Clutch Plate/O-ring Replacement

READ this disclaimer: I'm not a trained BMW technician, just a home mechanic who has worked on many of my own K bikes. Therefore, the following represents merely how I do things and what works for me and may not necessarily be the "right" way to do things. Therefore, if you follow my advice then **you do so at your own risk** and I am not responsible for damage to either you or your bike.

According to BMW, the main clutch nut (part 11211460797) as well as the six clutch bolts(21211454417) and their washers(21211242377) are one-use items that should be replaced but I've re-used them without any problems. Use your own judgment on whether to replace them or not.

If it hasn't been replaced recently then it's a good idea to replace the clutch nut O-ring(11211460456) as these tend to get hard and crack over time, especially on bikes that have sat for an extended period. This can allow oil from the engine to seep out along the engine output shaft and eventually foul the clutch plate.

The minimum service specification for clutch plate thickness is 4.5mm. If yours is at or near that then you might want to replace it while you have the clutch opened up.
If your clutch plate has been fouled then it may not be necessary to replace it as brake cleaner seems to do a pretty good job of cleaning up fouled clutch plates.

Spline lube grease: Most K bike owners use Honda Moly 60 to lube the splines which is available from Honda dealers.

Clutch disassembly:

Step	Description	Pictures (to be added later)	Torque	
			N-m	Ft-lbs
*	These instructions assume you have already removed the transmission to gain access to the clutch.			
1	Remove the six bolts and washers holding the clutch assembly to the clutch housing. Make sure you're using good Allen wrenches (like the ones in the factory toolkit) and that they are well-seated or it is possible to strip the heads on these bolts. If the clutch assembly turns while attempting to loosen these bolts then place a small block of wood in the upper left hand corner of the bellhousing to keep the clutch housing from turning.			
*	IMPORTANT NOTE: The front and rear pressure plates are balanced together as a pair in the factory. If you change the rotational orientation of them with respect to each other when reassembling then there's a high likelihood that you'll introduce some additional vibration. Therefore, as you disassemble the clutch be sure to mark the front and rear pressure plates so you can be sure to put them back together exactly as they			

	were. Supposedly the clutch housing is balanced separately but since it can't hurt I also mark that so that it reassembles with the pressure plates in the same place they were before disassembly.			
2	Once the bolts have been removed the rear pressure plate can be a bit sticky to get out. I use nail remover working around the edges of the clutch to slowly and carefully separate the rear pressure plate. Mark the rear and front pressure plates so that you can reassemble things in the same rotational orientation they were in the first place. Then mark the clutch housing.			
3	Remove the clutch plate assembly. The diaphragm spring will now fall out.			
4	There is also a circular ring on which the diaphragm spring rests. Remove that spacer ring from the clutch housing. If you're just replacing the clutch plate and not the O-ring, then skip to Step 11 below.			
5	Place a block of wood in the upper left hand corner of the bellhousing to keep the clutch from turning and use a 30mm socket to remove the main clutch nut.			
6	Remove the thrust washer and then the O-ring. Note that the clutch housing will not just pull right off once the nut is removed. You will need to destroy the O-ring first. Yank back hard on the clutch housing and then push it forward slowly to expose the O-ring. Then use a dental tool or Exacto knife to mutilate it and remove it so that the clutch housing can be removed.			

Clutch reassembly:

Step	Description	Pictures (to be added later)	Torque	
			N-m	Ft-lbs
7	Slide the clutch housing back onto the engine output shaft.			
8	Install the new O-ring			
9	Install the thrust washer with the raised section facing inward.			
10	Install and tighten the clutch nut. (Raised section facing out.) Note that the torquing of the clutch nut varies for K75s, K100s and K1100s.			
10a	**K75:** Tighten the clutch nut to 140 Nm.		140	103
10b	**K100:** Tighten the clutch nut to 140 Nm, loosen it and then retighten to 102 Nm.		140 102	103 74
10c	**K100RS4V, K1, K1100:** Tighten the clutch nut to 140 Nm, loosen it and then retighten to 50 Nm.		140 50	103 37
11	Clean, lubricate and install the spacer ring.			
12	With the convex portion facing out, install the diaphragm spring.			
13	Using a brush or whatever, clean the splines of the clutch friction plate and the transmission input shaft. If they look rusty, don't worry. The original BMW #10 grease is red and often has the appearance of rust.			
14	Assemble the clutch pressure and friction plates. Since it's hard to remove, I usually put some grease or anti-seize on the guide pins so it's easier to get off the next time I'm in there. Remember to use your marks to put the clutch plates back together in the correct rotational orientation with respect to each other. The "collar" on the clutch friction plate should be pointing outwards. Then install the clutch plate assembly on the clutch housing.			
*	NOTE: There is a special BMW centering tool for aligning the clutch plate prior to tightening down the clutch bolts. If you have one of those then use it to center the clutch plate and skip to Step 16 below.			
15	I've found that the BMW centering tool, though nice to have, isn't really necessary if you follow these steps: Do not put any lube on the splines yet. Feeling around the edges of the clutch assembly and looking STRAIGHT down center of the clutch friction plate, center it as well as you can and then install and tighten the six clutch bolts so they are just tight enough to hold the friction plate in place but so it can still move around a bit. Put the transmission in gear and attempt to slide it on.			

	If needed, wiggle it around a bit or turn the transmission output shaft to get the input shaft to mate with the splines of the friction plate. Push the transmission all of the way on. (Essentially what you've done here is use the transmission as your centering tool.) Pull the transmission STRAIGHT back being careful not to disturb the now aligned positioning of the friction plate.			
16	In a diagonal pattern, tighten the six clutch bolts to 19 Nm.		19	14
17	Before applying any spline lube grease, try sliding the transmission back on to be extra sure that the clutch plate is properly aligned. Then pull the transmission back off.			
18	Apply spline lube grease to the transmission input splines only and install the transmission. The reason you don't want to put any grease on until your final installation of the transmission is that if you put it on and then repeatedly push the transmission input splines through the friction plate then the grease can get pushed out and spin off, possibly fouling the clutch. The six bolts that hold the transmission to the bellhousing should be tightened to 16Nm.		16	12
19	Once you have the transmission installed make sure that you adjust the clutch cable properly.			