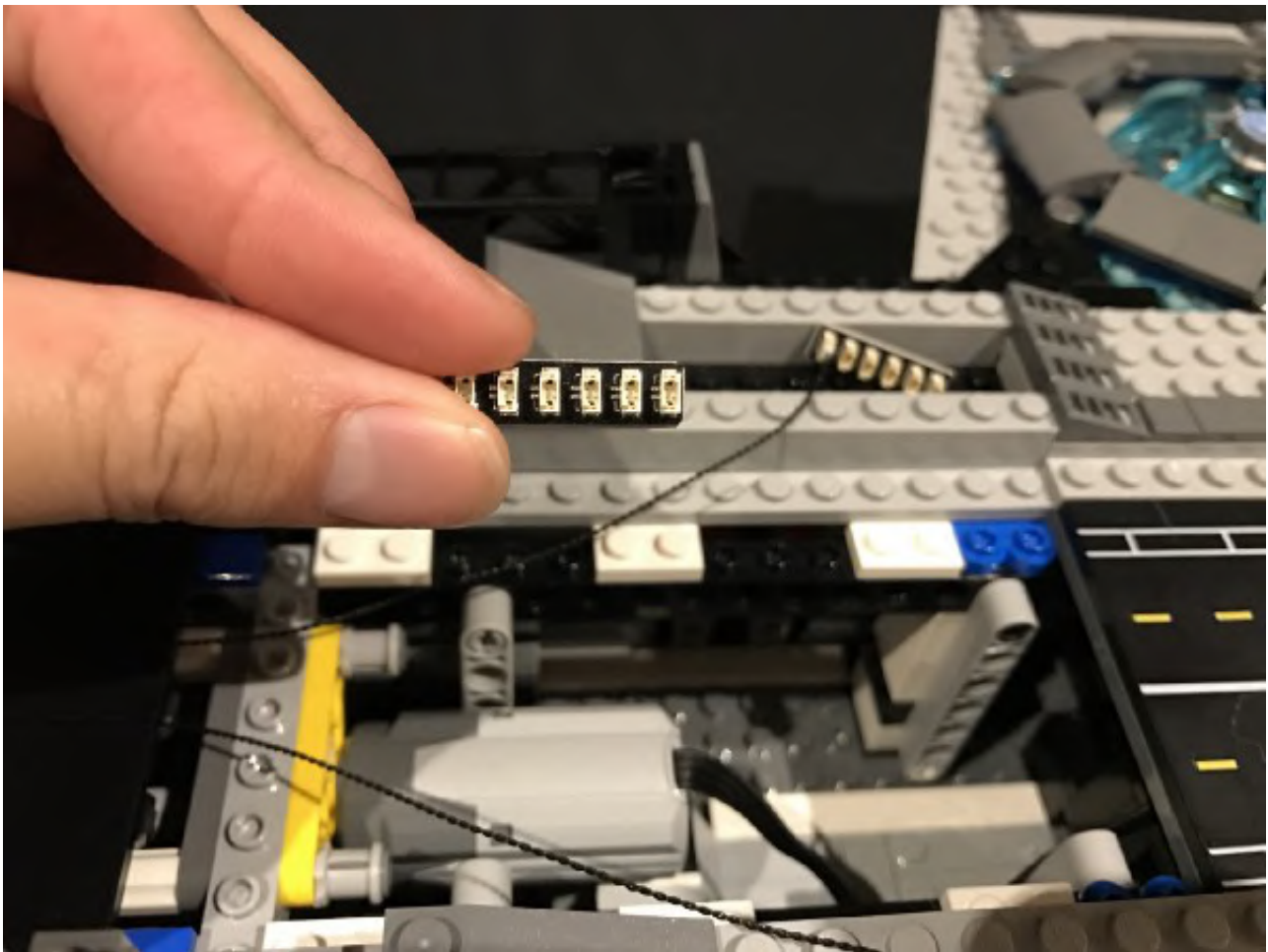
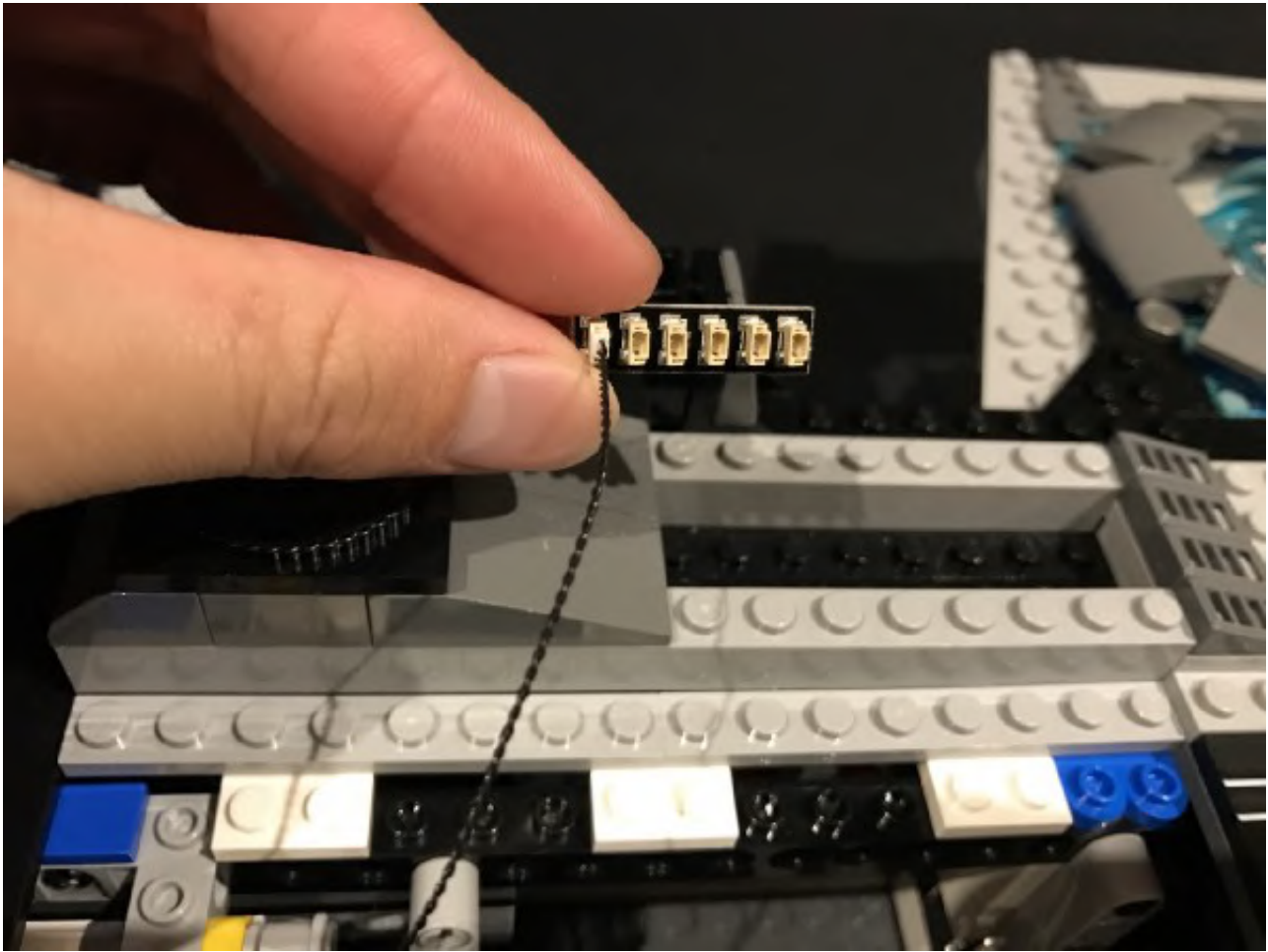
Connect another **15cm connecting cable** to the 6-port expansion board then reconnect the left LEGO road plate ensuring both 15cm cables are still accessible.

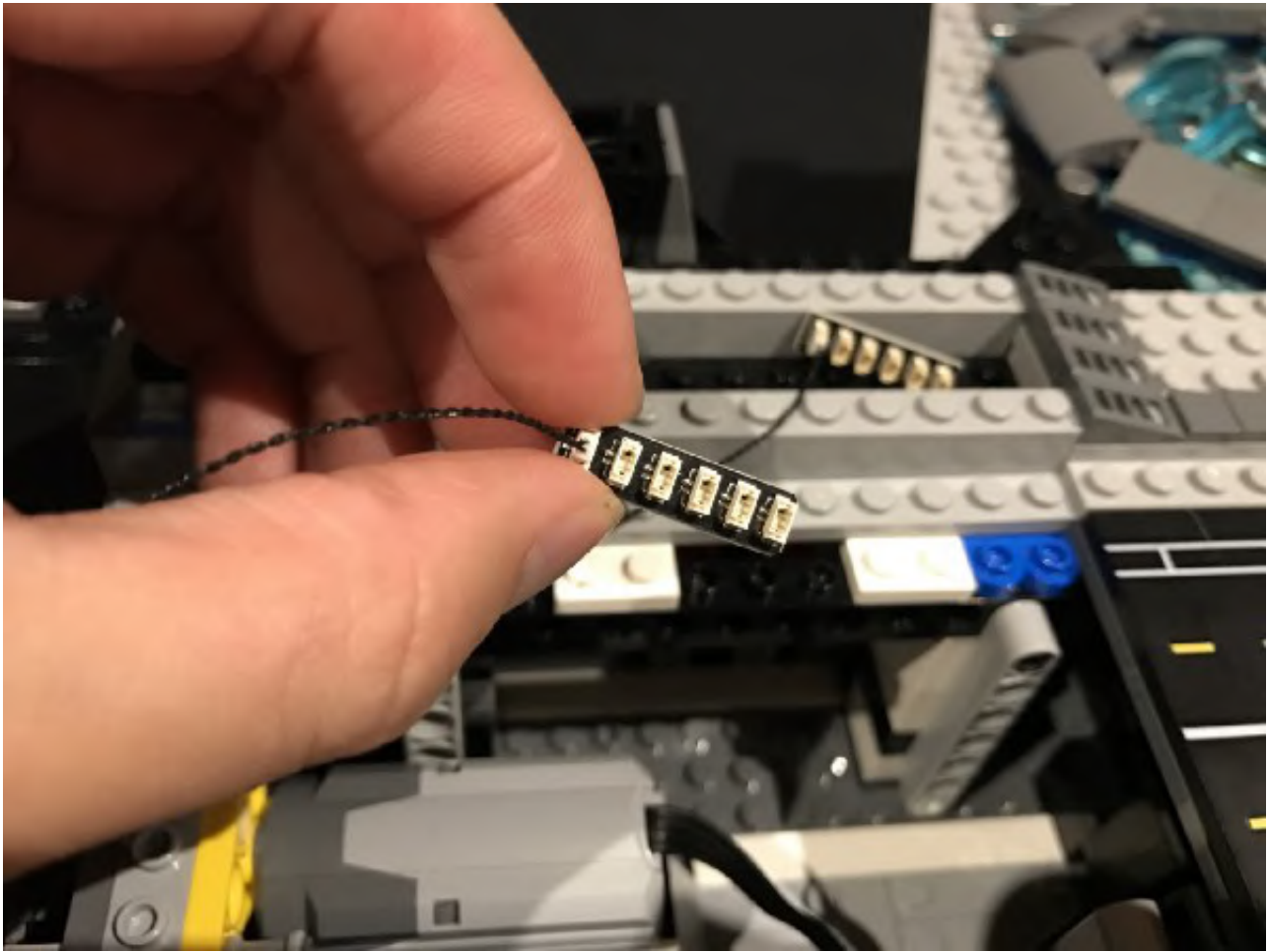




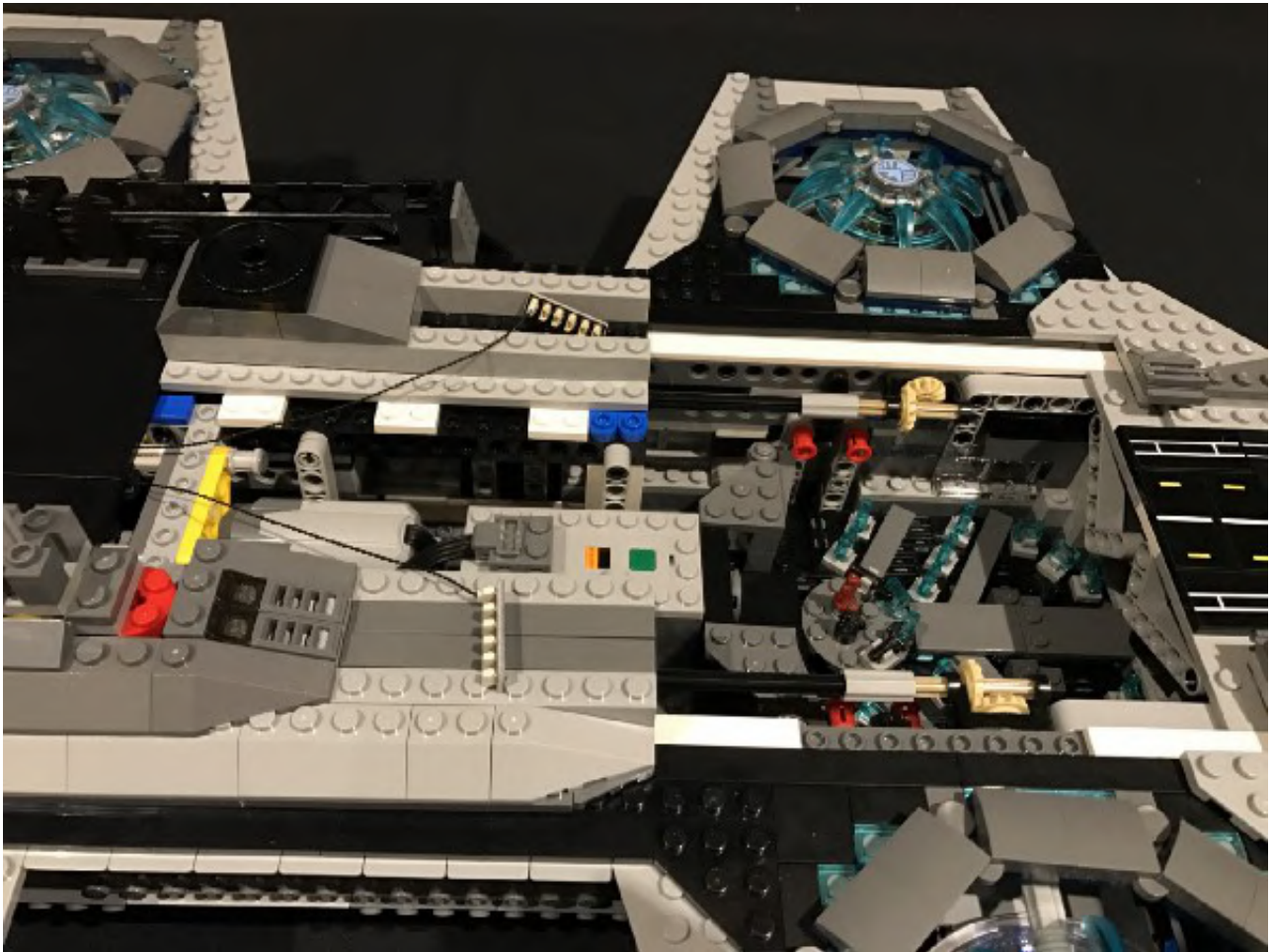
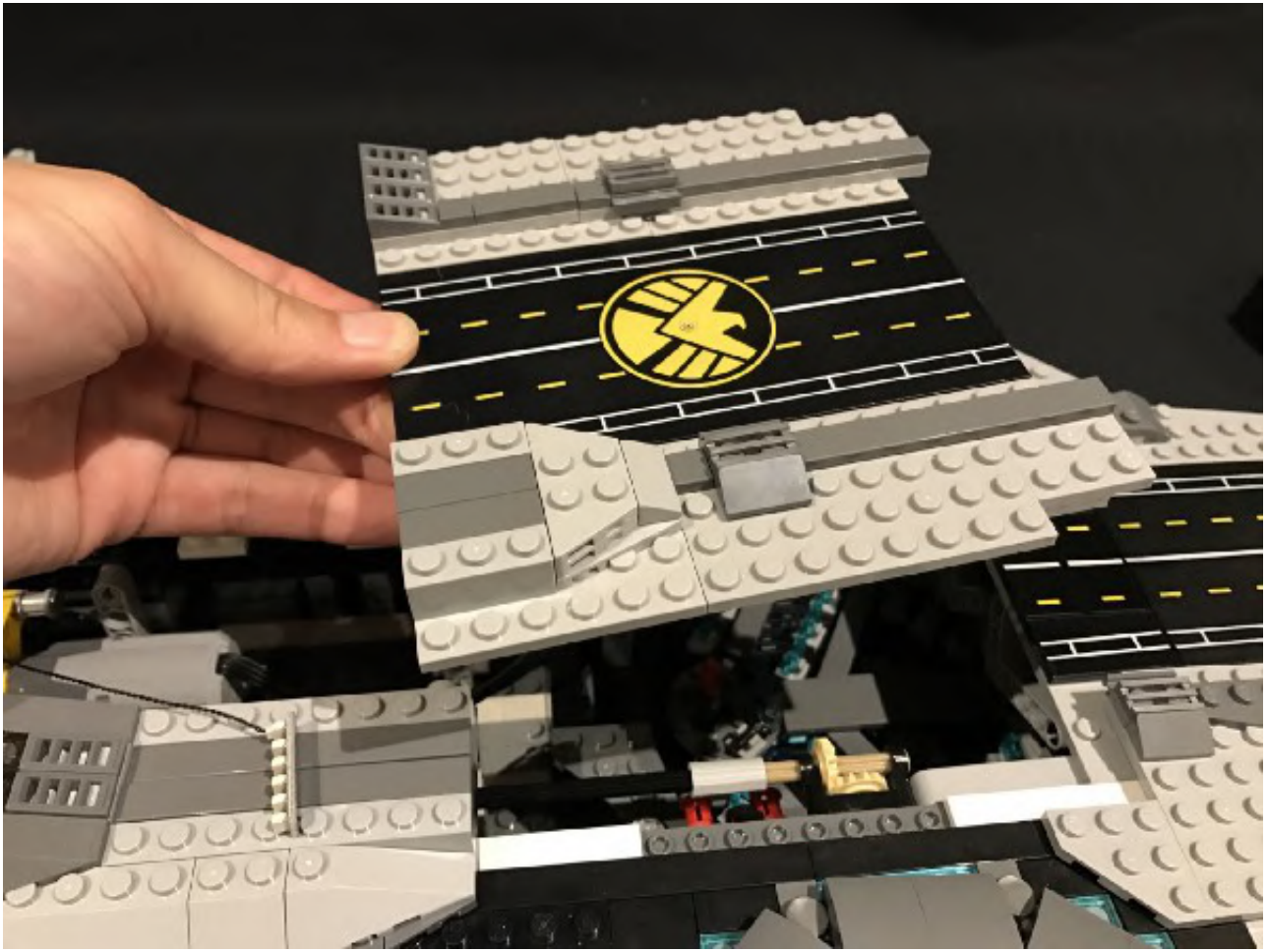
10.) Take another 2x **6-port Expansion Boards** and connect each of the 15cm cables we pulled through to one expansion board.



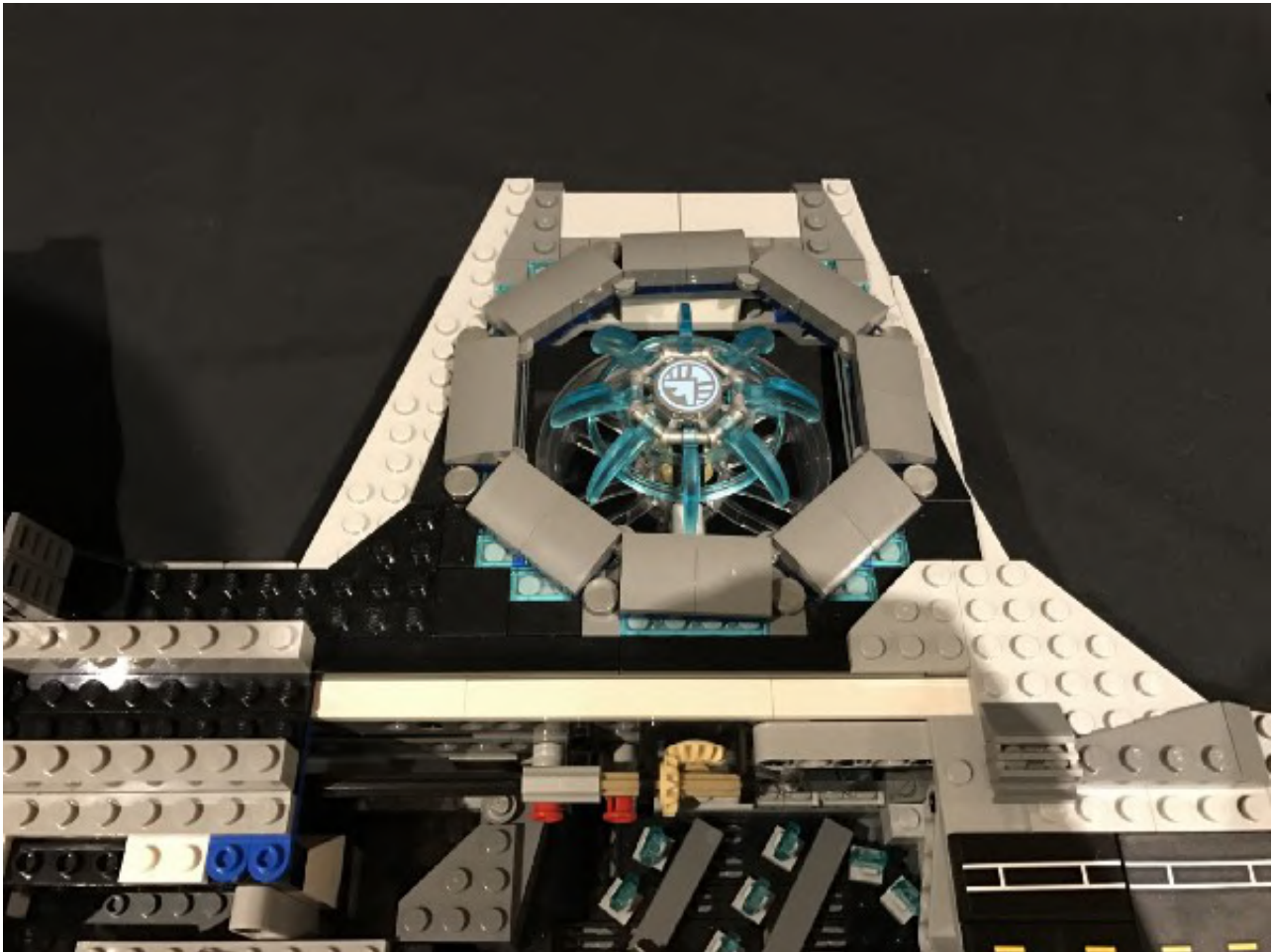


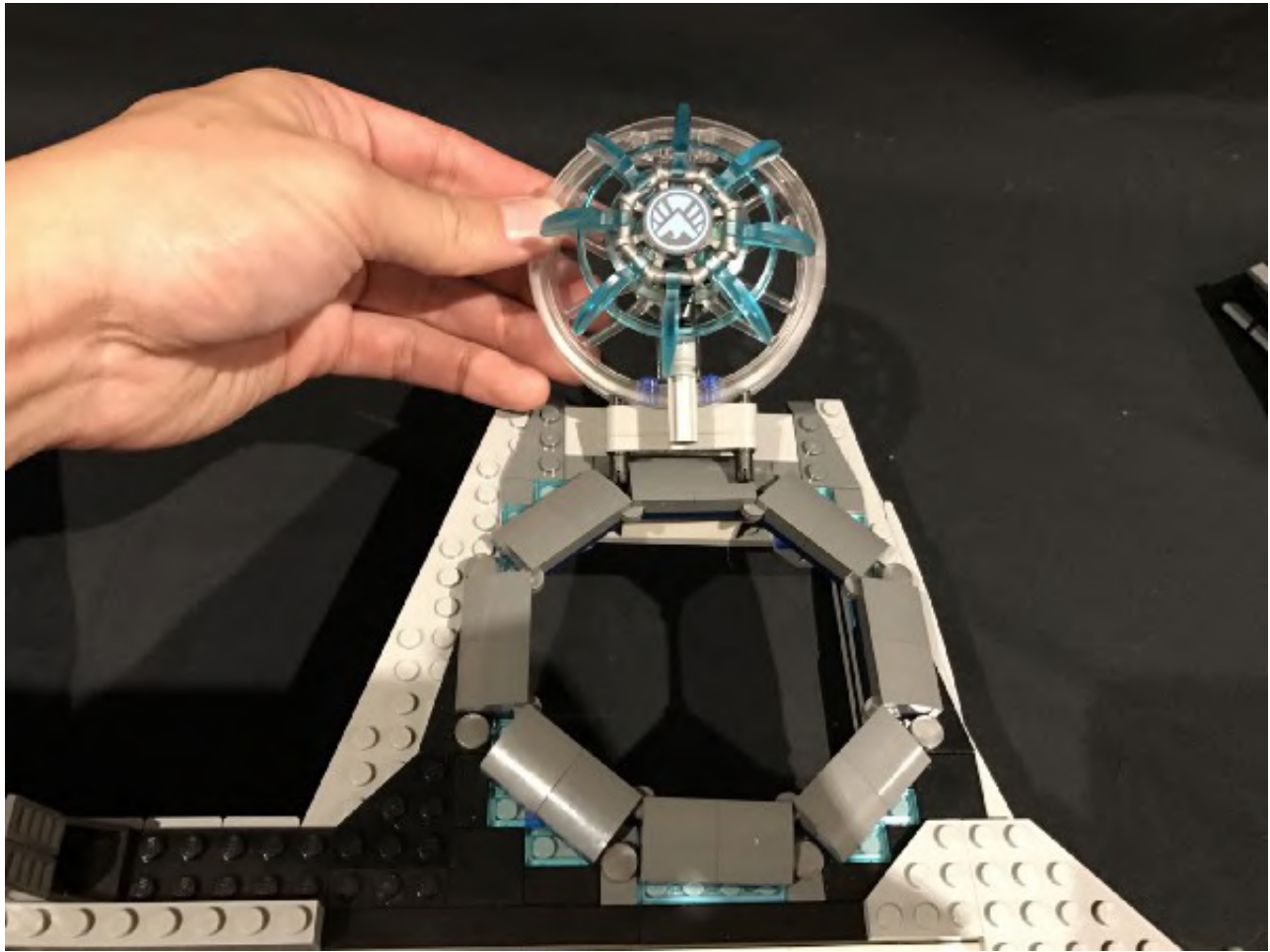


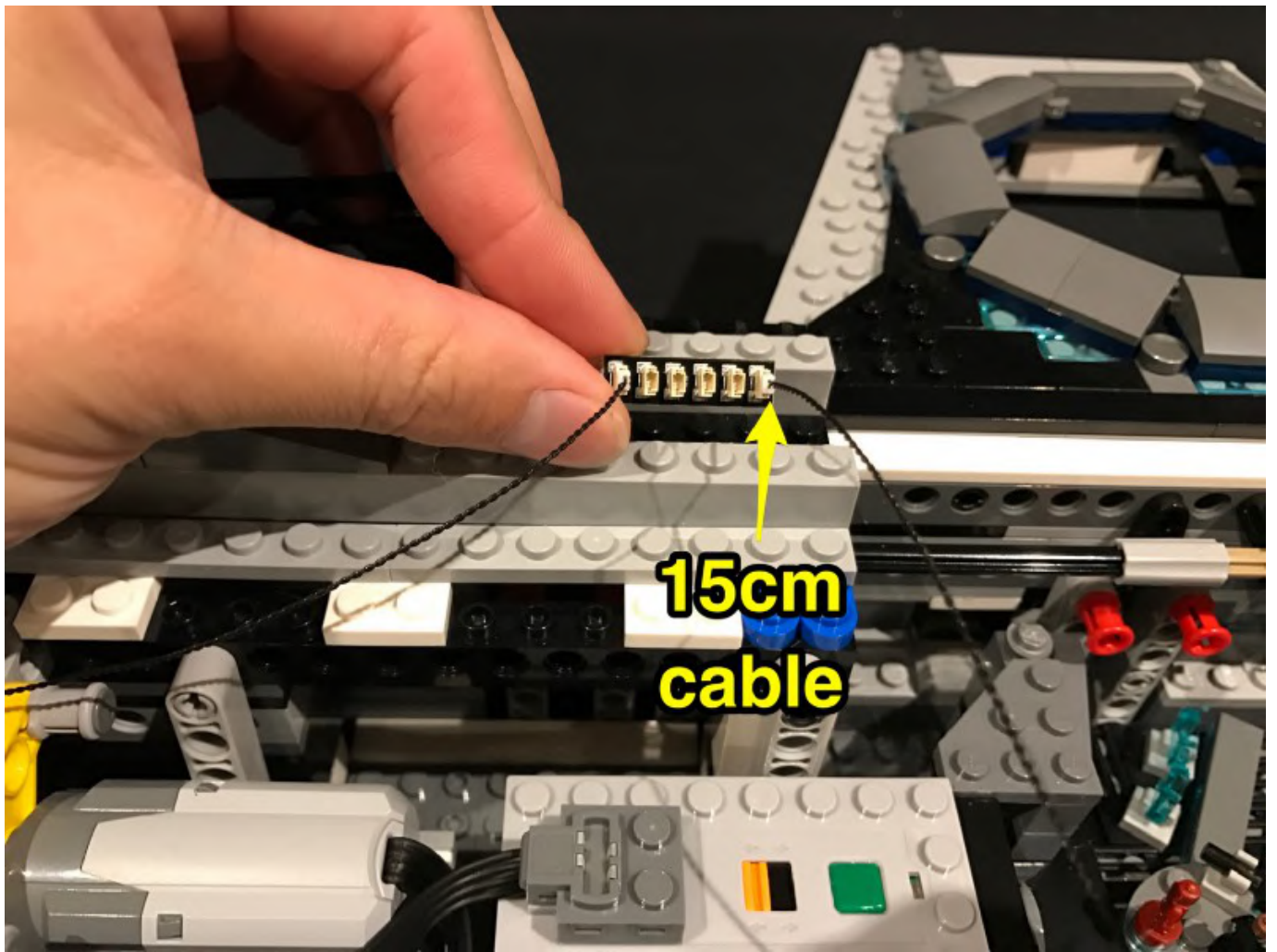
Remove the LEGO Road section with the SHIELD logo on it.



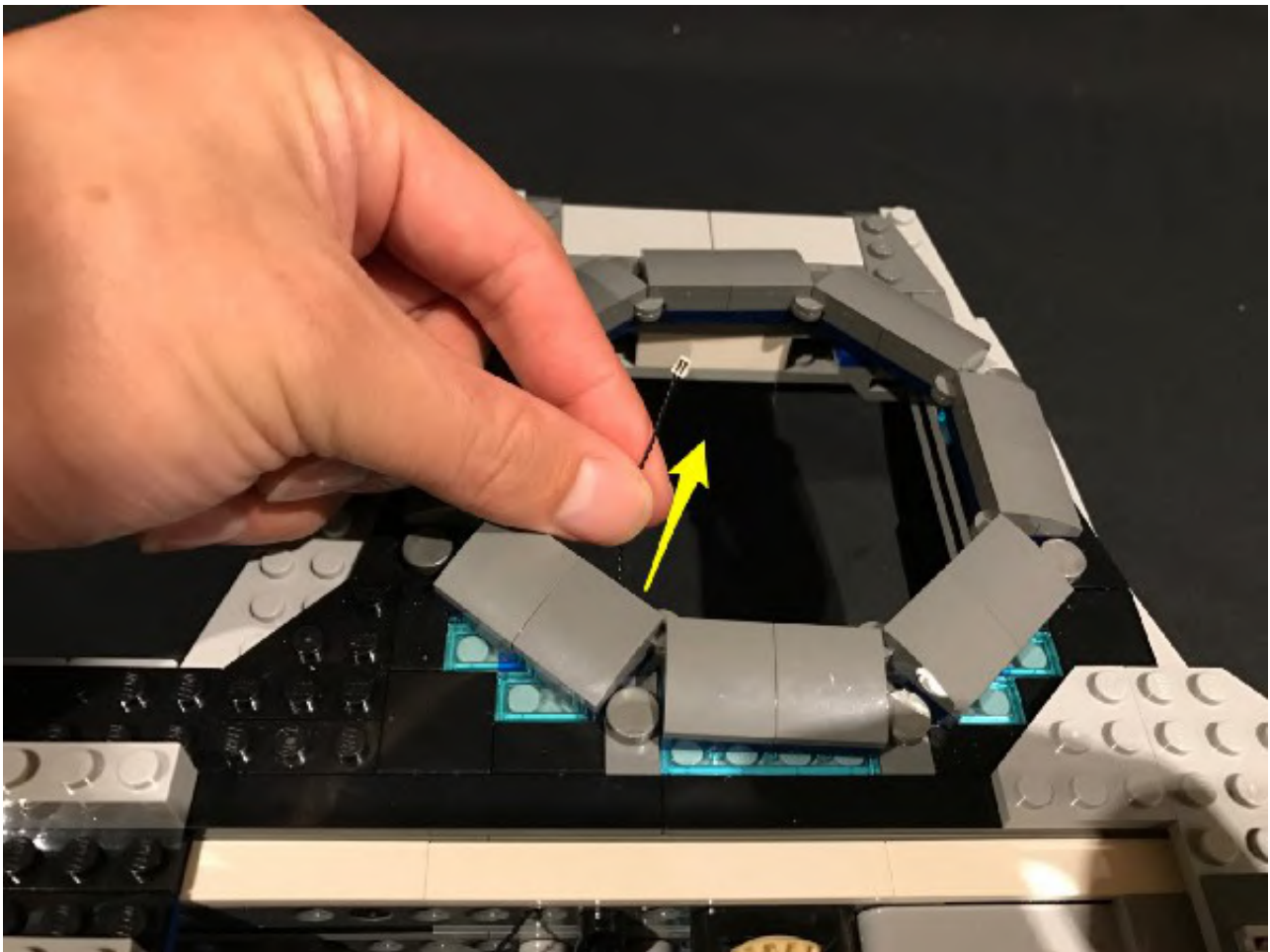
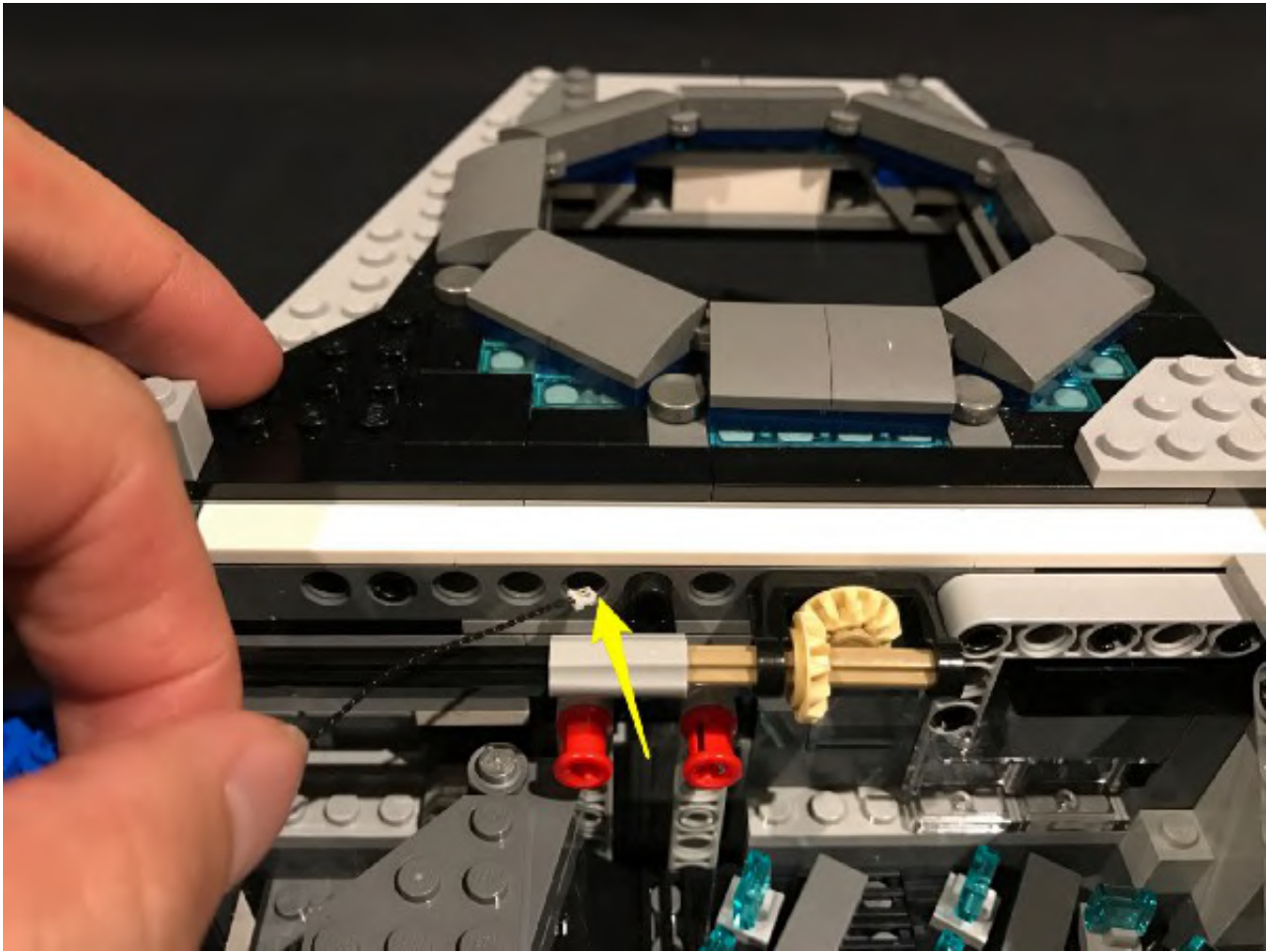
11.) We will now install lights to the front left propeller section. First remove the propeller and then take a **15cm connecting cable** and connect it to one of the 6-port expansion boards below.



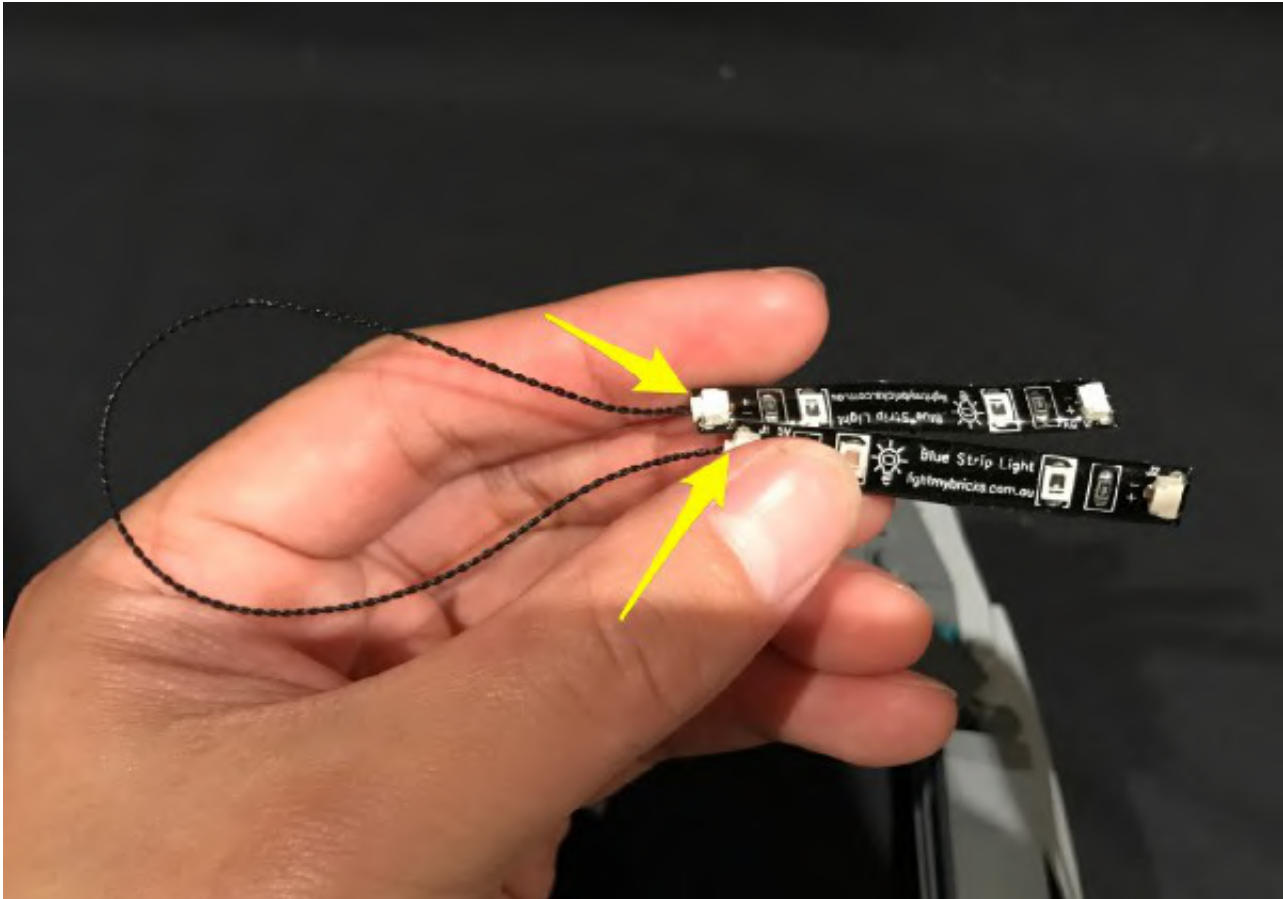


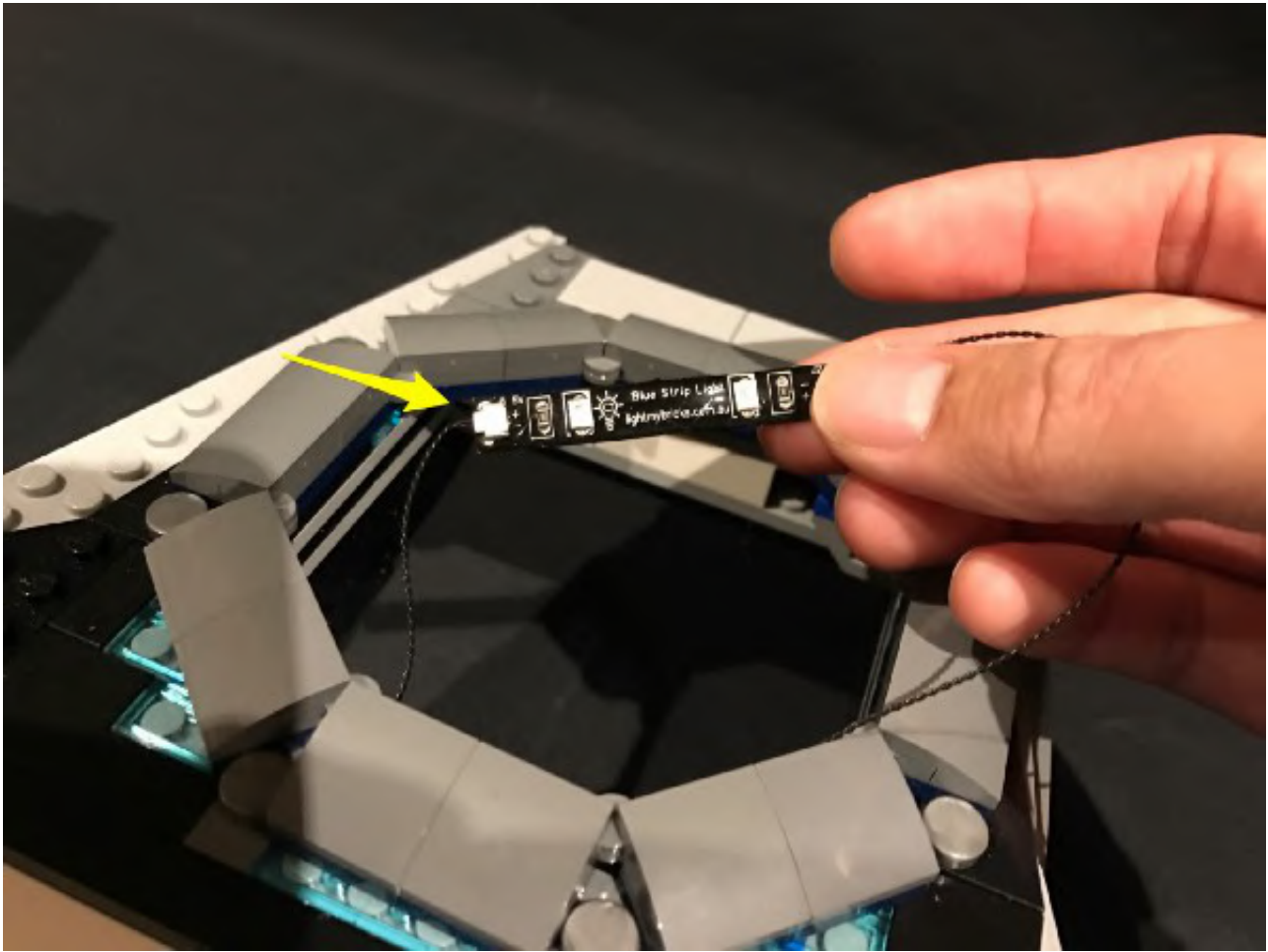


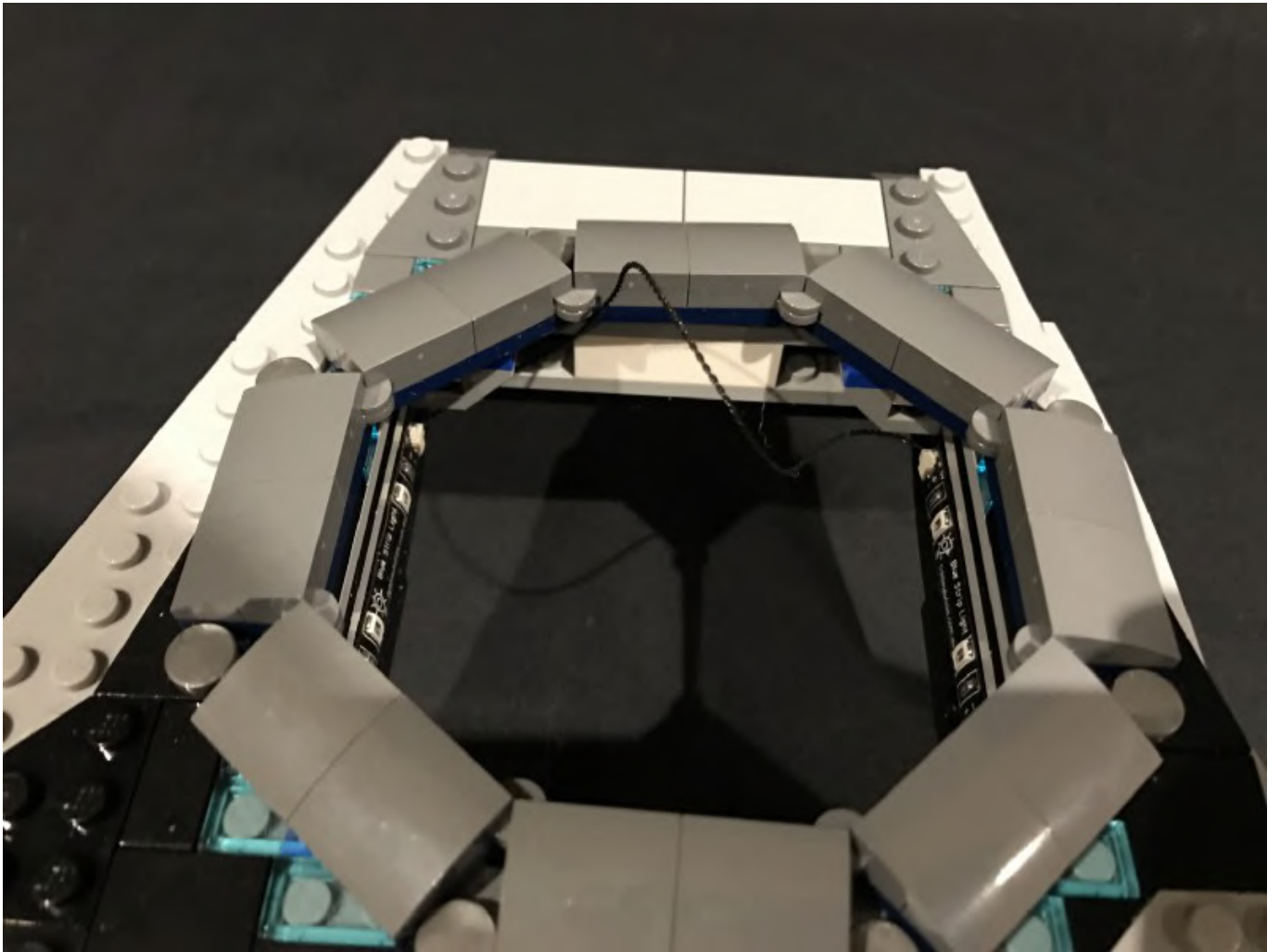
Thread the other end of this cable through one of the holes that leads to the inside of the left propeller section. Pull the cable up from the inside.



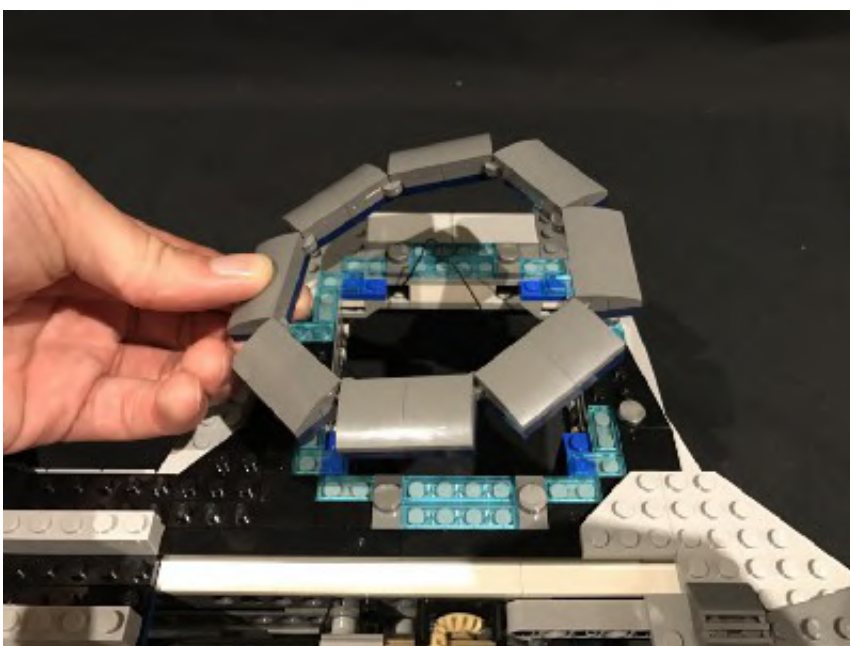
Take 2x **Blue Strip Lights** and connect them together using another **15cm connecting cable**. Connect the other end of the 15cm cable from the inside to one of the Blue Strip Lights before sticking both strip lights to the sides of the inside of this section.

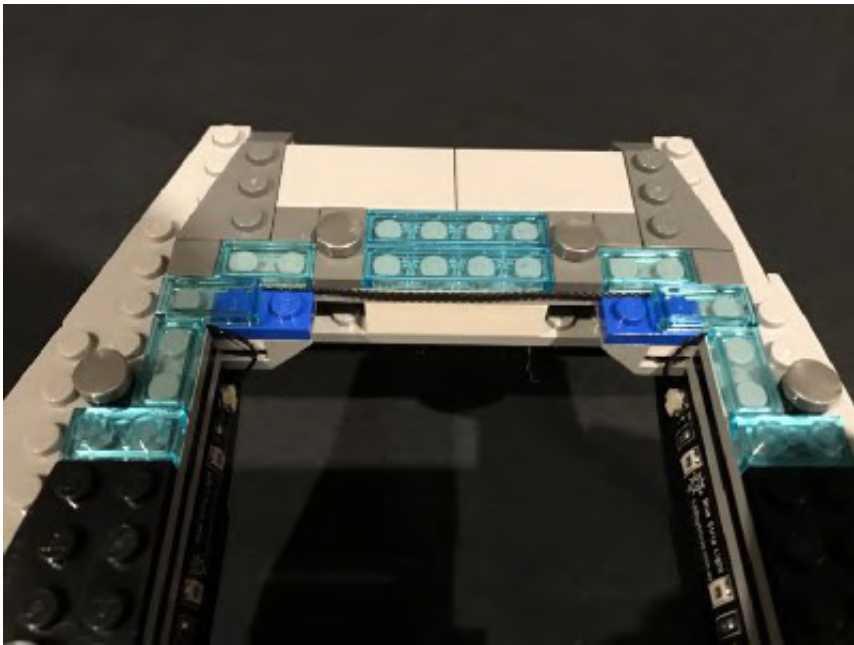
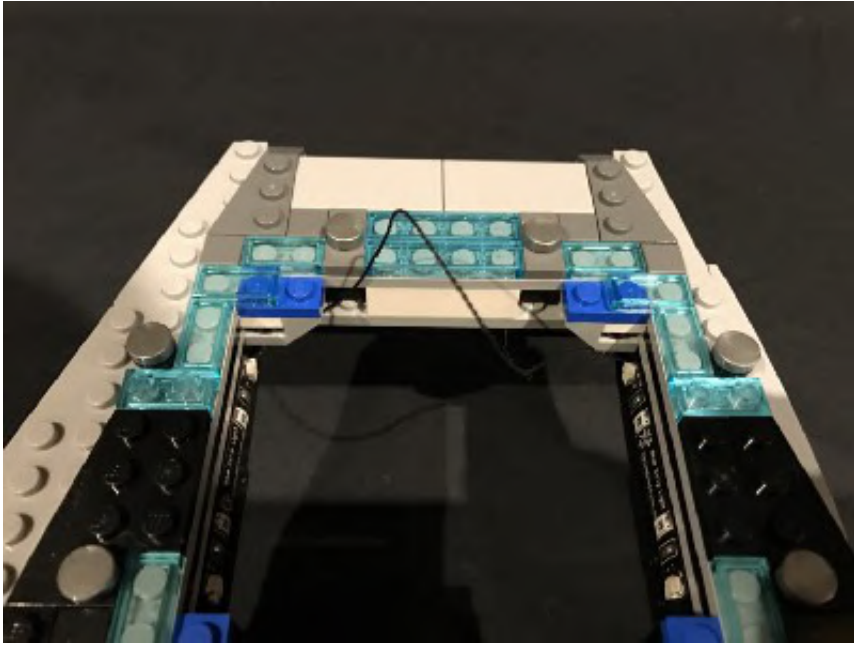


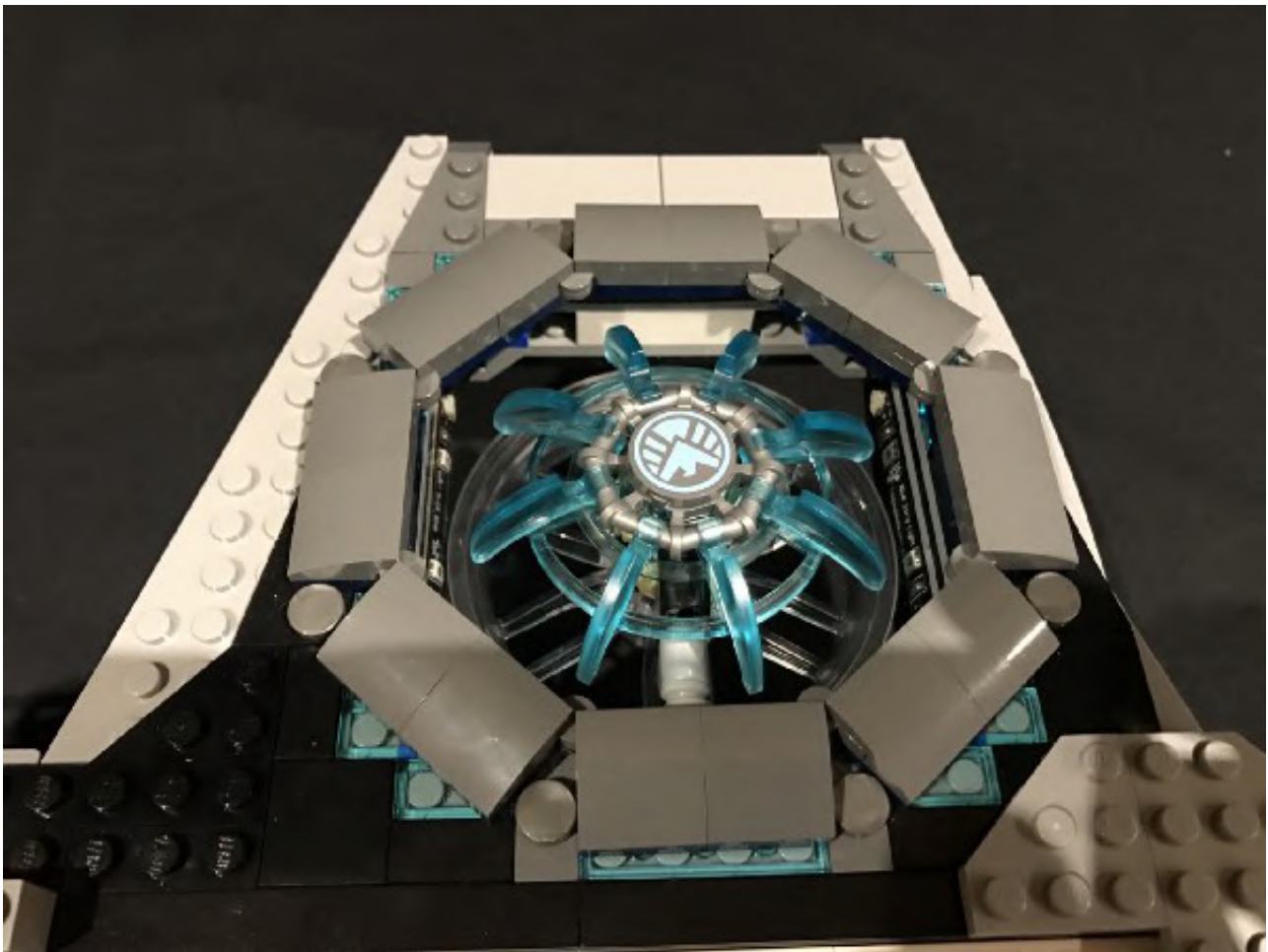
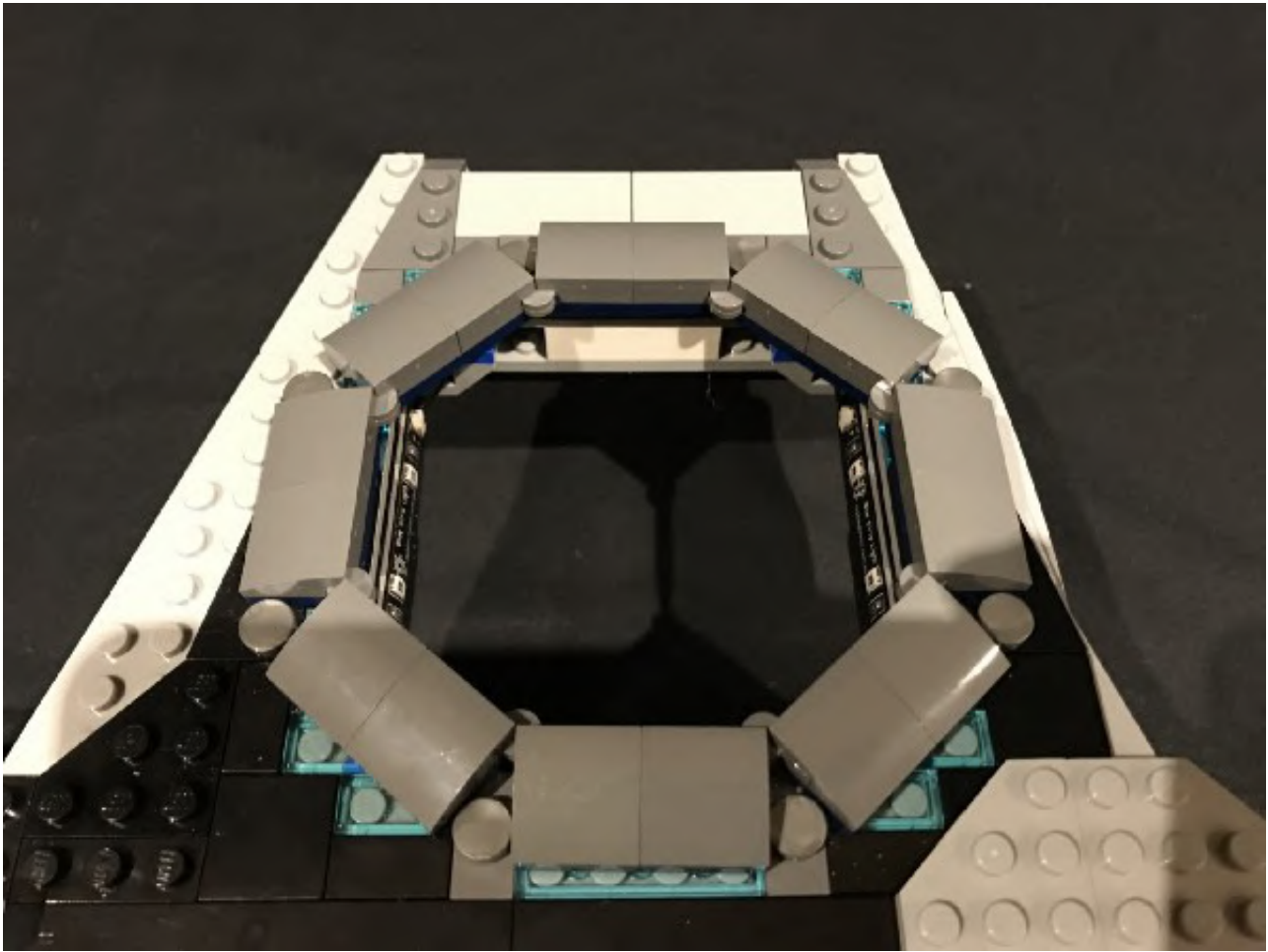




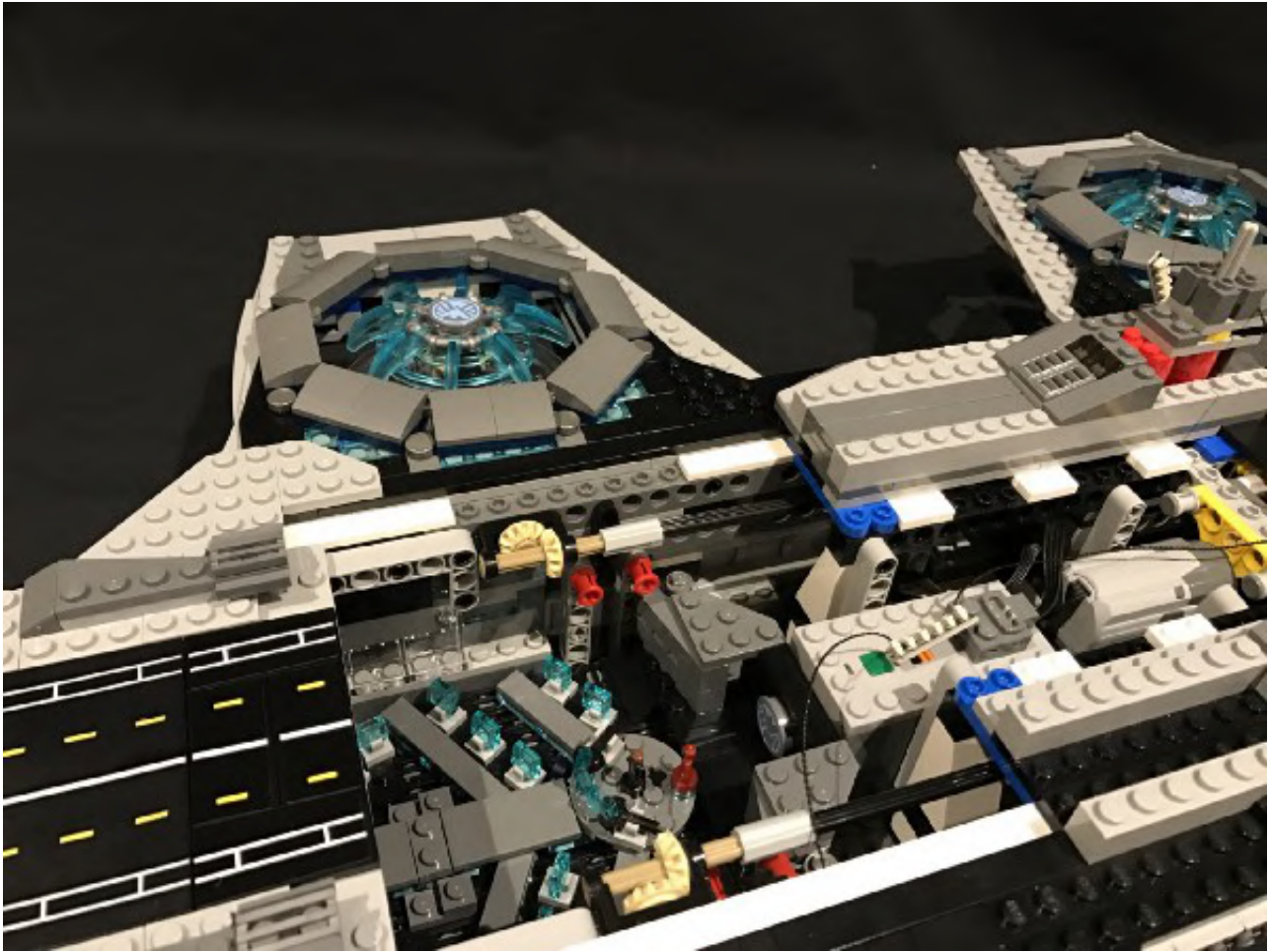
Eliminate excess cable by laying them underneath LEGO pieces then reconnect the propeller.

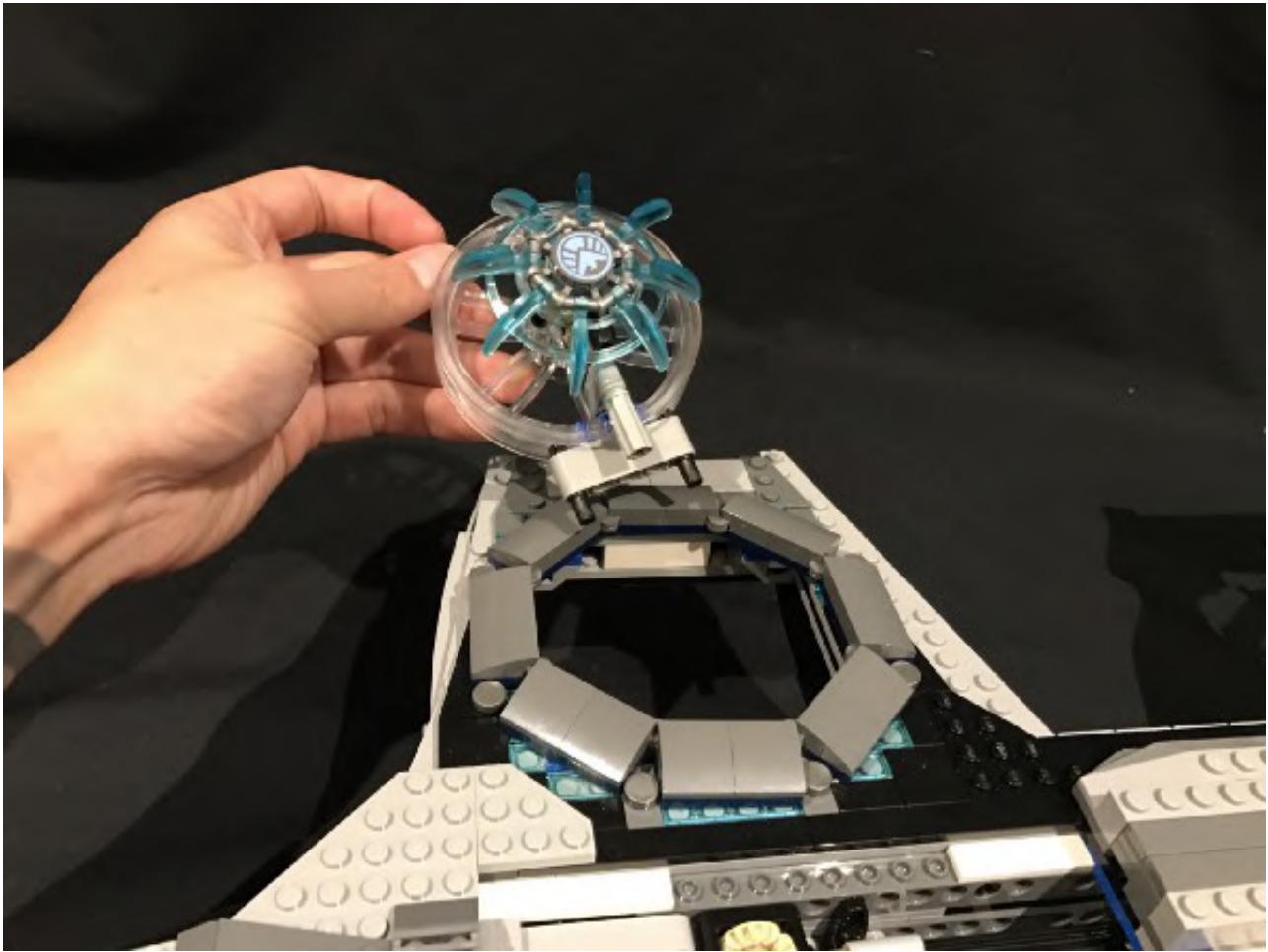




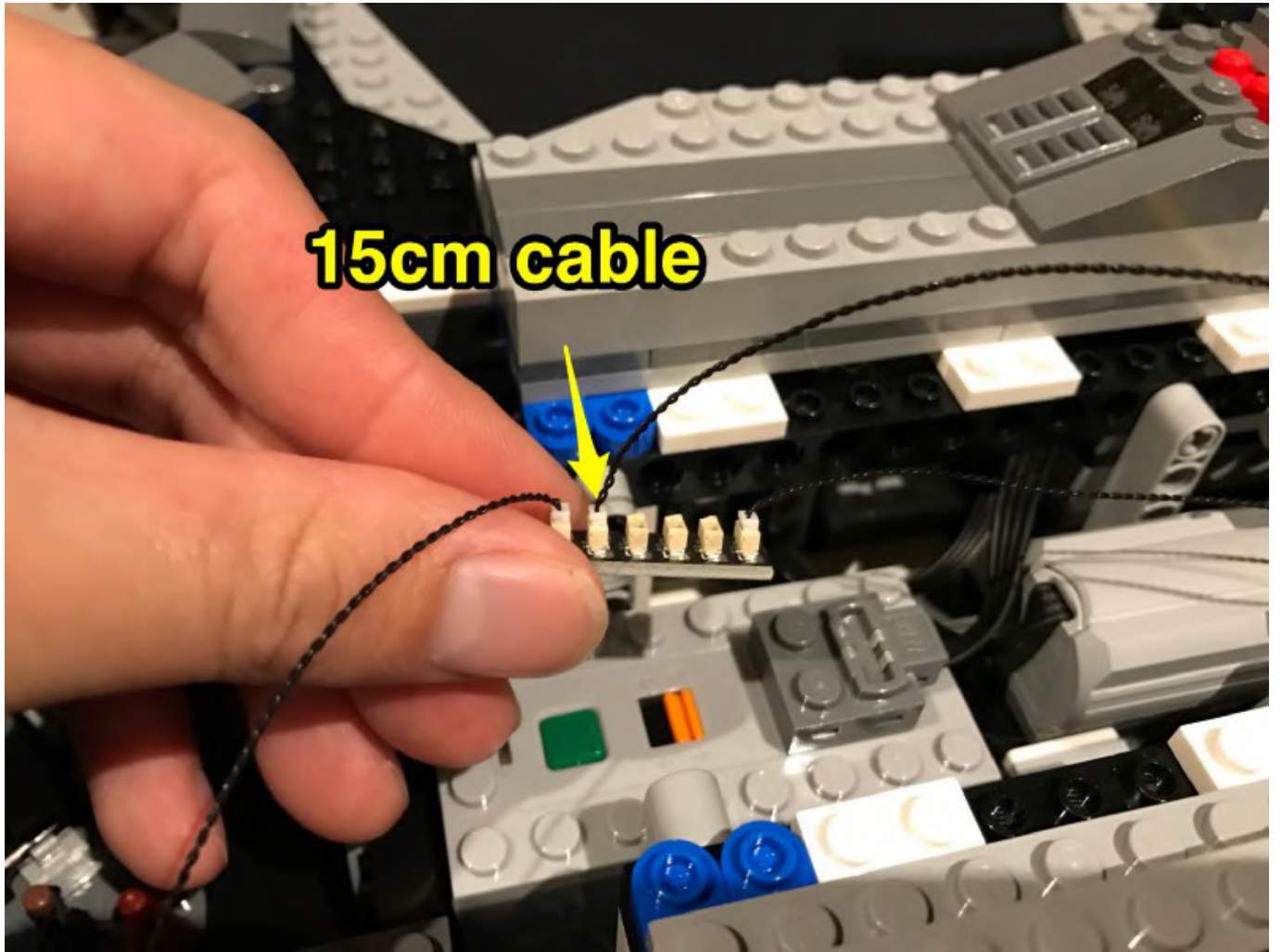


12.) We will now install another 2 blue lights to the front left propeller section. Turn the helicARRIER over for easier access, then remove the propeller.



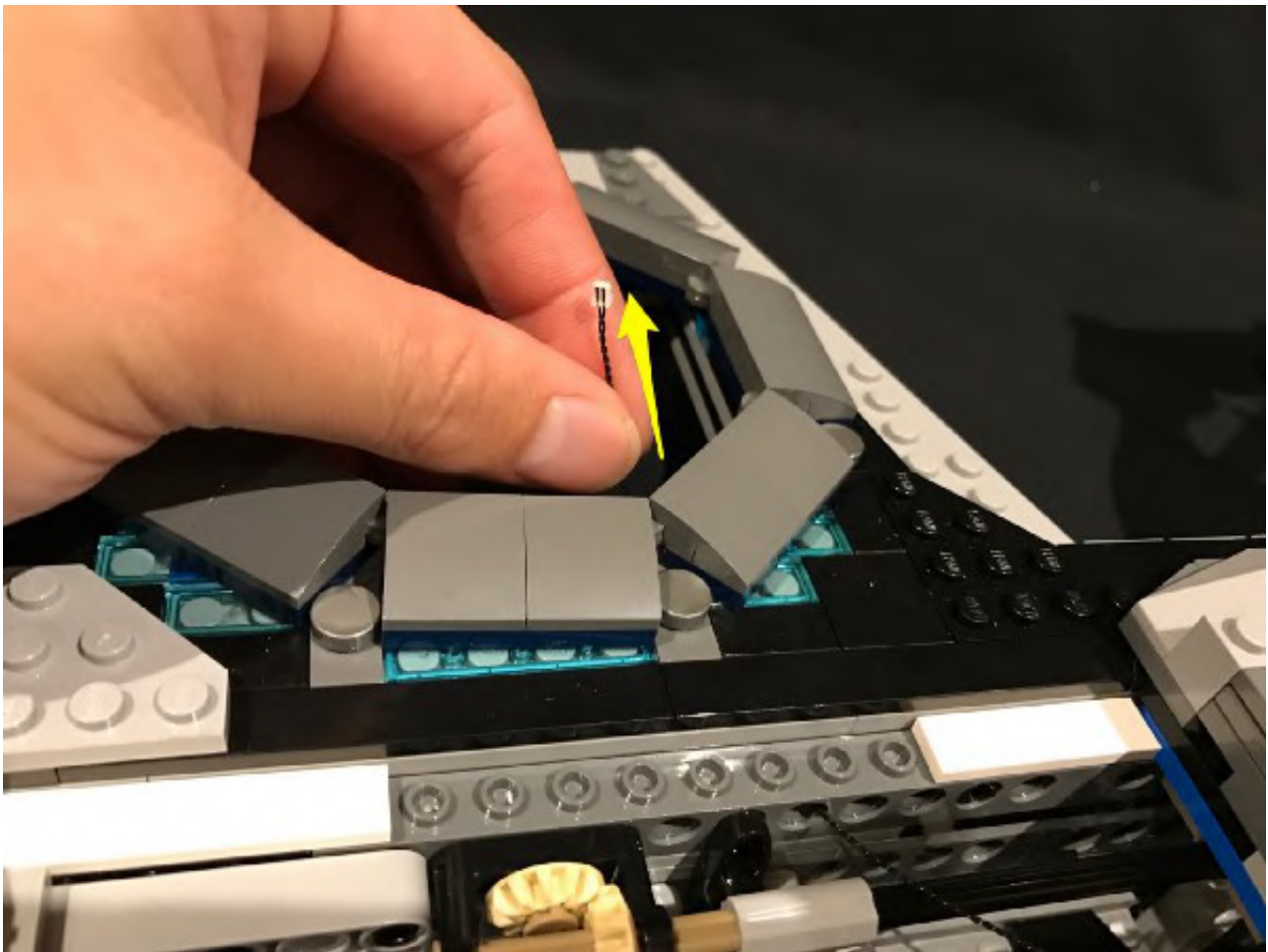
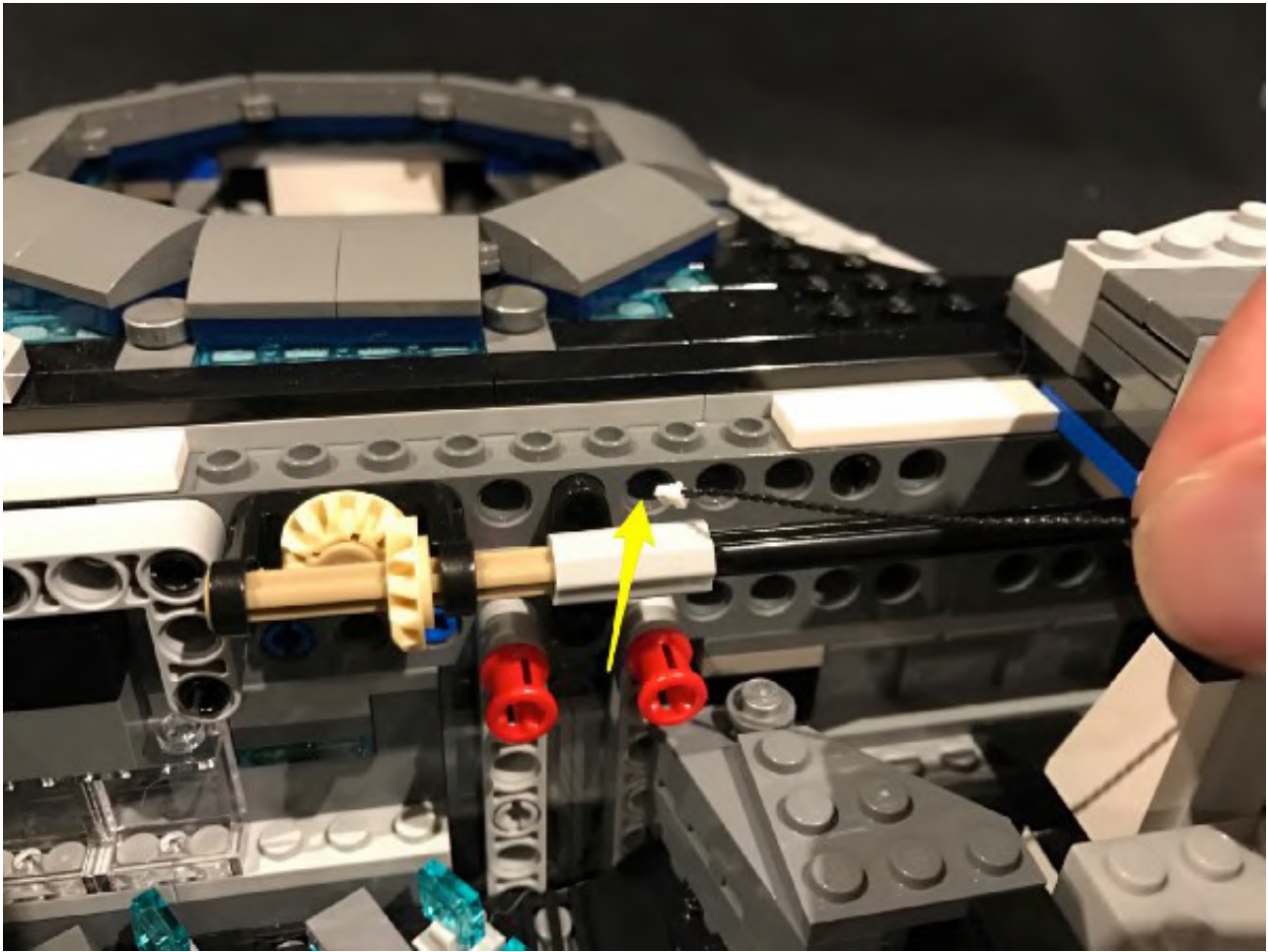


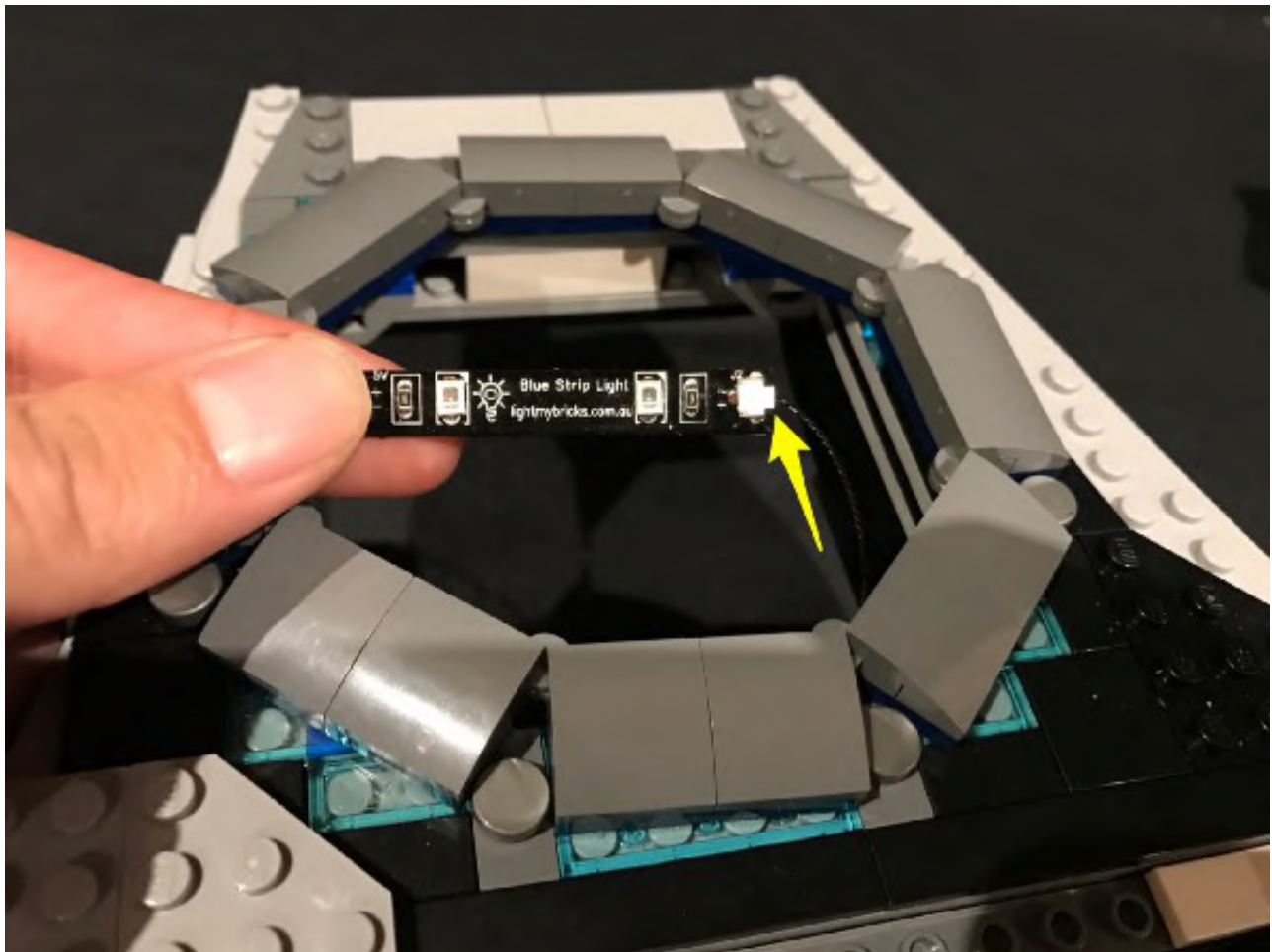
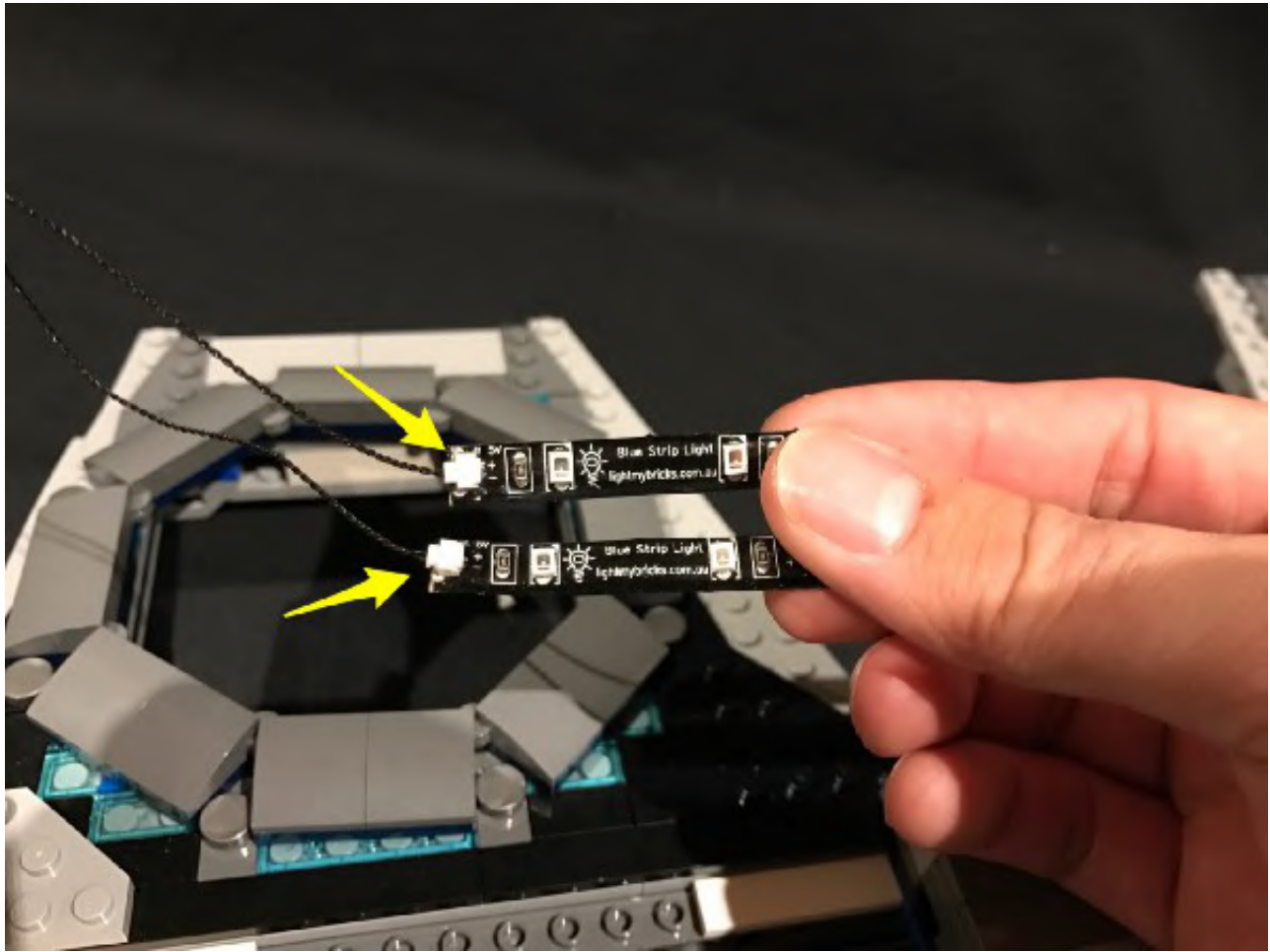
Connect another **15cm connecting cable** to the same expansion board as in the previous step.

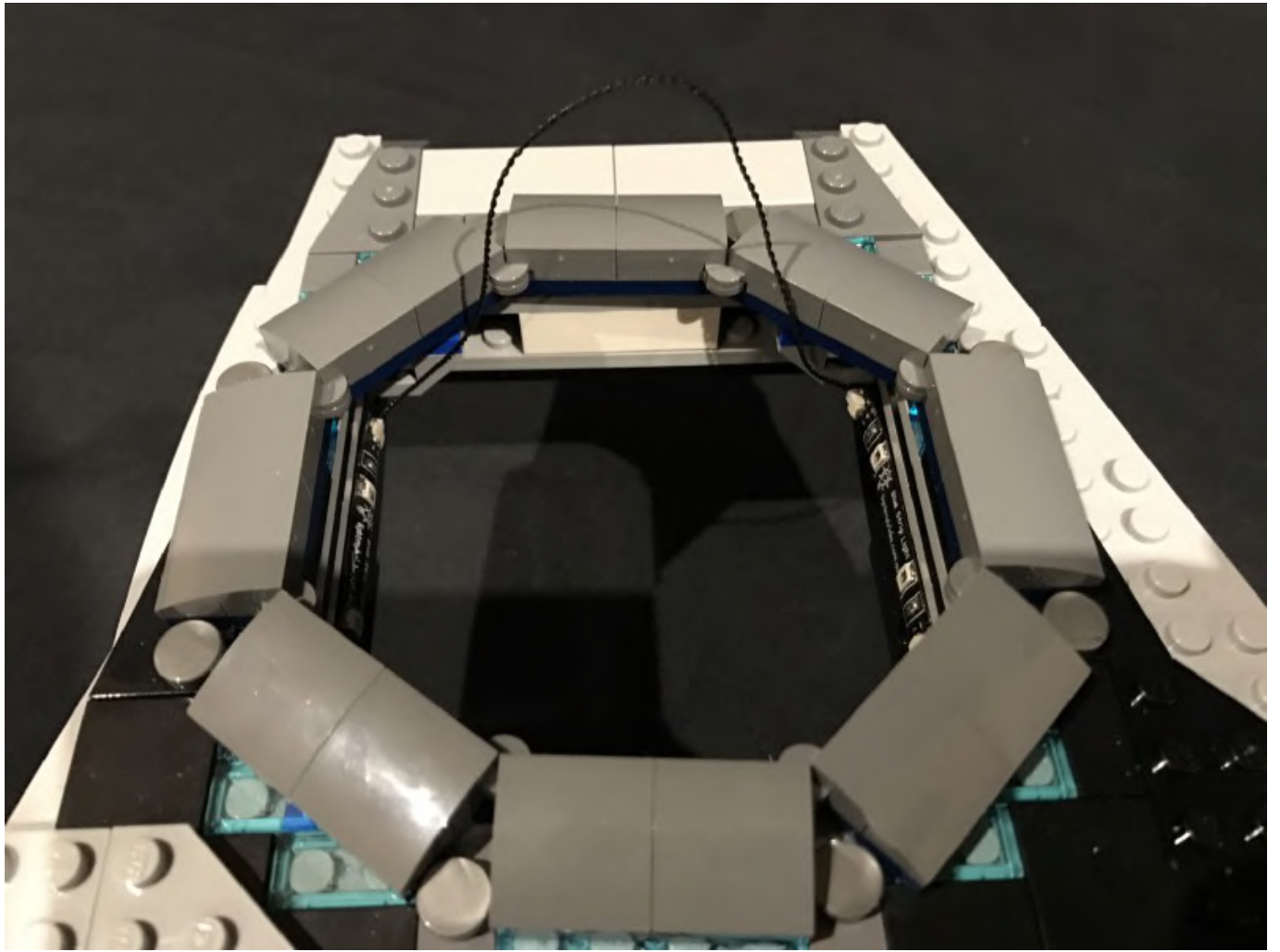


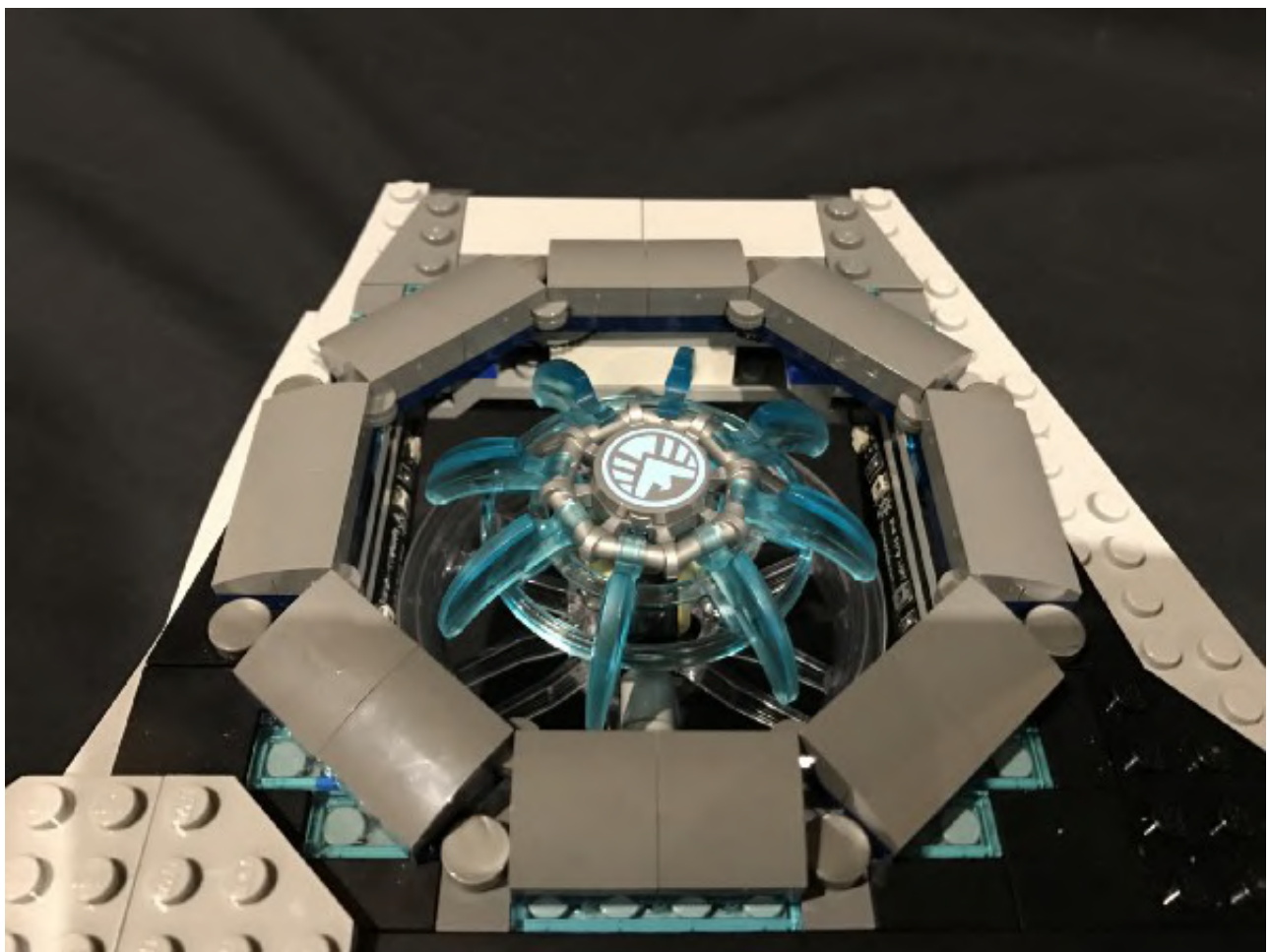
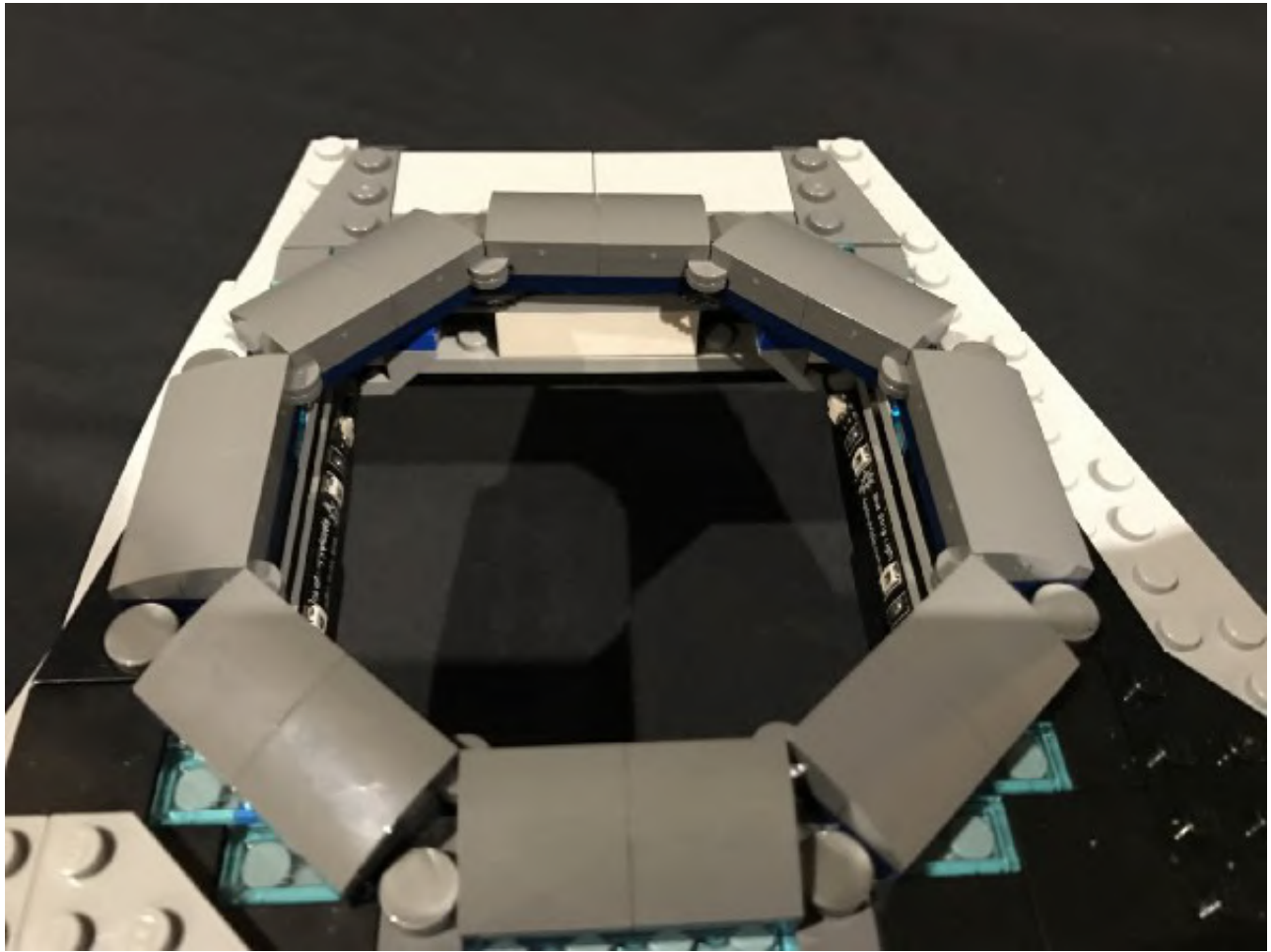
15cm cable

Follow previous steps to install another 2x **Blue Strip Lights** (and another **15cm connecting cable**) to the front left propeller section.

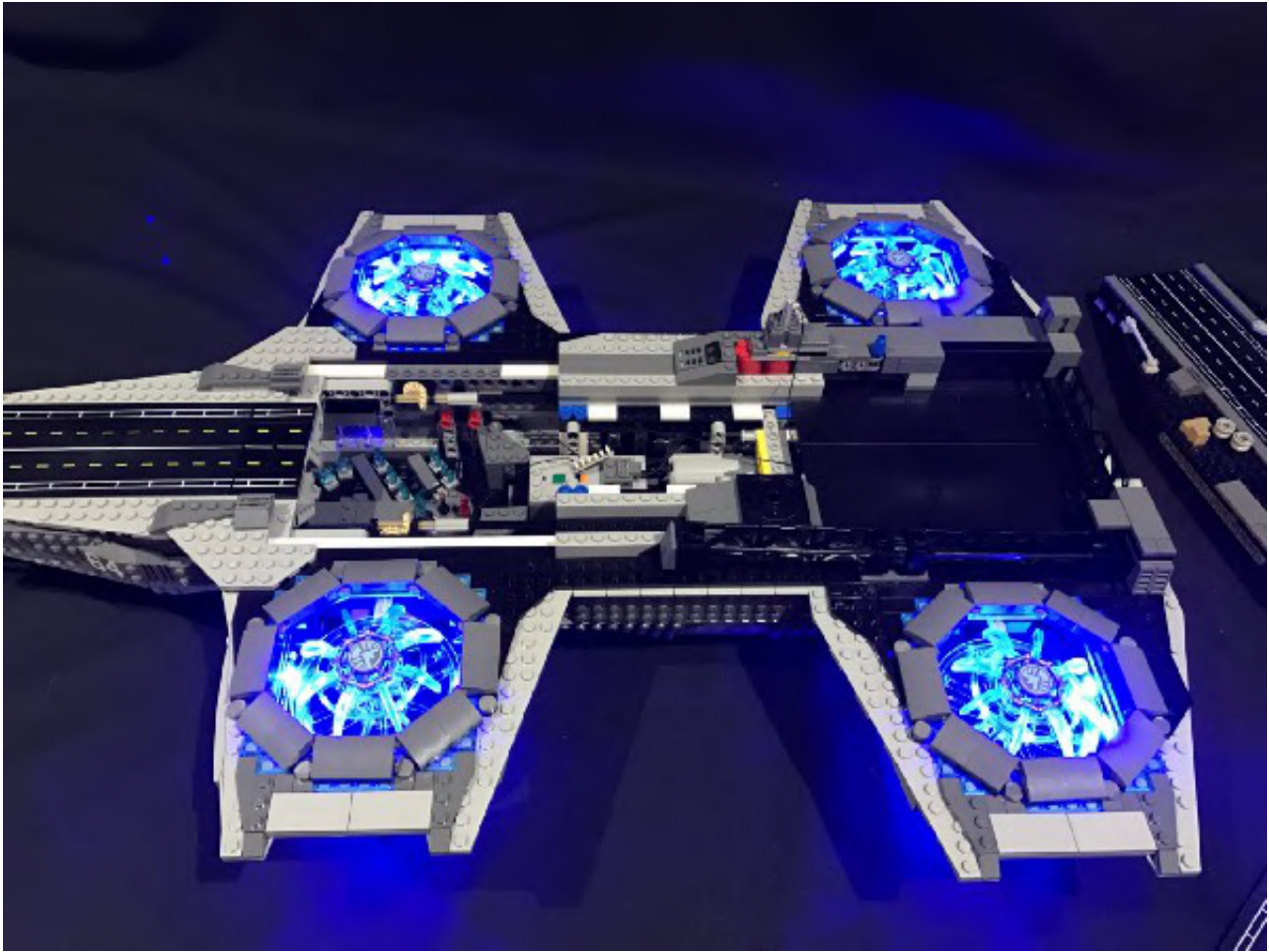






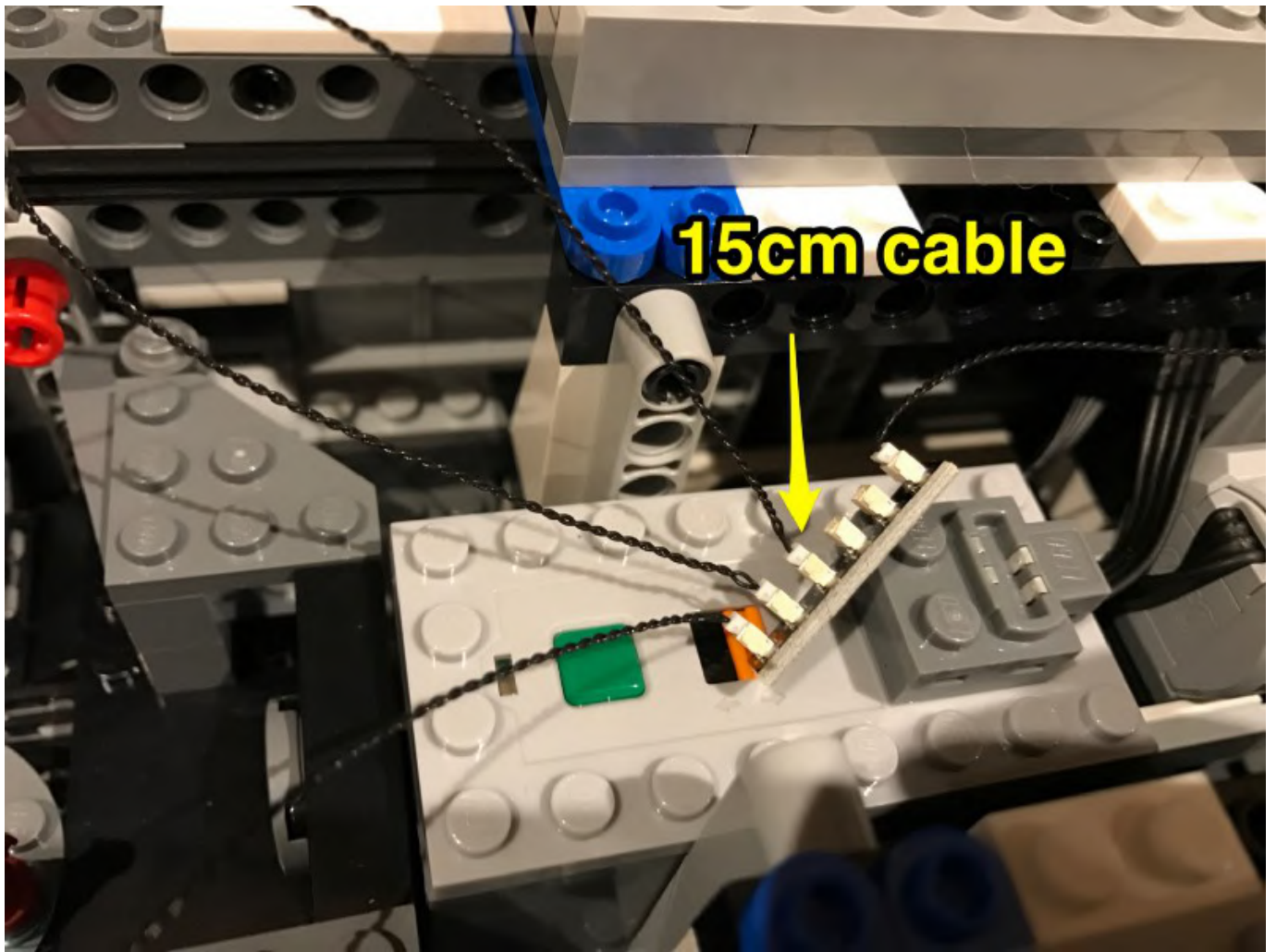


Once all the propeller lights have been installed, turn on the battery pack to verify all is working OK.





13.) We will now install lights for the front part of the helicARRIER. First take another **15cm connecting cable** and connect it to the same expansion board used in the previous step.

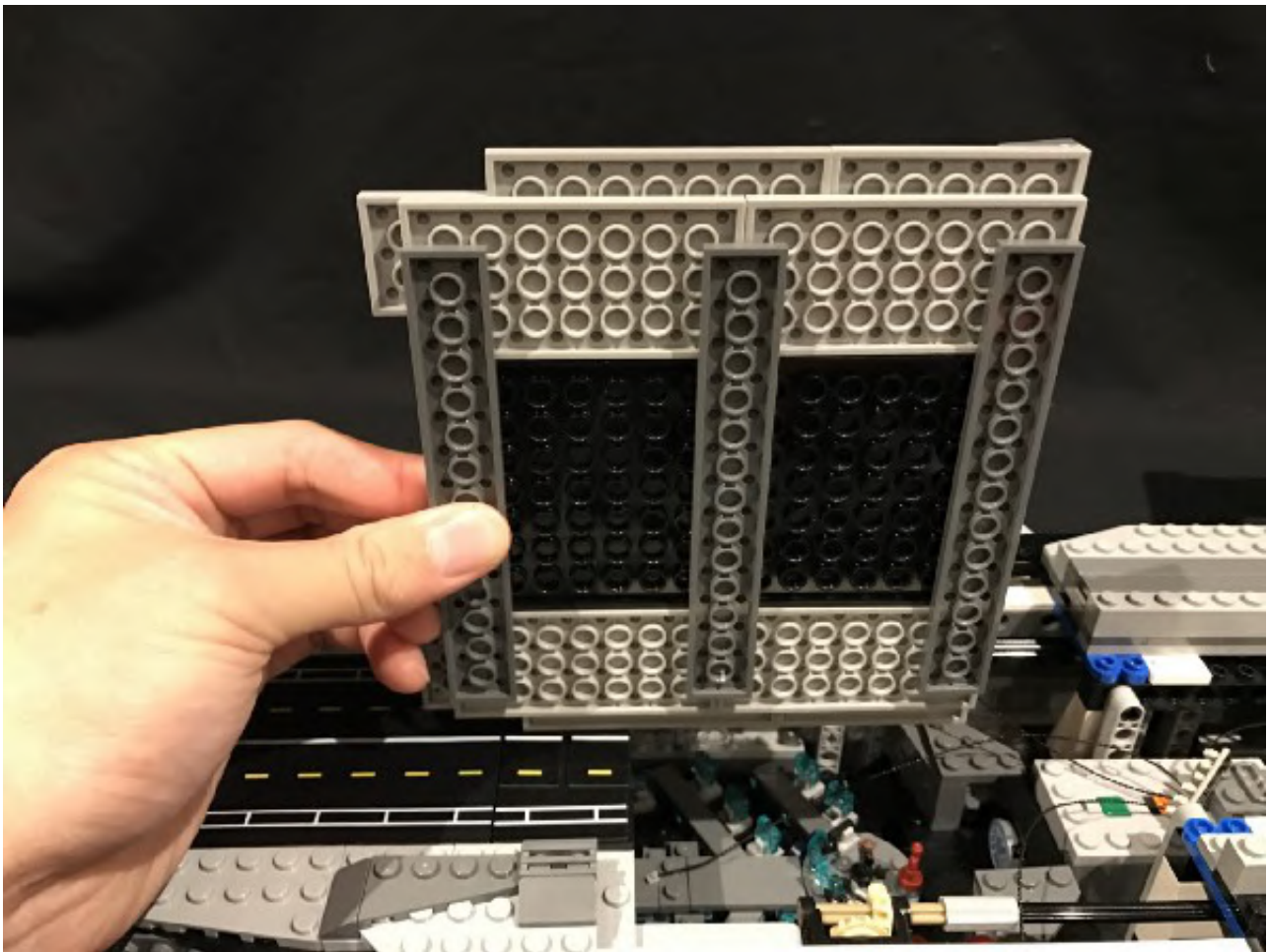
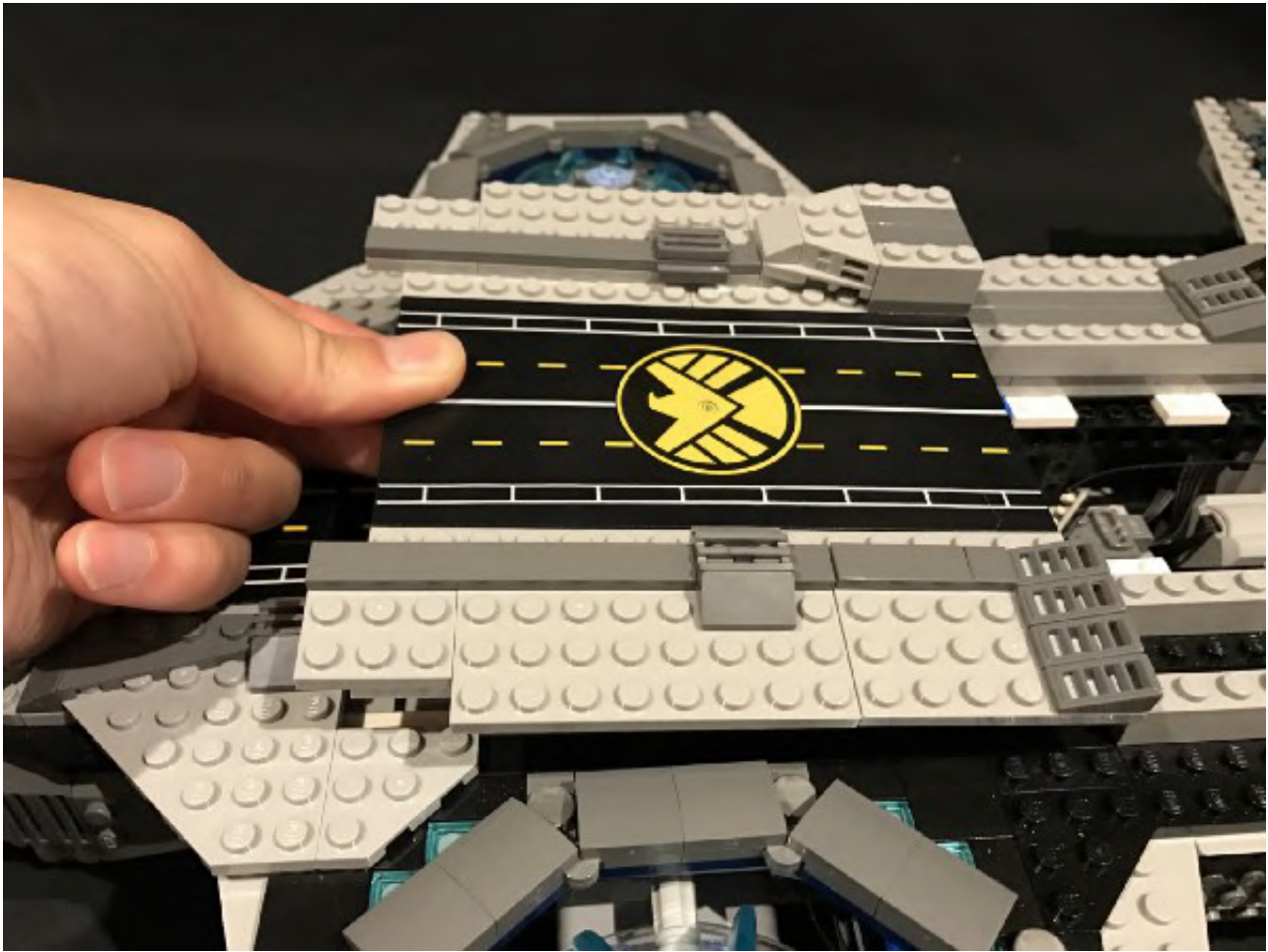


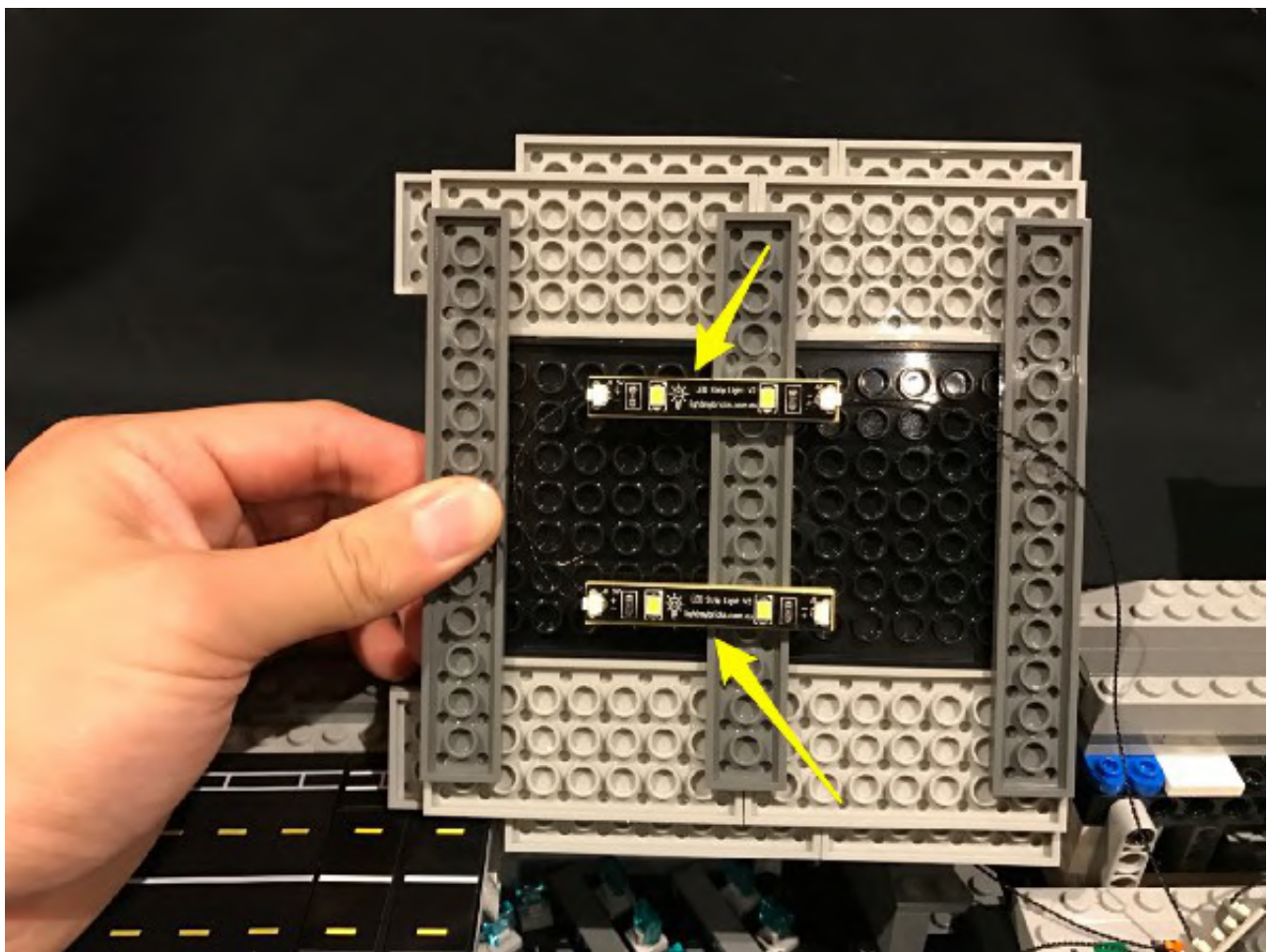
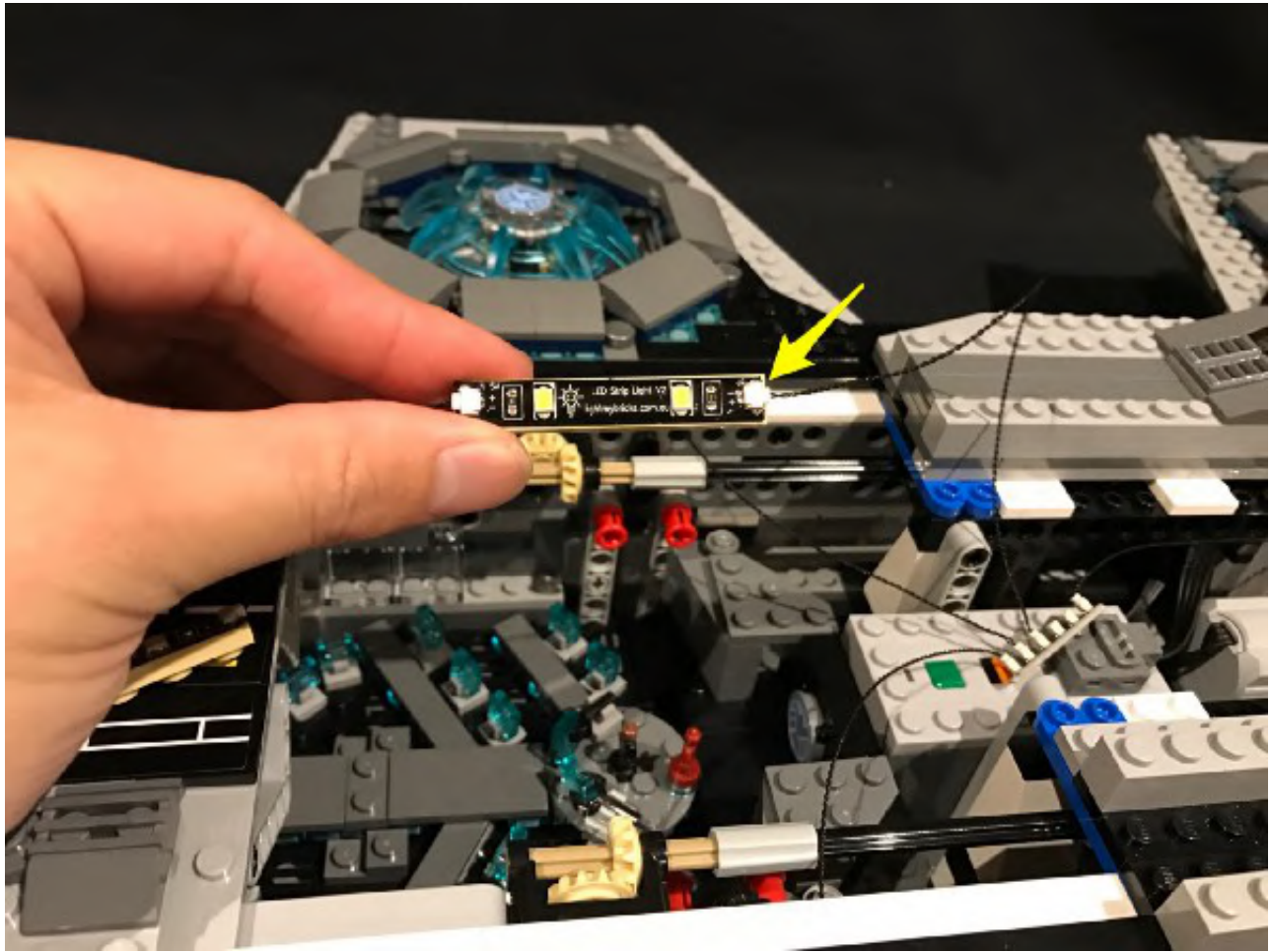
Take 2x **White Strip Lights** and then stick them onto provided **LEGO plates 1x6**.
Connect the 2 Strip Lights together using a **5cm connecting cable**



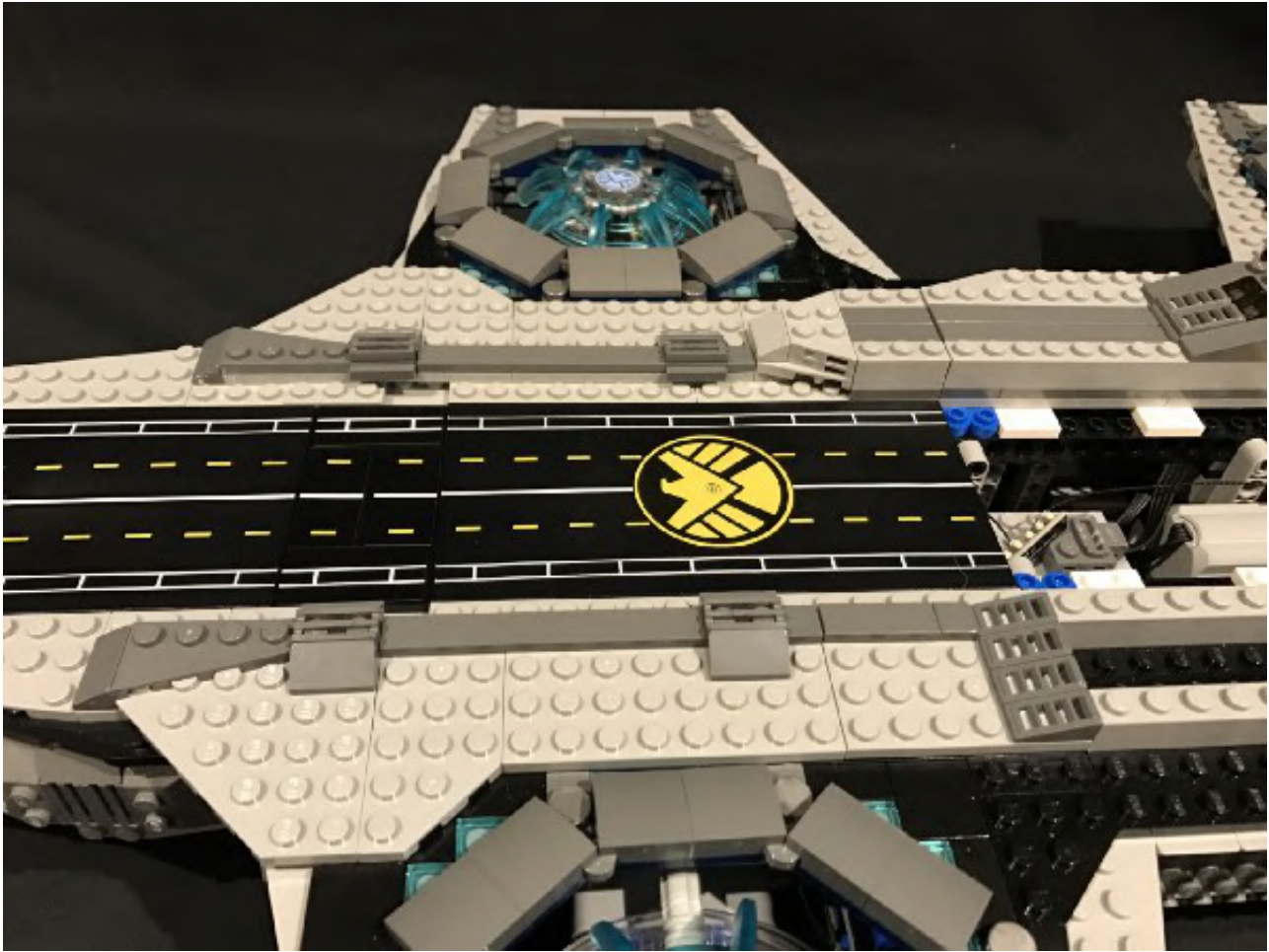
stick the strip lights to LEGO plates using adhesive backing

Take the LEGO Road plate section (with logo on the top) and then turn over to allow us to mount the 2x White Strip Lights underneath in the following position. Before mounting strip lights, connect the other end of the 15cm cable from expansion board to one of the White Strip Lights.



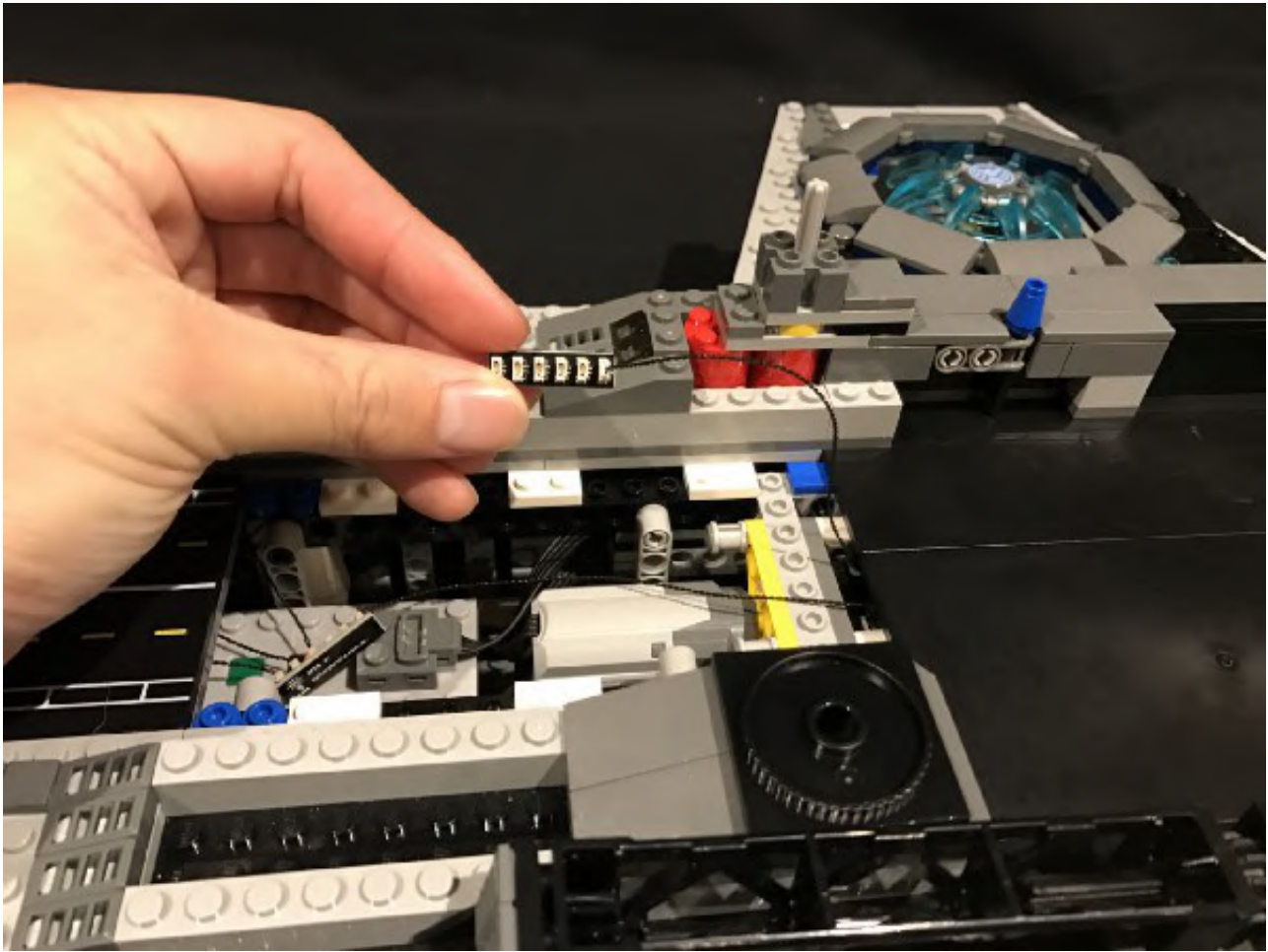


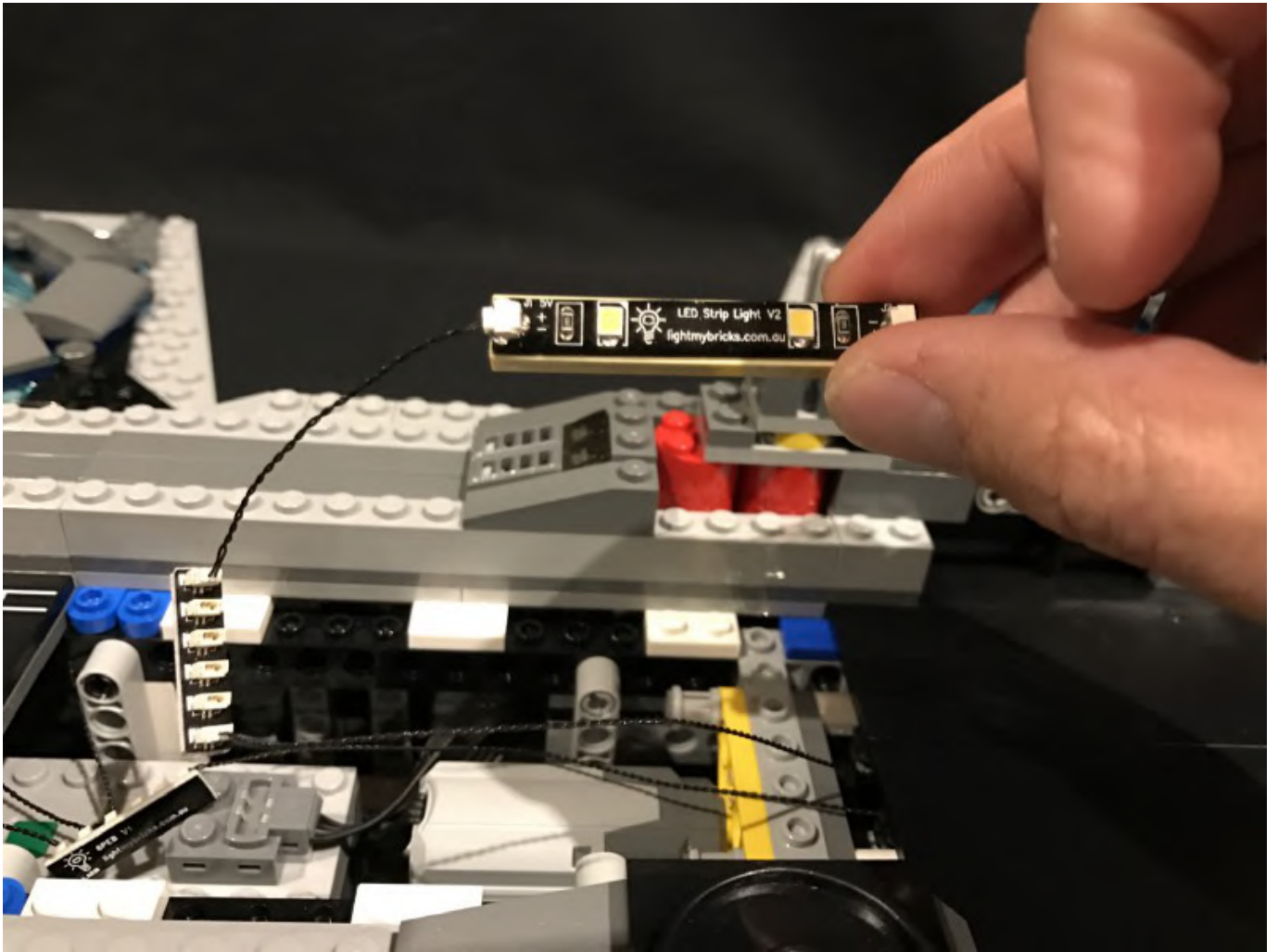
Reconnect the Road Plate and then turn on the battery pack to verify these lights are working OK





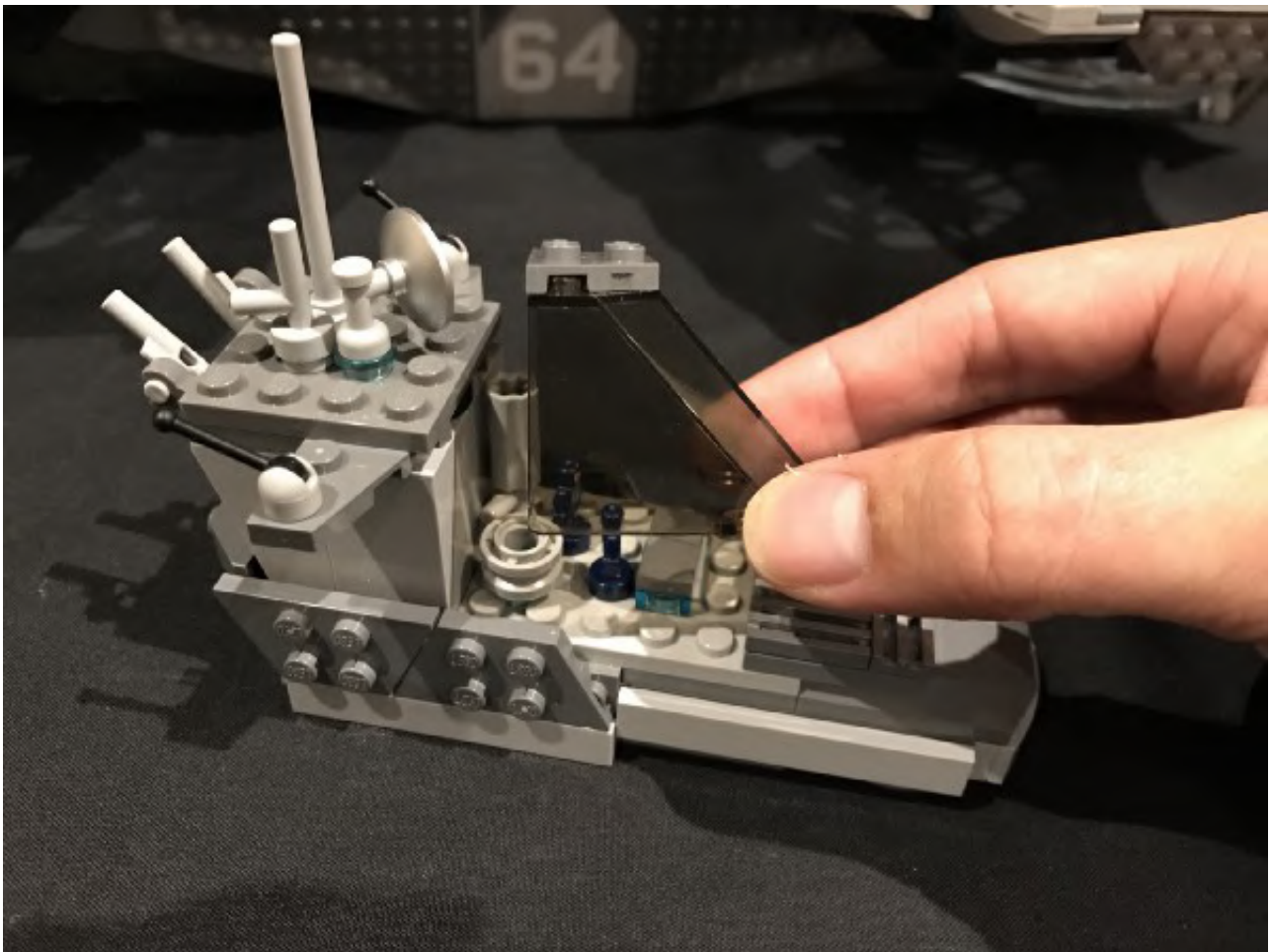
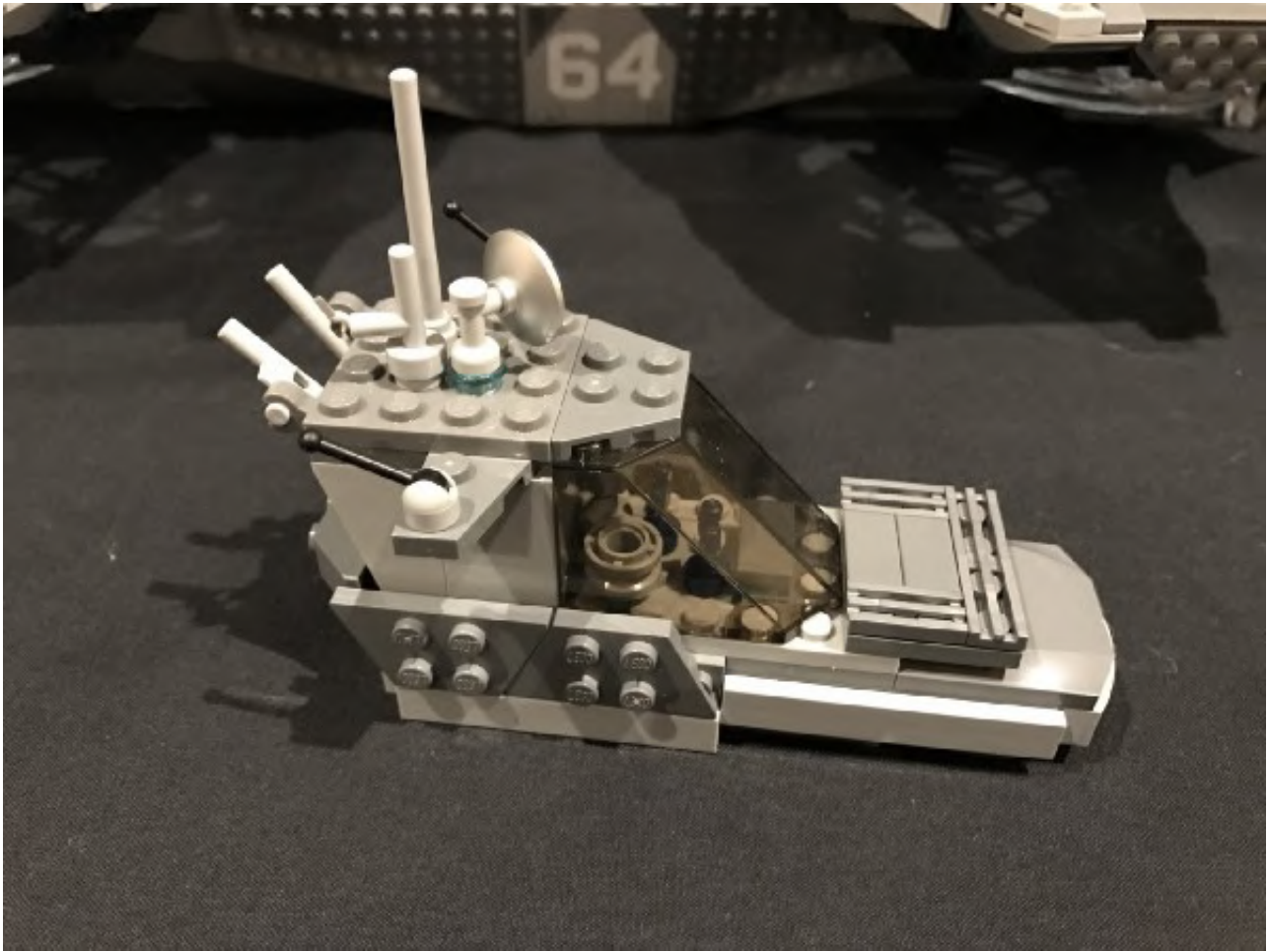
14.) Locate the other 6-port expansion board (which we connected in step 10) and then take a **5cm connecting cable** and connect it to a **White Strip Light** (after sticking onto provided LEGO 1×6 plate). Connect the other end of the 5cm cable to the 6-port expansion board we located.

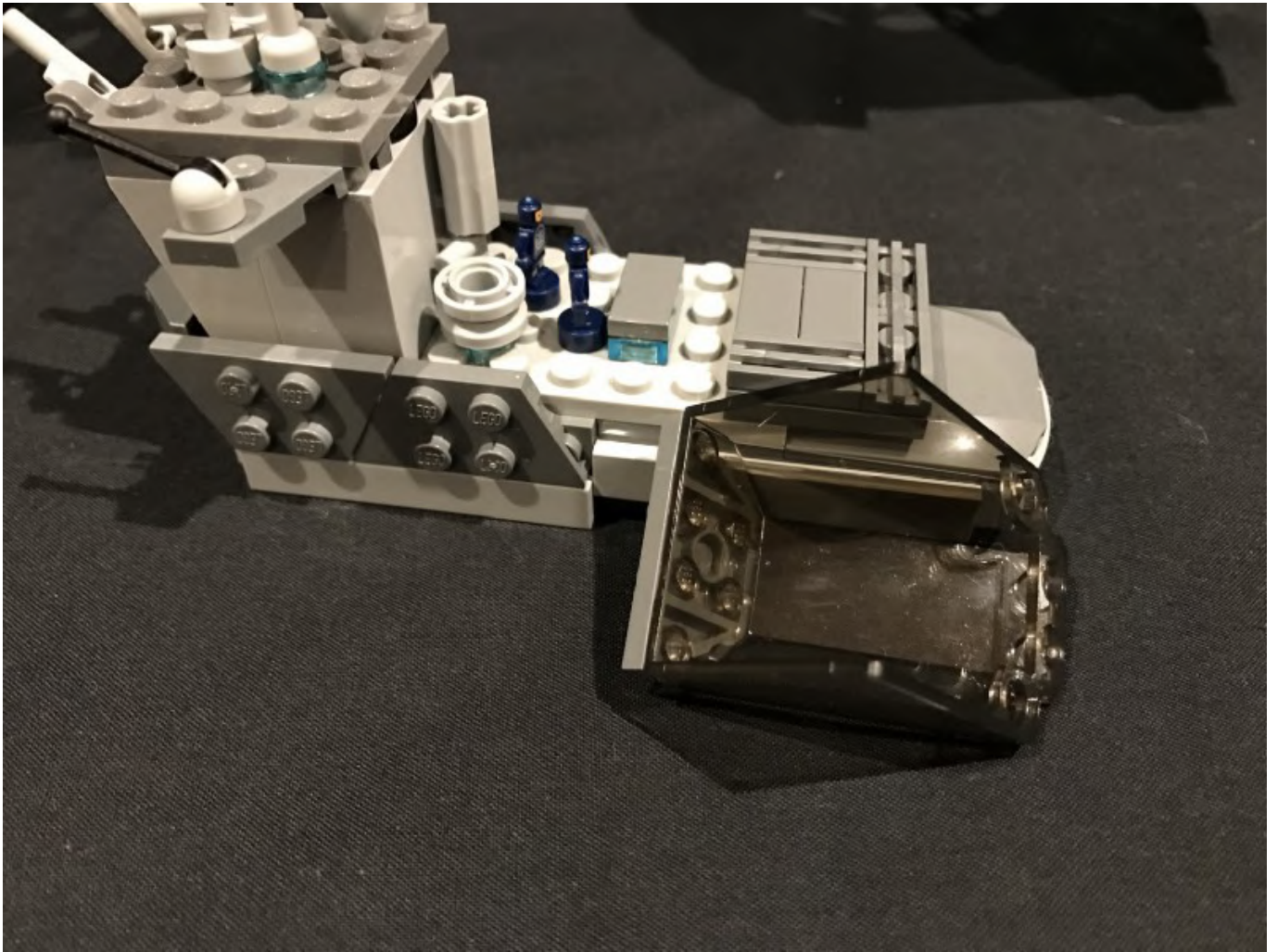




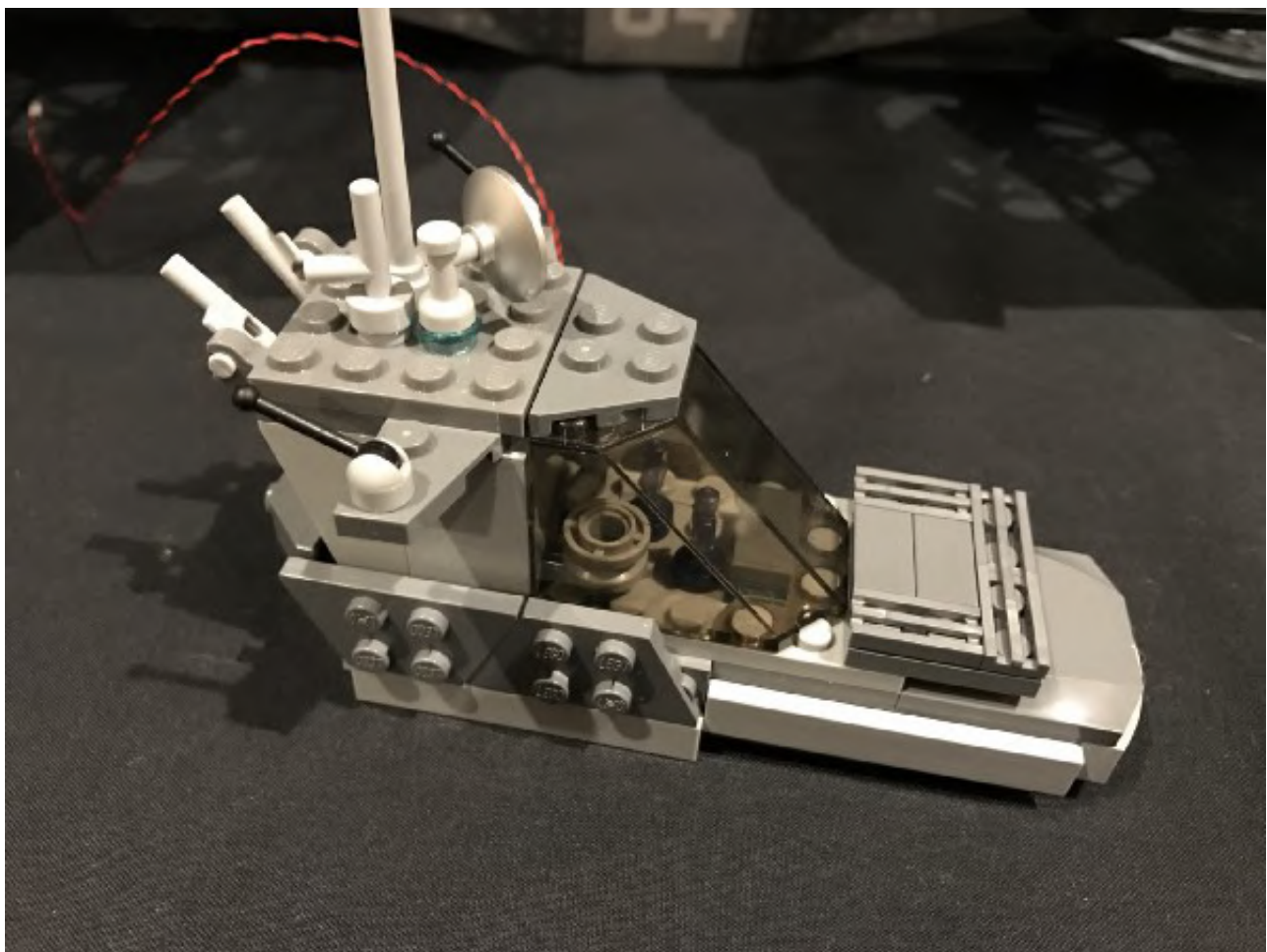
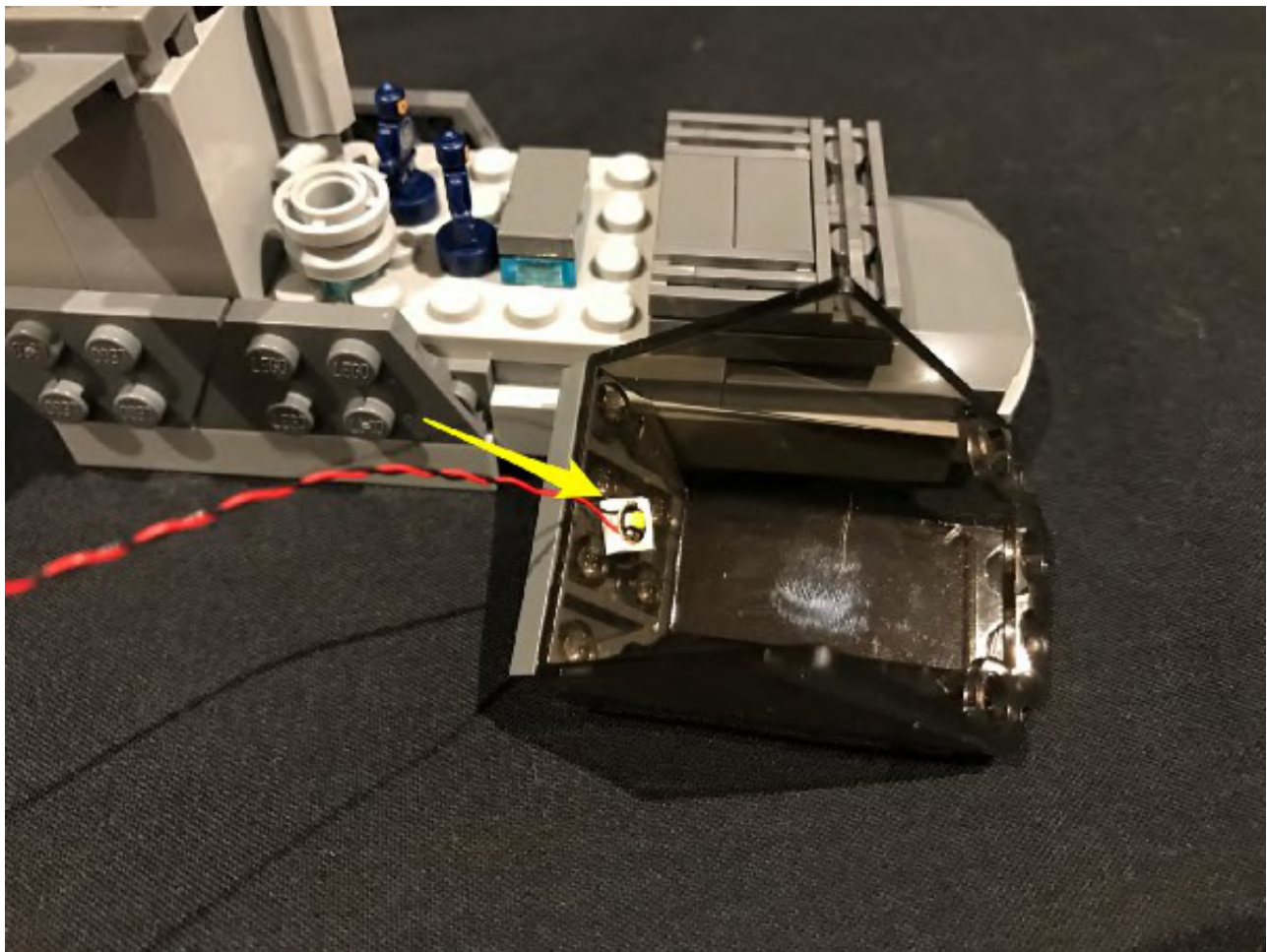
Set these components aside for now as we will connect these later.

15.) We will now install lights to the control room section that is positioned on the top of the helicarrier. First remove the window section.

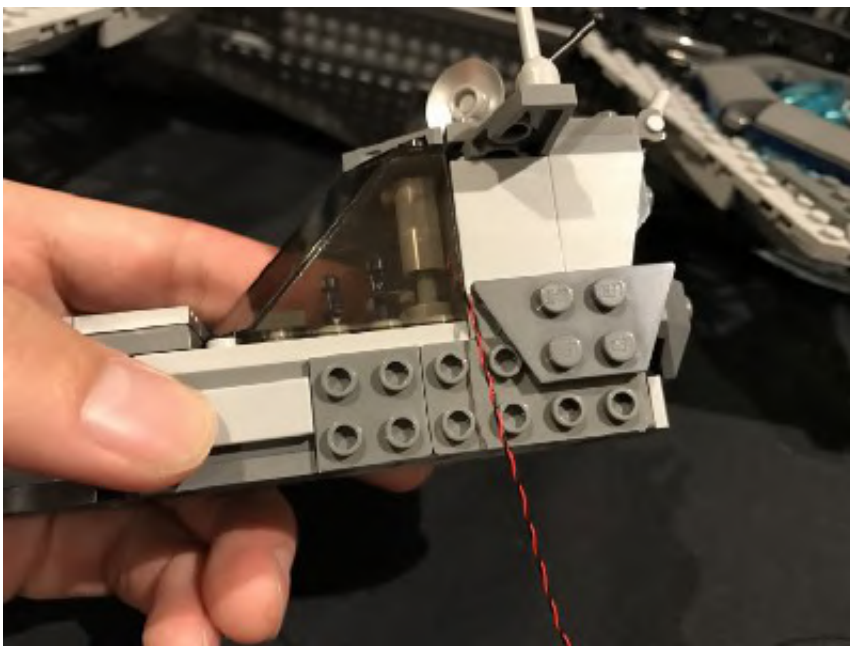
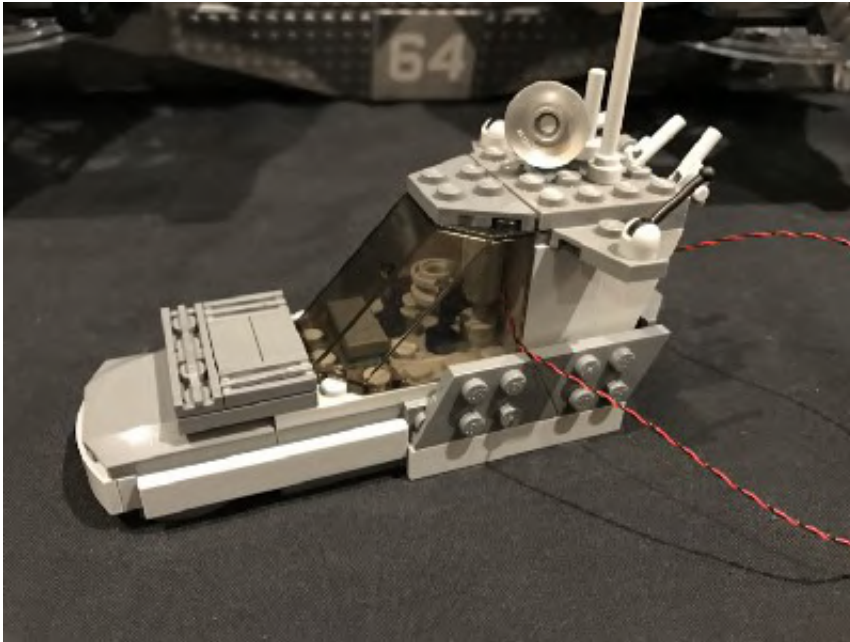


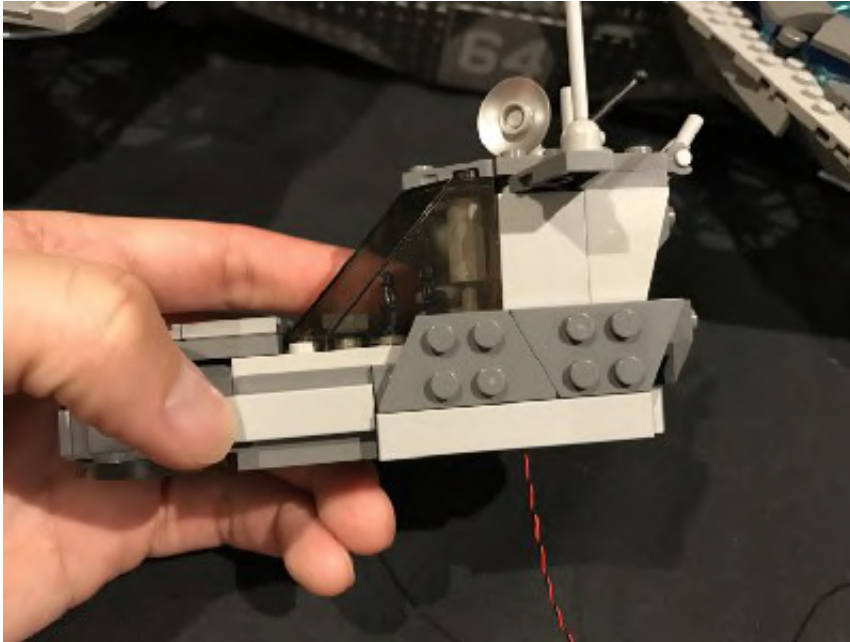


Take a **White 30cm Bit Light** and then mount it to the top of the inside of the window using an **adhesive square**. Reconnect the window with bit light installed and ensure the cable is laid behind. The Bit Light should be shining down.



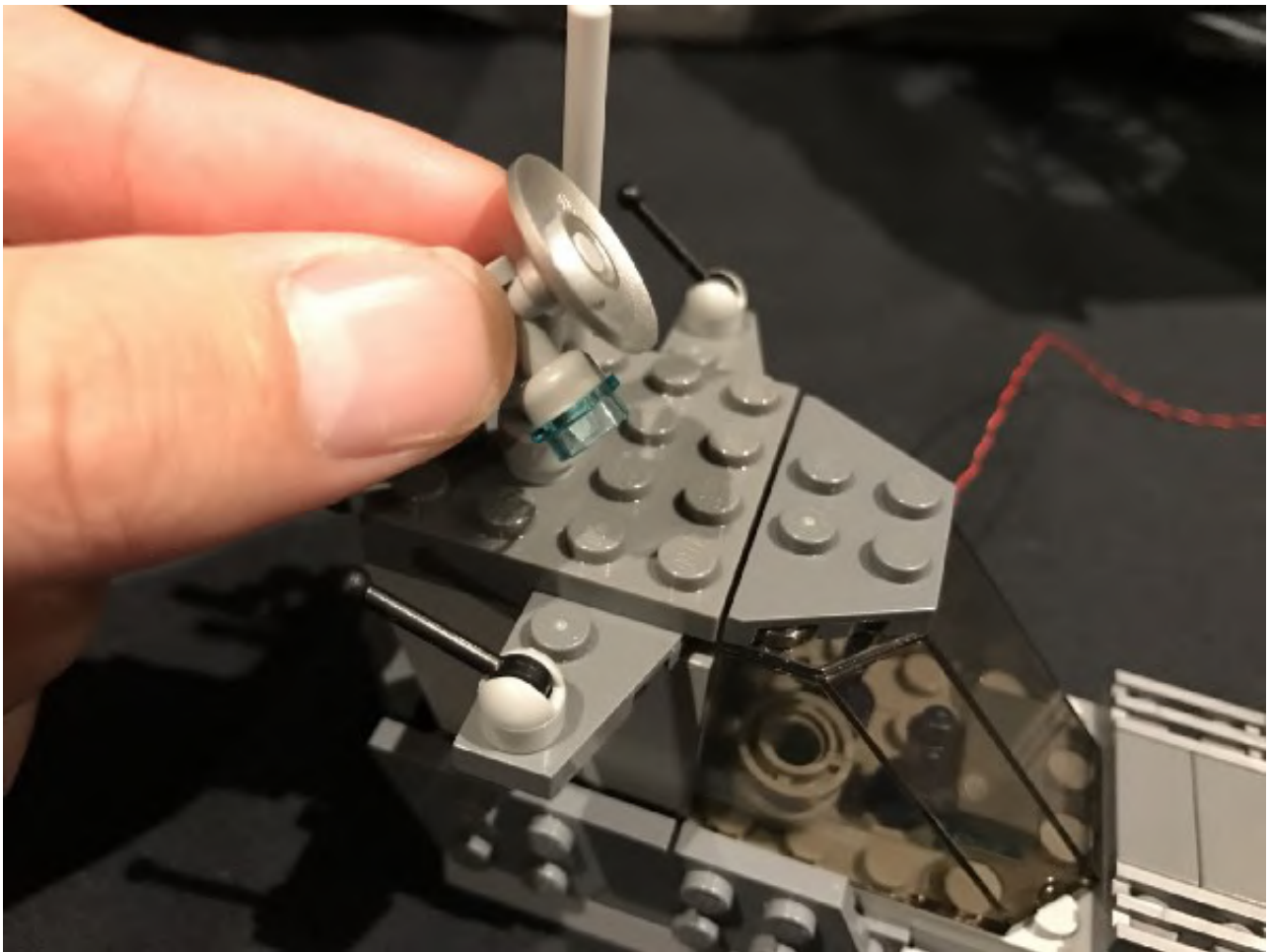
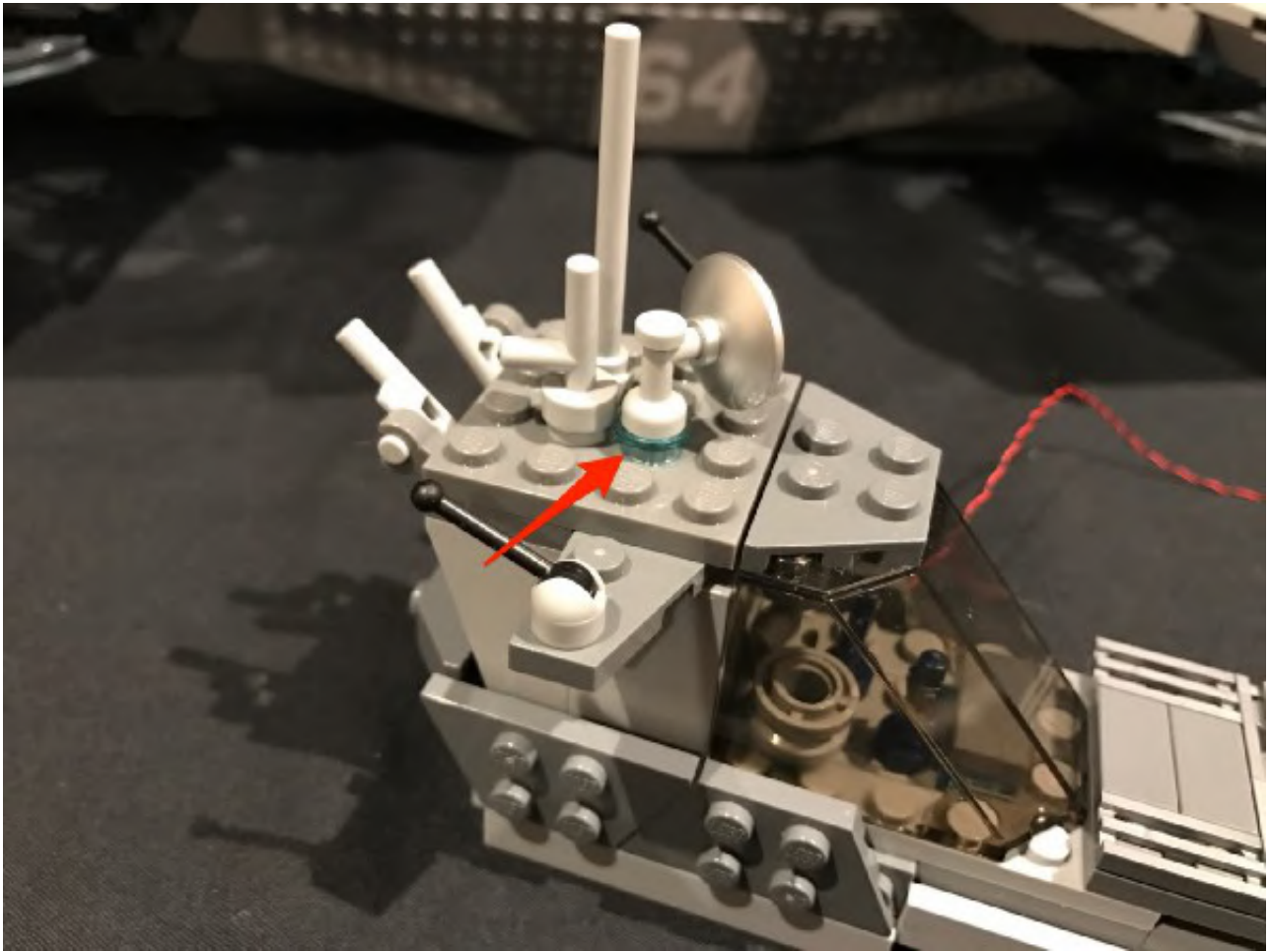
Turn over to the other side and then secure the bit light cable by disconnecting and reconnecting plates over the top.

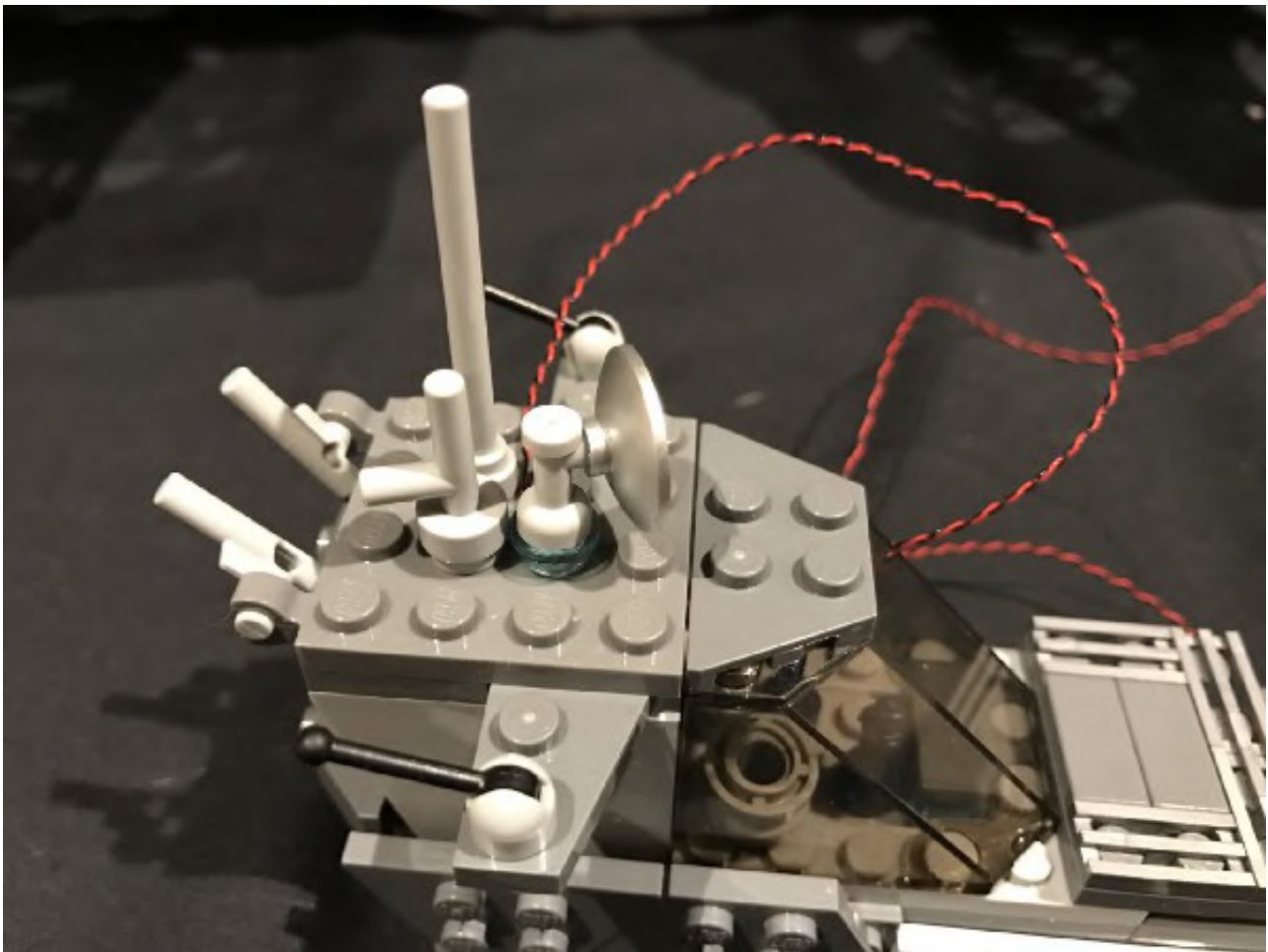
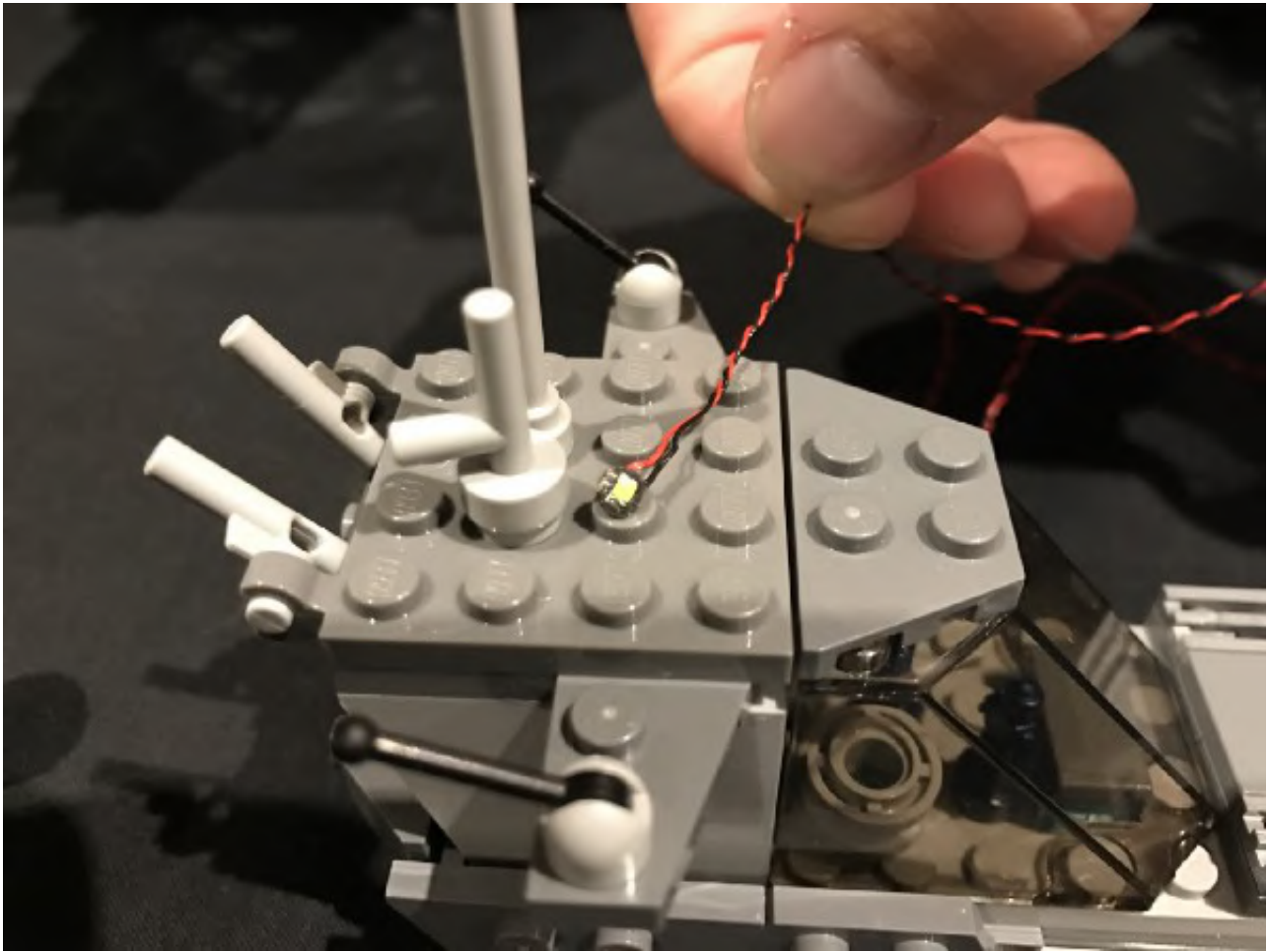




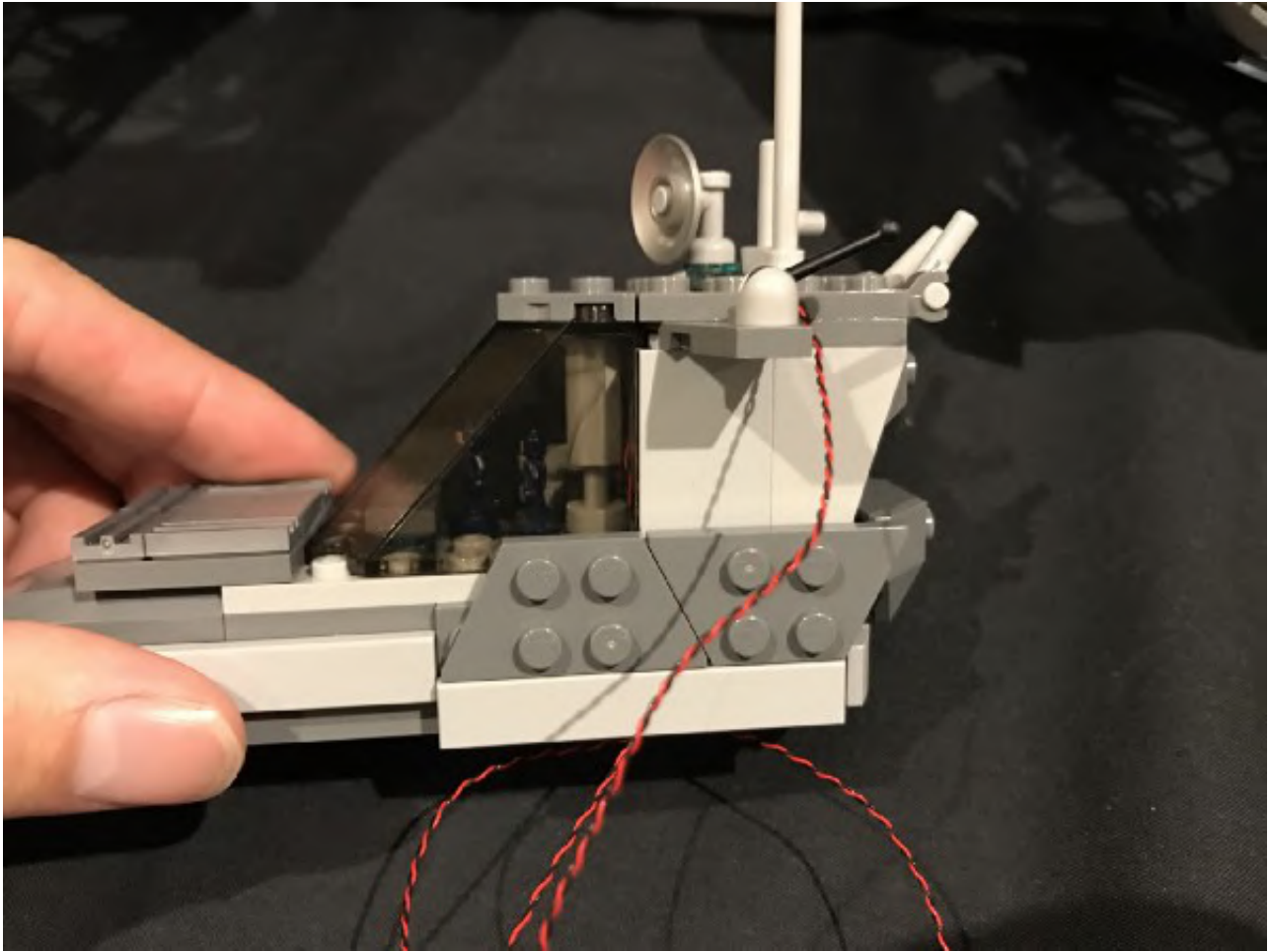
Ensure cable is laid in between studs

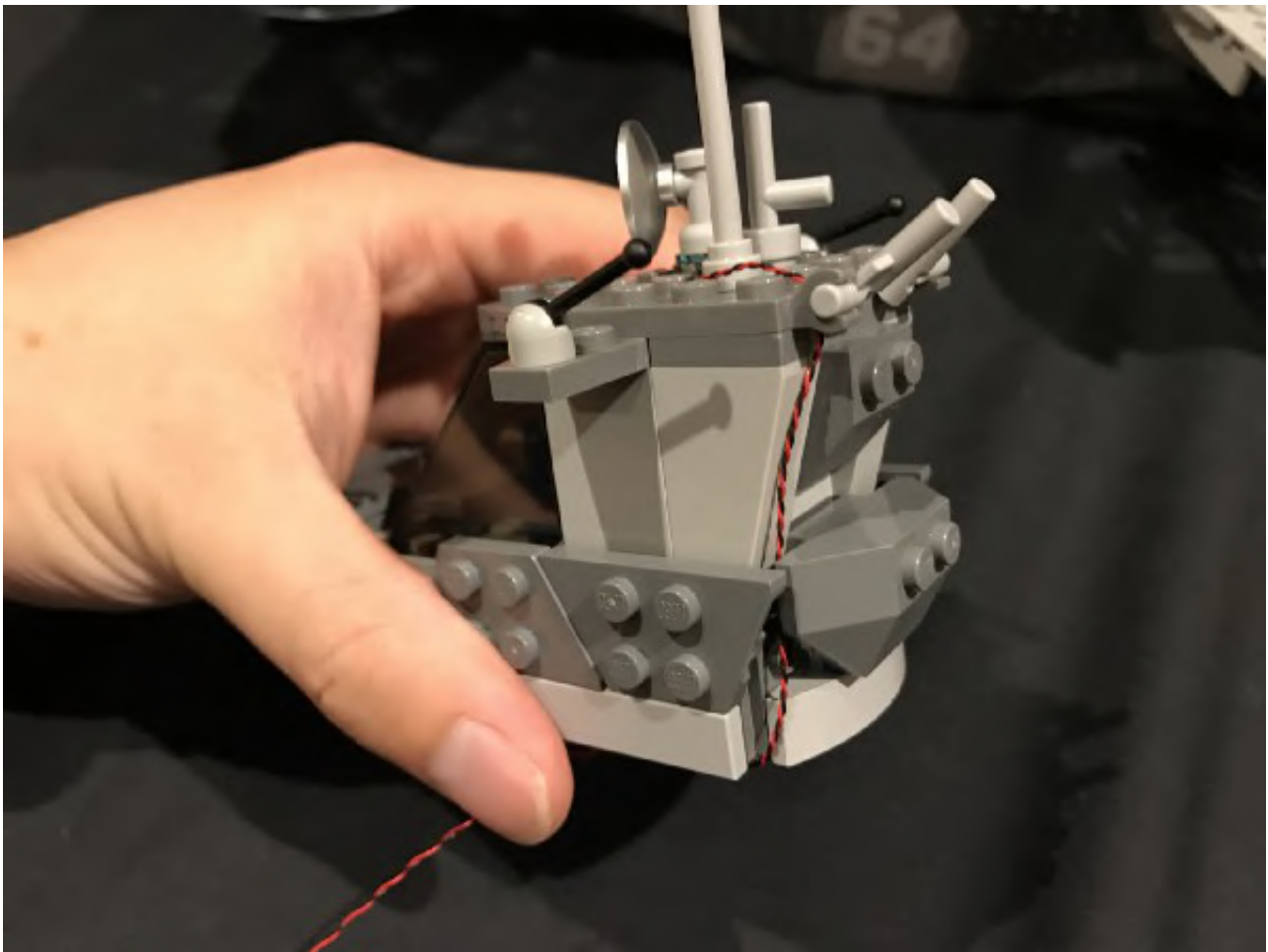
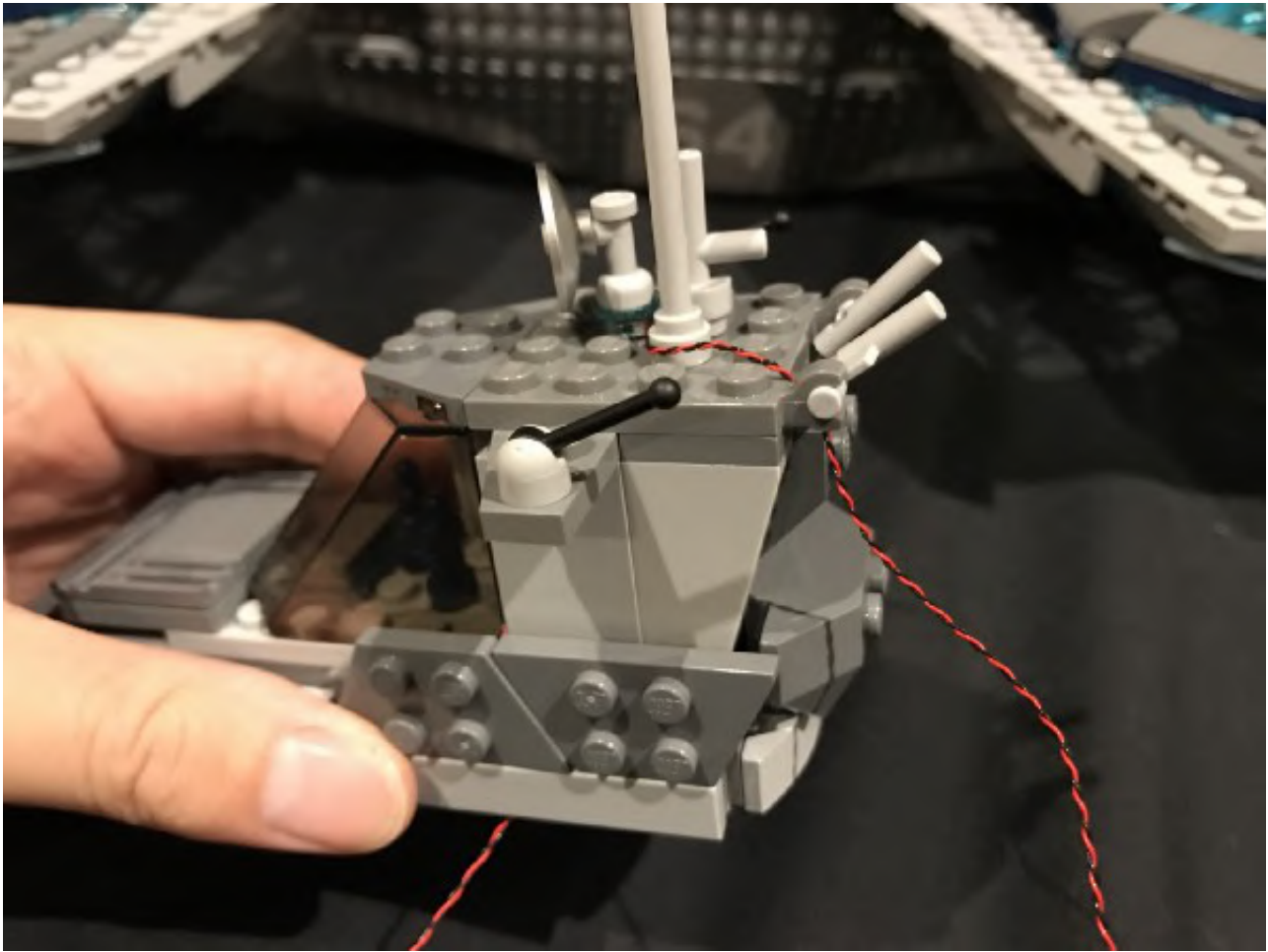
Remove the satellite dish section and then take a **Flashing White 30cm Bit Light** and place it directly over the stud underneath. Secure the bit light in place by reconnecting the satellite dish section over the top. Ensure the cable is also laid behind.

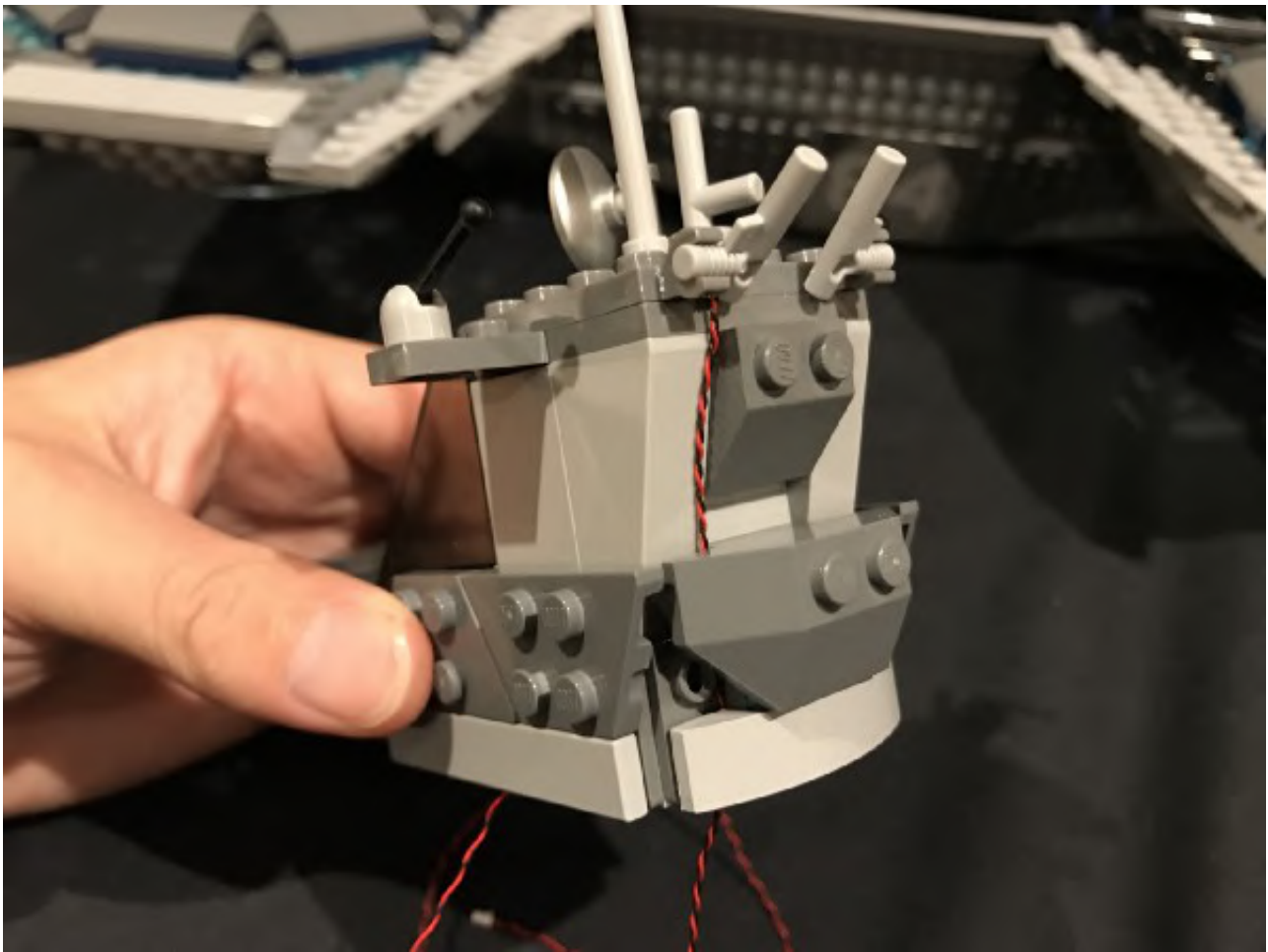
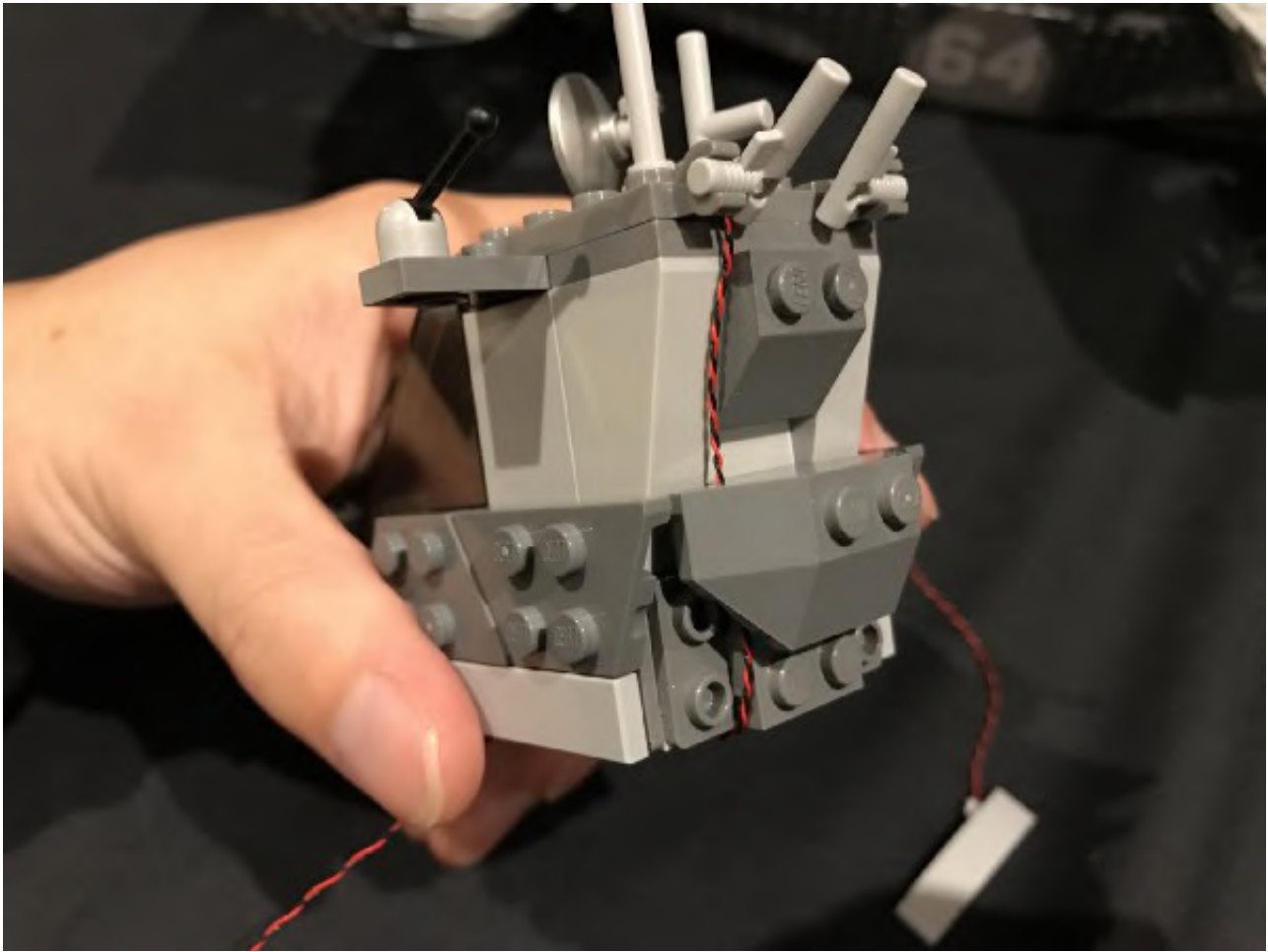


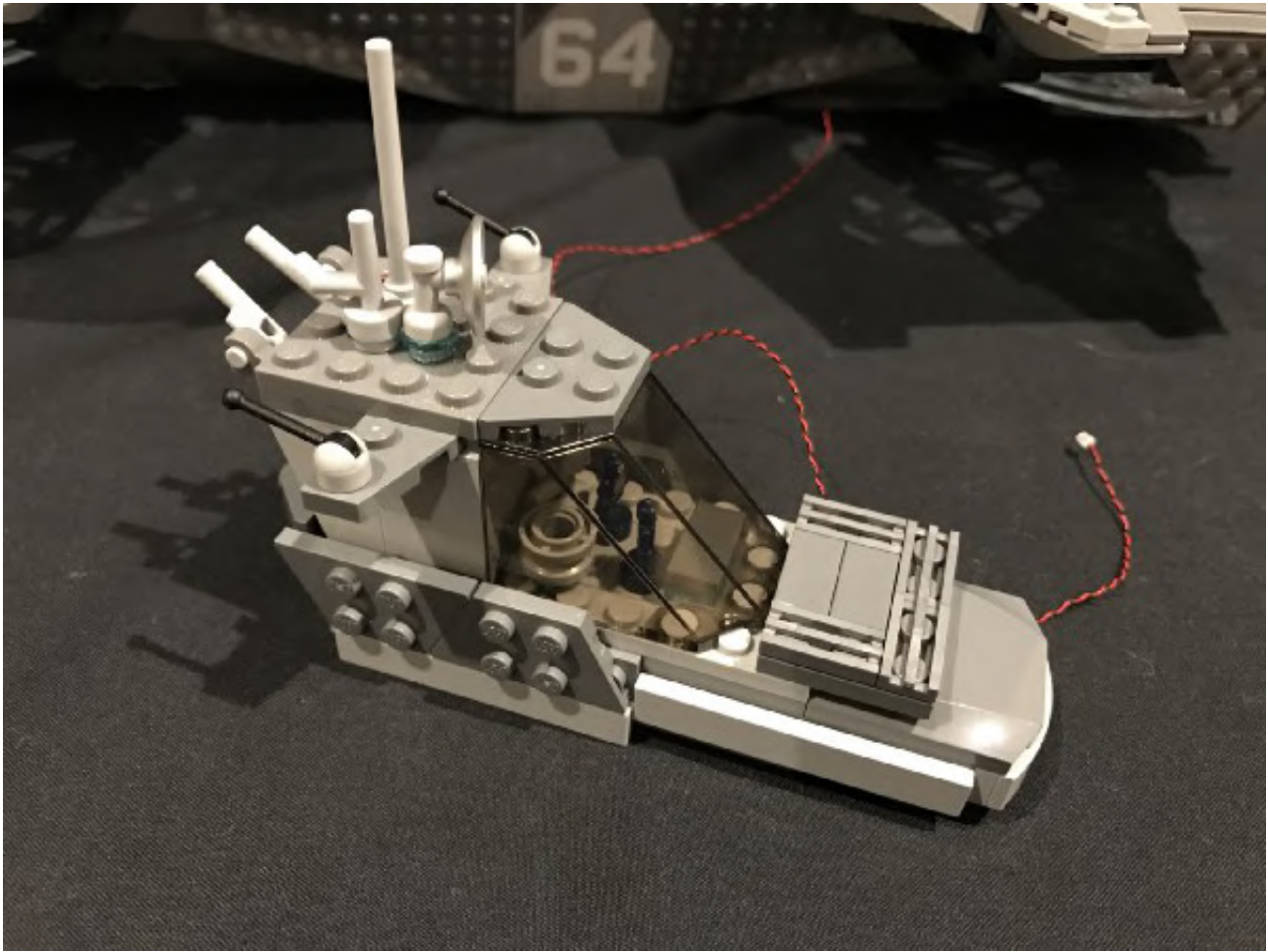


Turn over to the other side and then lay the cable behind pieces at the back.

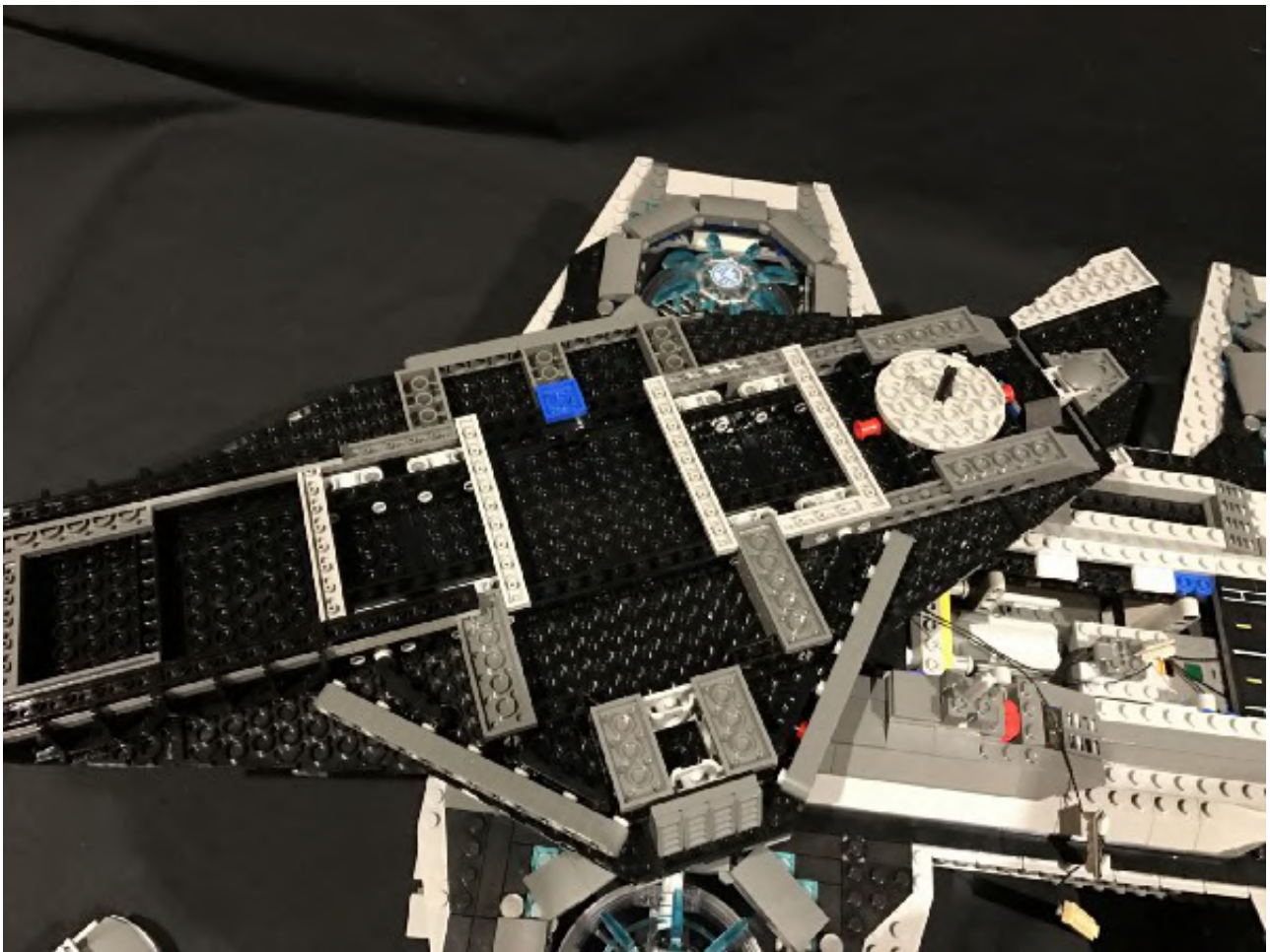
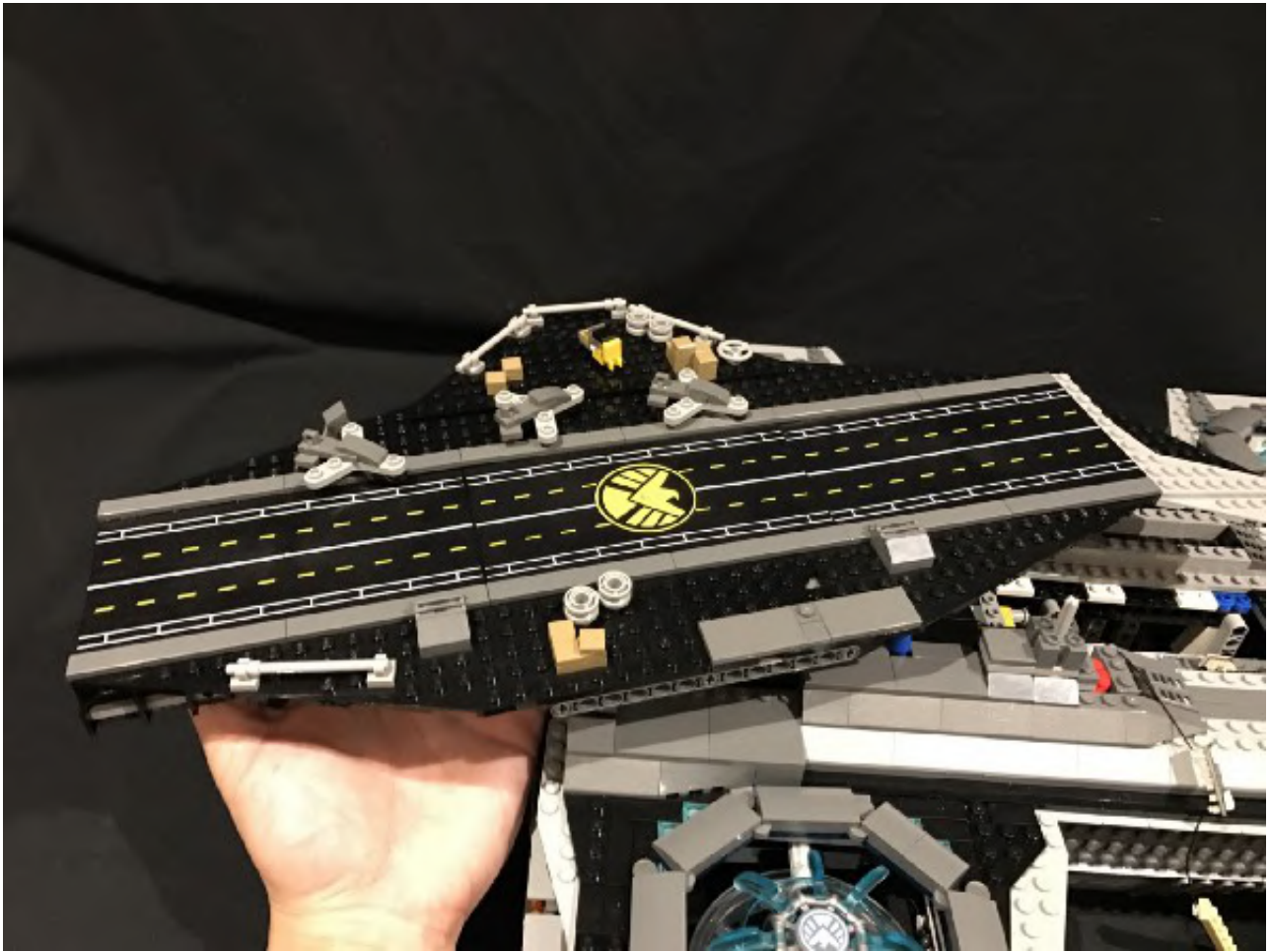




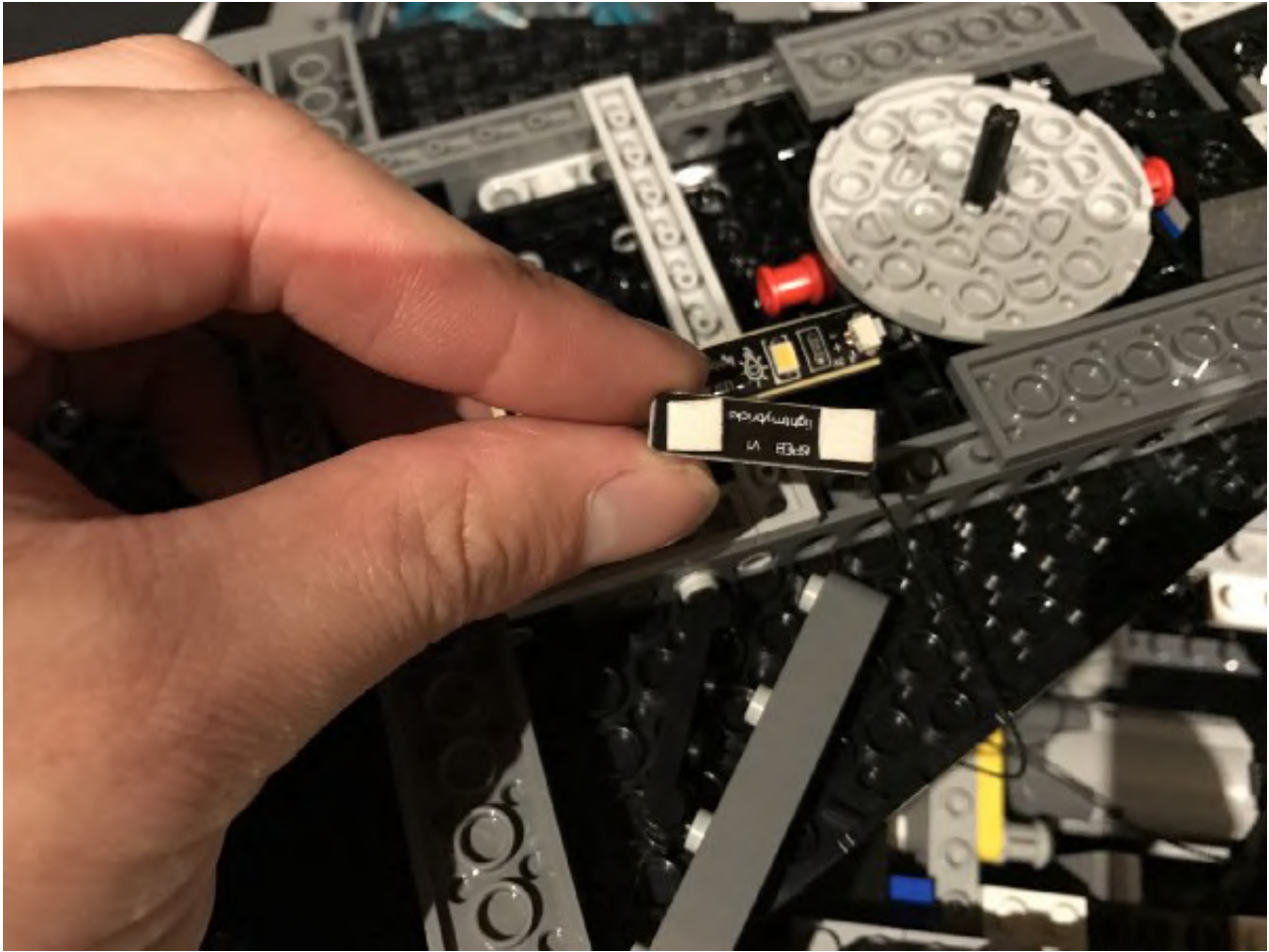


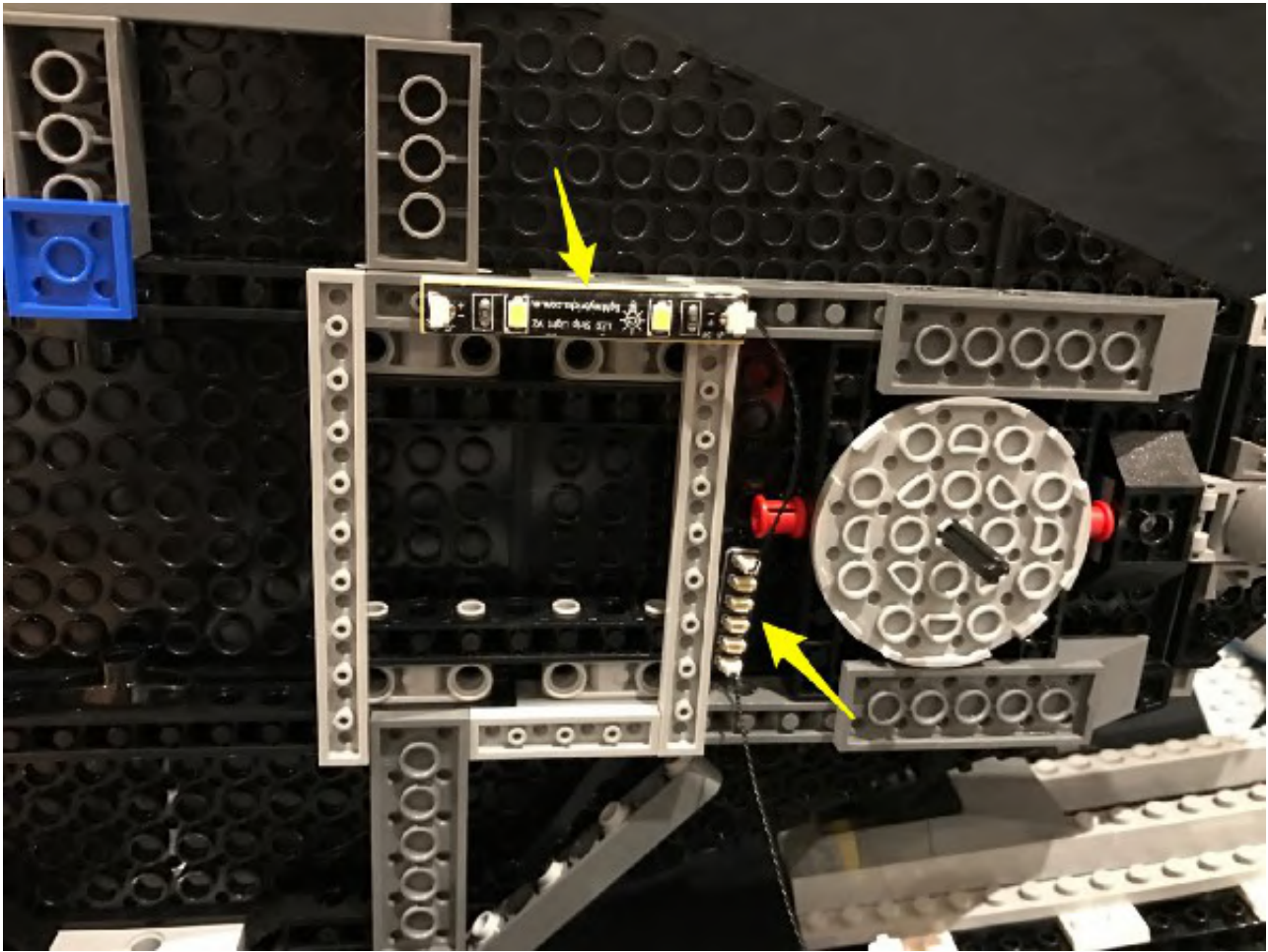


16.) Take the entire upper road section and then turn over so we can access underneath.

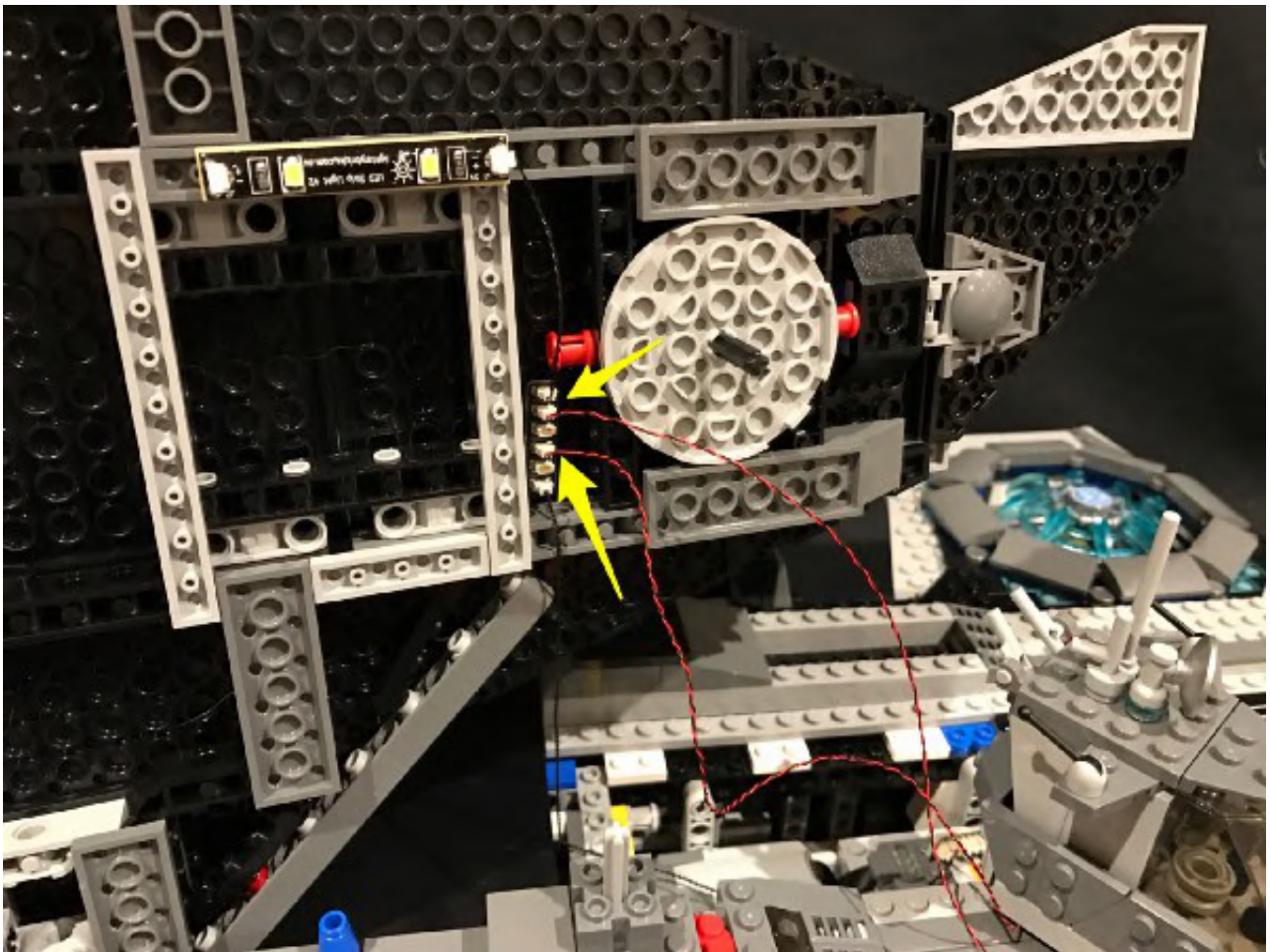
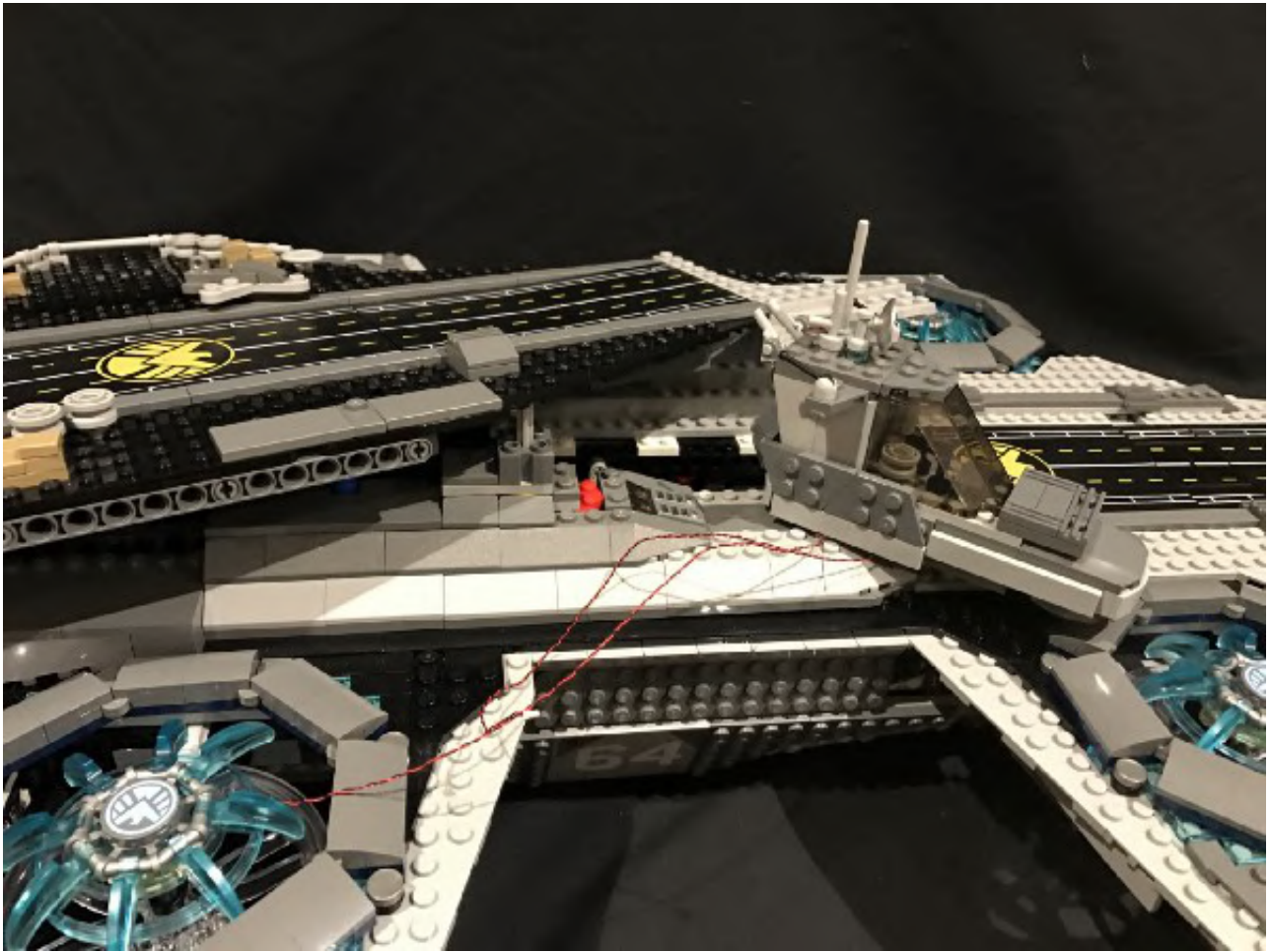


Locate the White Strip Light and 6-port expansion board from step 14 and mount them (using 2x adhesive squares) to the following positions underneath.

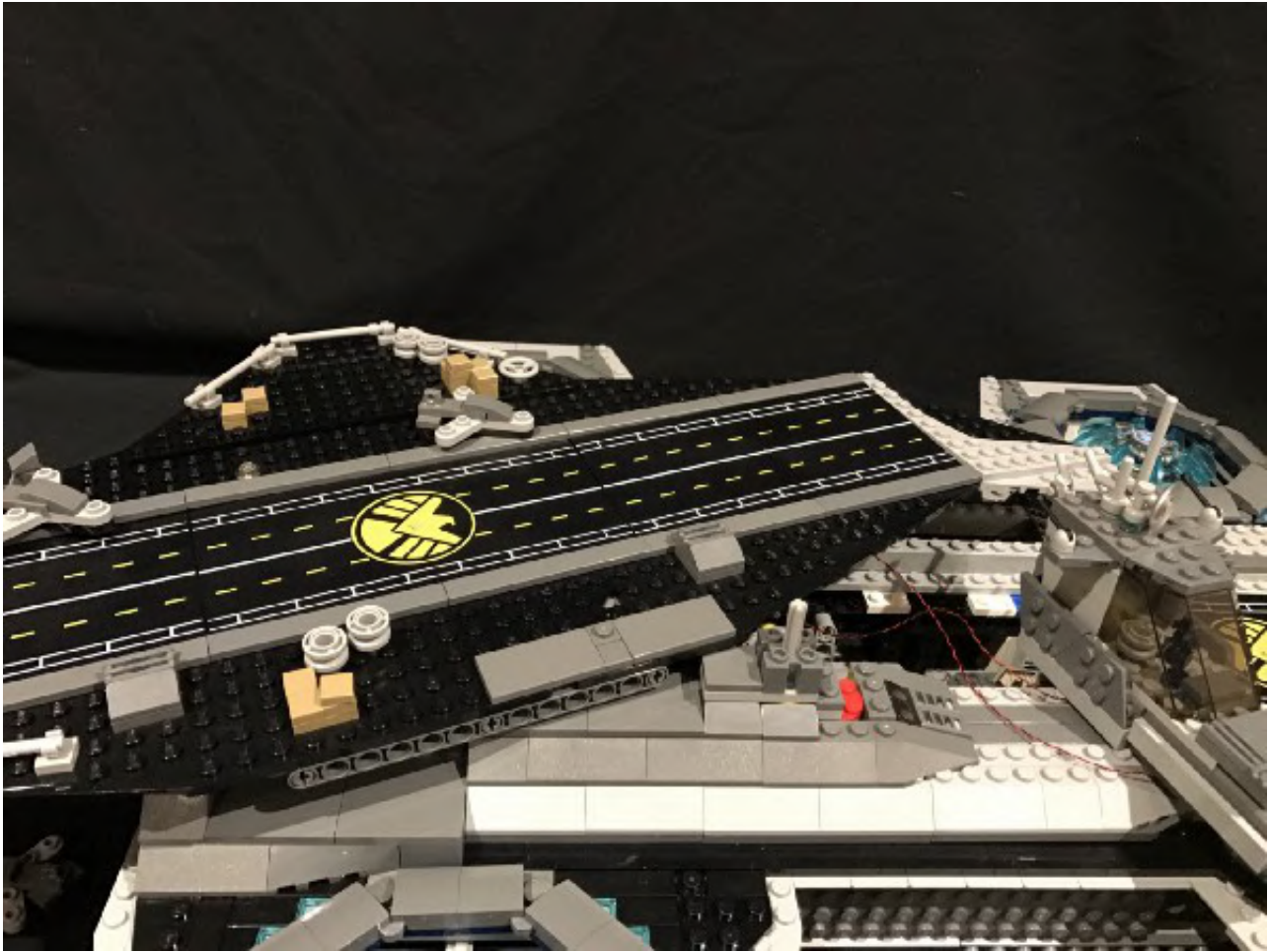


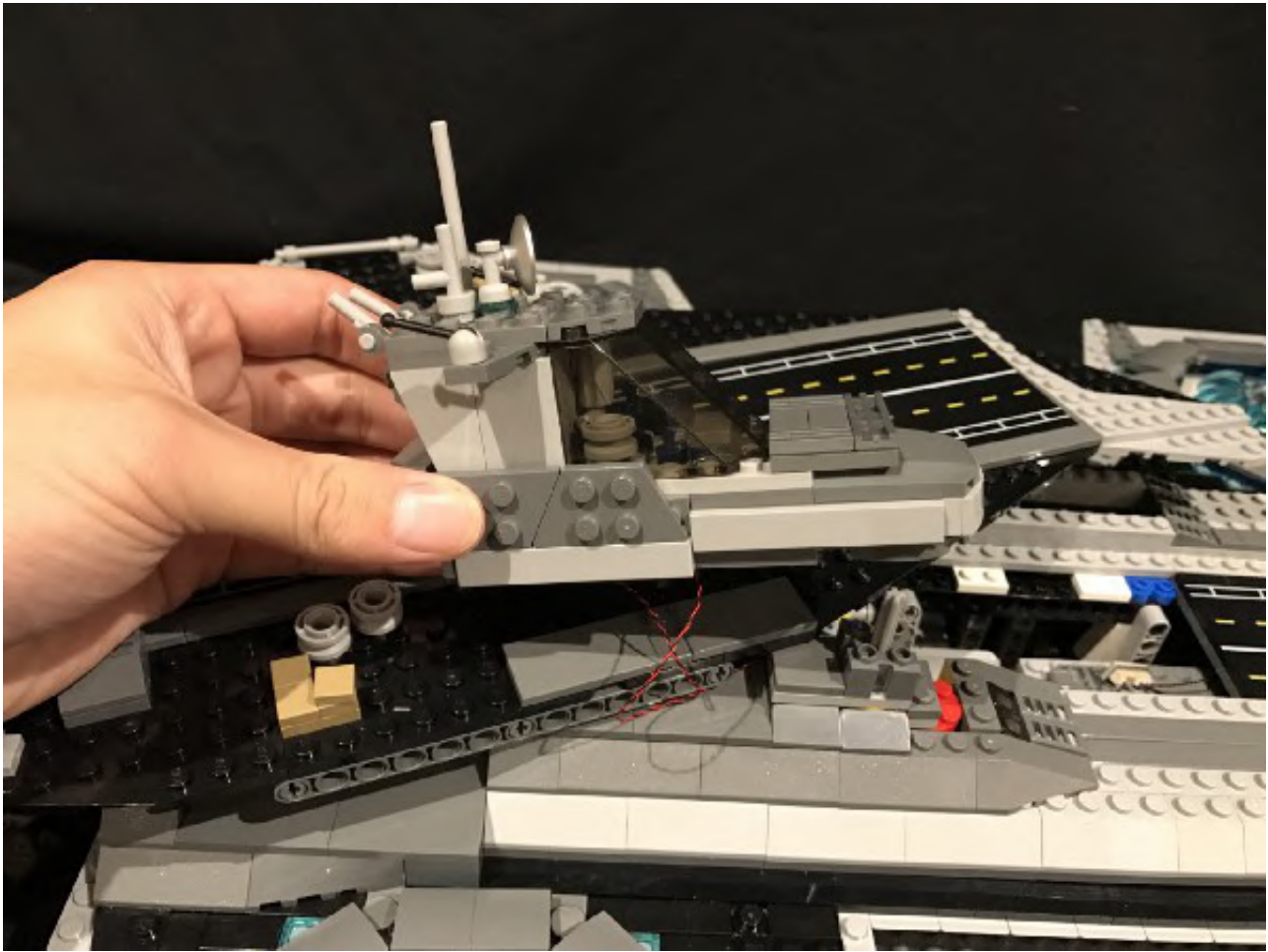


Take the control room section and then place it on top of the helicARRIER towards the right and connect both the Bit Light cables from the control room to the 6-port expansion board.

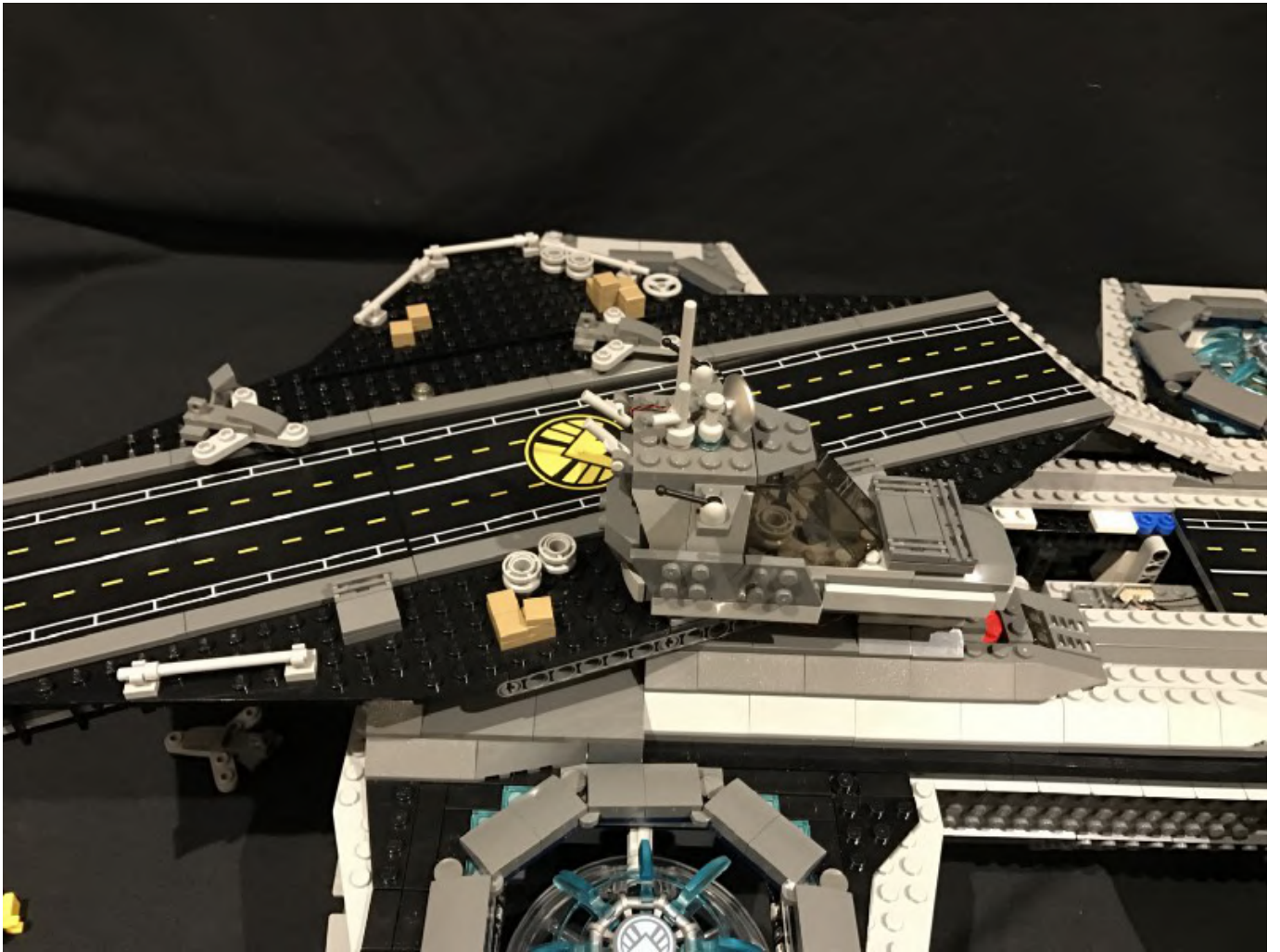


Securely reconnect the entire upper road section and then reconnect the control room on top ensuring you neatly lay the cables behind.

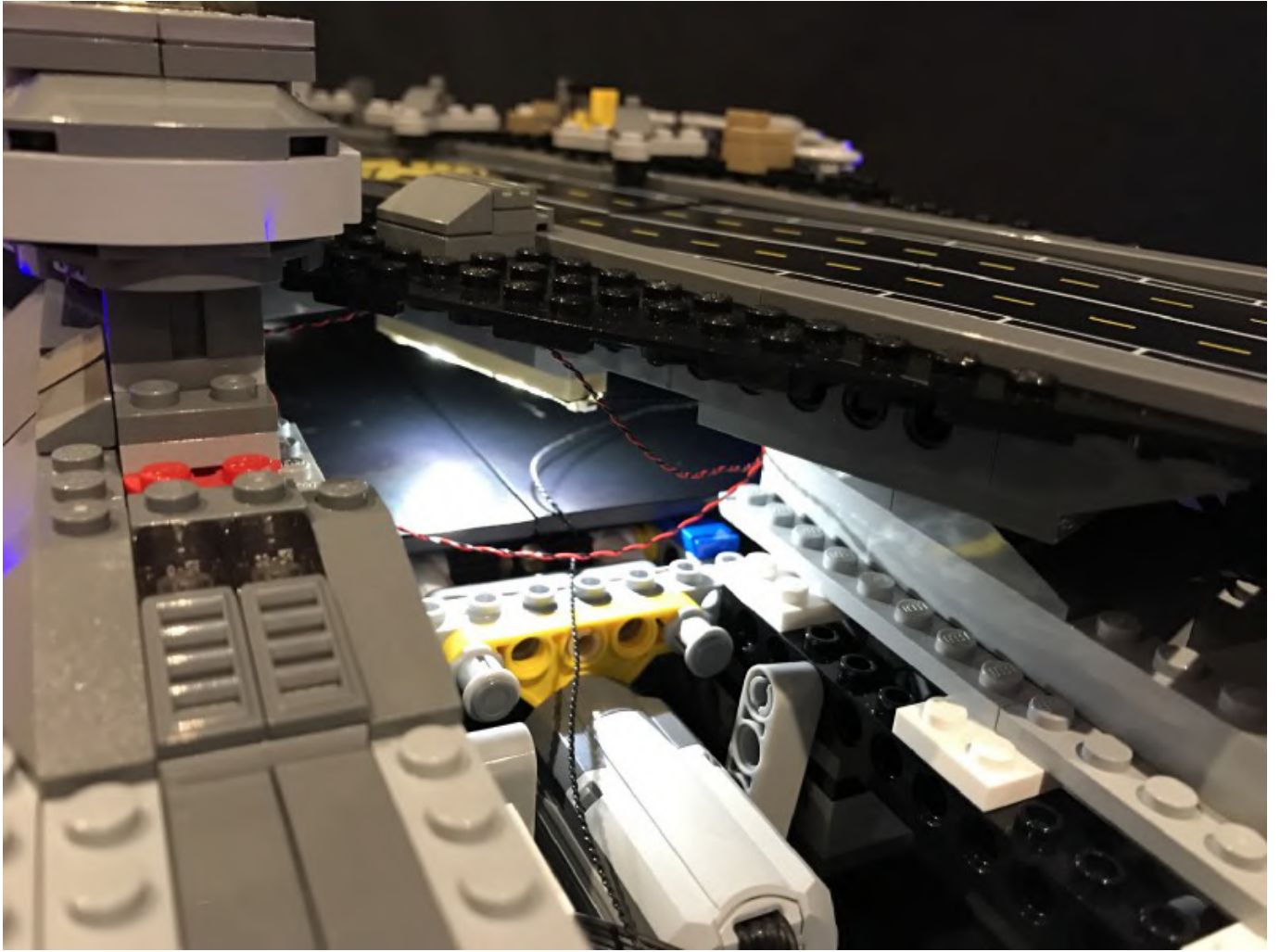


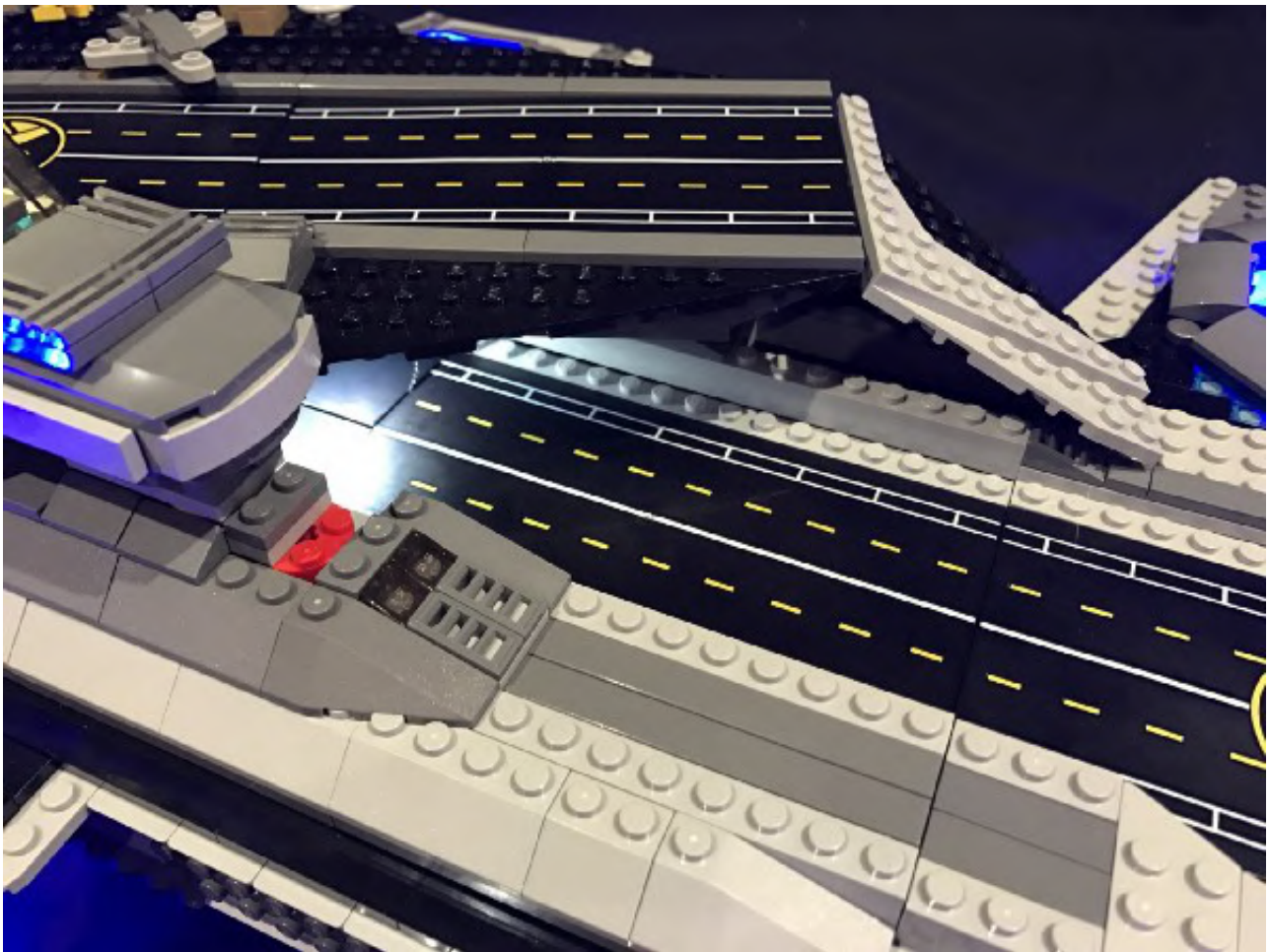
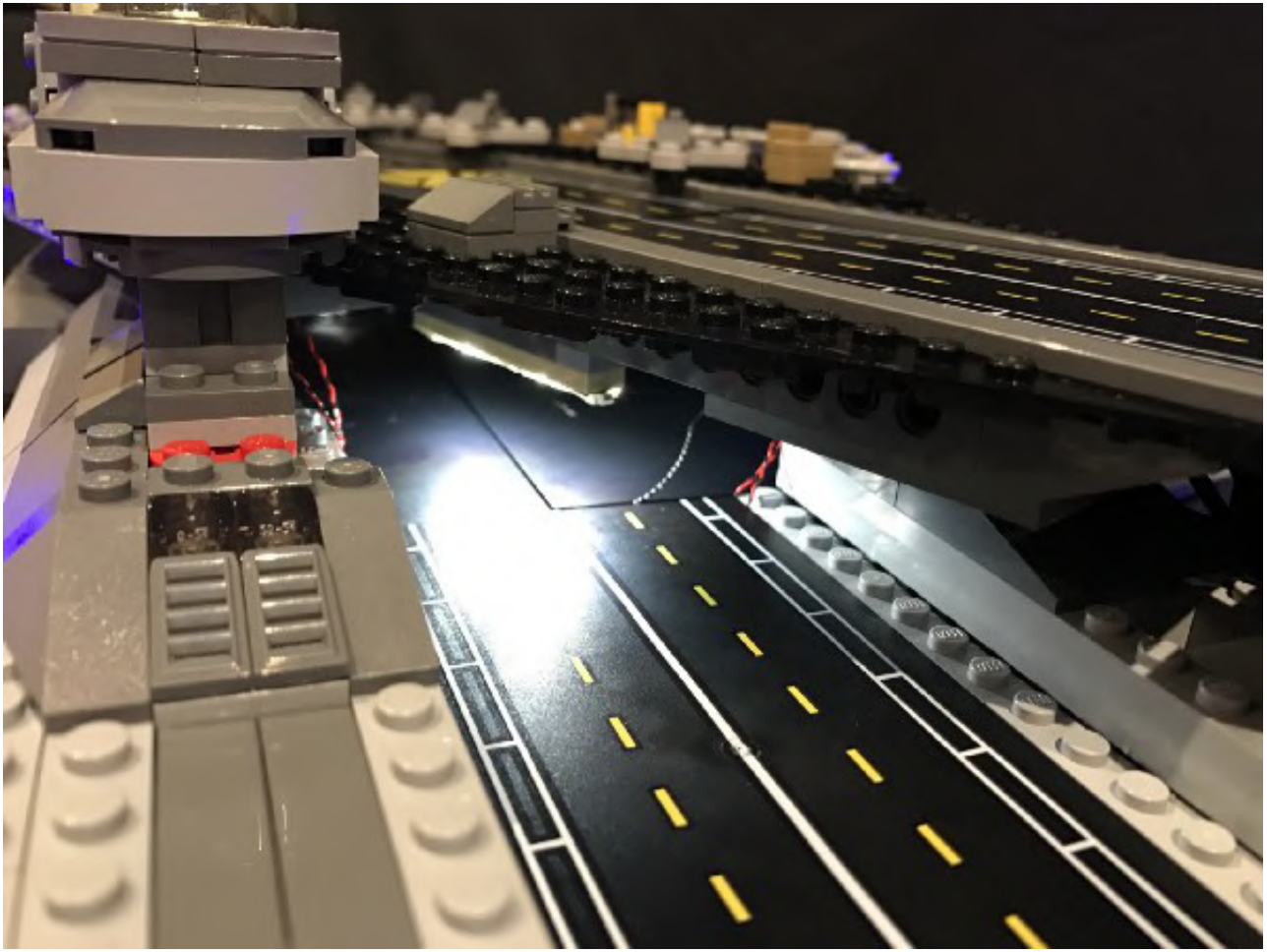


Ensure cables from the control room are neatly laid in between and underneath the upper road section



It's now time to finally turn on the battery pack to allow us to neaten up cabling underneath the upper road section. Lay the cables towards the side as much as possible before reconnecting the remaining LEGO road plate to secure cables and prevent them from being obviously seen.





Well done! You have finally completed installation of the SHIELD Helicarrier Lighting Kit. Turn on and ENJOY!

