

Traction AVANT

If they had been introduced in 1954, the Citroën 'Traction' models would have been viewed as very advanced machines. In fact, these characterful cars were introduced 20 years earlier...

Text: Kim Henson
Photography: Martyn Barnwell

During the early 1930s, virtually all cars had separate chassis frames, supporting tall, composite steel panels on wood frame bodies, cart-type springing, rod or cable-operated brakes and rear wheel drive.

However, André Citroën broke the mould of family car motoring with his innovative 'Traction Avant' (front wheel drive) model, introduced in April, 1934, for it dispensed with all these established features.

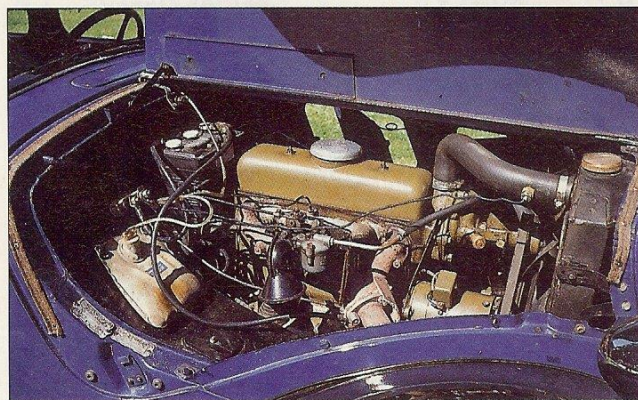
Even more remarkable was the fact that the car was developed in just 12 months, with engineer André Lefebvre taking a leading role.

For his new model, Citroën's brief was straightforward - to produce a car with front wheel drive, space and comfort for four adults, up to the minute

styling, capable of 60 mph and 30 mpg (though not necessarily at the same time!), to sell in large numbers.

The Traction range was introduced at the Paris Salon in the spring of 1934, in the form of Berline (saloon), Cabriolet (drophead) and Faux Cabriolet (fixed head coupé) versions.

In each case the technical innovation was simply staggering, by the standards of the day. Although the cars did not feature the automatic transmission by Sensaud de Lavaud which Citroën had favoured, they did have front wheel drive, independent torsion bar suspension at the front, with semi-independent torsion bar springing at the rear, overhead valve, wet liner engines (designed by Maurice Sainturat), reinforced monocoque bodywork, hydraulic brakes - and so on.



The power units are overhead valve types, with wet liners. Routine maintenance and even more major repairs are straightforward.

The cars also featured low-slung, attractive and spacious bodywork, with wide track dimensions.

The initial range of engine capacities included 1302cc (7A) and 1529cc (7B) units, but these soon disappeared, leaving

Citroen Twelves, Fifteens and Sixes



The blue car, YSU 155, is the 1937 7C model of Dave Almond, from Bradford-on-Avon. The red Traction, BSK 311, is the 1948 Slough-built Light Fifteen belonging to Dave Partridge, of Bristol. The black model, JSK 381H, is the 1952 Normale owned by Michael Carr, of Hereford.

CHECK BEFORE YOU BUY

- Listen for knocking/rumbling from the engine bearings. All Tractions had white metalled mains and big ends until 1955, when shell type big end bearings were fitted.
- With the engine fully warmed up, watch for clouds of blue (oil) smoke from the exhaust under hard acceleration, also fuming from the rocker cover.
- Enquire how often the engine oil has been changed. The lack of an oil filter demands frequent changes.
- Look at the underside of the water pump for telltale signs of coolant leakage. Water dripping from the pump goes into the clutch housing, causing clutch judder and - if the car is parked for along period - seizure of the clutch.
- Ensure that the gearbox operates as it should. However this is not conclusive evidence that all is well with the transmission - the crown wheel can break up without warning!
- On a test drive, listen for 'knock on lock' from the driveshafts, indicating worn outer joints. A snatch evident between drive and overrun (and vice versa) is another symptom.
- Jack and support the front of the car under each lower wishbone in turn, and attempt to rock the wheel. Look for wear in the upper and lower steering swivels, also for excessive movement (i.e. any more than just perceptible) between the two halves of the outer joint in each driveshaft. Finally, check for movement of the upper wishbone in its supports. Judder on take-off is another symptom of problems in this area.
- Check for signs of recent attention to the multitude of greasepoints on the front suspension.
- Look at the steering rack gaiters. If broken or missing, the rack will almost certainly have to be removed to install new ones. If the gaiters have been damaged for long, the rack may have been ruined.

1628cc (7C) and 1911cc (7S) 'fours' in production.

A few 3.8 litre V8s were also built and displayed at the 1934 Salon, but it is thought these were all destroyed, and certainly these models were not volume-produced.

In each case the engine was mounted behind the clutch/gearbox/final drive assembly, with the radiator fitted above the transmission.

Most differences arise from the varying fiscal horsepower systems used in Britain and in France. Tractions were built in Paris and - from mainly French components - in Slough. The U.K.-built models featured right hand drive, wooden fascia and door trims, more bright trim, leather seats and 12 volt electrics, as well as other refinements.

Early models with 1.3 litre engines, were termed '7' - the French 'CV' (horsepower) rating. These soon gave way to 1.6 litre units, and cars sold with these engines in Britain were called the 'Super Modern Citroën Twelve'.

The larger bore, 1911cc engine arrived later in 1934, in Legère ('Light') and Normale (standard) forms. In France, the car was known as the 'Onze' (11), whereas in Britain it was termed Fifteen - in both cases after the taxable horsepower rating. So, for example, an 'Onze Legère' is equivalent to a 'Light Fifteen'. An 'Onze Normale' equates to 'Big Fifteen' - this has the same four cylinder engine as the Light Fifteen, but a slightly bigger body.

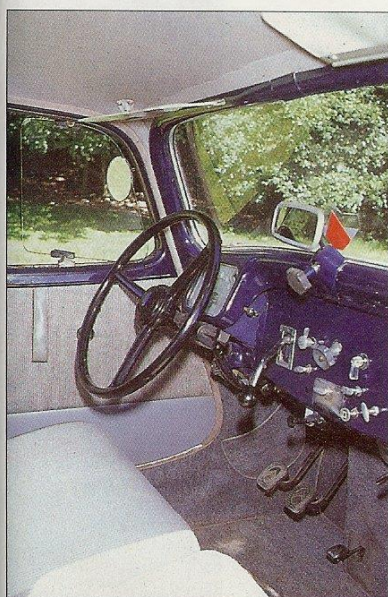
To make matters more complicated, a six cylinder French 'Quinze' (15) was introduced in late 1938 and sold in Britain after the war, where it is best known as the 'Six'. The power unit in this model was effectively formed by adding two more cylinders to the 1911cc 'Four', giving 2866cc capacity.

The bodywork of the Onze Normale (Big Fifteen) and the



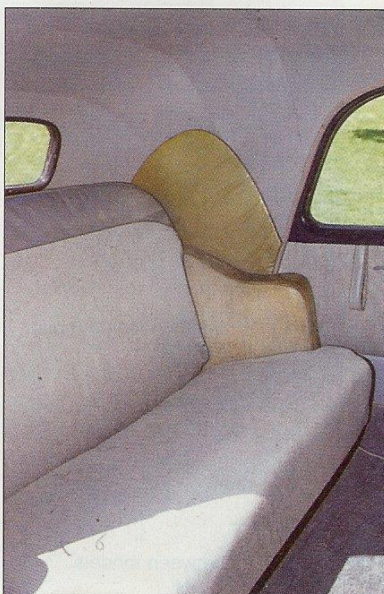
Model designations

It is easy to become confused regarding the Traction model designations.

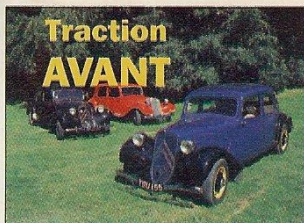


Interior design in the French built cars is typically functional. The gear lever protrudes from the dash and is pleasant in use. The seats are cloth-covered and very comfortable.

Rear seat occupants have generous head and leg room, and the lack of a transmission tunnel helps make the cars feel more spacious still.



BUYERS' GUIDE



six cylinder cars is similar.

Longer wheelbase seven-seater Familiale ('family') versions, and hatchback 'Commerciale' models were other variations on the theme powered by the 1911cc four.

Both the Cabriolet and Faux Cabriolet versions were originally intended to be powered by the V8 engine, but were produced with four cylinder units; either 7CV (12.8hp) or 11CV (15hp). Neither car was produced in large numbers - the Faux Cabriolet was only available during four years, and only three survivors are known in Britain.

Development

The general design and layout of the cars remained the same throughout the production run. Three speed manual gearboxes were used throughout (although contemporary four

speed conversions were available). However, there were some changes, including, in the early days, improvements to the gear linkages and driveshafts, also rack and pinion steering replaced the worm and sector system in 1936.

The development costs of the so-called Traction, combined with factory modernisation costs, added up to financial disaster, and the firm was taken over by the main creditor, Michelin, in 1935, the year in which the car's creator, André Citroën, died at the age of 57.

Michelin developed an attractive new pressed steel 'Pilote' wheel - lighter and wider than the original - for their new tyre, also designed specifically for the Traction. This was introduced for 1937, in response to the problem of rapidly wearing front tyres, hitherto experienced.

From October, 1952, the cars gained a projecting boot lid, within which the spare wheel was now housed.

Earlier cars had the facility to lock the boot lid in the open position, and a fold-out flap, forming a platform linking the boot floor with the open lid to

Citroen Twelves, Fifteens and Sixes

accommodate large quantities of luggage.

The very last Sixes featured hydropneumatic suspension, but were otherwise as before.

The Traction was eventually discontinued in July, 1957 (the Sixes having been dropped in 1955), after more than 750,000 in total had been built.

Of the total produced, over 708,000 were four cylinder models, 50,000 were six cylinder machines. About 35,000 Traction were Slough-built models.

The cars were effectively

replaced by the DS - another remarkably advanced car for its time.

Repairing and restoring

Most parts needed to keep the cars on the road are still available, and the Traction Owners' Club runs a comprehensive spares scheme, available to members in return for a one-off payment. Spares are available from specialists in the U.K., also from France and Holland, where the club scene is also particularly strong.

● Continued on page 60

A contrast in body styles. The early cars had the spare wheel mounted on the outside of the boot lid. From October 1952, a projecting boot lid enclosed the spare wheel and increased the lockable luggage capacity.



SPECIFICATIONS AND PERFORMANCE

France Designation (CV) U.K. Designation	7 Super Modern Twelve	11 Fifteen	15 Six
Production period (excluding wartime)	1934	1934-57	1938-55
Cylinders (all overhead valve)	4	4	6
Capacity(cc)	1628 (very early examples, 1302)	1911	2867
Bore (mm.)	72	78	78
Stroke (mm.)	100	100	
Compression ratio	5.9:1	5.9:1 (later cars 6.2:1)	5.9:1 (later cars 6.2:1)
Carburettor	Solex	Solex	Solex
Bhp at rpm	35 3200	56 4300	76 3700
(Example year)	(1937)	(1946)	(1949)
Transmission	3 speed manual (all models)		
Front suspension	Double wishbones and torsion bars (all models)		
Rear suspension	Torsion bars	Torsion bars	Torsion bars
Brakes	Hydraulic, all drum (all models)		
0-50 mph (sec)*	24	15	12
Maximum speed (mph)*	63+ mph	75+ mph	83+ mph
Overall fuel consumption (mpg)	25-30+	25-30+	16-20+

* Typical figures quoted; there are slight variations between models.

RUSTFINDER

Citroen Traction Avant

Tractions are not especially rust-prone. There are still many examples still running with original sill panels, etc. However, many cars have been cosmetically 'bodged' in order to make them look good. Slough built cars are generally of thinner gauge steel than Tractions made in France, and the early post-war steel was often not of high quality, so rust can be more extensive.

1. Sill assemblies

The sill structures comprise inner and outer panels, with an additional membrane between them. It is vital, for the structural integrity of the car, that these areas are sound. On British built examples, the centre sections of the sills/bases of the centre door pillars are especially rust-prone, since apertures for the semaphore indicators allow water to enter.



2. Sill extensions

Holes can appear in the sill extensions each side of the engine bay - look very closely, especially in the vicinity of the apertures where the steering rods emerge from the rack. The steel forming the floor of the sill extensions on each side is vulnerable, as are the triangular sections beneath the front ends of the sills.



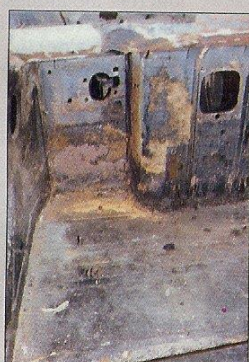
3. Rear ends of sills

The rear, lower corners of the outer sills, and the upper sections of the inner sill panels, just ahead of each rear wheel, are often rusty.



4. Front wing area

Water can collect between the front wing bead- ing and the bodywork, and eventually holes can appear.

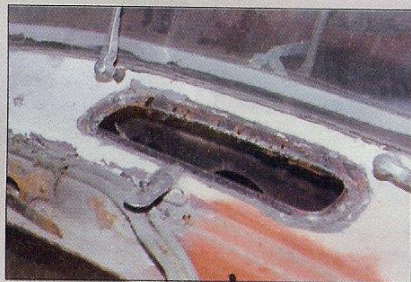


5. Front floor pans

The whole of the front floor pans (also adjacent sections of the inner sills and bulkheads), back as far as (and including) the front seat cross-member, are vulnerable to rust attack, often caused by leaking scuttle vents.

6. Scuttle vent

Always inspect the vent and its lip - if the lip is rusty too, even more water will enter the car, causing more rust in the floors!



7. Rear inner wings

Holes can appear in the rearmost half of each rear inner wing/wheel arch, including the metalwork just behind the shock absorber mounting.

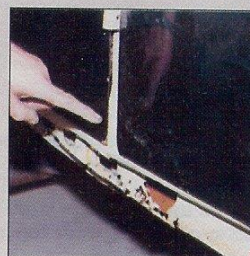
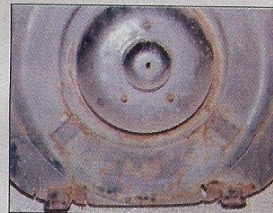


8. Boot floor

On pre-October 1952 cars, the boot floor and the panelwork across the extreme rear of the car - including the boot hinge mountings - can rust badly, necessitating replacement of these sections. Although a rubber seal is fitted, water is intended to run into the boot and out again through the drain holes. Later cars are usually better in these areas.

9. Boot lid

The lower edge of the boot lid is a prime site for rust - so check on the standard of repairs. The hinges (on pre-October 1952 cars) can seize and flex the rusty metal, too.

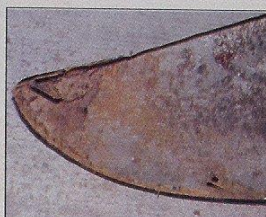


10. Door bottoms

The lower edges of the doors collect water and can rust through from the inside. These are also areas which often tend to be hastily repaired.

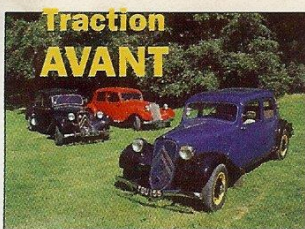
11. Wing trailing edges

Look at these areas from above and below. What can look good from above often turns out to be a nest of rust when examined from underneath. The outer edges of the wings can also split - look carefully.



Check too for rust along the roof gutter channels. Replacement of rotten metal is the only real answer.

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Structural body components can be obtained, but new wings are very scarce. Bumpers and some other items for the Slough cars tend to be expensive.

The engines are strong, long-lasting units, provided the oil is changed regularly. The lack of an oil filter makes this necessary every 1000 miles where the car is used for town driving, and every 2000 to 3000 miles where open road running is more usual.

Piston and cylinder liner kits are available, but fully overhauling an engine will almost certainly cost a minimum of \$1000.

Transmission units are a relatively weak point of the design. Developed rapidly to replace the unsuccessful automatic gearboxes originally envisaged, the three-speed manual gearboxes were shoe-horned into the auto's casing.

Noisy transmissions should

be investigated, for sometimes a tooth can detach itself from the crown wheel, to become lodged between the crown wheel and the casing, forcing the casing apart. This occurs when the transmission is in overrun mode. Warning signs can include a change in sound pitch between drive and overrun conditions.

Extreme care should be exercised if a Traction has to be 'bump-started'. This should only be carried out if the gearbox is in first class condition. Even then, the car should only be started when rolling by gently engaging top gear. If you slam it into second gear, there is a good chance the box will literally split apart. Harsh driving - especially with a warm gearbox - should also be avoided, as there is a danger of a crownwheel tooth breaking off.

Pinion end float can be checked with the unit fitted in the car, although the differential's bottom cover plate has to be removed.

Until quite recently the solution to transmission problems was to fit a secondhand unit (indeed good gearboxes are still available). However, now new crown wheel and pinion sets, made from modern materials are also available, and cost around

Citroën Twelves, Fifteens and Sixes

\$250.

Engine removal

If the power unit and transmission are to be removed from the car, the first step is to release the two screws and the support securing the bonnet. Next to take off as an assembly are the front wings and grille, having first released the 12 mounting bolts.

The engine and transmission assembly are supported at the back, and under the gearbox, on rubber mountings, and in addition there is an anti-rock spring each side. Having released the front and rear mountings, linkages, and the driveshaft flanges (four bolts each side) the drivetrain can then be lifted away from the anti-rock springs.

If carrying out a clutch change on the smaller bodied cars (e.g. Légère/Light Fifteen), it is easier to remove both the engine and gearbox together for subsequent separation on the floor.

However, on the larger, wider bodied cars, the gearbox can be detached with the engine in situ.

Front suspension

The independent front suspension is mounted on a U-shaped cradle/crossmember, attached to four horizontal tubes, extending forwards from the front end of the monocoque assembly. Once the drivetrain

units have been removed, and the body has been supported, this cradle/crossmember supporting the suspension, drive-shafts and front wheels can be unbolted and extracted.

Wear can occur in the outer joints in each driveshaft. The original types with a double hook joint at the outer end can have modern constant velocity joints fitted - units employed include those intended for Range Rovers, Montegos and Audis.

Excessive free play in the upper and lower swivel joints on each side can - if not severe - be adjusted out. If this fails to solve the movement, new joints (about \$70 each) need to be installed.

Of course, prevention is better than cure, and replenishing the 20 or so greasepoints every 500 to 1000 miles will add years of life to all components.

Removal of the front brake drums calls for the application of a special puller. This puller forms part of a kit of special front end tools (including one for dealing with the swivel joints, and another for extracting the driveshafts), and the kits are available to members for hire from the Traction Owners' Club spares department.

Always look closely at the condition of the interior. The leather upholstery and wood fascia and door cappings on the Slough-built cars can be expen-

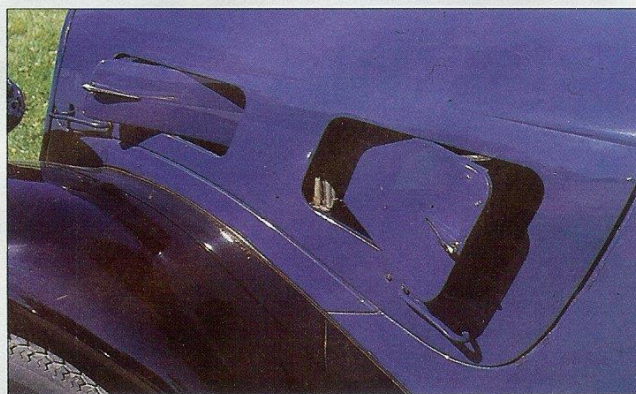


SPECIALISTS

- Classic Restorations (John Gillard), Arches 124, Cornwall Road, London, SE1 8QT. Tel. (071) 928 6613.
- Imperial Cars of Bilston (Steve Southgate), Oxford Street, Bilston, West Midlands, WV14 8AA. Tel./Fax. (0902) 495758 or (evenings) (021) 357 2256 or (mobile) (0850) 777445.
- Neo Retro-BP, 369 87010 Limoges, France. Tel. (010 33) 55 483858. Fax. (010 33) 55 002796.
- Paris-a-Traction (Robin Rother), Preston House Studio, Preston, Canterbury, Kent, CT3 1DZ. Tel. (0304) 620238. Fax. (0227) 728493.
- Peacock Automobile Engineering, Old Hathern Station, Normanton on Soar, Loughborough, Leics., LE12 5EH. Tel. (0509) 842560.
- Traction Renaissance Services (Denis Ryland), Woodholme, Frithwood, Brownhill, Stroud, Glos., GL6 8AD. Tel. (0453) 883935.

Right: Early cars featured these delightfully styled air vents on the bonnet sides. Later cars had louvres.

Below: The boot lids on the early cars were hinged at the bottom; the larger lids on later examples were top-hinged.



■ Traction Owners' Club. Write to Steve Reed, 1 Terwick Cottage, Rogate, Petersfield, Hampshire, GU31 5EG.

■ Citroën Traction Enthusiasts' Club. Contact Robin Rother, Preston House Studio, Preston, Canterbury, Kent, CT3 1DZ.

■ Citroën Car Club. Write to P.O. Box No. 348, Bromley, Kent, BR2 8QT.

Please enclose an SAE with each inquiry.

**CLUB
TOGETHER**

sive to restore/replace so don't neglect this aspect when inspecting a car.

Conclusions

Years ahead of the time when new, Traction are now competent classics, offering comfortable, stylish motoring. They go well, ride well and handle well - and feel far more mod-

ern than their age might suggest. For regular use, the post-war cars are considered a better bet, although the pre-war models are arguably prettier. The pre rack and pinion models (1936) are less usable' but more collectable.

Denis Ryland, Spares Officer for the Traction Owners' Club, advises would-be buyers first to

join the club and talk to other owners, and to view as many cars as possible before making a decision.

Look particularly closely at the mechanical condition of cars newly imported from France. Since an MoT-style test has only recently been introduced there, there are still many neglected Traction around. Cars imported from the south of France, tend suffer less from rust, but rubber trim perishes in the hot sun.

My thanks to Steve Hawes and all the members of the Traction Owners' Club in the Gloucestershire area (including Dave Almond, Dave Partridge and Michael Carr), whose recent meeting we 'took over' for our photographic session, and whose cars they kindly allowed us to photograph. Thanks also to Denis Ryland and his son Martin, who patiently guided me around the cars being restored in their 'Traction Renaissance Services' workshop, where the photographs for the 'Rustfinder' section of this feature were taken. Denis also risked life and limb by letting me drive his highly enjoyable Light Fifteen around the lanes of Gloucestershire.

Finally, I am grateful to the various specialist suppliers who provided additional information.

Driving impressions

The French-built Traction, with cloth seats and painted steel interior fittings, have a more austere appearance than the Slough cars, yet are equally comfortable machines in which

to travel. However, the wooden dashboard and door trims, plus leather upholstery in the British versions does impart more of an air of luxury.

Forward visibility is good, and as you proceed you are 'guided' by the long, sleek bonnet and large headlamps, in typically pre-war style.

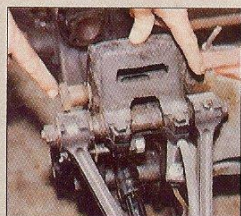
Performance is pleasantly lively in the 1.9 litre models (the most common), with an easy cruising speed of around 60 mph, and a maximum of nearer 75 mph. Engine noise rises in line with speed, and the engine becomes much louder at speeds in excess of 60 mph.

Acceleration through the three gears is reasonably brisk, and the gearchange itself is pleasant. Synchromesh is present on second and top gears; changing down to first should only be carried out with the vehicle at a standstill.

Denis Ryland, who is a long-term Traction enthusiast, and Spares Officer for the Traction Owners' Club, allowed me to take the wheel of the 1953 Light Fifteen he restored from boxes of bits, and which has survived a Paris-Moscow-Paris trip.

I found that the car had a very modern feel. The suspension soaked up all the bumps that the Gloucestershire lanes could provide, and handling felt very positive. Body roll on twisty roads was negligible, and the car was enjoyable to drive. Denis reports that fuel consumption ranges between 27 and 35 mpg.

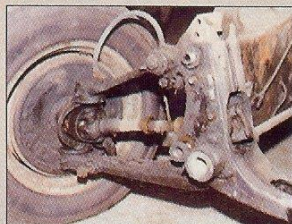
Verdict: 'Magnifique!' ■



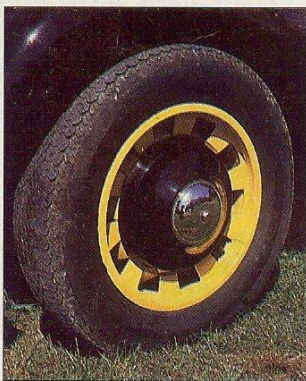
Left: Check for wear in the upper wishbone pivots; regular greasing will help to keep wear at bay.

Below, right: Couplings at the outer ends of the driveshafts can wear - check for lost motion here - and excessive play in the upper and lower ball joints can also be a problem.

Right: The front brake drums fit onto tapers, and are secured by a key. If not fully tightened, the brake drum will move, shearing the key and allowing the driveshaft to rotate within the hub.



This is a rusty pre-war body shell being brought back to life at Traction Renaissance Services. The shell tapers sharply at the front, narrowing to the four mounting points for the front suspension cradle/crossmember.



Left: The attractive Michelin 'Pilote' wheels were introduced for 1937.

Right: The 'hump back' bootlid on post 1952 cars hides the spare wheel.

Below: Early and late cars have detail differences, but all versions are variations on the same theme, and all are unmistakably 'Traction'.



PRICES

■ Pre-October 1952 'flat boot' cars in top condition can fetch £8,000 to £10,000 or more (later, 'big boot' models, between £7,000 and £9,000), whereas examples in sound condition but requiring some work are available for about £4,500. Restorable cars are priced at around £2,000. The Sixes are no more valuable than the smaller models, but restoration costs can be higher.

