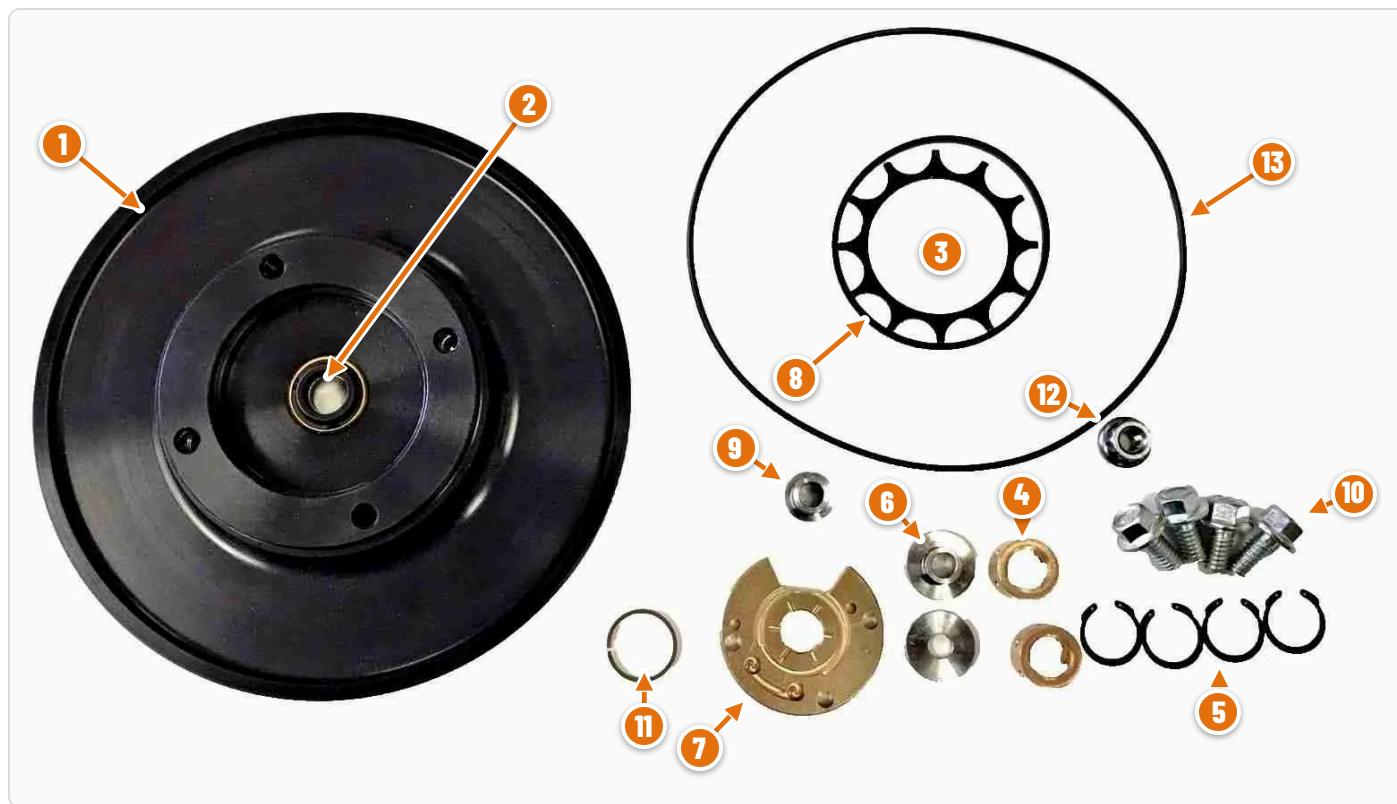




INSTALLATION INSTRUCTIONS

T04E CARBON SEAL CONVERSION KIT

Fits: most journal-bearing T04E turbochargers · **Does not fit:** ball-bearing T04E models



What's in the kit. Each number matches the parts checklist on page 2.

READ IT ALL FIRST

Read every page before you pick up a wrench. Know where you're going before you start.

GO IN ORDER

Every step is numbered. Do them one at a time, in order. Don't skip ahead.

STUCK? CALL US

We'll finish the rebuild for you and credit the kit you bought. See the last page.

BEFORE YOU START

CHECK YOUR PARTS

Check off each part before you take anything apart.

PART	QTY	USED IN	✓
1 Billet seal plate (black anodized)	1	Steps 11, 17, 20	☐
2 Carbon seal (already installed in the seal plate; do not remove)	1	Step 11	☐
3 Spring ring	1	Step 11	☐
4 Journal bearings	2	Step 12	☐
5 Snap rings	4	Step 12	☐
6 Thrust collar, 2-piece (bottom half + top half)	1 set	Steps 13, 15	☐
7 360° thrust bearing	1	Step 14	☐
8 Bearing housing O-ring (the thin O-ring right around the spring ring)	1	Step 16	☐
9 Thrust spacer	1	Steps 18, 19	☐
10 Seal plate bolts	4	Step 20	☐
11 Stagger-gap turbine seal	1	Step 21	☐
12 Shaft nut	1	Step 24	☐
13 Compressor housing O-ring (the large O-ring)	1	Step 26	☐

TOOLS & SUPPLIES

- ☐ **Paint marker** or scribe for alignment marks
- ☐ **Socket set & wrenches**
- ☐ **Snap ring pliers**
- ☐ **Torque wrench** to tighten to original spec
- ☐ **Clean engine oil** for assembly
- ☐ **Parts cleaner & compressed air**
- ☐ **Clean, lint-free rags**
- ☐ **Your phone camera** take pictures as you tear down

THE GOLDEN RULES

- 1 Work clean.**
Dirt kills turbos. Clean bench, clean hands, clean rags.
- 2 Mark it before you take it apart.**
Housings and wheels must go back exactly where they came from.
- 3 Do the steps in order.**
Don't skip steps and don't combine them.
- 4 Oil every part as it goes back together.**
Use clean engine oil.
- 5 Never force anything.**
If a part won't go, stop. Something isn't lined up.
- 6 Use every new part in the kit.**
Don't reuse the old parts the kit replaces.

Work from the outside in.
Take photos as you go.

PART 1 TAKE IT APART

1 MARK THE HOUSINGS

Before you loosen anything, draw a paint line across the **compressor housing and the center section**. Draw another across the **turbine housing and the center section**.

Why: so both housings go back at the exact same angle.

2 REMOVE THE HOUSINGS

Take off the compressor housing and the turbine housing.

3 MARK THE WHEELS

Put a mark on the **compressor wheel** and a matching mark on the **turbine wheel**, lined up with each other.

Why: the compressor wheel must go back in the exact same spot to keep the turbo balanced.

4 REMOVE THE SHAFT NUT

Hold the turbine end still (never by the blades) and loosen the nut.

! CAREFUL Some shafts have **reverse (left-hand) threads**. If the nut doesn't loosen easily counterclockwise, **stop and don't force it**. Try clockwise. Forcing it the wrong way can break the shaft.

5 REMOVE THE COMPRESSOR WHEEL

Slide the compressor wheel off the shaft.

6 REMOVE THE SHAFT

Slide the shaft (with the turbine wheel on it) out through the **turbine (exhaust) side**.

7 REMOVE THE BACKPLATE

Remove the bolts that hold the old backplate to the center section. Then lift the backplate off.

8 REMOVE THE THRUST PARTS

Remove the thrust bearing, thrust collar and the other thrust parts.

i TIP Take a photo first and lay the parts out in the order they came off.

9 REMOVE THE JOURNAL BEARINGS

Remove the snap rings that hold the journal bearings in. Then pull both journal bearings out.

i KEEP Your **center section, shaft & turbine wheel, compressor wheel and both housings** go back on. Every other old part gets replaced by the kit.

PART 2 CLEAN & INSPECT

Step 10

1 · CLEAN

- Clean every part you're reusing until there's **no oil, carbon or dirt** left.
- Blow out **every oil passage** with compressed air.

2 · INSPECT

- Wheels: any **bent, chipped or rubbed** blades?
- Shaft: any **scoring or wear** where the bearings ride?
- Housings: any **rub marks or cracks**?

3 · FOUND DAMAGE?

- **Stop**. Don't put damaged parts back in.
- Call us at **(909) 824-1020** before you go any further.

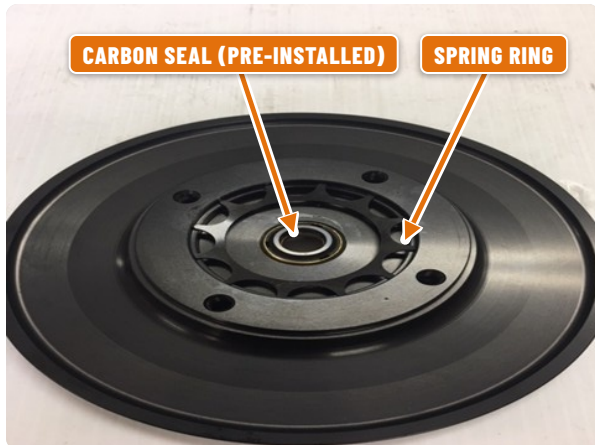
PART 3 REBUILD THE CENTER SECTION

Steps 11–19

! EXACT ORDER Do these steps in this exact order, one photo at a time.

i OIL IT Coat each bearing and thrust part with clean engine oil. Lightly oil each O-ring.

i NO SHAFT YET The photos show no shaft. That's on purpose: it goes in later, in Step 22.

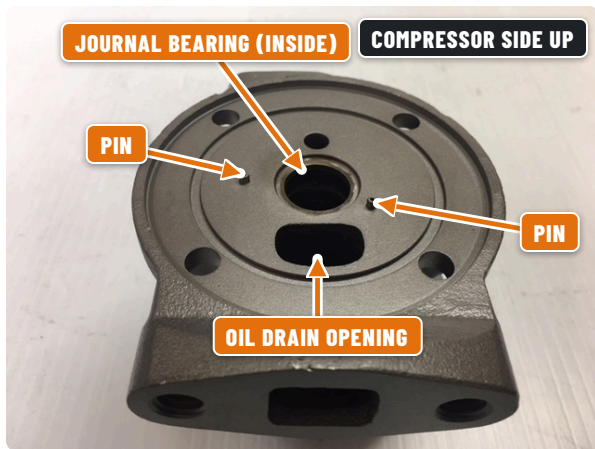


11 NEW SEAL PLATE, BACK SIDE CHECK THE SEAL PLATE

This is the back of your new seal plate, the side that faces the center section. The **carbon seal comes already installed** in the middle. Do not remove it.

Make sure the **spring ring** sits flat in its pocket around the carbon seal, just like the photo. Then set the plate aside on a clean rag.

✓ CHECK The spring ring is flat and fully seated. The carbon seal is clean, with no dirt and no scratches.

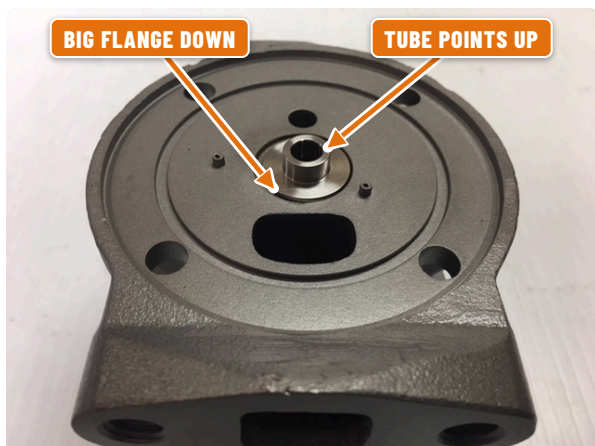


12 CENTER SECTION INSTALL THE JOURNAL BEARINGS

Oil the 2 new **journal bearings**. Install each one with 2 of the new **snap rings**, in the same grooves the old ones came out of.

Then set the center section down with the **compressor side facing up**, like the photo. Find the **2 locating pins** and the **oil drain opening**. You'll need them in Step 14.

✓ CHECK All 4 snap rings are fully snapped into their grooves, all the way around.



13 THRUST COLLAR BOTTOM HALF OF THE THRUST COLLAR

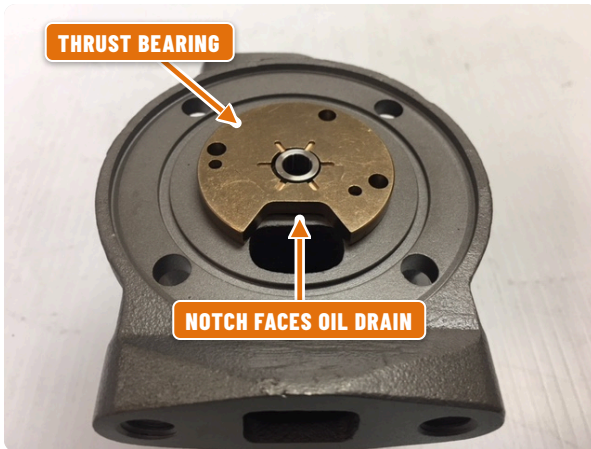
Oil it. Drop it into the center hole with the

BIG FLANGE DOWN · TUBE POINTING UP

✓ CHECK It sits flat in the hole with the tube pointing straight up.

PART 3 REBUILD THE CENTER SECTION

continued

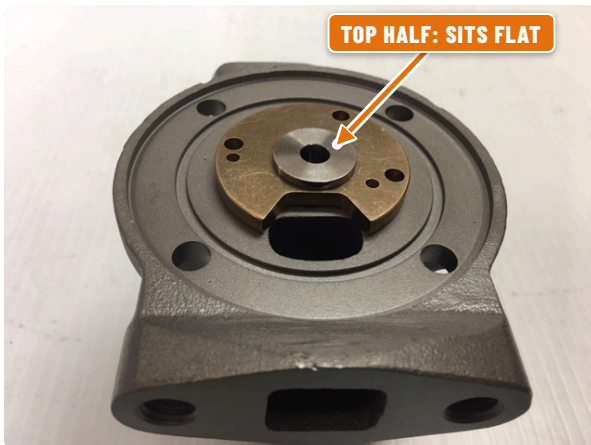


14 THRUST BEARING INSTALL THE THRUST BEARING

Oil both sides. Slide it down over the tube of the thrust collar, **same side up as the photo**.

Turn it until the **2 locating pins** (see Step 12) drop into the matching holes in the thrust bearing. The **cut-out notch must face the oil drain opening**.

✓ **CHECK** It sits dead flat, with no rocking. If it rocks, it's not on the pins.

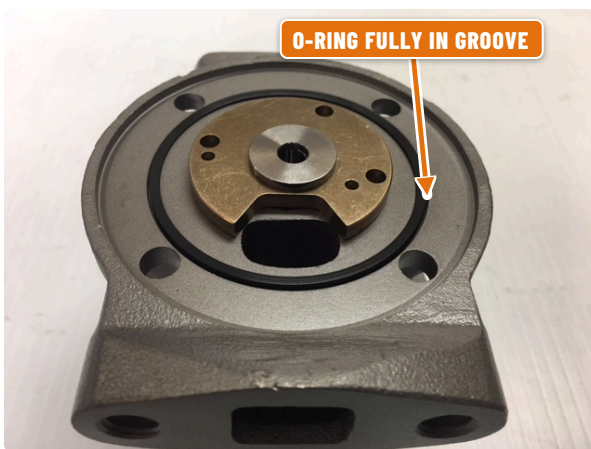


15 THRUST COLLAR TOP HALF OF THE THRUST COLLAR

Oil it. Set it on top of the tube, centered, so it sits flat on the thrust bearing.

The thrust bearing is now **sandwiched between the two halves** of the thrust collar.

✓ **CHECK** The top half sits flat and centered, like the photo.



16 O-RING BEARING HOUSING O-RING

Lightly oil the new **bearing housing O-ring**. Press it into the groove around the thrust bearing.

✓ **CHECK** It's all the way down in the groove, all the way around. No twists and nothing sticking out.

PART 3 REBUILD THE CENTER SECTION

continued



17 SEAL PLATE, FRONT SIDE TURN THE SEAL PLATE OVER

Take the seal plate from Step 11 and turn it over, so the **compressor-wheel side faces up**. That's the side with the stepped rings and **no bolt holes**.

The **gold ring** in the center is the back side of the carbon seal.

✓ **CHECK** You can see the gold ring, and the plate is lying flat on a clean surface.

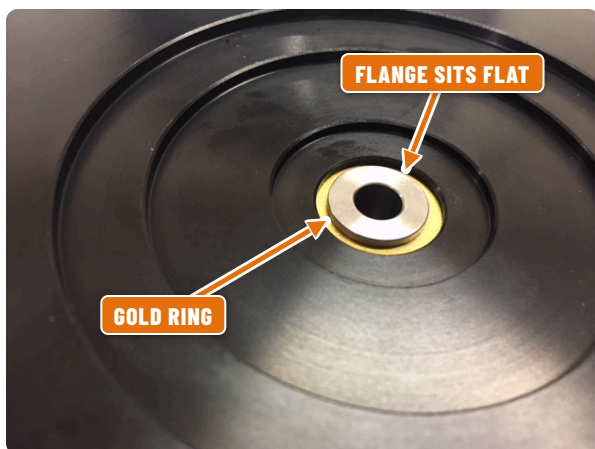


18 THRUST SPACER HOLD THE THRUST SPACER THIS WAY

Oil it. Hold the **thrust spacer** exactly like the photo:

FLANGE UP · TUBE DOWN

! **IMPORTANT** It **must** go in from this side, the compressor-wheel side. Never install it from the back.



19 THRUST SPACER PUSH THE THRUST SPACER IN

Slide the tube down into the center of the gold ring. Push it in until the **flange sits flat inside the gold ring**.

✓ **CHECK** The flange is flat, level and centered inside the gold ring, just like this close-up.

i **FROM NOW ON** Keep the plate **compressor side up** so the spacer can't fall out.

PART 4

PUT THE TURBO BACK TOGETHER

Steps 20–25

20

MOUNT THE SEAL PLATE

Keep the seal plate **compressor side up** and lower it straight down onto the center section. Line up the 4 bolt holes. Don't let the O-ring get pinched or roll out of its groove.

Install the **4 new seal plate bolts**. Tighten them a little at a time in a **criss-cross pattern**, to original spec.



CHECK The plate sits flat all the way around, and no O-ring is showing.

21

INSTALL THE TURBINE SEAL

Put the new **stagger-gap turbine seal** into its groove on the turbine end of the shaft, where the old one came off. Spread it only enough to slip it on. Don't bend it out of shape.

22

SLIDE THE SHAFT IN

Oil the shaft. Slide it in from the **turbine (exhaust) side**, through the journal bearings, the thrust collar and the thrust spacer. Gently ease the turbine seal into the bore. **Never hammer or force it.**



CHECK The turbine wheel is all the way in, and the shaft sticks out through the thrust spacer on the compressor side.

23

PUT THE COMPRESSOR WHEEL ON

Slide the compressor wheel onto the shaft. **Line up the marks you made in Step 3** so the turbo stays balanced.

24

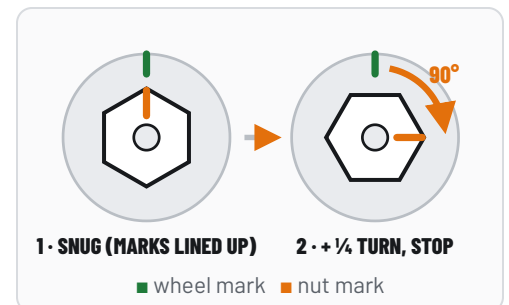
TIGHTEN THE SHAFT NUT: SNUG + ¼ TURN

1. Thread the **new shaft nut** on by hand until it **just touches** the compressor wheel.
2. Make a paint mark on the nut and a matching mark on the compressor wheel.
3. Hold the turbine end still and turn the nut **90° more, a ¼ turn**. Then stop.

This stretches the shaft the right amount.



DON'T go past ¼ turn. **Reverse-thread shaft?** Then the nut tightens **counterclockwise**.



25

SPIN TEST

Spin the shaft by hand. It must spin **freely and smoothly**, with no rubbing, grinding or tight spots. If it doesn't, stop and find out why before you go on.

PART 4

PUT THE TURBO BACK TOGETHER

continued

26

INSTALL THE HOUSINGS

Lightly oil the new **compressor housing O-ring** and fit it in its groove on the outer edge of the seal plate. Reinstall the turbine housing and compressor housing, **lining up the marks from Step 1**. Tighten to original spec.



FINAL CHECK Spin it again. The wheels must not touch the housings anywhere.

PART 5

BEFORE THE FIRST START-UP

A

PRE-OIL THE TURBO

Before you hook up the oil feed line, pour clean engine oil into the turbo's oil inlet while you slowly turn the shaft by hand.

B

CHECK THE OIL DRAIN

The drain line must be clear, not kinked, and run **downhill** to the oil pan. A restricted drain can make any turbo leak oil, even one with carbon seals.

C

IDLE & LOOK

Start the engine and let it idle. Check for oil leaks at every fitting before you drive it or make boost.

FINAL CHECKLIST

- | | |
|---|--|
| ☐ Every kit part used (nothing left in the bag) | ☐ Compressor wheel marks lined up |
| ☐ Thrust bearing notch faces the oil drain | ☐ Shaft nut: snug + ¼ turn, no more |
| ☐ Thrust spacer went in from the compressor side | ☐ Shaft spins freely, no rubbing |
| ☐ Seal plate bolts tightened criss-cross to spec | ☐ Housings back on their marks, tightened to spec |

STUCK? WE'VE GOT YOU.

WE'LL FINISH IT FOR YOU.

If you get stuck at any point, or decide you'd rather have us do it, send it to us. We'll **finish the rebuild, or start it over**, and give you **credit toward the rebuild price** for the kit you already bought from us.

**(909) 824-1020**

Mon-Fri, 8 AM – 5 PM

ptturbo.com

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