



Installation of Crank Pin Assembly

Step 1: Clean Crank arm bore with 400# emery cloth or cloth rotary wheel until completely free of grease, dirt, rust, paint or other debris. (Note: do not use a rotary grinding wheel or sanding wheel as surface damage may occur). Burrs or high spots will be cleaned off with 400# emery cloth (Do not use metal file). Clean bore area with kerosene or 180# cleaner. Do not apply any thin film of lubricant to the bore area



Step 2: Clean crank pin sleeve free of dirt and debris, inside and out using kerosene or 180# cleaner, followed up with 400# emery cloth. Never apply a thin film of lubricant to sleeve.



Step 3: Insert sleeve into crank bore while aligning keyway cut-out in sleeve with keyway in crank arm. Sleeve should slide freely into crank bore. It should not be necessary to beat the sleeve into the bore with a hammer. If sleeve meets resistance, check for burrs or high spots on sleeve and bore and file them if necessary





Step 4: Clean crank pin shaft and key free of any debris with kerosene or 180# cleaner.



Step 5: With key installed on crank pin shaft, align crank pin assembly evenly with sleeve in bore. Align key with keyway in sleeve.



Step 6: Push crank pin assembly into sleeve in crank bore until crank pin assembly will not move any further. Key should be inserted with crank pin shaft,

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and should not be inserted from the inside of the crank arm

Crank pin threaded end, sleeve end and key should all be visible from inside (see photo right).



Step 7: Place crank pin washer over threaded end of crank pin shaft against crank arm.



Step 8: Install crank pin castle nut on threaded crank pin shaft. Hand-tighten nut securely against washer.





Step 9: Using LS supplied crank pin wrench (22 inch minimum length), hammer tighten crank pin nut with 10 kg. sledge hammer.

Castle nut be tightened according to the torque table below. If torque measurement is not possible, a “rule-of-thumb” is to tighten the castle nut until the hammer “pings-back” against the crank pin wrench. This is an indication that the castle nut has approached its specified torque level. If the hole in the pin shaft and the slot in the castle nut are not aligned, continue to hammer the castle nut until they are aligned. **DO NOT BACK OFF NUT IN ORDER TO ALIGN HOLES.**



Structure rating	Torque min ft-lbs	
	3-1/2" Nut	2-3/4" Nut
427	5000	
365	5000	
305	4500	
256	4000	
246	3000	2500
213	2500	2500
200		2000
173		2000
143		1800
119		1500

There are two holes in the crank pin shaft and six cut-out slots in the castle nut. There are 12 possibilities for a hole in the crank pin shaft to align with a slot on the nut through which the cotter pin can be inserted.





If a hole in the crank pin shaft does not align with a slot in the castle nut, tighten the nut further until alignment can be found. The maximum that a nut would need to be tightened is 15 degrees of additional rotation.

(Do NOT back-off the castle nut. Continue to hammer until alignment is found. Alignment will always be found because the maximum degree of rotation of the nut is just 15 degrees. Step number 9 above specifies tightening until it cannot be moved anymore. However, due to elastic properties of the nut and bolt it is indeed possible to tighten an additional maximum 15 degrees in order to align holes in the pin with holes in the nut to enable the cotter pin to properly pass through.



Step 10: Insert cotter pin in slot in castle nut, passing through hole in crank pin shaft. Bend ends of the cotter pin to insure that nut does not come loose.

Put unit in operation. Crank pin nuts must be tightened within 24-48 hours after initial operation to insure proper seating, and it must also be tightened again in 90 days after initial installation. After 180 days of initial operation, shut down the unit to check all of the nuts on the unit including castle nuts on the crank pin to insure the tightening.

