



WHEN READING Traction-oriented literature, one encounters a familiar litany of virtues, ie legendary roadholding, advanced design, independent front suspension, wet liners, efficient brakes, and so on.

Can this car really be as good as it is cracked up to be? For me, the shape of a Traction is still as attractive now as it was when I paid £25 for a 1946 Light 15 in 1971. So bowled-over was I by the visual aspect of the car that I would not have minded if it had been propelled by a rubber band! A rebuild of sorts was carried out, and soon I was tearing about in a car which stayed together against all the odds, and which had me hopelessly addicted to the marque.

Sensible people tried to persuade me to buy a proper car, and I was regaled with stories of driveshaft failure, and gearboxes popping, but I believed then that sort of thing only happened to someone else. Fifteen years, and seven Tractions later, I am still hopelessly smitten by the visual aspects of the car, and the legendary road-holding, but some of the other oft-read hyperbole does seem somewhat tongue-in-cheek now!

To demonstrate what I mean, imagine a neophyte Traction owner approaching his pride and joy one cold morning with a view to driving off. So lost is he in admiration that he approaches the driver's door in a daze, and finds he cannot get in. This is a Paris-built model, and of course you must get in via the passenger door, which will enable you to appreciate the flat floor, free of transmission tunnel owing to the interesting adoption of front wheel drive, etc., every time you get into the car! Luckily for our Traction owner, the chap who sold it to him pointed out the possibility of knocking the hand-brake off as you cross the front seats, and so catastrophe has been avoided by leaving the car in gear. He will note also that access to the hand-brake is via the legs of his passenger, as this is placed on the right, unless his Traction is a 15CV. Had our Tractionist bought himself a Slough car, no doubt the vendor would have enthused about the way a passenger's knees fall beautifully to hand when changing into top. In his Paris car our victim scans the dashboard with its cryptically labelled knobs. He discovers that by trying to start it on the key, like any 'modern' car, all that happens is that the ignition lock loosens and turns uselessly in the dash! "Of course, silly of me", he thinks, and remembers the ignition by turning the knob with the curved arrow, which is not the indicator switch, pull the knob marked S for starter, which is Franglais for choke, and pull the knob marked D, not for danger, which should hopefully produce . . . what? A dull grinding noise indicating that a hopelessly overloaded six volt battery is buckling it's plates trying to turn over a mass of cold ironmongery!

A 15CV at this stage would be giving off a frightful clashing noise owing to the exposed starter ring, thoughtfully placed inches away

BETE NOIRE?

Jonathan Howard takes a critical look at the Traction



from the driver's toes. In this particular instance the dull grinding slows appreciably, and our hero realises that to persist in this course is futile.

First thought though, is to check the oil and water. This ritual, calmly enacted, will perhaps enable the battery to recover the carburettor flood to evaporate, and the feeling of panic to subside. In order to prolong this process, Paris-built cars have the radiator filler on the right, and the dipstick on the left, and so given the odd faulty bonnet catch, which if left unsecured may cause the bonnet to flap open or even take-off in motion, a few extra minutes will be taken up! Our hero remembers that he should ideally have primed the petrol pump, and now belatedly does so, adding to the stink of petrol already evident.

He returns to the wheel, thankful that he remembered to unlock the driver's door. He tries the starter again. No go! At this point he remembers that this car is of an age when a starting handle was supplied with it. The boot is investigated. Now the 'big boot' car is often considered to be less attractive, as if it was something of an after-thought. But it's antecedent had luggage capacity barely sufficient for a dirty weekend, behind a lid made heavy and unable to open far, by the spare wheel attached to it, which in turn is awkward to remove.

Upon opening, it will be seen that rainwater is thoughtfully ducted into the lower section of the boot. It may not surprise the cynic to find that in this site was placed a fibre (cardboard) toolbox! After a short time it would be found that the toolbox was rotten and soggy, and the tools well rusty. Some while later the floor of the boot would be eaten away by rust, and where would you suppose the boot hinges are anchored? Of course these hinges are exposed, and when stiffened by rust, the bodywork has to perform their function! But I digress. Our hero finds a cleverly bent piece of thick wire, supplied by Citroen as a starting handle, Attached to this piece of wire is a sort of pressed tin label, which one is supposed to insert into another piece of tin, attached discreetly to the back of the front bumper by very thin screws. This whole arrangement is threaded up, and the cap is removed from the front of the gearbox. Our hero had it explained to him how rare it was for the gearbox to still have its cap, and whilst it is fascinating to watch the end of the shaft rotating in its absence, it should be remembered that there is a scroll-type oil thrower immediately in front of the bearing which will, if exposed, dutifully wind back water, sand, road dirt and anything else

encountered, into that front bearing and ultimately into the gearbox!

The cap is removed, thankfully the pin is intact, and happily so are the dogs on the handle, and so our hero can now get to work. He is at first gratified by the resistance encountered. This is because the vieux roué had replaced the pistons and liners.

Our hero, as he turns the starting handle manfully away, is disconcerted to note how the front bumper flaps about alarmingly under stress. He notes with distress that it is attached to the car by two long struts made out of very thick Bacofoil. How fortunate he is not to be playing the handle of a 15CV which is inserted into a ridiculously slender and brittle aluminium spout, which will snap off the moment it is put to use!

However, our hero is in luck, for the engine bursts into life, and settles down to a fine steady beat. When cap and handle have been replaced and stowed, and with all systems go, our hero is about to embark on an unforgettable motoring experience.

Placing his foot on the clutch engenders a curious noise somewhere between a grind and a howl. First gear is engaged and then the clutch. The fact that only a mild judder is encountered is, our hero has been told, exceptional. The vieux roué had expounded at length about the numerous diseases to which a Traction clutch is prone, resulting in brain-loosening shudders and mechanical failure elsewhere in the transmission.

The car takes off briskly, with a sharp whine emanating from the straight-cut gears. Very twenties! Except that this gearbox was still current in 1957! Reverse however, will sound even more like an animal in pain. Our hero then changes into second. Even though this change involved bounding off reverse, the synchromesh into second was taken completely by surprise, and a brief graunch was heard. Contemporary advertisements for the Traction extolled the light gear-change a surprising quality in view of the elaborate linkage employed. However, this lightness was achieved by fitting synchro hub springs of roughly the same power of a retractable biro spring, hence the discreet nature of the synchromesh. The innate tendency of this arrangement to drop out of gear was curbed by fitting a clutch inter-lock to the gearbox lid. Even given this, the boxes are great droppers-out! Had the vieux roué not been so bent on selling his car, he might have heaped more execration on the gearbox, explaining the fragility of the final drive, and the proneness to sudden complete failure, but he wisely buttoned his lip!

If our hero hangs onto his Paris-built car, he will soon be initiated into the mysteries of 6V electrical systems and their French components, such as SEV wiper motors, Scintex indicator units, Citroen home-made dynamos and other such treats.

They don't make them like that any more . . . thank heavens!

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Floating Power

Volume II, Number 5

November, Nineteen Hundred and Eighty Six

IN THE last issue of FP we made a plea for Northern members to get together in order to rearrange venues and meeting dates for the TOC Northern Section, and I do hope that the appropriate area members have made the effort to get the meetings going again. It would also be nice if the Scottish and Welsh Sections could similarly be resurrected from the ashes, as these were relatively active TOC areas not too long ago. And, whilst we are at it, what about the South West, South East, North West, Irish and West Country areas where, as far as I can recall, there have never been any TOC area meetings for members! So come on, all you members 'out in the sticks', if you feel you would like to meet other members on an informal social basis within your area then drop me a line, as did Northern area member John Howard in the last issue, and we will similarly try to organise an inaugural meeting for you all to discuss your needs.

Elsewhere in this issue you will find details of our forthcoming AGM which this time is being held at a venue just north of London at Potten End, near Berkhamsted, in the hope that it will be within the range of more members. I do hope that as many members as possible will make the effort to attend on this occasion in order to air their views and give approval, or disapproval as the case may be, to the way the Club is being run, or to any proposals that may be put forward. If, however, you are unable to attend but have some points to raise, then please put them in writing to our Chairman, Roger Dyer, who will then be able bring them up at the meeting under 'any other business'. If any members also feel that they have something to offer to the Clubs administration etc., or would like to serve on the committee then again please contact the Chairman immediately.

Turning now to practical topics, and a reminder not to let the relatively mild winter weather we are 'enjoying' at the moment lull you into a false sense of security, as you can bet your cotten (or wooley!) socks that it will soon turn nasty and catch you out without warning! I am referring of course to winter protection for your Traction and, if you have not already done so, make sure your vehicle is protected by a fresh solution of anti-freeze in the cooling system and don't forget that the top-hose thermostats are now available from the Club Spares, ideal for 'rapid' warming up and for getting the 'heater' going more quickly! It may seem obvious advice, but every year we hear the same old stories about frozen radiators and engine blocks with the inevitable expensive damage that has occurred as a result! It is also essential to religiously maintain the frequent greasing to

prevent dirt and grit from working its way into bearings and ball-joints which would again lead to wear and subsequent failure, and don't forget to lubricate all the controls, for instance, between accelerator pedal and the carburettor, to ensure smooth and trouble free operation. Another little tip concerning the removal of road wheels due to punctures, annoying as they are at any time, but much worse if they occur during the foulest of winter weather. Invariably at this time of the year the low temperatures may have congealed any grease and dirt in the threads of the wheel studs, so that they become almost immovable, unless you are a gorilla or a T.O.C. Membership Secretary! The solution is simple. The wheel nuts should be removed now whilst the weather is still mild, the threads on the studs and nuts cleaned, and then smeared with an anti-seize and anticorrosive compound such as P.B.C. (Poly Butyl Cuprysil), obtainable from most motor factors.

The checking of lights, tyres and wiper motor etc, should go without saying, but generally, a little time and effort now with these basic precautions will hopefully prevent any trouble at all — but if neglected trouble will most certainly arise! Don't end up Tractionless, it is 'nt good for your health, and besides, you would not want to miss the T.O.C. annual Christmas Lunch which is once again being held at the White Hart at Whitchurch on Sunday, 21st December. Contact Mike Wheals as soon as possible to book your places, and ensure that this Yuletide nosh is complimented, like vintage port, with a full and satisfying collection of fabulous Traction in the carpark!

Finally, on behalf of your committee, I would like to wish all members a very Happy Christmas with safe and successful Tractioning in the New Year. To use a phrase from a fifties motoring magazine, 'May all the lights be green'!

Sincere good wishes,

Bob Wade

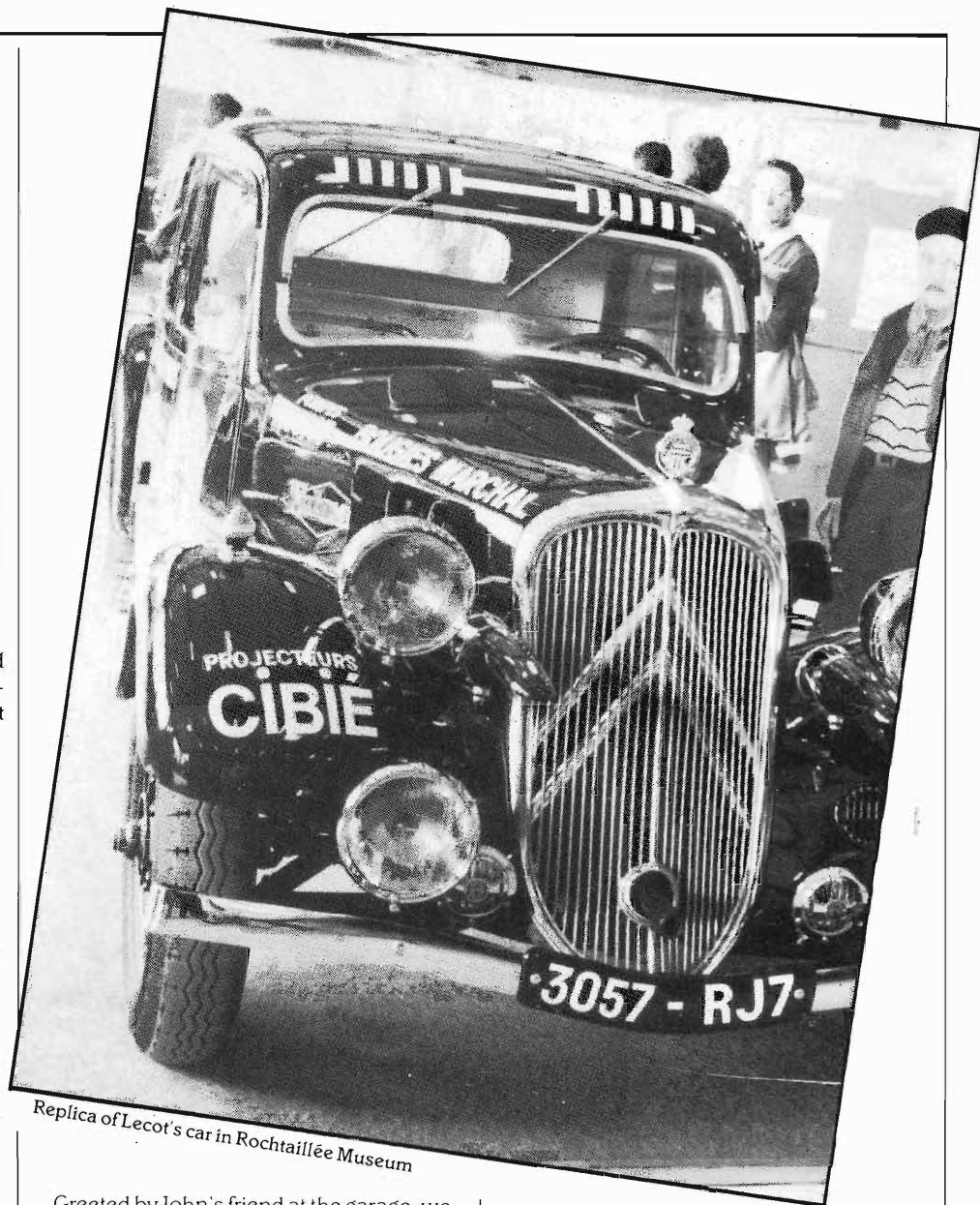
Fred Annells
concludes his
saga of the
'Raid Lecot'...

RUIN TO THE SOUTH

In the last issue of 'Floating Power, Fred Annells was nearing Lyon. Here, he continues his story, ending with the triumphant return to Paris.

THE TRACTION CLUB of Lyon had organised a coach to take us from the car park to the restaurant; and then, having had lunch, we returned to the Museum for an official reception. The curator greeted us all – and there, in a specially-reserved place, stood an exact replica of the Traction complete with a cut-out figure of Lecot. The car was surrounded by boards telling of his feat, and honour was paid to Madame Lecot (he remarried again in 1944, I believe). My lack of French was a disappointment, and I could only speak to her through one of the committee of the Club of Tractionists of Lyon. An amazing fact emerged – I was told, many years ago, that this car had been dismantled and was never reassembled; however, this was not so – apparently it was taken from Lecot by the retreating Germans in 1944. Does it still exist? Did it ever make it out of France? Perhaps by some miracle it is still around – the French said they knew the chassis number should it ever turn up.

The next day we continued on our journey with cars from the Lyon Club, and so on to Avignon. However, not far out from Lyon, my car began to lack power. The reason was a little difficult to diagnose, since now and again it would regain power for a while – could it be petrol blockage, or a plug breaking down? We stopped to check plugs, petrol feed, HT leads and a few other things, but everything seemed to be functioning correctly. My road speed average was falling, and it wasn't possible to keep up with the other cars. John and Josie stayed with us, and as we weren't too far from a friend of theirs who had a garage business at Tournon, we took a detour through Tain l'Hermitage. Unfortunately, we got parted at some traffic lights and made a wrong turning! We waited a few hundred yards down the road, and sure enough John returned and we went back to the road leading to the garage. Suddenly, our mystery problem made itself clear – the car backfired, and I knew the answer.



Replica of Lecot's car in Rochtaille Museum

Greeted by John's friend at the garage, we explained we only needed a space to work in; and before I could get the bonnet catches open, John was ready to start work. Off came the distributor cap, a quick look at the points, and there was the evidence. They were burnt, the condenser had decided to pack up – so, from the spares I carried, a new one plus some new points were fitted.

The engine was quite hot, so we topped it up and we had an engine with full power again.

My new friend Lionel had invited us back to his Spanish-style bungalow in the hills overlooking the village. The view was breathtaking – the autoroute and railway line could be seen quite clearly, with a train travelling at more than 100mph to the South of France. Through binoculars, we could see four Tractions travelling on the N7 towards Valence.

We were made very welcome by Lionel's charming wife and daughter, and a lovely meal made it all seem like paradise. Unfortunately it had to end after a couple of hours – we bade farewell and headed towards Montelimar (to get the real noughat for friends at home!), then on to Orange, and Avignon and the Hotel mercure, having travelled more miles than the itinerary had specified!

An early start was made the next morning to visit the Roman viaduct at Pont du Gard. It's a magnificent structure in good condition. There were still about forty cars with us, though some people who weren't able to make the whole journey had left us at Lyon – they were to meet up with us again in Paris.

After about one-and-a-half hours, we left to go on to Nimes. By now, the weather was very hot, much to my liking.

The Traction Club of Nimes had organised a reception for us in the gardens of Fontaine, and we were greeted by their president who informed us that there was to be an address by the mayor. For some reason this didn't take place, but we did tuck in to a grand spread of food and wine – our worry was that we'd put on too much weight! I found it made me very sleepy, and early nights were very welcome!

Here we were in the South of France, and it felt good to drive in shirtsleeves with the windows open; 'I definitely could live in this part of France', I told myself.

John and Josie Waghorn's car hadn't even missed a beat – and so it was to be for the whole journey, even in the mountain sections. It behaved extremely well – a Commerciale is a big car, and a lot heavier than the other four-cylinder Tractions.

Next on the route was Aix-en-Provence, and we were to follow the coastal road to join the N8 to Aix, with an overnight stop at the hotel, and then on to Antibes. Our itinerary said 'Aperitif with the Retromobile Club of Diaguignon,' plus a museum visit where we saw many beautiful cars – my favourite was a 540SSK Mercedes.

We travelled on over the Alps Maritimes to Cannes and Nice, and parked on the promenade opposite our hotel to unload our luggage.

There was an invitation to the local Citroen agent, but our wives said 'Not for us – we're going to have a few hours sunning ourselves.' It was a gorgeous view looking out over the bay, and I could understand their reason, but John and I decided to accept the invitation.

When we returned, we joined up with the others and went off to the restaurant 'L Hippopotamus' to have a delicious meal – my waistline was definitely improving, and we'd yet another invitation for food and drink later in the evening!

We'd had instructions to park our cars further along the promenade, where they were enclosed with railings and given a 24 hour police guard. We went back to the hotel to change into dinner dress to attend a reception at the Palace de Massena, where we were guests of the municipality of Nice. The very beautiful building was once the home of Napoleon's General Massena, and housed many paintings, including one of Josephine. It was indeed an honour to have been invited there, as we discovered that only two other parties had ever received such an invitation! Our organisers repaid the compliment with a speech to show our appreciation.

And now just a short distance away was Monte Carlo, the end of the first half of the 'Raid'. It was to be another evening dress visit, as the organisers had booked a meal and cabaret show for us at the Casino, with – to quote the programme – 'cover girls'! When we arrived in our Tractions, all eyes were upon our cars – the Rolls-Royces, Bentleys, and luxury Mercedes weren't given a second glance. After an enjoyable show and marvellous meal we were invited to visit the casino itself. Though it wasn't for us to gamble our millions away, it was an experience to watch the roulette tables being played. One gambler collected an estimated £300,000 worth of chips, and my ten francs were burning a hole in my pocket – but I resisted the temptation! Josie played the fruit machines and won about £40, but then fed it all back. All in all it was a fascinating evening, and at 1.30 a.m. we left Monte Carlo to return to our hotel back in Nice.

Next morning, 8.30 a.m. saw our assembly ready to depart, heading over the 'Route Napoleon' in the direction of Digne-Sisteron-Gap, and eventually on to Grenoble; a distance of about 325kms. The journey over the mountains wasn't looked forward to, but it turned out to be very exciting. The views were great, and we stayed in small groups, passing each other at stops along the route. Soon, the signs appeared for Grenoble, and then we discovered the town virtually split into two by roadworks. It was quite a feat to get to our hotel with a railway line between two roads.

With aperitif and snacks laid out in the hotel foyer, we had time to reflect on our journey over the mountains. The press knew of our arrival, so the cars were arranged in a horseshoe fashion for them to take photos – just before heavy rain came down. When it eased off, we were told our cars were to be put in an underground car park where they'd be under guard. I left, following five other cars – however, they took a wrong turning and ended up in a cul-de-sac. Being 'tail-end Charlie', I became parted from them at some roadworks, the rain really started to pour down – and I was completely lost! My sense of direction had long since gone, so I motored on hoping to see some sign. When I did, I discovered I was on the motorway to Geneva! I was, to say the least, rather worried – not a lot of money on me, no passport and unable to speak the language, I'd be in serious trouble if my car broke down. But my luck returned when I saw a sign 'Centre-ville Grenoble' at the third exit – I'd come back to within a mile of the hotel. Again, because of the roadworks, I couldn't seem to find my way over the railway line. After going round in circles three times, I saw someone I thought must be a taxi-driver standing next to his car, so I stopped, asked him if he spoke English, and showed him my hotel key (which by an amazing stroke of luck I'd put in my pocket). When he directed me – in English! – I discovered I was less than 500 yards from the car park and only a few yards from the hotel.

I'd been missing for one-and-a-half hours; and poor John Waghorn had been scouring the roads in the pouring rain and the police had been notified. There had been a few nudges and winks among the others when John had told them I was lost – it turned out that this was a red-light area! I got a ticking off from John, who'd got really wet feet, but all was put right with a couple of lagers.

From then on, the trip seemed to get a bit more wearing to me – getting lost seemed a fairly easy thing to do. The pace hotted up, and the mountain roads seemed to get steeper and steeper as we made our way to Annecy.

We had a deadline to be at the lake at 12.00. On our own once again we went around the town in circles, but once again my luck held out as I saw a sign for the lake. There, the Tractions were all lined up, and we got aboard a very splendid boat, the MS Libellule – only just in time, as we'd held it up for 15 minutes. My feelings were brightened up when I was called to a gathering of all the others and presented with a beautiful cup, standing about fourteen inches high on its base – it was overwhelming, and I asked "what have I earned this for?" Reply: "Age of car and driver combined to give top points." The trophy was given by the Club des Tractionists DR de Lyon: so I have the first trophy I've ever won sitting on my mantelpiece.

Our trip around the lake and the meal were again fantastic. We spent our evening walking around Annecy admiring the wonderful scenery, and ending up with dinner and drinks at a restaurant. Our hotel here was the Splendide, and on our departure we received many waves and greetings from passing motorists as we headed for Dijon. We stopped for dinner en route at the Chateau d'Arlay, where a reception was laid on by the Comtesse de Lauraguais. The weather was hot, and the Tractions were lined up outside the chateau wall. The meal laid out for us again was in the true French tradition.

Our hostess' daughter spoke perfect English, and she explained why the chateau had not been used by the Germans during the war. Apparently the chateau's water supply comes from a spring, and the gardener of the time blocked it off – so the German officer in charge left the chateau alone and no German troops were billeted there. Good thinking on the part of the gardener!

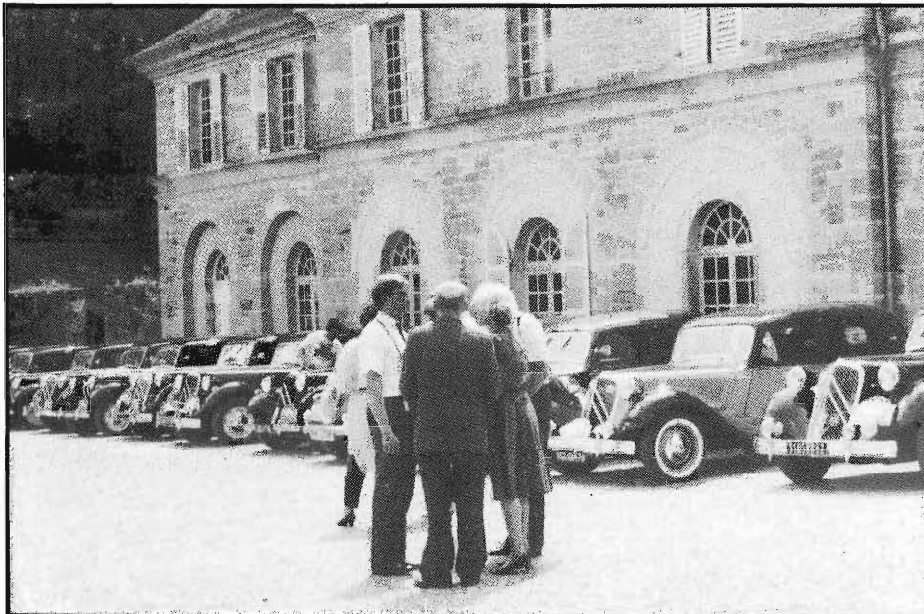
The local car club came to greet us, and though it consisted mostly of old Peugeotts from the 20's and 30's, the gesture was greatly appreciated. We purchased several bottles of wine for which the chateau is famous, and said farewell to the Comtesse and her family.



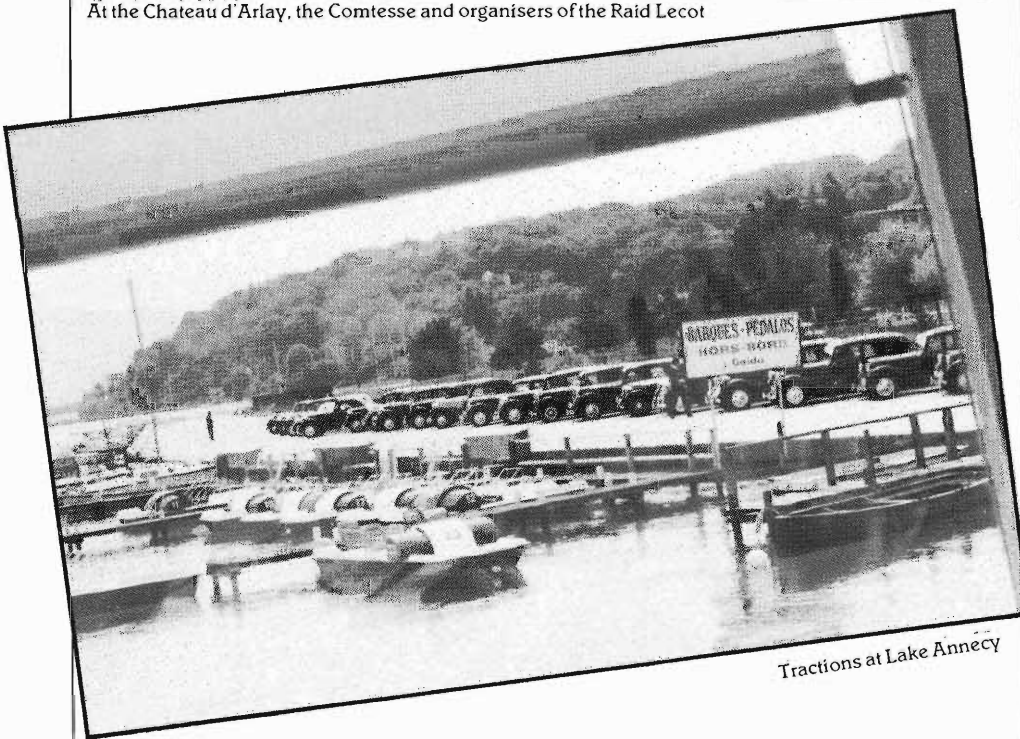
The imposing facade of the Casino, Monte Carlo



Tractions on the promenade at Nice



At the Chateau d'Arlay, the Comtesse and organisers of the Raid Lecot



Tractions at Lake Annecy

We went onwards to Dijon, with a stop at a Citroën dealer for an aperitif and yet more to eat. I was asked if I had a hub puller – someone else other than me had a problem. The car in question was on a trailer outside; the drive had gone on one wheel, and it was assumed that the key had sheared – but it turned out that the driveshaft had sheared. The car was placed in the workshop, and luck was with the driver since he lived only ten miles from this garage. We then all lined up outside the garage for the usual publicity photographs – in this case the garage owner was a lady, apparently unusual in France.

Our journey into Dijon from Annecy had involved many turns, and constant braking over the mountain roads had, unknown to me, caused the nuts on the Pilote wheels to slacken. I'd forgotten to check them, and so after leaving Dijon and driving through the more level countryside, I first felt a strange movement at the back of the car. My first thought was that I had a soft rear tyre, and I said to my wife "must put the spare on, we've got a slow puncture." And then, whilst taking a bend through a village, it happened – there was a sudden loud noise and, glancing quickly in the mirror, I saw my nearside wheel flying through the air narrowly missing the following car. The back end dropped and the brake drum dug into the tarmac with sparks flying. I dared not brake, so I coasted for about thirty feet and came to a halt level with the pavement – the fortunate thing was that nobody was hurt. The wheel was damaged (though the tyre was all right), I had three damaged wheel studs, and I'd lost four wheel nuts. I thought that the trip was now over for me, but I was amazed to find no other damage except for a slight dent in the wing. The two H-vans from Michelin had their first job of the trip, someone produced some wheel nuts, and the spare wheel was fitted before I knew what was happening. My wife was a little shaken when she realized that it could have happened while we were coming over the mountains!

Though we were now in a position to carry on, the organisers were worried and pressed me to continue to Paris on the trailer. I felt it only prudent to comply with their wishes, and so the last stage was done in a hurry behind a CX. We soon caught up with the other Tractions, and we all gathered at a rendezvous in preparation to drive in a chevron-pattern through the Arc de Triomphe and down the Champs-Elysees. Anyone who has driven in this part of Paris will know that it's impossible to drive 'normally' – it was a Sunday, the pavements were alive with people cheering and waving, and the other car drivers were 'on the grid'. However, the Tractions held their own amongst these tactics. One driver in a 50's American car drew alongside and said in English, "You like French car?", to which I replied, Yes, do you like American cars? "Yes," he replied in a rather gloating way – so my reply to that was, "But my French car was made in England – top that!" He smiled, and said no more.

We made our way to the Place de la Concorde, where the cars were on display to the Parisians who flocked around taking photographs – and wondering what it was all about, no doubt.



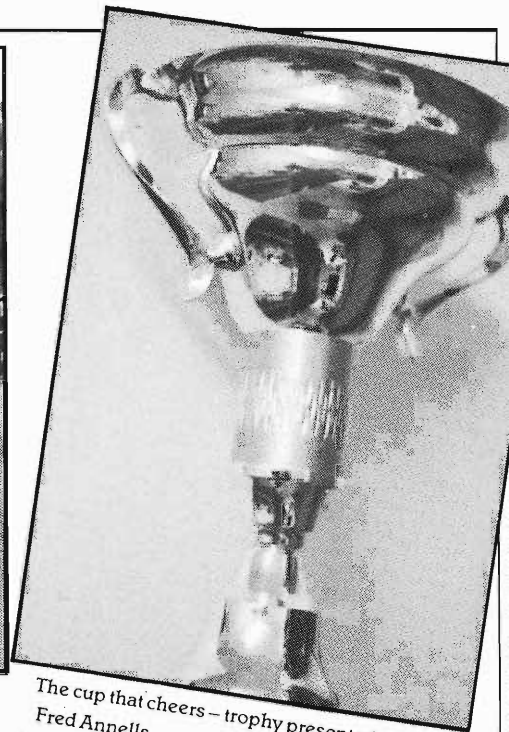
Triumph at the Arc de Triomphe – entering Paris

We were to be guests of the Automobile Club of France (dress suits again!), and with a feeling of going back fifty years in time we assembled in the actual room in which Lecot had originally been praised for his epic achievement. My journey of just one Paris – Monte Carlo – Paris trip brought home just what this man had accomplished. For many of us, there was to be a long drive home next day – to countries as far apart as Sweden, Switzerland, Germany and England. We exchanged addresses, shook hands and

walked back to our cars to drive out of Paris about 11.30 p.m.

By now, the traffic was a nightmare, and I stuck to John's Commerciale ahead of me as if I were part of it – I dreaded the thought of someone getting between us and separating us.

After stopping overnight, we drove gently to St Omer the next morning to stop for a few hours at friends of John and Josie.



The cup that cheers – trophy presented to Fred Annells

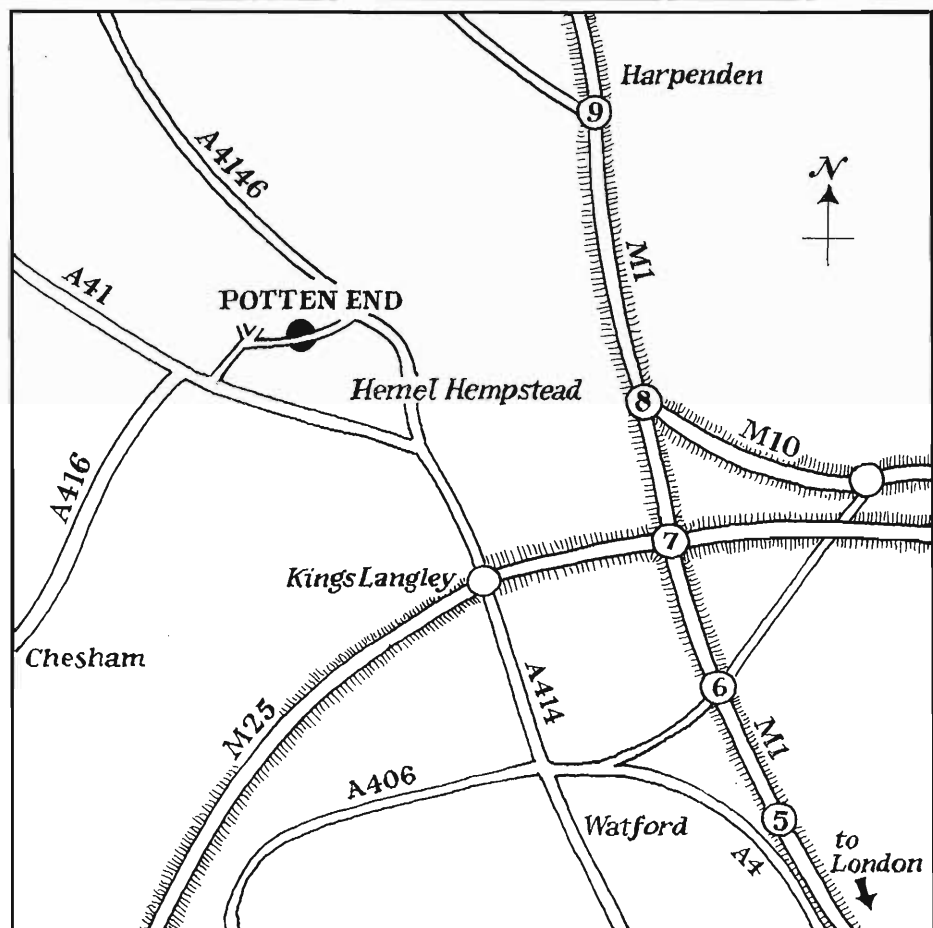
And when finally we reached home, the first thing to do was have a cup of tea, unload the car and reflect on this wonderful trip. My first thoughts on such a journey were back in 1972, and now that it had come true, I wondered if a centenary would take place in 2036! I won't be around to take part if there is, but I've got photographs and memories to tell of this journey.

AGM

This year, we're going rural for the AGM: it will take place at Potten End, about 45 miles due north-east of central London. The address is the Village Hall, Potten End, Berkhamstead, Hertfordshire; the time is from 6 p.m. to 11 p.m. on Friday 16 January.

Though the Village Hall doesn't have a bar as part of its fittings, there's a village pub just round the corner.

We'd like to have as large a turnout as possible, so all members are urged to make every effort to attend – we hope to see you there!



TRACTION ARRIERE

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June 15th, 1928

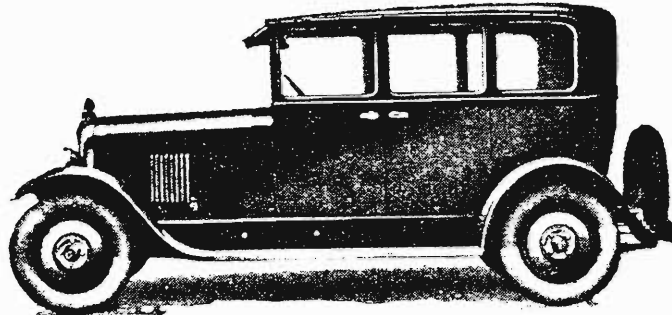
CARE AND MAINTENANCE OF THE 12-24 H.P. CITROËN

FROM the point of view of maintenance, the 12-24 h.p. Citroën is an excellent car for the owner-driver, for it has a high reputation for sturdiness and reliability, and it calls for little attention to keep it in good tune. The less attention a car requires the less excuse is there for a driver to neglect it, and if the following instructions are taken to heart and carefully carried out the best results should be obtained from this popular and attractive machine.

In the first place, it should be explained that it is the policy of the manufacturers to incorporate detailed improvements as found desirable, and not to wait for any particular season of the year in order to introduce a new model. Thus certain small differences are observable between those cars now being delivered and vehicles of an earlier date. For example, the oil pump which supplies the needs of the engine as regards lubrication is now placed lower in the sump; so that it is submerged in oil, and this in turn involves a slight alteration in the filter gauze through which the pump draws oil from the sump.

It will assist the owner-driver to appreciate the importance of lubrication if he realises exactly how the oiling system is arranged. From the pump a pipe conducts the oil to a gallery running along the side of the crank case, whence it flows to the main and camshaft bearings, and through a jet on to the timing gears. Oilways are drilled in the crankshaft and oil enters the shaft at the two main bearings and passes through the shaft to the connecting rod big-end bearings. The cylinders and pistons are lubricated by the oil thrown up from the big-end bearings.

The oil filler is now fitted at the front of the engine on the off side, with a dipstick gauge close to it on the same side to indicate the amount of oil in the sump. The oil level must not be allowed to fall below the minimum mark on the end of the dip stick, and oil should not be added so that it comes over the maximum level mark. The sump holds 7 pints of oil, Gargoyle Mobiloil A being recommended for use in both summer and winter. Earlier models have a pointer type of gauge



Part I.—Keeping a Popular Family Car in the Best Possible Running Condition.

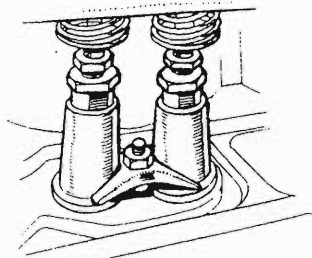
The only probable reason for a failure of pressure, provided that sufficient oil is present in the sump, is an air lock in the system, and in that case the union connecting the oil indicator pipe to the tube projecting from the top of the flywheel housing should be undone and the pipe disconnected. Oil should then be injected by means of a syringe into the crank case tube and the pipe reconnected. On starting the engine the pressure should then be found to be correct.

The oil pressure can be controlled by means of a screw on the off side of the crank case to the rear of the magneto, but this is carefully set by the manufacturers and secured by a lock nut, and there is no reason for it to be disturbed.

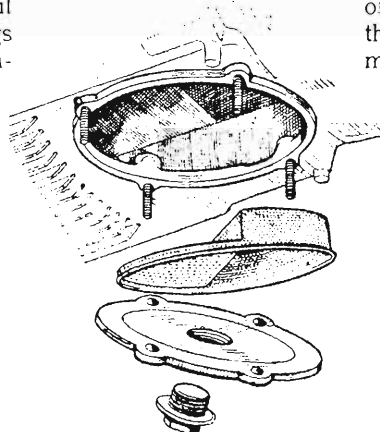
After a new car has run 500 miles the oil should be drained from the crank case by removing the drain plug fitted in the centre of the circular plate which will be found in the bottom of the sump. This should be done when the engine is warm, as the old oil will then more readily flow out and carry any sediment with it. At the same time the oil filter may be removed and cleaned in petrol. By unscrewing the four nuts which hold this circular plate in position it can be withdrawn, and the filter gauze then taken out. It is not recommended that the crank case be flushed with paraffin to remove any traces of the old oil.

When the filter has been cleaned it should be replaced, care being taken not to damage it. Then the cover plate and the drain plug should be put back, and a fresh supply of oil poured into the sump. After the first change of oil at 500 miles subsequent changes should be carried out every 1,000 miles.

Decarbonising should not become necessary under about 5,000 miles with



Adjustable tappets of conventional design slide in guides held in pairs by clips.



A circular plate held by four studs to the bottom of the sump gives access to the oil filter when removed and carries the drain plug.

Care and Maintenance of the 12-24 h.p. Citroën.

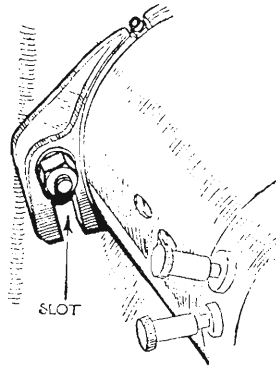
a new car, and subsequently about every 7,000-8,000 miles. It can easily be carried out without the aid of special tools. The procedure is first to drain the radiator and disconnect the top water joint. The high tension leads and the sparking plugs should be removed, and after the fourteen nuts holding down the cylinder head have been unscrewed the head may be lifted off. All carbon should be scraped from the combustion chamber and piston heads, and before the head is replaced the valves should be ground in. A valve-spring lifter may be obtained from the manufacturers for 3s. 6d., and it should be used to compress the spring so that the collar and cotter may be easily removed. The valves should be lightly ground in until a true seat is obtained.

Points to Note.

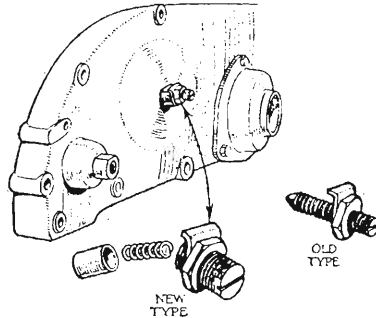
All traces of valve grinding compound and carbon must be wiped away from the valves, ports, guides and cylinder block before the valves are refitted, and the head may then be replaced. It is advisable to use a new gasket, which should be lightly coated on both sides with gold size or boiled linseed oil. Care should be taken in fitting the gasket over the studs; then replace the cylinder head, and turn the holding-down nuts to the finger-tight point. In tightening the nuts the proper sequence must be observed in order to avoid distorting the head; commence with the middle nut of the centre row, tighten each nut equally, working outwards along the row, and follow on by tightening the nuts of the two outer rows in the same way.

When the valves have been re-ground it will be necessary to check the clearances between valve stems and tappets, and when the engine is cold this should be .006in. The tappet adjustment is of the usual type, consisting of a screw in the head of the tappet secured by a lock nut. Flats are provided on the head of the tappet so that it can be held by a spanner while the lock nut is loosened, and then the adjusting screw should be turned until the correct adjustment is obtained, when the lock nut should be tightened and the clearance again measured to make certain that it is correct.

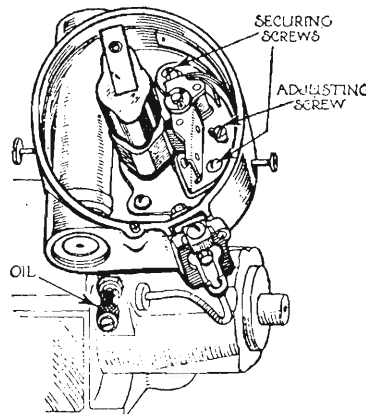
Should a valve spring break it can be replaced without disturbing the cylinder head. The tappet adjustment should be screwed down as far as possible, and the broken spring can then be withdrawn, after the collar and cotter have been removed, between the valve stem and the tappet. A new spring will also pass between the tappet and the valve, and when the collar and cotter have been replaced the tappet should be set up to the correct clearance.



The end plate of the dynamo has slotted stud holes to allow for belt adjustment.



Adjusting screws are provided to take up end play in the timing gear shafts.



Setting the magneto contact breaker points is a simple matter.

On all the 12-24 h.p. engines only three timing wheels are used, and when in the course of time a certain amount of noise is heard from the timing gears, examination will show that this arises from end play developing on the camshaft or magneto drive shaft. Adjusting screws are provided in the timing case cover to take up this play. These screws are secured by lock nuts, and in the latest engine they hold spring-loaded plungers bearing against the ends of the camshaft and magneto drive shaft. In earlier models the ends of the screws bear direct on the ends of the shafts. The screw which operates on the camshaft has a right-hand thread, and that on the magneto drive shaft a left-hand thread. To adjust these screws correctly the lock nuts should be loosened, the screws tightened, and then slacked back half a turn and the lock nuts tightened.

An adjustment which will be needed from time to time is provided for the V belt which drives the fan and dynamo. The dynamo is mounted on the front of the cylinder block on three studs, and the end plate of the dynamo has slotted stud-holes, so that when the nuts holding it to the cylinder block have been loosened it may be moved upwards slightly to tension the belt. It is then secured in the new position when the nuts are tightened. An oiler is provided at each end of the dynamo, and through these a few drops of thin oil should be given every 500 miles. Care must be taken not to over-lubricate the dynamo, otherwise the brush gear and armature windings may be covered in oil and the efficiency of the machine impaired.

Dynamo Hints.

On the top of the dynamo is fitted the cut-out which automatically switches the dynamo on and off, according to the engine speed. It is not likely to give trouble, but should the dynamo charge intermittently the complete cut-out should be removed and sent to the service department for attention. When the electrical system is in order the charging rate as shown by the ammeter should be 8 to 10 amps.

If the dynamo does not charge at any time examine the battery leads, and also the leads connected to the cut-out, to see that there are no loose connections. Also remove the spring-steel strip covering the brush gear of the dynamo and see that the brushes are not unduly worn, and that they are bearing evenly upon the commutator. The brushes must slide easily in their holders and the springs of the holders should bear evenly on the centres of the ends of the brushes. At the same time the commutator may be cleaned by wiping it with a soft, clean rag and by holding a piece of fine emery paper against the commutator and turning the armature

June 15th, 1928.

The Autocar

Care and Maintenance of the 12-24 h.p. Citroën.

shaft round a few times. If these points are attended to the dynamo should function properly.

The only other attention likely to be called for beneath the bonnet concerns the carburetter and magneto. A horizontal type Solex carburetter is fitted and is of very simple construction. If the engine runs irregularly or stops altogether, a choked jet caused by water or some impurity may be suspected. In this case turn the petrol off at the tank and dismantle the carburetter by unscrewing the nut in the centre of the float chamber. The float chamber, together with the jets, can then be withdrawn. If water is the cause of the trouble it will be seen in the bottom of the float chamber.

Carburetter and Magneto.

The pilot jet can be unscrewed with a screwdriver or small spanner and any obstruction blown out of it. The main jet is held in position by a detachable cover, and when this is unscrewed with a spanner the jet can be removed and any obstruction blown out. Do not attempt to clear the jets by poking a pin or needle through them, as this will enlarge the small holes through which the petrol flows and upset the action of the carburetter. The standard carburetter setting for the Solex is as follows: pilot jet 45 or 50, main jet 85 or 90, and choke tube 20.

On the latest models a choked jet is a very unlikely trouble, as an efficient petrol filter is fitted. Any water of impurity trapped by this filter is visible in the glass bowl, which should be taken off from time to time and cleaned out.

If the carburetter floods persistently it may be that the float has developed a leak. On taking out the float and shaking it one can at once tell if any petrol has reached the inside. A damaged float can be repaired, but it is probably easier to fit a new one.

The latest models have the R.B. Voltex magneto, which has the contact breaker and distributor very accessibly arranged. This instrument has only one oiler, under the distributor housing, through which one or two drops of thin oil should be given about every 750 miles. Occasionally the contact breaker and the distributor should be cleaned and the contact points inspected. Also see that the carbon brush in the centre of the distributor moves freely in its holder.

The contact points are very easily set, since the fixed point is carried by a plate secured by two screws. When these screws have been loosened a smaller eccentric headed screw is turned slightly to alter the position of the plate, and when the correct gap has been obtained the two locking screws should be tightened. The points should be set when the rocking lever carrying

the moving point is on the face of the cam, and the gap between the points should be .075 in.

Should it be necessary to check the magneto timing remove the plate covering the valve tappets and turn the engine by the starting handle until the piston of number one cylinder is at the commencement of the compression stroke, which is the moment when the inlet valve of that cylinder is seen to close. Remove the sparking plug and insert a wire so that the head of the piston can be felt. Continue turning the engine until the piston is at the top of its stroke, that is until the wire no longer rises. Then turn the engine backwards by engaging a forward gear and pushing the car backwards slightly, or by taking hold of the belt pulley on the front end of the crankshaft, until the piston has descended 3 mm., that is, until it is 3 mm. before top dead centre.

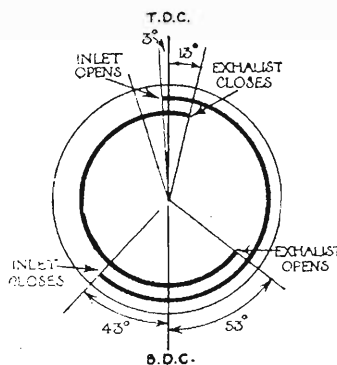
Loosen the magneto coupling set screw so that the shaft can rotate in the coupling, remove the magneto distributor, and turn the distributor gear spindle in a clockwise direction until the points of the contact breaker are at the point of separating, while the rotary disc on the distributor shaft is in line with the segment on the distributor connected to number one cylinder. Note that the magneto shaft must not in any circumstances be turned in an anti-clockwise direction, as this tends to slacken the nut holding the cam and throw the whole mechanism of the magneto out of order. Having obtained the correct setting, re-tighten the coupling set screw.

The magneto is secured to the base plate by a retaining strap of brass, and should a new retaining strap ever be needed it must not be made of iron or steel.

Early Models.

Earlier models have the R.B. rotating armature magneto—retained in a similar manner. When the magneto drive coupling set screw is loosened the armature can be rotated by hand until a red mark is seen in the centre of the small window on the front of the magneto casing. The contact breaker points should commence to open at this point and the piston of number one cylinder should be 3 mm. before top dead centre. Tighten the coupling set screw, taking care that the armature does not move. This magneto has a wipe contact distributor, and this should be cleaned from time to time. It can be removed after the brush-holder which makes contact with the slip ring is unscrewed and withdrawn. This brush and the two brushes in the rotating distributor arm must move freely in their holders and should be kept clean.

(To be concluded.)



Valve timing diagram of the 12-24 h.p. Citroën engine.

1976 1986 TRACTION OWNERS CLUB TENTH ANNIVERSARY • IN SEARCH OF ENGLAND •

GENERALLY SPEAKING, writing a Rally report is quite simple – one describes the site, lists the activities and what occurred on the various days, mention a few personalities and let the photographs do the rest! Not this time though I'm afraid!

Firstly, you cannot just describe the site as there were 18 of them – all different, each one carefully chosen by the local organisers, some used only for one night, others for two or three days, but each of them providing excellent facilities.

Secondly, list the activities – again over the 30 days there were far too many to mention, but here are some brief highlights to give you the 'flavour' of the tour. On the second night of the Rally when we visited a Pub in Waterbeach and started to get to know each other for the first time as we drank real ale in front of an open fire: little Juliette Kuil, daughter of Theo and Christel from Holland, strolling down the shopping precinct in Kings Lynn with her hands in her pockets – ever so adult for all of her two years! The back room at Nellies with pints of the best John Smith's I've ever supped, with live jazz

in an incredible atmosphere: the weekend at High Spenn with barbecue and disco, not to mention the splendour of Hadrian's Wall. And then there was the beautiful Lake District, the gorgeous weather together with the fantastic views, plus the resplendent Victorian steam yacht 'Gondola'. And what about Mick Boulton's old Bedford single-decker bus, restored to beautiful condition: the long Mynd and Ironbridge, Berkeley Castle, and that lovely old pub in Enford that Ted Gartland introduced us to – super! The views from Dunkerley beacon over rugged yet beautiful Exmoor, climbing Glastonbury Tor early one morning, and having to abandon camp in the New Forest after 24 hours of rain! Medieval jousting at Littlecote, and Patrice arriving at Alan Foulkes-Jones door at 7 o'clock one morning complete with police escort!!

There were of course, many many more lasting memories that I can recall, but unfortunately too many to describe or detail.

Thirdly, mention a few personalities, and two whom I must put at the top of the list are Alec Bilney and Roger Dyer. Without this 'dynamic duo' there would have been no Rally, and they put in a lot of organisation

and work to make the few 'woolly' ideas that I had come to fruition. They gave me the encouragement and confidence to see the whole thing through.

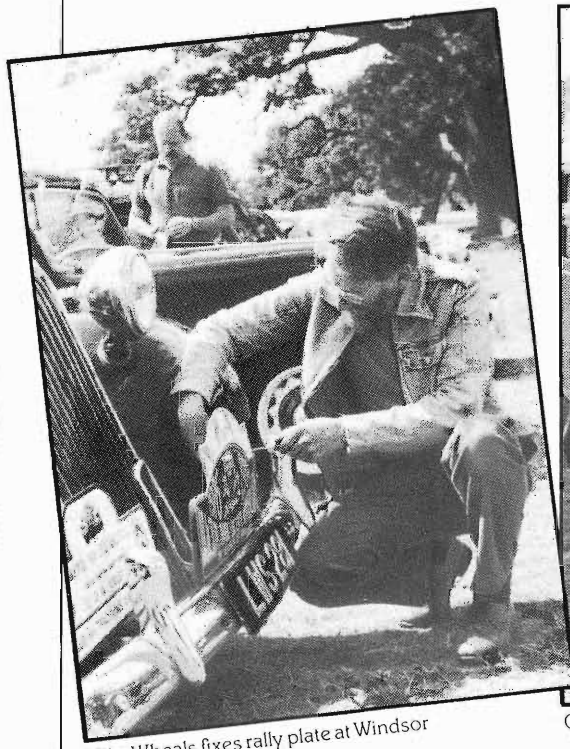
Next, all the local organisers (a list of whom appeared in the previous issue of FP) who all did wonderfully well, often coping with problems that could not have been foreseen, and I am sure that I speak for everybody when I say that the success of the Rally was very largely attributable to them.

Last but not least, the entrants – thank you all for joining in, for being such good company, and for creating a super atmosphere of friendliness and bonhomie throughout. I know I speak for Alec and Roger, as well as all the local organisers when I say that you made it all worthwhile.

A special thank you too for all our new friends from abroad, and I hope you enjoyed being with us as much as we enjoyed your company.

Finally, a very special thanks to the one person who to me epitomized the true spirit of the Rally – Ted Knight – I'm glad you were able to join us Ted.

Mike Wheals



Mike Wheals fixes rally plate at Windsor

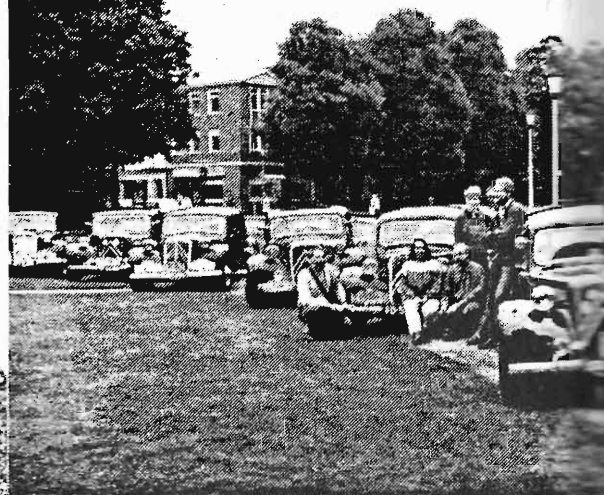


Overseas enthusiasm at the start



Alan Sibley gets tied up with help from Alec Bilney

From yesterday



STOPPING off in Ely on Monday during a four week tour of Britain were some of the more tasteful of cars that might be spotted chugging down winding country lanes, Citroens that date back to 1934.

During their two hour stay in Ely the car owners, some of whom came from France, Switzerland and The Netherlands, paid a visit to the Cathedral and popped into a few of the shops.

Having started out from Windsor Park on Saturday, the convoy of cars is making its way up the east coast to Hadrians Wall before turning south to the Lake District, Wales and the West Country.



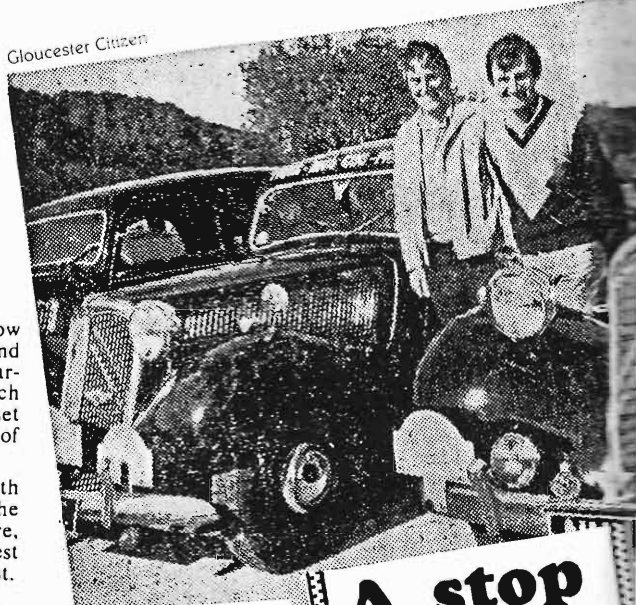
Beverley & District Advertiser

'Maigret' cars visit Beverley



Above: A fine Citroen specimen photographed at Beverley Racecourse. These cars were the first ever mass-produced front-wheel-drive overhead valve vehicles.

Gloucester Citizen



'Maigret' veterans' rally

A DOZEN "Maigret" cars from all over Britain and the Continent paraded round the Downham area on Monday during a month-long tour of England.

The visit by the cars — all pre-1955 — was organised by Mr Peter Cotterell and his wife Barbara of Denver Garage. They own a beautifully preserved example of the car — generally known as

Citroen light 15 — which gained recognition in the Maigret detective series on television some years ago.

The tour celebrates the tenth anniversary of the Traction Owners Club for these cars and started at Windsor Great Park at the weekend.

Some members, included visitors from Switzerland, Holland and France, camped

at the Woodlakes site at Stow Bridge on Monday night and after a visit to Denver Garage — which sells very much more modern Citroens — set off northwards for the rest of the tour.

This will include North Humberside, Yorkshire, the Lake District, Shropshire, Gloucestershire, the West Country and the South coast.



Mr Peter Cotterell and his wife, Barbara, of Denver, with four of the "Maigret" cars and their owners during a stop at Stow Bridge.

A stop by the river

Members of the Citroen "Traction Avant" owners club from all over Britain and Europe converged on the Red Lion, Wainlock on Saturday.

Club members have been taking part in a Red Lion motor car tour in their motor car to celebrate their tenth anniversary of club.

On Saturday, they stopped over in Gloucestershire before heading for the West Country.

● Pictured above are Citroen owners Mr Ryland (left), of Cheltenham and Ray Newell, of

Kings Lynn News & Advertiser

year to D-day



The tour is organised by the Traction Owners Club which this year is celebrating its tenth anniversary.

Back in 1976 the club was formed because of difficulties in getting spare parts for the first massed produced front wheel drive car.

As the Citroens make their way around the country the two litre engines will do about 25 mpg and cruise at 50 mph.

Tour organiser Alec Bilney, who has owned his Citroen for 12 years and paid £25 for the car which is now worth £5,000, said: "This is the classic French farmers car with bags of room and what is now a lot of style."



Citroen owners in Britain are being urged to join the club. They have been invited to a Round Britain Rally to celebrate the centenary of the car. They will be driving to Gloucester and then to Tuffley. Above are local Citroen owners. Mrs Dennis of Chalford and Mr Bell, of Tuffley.

Yorkshire Post

CLEAN MACHINE: Juliette Kuil, two, from Holland, ensures a polished performance from her father's rare Citroen car at Bever-



Beverley Guardian

Mr Roger Williams, of Beverley, discusses the next stage of the Citroen Traction Avant owners club rally with organisers Mr Mike Wheals and Mr Alec Bilney.

Rallying round Beverley

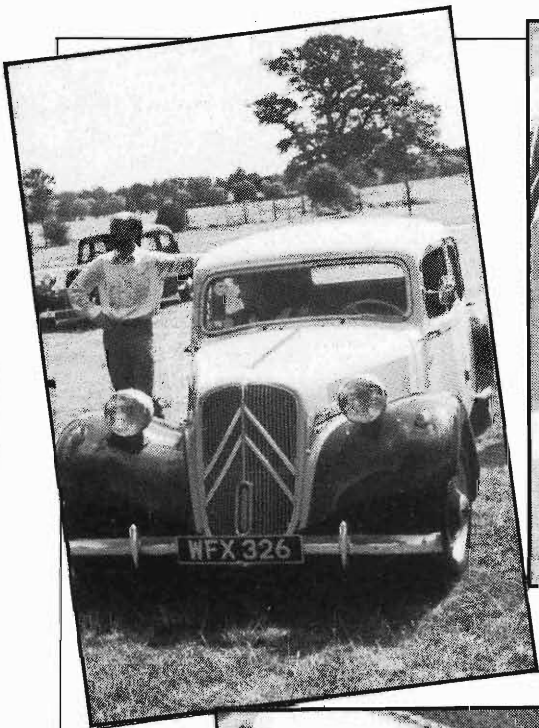
The 10th anniversary celebrations of the Traction Avant Owners Club came to Beverley last week when they staged a rally of their pre-1967 Citroens at Beverley Racecourse. The rally came to the town as part of its month-long tour around the country called "In Search of England."

Nine Citroens came to Beverley, with two more cars from the town also joining in. The drivers came from all over Europe, including Holland, Switzerland and France.



ley Racecourse yesterday. Mr. Theo Kuil's 1951 Big-15 saloon joined other Citroens and their owners who stayed the night

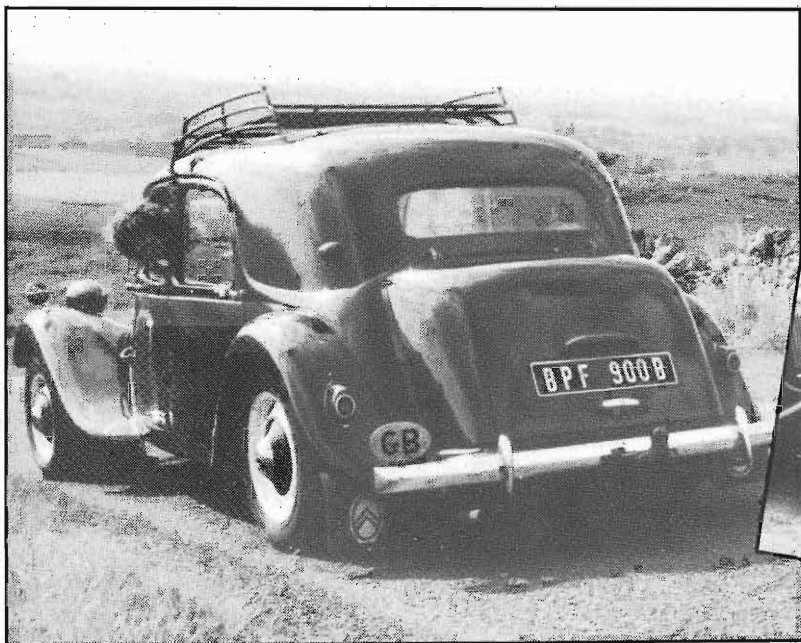
at the racecourse during the tenth anniversary In Search of England rally organised by the Traction Owners' Club.



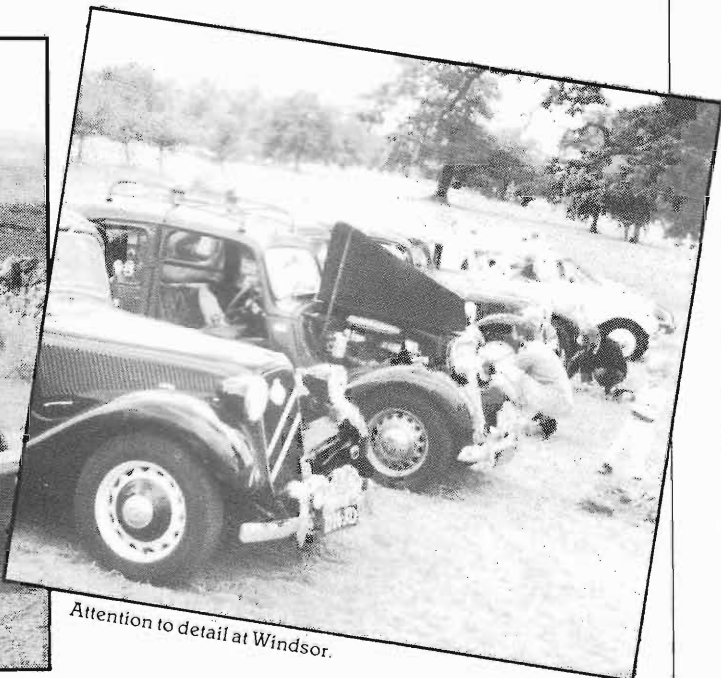
Left: Colin Gosling at the Windsor start.
Above: Tented shelter for a cosseted car.
Right: High Street line-up on the tour.



Above: Stop for refreshment at the Jolly Farmers – organised by Peter Cotterell.



Carol Bilney en route in Yorkshire.



Attention to detail at Windsor.

More glide in your Stride!

In the first of two articles, Roger Williams describes his conversion to a four-speed box – just the task to start on during the long winter evenings.

WHILST renovating the bodywork of my Light 15 I decided that a four speed gearbox would be better than the fragile (or so I was told) original three speed box. I saw Tom Evans's car at the Dent rally in 1980, and although at the time it did not mean much to me, as I had never seen an ID19 engine/gearbox before, various statements coming over the shoulders of the front row of onlookers did stick in my mind . . . "across the gate movement . . . joined to cables . . . behind the dash . . . difficult to get into reverse sometimes . . . bags of space" . . . etc.

In due course I acquired an ID19 engine/gearbox and set about fitting it into my Lt15 with the brief that the modifications to the car itself should be minimal, so that the original power unit could be put back in without further work. I soldiered-on on my own and eventually got my prototype conversion working but not road tested, when Jonathan Howard asked me to do a similar conversion

for his Commerciale. This became Mk2, which performed very satisfactorily under hard everyday driving conditions, and this was followed by Mk3 for his Lt15, and Mk4 as a spare. Mk5, Mk6 and finally Mk7 followed with small but successive refinements, and the current version described here, Mk8, represents, dare I say it, the final version!

The ID/DS power unit was not designed for fitting into a Traction, and the solution to one problem seems to generate another, and whilst none of the modifications necessary are major, there are quite a few of them.

The final result, however, is a robust, reliable and economic power unit which, not being a purist, I think is a great improvement over the original.

The basis of the conversion is:

(i) The ID/DS engine block is similar to the Traction allowing direct transfer of engine

side suspension brackets and timing chain cover with the rear rubber mounting block.

(ii) The Traction differential unit, and hence the output shafts, can with suitable bushing and shimming, replace the original ID/DS one.

The ID/DS bellhousing, however, is 35mm shorter than the Traction bellhousing, thus when the output shafts from the gearbox are aligned with the drive shafts, the engine block side and rear mountings do not align with the original hull mountings.

The hull side mounting brackets are replaced by new ones as shown in Fig. 1, and the housing for the rear rubber mounting modified as shown in Fig. 2.

Cut-out is necessary on the narrow-bodied cars to give clearance for handbrake lever

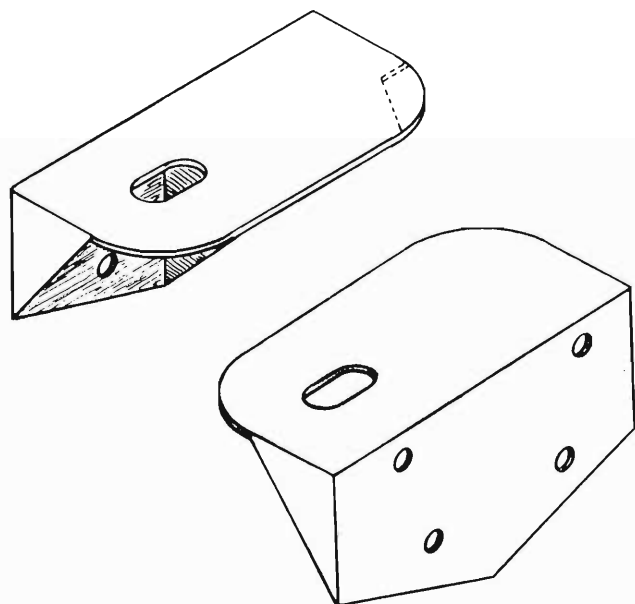


Fig. 1. New brackets for engine side mountings.

- 1 Grind off original weld between box & plate.
- 2 Reverse plate (also locating peg).
- 3 Reweld box flush with back of plate.
- 4 Remember spacer washers between plate & bulkhead.

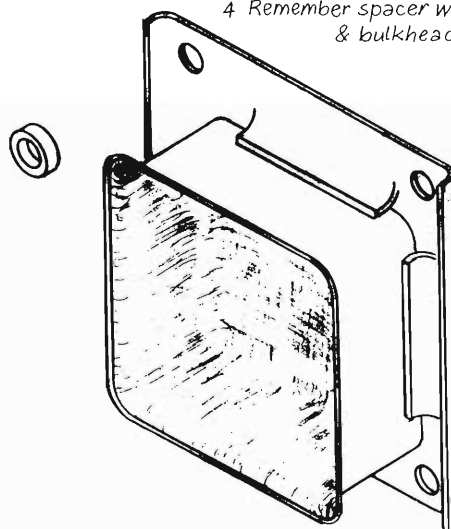


Fig. 2. Modified housing for rear engine mounting.

There certainly is not "bags of space" in the narrow bodied cars, and the mechanism shown in Fig. 3 is necessary to operate the carburettor on RHD cars. The LHD cars are easier because the throttle pedal is on the 'correct' side of the car, and a direct connection to the carburettor drive rod is, therefore, fairly straightforward.

A steel mounting boss, to the same dimensions as the one cast into the top of the Traction gearbox, is machined and welded to a steel plate as shown in Fig. 4, and bolted to the top of the ID/DS gearbox, such that its position relative to the output shafts is the same as the Traction.

Unfortunately, however, the gearbox side lower flanges foul the suspension cradle on the narrow bodied cars, and the cradle has to be modified as shown in Fig. 5 to allow the power unit to float on/about its mounting.

The next problem to be overcome is to provide a clearance between the camshaft pulley and the cross member which, in the original state, can be seen from Fig. 6 as being about minus 5mm. The radiator, however, is mounted on the cross member and anything other than minor modification

will affect the position of the radiator, which in turn affects the alignment and fit of the grill/bonnet/side valance panels/wings etc.

Various solutions were tried on the earlier prototypes, all of which were variations of machining back the camshaft and water pump pulleys as far as possible, combined with cutting and strengthening of the cross member to give sufficient clearance to run the pulley, and to also allow a fan belt to be changed without dismantling half the car!

If all the original parts are to be re-used, the limiting factor is the water pump pulley which can only be set back about 5mm before it fouls the nose of the water pump body. When the camshaft pulley is then lined up with it there is just enough running clearance, and the extra 10mm required to change a fan belt can only be obtained by cutting into the cross member. The solution is to machine a completely new water pump pulley, as shown in Fig. 7, which changes the limiting factor to the clearance between the rim of the camshaft pulley and the pivot bar of the clutch fork lever.

The camshaft pulley is a steel pressing, dished towards the front and rivetted to a central boss. The most satisfactory way of

re-positioning it is to separate it, reverse the dish and then re-rivet the dish to the central boss. The result of these modifications is to move the line of the pulley train back by about 15mm, as shown in Fig. 8, which also gives details of the new mounting position of the dynamo.

Some modification is still necessary to the cross member, but it is extremely minor and is shown in Fig. 9.

Now we get to the heart of the problem – the output shafts from the gearbox. The original ID DS gearbox is shown in Fig. 10.

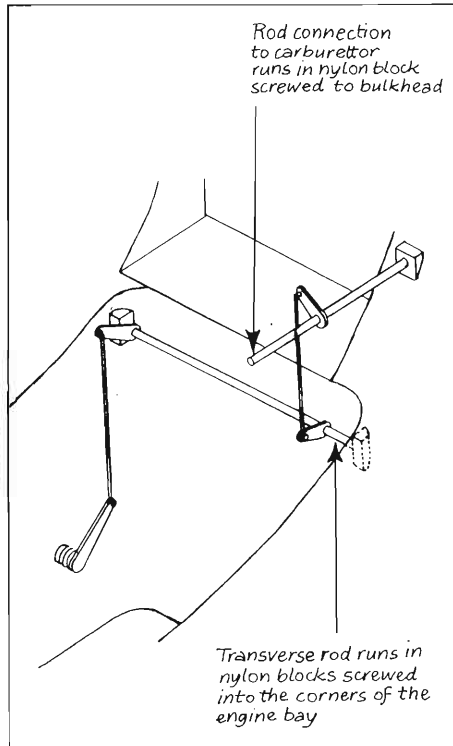


Fig. 3. Carburettor control mechanism for RHD cars.

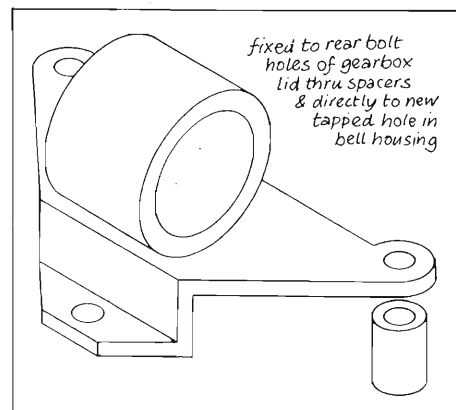


Fig. 4. Front engine/gearbox mounting boss.

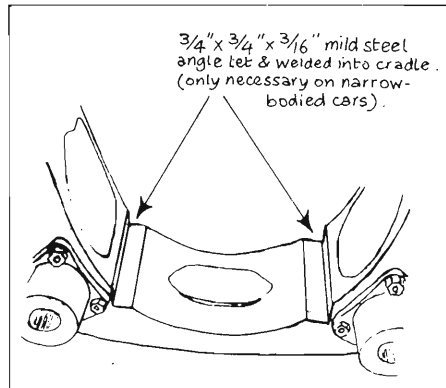


Fig. 5. Modification to cradle. (On narrow bodied cars only.)

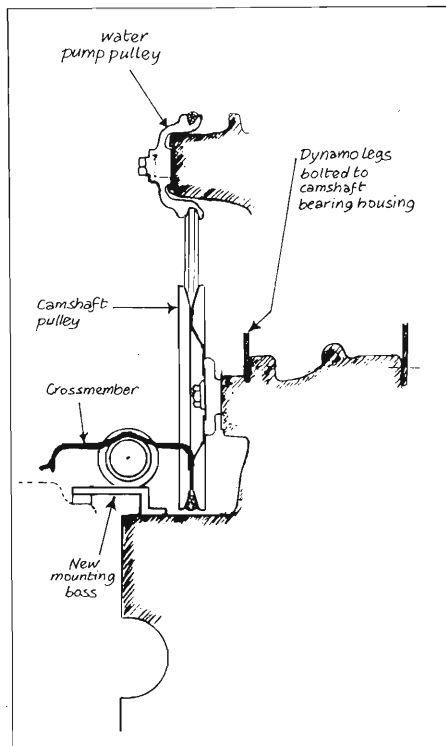


Fig. 6. Camshaft pulley fouling cross member.

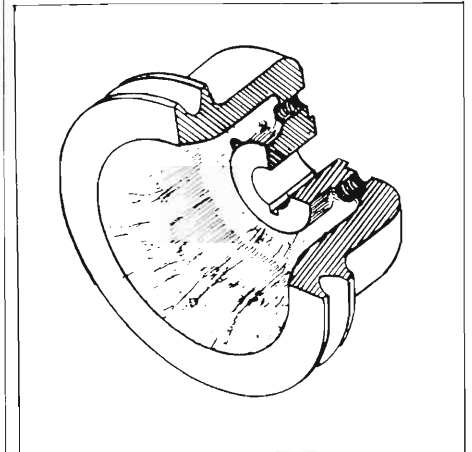


Fig. 7. New water pump pulley.

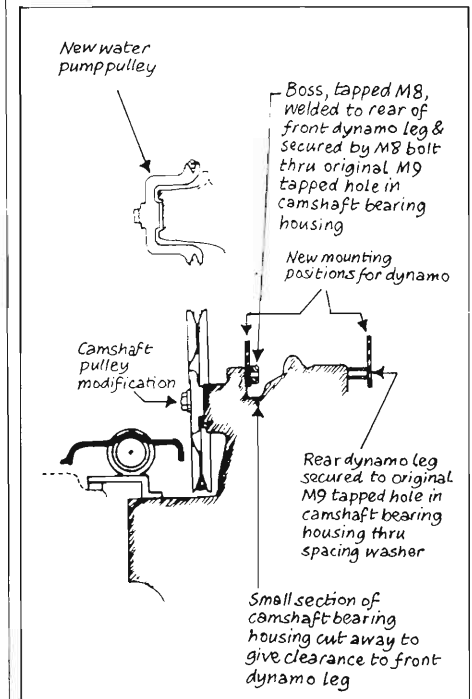


Fig. 8. New water pump pulley and modified camshaft pulley in position.

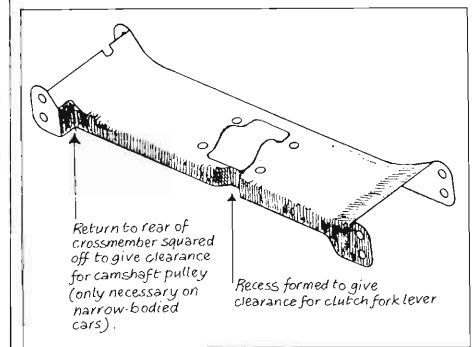


Fig. 9. Modification to rear edge of cross member.

The easy way is to swap the ID/DS differential for a Traction one, and machine a bush into the ID/DS crown wheel in which the Traction planetary wheel shaft can run. Whilst this is an easy, and in many ways, a practical solution it uses a Traction differential, which is not particularly well engineered. It is inherently weak because the planetary wheel shaft, onto which the output flange is splined, runs in a bush bearing from which the face of the output flange overhangs by about 50mm.

The only other work necessary is to machine off the gearbox flange to accept a 3" x 1 3/8" x 9/16" oil seal, machine down the Traction output flange from 36mm to 1 3/8", and re-shim the differential-side taper roller bearings.

This layout is shown on the right-hand side of Fig. 11.

By the time I'd got to Mk4, I was convinced it would be far superior to retain the ID/DS differential and make up a new pair of output shafts. These are machined from a solid 3" x 3" bar of EN24 steel, and it grieves me to see over 90% of the original bar disappear in swarf! The shafts are then hardened and tempered after basic machining, and finally ground to the correct dimensions and finish for the bearing seating/oil seal face.

The principle is the same as the original; the outer end of the output shaft runs in a ball bearing. I considered various arrangements for retaining the bearing to the output shaft and the flange of the gearbox using standard bearing and oil seals, but could not better the original layout, with the possible exception of using circlips instead of threaded sections.

The existing bearing/oil seal housing, however, is begging to be re-used, which I

did by machining down the outside of the housing and shrinking it into the flange, as shown in the left-hand side of Fig. 11.

In order to provide proper support for the bearing, it must be located mostly within the flange and this pushes the oil seal outside the line of the flange. This in turn pushes the face of the output flange out so far that it would be impossible to install if the normal stud fixings to the drive shafts were used. The output flange is, therefore, made a little thicker and the stud holes tapped for connection to the drive shafts via caphead allen screws.

The flanges are held to the gearbox via four No. M7 bolts and six No. M9 bolts. The M9 bolts pass through the original gearbox support brackets and are too long for re-use. Replace these with 3/8" BSF bolts 1 1/4" or 1 1/2" lg. (M9 is 0.354" dia. with 20.32 TPI - 3/8" BSF is 0.375" dia. with 20 TPI - just run a plug tap through original holes but be careful not to leave swarf inside gearbox). It is necessary to recess countersunk head allen screws for the bottom two holes on each side, and file away the bottom of the flange for the narrow-bodied cars, to give clearance in the cradle.

The engine/gearbox unit is now ready for installation in the car, so we are about half way there! I will describe the gear change mechanism and the other ancillary modifications necessary to complete the conversion in the next issue.

Roger has certainly given a lot of thought and hard work into the planning and development of his 4 speed gearbox conversion in recent years, and we are fortunate to be able to publish details of his work for the benefit of all members.

Many members may feel, however, that the actual task of doing the conversion themselves is beyond their ability and scope, or just as likely, they do not have the engineering equipment required!

Roger is, however, willing to undertake the conversion of members' cars at what is a very reasonable cost, considering the amount of time and work involved. For further details, Roger can be contacted at the address given in the Classified Ads. section of the magazine.

Whilst every effort is made to ensure the accuracy of the information and advice published in this magazine, neither the T.O.C. or the officers and members thereof, or the authors, accept any liability whatsoever for such information and advice.

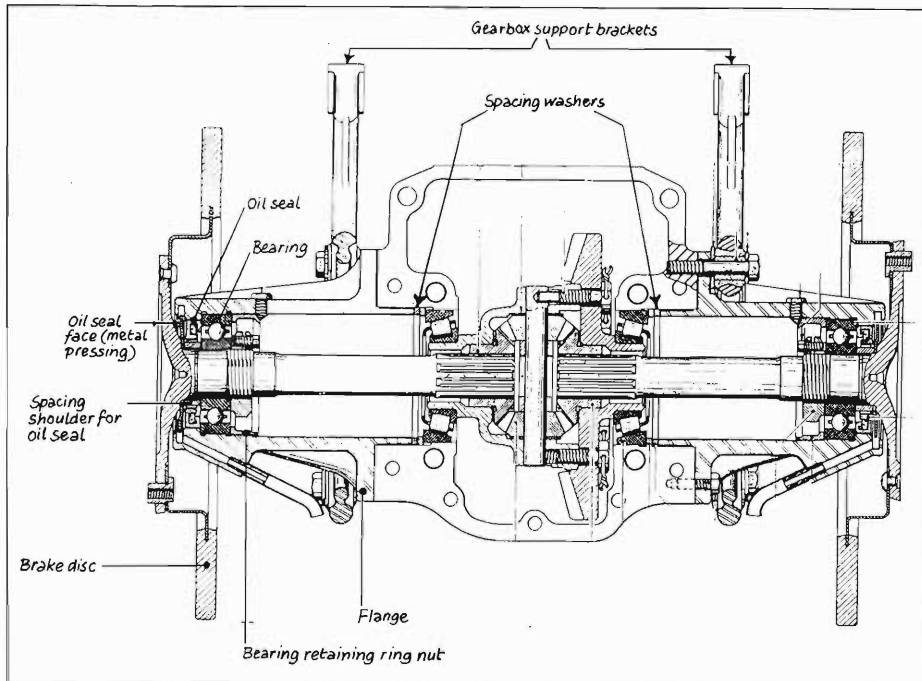


Fig. 10. Original ID/DS gearbox before modifications.

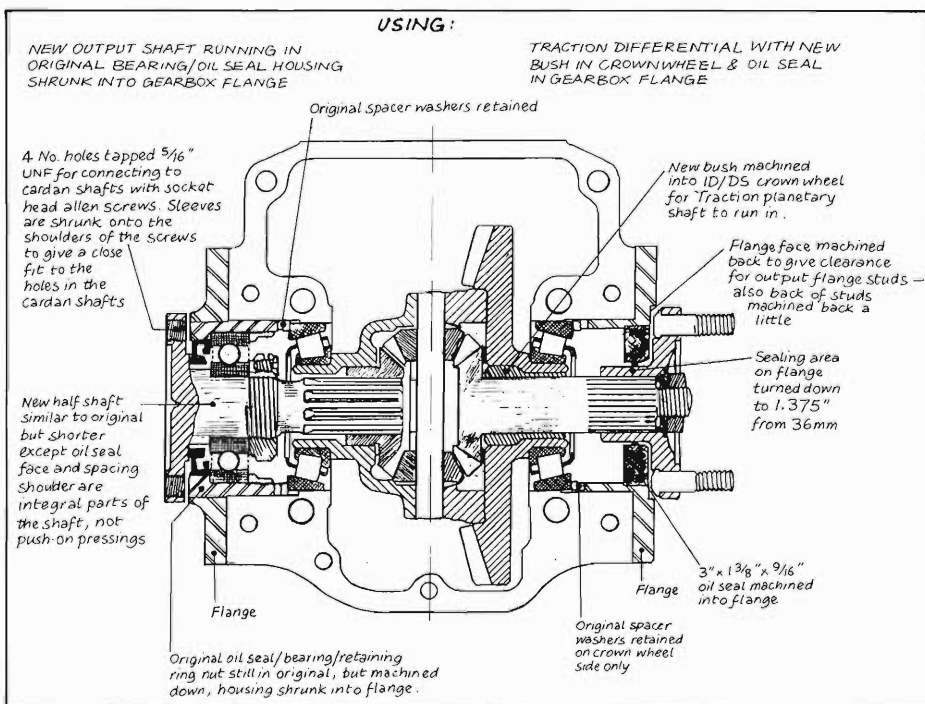


Fig. 11. Section through ID/DS gearbox showing conversion using

CLUB SPARES FOR SALE

NOVEMBER, 1986

This list cancels all previous lists.

Levy prices are applicable to participants only.

Pricing policy is simply to ensure the club does not make an actual loss. No profit is sought directly, as the purpose of the club is to keep old Tractions on the road.

Occasionally an item comes to us so cheaply an opportunity cannot be missed to augment club funds and still offer excellent value to members.

Please use packing and postage as quoted (U.K. only) overseas please add 25% for sea mail.

For items without postage/packing listed, please be generous, if you send too much to cover postage/packing a credit or refund will be made.

PLEASE SEND ALL YOUR ORDERS ON THE ORDER FORM, or list items on plain paper giving part number and description CLEARLY, send to:

PETER SIMPER, 215 WHITTON RD., TWICKENHAM, MIDDLESEX TW2 7QZ.

Please mark envelope in left hand corner 'SPARES' it will then be dealt with much quicker. NO orders will be taken over the phone; however I will be pleased to phone you on any query, making reverse charges, if you send a letter with your phone number and stating query. Parts can be picked up from me by prior arrangement. Just send your order together with phone number and time/day in which you would like to pick it up, I will then phone you making a reverse charge call, and let you know when the part will be ready and if convenient to collect.

TAKE ADVANTAGE AND PICK UP SPARES AT THE LONDON PUB TUESDAY CLUB MEETINGS, AND MEET OTHER TRACTIONISTS.

I have now with the help of Roger Walters put all the club parts on computer. Look at this list carefully as the list has now grown from 290 listed items to 530. There's more to choose from and stock quantity is also listed.

HELP is still needed to run the club spares, if you think you can help in any of the following I would like to hear from you:

- Stocktaking on a regular basis.
- Selling parts at rallies.
- Strip old cars for parts.
- Getting quotation on new lines.
- Making parts.
- Van owners - taking parts to rallies.

We are constantly seeking new items and if you do not see what you want ask anyway as it may be available. We also have some second-hand items. A list of these will be printed very shortly.

If any member has recently obtained any part from a source locally, whether engine, transmission or body part, please let me know, giving as many details as possible. No matter what it is you can be sure that if you want it, someone else either does or soon will want it too. This is how the whole spares section was set up in the first place.

Similarly anyone who has overcome a problem by using an unusual part or abusing a normal part, not obviously intended for that purpose, should share that knowledge. A sort of Terry's Tips for Tractions.

N.B. Bleed Nipples Ref: B11 unsuitable for new manufacture wheel cylinder 'B2'.

ITEMS STILL URGENTLY NEEDED FOR SPARES POOL.

For the club spares to run independently, cutting the price of items and availability, it must have a pool of stock to recondition. The club will give you a spares voucher for various parts (see list below). We are also in need of names of stockists that have parts or offer a good service. You can also **SELL YOUR SECOND HAND PARTS TO THE CLUB.**

- Drive shaft with good taper and spline£10
- Wishbones, suitable for reconditioning£4
- Clutches and clutch plates£5
- Brake shoes, full set per car£6
- Part of brake cable50p
- (the end of the hand brake cable that hooks onto the brake shoes, please cut this part off and send to me)
- Carburettor model 32 PBIC£5

HAVE YOU SEEN THEM?????

Your help is needed in tracking down the following items, please look in your local suppliers for these:

- DS main shaft shells STD/0.25/0.50/0.75
- DS big end shells STD/0.23/0.50/0.75

Please take note of details, and advise of there whereabouts, what they hold in stock and the price. These items have become very rare.

TOOL HIRE SERVICE

Front end tools for hire from CLUB SPARES Deposit and hire charges as follows:

- Front hub and outer bearing puller
DEPOSIT: £25.00 HIRE: £2.50
- Top ball breaker
DEPOSIT: £15.00 HIRE: £1.50
- Bottom ball breaker
DEPOSIT: £25.00 HIRE: £2.50
- Inner bearing unit
DEPOSIT: £15.00 HIRE: £1.50

Hires are for nominal periods of 7 days, although earlier return is appreciated. Deposits are refundable only on SAFE return, any damage to tools will be deducted from deposits. You are responsible for fetching and returning. Prior booking ensures availability.

PART NO	DESC	LEVY	PRICE	STD PRICE	P&P	STOCK	QTY
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BEARINGS & SEALS

A1	Clutch Thrust 7/11	9.76	11.22	0.60	5
A2	Front Wheel Outer 7/11	6.41	7.37	0.60	11
A2,b	Front Wheel Outer, 7/11 early	7.36	8.46	0.40	4
A3	Front Wheel Inner 7/11	4.45	5.12	0.60	4
A4	Rear Wheel Lt15 7/11BL	5.49	6.31	0.60	12
A5	Rear Wheel B15/5,118/15	6.66	7.66	0.60	7
A6	Dynamo Front 7/11/15	2.80	3.22	0.40	3
A7	Waterpump 7/11	2.24	2.58	0.40	5
A8	Bellhousing pulley frt 7/11(water pump dynamo dri)	3.90	4.48	0.40	5
A9	Flywheel 7/11/15 (clutch sproget)	1.61	1.85	0.40	5
A10	U/J kit for inner cardan 7/11	21.68	24.93	0.60	0
A11	Differential 7/11	7.93	9.12	0.75	2
A12,a	Rearwheel oil seal Lt15 Each	1.27	1.46	0.30	5
A12,b	Rearwheel oil seal Big 15 Each	1.27	1.46	0.30	14
A13,a	Frontwheel oil seals (outer)Each	2.39	2.75	0.40	2
A13,b	Frontwheel oil seals (inner)Each	1.80	2.07	0.40	7
A14	Gearbox oil seals (each)	3.02	3.47	0.30	17
A15	Clutch thrust 15CV	11.20	12.88	0.60	0
A16	Clutch cross shaft bushes each	1.90	2.18	0.00	59
A17	Drive shaft U/J each	19.10	21.96	0.00	4
A18	Water pump fossil bush	1.46	1.68	0.00	16

A19	Front lay shaft bearing	11.48	13.20	0.00	3
A20	Pinion bearing	13.44	15.46	0.00	20
A21	Lower cup for steering shaft	2.61	3.00	0.00	1
A22	Steering shaft bearing	2.61	3.00	0.00	2
A23	Front wheel bearing 15cv	41.15	47.32	0.00	0
A24	Fossil bush for brake shoe	1.01	1.16	0.00	20

PART NO	DESC	LEVY	PRICE	STD PRICE	P&P	STOCK	QTY
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BRAKES

B1	Master cyl. complete (7/11/15)	22.71	26.12	1.25	2
B2,a	Slave cyl. complete (1/1/4")Front	20.28	23.32	1.00	2
B2,b	Slave cyl. complete (1")rear	18.87	21.70	1.00	6
B3,a	Slave cyl. Right Top (15)Front	24.73	28.44	1.00	3
B3,b	Slave cyl Right Bottom(15)Front	24.73	28.44	1.00	1
B3,c	Slave cylinder left top (15)Front	24.73	28.44	0.00	1
B3,d	Slave cylinder left bottom (15) front	24.73	28.44	0.00	1
B4	Master cyl. kit (inc. new piston)	9.69	11.14	0.35	0
B6,a	Wheel cyl.kit 1 1/4"Front	3.60	4.14	0.35	3
B6,b	Wheel cyl.1"Rear	3.60	4.14	0.35	17
B7	Front hose - Slough (7/11/15)	5.47	6.29	0.45	0
B8	Front hose - French (7/11/15)	7.07	8.13	0.45	4
B9	Rear hose - Slough (7/11/15)	4.83	5.55	0.40	4
B10	Rear hose - French (7/11/15)	7.36	8.46	0.40	10

Club Spares Peter Simper 215, Whitton Road Twickenham TW2 7QZ

B11,a	Bleed nipples (4) old cylinders only	2.24	2.58	0.20	0
B11,b	Bleed nipples for new cylinders 1 1/4"	2.02	2.32	0.00	2
B11,c	Bleed nipples for new cylinders 1"	2.02	2.32	0.90	2
B12	Short fixed rear pipe (French)	2.63	3.02	0.30	0
B13,a	Handbrake cable LT15	16.80	19.32	1.50	4
B13,b	Handbrake cable B15	16.80	19.32	1.50	4
B13,c	Handbrake cable B15 Plastic coated	10.19	11.72	1.50	5
B13,d	Handbrake cable LT15 Plastic coated	10.19	11.72	1.50	6
B13,e	Handbrake cable (Familiale)plastic coated	11.42	13.13	0.00	2
B14,a	Brake linings complete set LT15/B15	20.35	23.41	1.80	5
B14,b	Brake linings Front sets LT15/B15	10.19	11.72	1.80	10
B15	Brake shoes (exchange)front pair	37.16	42.73	0.00	2
B15,b	Brake shoes (exchange)Rear pair	37.16	42.73	0.00	2
B14,c	Brake linings Rear sets LT15/B15	10.19	11.72	1.80	13
B16	Fixed brake pipe (made to order)Slough	0.00	0.00	0.00	0
B17	Fixed pipe (made to order) French	0.00	0.00	0.00	0
B18	12V Hydraulic switches	3.23	3.71	0.35	1
B19	Copper washers (state position) each,small,13/25mm	0.02	0.02	0.20	50
B19a	Copper washer (state position)each,medium,17/21mm	0.03	0.03	0.20	88
B19,b	Copper washer(state position)each Large,20/25mm	0.06	0.07	0.20	82
B20	Lockheed reservoir	11.52	13.71	0.35	4
B22	Slough brake pipe axle nutthread	0.20	0.23	0.00	12

PART NO DESC LEVY PRICE STD PRICE P&P STOCK QTY

GASKETS

C1	Head,7	7.28	8.37	1.60	9
C2	Head,11	6.72	7.73	1.60	20
C3	Manifold 7,11 (FAIR)	8.02	9.22	0.35	1
C4	Triangular manifold, 7,11	1.51	1.74	0.20	26
C5	Silencer	0.47	0.54	0.20	1
C6	Waterpump_large 7/11	2.28	2.62	0.20	28
C7	Waterpump_small 7/11	0.91	1.05	0.20	28
C8	Rocker cover, 7/11	1.28	1.47	0.50	10
C9	Timing cover 7/11 paper	1.37	1.58	0.50	11
C9,a	Timing cover 7/11 cork	1.75	2.01	0.50	9
C10	Solex gasket pack (22PB11)	3.23	3.71	0.20	8
C11	Short suap set 11cv Dork	3.49	4.01	0.60	25
C12	Gearbox set	3.02	3.47	0.40	17
C13	Oil pump paper gasket	0.56	0.64	0.20	8
C14	Head set	17.92	20.61	1.60	0
C15	Six carb gaskets	5.04	5.80	0.00	0
C16	35F carb gaskets	4.48	5.15	0.20	3
C17	Hot spot (late type)	0.84	0.97	0.20	0
C18	Barrell gaskets(Each)	0.67	0.77	0.20	34
C18,a	Barrel gaskets(figure of 8)Early	0.58	0.67	0.20	13
C19	Paper suap set	1.46	1.68	0.50	29
C20	Six head set	34.01	39.11	1.60	2
C21	Six head	12.34	14.19	1.60	8
C22	SCV Head gasket	10.09	11.59	0.00	3
C23	DS 19 Head set	13.44	15.46	0.00	2
C24	LT12 Head set (1934-38)	15.68	18.03	0.00	2
C25	12HP Manifold gasket	2.80	3.22	0.00	1
C27	DS 19 mixed gaskets	8.96	10.30	0.00	1
C28	14cv 6cyl 1929-1931 Head set	14.56	16.74	0.00	1
C28,a	14cv 6cyl 1929-31 head	8.96	10.30	0.00	2
C29	Big 12 Head 1932-35	9.52	10.95	0.00	3
C30	LT 12 Head 1929-31	8.96	10.30	0.00	3
C31	7c Head set 1935-40	14.56	16.74	0.00	3
C32	Sports 12 7B head set	14.56	16.74	0.00	3
C33	Suap "U" Pair	0.52	0.60	0.20	1
C34	6cyl Manifold Pair	4.95	5.69	0.00	3
C35	7cv + 11cv add engine set	3.92	4.51	0.00	2
C36	6 cyl triangular pair	2.91	3.35	0.00	2
C37	6 cyl Through pipe	2.91	3.35	0.00	2
C38	6 cyl Tail pipe	1.16	1.33	0.00	2

PART NO DESC LEVY PRICE STD PRICE P&P STOCK QTY

IGNITION & ELECTRICS

D1,a	Spark plugs Marshall SEV 6NEach	0.90	1.03	1.00	24
D1	Spark plugs Champion H10 Each	1.49	1.71	1.00	18
D2	Slough distr.cap (replaces 4003162)	2.80	3.22	0.45	0
D3	Slough points(replaces 420196)	1.40	1.61	0.20	8
D4	Slough points (replaces 423153)	1.40	1.61	0.20	3
D5	Slough points (replaces 407050)	1.40	1.61	0.20	12
D6	Slough points (replaces 400415)	1.40	1.61	0.20	21
D7	Slough rotor (replaces400052)	0.78	0.90	0.20	5
D8	12v starter solenoid (bulkhead)	3.36	3.86	1.25	1
D9	12v starter brushes (post war)	1.38	1.59	0.35	6
D10	12v starter brushes (pre-war)	0.56	0.64	0.35	10
D11	6v 3 pin headlamp bulbs 35/35v	2.91	3.35	0.00	10
D11,a	6v 3pin headlamp bulbs 45/40w	3.36	3.86	0.35	1
D11,b	6v 3pin headlamp bulbs 48v	1.57	1.81	0.00	8
D12	Ducellier points 71990	1.76	2.02	0.20	15
D13	Ducellier points 71133	1.20	1.38	0.20	9

D14	Ducellier points 71129	1.52	1.75	0.20	14
D15	Ducellier points 71970	3.73	4.29	0.20	5
D16	Ducellier rotor arm 42065	1.16	1.33	0.20	0
D17	Ducellier rotor 49440	1.06	1.15	0.20	4
D18	Ducellier rotor 49423	1.01	1.16	0.20	7
D19	Ducellier rotor 905014	0.49	0.56	0.20	0
D20	Ducellier regulator B2597/11cv	23.89	27.37	0.75	2
D21	Ducellier regulator B2087/15cv	23.89	27.37	0.75	1
D22	6v Coil	9.46	10.88	1.50	1
D22a	12v Coil	9.46	10.88	1.50	2
D23	12v regulator (late)	13.24	15.23	0.00	2
D24	7" Slough headlamp glass & reflector (Wipac)	6.37	7.33	0.45	0
D25,a	Lucas sidelight-single filament (only)	0.00	0.00	0.45	0
D25,b	Lucas sidelight-double filament(only)	8.62	9.91	0.45	4
D26,a	Indicator lens A10 (white)	1.46	1.68	0.20	3
D26,b	Indicator lens A10 (red)	1.46	1.68	0.20	1
D26,c	Indicator lens A10 (orange)	1.68	1.93	0.20	2
D27B	HT cable,black(price per foot)	0.16	0.18	0.35	60
D27R	HT cable(red) price per foot)	0.16	0.18	0.35	60
D28	SEV points DM21117A	4.09	4.70	0.20	12
D29	Ducellier cap 47430	2.07	2.38	0.45	0
D30	SEV cap 8385	4.31	4.96	0.45	0
D31	SEV cap 8631	4.31	4.96	0.45	0
D32,a	6v condenser (sketch,1203) Late	1.27	1.46	0.30	12
D32,b	6v condenser (sketch 9,501)early	1.27	1.46	0.00	5
D33,a	12v condenser (sketch,early)	2.52	2.90	0.30	0
D33,b	12v condenser (sketch late)	1.06	1.22	0.30	4
D34	12V Six starter bush & pinion	6.72	7.73	0.75	1
D35	Lucas cap 409564	7.00	8.05	0.45	0
D36	Lucas cap 409635	2.80	3.22	0.45	1
D37	12v Dynamo Brushes	1.05	1.21	0.35	0
D38	12v Solenoid (top of starter)	2.80	3.22	1.25	4
D39	12v solenoid (modern bulkhead)Starter	2.80	3.22	0.60	2
D40a	12v headlight bulb early 5036/36w	0.99	1.14	0.85	15
D40b	12v Headlight bulb Late asD40c yellow	0.99	1.14	0.85	2
D40c	12v Headlight Bulb Late 42/36w	0.99	1.14	0.85	12
D41	12v Side light bulbs (single filament) 5v	0.19	0.22	0.20	20
D42	12v stop/tail bulbs	0.27	0.31	0.20	20
D43	12v stop festoon 18w	0.22	0.25	0.20	13
D44a	6v Festoon rear	0.67	0.77	0.20	3
D44b	6v Festoon stop	0.67	0.77	0.20	2
D45	6v Festoon (indic. switch)for 3 watt bulb	0.56	0.64	0.20	7
D46	6v Bayonet 21watt indicators	0.60	0.69	0.20	2
D47	12v Early dynamo contact	1.96	2.25	0.45	3
D48,a	12v Distributor	28.00	32.20	0.00	0
D48,b	Distributor drive dog	2.24	2.58	0.35	0
D49	Distributor pin 404314	0.28	0.32	0.35	3
D50	Lucas headlight catch spring	0.26	0.30	0.20	7
D50,a	Lucas headlight rim spring	0.26	0.30	0.20	0
D51	H/T washers for coil	0.02	0.02	0.20	8
D52	H/T push connectors	0.06	0.07	0.20	16
D53	Complete wiring loom P.V.C	75.35	86.65	0.00	0
D54	French Rear Light base	5.02	5.77	0.60	6
D55a	French Rear Light Cover(left)	4.63	5.32	0.60	3
D55,b	French Rear Light Cover(right)	4.63	5.32	0.60	5
D56	Battery Lead	3.08	3.54	0.45	0
D57	Junction Box (not original)six contact	1.96	2.25	0.45	0
D58	12v Headlights Glass & Reflector	11.65	13.40	0.60	0
D59	12v Contacts for sealed beam	2.24	2.58	0.35	1
D60	Angled Suppressor plug caps	0.54	0.62	0.35	10
D61	Straight suppressor plug caps	0.45	0.52	0.35	20
D62	Rubber fingers for distrib.caps with top pushfitHT	0.13	0.15	0.20	0
D63,a	6v Flasher Relays	2.80	3.22	0.35	1
D63,b	12v Flasher relay	2.80	3.22	0.00	1
D64	Pre-52 French Rear Lights	16.72	19.23	0.60	6
D65	6v Ducellier Bendix	0.00	0.00	0.00	0
D66	French Indicator base	5.72	5.77	0.60	3
D67	Pillar Parking Lights	4.54	5.22	0.00	7
D68	Ducellier Starter Brushes	2.97	3.42	0.00	1
D69	Ducellier Dynamo Brushes	2.97	3.42	0.00	2
D70	Marchal Headlamp Buld Connectors	3.36	3.86	0.00	2
D71	Indicator Switch French	16.54	19.02	0.00	1
D72	Press Starter Slough	1.12	1.29	0.00	3
D73,a	6v DR429 Rotor	1.16	1.33	0.00	2
D73,b	6v DR490 rotor	1.16	1.33	0.00	3
D74	RB950	1.16	1.33	0.00	2
D75	RB 954	1.16	1.33	0.00	1
D76	71131 Ducellier Points	1.68	1.93	0.00	1
D77	71132 Ducellier Points	1.68	1.93	0.00	2
D78	Slough Distributon Cap Replaces 422905	4.37	5.03	0.00	2
D82	Distributor Cap Spring Bush	0.22	0.25	0.00	1
D83	Type 63 Distributor Cap	4.37	5.03	0.00	2
D84	Oil Pressure Switch	2.24	2.58	0.00	15
D85	Battery Isolation Switch	7.84	9.02	0.00	1
D86	Five Terminal Blocks For Wiring Loom	5.82	6.69	0.00	6
D87	Replacement Glass & Reflector (French)	16.72	19.23	0.00	6
D88	Bremi 1653 Points (709670)	3.64	4.19	0.00	7
D89	Bremi Distributor Cap (8382)	5.01	5.76	0.00	1
D90	12v Reconditioned Dynamo exchange	22.40	25.76	0.00	1
D91	12v Reconditioned starter motor Exchange	22.40	25.76	0.00	1
D92	6v Reconditioned dynamo	22.40	25.76	0.00	1
D93	6v Reconditioned starter motor	22.40	25.76	0.00	1

PART NO DESC LEVY PRICE STD PRICE P&P STOCK QTY

ENGINE & CLUTCH

E1	Rebuilt Clutch (exchange Only)	38.45	44.22	0.00	6
E2	Clutch Friction Plate (exchange only)	30.09	34.60	0.00	7
E3	Clutch Return Spring	1.16	1.33	0.00	15
E4	Valve Springs 11/15 (each pair)	2.32	2.67	1.00	44
E5	Valve Springs 7 & Pre-war	0.00	0.00	1.00	0
E6a	Valves 2239 each	2.80	3.22	1.50	8
E6,b	Valves 2240 each	2.97	3.42	1.50	12
E6,c	Valves 11D inlet 023855 1.0 EACH	3.35	3.86	0.00	3
E6,d	Valves 11D Exhaust 03385520 EACH	4.70	5.40	0.00	8
E6,e	Valves 7 inlet 2259 EACH	2.24	2.58	0.00	4
E6,f	Valves 7 Exhaust 1808.5 each	2.24	2.58	0.00	20
E7	Valves 7HP 1922/26	3.36	3.86	0.00	2
E8,a	Valves 15 six 3083 exhaust each	3.36	3.86	0.00	6
E8,b	Valves 15 six 3082 inlet each	3.36	3.86	0.00	12
E9	Valve Guides 7/11 (unreamed)each	2.07	2.38	1.00	80
E10	Timing Chain 7/11	7.84	9.02	1.50	8
E11	Pistons & Liners 11/15 Set of 4	147.17	169.25	0.00	6
E12	Piston Rings, 11/15(4 piston sets)	39.76	45.72	0.70	2
E13	Solex 32PB carb (exchange only)	33.49	38.51	0.00	4
E14,a	Solex 32 Jet Main 135	0.45	0.52	0.35	2
E14,b	Solex 32 jet main 130	0.45	0.52	0.00	3
E14,c	Solex 32 jjet main 120	0.45	0.52	0.00	5
E14,d	Solex 32 jet pilot 270	0.45	0.52	0.00	2
E14,e	Solex 32 jet air 190	0.55	0.64	0.00	3
E14,f	Solex 32 needle valves 1.5	0.56	0.64	0.00	4
E14,g	Solex 32 needle valves 2.5	0.56	0.64	0.00	2
E14,h	Solex 32 Pump filter	0.22	0.25	0.00	3
E14,j	Solex 32 volume screw	0.56	0.64	0.00	8
E14,k	Solex 32 spindle 6 butterfly	1.23	1.41	0.00	2
E14,l	solex 32 float toggle	0.22	0.25	0.00	5
E15	Solex 35FPAI carb (exchange only)	33.49	38.51	0.00	1
E16	Waterpump Kit (new Spindle)late type(no gland nut)	12.69	14.49	0.00	2
E17,a	Rocker shaft 11	24.64	28.34	1.00	2
E17,b	Rocker shaft 11D	24.72	28.44	1.00	2
E17,c	Rocker shaft 6 cyl	35.00	40.25	1.00	2
E18	Oilpump Spring	0.50	0.69	0.20	32
E18a	Oilpump spring long	0.67	0.77	0.20	8
E19	Fanbelt 7/11	4.35	5.00	0.60	7
E20,a	Fanbelt 15 Large	4.37	5.03	0.60	3
E20,b	Fanbelt 15 small	4.37	5.03	0.00	2
E21	Valve Seals (each)	0.35	0.10	0.20	38
E22a	11D shells Mains 0.5mm	15.66	18.03	0.60	3
E22b	11D Shells Big End 0.25mm	9.39	9.99	0.60	2
E22,c	11D Shells Big end 0.5mm	9.39	9.99	0.60	6
E22,d	11D Shells big end standard	9.39	9.99	0.00	1
E23a	Core Plugs (25mm)	0.53	0.61	0.35	2
E23b	Core Plugs (30mm)	0.53	0.61	0.35	9
E23c	Core plugs (31mm)	3.53	0.61	0.35	0
E24	Oilpump Gears (pair)	17.25	19.84	0.90	1
E25,a	Mains tab washers Each	0.11	0.13	0.35	6
E25,b	Big end tab washers	0.11	0.13	0.00	0
E26	Water pump seal (late type)	2.64	3.04	0.20	7
E27	D Crank Plugs	2.91	3.25	0.35	32
E28	Clutch Thrust Bearing oil well 10mm nut	0.41	0.47	0.20	50
E28,b	Clutch thrust bearing oil well 12mm nut	0.41	0.47	0.00	49
E29	Cylinder head tubes for 4 cyl	3.08	3.54	0.00	3
E30	Sump plug copper washers	0.39	0.45	0.00	18
E31	D engine con rod bolts	1.75	2.01	0.00	24
E32	Timing sprocket cam shaft	8.96	10.30	0.00	2
E33	Timing sprocket crank shaft	15.68	18.03	0.00	1
E34	Clutch linings C4	4.48	5.15	0.00	2
E35	King pin & bushes C4,C6,C46,Big 12x20	0.00	0.00	0.00	1

PART NO DESC LEVY PRICE STD PRICE P&P STOCK QTY

RUBBERS

F1	Steering rack (pair)	6.06	9.27	0.35	2
F1a	Rack pin mounts (pair)	0.67	0.77	0.20	13
F2	Ball Joints pair (one side)	4.01	4.61	0.35	15
F3	Flat rubber for door window seal	0.22	0.25	0.00	100
F4	Windscreen Surround (per FT),LT15=9FT BIG15=10FT	0.66	0.76	0.45	163
F5	Windscreen Glass Mounting (per FT) qty as F4	0.24	0.28	0.35	70
F6	Windscreen Draught Rubber(per FT)qty as F4	0.37	0.43	0.45	90
F7	Big Boot Bottom	8.29	9.53	0.65	4
F8	Clips for Big Boot Rubber	0.50	0.57	0.35	71
F9	Door Surround (per ft)4 door =18ft	0.39	0.45	0.65	400
F10	Chevron pedal rubber	2.91	3.35	0.35	8
F11	French indicators,number plate	3.10	3.56	0.35	0
F12,a	Handles,headlamps,etc Big Boot	8.74	10.05	0.35	7
F12,d	Handles headlamps etc small boot	8.74	10.05	0.00	6
F13	Shock Absorber mounting (1 pair)	0.56	0.64	0.35	56
F14	Rear Mudflaps (pair)	19.66	22.61	1.50	3
F15	Heater Tube Rubber (pair)	14.20	16.33	0.65	3
F16	Front Mudflaps (pair)	14.55	16.73	1.50	5
F17	Filler Pipe Rubber (Big Boot)	2.33	2.68	0.35	9
F18	Filler Pipe Rubber (Small Boot)	2.28	2.62	0.35	6

F19	Gearbox Mouting Bush	5.31	6.11	0.35	8
F20	Big Boot Top	2.91	3.35	0.65	0
F21	Commercial Top Rubber (per FT)	0.50	0.57	0.35	0
F22	Greasenipple/autobleed caps(4)	0.19	0.22	0.20	0
F23	Windscreen Drain Tube	0.50	0.57	0.35	42
F24	French windscreen knob Rubber Cover	1.16	1.33	0.20	9
F25	Rear Bumper(Small Boot) Rubbers per pair	9.68	11.13	0.35	7
F26	Slough Wiper Pegs (pair)	0.56	0.64	0.20	25
F27	Small Boot Surround (per FT)	0.30	0.34	0.35	128
F28	Bonnet Grommets	0.25	0.29	0.35	70
F29	Scuttle Vent Rubbers	7.53	8.66	0.45	9
F30	Triangular Door Rubbers	1.40	1.61	0.20	69
F31	Window Channel Base Rubber Each	1.12	1.29	0.45	164
F32	Lucas Sidelights Base Rubbers each	0.34	0.39	0.20	20
F33	Wiper Grommets	0.34	0.39	0.20	0
F34,a	Drive Shaft Metal Protectors Each	2.46	2.83	1.00	34
F34,b	Drive Shaft Rubber Protectors Each	4.37	5.03	0.45	1
F35	Tyres 155 x 400	41.22	47.40	0.00	9
F36	Inner Tubes	5.99	6.89	0.00	4
F37	French Indicator (Rubber Base)	1.45	1.69	0.20	8
F38	French rear light (rubber base)post war	1.46	1.66	0.00	10
F39	Sheet Rubber for bottom of seats 150"wide) per ft	2.24	2.58	0.00	4
F40	Seal for Air Filter (Post War French)	3.36	3.86	0.00	2

PART NO DESC LEVY PRICE STD PRICE P&P STOCK QTY

EXHAUST

G1	Mild Steel Silencer	29.46	33.89	0.00	5
G2	Stainless Steel Silencer	123.65	142.30	0.00	1
G3a	Mild Steel Down Pipe (Big 15)	12.31	14.16	0.00	8
G3b	Mild Steel Downpipe LT 15	12.31	14.16	0.00	5
G4a	Stainless Steel Downpipe Big 15	66.98	77.03	0.00	0
G4b	Stainless Steel Downpipe LT15	54.92	74.66	0.00	0
G5	Suspension Straps (each)	0.08	0.09	0.35	3
G6a	Stainless Steel Through Pipe Big 15	46.37	53.33	0.00	0
G6b	Stainless Steel Through Pipe LT15	43.28	49.77	0.00	0
G7a	Mild Steel Through Pipe Big 15	8.64	9.94	0.00	8
G7b	Mild Steel Through Pipe LT 15	8.64	9.94	0.00	2
G8	Mild Steel 6 Down Pipe	56.00	64.40	0.00	1
G9	Exhaust Support Brackets	4.70	5.40	0.00	11

PART NO DESC LEVY PRICE STD PRICE P&P STOCK QTY

DRIVE, STEERING & SUSPENSION

H1	Ball Joint Pair (Top & Bottom)	0.00	0.00	0.00	0
H2	Track Rod End Kit	33.43	38.44	0.00	8
H3	Rack Inner Pin & Nylon Nut	24.15	27.77	0.65	8
H4	Balljoint Adjusters (Does Away With Shims) each	6.83	7.85	0.65	20
H5,a	Exchange Drive Shaft (right side)LT15	78.96	90.80	0.00	4
H5,b	Exchange drive shaft LT15 (left side)	78.96	90.80	0.00	1
H5,c	Exchange driveshaft Big 15 (right side)	78.96	90.80	0.00	0
H5,d	Exchange driveshaft Big 15 (left side)	78.96	90.80	0.00	0
H6,a	Exchange Inner Cardan (Baw hole)	26.88	30.91	0.00	3
H6,d	Exchange inner cardan	26.88	30.91	0.00	4
H7	Crown Wheel and Pinion	189.09	217.45	0.00	0
H8a	Synchro Only	37.12	113.99	0.00	3
H8	2nd & 3rd Gear & Synchro	237.00	238.05	0.00	0
H9	Gear Bushes per set	11.92	13.71	0.65	3
H10,a	Diff. Thrust Washers (3.0mm)	0.72	0.83	0.45	10
H10,b	Diff thrust washer (3.5mm)	0.72	0.83	0.00	1
H10,c	Diff thrust washer (4.0mm)	0.72	0.83	0.00	1
H10,d	Diff thrust washer (4.5mm)	0.72	0.83	0.00	1
H11,a	Exchange Wishbone (right side)	31.92	36.71	0.00	2
H11,b	Exchange wishbone (left side)	31.92	36.71	0.00	3
H12	Wishbone Shims (various each)	0.06	0.07	0.20	0
H13a	LT15 steering rack plate	5.60	6.44	0.00	2
H13b	Big 15 Steering rack cover plate	5.60	6.44	0.00	2
H14	Gear selector gate bush	2.24	2.58	0.00	1
H15	Gear box starter dog covers	1.40	1.61	0.00	6
H16	Steering rack bush	8.51	9.79	0.00	4
H17	Gearbox Lock Washers	4.08	4.69	0.00	18
H18	Carden spline screw cover	2.24	2.58	0.00	4
H19,a	Front inner bearing retaining nut (r/hand thread)	2.80	3.22	0.00	2
H19,b	Front inner bearing retaining nut (l/hand thread)	2.80	3.22	0.00	2
H20	Top ball joint outer nut	0.28	0.32	0.00	6
H21,a	Drive shaft nut	2.91	3.35	0.00	4
H21,b	Drive shaft nut (left hand thread)	2.91	3.35	0.00	2
H22	Silent Block (sets)	224.00	257.60	0.00	1
H23	Gearbox mounting for swivelpin each	1.46	1.68	0.00	4
H24	Gearbox swivel mounting pin	2.91	3.35	0.00	2
H25	Celeron washer 30x50x3	0.87	1.00	0.00	6
H25a	Celeron washer 30x50x2.8	0.29	0.33	0.00	6
H25b	Celeron Washer 30x50x2.6	0.29	0.33	0.00	6
H25c	Celeron Washer 30x50x2.5	0.29	0.33	0.00	6
H26	Outer Cops for Steering Rack (Each)	1.46	1.68	0.00	4
H27	Inner Bush for Top of Steering Column each	0.58	0.67	0.00	10
H28	Outer bush for Top of Steering Column each	1.01	1.16	0.00	4
H29	Rubber cover lower steering col	0.58	0.67	0.00	4
H30	Silentbloc for rear axle set of four	66.89	76.92	0.00	1

PART NO	DESC	LEVY	PRICE	STD PRICE	P&P	STOCK	QTY
TRIM							
J1	1/4" Bead PVC Wing Piping (per ft)	0.09	0.10	0.00		240	
J2	Flexible Window Conduit (per ft) 7ft per door	0.45	0.52	0.00		48	
J3	Bonnet Tape - Double Bead 7/8" (per ft)	0.38	0.44	0.00		36	
J4	Window Support Channel	3.36	3.86	1.20		7	
J5	Dash Selector Springs (each)	1.57	1.81	0.20		14	
J6	Bonnet Stay Springs (each)	0.25	0.29	0.20		150	
J7	Slough Interior Door Handle	2.35	2.70	0.35		0	
J8	Slough Interior Winder	2.97	3.42	0.35		0	
J9	Slough Interior Escutcheon	1.40	1.61	0.35		1	
J10	Citroen Boot Badge	11.20	12.88	0.65		22	
J11	French Transfer - Miorilre	1.75	2.01	0.20		8	
J12	French Transfer - Vokes	1.75	2.01	0.20		5	
J13	French Transfer - Lockheed	1.75	2.01	0.20		5	
J14a	Chrome Bonnet End Trim (each)	6.01	6.91	0.35		7	
J14b	Chrome Bonnet End Trim Support	7.84	9.02	0.35		6	
J15	Door Panel Clips (10)	0.67	0.77	0.35		0	
J16	PVC Fuel Line (Price Per Foot)	0.20	0.23	0.00		30	
J17	French Big Boot Handle	6.93	7.97	0.60		0	
J18	Bonnet Strip 7/11	12.32	14.17	0.00		5	
J19	Bonnet Strip 15	13.09	15.05	0.00		2	
J20	Key Barrel Sets (3) French Cars	4.37	5.03	0.60		10	
J21,a	Locking Curly Handles with Escutcheon (no locks)NS	15.68	18.03	0.60		3	
J21,b	Locking curly handle with escutcheon (no locks)o/s	12.32	14.17	0.00		3	
J22	Small Boot Handles (French each)	16.00	18.40	1.00		8	
J23	Locking Big Boot Petrol Cap	5.54	6.37	0.60		7	
J23,A	Locking small boot petrol cap threaded	5.54	6.37	0.00		1	
J24a	Furflex Draught Esc! Red	0.47	0.54	0.00		159	
J24b	Furflex Draught Esc! Fawn	0.73	0.84	0.00		0	
J24c	Furflex Draught Esc! grey	0.47	0.54	0.00		136	
J25	Slough Exterior Locking Handle	8.29	9.53	0.60		6	
J26	Slough Ext. Non-Locking Handle	6.38	7.34	0.60		20	
J27,a	Non-Locking Curly Handle (no Escutcheon)NS rear	7.84	9.02	0.60		4	
J27,b	Non locking curly handle (no escutchen) o/s rear	7.28	8.37	0.00		5	
J28a	Early-Type Radwar Kick Plates Front each	11.20	12.88	0.00		0	
J28b	Early-Type Radwar Kick Plates rear left	7.84	9.02	0.00		7	
J28,c	Early type radwar kick plates rear right	7.84	9.02	0.00		6	
J28,d	Kick plate rear right SECOND HAND	5.60	6.44	0.00		2	
J28,e	Kick plate rear left SECOND HAND	5.60	6.44	0.00		1	
J29	Pre-War Bonnet Flap Springs (pair)	0.67	0.77	0.35		45	
J30	Pre-War Bonnet Handle Coil Springs (each)	0.34	0.39	0.35		0	
J31	Chromed Brass Slough Headlamp Rim Clips	3.02	3.47	0.20		3	
J32	Light 15 Chromed Grille Crest	10.04	11.55	0.60		2	
J33	Big 15 Chromed Grille Crest	10.04	11.55	0.60		3	
J34	Post-War Bonnet Handles Chromed (Pair)	11.20	12.88	0.60		0	
J35	Door Ext. Escutcheons	2.72	3.13	0.35		22	
J36	French Hub Cap Spinnings	6.48	7.45	1.00		12	
J37	Centres Chrome	8.36	9.61	0.75		10	
J38	French Hubcap Bolts (Chromed)	2.00	2.30	0.35		16	
J39	Pilote x1Hubcap Bolts	1.66	1.91	0.35		11	
J40	Grill Surround Clips (16 required per car)Each	0.08	0.09	0.00		42	
J41	Seatcloth Kit For French Car	54.10	62.21	0.00		1	
J42	Grey Headlining Cloth Per Yard	9.46	10.88	0.00		0	
J43	Metal Door Rubber Plate	1.55	1.78	0.35		7	
J44,a	Aluminium Grill Surrounds 11 (pair)	12.10	13.91	0.00		1	
J44,b	Aluminium Grill Surrounds 11 (pair)	12.10	13.91	0.00		3	
J45	French Override	7.56	8.69	0.00		8	
J46,a	French Bumper (dipped) 11L front	45.14	51.91	0.00		4	
J46,b	French Bumper (dipped) 11L rear	45.14	51.91	0.00		1	
J46,c	French bumper (dipped) 11 front	39.27	45.16	0.00		1	
J46,d	French bumper (dipped) 11 rear	39.27	45.16	0.00		1	
J46,e	French bumper (straight) 11L front	41.79	48.06	0.00		2	
J46,f	French bumper (straight) 11L rear	41.79	48.06	0.00		2	
J46,g	French bumper (straight) 11front	35.91	41.30	0.00		0	
J46,h	French bumper (straight) 11 rear	35.91	41.30	0.00		0	
J47,a	Aluminium Door Kick Strip Set 11L	10.58	12.17	0.00		2	
J47,b	Aluminium Door Kick Strip Set 11	10.58	12.17	0.00		8	
J48	Aluminium Door Trim Set of 4	9.24	10.63	0.00		6	
J49	Wing Ends Pair	33.44	38.46	0.00		2	
J50,a	Headlamp Plastic Tops Pre 52	4.18	4.81	0.35		7	
J50,b	Headlamp plastic tops affre52	3.81	4.38	0.00		1	
J51,a	Petrol Caps small boot painted	1.75	2.01	0.60		5	
J51,b	Petrol cap small boot chromed	2.69	3.09	0.00		1	
J51,c	Petrol cap Big boot with flange chromed-	3.92	4.51	0.00		6	
J51,d	Petrol cap Big boot chromed	2.24	2.58	0.00		4	
J52	12 Bonnet chromed flap handles Each	4.54	5.22	0.00		4	
J53	Pilote Rims (spinnings)	5.53	6.36	0.00		10	
J53a	Spiders for pilote spinnings	5.71	6.57	0.00		10	
J54	French grill chevron kits	17.92	20.61	0.00		1	
J55a	Starter handle long stem	10.19	11.72	0.00		3	
J55b	Starter handle short stem	10.19	11.72	0.00		2	
J56	Door striker plates	4.20	4.83	0.00		5	
J57	French wheel nuts	0.56	0.64	0.00		20	
J58	Citroen badge for rear bumper (French)	2.91	3.35	0.00		8	
J59	Screws for door handles etc	0.22	0.25	0.00		22	
J60	Screws for door hinges	0.29	0.32	0.00		25	
J61	Glove compartment strike French	1.75	2.01	0.00		8	
J62	Early wheel nuts	1.46	1.68	0.00		10	

J63	Slough Big Boot Handle replacement	7.95	9.14	0.00		10	
J63	Slough hub caps SECOND HAND	3.92	4.51	0.00		10	

PART NO	DESC	LEVY	PRICE	STD PRICE	P&P	STOCK	QTY
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MISCELLANEOUS

K1	Radiator hose Six top	2.69	3.09	0.00		3	
K1a	Radiator hose top	3.16	3.63	1.25		31	
K1b	Radiator hose bottom	2.69	3.09	1.25		17	
K2	Hose clips 7/11 pair	0.24	0.28	0.35		0	
K3	Fuel pump repair kit A/C	3.67	4.22	0.35		6	
K3a	Fuel pump repair kits SEV	2.77	3.19	0.35		5	
K4	Speedo cable galvanised LT15	10.75	12.36	0.75		1	
K4a	Speedo cable galvanised Big 15	10.75	12.36	0.75		1	
K4,b	Speedo cable galvanised 11/11L	10.75	12.36	0.00		2	
K4,c	Speedo cable plastic LT15	9.95	9.27	0.00		0	
K4,d	Speedo cable plastic	9.52	9.91	0.00		1	
K4,e	Speedo cable plastic 11/11L	8.06	9.27	0.00		4	
K5	Slough wiper arms each	5.26	6.05	0.45		1	
K6	Slough wiper blades 8" each	2.23	2.56	0.35		3	
K7	SEV wiper arms each	8.29	9.53	0.45		4	
K8	SEV wiper blades each	2.34	2.69	0.35		16	
K9	Shock absorber Front	11.88	13.66	0.00		13	
K9a	Shock absorber rear	11.88	13.66	0.00		7	
K10	Nyloc nut for cardens 8mm	0.16	0.18	0.20		36	
K11	Heater hose mount on radiator	13.09	15.05	0.00		3	
K12,a	Front bumper right hand horns (each)	17.47	20.09	1.25		8	
K12,b	Front bumper left horns each	17.47	20.09	0.00		3	
K13	Front inner bearing tab washer	0.17	0.20	0.20		21	
K14	Woodruff key front hub	0.39	0.45	0.20		29	
K15	Door hinge pins each	0.91	1.05	0.00		10	
K16	Clutch pedal spring LHD	1.46	1.68	0.35		11	
K16a	Brake pedal spring LHD	1.46	1.68	0.35		2	
K17	Distributor spring	1.16	1.33	0.35		7	
K18	Clutch cable spring	1.16	1.33	0.35		10	
K19	Starter cable Slough	4.48	5.15	0.35		1	
K20	Air filter State type	4.65	5.35	0.60		0	
K21	Tool boxes small boot slough	0.00	0.00	0.00		0	
K22	Door mounting rear view mirrors	8.18	9.41	0.75		5	
K23	Petrol hose jubilee clip	0.00	0.00	0.20		0	
K24,a	Small boot valance	41.79	48.06	0.00		1	
K24,b	Small boot valance normale	41.79	48.06	0.00		1	
K25	Big boot valance steel	37.15	42.72	0.00		1	
K26	Floor pans 2x1a	0.00	0.00	0.00		0	
K25a	Big boot valance fibreglass	10.08	11.59	0.00		2	
K27	Outer sills pair	159.97	183.97	0.00		1	
K28	St st studs for exhaust each	1.40	1.61	0.00		14	
K29	French choke cables complete	5.81	6.68	0.00		3	
K29a	French starter cables complete	5.81	6.68	0.00		0	
K30,a	Battery box French	8.29	9.53	0.00		1	
K30,b	Battery box (English)	8.29	9.53	0.00		1	
K31	Thermostat for top hose	18.87	21.70	1.00		2	
K32,a	Dynamo pulley Paris	11.20	12.88	0.00		1	
K32,b	Dynamo Pulley (slough)	11.20	12.88	0.00		2	
K33	Rack clips	0.34	0.39	0.00		0	
K35	Clutch cable 11L pre52	10.19	11.72	0.00		2	
K35a	Clutch cable 11 pre52	10.19	11.72	0.00		2	
K35b	Clutch cable 11/11L post 52	9.46	10.88	0.00		3	
K35c	Clutch cable six	10.19	11.72	0.00		1	
K36	Small boot cable 11L/11	3.64	4.19	0.00		2	
K37	French big boot hinge pair	14.55	16.73	0.00		1	
K38	Inner carden 10mm nuts each	0.29	0.33	0.00		32	
K40	Floating power wings for grill	10.19	11.72	0.00		4	
K41	Normal starter cover	11.64	13.39	0.00		3	
K42	LT 15 instruction book (reproduction)	3.92	4.51	0.00		16	
K43	Tab washer brake back plate	0.22	0.25	0.00		50	
K44	Repair manual (illustrations only) (reproduction)	6.72	7.73	0.00		14	
K45	Aluminium rocker	39.20	45.08	0.00		1	
K46	Slough small boot number plate	17.92	20.61	0.00		1	

PART NO	DESC	LEVY	PRICE	STD PRICE	P&P	STOCK	QTY
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TOOLS

T1	Track rod end breaker	24.72	28.43	0.00		0	
T2	Inner hub lock nut spanner	21.83	25.10	0.00		1	

PART NO	DESC</
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