

Overview

This article is an overview of the recommended installation procedure of Identify BMX cranks. Identify BMX cranks are a 3-piece crank system (not a 2-piece crank system) which require a square tapered bottom bracket.

Outline

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1) Abbreviated Installation Procedure

1. Install spider onto drive-side crank with the 4x #10-32 x ½” long flat socket cap screws with a ⅛” hex wrench. Final torque on these bolts is 24-30 in-lbs (2.7-3.3 N-m).
2. Slide the cranks onto the bottom bracket 180 degrees apart from each other.
3. Install the M8 flanged bolts and torque each to 20-28 ft-lbs (27-38 Nm).

The abbreviated installation procedure is meant to be a reminder for someone who is familiar with the details of installing a set of Identify BMX cranks. If you are not familiar with the details or this is your first time installing Identify BMX cranks, please review the rest of this document.

2) Prep

2.1 Cleaning

Before installing new (or used) cranks, proper cleaning of all components is highly recommended. Isopropyl Alcohol (IPA) or Acetone are very good options for removing unwanted oils, greases, and any other contaminants. Consider cleaning the following:

1. Square taper of the bottom bracket
2. Internal threads of the bottom bracket
 - a. If using IPA or Acetone be very careful to not get any of it in the bearings of the bottom bracket. Using a q-tip that is saturated but not dripping cleaner is recommended.
3. Bottom bracket bolt, specifically under the bolt head and the threads
4. Internal square taper of the crank
5. Surface the bottom of the bolt head contacts in the crank

2.2 Proper Tools

- 1/8" hex drive for installation of the 4x #10-32 flat-head screws on the drive side crank
- An M8 hex drive is required to install the crank onto the bottom bracket.
 - In some cases, a 15mm socket drive is required. Some bottom brackets have a flanged M8 bolt with a hex head (right bolt in image below) instead of a hex broach (left bolt in image below). Identify BMX recommends using the broach version simply because it is more common.

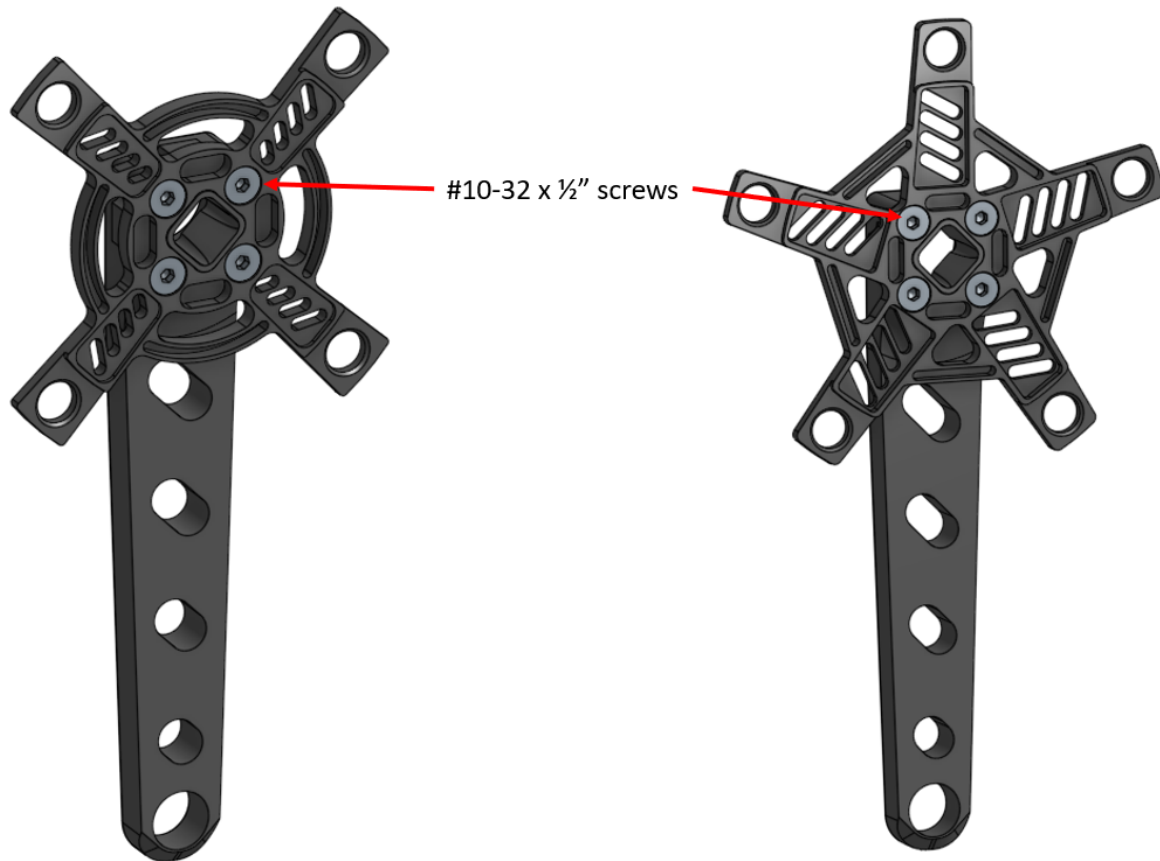


- A proper torque wrench with the correct hex drive attached is always recommended when installing hardware that has dynamic forces / stresses applied to them. This is especially recommended if the individual installing the hardware is not an experienced technician.

3) Installation

3.1 Spider to Drive-Side Crank

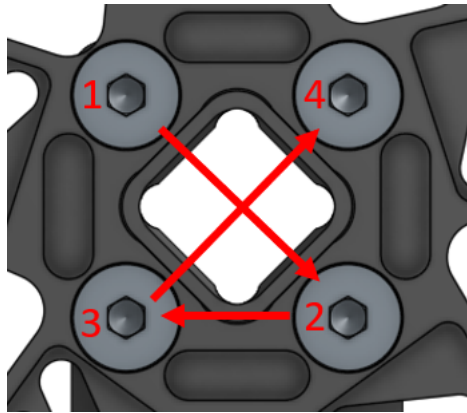
The Identify BMX 4-bolt spider can be installed in any orientation on the Identify BMX crank and sit symmetrical around the crank. The 5-bolt spider has one orientation that is recommended as shown in the **4 & 5 Bolt Spider** image below. If the 5-bolt spider is not installed as shown in the image, it will not be symmetric around the crank which and it may be difficult to do a gear change because a chainring bolt may not be easily accessible.



4 & 5-Bolt Spider: Image of spiders installed on drive-side crank

When tightening the 4x #10-32 screws to secure the spider to the crank:

1. They must be torqued with a $\frac{1}{8}$ " hex wrench. If a 3mm hex wrench is used, the proper torque may not be achievable. See the section '**What Can Occur if not Installed Properly**' if this step is not properly followed.
2. Minimum installation torque = 24-30 in-lbs (2.7-3.3 N-m). See the section '**What Can Occur if not Installed Properly**' if this step is not properly followed.
3. It is highly recommended to snug each bolt and then go in an X-pattern when tightening the 4x #10-32 bolts to final torque. Referencing the **X-Pattern** image, if final torquing bolt 1 first, then move to 2, followed by 3 and finally 4. This forms the X-pattern and disperses stresses as evenly as possible throughout the spider and crank.



X-Pattern: Recommended pattern

After the #10-32 bolts are taken to final torque, the spider is fully installed.

3.2 What Can Occur if not Installed Properly?

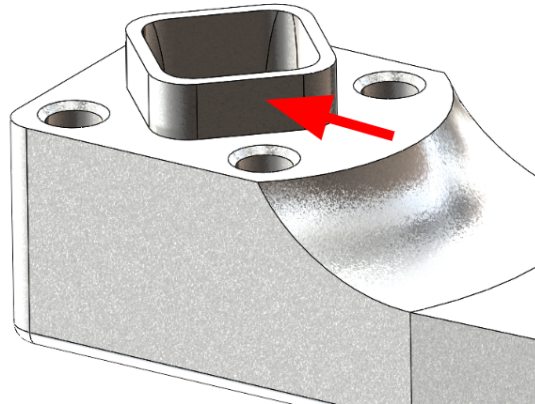
The 4x #10-32 flat-head screws must be torqued down sufficiently per the recommended torque. If they are not, there are a few major issues that can occur:

1. There is a possibility the screw(s) can unthread and back out far enough they begin to interfere with the bottom bracket. This can potentially ruin the teeth in the flanged part of the bottom bracket not allowing the removal of the bottom bracket from the frame. See **Bottom Bracket** image. This can happen because the #10-32 screws will continue to rotate with the crank arm and this part of the bottom bracket is stationary.



Bottom Bracket: Bottom bracket teeth that can be damaged of #10-32 flat head screws are not installed with enough torque

2. The torque from pedaling can potentially be completely transferred to the square boss of the drive-side crank the spider straddles and break it off. The red arrow in the **Drive-Side Spider Boss** image is pointing to the square boss of the drive-side crank.



Drive-Side Spider Boss: Arrow pointing to the square boss of the drive-side crank

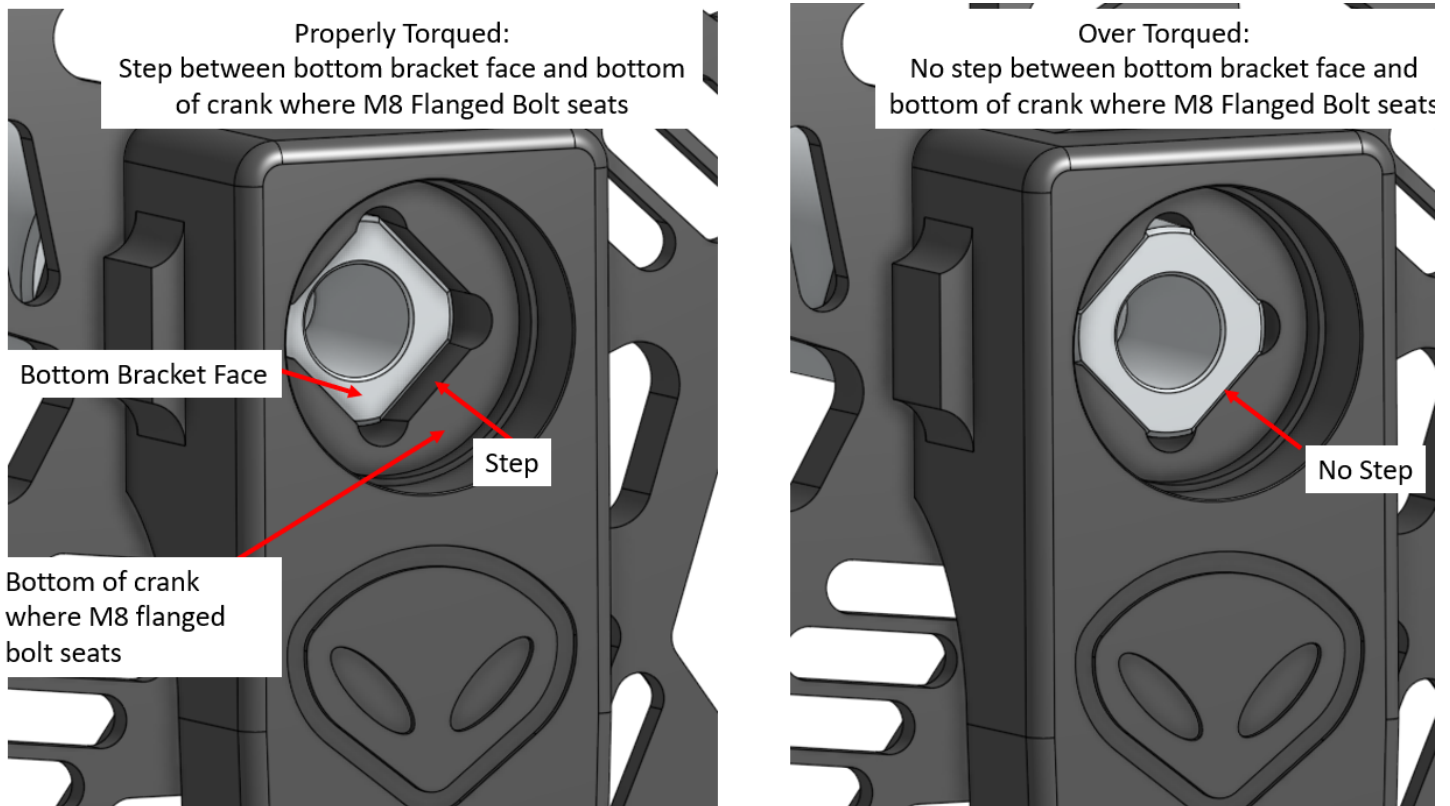
3.3 Crank Onto Bottom Bracket

Identify BMX cranks are most compatible with JIS square taper spindle types, however, they are also compatible with ISO as well.

1. Slide the crank over the square-tapered bottom bracket.
 - a. Identify BMX does **not** recommend the use of grease when installing square taper cranksets. A square taper crank and all bolts in general, rely on friction to hold everything tight. We are not saying it is bad to use grease, however, our recommendation is not to. From our experience, unless you're keeping your expensive race bike in corrosive environments or let it get wet and do not dry it, the bolts should not rust or corrode. We have removed hundreds of crank arms that do not have grease and never had an instance where a simple allen key was not able to remove a crank bolt.
 - i. If using grease on the bottom bracket spindle, use it very sparingly.
 - ii. If you use grease on the bolt threads, again, use it sparingly. Using grease on the bolt threads may help give more accurate torque readings, however, the torque specs in this article for all bolts do assume no thread lubrication, or dry threads.
2. Install M8 flanged bolt.
3. Snug the M8 flanged bolt by hand. To "snug" a bolt means that no significant torque is applied to the bolt but that it is also not free to spin, for example, it can't be turned fingers anymore.
4. Apply 20-28 ft-lbs (27-38 Nm) of torque to the M8 flanged bolt to each of the drive-side and non drive-side crank depending on the intent of use.
 - a. It is recommended to only go to 20-24 ft-lbs (27-32.5 Nm) if the cranks will be repeatedly removed from the bottom bracket. If going to 20 ft-lbs (27 Nm), re-torque the bolt about every two weeks.
 - i. This torque recommendation is for people who will be removing the cranks from the bottom bracket on a regular basis. The cranks are aluminum and most bottom bracket spindles are made of chromoly (steel) or titanium, both of which are much stronger and harder materials. In fact, Aluminum is considered a soft metal compared to titanium and steel. Because of this, if the crank bolt (the M8 flanged bolt) is over-torqued over and over again it will slightly keep expanding the internal square taper of the crank. The

crank will go onto the Bottom Bracket slightly further and further everytime it is installed until eventually the crank bottoms out on the bottom bracket as shown in the **Over Torqued Crank Bolt** image. Once this happens, the crank will always feel loose and will not be torqued down at all, at this point it would be time to replace the crank. This applies to all 3-piece cranks.

- ii. Torquing to a full 28 ft-lbs (38 Nm) is okay and will not over-torque the cranks, however, anything above 30 ft-lbs (40.7 Nm) may. Please remember that most torque wrenches are not precision tools and even high-end calibrated torque wrenches can only claim a torque accuracy of 3-5%. If you are using a lower-end torque wrench and have it set to 28 ft-lbs (38 Nm) there is a chance you can repeatedly be over-torquing the cranks without knowing it simply because the torque wrenches accuracy limitations. This is why Identify BMX suggests just torquing to 20-24 ft-lbs (27-32.5 Nm) to guarantee the crank is not being over-torqued.



Over Torqued Crank Bolt: Illustration of the effects of apply too much torque over and over again to a square tapered crank

- b. 28 ft-lbs (38 Nm) is recommended for people who are going to install the cranks and don't expect to take them off very frequently. This will prolong the interval in which it is recommended to re-torque the bolts to about once per month depending how often your rider is on their bikes.

- c. One other note about torque and using a torque wrench. If the cleaning steps in the prep section were not followed and there is a lot of debris or gunk on the threads of the crank bolts (M8 flanged bolts) or the female threads of the bottom bracket where the crank bolt threads into, this can provide a “fake” torque and you could be under torquing your bolts. If the debris on the threads is causing the bolt to bind up, a torque wrench does not know if this is real torque or fake torque.

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