

Belt Drive Hints and Tips

T140 and A65 Fitting Instructions

Always get front pulleys to fit as far inwards as possible. Guide plate must face outwards. Do not bend or damage the guide plate or damage the teeth on the pulleys.

T140 kit in general - Not usually any modifications to fit the kit, but you may need a shim to add to the rotor spacer.

A65 kit - Early A65: not usually any modifications to fit front pulley. But do change all the early A65 clutch bits to the later three spring T140 type clutch internals. Late A65: clutch is the three spring, but you must remove metal from around alternator stud area. (Sharp chisel and small hammer is much quicker than rotary tool.) Gearing is about 10% taller.

Both Kits: Note the white spot on the alloy drum. Do line up all the white spots on the friction plates to the white spot on the alloy drum. Please note: the first plate to drop into the alloy drum is the half (semi) bonded plate with the big hole. Then the big hole double bonded plates go in and the outermost friction plate is the small hole wide friction plate. Try the plain steel plates in various positions to the cush drive center for the best slide fit.

Cold engine belt tension for T120/40 needs to be 7 to 10 mm total up and down "free play" slack, and 9 to 14 total slack with cold engine on A65. At hot running temperature, due to heat expansion, the belt will tighten up. (After 20 miles of running) Especially on the A65 cold engine slack belt it would be best to use the slipper blade. But do remove the rubber from it with heat or a flame. Then polish the slipper and adjust the belt tension to 5mm (3/16") total up and down hot engine slack.

On A50/A65 twins and pre 70 triumph twins run the kit in 10 grade mono oil (moped fork oil or ATF, etc.) The belt won't wear on the slipper and the belt doesn't stretch, hardly at all. (Later Triumph twins share 20/50 motor oil as engine unless breather has been modified to pre 70 style.)

Belt Drive Instructions (General)

Recommended belt tension 3 to 6 mm total up and down slack with a hot engine. (maybe 6 to 8 mm slack cold.) A primary chain is 10 mm (3/8") total slack. These belts need to be 5 mm (3/16"). **Adjust belts cold.**

Belt can be run in oil. (for four years before contamination) To run dry you need air-cooling (ventilation). If run dry with chaincase fitted, the clutch will overheat and expand too, and belt will run too tight. Also max temperature for belt is 80 degrees Centigrade. Alternator could burn out too.

TRIUMPH:

CAUTIONS:

It is recommended that belt be run in oil, with an expected life of four years, after which time oil contamination could be a problem. If belt is run dry you must provide air-cooling (ventilation). The belt has an upper critical temperature of 80 degrees Centigrade, above which the belt can melt. If the belt is run dry in a sealed primary the clutch and alternator could fail due to lack of lubrication and/or overheating.

Do not damage (bash or mark) the teeth on the pulleys! Belt should not rub on case or guards, as this will cause premature failure. If belt tension is not correct on a unit construction engine or a MKIII Norton, contact supplier immediately!

T140 Fitting Instructions:

Not usually any mods or fuss to fit the T140 kit. (or the T120 kit at 25 mm wide) Just get front pulley to fit well inwards. At most you may need to add a shim to the existing rotor spacer to bring the rotor a thou or two away from the front face of the front pulley. Belt tension is critical! A primary chain needs 10mm (3/8" total free play (slack). Hayward belt needs 3 to 6 total slack at hot running temperature after 18 miles. You may need 5 to 8 mm slack with a cold engine to get 3 to 6 mm slack with a hot engine. 5mm – 3/16" total slack hot is ideal. Do not run the kit if belt tension is wrong. If belt tension is too tight the clutch drum can be swapped for a smaller one. (This is rare though) If belt is too slack you will need to use the slipper blade, but do burn/bake off the rubber and polish the part which would rub on the belt. It is a good idea, if you want to, to slightly introduce the slipper for your cold slack for short runs so that you maintain a constant 4 to 5 mm total slack. Do not damage or bash the teeth on the pulleys. On the alloy kit clutch drum (on 1975 onwards) left hand gear change make sure that the front face is well clear of the left hand gear change spindle. Also you may need to file the heads on the three square head spring bolts to clear the thick bearing housing. (Only on the Alloy Kit!)

Fitting the T140 Belt Drive:

Not usually any problems or mods or fuss to fit. Choice of standard gearing or taller racing gearing (+ 8% taller) Front pulley – guide plate must face outwards. Remove any engine sprocket shims so that front pulley fits as far inwards as possible. Very rarely the back face of the front pulley can foul on the crankcase. Rather than shimming out the front pulley it is usually best to file the high spot on the crankcase. You'll note in this instance that the crankcase will be extra thick or bulged out on a local area. You must use the rotor spacer. The rotor must be clear of the front face of the front pulley by anything, say 1 to 5 thou, 1 to 14 thou. You may (only may) need to add a shim/washer to the rotor spacer. Clutch Drum – make sure that the heads on the three square headed spring bolts do not foul the center of the alloy drum. If the heads foul you need to file or grind one flat only on each bolt (five minute job) The T140 alloy clutch drum is 2 mm wider than the cast iron drum. The front face of the alloy drum must be well clear of the

left hand gear change spindle/rod. You may have to do an easy mod. You could file/grind 2mm off the thick part of the spindle, at the welded area, or shim out the spindle from the back. Belt tension at hot running temperature after 20 to 25 miles must be 3 to 6 mm total "free play" slack and not 10 mm as per primary chain. Due to heat expansions you are likely to need 5 to 8 mm cold "free play" slack of belt.

T120 Fitting Instructions:

Using 25 mm belt and 25 mm wide front pulley. Same things to watch out for as with T140 fitting. But no left hand spindle/rod to be concerned about. You'll need to add some shimming to the rotor spacer and you may have to slightly pack out the stator with equivalent thick washers.

T120 using 29 mm belt and front pulley also 29mm wide. Obviously you need to well pack out the rotor and stator. If you run out of threads on the alternator studs you can buy three long T140 studs or chisel or mill off 2 or 3 of the stator sandwich of plates so as to gain some threads for the stator nuts. With the 29 mm wide front pulley you may feel that the rotor loses too much contact on the crank. You could machine the dishing diameter on the front pulley a little wider and machine step the back face of rotor so that it sits into the front pulley a little. You will lose some wattage with this rotor offset but not a problem if you have the 3 phase high output stator.

Front pulley and belt 25 mm wide. Front pulley usual taper and woodruff key fit.

3TA to Daytona Belt Drive – Front pulley and belt for racing 30 mm wide. You can't use alternator. The road kit is 25 mm wide. The T120 etc. 25 mm rules apply here. However, these kits need to run slack when cold. Best to use the standard slipper blade, but with the rubber removed by burning or baking, then the steel now exposed highly polished. You should run in oil if a slipper is used. Gearing is -5%.

A65 kit – Early A65 not usually any mods to fit front pulley but do change all the early A65 clutch bits to the later 3 spring T140 type clutch internals. Later A65 clutch is OK, it is 3 spring, but metal will have to be removed from around the alternator stud area. This engine needs a slack belt when cold and due to expansion the belt will tighten up at running temperature. Best to use the slipper. Remove rubber and polish. Adjust belt tension cold to 4 to 5 mm total up and down "free play" and run in oil. Gearing is about 10% taller.

Commando Belt Drive – no mods or fuss to fit. Adjust belt tension cold to 6 to 8 mm free play then test belt tension at hot temp. (20 to 25 miles) and if necessary readjust the tension. to get 5 mm free play at running temp.

General advice for all kits – At hot running temperature belt tension needs to be 3 to 6 mm total free play. If belt tension is not correct on "fixed center" engines – unit Bonnies, A65, Daytona, and unit singles – contact us for replacement pulleys.

Belts go brittle after four years in oil.

Front pulley single guide plate (keeper plate) must face outwards – to outer chaincase.

Do not use a slipper tensioner if system is run dry. And if you run dry you need air ducting.

When you have a choice of chaincase oil do not use multigrade – use thin 10 or 20 grade – maybe fork oil – or auto gearbox transmission fluid.

Do not mark, bash or scratch the teeth on the pulleys.

Please study the T140 fitting instructions.

Fitting T140 & T120 - 29mm Wide T120 - 25mm Wide Fitting Alloy Kit Belt Drive

T140 kit usually does not require any modifications to fit front fully. It could help to use a shim with the rotor spacer to gap the rotor from the front pulley to assist future removal.

T120 - 25mm wide belt and front pulley - again a good idea to use additional shims or spacer to go with standard rotor spacer for future removal. You may (only may) need to slightly space out the stator with 5/16" washers.

T120 - 29mm wide front pulley and belt: Rotor and stator both need to be packed out and little chance of a rotor to front pulley gap for easy future rotor removal. The guide plate must face outwards.

With all kits fit the front pulley minus the guide plate. Assemble the clutch, then slide wiggle the belt on and last of all fit the front pulley guide plate. Once you fully tighten the four guide plate screws it is doubtful you will ever get them unscrewed unless you use a center punch. Do not bend or damage the front pulley guide plate. Do not bash/damage the teeth on the two pulleys.

Belt tension with a cold engine is 7 to 10mm total up and down "free play" slack. At hot running temperatures after 20 or so miles the belt will tighten due to heat expansion and at hot running temperatures belt tension should be 3mm to max 7mm total up and down slack.

Try fitting the front pulley in all different positions to find best fit. (This is only sometimes necessary.)