Now, if the problem does require disassembly, you may decide to disassemble
the transmission yourself (hey, everyone has to start somewhere) but I suggest you seek out the assistance of someone with some mechanical experience once you get inside. Just changing/repairing the gears may not be
enough.

In my own case, I replaced second over this past winter with a good low-mileage used set, but found it started to pop out again after only a few
thousand kms. I opened it up again, and on close examination, decided there
was too much end-float on the shaft. Yamaha doesn't provide shims for these
transmissions, I had to fabricate my own. Actually, after considering all my
options, I cheated: I cleaned up the casting, layed in a thin layer of JB
weld between the oiled bearing and the casting, hung the transmission sideways with the bearing down and torqued down the retainer on the assembled shaft, which was lubed with 80W-90 gear lube first. The excess JB
weld squeezed out, gravity kept the excess from getting into the bearing as
I cleaned it up, the thick gear lube ensured adequate clearances where maintained between moving parts and the end-float on the shaft was eliminated nicely ;-)

I also had to repair the new gears which were now damaged. I back-cut them 2
degrees using a dremel bit in a drill press with a cross-slide vice and a
tilted table. I practiced on the old gear set first to refine my technique,
because the dogs are rounded requiring the bit to follow the curve. A small
diameter side-mill might have been a better choice of weapon, as the dremel
stone's diameter was slowly reduced during the process.

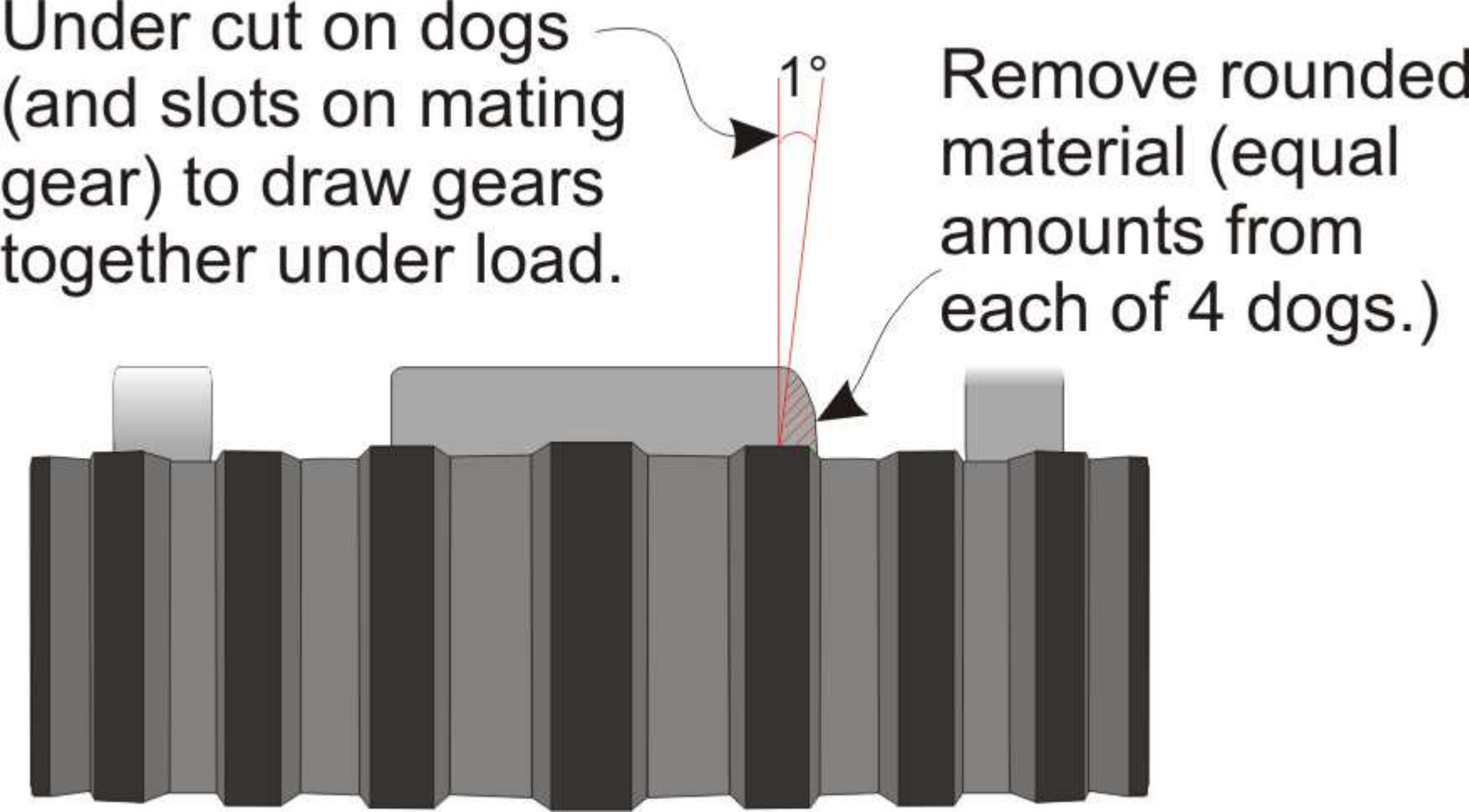
In your case, I would recommend a new set or taking the gears to a machine
shop. I would also seek out the assistance of someone experienced to examine
the open transmission and evaluate the end float. Yamaha has not published
specs that I'm aware of, nor do they have an approved proceedure to follow.
The manual merely advises one to inspect the parts and replace any bent or
damaged components. My actions were based on my own judgement that the play
was excessive. I've now put on about 12,000kms or so with no problems, so I
guess it worked. YMMV.

I think the spring to which you refer is the centering spring, which can be

a problem on the older XJ's. The spring returns the shift lever to the center, ready for the next shift up or down. If the spring breaks, the lever doesn't return and the ratchet can't engage the drum for the next shift unless you manually re-centre the lever. In late 1981, Yamaha upgraded to a heavier spring (and a new bushing to accomodate the heavier spring), so 1982 models SHOULD not suffer from this problem. (Owners of older models with a broken spring are advised to make sure they get the new bushing too!)

Sounds like your problem may mirror mine (See my post to Ricky). The gears that slide to engage first, second and third all share one shaft (the 'drive axle' shaft). 2nd occurs when the 5th wheel gear slides right to engage the 2nd wheel gear. 1st occurs when the 4th wheel gear slides right to engage the 1st wheel gear. (Third happens when the 4th wheel gear goes left into the 3rd wheel gear if anyone is interested) If the shaft can also wander to the right because of excessive play, then the 2nd and 1st wheel gears can also wander left, disengaging.

There are other possibilities too: if the shifter forks are bent or worn, they won't slide the gears far enough or if the grooves in the drum are worn they won't move the shifter forks far enough. One thing they all have in common: the dogs on the gears are not hardened. They will round off quickly and the problem will rapidly grow worse. They will also tend to bend the shifter forks as the gears kick apart. That's where back-cutting the dogs comes in: If the dogs and corresponding grooves are re-shaped with a slight angle, they will pull closer together under load instead of trying to spread apart. The trick is to cut all dogs and grooves exactly the same. Any one of the 4 dogs may engage any one of the 4 grooves at any given shift. If 1 has less material removed than the others, all the load will be carried by that one dog instead of being distributed across all 4 evenly. Also, one must be careful not to cut too great an angle, or it will be difficult to get out of that gear!


Under cut on dogs
(and slots on mating
gear) to draw gears
together under load.
1°
Remove rounded
material (equal
amounts from
each of 4 dogs.)