T3 Rebuild Instructions:

The first step in rebuilding your turbo is marking your turbine housing and compressor housing in relationship to the bearing center section. You can do this with paint, a punch, etc...This will ensure that once you are finished rebuilding the turbo it will bolt directly back up to your engine. The next step: remove the turbine housing bolts that hold the turbine housing to the center section. There will either be (4) or (6) 13mm bolts.

Next, remove the (6) 13mm bolts that hold the compressor housing to the backing plate. Then place the turbo's turbine nut into a vice holding it firmly (the nut is odd shaped because of balancing, but you can normally get two sides in the vice). Mark the turbine shaft with paint on the blade that lines up with the oil drain of the center section. Next, mark the compressor wheel to the backing plate with paint or by lightly scribing a mark on both surfaces. Remove the 3/8" compressor wheel nut and then remove the compressor wheel.

Special Note Some are left-handed threaded shafts. If turned counter clockwise, it will break the shaft off. Turn it clockwise to remove the nut if you see that it is a left-handed thread. With a rubber mallet, lightly tap the threaded turbine shaft to remove it from the bearing center section. Once removed, place bearing center section in a vice, holding it firmly by the oil inlet and oil outlet flat surfaces. Now remove the 4 backing plate bolts. They will either be 10mm or 7/16". With a rubber mallet, lightly tap the aluminum backing plate to separate it from the bearing housing.

There are 3 types of compressor seals for the T3's, T4's and T3/T4 hybrid turbos. The first one is a single piece carbon seal. This type of seal is pressed into and out of the backing plate as an assembly. The second type is a 4-piece carbon seal. This type consists of a carbon seal, o-ring, eared washer, and a spring. To remove this type of seal, first pick the black carbon seal out of the backing plate. Then using a pick, remove the o-ring, and turn the eared washer until its ears line up with the stakes in the backing plate. Finally remove the spring. When reassembling this type of seal, first install the spring with the small end down, followed by the eared washer, then the o-ring, and finally the carbon seal. The last type of seal used in these turbos is the dynamic seal. This type of seal installs onto the thrust collar. Use a pick to remove it. To install it, press it over the collar with your thumbs until it fits into the groove.

There are also 2 types of thrust bearings used on T3's, T4's, and T3/T4 hybrid turbos. One is the standard 270 degree (not a full circle). If you have this type, use a pick and pull the thrust bearing off of the bearing housing. The other type of thrust bearing is the 360 degree (full circle). It can be held by 3 Allan-head screws or by the anti-rotation pins in the bearing housing. To remove it, either remove the three screws or use a pick to pull if off of the anti-rotation pins. Now remove the small snap-ring holding the front journal bearing in, and use a pick to remove the journal bearing. Next, turn the bearing center section upside down and remove the rear snap-ring and rear journal bearing.

Now you have almost completely disassembled the turbo. The last thing you must do on a dynamic seal turbo, is remove the piston ring from the thrust collar; or on a carbon seal turbo, remove the carbon seal, o-ring, washer, and spring from the backing plate. Now remove the piston ring from the turbine shaft, and the turbo is disassembled.

Special Note
Carefully check all sealing surfaces where piston rings sit when installed. These surfaces must be

T3 Rebuild Instructions:

smooth and round. Also, check the grooves that the piston rings sit in on the turbine shaft and the thrust collar. The piston ring must sit in these grooves tightly, with only 0.001" or 0.002" clearance. Any more than this will cause oil leaks.

Another special note: Journal bearing surfaces and thrust collar surfaces must be completely smooth and have no scratches or nicks that you can feel with your finger nail. Places to check: journal bearing bore in the bearing housing, journal bearing surface on the turbine shaft, and thrust collar surfaces that touch the thrust bearing.

One more note: Bearing housing choking is a very common problem with all turbos. It is caused by the turbo not being properly cooled off when the engine is shut off, and/or irregular by oil changes. To check for this problem, look for black carbon deposits throughout the inside of the bearing housing, especially on the rear side where the turbine shaft goes in. The bearing housing should have an open area that you can see light through from the oil drain back to the rear sealing area where the shaft goes in. If you cannot see through the bearing housing, from these two areas, then you have severe choking and all of this carbon must be removed, or the turbo will fail almost instantly on startup.

Now completely and thoroughly clean the whole turbo with solvent. It needs to be very clean, this is very, very important. Reverse the procedure above and reassemble the turbo using high quality engine assembly lube on all bearings and sealing surfaces.

****360 Degree thrust bearing installation****
First, install the beveled washer making sure that the beveled side faces down towards the journal bearing. Next, place 360 degree thrust bearing on to the bearing housing and locate it carefully on the 2 anti-rotation pins. Lastly, install the thrust collar into the thrust bearing, placing it so the piston ring seal facing up.

When torquing the compressor nut, follow this procedure: If this is a left-handed thread, tighten the nut down hand-tight until it touches the top of the compressor wheel. Then, using a 3/8" wrench, tighten the nut approximately 1/8 of a turn. This will properly torque the nut and seat the bearings and thrust parts. On right-hand nuts, tighten the nut hand-tight until it touches the top of the compressor wheel, then turn with a 3/8" wrench approximately 1/4 of a turn.

If you get stuck at any point during the rebuild, and decide you would rather have someone else do it, we would be happy to complete the rebuild for you (or start over) and give you a credit towards the rebuild price for the kit you already purchased from us.

T3/T4 Specifications

Min/Max

COMPRESSOR WHEEL - Bore diameter .2498 .2501

BACKPLATE - Piston ring bore diameter .4995 .5005

BEARING HOUSING - Bearing bore diameter .6220 .6223

– Piston ring bore diameter .709 .711

T3 Rebuild Instructions:

– TURBINE WHEEL

– - Journal diameter .3997 .4000

– - Seal hub diameter .679 .684

– - Piston ring groove diameter .567 .572

– - Piston ring groove width .0645 .0685

– Eccentricity .0005

– THRUST COLLAR

– - Bore diameter .2501 .2505

– - Thrust bearing groove width .1740 .1748

– - Thrust bearing groove diameter .370 .380

– - Piston ring groove width .638 .653

– - Piston ring groove diameter .405 .410

CLEARANCE

– - Radial bearing clearance .0030 .0065

– - Axial end play .0005 .0040

BOLTS

- backplate 75 90

- turbine housing 164 181

– compressor housing 145 165

– SHAFT NUT

– 1 Tighten to 28 inch/pounds 2 Plus an additional ¼ turn

NUTS

- elbow assembly 170 185

- elbow assembly 164 181