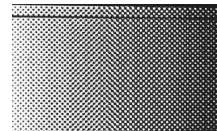


DOROTHY FIXX REFLECTS-

MORE ON ADJUSTING THE 4-CYLINDER TRACTION CLUTCH



or the recent edition of our club's magazine, Mr. Propsting kindly prepared and presented an article on how he repairs and sets up Light Fifteen and Big Fifteen clutches. Included in the article were a couple of useful tips in the form of part numbers for the substitute clutch throwout race and the spigot bearing. Good stuff and useful to have. But I have a confession and one or two additional comments to put forward. So bear with me, good folk.

I had inferred that I had read Gerald's article closely, but in reality, I'd been under a fair bit of work pressure out here in the Mallee, oddly enough in replacing tractor clutches that the farmers had knackered during the autumn following!

Now the most common cause of failure in tractor clutches is due to the operator slipping the clutch while turning at the end of a furrow. Hence, on my closer reading of Gerry's notes, I would definitely shy away from his suggestion of slipping the clutch on the Light Fifteen by way of a "shock absorber" to avoid the need to change down to low gear while moving slowly. The results of slipping the clutch can, at worst, be quite horrific, and it is

far better to engage the lower gear. Where the change is "non-synchro", it is not too hard to smooth the change by "double declutching", even on a Light Fifteen box.

Also, I have some comments to pass on which should, in many cases, speed up the process of clutch adjustment that Gerry advises. The "cockies" [city folk: Please read this as "farmers" - Ed.] out here in the Mallee really know the value of a quid, and probably would be very unhappy with the size of my bills if I was to apply my standard hourly rate to Gerry's approach. But of course, I would end up a much richer man - err, woman - at the end of the week!

Some of you will know Les Tapping from Adelaide, and recall that some years ago, he brought his rather nice ID 19 engined Light Fifteen to an Easter get-together at Bendigo. He had fitted the original L15 clutch and flywheel to the engine in this machine, a clutch which he subsequently told me had never been completely satisfactory, despite having been rebuilt at least twice by local clutch experts! Judder and general unpleasantness had become so pronounced that Les was all for abandoning the venue, cutting short the weekend, and heading back

to Adelaide with care, caution, and a strong faith in divine assistance. We suggested that he detour via our workshop and let us look at this recalcitrant clutch, with a view to eradicating the problem. This we did, in both aspects - first looking into the problem, and then applying a remedy.

Les was quite overcome - no, not by the size of our account, but by the fact that it was the first time since he had owned the car that he had a satisfactory clutch.

Our workshop method is simpler, saves time, and it works. I shall detail this method in the next issue of the magazine. It has the beauty of not requiring any special tools or the removal of the gear-box from the bell-housing.

Dorothy Fixx [with assistance from Jack Weaver].

COMING UP IN DOROTHY FIXX.

- ☞ CHECKING / REBUILDING AND SETTING LIGHT FIFTEEN CLUTCH [NEXT ISSUE]
- ☞ CLUTCH JUDDER — CAUSES & RECTIFICATION [IN THE CAR]
- RESTORING WORN TAPERS IN FRONT HUBS
- RESTORING WORN FRONT STUB AXLES.

*DOROTHY FIXX – ADVICE TO THE VEHICULARLY DISTRAUGHT –
4-CYLINDER TRACTION CLUTCHES – SOME SHORT CUTS.*

Here, as I promised in the last issue of 'Front Drive', is the method we employ in our workshop to adjust 4-cylinder Traction clutch pressure-plate finger heights.

This clutch's pressure-plate is of conventional Borg and Beck design, but Citroën — being Citroën — do not set the fingers at what would be a conventional height. This is the mistake most clutch specialists make when setting a 4-cylinder pressure plate, and results in a clutch with a long, non-progressive engagement and a generally 'soggy' feel.

For our method, all the 'special' tools you need are something similar to a 12" [300mm] steel rule and a piece of metal $\frac{3}{4}$ " [19mm] square or $\frac{3}{4}$ " in at least one dimension and between 25 and 50mm long. This is your 'feeler gauge'.

With the engine out, the transmission off at the bell housing and the pressure-plate removed, examine the clutch plate. If it has a 'cushion' centre, the cushion springs should not be broken or loose. None of the wave plates or their rivets should be cracked, broken or missing. The retaining rivet heads should be well below the surface of the facings. The thickness of a new clutch plate is around 8mm. [Trucks and tractors are some 11mm thick, but not Light 15s.] Normally a clutch plate down to 7mm thick is still serviceable and worth re-fitting.

Run a hacksaw blade through the slots in the toggle bolts to clear the staked-in parts of the adjusting nuts. Carefully undo the nuts one turn at a time and in sequence, until the pressure plate 'falls apart' into its component pieces. You should then have :-

- 1 machined outer ring with

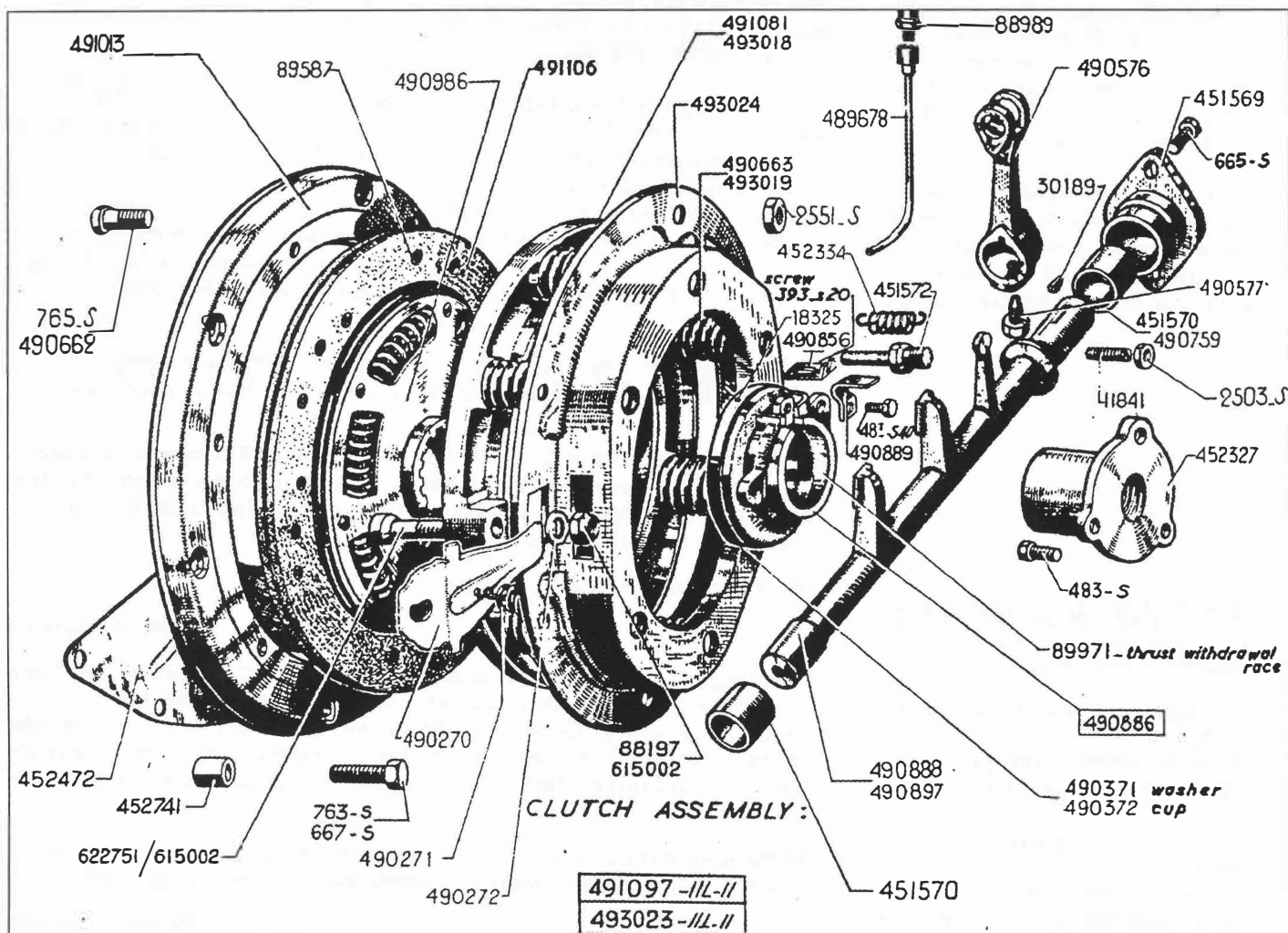
a pressed steel plate bolted
in it

- 1 pressure pad [an iron casting]
- 9 springs
- 3 toggle bolts
- 3 adjusting nuts
- 3 toggle bolt washers
- 3 clutch fingers.

Check the friction drive faces of both the flywheel and the pressure pad. If scored or severely heat cracked, they will have to be machined before re-assembly.

Gerry's comments regarding finger wear and springs are very good but, to make things easier when checking the spring lengths, a 75mm length of dowel which fits snugly inside the springs will keep them end to end when clamping them in the vice and ensures each pair tested is compressed equally. The springs are also less prone to

(CONTINUED ON PAGE 17)



DOROTHY FIXX – ADVICE TO THE VEHICULARLY DISTRAUGHT –

4-CYLINDER TRACTION CLUTCHES – SOME SHORT CUTS.

shoot off at a tangent around the workshop!

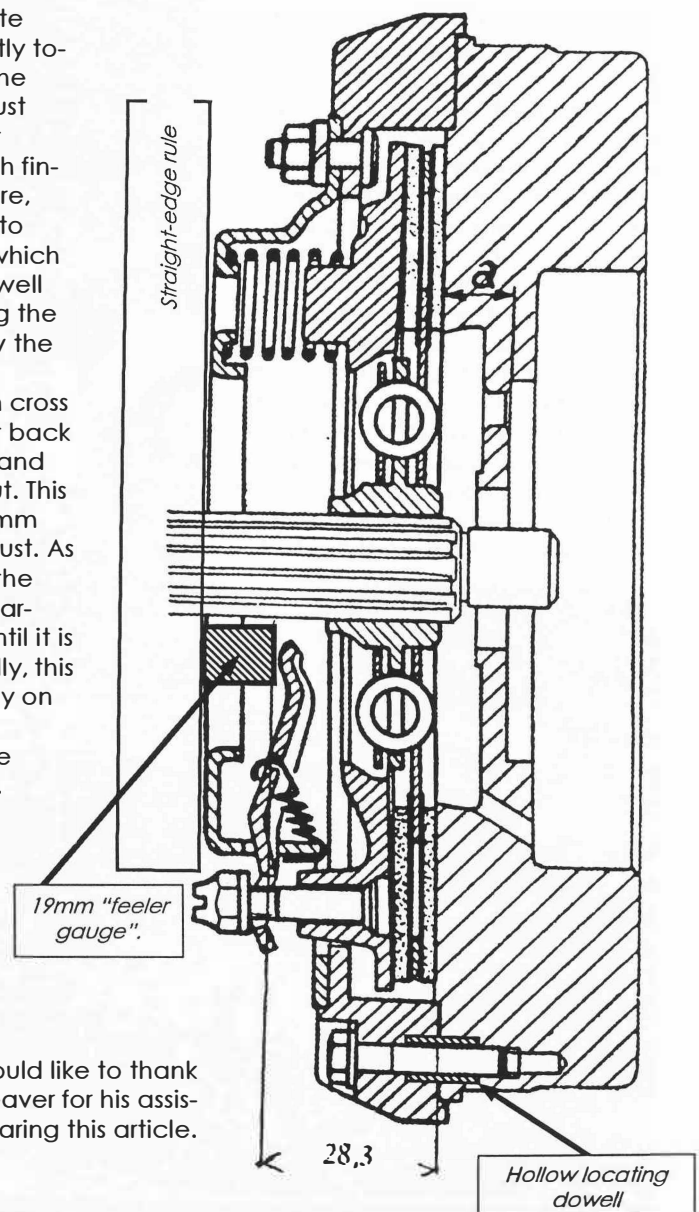
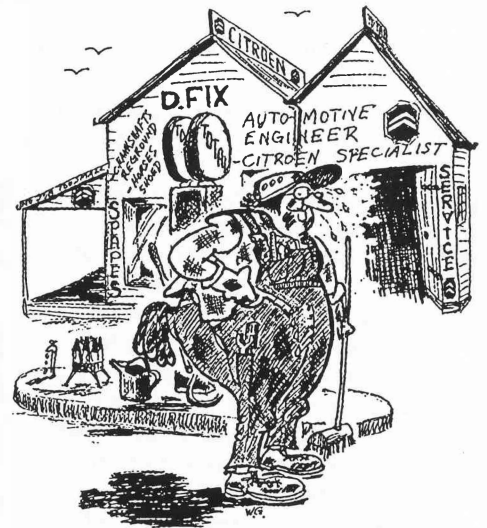
Assuming now you have nine matched springs, a good pressure pad, three fingers, and a set of toggle bolts, nuts and washers, clean them all and proceed to assemble the pressure plate. Make sure the springs are properly seated on the pressure pad and in the steel pressing. Put the toggle bolts through from the pressure pad side, drop on the fingers and the hardened washers, then start threading the adjusting nuts onto the toggle bolt threads. Sequentially tighten the nuts, one turn at a time, until about 3mm of thread projects through the nuts.

Put a flywheel on the bench, sit the clutch plate on it, centralise it by eye, then fit the pressure plate. Ensure the hollow dowel in the pressure plate lines-up with the dowel hole in the flywheel. [See illustration.] Fit and tighten in sequence, the bolts holding the pressure plate to the flywheel, making sure it is down evenly.

Now, after that comes the good part. Citroën, being in the northern hemisphere measure from the flywheel-side up. We, in the southern hemisphere measure from the machine face of the pressure plate down. This is when we put the rule across the top face and use our metal block as a 19mm feeler gauge to set each finger in turn. When all three fingers give a neat sliding fit of the gauge between the bottom of the rule and the finger, use the end of the hammer handle to thump each finger in turn, three or four times. Check, adjust, thump and check until there is no further change after the thumping part of the operation. At this point, use either an old screw driver or a thin chisel to stake the machined tops of the adjusting nuts into the slots in the toggle bolts to lock them. Thump and check the finger heights after staking the nuts onto the toggle bolts. Re-fit all the components

you removed from the crankshaft, using either a Light Fifteen spigot shaft or a spigoting tool to centralise the clutch plate before tightening the pressure plate bolts.

On the right hand side of the bell housing, slacken the lock nut of the clutch cross shaft stop, and with a screw driver, unscrew the adjusting screw 12 turns or so. Re-fit the transmission assembly, taking care not to omit the Oldham coupling between the auxiliary drive and the camshaft. Tighten all the bell housing bolts, making sure the bell housing is up evenly. With the left hand take hold of the clutch lever on the left side of the bell housing — at this point it should move back and forth quite readily. Push it lightly towards the rear of the car. The clutch thrust should then be just touching the clutch fingers. Holding it there, use a screw driver to screw in the stop which you had screwed well out before re-fitting the transmission. Screw the stop in until it just touches the clutch cross shaft, then screw it back out three full turns and tighten the lock nut. This gives the fingers 3mm from the clutch thrust. As the facings wear, the fingers rise and clearance decreases until it is non-existent. Initially, this wear occurs rapidly on a new clutch and should therefore be checked regularly.



Dorothy Fixx would like to thank her friend Jack Weaver for his assistance in preparing this article.