

AUSTIN "1800" DRIVESHAFT CONVERSION

The September-October issue of the magazine contained a letter under the nom-de-plume (like it?) of Traks John East. As I'm the instigator of the within-mentioned Austin 1800 driveshaft conversion, I think I'd better defend myself. We have owned our Light 15 for just over a year (ex-Noel Cammock), covering over 7500 miles in daily use, but it is not entirely reliable mechanically.

I won't bore you with the faults except as pertain to the driveshafts. One stub axle is bent, and the hub and axle keyway are worn. Both C.V. joints are very worn, the driveshaft sliding splines also, and the inner universals need replacing. As fate would have it, I used to drive Austin 1800s, and have wrecked a couple of them. The shaft assemblies are in good condition, so I did a bit of measuring to see if they would fit - which they did as though made for the job. As to defending their fitment to the Traction, they are identical in all respects to the very first Tractions which were fitted with Rzeppa ball-and-groove C.V. joints.

As to originality, the only externally visible difference is the Austin 1800 hubnut on the Traction hub [only visible with the hub-cap off - Ed].

The half-shafts are not available new, but the stub axle/C.V. joint assembly is (I was quoted \$311 each, retail, BMC original replacement).

As further comment on the originality, the rubber boots on the Austin shafts look very much like those on a Light 15 in the Birdwood Mill car museum in the Adelaide Hills, claimed to be a 1957 French car - (see FD 10(6) p9).

As far as I can tell, there is really no alternative to this type of conversion. Original half-shafts and spigots are unobtainable new, and even though universal crosses are, the yokes are often oversize and need shrinking before re-use. Stub axles and hub tapers are

sometimes damaged, likewise the key-ways. So there is almost no chance of retaining originality and using the vehicle daily [short of careful scrounging and rebuilding parts as in the case of Gerald Propsting's L15 -Ed].

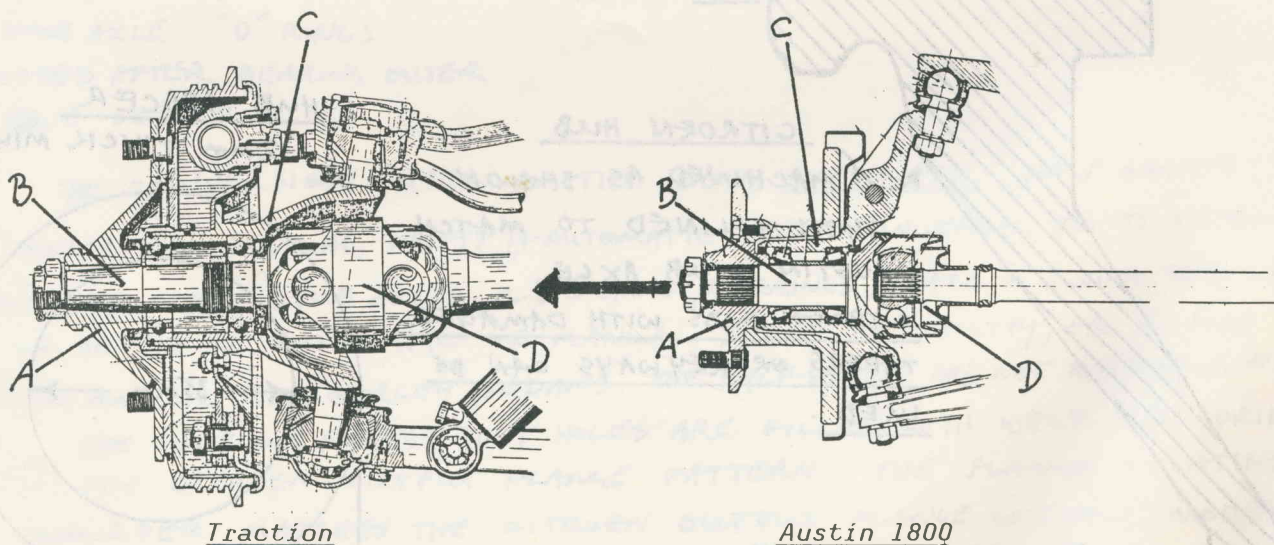
The reason I am using Austin 1800 shafts is that I already have them. Total cost of the conversion for me is about \$40 for hub splining, about \$60 for new rubber boots on the C.V.s and spline ends, \$20 for oil seals, and probably \$200 for consulting engineer's report. Total about \$350 - I have free access to lathe and other equipment for the machining.

Warren Seidel
RMB 4230
Calulu via Bairnsdale 3875.

[EDITORIAL NOTE: Warren has presented an ingenious solution to the oft-talked-about proposition of putting alternative driveshafts into tired Tractions. As far as is known, much of what Warren has proposed is quite novel, and in particular, machining the 1800 swivel hub down to form a bearing adapter sleeve to slide inside the Traction swivel hub, and cutting splines into the previously tapered bore of the Traction wheel hub to accept the splined end of the 1800 driveshaft.

Warren's working drawings of the conversion are reproduced here full-size, as supplied, together with marginal notes. The inner (gearbox) end of the driveshaft is not shown, but in the case of the specified 1800 automatic driveshaft, this has a sliding spline cardan shaft unit, quite like that fitted to the original Traction shaft. As Warren indicates, the 1800 cardan unit can be readily adapted to match the Citroen output flange bolt-hole pattern.

At this stage, Warren's conversion has not been fitted up and road-tested or assessed for longevity. No doubt, breathless readers can look forward to more details, "in the fullness of time" as work proceeds at Calulu!].



Traction

Austin 1800

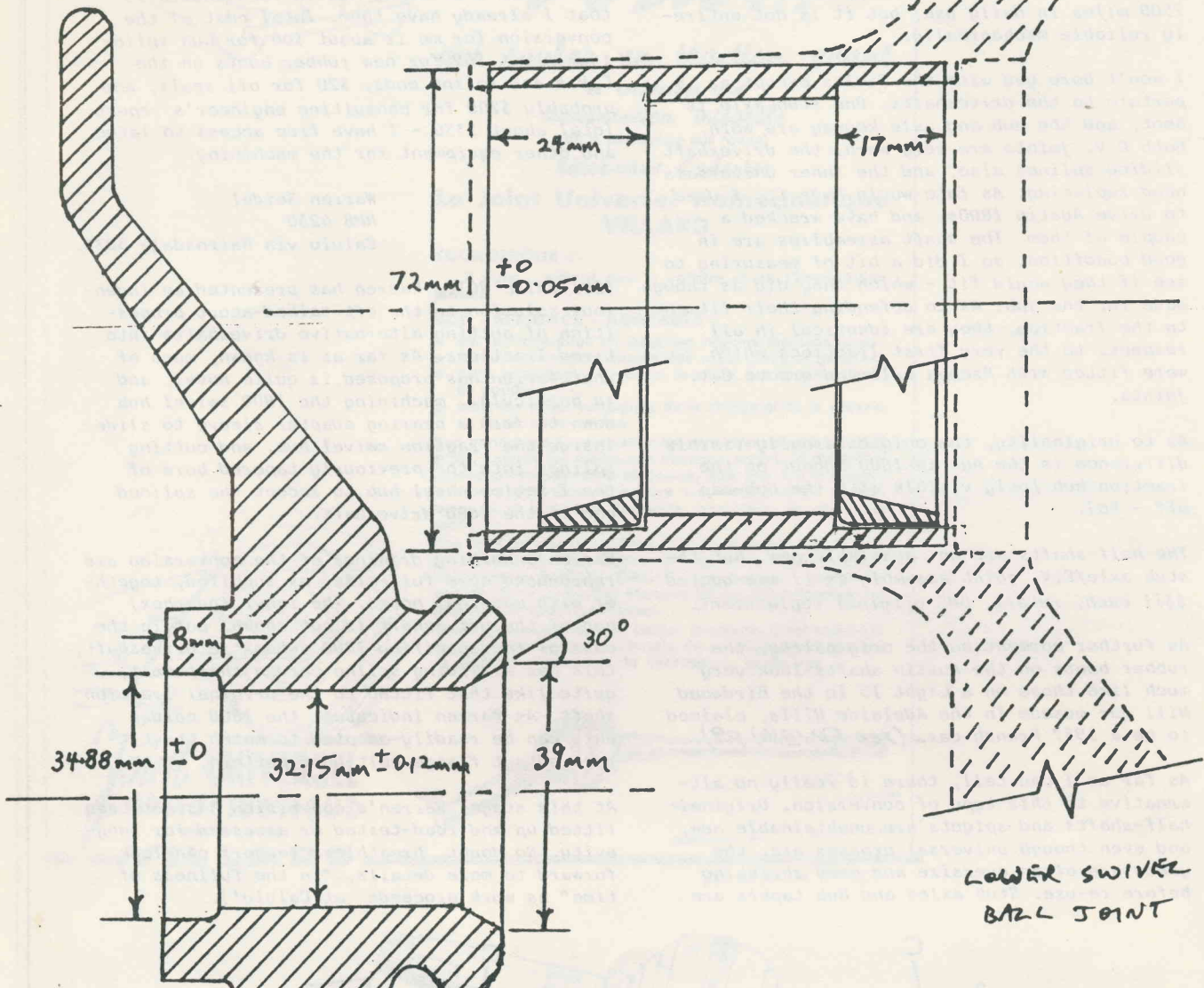
(Not to identical scale)

Outer end of front drive and front suspension, showing wheel hubs (A), stub axles (B), swivel hub (C), CV joint (D).

Note: These parts for the Traction are shown in explicit detail in FD 10 (1) May/June 1986.

UPPER SWIVEL
BALL JOINT

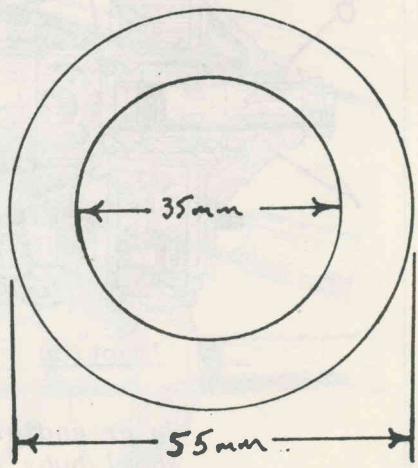
AUSTIN 1800 SWIVEL
UPRIGHT, MACHINED TO GIVE A
CYLINDER 72mm DIAMETER
BY 69mm LONG.



LOWER SWIVEL
BALL JOINT

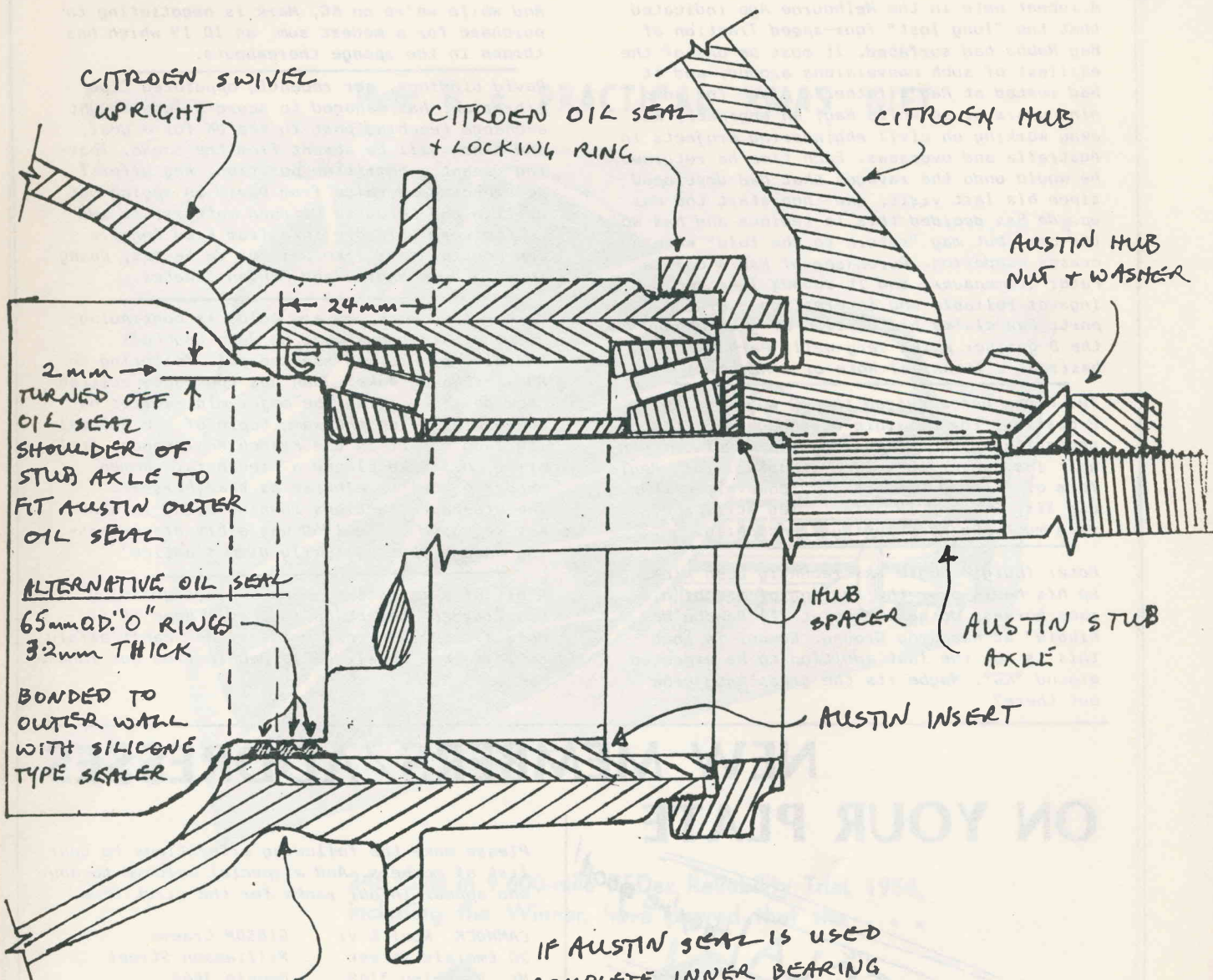
CITROEN HUB
MACHINED AS SHOWN,
THEN SPLINED TO MATCH
AUSTIN STUB AXLE.
CITROEN HUBS WITH DAMAGED
TAPERS OR KEYWAYS CAN BE
USED.

HUB SPACER
2mm THICK MILD STEEL



MAXIMUM RUNOUT ON
BRAKE DRUM MOUNTING
FACE - 0.12mm WHEN
LATHING HUB CENTRE

SCALE 1:1



CITROËN SWIVEL UPRIGHT

CITROËN OIL SEAL + LOCKING RING

CITROËN HUB

AUSTIN HUB NUT + WASHER

2mm → TURNED OFF OIL SEAL SHOULDER OF STUB AXLE TO FIT AUSTIN OUTER OIL SEAL

ALTERNATIVE OIL SEAL 65mm O.D. "O" RINGS 32mm THICK

BONDED TO OUTER WALL WITH SILICONE TYPE SEALER

HUB SPACER

AUSTIN STUB AXLE

AUSTIN INSERT

ALTERNATIVE INNER OIL SEAL, WITHOUT MODIFYING STUB AXLE. "O" RINGS FITTED AFTER BEARING OUTER RACE SEATED

IF AUSTIN SEAL IS USED COMPLETE INNER BEARING ASSEMBLY MUST BE FITTED BEFORE SEAL IS SEATED.

THE CONVERSION USES AUSTIN 1800 AUTOMATIC HALF SHAFTS (10mm LONGER THAN MANUAL SHAFTS) + AUTOMATIC INNER UNIVERSAL JOINTS + COUPLING FLANGES. THE STUB AXLES, C.V. JOINTS, BEARINGS, SEALS + SWIVEL UPRIGHT CAN BE 1800 AUTOMATIC OR MANUAL SEDAN OR UTILITY, OR AUSTIN TASMAN OR KIMBERLEY SEDANS. THE HALF-SHAFTS ARE NOT AVAILABLE NEW.

THE COUPLING FLANGE BOLT HOLES ARE FILLED WITH WELD + RE-DRILLED TO THE CITROËN OUTPUT FLANGE PATTERN. THE FLANGE LOCATING SHOULDER MATCHES THE CITROËN OUTPUT FLANGE WITHOUT MODIFICATION.

Note: At the gearbox end of the shaft, the shaft-retaining circlip in the spline sleeve must be removed and discarded.

W. SEIDEL.

SCALE 1:1

1800 Driveshafts Revisited - Technical Update

1800 DRIVESHAFTS REVISITED:
HOW THEY HAVE BEHAVED IN
A LIGHT 15

RMB 4230

Bairnsdale 3875

7/7/94.

Dear Bill,

Here are the updated driveshaft conversion drawings. Some dimensions are changed and the stub axle now does not need altering to fit the inner oil seal. This is as fitted to our car. An observation was made that the CV joint centreline is offset from the swivel joint centreline, which might affect steering under power. It is offset, but has absolutely no effect on the steering.

Now, a bit of a "long-term user's report" on the Austin 1800 shafts and CV joints. Our Light 15, CCK 336, has done 86 000 miles since we bought it in September 1986. The first 12 000 miles were with the original mechanicals (in about 16 months - frustration territory). It was then fitted with a Datsun 2-litre OHC engine, Volkswagen transaxle and Austin driveshafts and CV joints. The shaft assemblies were not new when fitted, but have performed faultlessly for the 74,000 miles since. They are still silent and smooth, which is a bit of a surprise as the car has to earn its

keep. We have a nice vintage trailer with wood spoke wheels that follows it around now and then. It enjoys the odd traffic light derby and always cruises at the legal speed limit.

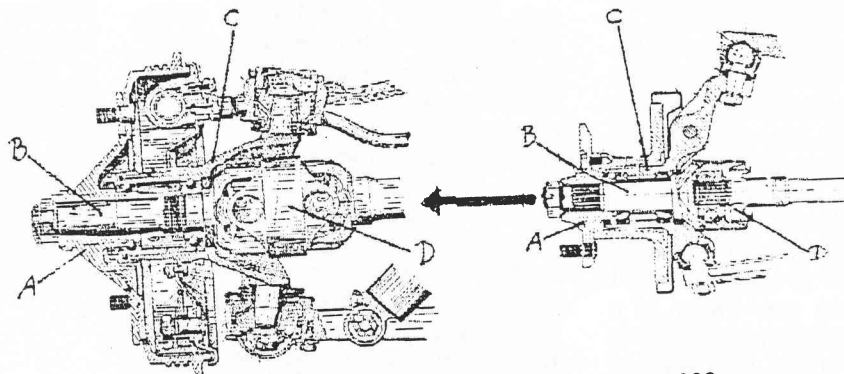
It was also given a bit of a tryout when Mel Carey's Big 6 ran a big-end bearing on the CCOCA Deli Day Run in 1993. Our Light 15 towed the Big 6 from Morwell to Bairnsdale, about 100 miles, at 40-50 mph. The tank was topped up in Morwell, and on refuelling in Bairnsdale, it was found to have averaged 27 mpg - well alright, 10.3 litres per kilomumbles.

Overall fuel economy since the conversion is 30.5 mpg or 9.25 L/100 km, and the car has been pretty well trouble-free, mostly just routine maintenance. The starter motor needed new brushes and bushes a few months ago (it was overhauled when the conversion was done - it is from a Simca Vedette by the way, as is the flywheel and pressure plate assembly). One cardan universal joint collapsed about the same time, and in a week or so, I'll have to replace the clutch plate (VW Kombi 1800) as one of the cushion springs in the plate centre has broken and is rattling around --- I must have been a bit heavy-footed. All of these parts have been obtained over the counter from suppliers in Bairnsdale. For

instance, the cardan UJ cost Bill, you will have to acquire information about swivel joints and driveshafts from page 11 of Front Drive Vol. 11 including circlip removal, as the spacer drawing has displaced. There have been odd comments that Austin shaft assemblies becoming hard to find. No - its now over 20 years since the Tasman/Kimberley version sold. There is likely to be a front drive car with shaft assemblies which could be fitted in the same way as the Austin without the sourcing problem - a good project for someone the Riggings - Ed.].

Also while discussing mechanical with Mel Citroën - he mentioned there are companies in Melbourne specialise in re-conditioning CV assemblies, usually on an over basis. I don't know as far back as the Austin if only worn ones are available might be worth checking. I hope that you find information of interest. I would like to thank ever has a hand in producing and distributing the club magazine and in the past, as it is in contact for us poor country

(CONTINUED)



Traction

Austin 1800

Outer end of front drive suspension, showing wheel [A], stub axles [B], swivel joint [C] & CV joint [D]. Note: for Traction are shown in detail in Front Drive Vol. 11 - May June 1986. These drawings are not scale.

1800 Driveshafts Revisited - Technical Update

(CONTINUED FROM PAGE 14)

P.S. All the mechanical alterations to our Traction have been passed by a consulting engineer and accepted by the Road Traffic Authority. In the original Front Drive article, I estimated that a consulting engineer's report would cost about \$200 to assess the driveshafts. It turned out that it cost \$300 to assess the entire conversion, engine and all.

Yours

Warren and Pam Seidel.

EDITORIAL NOTES

Warren Seidel created a lot of interest when he described the fitting of Austin 1800 driveshafts to replace the tired and virtually unreplaceable originals in his (ex-Noel Cammock) Light 15, back in the November/December 1987 issue (11/4) of our magazine. There have been frequent calls for copies or reprints, and Warren and Pam have obliged in this issue, relating how well the shafts have performed, and also showing improvements that they have devised to make the adaptation easier and the functioning and fitting of the inner bearing seal more effective.

Rather than re-running the original article in its entirety (since some of it is now out-of-date, and is already held by many readers) we have

opted here to simply add sufficient from the original to Warren's current notes so as to make an article which will be adequate for the needs of both our "older" readers and those readers seeing the conversion notes for the first time.

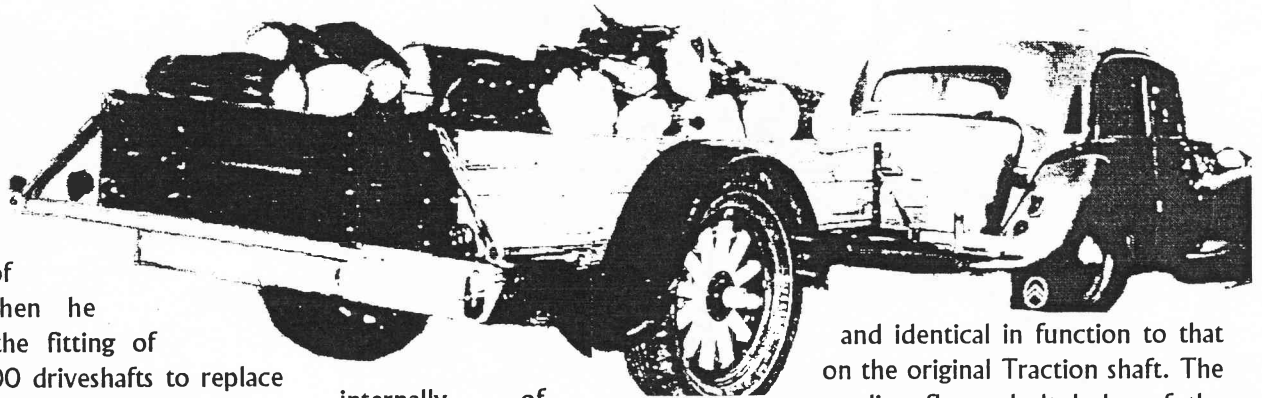
Warren found that the Driveshafts from an Austin 1800 automatic are very close in length and functional dimensions to the Traction Avant originals fitted to a Light 15. His particular genius was in devising a very simple way of adapting the 1800 shaft and bearing/seal assembly so that it fitted neatly into the Traction swivel hub (see supplementary diagrams). He did this by machining the existing 1800 swivel hub (which is already

m a c h i n e d

(now adaptor tube) and the spacer tube between the bearing cups. These are pre-set Austin items and don't need critical machining in the adaptation process. Originally (and maybe still), the bearings were sold as matched sets complete with spacer tube.

The conversion uses Austin 1800 automatic half shafts which are 10 mm longer than the manual versions, plus automatic inner universal joints and coupling flanges. The stub axles, CV joints, bearings, seals and swivel hubs can be 1800 automatic or manual sedan or utility, or from Tasman or Kimberley sedans. The half shafts are not available new.

The 1800 inner shaft joint (cardan unit) is very similar in appearance



internally of course to carry the original 1800 bearings, spacers, seals and shaft) down to form an adaptor sleeve which can be slid inside the unmodified Traction swivel hub. This adaptor sleeve (ex-1800 swivel hub) is retained inside the Traction swivel hub by the threaded Citroën outer locking ring which also carries the Citroën outer bearing grease seal. In the latest version, it is not necessary to machine the 1800 driveshaft to accept the inner grease seal which now runs on a spacer ring retained by the inner wheel bearing. The critical end loading on the bearings is determined by internal shoulders of the 1800 swivel hub

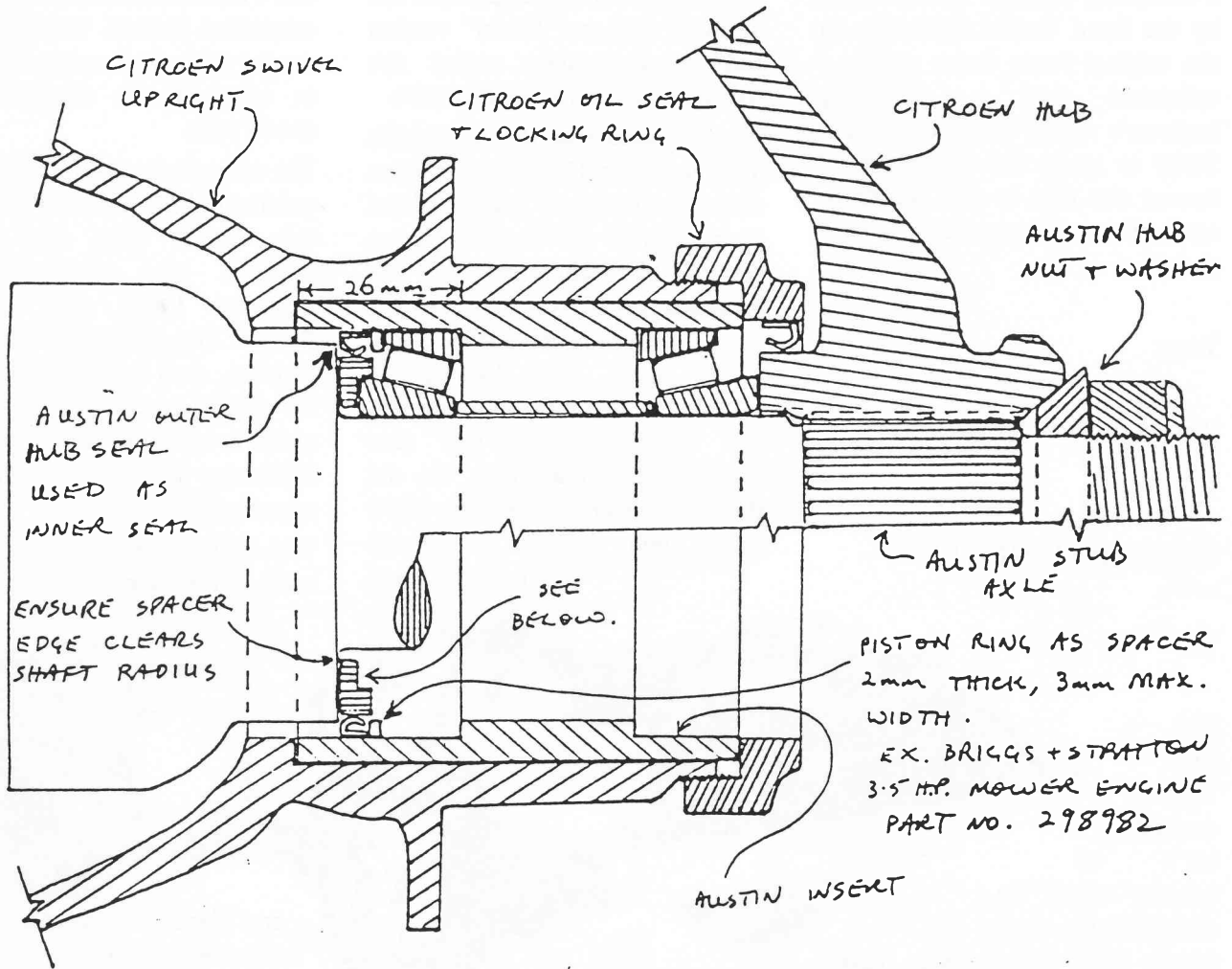
and identical in function to that on the original Traction shaft. The coupling flange bolt holes of the cardan are filled with weld and redrilled to the Citroën output flange pattern. The flange locating shoulder matches the Citroën output flange without modification. The shaft-retaining clip in the splined sleeve of the cardan unit must be removed and discarded.

As can be seen in Warren's drawing, the Citroën wheel hub is machined out parallel and broached to produce splines to mate with those on the 1800 stub axle. This means that hubs with poor tapers and/or keyways can be brought into service.

1800 Driveshafts Revisited - Technical Update

AUSTIN STUB AXLE FITTED INTO CITROËN HUB

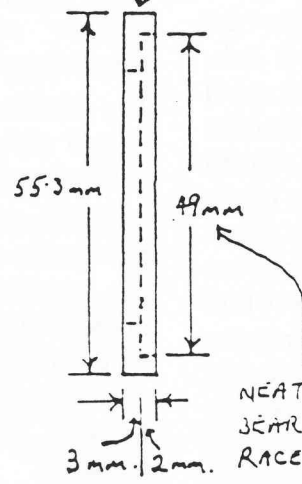
STUB AXLE IS NOT ALTERED



PISTON RING AS SPACER
 2mm THICK, 3mm MAX. WIDTH.
 EX. BRIGGS + STRATTON
 3.5 HP. MOWER ENGINE
 PART NO. 298982

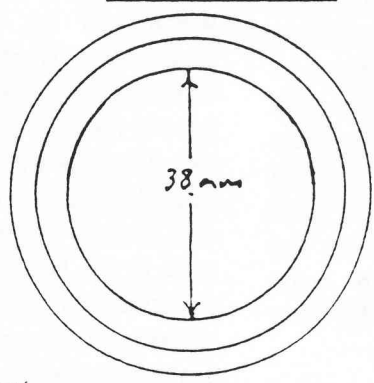
SIDE VIEW

OIL SEAL WIPING SURFACE - SMOOTH FINISH



OIL SEAL - SPACER RING

MILD STEEL. 5mm THICK
FRONT VIEW.



W SEIDEL 15/4/88

1800 Driveshafts Revisited - Technical Update

