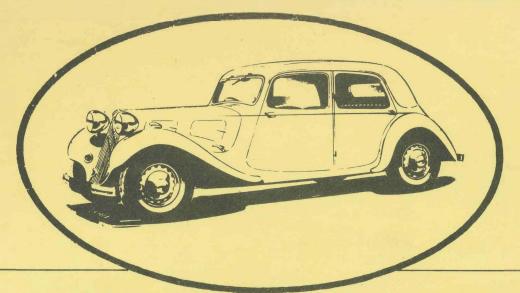
Front Drive April/May 1979 Volume 3 Number 1





Austraction 79

Echuca, Queens Birthday Weekend 16, 17, 18 June 1979 Australia's only Classic Citroën Rally

Tour Classic Citroën, Talk Classic Citroën, Watch Classic Citroën, Fat and drink with Classic Citroën enthusiasts.

Λ			

ADDRESS

PHONE NUMBER(S)

VEHICLE

REG. NO.

NO. OF ADULTS

NO. OF CHILDREN

ACCOMMODATION — 6 berth caravan only \$30 for 3 nights

Required Not required

If caravan accommodation is required, a deposit of \$10.00 must be enclosed with this form. Anyone requiring alternative accommodation (Motel, Hotel, etc.,) must make own arrangements.

Return the completed form, and deposit if applicable, to Secretary, CCOCA. Additional forms also available from Secretary.



Coming Events: Wednesday, 4th April - Annual General meeting, Blackburn.

Wednesday 2nd May — General Meeting, Parts Discussion, Blackburn.

CCOCA Committee President, Andrew Rankine 130 Arthurton Road, Northcote 3070 Phone 489 7635

Secretary, Mark Navin 1 Alexander Street Box Hill 3128 Phone 89 8576

Treasurer, Pat Propsting 18 Bellara Dve. Mooroolbark 3138

Spare Parts Officer, John Couche 15 Mitchell Avenue Boronia 3155 Phone 762 6856

Activities Officer, Roger Brundle 12 Barkly Avenue Armadale 3143 Phone 509 0441

Editor, Kym Harding 26 Tyrrell Avenue Blackburn 3130 Phone 877 4853

CCOCA membership: Joining fee (new members) \$5.00 Annual Subscriptions: Full membership \$15.00 Associate membership \$10.00 Joint membership available to spouses of full members for no extra cost.

Overseas postage rates on application. All membership applications to Secretary.

CCOCA meetings are held at 8pm on the first Wednesday of every month except January at the Blackburn Baptist Church, 19 Holland Road, Blackburn.

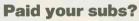
FRONT DRIVE The magazine of the Citroën Classic Owners Club of Australia Volume 3 Number 1 April/May 1979

Members who have been with the club since its Classic Register days have observed a change in club emphasis as membership has climbed. and Tractions have risen in value. The number of cars being restored, the quality of those restorations, and even the average age of members, have all increased.

With the changes, a greater divergence in expectations of the club have become obvious. This is a good thing, because it means that more people can get more out of the club. It also means that if you have a particular interest, then you should expect to be involved in that area as much as you are able. The value of this club to you is only limited by what you will contribute.

The standard catch-cry at committee meetings is still, 'What do the members really want?' Here's your chance to say – the May meeting will be a discussion on parts especially your parts requirements.

The club is arranging another supply of bulk oil very cheaply, but you will need to get your order and cheque in immediately if you wish to benefit. See details after Know How pages.





(Photo courtesy of Svenska B11 Klubben.)



A Big Attraction for the Bigger Traction Four

The Big Fifteen

One of the more interesting aspects of the Traction Avant series was the totality of its design. Not only was it to be a great automotive leap forward in mechanical design and body styling (touted as being years ahead of its time) but the concept encompassed the motoring range from small

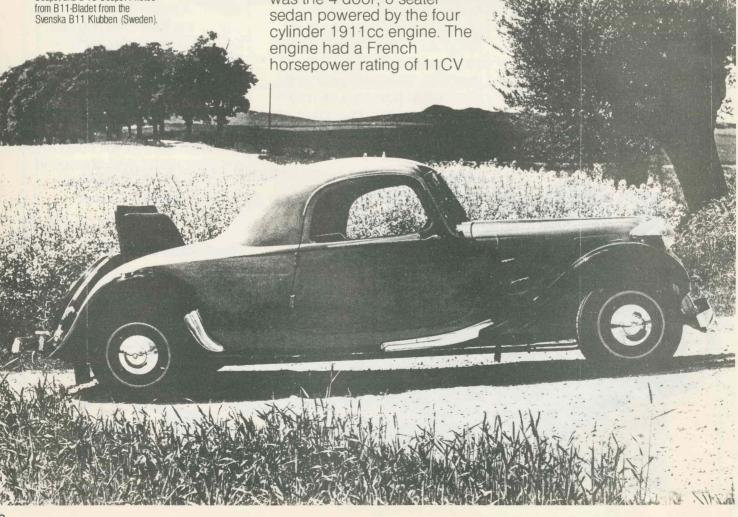
Below and opposite: More photos of Henrik Lundberg's collection — he has two Normale Roadsters, a Normale Coupé, and a 7C Coupé. Photos from B11-Bladet from the

sedan to luxury touring limousine. The original concept was to marry a range of engine sizes from 1300cc to 3800cc to a number of body sizes, i.e. a Light, a Normal, and a long wheelbase version. The very earliest Tractions were plaqued with a number of design problems which eventually saw the demise of the smallest and largest engines. The 3.8 litre monster was the powerplant of the fabled 22CV [That story is in the pipeline -ed.] that R.Brundle keeps exhorting members to drag out of their chicken sheds and bring along to meetings. After the initial flurry, two sizes were left. the 1600cc (the French '7' or the English Light Twelve) and the 1911cc motor which powered the '11' (English '15') in Light, Normal, or long wheelbase. The six cylinder model (French '15', or English were not very successful with 'Big Six') did not appear until 1938, some four years later. In the middle of this body range was the 4 door, 6 seater sedan powered by the four cylinder 1911cc engine. The

and with typical Citroen flair was know as the '11'. The English counterpart became known as the Big 15, i.e. bigger bodied but same power unit as the Light 15.

This general wheelbase /track dimension was available not only in a sedan version but also in a roadster and coupé version. The most interesting aspect of these vehicles was that because of the additional width of track, they were fitted with a bench seat. This, along with a 'dickie' seat for two enabled the Big 15 Roadster/Coupé to be a genuine 5 seater.

Unfortunately for Australian Traction lovers, these interesting variations were only produced up to WWII, and most certainly, none were imported into this country in fact, I know of no pre-war Big Fifteen sedans here! The big-bodied roadster/coupés limited numbers being made. There are now very few left in the world. Front Drive. in its





article on the B11 Klubben (Sweden) carried a photograph of a magnificently implication, the Légère was restored roadster which is owned by one of their members.

At the risk of showing bias. I've always felt the Big 15 dimensions are the most aesthetically pleasing of all the relative, the Light 15, the sedan variations in the to Family 9's and Light 15's - steadier handling. There is of Ed.] It's interesting conjecture that given the prefix types of the earliest models, the bigbodied 15 was regarded as the base model of the range. The Normale was given an 11A prefix while the smaller version (Light 15) was given

11AL, the 'L' meaning Légère, necessitated some minor or translated 'Light' By regarded as a scaled down version of the Normale rather than the reverse, as is generally accepted.

While the Big 15 lacks the power (?) of its smaller increased wheelbase and Traction range. [Second only track appear to give it a firmer, course nothing wrong with a Light 15 in its roadholding ability, the Big 15 just seems

changes to the body and structure, but the added width enabled a bigger radiator to be fitted. The added length gave another advantage, the front doors were the same but the rear doors were longer. which enabled the rear window to be wound right down.

All of which is a rather longwinded way of saying -Big Is Beautiful! Mark Navin.



Members' Cars

Geoff Thomas South Road, Warragul South



This story has been told innumerable times to all those inquisitive people who always knew the guy down the road who owned one' and sighed, 'Wonderful car the old Riley.' Perhaps now I'll have these copied and have them available ready for distribution to any interested party.

Really, I never fail to be pleased by people's interest in the car, although the questions seldom vary. I guess in my decision to buy. we have all experienced them at some stage.

The car

It sounds corny, but I am the owner of a 1953 English Big Fifteen that was previously owned by a little old lady who literally drove it once a week not to church on Sundays but to take grandchildren to music classes over the hills in Korumburra.

I feel it was fate that brought me and Cid together. I had fallen in love with it about three vears before buying it. It was found sitting in a nearby farmer's shed, unregistered, and used only occasionally to round up the cows for milking. Although it was definitely not for sale, I'm still amazed at the gumption of my friend who suggested that perhaps we could go for a spin. Only in the country could this happen. Of course it was OK. 'It belongs to the missus. She's up at the shed now so just drop off the keys on top of the kitchen cupboard when you're finished'.

I vividly remember that beautiful, crisp, sunny morning as we cruised

around the winding dirt roads of the Strezleckis in that beautiful, long, quiet and elegant black machine. It really was love. But it was not for

Three years passed when just by chance I overheard that everyday car and go the whole farm was going under the auctioneers hammer in a week's time. Of course the old car was for sale, and I had little hesitation

It was only then that I started to consider where I could get any advice on the idiosynchrasies, weaknesses and availability of parts for my pride and joy. I immediately joined the CCCV, and subsequently CCOCA.

All luck was with me in that period. No sooner had I brought the car home than a friend recognised it as exactly the same sort as had been sitting in her parents' backyard for several years. So for very little capital outlay, but a lot of



nervous lessons in transport of heavy-front-ended vehicles loaded back-to-front on tandem trailers, and pulled by a speed demon, I then had two identical models.

My car is very much an everywhere (almost everywhere - see photo!) car It had done 38,000 miles when I bought it, requiring only a set of tyres, new front brake shoes and a muffler for registration. Since then, 1976, to a few weeks ago I have done nothing to it other than very regular servicing (a timely rural joke - The lack of servicing a Citroën is similar to the servicing of a cow by a bull. The end result is the same!) As I write this, Cid is in the shed, stripped of all guards, windscreen and doorhandles awaiting the final top coat of black duco.

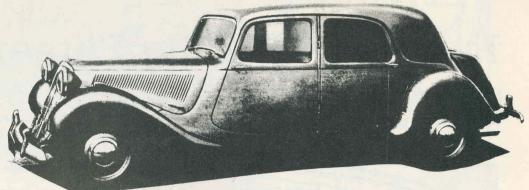
Briefly, the reasons for enjoying Cid are its reliability (quite a contrast to my constant tinkering at the arseend of a Kombi van), its driving comfort on the open road, its stability and beautiful lines.

I'm never good at conclusions, so I'll substitute a handy hint instead. My second B15 had quite a lot of bad rust spots, but I have easily been able to stop their cancerous progress for the past four years with an initial application of Fish Oil Compound supplied by Pioneer Chemicals. Maybe the car club could obtain this product bulk or at trade prices?

Geoff Thomas

NEW CARS DESCRIBED

The Big Fifteen retains the familiar Citroen characteristics despite the addition of 7in. to the chassis length and the new luggage locker at the rear—the first major change in appearance for 18 years.



CITROEN'S BIG FIFTEEN BRITISH

Family Model New to Post-war British Market: Six-cylinder Price Reduced

HE range of cars presented by the British Citroen factory at Slough for 1953 comprises the well-known fourcylinder Light Fifteen and the 2.8-litre six-cylinder car, plus a large four-door family saloon known as the Big Fifteen, which is new to the post-war British market. This model, which is already popular with family men in France, has the same four cylinder 2-litre engine and the same front-wheel drive layout as on the popular Light Fifteen, but it has a much larger body capable of seating six people on two wide and well upholstered bench-type The wheelbase is 7in longer than that of the Light Fifteen, and the track is 4½in wider, giving a car with a carrying capacity similar to that of the six-cylinder model but with lower operating costs.

Status Quo

No significant mechanical changes have been made to these popular and wellknown front-wheel-drive cars, which, with their independent torsion bar front suspension, overhead valve engines, removable cylinder liners and light, rigid unit structures, have now been in production virtually unchanged in essentials for 18 years. All models will, however, have a new hinged luggage locker, as illustrated in *The Autocar* description of the French parent factory's programme on August 22.

The British models, which are luxuriously upholstered in real leather, are now available with bench-type front seats on all models; this type is optional on the Light Fifteen. The facia gear lever is admirably suited to this utilization of space for seating. Folding centre arm-rests are provided at front and rear.

Detail changes include a new exhaust silencer with a revised method of sus-pension, which renders it more efficient, a new pattern steering wheel and, on the four-cylinder engines, the new Lucas D.M.2 distributor. The direction indicators, which, on the cars assembled in Britain, consist of semaphore arms recessed in the body centre pillars, are now operated by a pneumatic time switch, and there are combined stop and tail lamps on each rear

wing.

A Zenith petrol filter is incorporated in the fuel tank, and the warm air supply from the simple interior heater, which collects warm air from behind the radiator, is now regulated by a control on the facia. The cars are finished in black or in metallichrome cellulose.

Despite the improvements incorporated, the basic price of the six-cylinder saloon is now £940 plus tax, showing a reduction of £40 compared with the 1952 model.

Continuation of the basic design of the Citroen is a tribute to the "rightness" of its individuality and unorthodoxy.

SPECIFICATIONS

LIGHT FIFTEEN

Engine.—4 cyl, 78 × 100 mm (1,911 c.c.), 55.7 b.h.p. at 4,250 r.p.m.

Transmission.—3-speed gear box. Frontwheel drive. Facia gear lever. Overall ratios: 4.3, 7.3 and 13.1 to 1.

Suspension.—Front, independent, wishbones and longitudinal torsion bars. Rear, trailing axle with transverse torsion bars.

Brakes.—Lockheed hydraulic.

Main Dimensions.—Wheelbase, 9ft 6½in.

Track, 4ft 6in. Overall length, 14ft 2in. Overall width, 5ft 54in. Height, 5ft. Weight, 2,380 lb.

Price.—£685 plus British purchase tax £382 ls 2d. Total, £1,067 ls 2d. Stiding roof £10 extra plus p.t.

BIG FIFTEEN

Engine, Transmission and Suspension—As Light Fifteen.
Dimensions.—As Six, except overall length 15ft 61in. Weight dry, 2,548 lb.
Price.—[740] plus British purchase tax £412 12s 3d. Total, £1,152 12s 3d.

Engine.—6 cyl, 78×100 mm (2,866 c.c.), 76 b.h.p. at 3,800 r.p.m.

Transmission.—Overall ratios: 3.87, 5.62

and 13 24 to 1.

and 13.24 to 1.

Main Dimensions.—Wheelbase, 10ft 11in.

Track, 4ft 101in. Overall length, 15ft 11in.

Overall width, 5ft 10in. Height, 5ft 1in.

Weight, 2,940 lb.

Otherwise as Light Fifteen.

Price.—£940 plus British purchase tax

£523 14s 6d. Total, £1,463 14s 6d.

Right: With folding central arm-rest, the wide bench-type front seat has room for three abreast, and the large doors make entry and exit easy despite the low build of the car.



Left: New to the range of cars presented by the Citroen British factory at Slough is the hinged luggage locker, the capacity of which is clearly shown. A light is fitted inside the lid.



The CITROEN Bio

Spaciousness and Rugged Strength in a Usefully Lively and Economical Car



HEN the front-wheel drive Citroen

was first introduced, it was a boldly

unconventional design. That, how-

ever, was 18 years ago, and although

owners of other types of car still tend to look on the design as "unorthodox" it

must in fact now be regarded as one of the

most thoroughly proven layouts existing

Understanding of this background is

anywhere in the world.

ROOMIER than the Light Fifteen model which uses an identical power unit, this model offers very generous rear seat leg-

essential to the full appreciation of the Citroen. At first acquaintance, it is easy to decide that whilst there is a useful combination of roominess and good performance with moderate fuel consumption, the standard of refinement offered does not justify the rather high price of the car: it takes time to realize that the roughness evident on a short demon-

stration run will soon be forgotten as other virtues are appreciated, and to realize that for all its moderate weight the Citroen is one of the sturdiest cars which it is possible to buy. These comments probably are true of any Citroen model, but seem especially to apply to the "Big Fifteen" model which combines the power unit of the familiar "Light Fifteen" with the larger body used on the "Six Cylinder"

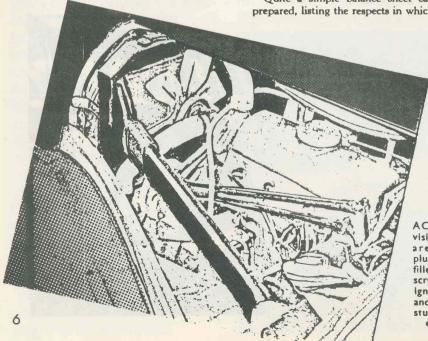
Quite a simple balance sheet can be prepared, listing the respects in which the

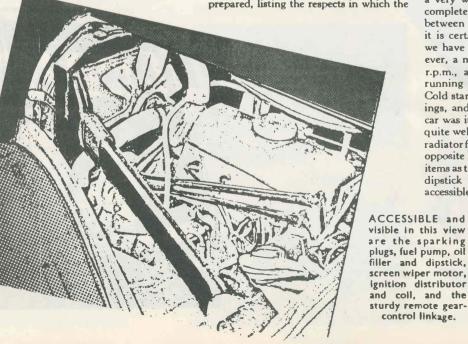
Citroen Big Fifteen is better or worse than "ordinary" cars. On the debit side, it must be recorded that under certain operating conditions the engine is not up to 1952 standards of smoothness and silence, the gearchange is not above reproach, the springing is decidedly firm by current standards (firmer also than on other Citroen models), the steering is inclined to be heavy, and the bodywork looks rather old-fashioned. To the credit of the "Big Fifteen" go an over 70 m.p.h. top speed (with quiet cruising at up to 60 m.p.h.), accommodation for 6 people and a fair amount of luggage, an overall fuel consumption of around 25 m.p.g., superb cornering qualities, good ventilation inside the body, an excellent lighting installation, and extremely sturdy construction. Quite bluntly, not everyone will like this car, but there remains a hard core of big-mileage motorists who understandably keep returning for another new Citroen every few years.



Straightforward in layout, and fitted with renewable wet cylinder liners, the 4-cylinder overhead-valve engine with its economizer-type Solex carburetter is a very willing worker. At tick-over it is completely inconspicuous, and at speeds between 30 and 60 m.p.h. in top gear it is certainly the quietest Citroen which we have yet tested: there remains, however, a moderate amount of noise at high r.p.m., and a very slight irregularity of running under light load in town traffic. Cold starting proved easy on frosty mornings, and with some use of the choke the car was immediately willing to idle or pull quite well. For some unknown reason the radiator filler and the oil dipstick are under opposite sides of the bonnet, but all such items as the battery, fuel pump, distributor, dipstick and tappets appear very easily accessible,

> Three forward ratios are provided in the gearbox, the upper two of them having synchro-mesh engagement: the gear lever projecting from the facia panel is unconventional,





The Citroen Big Fifteen

but is soon accepted as perfectly convenient. Quite well chosen for all-round use, the gears are not objectionably noisy, but the synchro-mesh mechanism is not potent enough to prevent slight clashing if a gearchange is hustled: unusual is the positive locking of the gear lever until the clutch pedal is depressed, and almost equally unusual is the commendable sturdiness of the remote-control gearchange linkage.

The firmness of the suspension on this model rather surprised us, although it is perhaps in character that torsion bar flexibilities should be chosen especially to suit fully loaded conditions. Unladen, the car rides rather jerkily, although it is of course quite free from pitching and has ample spring travel available to absorb the worst shocks of "colonial" potholed gravel tracks. The pressed steel body which serves as the car's frame is, to all appearances, totally rigid.

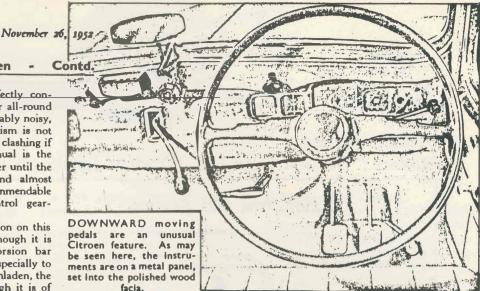
Very positive and rather heavier than is nowadays fashionable, the steering is of a kind which might tire some lady drivers who need to manoeuvre into or out of parking places very frequently; but, it is steering which gives great confidence at all times. The turning circle is not very compact, but apart from imposing a limitation in this respect the use of front-wheel drive has very little evident effect on the steering: only by deliberate experiment 18 it realized that to turn on power when cornering slightly increases both castor action and the under-steer characteristics of the car, or vice versa. In ordinary driving, one is merely conscious of steering which feels very solid and can be implicily trusted to take the car where the driver wishes.

Excellent Stability

Cornering qualities also are outstanding. on this as on other Citroen models. The ultimate limit of adhesion of the Michelin tyres which are mounted on wide-base rims cannot in fact differ greatly from that of other tyres, but the low build of the car, its firm springs, and the complete absence

LUGGAGE is provided for in a rear locker of useful size, the spare wheel being secured automatically by the sprung pad inside the locker lid.





of vicious handling characteristics combine together to make abnormally high cornering speeds seem completely normal.

Very generously-dimensioned and rigid brake drums make for pleasantly consistent brake performance : it may be noted that although relatively moderate areas of friction lining material are used, the drums are of 12 inch diameter at the front and 10 inch diameter on the less heavily loaded rear axle. All the pedals are similarly pivoted, to move downwards rather than forwards when pressed, but despite alterations compared to early models the accelerator and clutch are not ideally comfortable.

Excellent night-driving vision is provided by a pair of external headlamps which, whatever their effectiveness as air brakes, are mounted far enough above road level to give a long-range main beam and a useful but non-dazzling dipped set-The instrument illumination is not ideally glare-free, but having once discovered how to use it we were immensely pleased by the one finger-tip switch which actuated the lights, the headlamp dipping, and one or two horns as required. The new luggage locker is, incidentally, effectively illuminated at night from the number plate lamp.

Cheap Heat

Costing only £1, the Citroen interior heater comprises nothing more than an air intake behind the engine radiator and a duct leading the warmed air into the body. For extreme climates such a system may be inadequate, but even with atmospheric temperatures just above freezing a small amount of radiator blanking produced really good warmth inside the front compartment of the car: as it is fresh air which is being heated, the atmosphere does not become tiring. We were not able to try the car in hot weather, but noted a windscreen which will open a short distance, a scuttle ventilator, front windows which disappear completely into the doors, and as a catalogue option not fitted to the test car a sunshine roof for an extra £10.

Rather unusually firm springs have been mentioned already, the telescopic dampers having appropriate settings so that the car is at its best when travelling fast or carrying a full load. A bench-type front seat has a rather low folding central armrest, as has the rear seat, and the upright seat high

above a very low floor proved to need unusually little adjustment for drivers of varied heights. For passengers, however, neither the front seat nor the extremely roomy rear seat seemed to be ideally shaped to give support laterally and under the knees.

As has been indicated, the test car proved able to exceed a genuine 70 m.p.h. on level road, in unhelpful weather conditions and with the engine evidently still gaining performance after a running-in mileage of rather under 1,500. A manual ignition timing control is provided on the facia panel, and whilst this needs no attention in normal driving, the extent to which incorrect settings would produce loud pinking in one direction or a loss of performance in the other hinted at a preference for something better than Pool petrol. Comparison of tests figures which appear on the data page with those recorded 11 years ago on a similarly powered and similarly geared Light Fifteen show less than 2 m.p.h. drop in maximum speed with the larger "Big Fifteen" body, and losses in acceleration and fuel consumption which only become appreciable in the upper ranges of speed. Roomier bodywork has increased the weight by very little indeed, but extra air resistance does apparently penalize performance and economy to a measureable extent-not that an overall fuel consumption of 25.8 m.p.g. for 450 miles, about half of them driven really fast, is anything but creditable for a car of this roominess.

Sensible Equipment

The finishing details of this model are very sensibly planned, there being for example a forward-sloping cubby hole, pockets in the front doors and behind the front seat, ash trays front and rear, a wellplaced rear-view mirror, and a useful interior light. The new luggage locker gives useful capacity and incorporates a neat spare-wheel stowage, and although not beautiful it seems to be effectively weatherproofed.

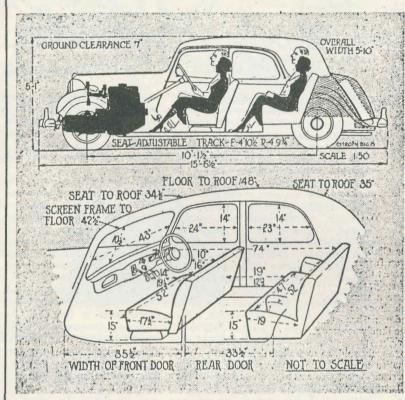
The word "functional" is apt to be overworked nowadays, but it summarizes this Citroen very well indeed. A car is a device for transporting people, and the Big Fifteen does just this thing with the minimum of danger, delay or extravagance, and gives promise of continuing to do it dependably for an unusually long time.

Road Test No. 17/52

Type: Big Fifteen Make: Citroen

Makers: Citroen Cars Ltd., Trading Estate, Slough, Bucks.

Dimensions and Seating



Test Conditions

Mild, rainy weather with strong wind. Surface, smooth tarmac, wet during tests.

(Brakes tested on dry road). Fuel, Pool petrol.

Test Data

ACCELERATION TIMES on Two Upper R	atios Top 2nd
1 0-30m.p.h. 20-40 m.p.h. 30-50 m.p.h.	11.6 secs. 6.5 secs.
ACCELERATION TIMES Through Gears 0-30 m.p.h. 6.9 secs 0-40 m.p.h. 10.9 secs. 0-50 m.p.h. 16.4 secs. 0-60 m.p.h. 29.0 secs. Standing Quarter Mile 23.7 secs.	MAXIMUM SPEEDS Flying Quarter Mile Mean of four opposite runs, 70.9 m.p.h. Best time equals, 72.6 m.p.h. Speed in Gears Max. speed in 2nd gear, 53 m.p.h.
FUEL CONSUMPTION 23.5 m.p.g. at constant 30 m.p.h. 25.5 m.p.g. at constant 40 m.p.h. 25.5 m.p.g. at constant 50 m.p.h. 20.5 m.p.g. at constant 60 m.p.h. Overall consumption for 459 miles, 17.8 gallons 25.8 m.p.g.	Max. speed in 1st gear. 31 m.p.h. WEIGHT Unladon kerb weight 22' cwt. Front/rear weight distribution. 55/45 Weight ladon as tested 261 cwt. INSTRUMENTS Speedometer at 30 m.p.h. 5% fast Speedometer at 60 m.p.h. 19, fast Distance recorder 5% fast 5% fast
HILL CLIMBING (at steady speeds) Max top gear speed on 1 in 20 Max. top gear speed on 1 in 15 Max. gradient on top gear Max. gradient on 2nd gear	

0.95 g retardation (=311 ft. stopping distance) with 100 lb. pedal pressure.
0.74 g retardation (=40) ft. stopping distance) with 75 lb. pedal pressure.
0.44 g retardation (=681 ft. stopping distance) with 50 lb. pedal pressure.
0.17 g retardation (=1 77ft. stopping distance) with 25 lb. pedal pressure.

BRAKES at 30 m.p.h.

Price £740 plus purchase tax £412 12s.3d. equals £1,152 12s. 3d. Capacity Unladen kerb weight 221 cwt. Fuel consumption 25.8 m.p.g. Maximum speed 70.9 m.p.h. Maximum speed on 1 in 20. gradient Maximum top gear gradient 1 in 11.7 Acceleration 10-30 m.p.h. in top ... 11.6 secs. 0-50 m.p.h. through gears 16.4 secs. Gearing 17.4 m.p.h. in top at 1,000 r.p.m. 66.3 m.p.h. at 2,500 ft. per min. piston speed.

In Brief

Specification

	Cylinders Bore Stroke Cubic capacity	78 mm. 100 mm. 1,911 c.c.
*	Piston area Valves	25.6 sq. in. Pushrod o.h.v.
	Compression ratio	55.7 b.h.p.
	Piston speed at max. Carburetter	b.h.p. 2,790 ft per min.
	Ignition Sparking Plugs Fuel Pump	14 mm. Champion H1 0
-	Transmission	
	Clutch Top gear (s/m) 2nd gear (s/m) 1sc gear Reverse Propeller shaft Final drive	Single dry plate
3	Chassis	
	Suspension: Front. Torsion	Lockheed hydraulic Front 1 Zn., rear 1 Qn. 80] sq. in. bar and wishbone I.F.S. bars and dead axle beam

Shock absorbers Newton telescopic Michelin, 1 65/400 Steering Steering gear
Turning circle
Turns of steering wheel lock to lock

Performance factors (at laden weight as tasted)

Fully described in "The Motor," October 15, 1952.

Maintenance

Fuel tank: 15 gallons. Sump 8 pints, S.A.E. 20 Gearbox and differential: 3 j pints, S.A.E. 90 E.P. gear oil. Steering gear: Grease lubricated Radiator: 14 pints (2 drain taps). Chassis lubrication: By grease gun every 1,000miles to 1 points. Ignition timing: 12° B.T.D.C. Spark plug gap: 0.025-0.028 in. Contact breaker gap: 0.015 in. Valve timing: 1.0., 3° B.T.D.C.: 1.C., 45° A.B.D.C.: E.O., 45° B.B.D.C.: E.C., 11° A.T.D.C. Tappet clearances (Hot): Inlet 0.006 in. Exhaust 0.008 in. Front wheel toe-out: j in. Camber angle: 1° ± ½°. Castor angle: 1½°±½°. Tyre pressures: Front 20-22 ib., Rear 22-24 ib., Brake fluid: Lockheed. Battery: 12-volt 57 amp. hr. Lamp bulbs: 1 2volt. Headlamps, 36/36 watt. Sidelamps and number plate lamp, 6 watt. Tail/stop lamps 6/24 watt.

Ref. B-F/20/52



For this issue, Roger Brundle has provided information from Lucas Service Manuals on servicing trafficators and dipping-reflector type 3. Arm fouling the bodywork: headlights. Robyn Couche shows how to rejuvenate tired rubber parts.

Extracts from Lucas Service Manual - Trafficators

Trafficators do not operate:

Loose or broken connection in the wiring Fuse blown.

Arm fouling bodywork. Buffer plate bent. Lack of lubrication.

Internal fault.

Trafficators do not lift to full extent or do not fall completely home when switched off:

Arm fouling bodywork. Lack of lubrication. Buffer plate bent.

Bulb does not light:

Bulb blown.

Loose or broken connection in bulb circuit.

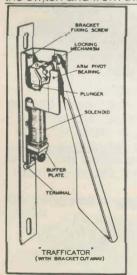
Bulb not earthed efficiently.

1. Fuse blown

Examine the wiring and trafficators for evidence of a short circuit which may have caused the fuse to blow. Rectify the trouble and replace the

2. Loose or broken connection in wiring:

Check the wiring from the fuse to the switch and from the switch to



the trafficators. Tighten all loose connections.

This may be due to either the trafficator being badly fitted or to the arm being distorted by striking some object. If the trafficator has been badly fitted, slacken the screws securing the trafficator and move it until the arm operates freely. When the correct position has been obtained, secure the trafficator by tightening its fixing screws.

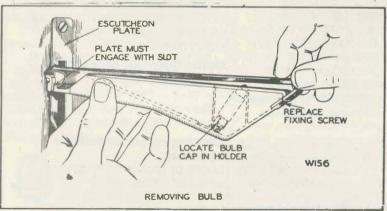
When an escutcheon plate is fitted, the screws securing it must be underside of the arm and slide off slackened and the plate centralised so that the arm can operate freely

5. Buffer plate bent:

If the plate carrying the rubber buffer is too far forward it will prevent the arm falling completely home; if it is bent back too far, it may cause the locking mechanism to become jammed. Bend the plate to its original position, i.e. so that the arm falls fully home and is locked, and also so that the arm operates freely.

6. Bulb blown:

After long service the bulb may need replacing. To remove the bulb, withdraw the screw on the the metal coverplate. To replace the coverplate, slide it on in an upwards



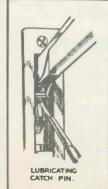
4. Lack of lubrication:

If the action of the trafficator becomes sluggish, it should be lubricated as follows:

a. Add one or two drops of thin machine oil to the catch pin between the arm and the operating mechanism.

b. Give the inside of the bracket where the plunger bears a slight smear of high melting point grease.

Do not use ordinary grease, which when warm, may run



into the solenoid core and cause the

c. Add one or two drops of thin machine oil to the pivot bearing of the trafficator arm. direction so that the side plates engage with the slots on the underside of the spindle bearing. Finally secure the coverplate by means of the fixing screw.

7. Loose or broken connection in **bulb circuit:**

Examine the connectors from the terminal on the trafficator to the bulb holder. If necessary resolder any connection which may be loose.

8. Bulb not earthing properly:

The cap at one end of the bulb must make contact with the metal cover. Check that the spring pressure is plunger to stick sufficient and that the inside of the cover where the bulb makes contact is clean and free from tarnish. With trafficators having a black enamelled cover, make sure that the ends of the cover which locate at the pivot end are clean and free from enamel.

9. Internal fault:

If, after following the above procedure, the trafficators are still inoperative, it should be replaced.

It should be noted that the trafficator unit is mounted on a fixing The headlamps are fitted with bulbs plate and can be removed by the withdrawal of a single screw. Always can be used at will to give a normal retain the plate as these differ on various cars and therefore standard replacements are supplied without fixing plates

LAMPS **Dipping reflector type**

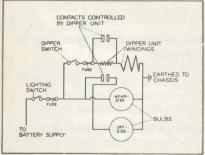
The headlamps are provided with one of the following anti-dazzle arrangements

Dip-and-switch reflector scheme, in which the near-side headlamp reflector dips and the offside lamp is simultaneously switched off.

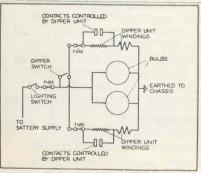
The dipping of the headlamp beam is effected by a movement of the reflector. This is pivotted on ball bearings in a fixed rim which is in turn secured to the headlamp body.

The movement of the reflector is controlled by a solenoid mounted on a bracket astride the back of the reflector. When the current is switched on, the plunger of the solenoid pushes a bracket on the underside of the bulb holder, thus tilting the reflector to the dipped position. As the plunger reaches the end of its travel, it is arranged so that a high resistance winding is brought into the circuit, thus reducing the operating current for retaining the reflector in the dipped position to a fraction of an ampere. When the current is switched off, the reflector is returned to its normal position by means of a spring

Twin dipping reflector scheme, in which both reflectors are dipped. These are operated by solenoids as described above



"DIP & SWITCH" REFLECTORS



TWIN DIPPING REFLECTORS

Double filament bulbs:

having two filaments; either filament driving light or an anti-dazzle beam as required. The main filament is located at the focus of the reflector in which the bulb is fitted, and is the source of the normal driving light. The position of the secondary filament relative to the reflector is such that it produces a dipped nondazzling beam.

Difficulties in service:

Lamps give insufficient illumination:

Battery needs attention. Headlamps out of alignment. Bulbs out of focus. Bulbs discoloured through use. Reflectors dirty.

Lamps flicker:

Loose connection in lamp circuit. Lamps not earthed properly.

Lamps do not light:

Battery needs attention. Loose or broken connection in lamp circuit or lamps not earthed properly Bulbs blown.

Bulbs burn out repeatedly:

Battery overcharged Loose or broken connection at battery or in charging circuit (3rd brush dynamo equipment only).

Dipping reflector fails to operate:

Loose or broken connection in circuit or dipper unit. Dipping reflector sticking Dipping reflector fuse blown.

Dipping reflector does not remain in dipped position when operated or reflector oscillates.

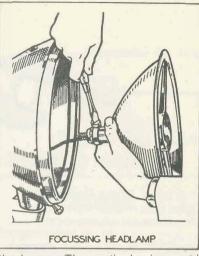
Loose or broken connection in circuit of dipper unit. Contacts on dipper unit out of adjustment.



1. Lamps out of alignment:

The headlamps must be aligned so that they direct their beams straight ahead, i.e. parallel with the road and with each other.

The lamps can readily be aligned by parking the car on a flat space in front of a wall. The car must be square with the wall and at least 25 feet away from it. Align the lamps so that the horizontal axis of the oval light area is level with the centres of



the lamps. The vertical axis must be central with the front of the car.

2. Bulbs out of focus:

For the best results, the filament of the bulbs must be as near as possible to the focus of the reflector.

Before the lamps are despatched from the Works, the bulbs are correctly focussed. Provided that the correct genuine Lucas bulb is fitted as a replacement, the setting should not be disturbed. If a Lucas bulb is not available or if the setting has been tampered with, the lamp may be re-focussed as follows:

Cover one lamp while testing the other. Remove lamp front and reflector and slacken the clamping clip on the bulb holder. Move the bulb holder backwards and forwards until the best results are obtained. After each adjustment. note the effect with the front refitted.

It should be noted that headlamps fitted with Lucas-Graves double filament bulbs do not require focussing. These lamps are specially standardised so that when a replacement bulb is fitted, the filament will be at the focus of the reflector.

3. Bulbs discoloured through IISA:

After the bulbs have been in service for a considerable time they may become blackened. This will reduce the amount of light given by the lamps and when the bulbs are found to be in this condition, they should be replaced.

4. Reflectors dirty:

The reflectors are protected by a fine transparent colourless covering This enable finger marks, etc, to be removed with a soft cloth or chamois leather without affecting the reflecting surface. Do not use metal polishes.

5. Bulbs blown:

When after long service it is necessary to replace a bulb, fit a bulb of the same voltage and wattage as originally used. The bulb must have a high efficiency and

must focus in the reflector. Cheap and inferior replacement bulbs often re-use. have the filament of such a shape that it is impossible to focus correctly; for example the filament may be to the side of the axis of the bulb resulting in loss of range and light efficiency. Lucas Genuine Spare Bulbs should be fitted as then these problems will not arise.

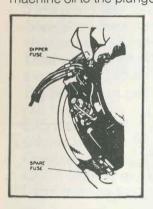
6. Dipping reflector sticking: The trouble may be due to any of

the following:

a. Cables fouling reflector, Rearrange the cables and keep them away from the reflector. The lead to the bulb holder must be flexible so as to enable the reflector to move freely.

b. Pivot bearings tight — apply a drop of thin machine oil to the bearings on which the reflector rocks.

c. Plunger of dipper unit sticking apply the merest smear of thin machine oil to the plunger.



7. Dipping reflector fuse blown: Robyn Couche.

This is probably caused either by the reflector sticking (see 6) or by a faulty connection in the wiring of the reflector. Rectify the defect before replacing the fuse.

8. Switch contacts on the dipper unit out of adjustment:

If the contacts nearest the fuse, which bring into circuit the high resistance winding, get out of adjustment due to damage or long service, the dipping reflector will tend to oscillate when operated

When the plunger is drawn fully into the solenoid, the gap between the switch contacts should be .010" - .018". The gap setting may be adjusted by means of the pin, at the end of the plunger, which is caulked during assembly, as normally adjustment is not required.

Cleaning and re-using rubber

If you wish to re-use rubber parts on your beautiful restoration, then the following may help you to bring those parts up to look like new. Even if the rubber appears to have

perished a bit, this will not prevent its "

Equipment you need will mean raiding the kitchen supplies... if your wife will let you. Start with the kitchen sink - this is a good place to work, especially as you need warm water

Step by step — firstly, carefully remove the part from the car without damaging it, of course. Flake off any loose paint, taking care not to damage or tear the rubber. Now to the kitchen sink. Fill it up with warm water — no soap. This is to soften the rubber and make it easier to handle. Let the rubber soak for at least a couple of hours, then fill the sink again with warm water, and grab a Scotchbrite or other type of plastic scourer. Don't use a metal pad, as they rip the rubber to pieces. Scrub the rubber lightly and the paint and perished rubber will come off quite easily (at least it did when I did it). The finished product should look much blacker than before you started, and look almost new. Let the part dry for 24 hours, then it can be replaced on the car. Note of warning - put the part out to dry on some paper or cloth, as it leaves nasty black stains on the laminex if vou don't.

This method was used successfully on some rubber grommets and door stops, and we decided to commit it to paper to help others. By the way, someone asked me where we got the new grommets, and was very surprised to hear they were originals!



Erratum

Last edition, you may have been mystified to read in the index a reference to Of Rockers, Cranks, and Doing your Block, under the Technical heading. This was in fact the title of Roger's article on the Traction engine, subtitled A Look at Bottom Ends and Such. Unfortunately, one of the famous network of Printers Gremlins slipped into the printery undetected and cut off the main title Apologies. (Did you understand all that?)



BULK OIL CHEAP

BP's Premium Super-Grade oil Visco 2000

at a cheapie-nastie price! CCOCA will arrange, for your benefit a bulk supply of Visco 2000 oil at cost.

> \$14.75 per 20 litres (that's only \$3.69 per 5 litres)

Minimum order 20 litres, no limit. Supply your own containers, or 5 litre containers are available at 25 cents each

PAYMENT IN ADVANCE

payable to CCOCA. Strictly limited offer please send your order and your cheque immediately, to the Editor, at 26 Tyrrell Ave., Blackburn 3130. Stragglers will miss out.

Automotive paint supplies available at trade price to **CCOCA** members

from Rejon Industries, 6Varman Ct., Nunawading Spartan and Berger paints, and

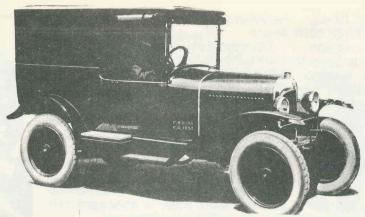
some Dulux products are stocked, as well as associated materials and equipment. They will also match colours to samples - this usually takes a couple of days, at no extra cost, and are always very helpful.

Discovery! **BRAKES & CLUTCHES**

Andrew Rankine has come accross a company specialising in all brake and clutch work, at extremely reasonable prices. Highly recommended. Brelco, 710 Queensberry Street, North Melbourne.

> CHANGED address. bought or sold a car? Please notify the Secretary.

Spare Parts Report John Couche



The first 12 months of operation of CCOCA spare parts is now over and the editor has asked me to write a report on its achievements or otherwise.

Rather than bore you to tears with pages of old cliches like 'we had a good year', or 'things are looking good for a bigger and better year,' I just want to thank everybody involved with spare parts who has helped me during the year and to thank you for buying the parts. I hope the spare parts fund continues to grow so that we can gradually buy more parts for our beloved Tractions.

I have only one grumble to air here and that is the one about people buying parts and not sending payment for them. If the situation does not improve in the near future, the club will have no choice but to introduce a cash in advance system for parts. So how about it members, do the right thing by paying your bills and keep the club functioning on a friendly and cooperative basis.

Finally I wish to say a special thanks (cliches again) to Gerry Propsting, Alan Thomas and Mark Navin for their valued knowledge and help during the year. Oh yes, I almost forgot my wife Robyn who puts up with half a house full of Double Chevrons and grease. John Couche.

Drive shafts

How are your drive shafts holding out? If they are anything like mine, they were due for replacement about 10 years ago.

Well, now is the time to do something about it. CCOCA will be placing an order for reconditioned drive shafts with Holland during May this year. Because of the expense involved in an order of this size, you will have to order them **now** if you want a pair. as it may be up to 2 years before another order is placed.

The drive shafts are supplied only on a changeover basis, and only a minimum of five pairs can be ordered (the changeover units must of course be reconditionable).

Costs for the shafts will be approximately \$80 - 100 each.. Now that you have picked yourself up of the floor, let me explain that the price is only approximate, as there are so many variables such as freight, duty, number of shafts in the order etc., to take into account.

If you are still interested in having a pair of drive shafts after reading all of the above, there are two more hitches to come yet. The first hitch is that you have to pay a deposit of \$120 a pair (the club will put up the balance). The second hitch is that it will take 4-6 months for the shafts to arrive following the placement of the order.

Remember that this will be the only order placed for a long time, so if you want them now, order them now.

Your money is needed no later than 15th April. After that date you miss out.

Your changeover shafts are not required with your money but must be forwarded to me immediately the new shafts are received.

If all of the above has totally confused you, please ask me and I will try to explain the situation more fully.

Gearbox Parts:

The following second-hand gearbox parts have been cleaned, scrubbed, polished and priced for sale. The condition of the gears is considered reasonable by the Spare Parts Committee, but no responsibility can be accepted.

1st gear:

Main cluster, \$2. 1st and reverse idler, \$2. 1st & rev. idler bush, 50¢.

2nd Gear: Main cluster, \$5. Pinion shaft, \$2.

Top gear: Main cluster, \$2. Pinion shaft,\$2

Reverse gear: Cluster \$2

Synchromesh unit, \$2. Synchro hubs \$1 Celeron washers 50¢.

Pinion shaft, \$2. Pinion shaft thrust race, \$2. Pinion shaft shims (assort.) 50¢. Pinion bearing, \$2 Pinion (fair condition) \$Negotiable.

Differential:

Output shaft, \$2 Outp.Sh. (Oct'34 – May'35)\$2. Diff. ('38 – '46) Condition unknown. Diff, late model, Cond. unknown. Diff bearing saddle & ring nut, \$2. Diff bearing saddle \$2.

Main Shaft:

Each, \$7 With 1st&2nd gear, \$7 \$2. Bearing, \$2 Rear bearing (in pairs), \$2.50. M. shaft nut, \$1. End cover, \$2.

Clutch throw out bearing Assy. \$2. Speedo drives \$2 Camshaft drive dog, \$2. Gearbox end cover \$1. ID gear (3rd), \$2.

Stop Press

Bearings for Light 15 front wheels have been subject to a raise in price new price for inners is \$5.14, and outers are now \$11.61. These prices still reflect at least a 50% saving on buying them elsewhere.

New Parts currently in stock

Remember - Spare Parts Fund members can subtract 10% from the listed prices. If you're not a member, think of all the money you're wasting! Join now!

Bumper irons, \$43.20 pair. L15 Wheel bearings: Front Outer, \$9.60, Front inner, \$4.01 Rear. \$5.46

L15 Gearbox Bearings, \$17.15 L15 Gearbox Bearings, \$17.63 Big boot weather seals, app.\$15 Steering rack boots, Windscreen rubber, 75¢ metre Pedal rubbers, \$7.95 ea. Scuttle vent rubbers, \$13.00 L15 Radiator hoses, \$4.25 Tie-rod ball sets, \$42.43 Silentblocs, front, set of four on changeover, \$60 approx. Leather upper and lower ball joint seals, \$3.45 each. Big Six exhaust gaskets (with two holes), 75¢. L15 head gasket, \$4.60

Gearbox bushes, six each of parts numbers: 500521,

Clutch bearing springs, 50¢

(Above are early ID, but do fit).

Gearbox coupling seals, \$5.66

L15 C'over radiator, app.\$25

500523, 500893, 500374(locktabs), and twelve of 40844.

Big boot rubber seals Bonnet lacing (app. 50¢/ft.)

Set of above gearbox bushes: \$26.52 Pat Propsting and Locktabs, \$3.36 pair.

Petrol filler rubbers \$2.30 Rubber grommets for doors and bonnet, 46¢ each. Steering Rack Boots are now \$6.95

***Furflex, window channelling and vinyl or rubber panel piping can be purchased through spare parts, but is not kept in stock.

Parts currently being tracked down - wanted dead or alive:

Crown wheels and pinions Big 6 front wheel bearings ID19 Conrods.

On order: **Dust excluding rubbers for** Protecting rubbers for headlamps and door handles. **Heating tube rubbers**

SPARE PARTS DISCUSSION:

The meeting after the Annual General Meeting — that is to say the May general meeting, will be a discussion on spare parts, especially ordering your requirements. Come along and have your say!

Contact Times

To ease the workload on the spare parts committee, the following times have been set aside as the **only** times that spare parts may be ordered or picked up, except in emergencies which means the need to obtain a part to keep a registered and roadgoing car on the road following a breakdown. Cars undergoing restoration do not qualify for emergency handouts. To make this system work, your co-operation is requested.

The order times are 5pm – 9pm weekdays, and 10am — 9pm weekends. John's phone number is listed in Front Drive

Pick-up times

Parts may be picked up on the first and third Saturday of each month, except in emergencies.

Club Shop

Traction Miscellanea – Metal Badges

The order for these will soon be placed, so get your order in. With one of these fine chrome and enamel badges you are promoting 'the cause' wherever you go. Cost is \$8.50, plus postage for country and interstate members. Strictly cash in advance.

Also available:

Windcheaters and T-shirts in either club motif or roadster design. French parts catalogue reprints for Tractions, \$15.

1938 Sales Catalogue reprints, \$2. Light 15 lubrication charts, \$1 (inc. postage)

All other items please add postage where applicable.





Pay your subs late (after 12th April) and the whole club benefits! Late payment means that your membership lapses, and you get to pay the \$5.00 joining fee again. All you have to do is pay late. (Pay after the AGM (April 4th) and you forfeit your voting rights, too).

Please send your cheque and renewal form to the Secretary.



President's Report

Andrew Rankine

This last club year has seen a buildup of membership of over 100 dedicated enthusiastic Citroënians from all over Australia and further will there be no end to these cars that keep coming out of the woodwork?

It is gratifying to see members now using the club facilities for information, advice, and especially spare parts. The spare parts have proved to be a great success — not surprising when we can undercut certain dealers by up to 80%!

The new club year will get and excellent start with funds carried forward. As you can see, we are in a

very healthy position.

Activities this year have, in most cases, proven to be successful. This is an area that is very hard to organise, or predict what you, the member wants.

Our club magazine has gained a lot of respect, both in Australia and overseas, as I found out last year

from T.O.C. members

Finally I would like to thank the committee and members for their support and hard work throughout the club year. Let's look forward to an even better club year this year.

Secretary's Report

Mark Navin

After the stormy beginnings of the club early in 1978, it is pleasing to look back on the year. As early members are aware, the decision to form a club solely for early model Citroëns did not go unresisted, nor did the decision to make it an Australia-wide club.

The decision however has been well vindicated with membership reaching 120 in these first 12 months. For a one-marque club drawing on a limited memberhsip, this is extraordinary growth. While the majority of members live in Melbourne, it is pleasing to note that every state is represented. If current growth continues, CCOCA can look forward to a branch being

established in at least one state in the next 12 months.

Sadly, membership participation has not equalled the joining response. As with any new club for older vehicles, there are large numbers of vehicles off the road for repair or restoration, and this could have contributed to the poor attendances.

The spare parts side continued to grow under the guidance of John Couche and his subcommittee. Response to joining the spares fund has been slow and this financial constraint has limited the quantities of some orders. Kym Harding as Editor with help from his subcommittee produced six excellent editions of Front Drive. Treasurer Pat Propsting continued to perform miracles in balancing the books legally. Activities Officer Roger Brundle, in spite of overwhelming apathy continued to organise an interesting and varied calendar. My thanks to these committee members, and a special thanks to President Andrew Rankine, who will not be standing for re-election. Much of the success in this first year has been due to his able leadership and the time and energy he has devoted to promoting the club in Australia and overseas.

1978 was a good start for the club, but lets make 1979 a better year and one of consolidation and participation.

Activities Officers Report

Roger Brundle

Regarding social activities, the first year of CCOCA has had its ups and downs. This was not entirely unexpected as, with any new organisation, it takes time to establish traditions and expectations.

The most successful events, from a numbers point of view, were the Wine & Cheese tasting, and the December General Meeting. Other events, such as the observation run and Concours were equally enjoyable for those that attended, but could have been so much better if a

greater attendance had been realised.

The 1979 will have fewer events, with hopefully better attendances.

Congratulations to John and Robyn Couche for jointly winning the coveted 'Club Person of the Year' award, due to their unswerving devotion to the cause. Robyn and John also took out the award for the observation run. Congratulations to Arthur Clarke for winning the Concours.

My personal thanks go to all those people who helped in the running of events and to the other Committee members for their support.

Editor's Report

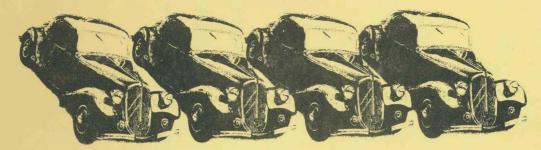
Kym Harding

A magazine of the standard of *Front Drive* could not possibly be a one man band — I am very grateful for (and reliant on) the articles, photos, and Citroën miscellania sent in by members, and the special contribution of my editorial committee — Robyn Couche, Mark Navin, John Cleverley, and Tim Farmilo, before he left for OS.

The CCOCA Committee has decided to create a position of Librarian, to be the responsibility of the Editor, and the Club is most fortunate that Peter Simmenauer has agreed to do this job, and also contribute to *Front Drive*.

Possibly the most unsung hero of the club is Mike Veevers who prints the club literature and this magazine at ridiculously low prices, and makes this magazine possible.

Market Place



FOR SALE

FIVE 125X400 Michelins, Brand new, to suit early 2CV. \$150 for the set. Mark Navin

1951 11BL, WA-740 Not registered, but is going, with an excellent body. A mere \$700. Peter Carnell, 82 3925.

'54 BIG FIFTEEN Minus gearbox but still registered till June '79. Body fair. \$700 ONO. Neil Kelly, Ph. (03) 798 1121.

1951 ENGLISH L15 1951 FRENCH 11BL Both cars are incomplete but good for parts or restoration. Prices negotiable. Pat Stewart (058) 56 7260.

1948 ENGLISH LIGHT 15 1949 ENGLISH LIGHT 15 Both cars are incomplete but good for parts or restoration. ALSO, 1950 (about), SMALL BOOT BIG SIX fairly complete. Prices negotiable. John Avard. Phone Colbinabbin 15.

DS HEAD complete with manifolds, carburettor, water pump and rocker cover. No rocker gear. Best offer. John Couche, 762 6856.

WIDE RANGE OF NEW AND SECONDHAND PARTS for a range of years and models. Contact Parts Officer. Refer to this and back issues of Front Drive for listings of parts available.

WANTED

1 EASY CLEAN 165X400 RIM.

2 Light 15 rear doors in good condition. (Preferably without rust, but will consider minute quantities).

Gerald Propsting, 18 Bellara Drive Mooroolbark, or at club meetings.

For exchange for the above parts, 1 New old stock French Light 15 steering wheel (only a few marks).

1 new (still in wax) gearbox mainshaft (L15).

Front hub extractor \$2 Upper balljoint extractor \$2 Outer front wheel bearing extractor \$2 Stub axle inner ring nut extractor \$2

Upper swivel ball spanners \$2 Extractor body for drive shaft spigot cup or ball joint \$2 A-frame for towing L15 \$2 Lower ball joint extractor \$3 Collets for ball pin extractor \$3 Collets for spigot cup extractor \$3 Chain block and tackle \$3.

SPECIAL TOOLS NEW ADDITIONS

The club has recently acquired some special tools, which will be available along with the tools already available through Roger Brundle. Tools are available for a period of one week — deposit on one tool is \$10, on two or more, \$25.

The new tools (hire charges on application to Roger):

Tool for checking brake lining and drum concentricity.

Gauge for positioning rear axle. Spanner for steering-rack cap. Gauge for checking length of track rods.

Spanner for outer ball-race retaining ring.

Vice for dismantling drive-shaft couplings during fitting.

Former tools and hire charges: Spanner for adjusting brake shoe eccentrics 50¢.

Tool to adjust synchromesh 50¢ Valve spring compressor \$1 Vernier gauges \$1

Stub axle nut spanner \$1 Steering ball pin extractor \$1.50 Block for removing rear torsion bar \$1.50 Whilst every effort is made to ensure the accuracy of information and advice in this magazine, and in replies to readers queries, neither the Citroën Classic Owners Club of Australia nor the officers and members thereof nor the authors accept any liability.

