TECHNICAL SERVICE BULLETIN #157

Shimano™ EP8 Spindle Inspection in Conjunction with e*thirteen e*spec Cranks

Provided By: e*thirteen Technical & Engineering Dept.
Direct Questions To: support@ethirteen.com

THIS TECHNICAL SERVICE BULLETIN IS INTENDED FOR:
e*thirteen OEM's, assembly factories, distributors, dealers & end-users

PRODUCTS INCLUDED:
e*thirteen e*spec cranks used on Shimano™ EP8 (DU-EP800) Motors .

Part Numbers & Descriptions

CS3EPA-100	e*spec Plus Crank | Shimano™ EP8 | 165mm
CS3EPA-101	e*spec Plus Crank | Shimano™ EP8 | 170mm
CS3EPA-102	e*spec Plus Crank | Shimano™ EP8 | 175mm
CS3EPA-103	e*spec Plus Crank | Shimano™ EP8 | 160mm
CS3EPM-100	e*spec Plus Crank | 160mm | Shimano™ EP800 | 178Q
CS3EPM-101	e*spec Plus Crank | 165mm | Shimano™ EP800 | 178Q
CS3EPM-102	e*spec Plus Crank | 170mm | Shimano™ EP800 | 178Q
CS3EPM-111	e*spec Plus Crank | 165mm | Shimano™ EP800 | 177Q | Intense MX
CS3ERM-101	e*spec Plus Crank | Shimano™ EP8 | 165mm | Q 177
CS3ERM-102	e*spec Plus Crank | Shimano™ EP8 | 165mm | Q 177

PRODUCTS NOT INCLUDED:
e*thirteen e*spec cranks used on Shimano™ E7000 or E8000 motors.

Note: While identical e*thirteen e*spec crank arms are used across Shimano™ E7000, E8000, and EP8 (DU-EP800) motors, spindle failures have only been reported to e*thirteen on EP8 (DU-EP800) motors -- therefore Shimano™ E7000 or E8000 motors are not included in this TSB.

BACKGROUND

1. e*spec alloy and carbon cranks were developed specifically for Shimano™ ebike motors and sold via OEM and aftermarket channels in 2020 & 2021.
2. March 2021, e*thirteen was made aware of Shimano™ EP8 spindle failures when used in conjunction with a number of different brands' cranks, including the e*thirteen e*spec cranks.
3. e*thirteen took immediate action to diagnose the issue with extensive 3rd party lab testing and metallurgical analysis to understand the root cause.
4. e*thirteen's analysis suggests that some Shimano™ EP8 spindles may have manufacturing defects which over time, can develop into cracks with use and exposure to the elements.
5. This Technical Service Bulletin, #157, suggests a safety inspection to verify the motor spindle integrity when these cranks are used in conjunction with the EP8 motor.

CURRENT STATUS

Currently e*thirteen cranks pass and exceed all bicycle testing standards applicable to these components (ISO, EN, DIN) -- e*thirteen is confident that our cranks are not the source of the issue.

RECOMMENDED ACTION

e*thirteen recommends inspecting Shimano™ EP8 motor spindles to ensure no cracks are present before riding any EP8 equipped bike again and in doing so have provided a step by step process for doing this with images and instructions below.

The inspection is done by removing the crank arms, thoroughly cleaning the spindle, and closely inspecting the area located around the hole drilled through the spindle in the splined location.

Please see written instructions with visuals below. If any help is needed, please contact the e*thirteen support team at support@ethirteen.com.

While e*thirteen does not foresee any issues with e*thirteen cranks, we stand behind our products and have warranty policies in place for our products. Please view our warranty policy and request form HERE.

INSTRUCTIONS FOR ARM REMOVAL PROCEDURE

Note: Procedure is the same for left and right arms and should be performed on both

STEP 1 - LOOSEN PINCH BOLTS

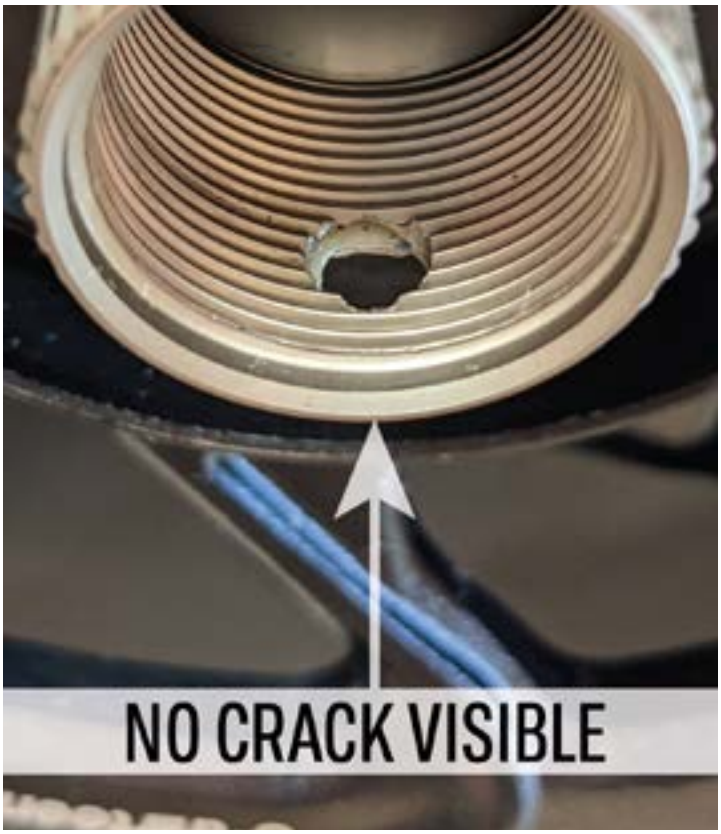
Loosen counterclockwise both 5mm pinch bolts which attach the crank arm to the spindle. Ensure they are fully loose by alternating bolts until a gap between the head of the bolt and crank arm is visible.

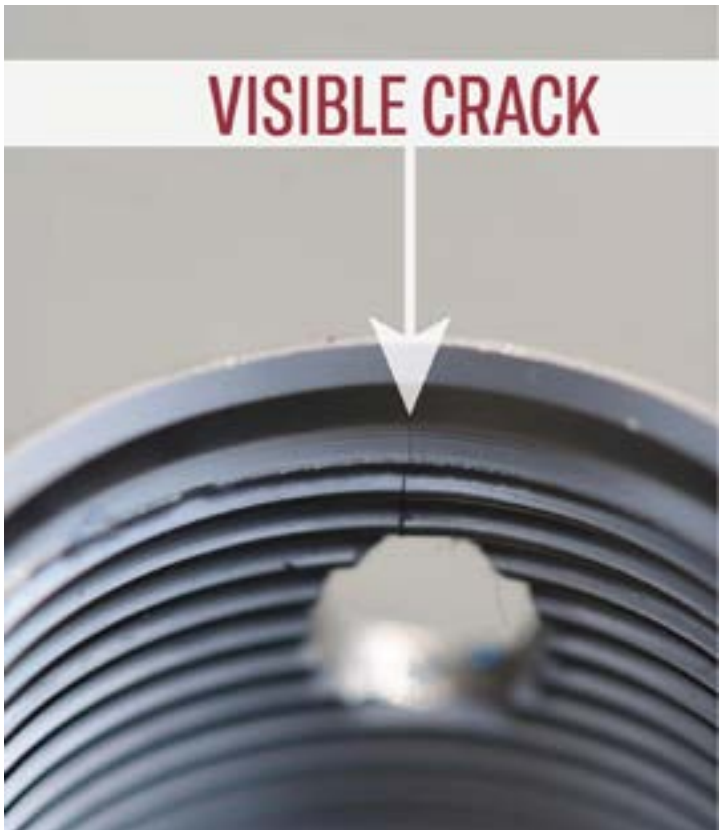
STEP 2 - REMOVE PRELOAD CAP
Using a 5mm hex key, loosen counterclockwise and remove the preload cap.

STEP 3 - REMOVE ARMS AND CLEAN MOTOR SPINDLE WITH DEGREASER

STEP 4 - CLOSELY INSPECT THE EXPOSED SPINDLE, PAYING PARTICULAR ATTENTION TO THE AREA AROUND THE CROSS-DRILLED HOLE. INSPECT BOTH INSIDE AND OUTSIDE THE SPINDLE (Using your smartphone camera and zooming in can give additional clarity)

INSIDE VIEW





OUTSIDE VIEW

Note: Trough/groove marks pictured on the wide spline tooth and elsewhere on the spindle are manufacturing marks present from the factory. These marks are inconsistent, and may not necessarily be present on all spindles!

STEP 5 - REINSTALL OR CONTACT THE APPROPRIATE PARTY FOR REPLACEMENT

- If no crack is present, move onto the arm install procedure below.
- If crack is present or you are unsure, contact your Bicycle Manufacturer or local Shimano Service Center for further instructions.

ARM INSTALL PROCEDURE - Procedure is the same for left and right arms and should be performed on both.

STEP 1 - VERIFY PRELOAD CAPS HAVE A PRE-APPLIED THREADLOCKER PATCH.

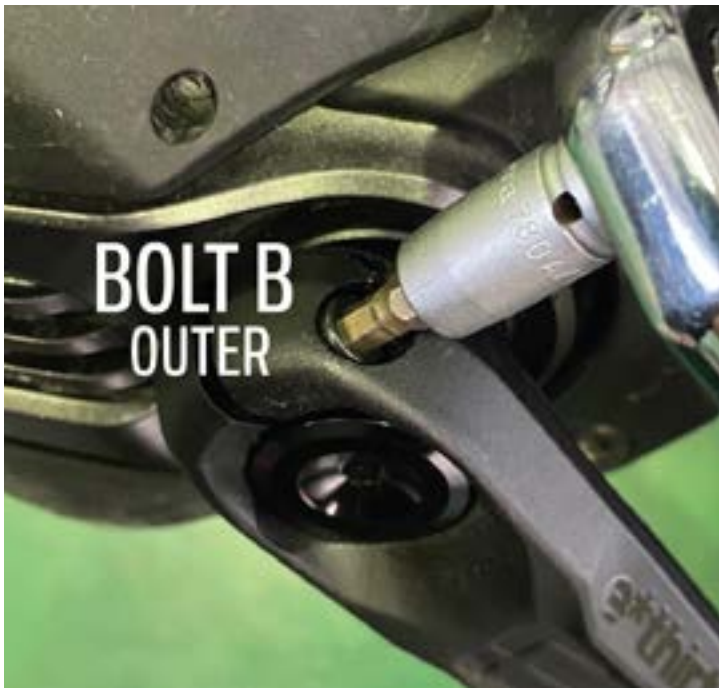
Note: Preload bolts may appear visually different than shown in photo.

If threadlock patch is present, move on to step 2. If there is no threadlocker patch, move to the next point. If preload cap has no threadlock patch pre applied, Clean inner and outer threads and apply 1 drop of Loctite 242 or similar light/medium threadlocker compound to the threads on the preload cap. Alternatively, you can contact e*thirteen to be supplied with a preload caps with pre applied threadlocker.

STEP 2 - INSTALL ARMS ONTO SPINDLE
Note left vs right arms and slide onto the spindle and press them firmly in place.

STEP 3 - REINSTALL PRELOAD CAP AND TORQUE FASTENERS TO SPEC
Install and tighten preload cap to 2Nm

Using a torque wrench, tighten crankarm pinch bolts using an alternating sequence until both bolts reach 14Nm. You will do this (2) times starting with the inside bolt (a) then the outside bolt (b), then repeat. Sequence = (a)(b)(a)(b)



STEP 4 - REPEAT PROCEDURE ON OTHER ARM

STEP 5 - RECHECK PINCHBOLT TIGHTNESS AFTER 1-2 RIDES TO ENSURE 14Nm TORQUE ON PINCHBOLTS

About e*thirteen

When the cycling world calls for reliable performance solutions, e*thirteen responds.
A global organization of expert designers, engineers, developers, manufactures, marketers, sales teams, and customer service players, e*thirteen is dedicated to building bold ,"best in class" bicycle solutions for today and tomorrow's riders. After 20 years of building unique solutions across a variety of industry needs, e*thirteen is a leader providing bike retailers and riders high performing products with one goal – To stay true to the promise of fearless engineering for the best possible and most reliable ride.