

Maintenance Handbook for Citroën Twins

2CV 3CV Dyane Mehari Ami Acadiane Vans Estates & Saloons

by

John P. Richards C. Eng. M.I. Mech.E. (A.D.)

Updated and printed by Two Horse Stables, Independent Citroen Specialists, Cross Hills, Yorkshire.

ACKNOWLEDGEMENTS

Many thanks to Citroen Cars Ltd. for their co-operation in supplying data, information and illustrations; and to the Norsk 2 CV Klubb for the cover design.

We would like to thank the following organisations for the use of some of their diagrams and sketches:

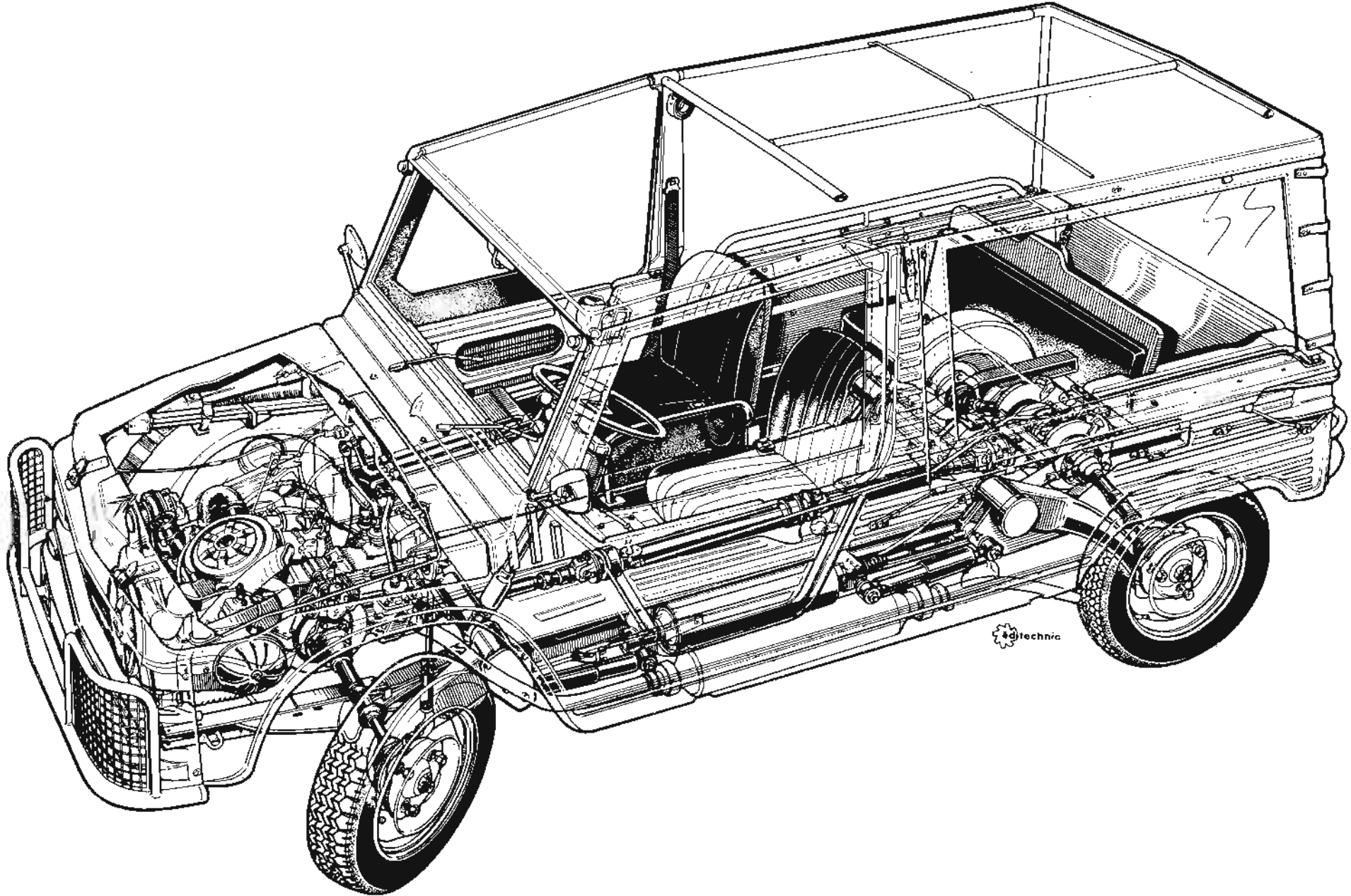
Peter Russek Publications Ltd.

Practical Motorist

Revue Technique Automobile

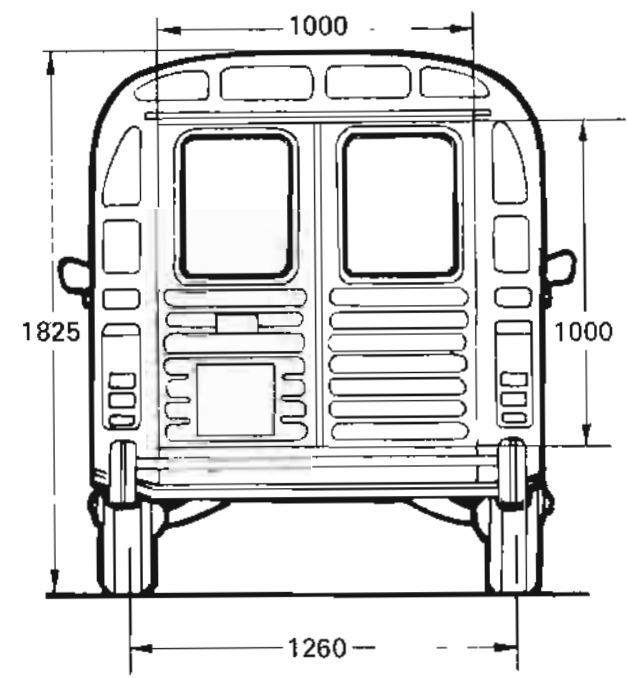
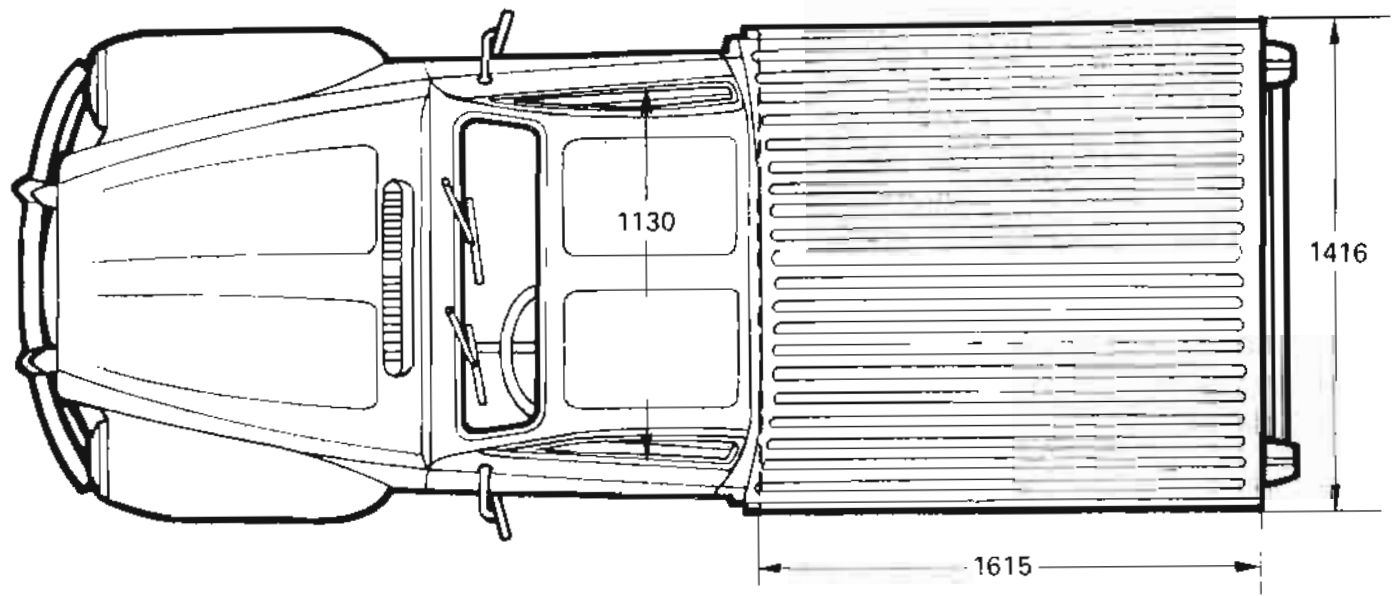
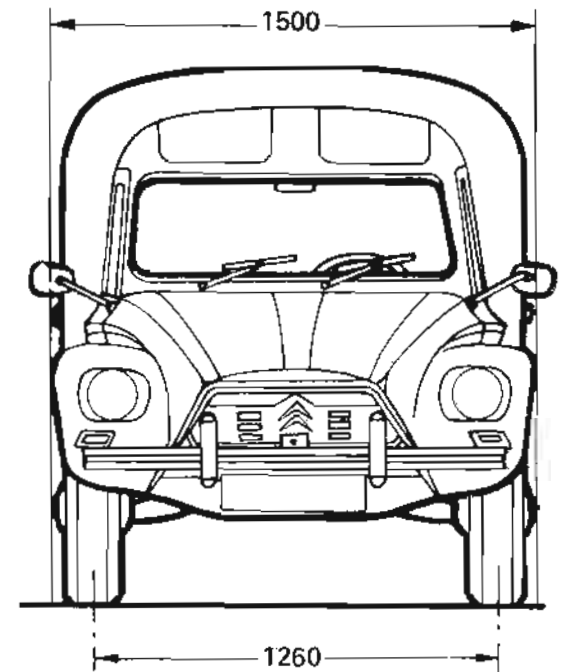
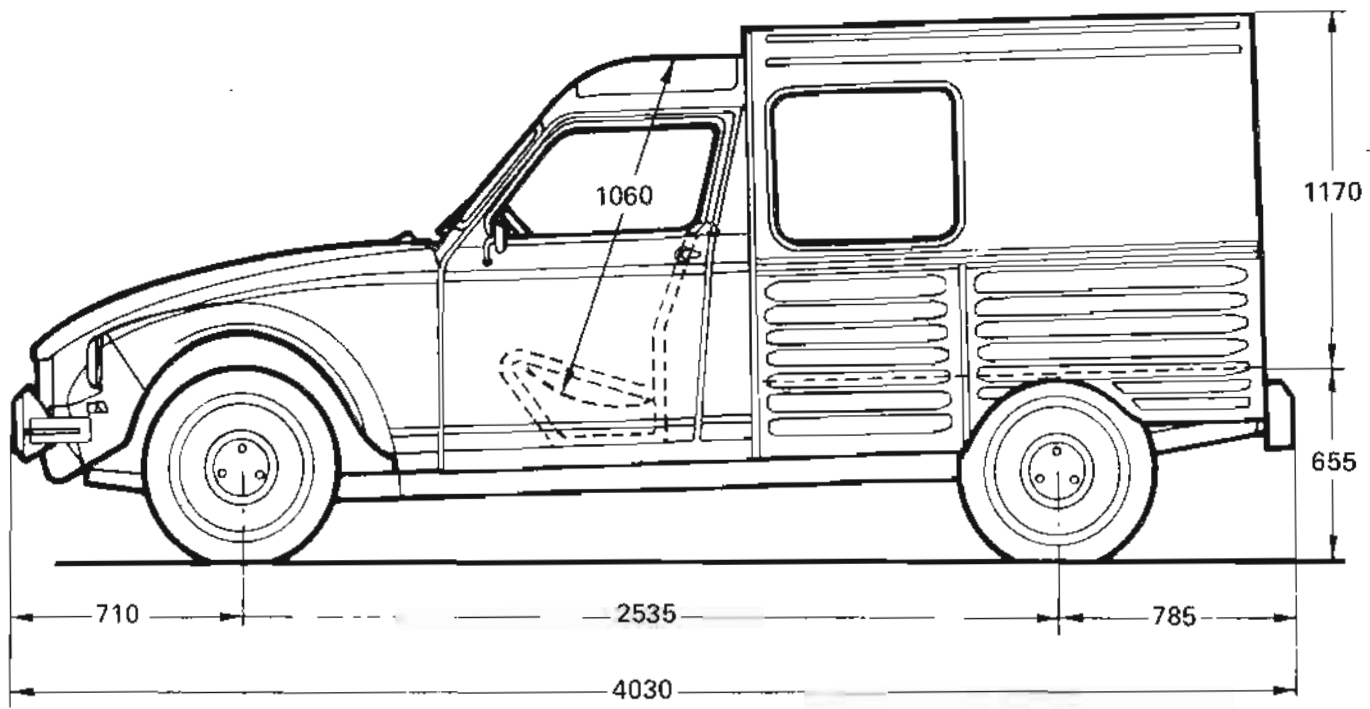
Solex Ltd.

Whilst every effort has been made to ensure the accuracy of the information and advice given in this book, Two Horse Stables cannot accept liability whatsoever for such information and advice.



59

4



CONTENTS.

Chapter 1.	Page 6.	Introduction
Chapter 2.	Page 7.	Correct use of the vehicle
Chapter 3.	Page 9.	Correct Running-in
Chapter 4.	Page 11.	Starting
Chapter 5.	Page 14.	Preventative Maintenance
Chapter 6.	Page 15.	Lubrication
Chapter 7.	Page 17.	Tools
Chapter 8.	Page 19.	Maintenance Schedule
Chapter 9.	Page 26.	Maintenance Diagram
Chapter 10.	Page 27.	Maintenance Tasks
Chapter 11.	Page 41.	Fault Finding Chart
Chapter 12.	Page 57.	Ignition
Chapter 13.	Page 65.	Suspension
Chapter 14.	Page 69.	Brakes
Chapter 15.	Page 84.	Vehicle Data
Chapter 16.	Page 85.	Maintenance & Repair Data
Chapter 17.	Page 89.	Electrical system
Chapter 18.	Page 106.	Overland Journey Preparation
Chapter 19.	Page 110.	Useful addresses
Chapter 20.	Page 113.	Further Reading

Chapter 1.INTRODUCTION.General Information.

The 2CV was first produced in 1948 as a comfortable, go anywhere, four door Utility car which required the minimum of attention in return for a high standard of reliability. This was achieved by a simple mechanical design that cleverly eliminated those features which gave trouble on other cars; i.e. water pump, thermostat, anti-freeze, cylinder head gaskets, distributor, starter bendix, rear wheel drive, split connecting rod big-ends, suspension rubber bushes, steering rack mountings and complicated gear change linkages.

Despite this simplicity, the 2CV and its derivatives require regular maintenance to retain performance, safety standards and reliability. The life of these vehicles can approach 200,000 miles without serious problem if maintenance is meticulously carried out.

The following component life is not unusual:

Piston rings	100,000
Set of rear brake shoes	100,000
Set of tyres (Michelin X)	70,000

New Cars.

The pre-Delivery Inspection (P.D.I.) and first Service (600-1000 Miles) are equally important. The P.D.I. covers about

50 checks before the car can be driven on the road. The correct implementation of the first service, which is free of labour charge, is crucial. If the oils are not changed, the tappets adjusted and any faults not corrected, serious defects can occur later in the life of the car which could be very expensive. If you have any doubts on your dealers execution of these tasks approach him in a friendly manner. If you are still not satisfied contact After Sales Dept. Mill Street, Slough SL2-5DE. Bucks. Tel. Slough 23808, for their advice.

Finally read the Owners Manual and Maintenance Guide (supplied with each car) very carefully in order to know your rights under the guarantee, and to become familiar with the correct operation of the car.

Secondhand Cars.

Before buying a secondhand car check that the chassis and engine numbers correspond with those in the log book and that it has a current MOT certificate if 3 years old or more. Insist on evidence of regular maintenance, the maintenance guide should indicate whether the 1st and subsequent services have been carried out. Basically as long as everything works without any loud knocking and the chassis is not rusted through, the car should be satisfactory. Remember anything on these cars can be repaired, all body parts are easily removable.

Mileage is not important, in fact a car which has covered less than 5000 miles per annum could be more of a problem than one which has done four times that mileage.

If you have not driven one of these cars before, it may take sometime to become familiar with the controls, which normally are very light and free to operate, and you may not be able to obtain the claimed performance. Every car should have an Owners Handbook, a starting handle, jack, wooden wheel chock and grill muff.

Chapter 2.

CORRECT USE OF THE VEHICLE.

Drive the car generally in accordance with the owners handbook bearing in mind the following points:

1. The engine is designed and built to run at high speed for long periods, providing it is maintained correctly the maximum speed quoted is also the continuous cruising speed. If driven gently for any period of time it

becomes lazy and uneconomical.

2. To obtain maximum performance change gear when the speedometer needle almost* reaches the red marks on the scale, e.g:

1st to 2nd	15 mph (24 kph)	20 mph (32 kph)	* Almost is to allow for vehicle mileage, i.e. new and not run-in or old, tired and high mileage cars also speedometer accuracy varies.
2nd to 3rd	30 mph (48 kph)	38 mph (61 kph)	
3rd to 4th	50 mph (80 kph)	55 mph (88 kph)	

3. Always start off in 1st gear unless the car has a 'Trafficclutch' when 2nd gear can be used on the level or down a gentle slope if rapid acceleration is not required.

4. When starting up a steep slope do not rev the engine or slip the clutch excessively. It is surprising how well these cars will start off with moderate use of clutch & revs. Bottom gear is very low on all models for Alpine starts.

5. The engine develops maximum torque at relatively high speed. At this speed the engine is most efficient. When translated into road speed this gives the most economical speeds in each gear for all models i.e:

1st gear: 12mph(19kph)

2nd gear: 24mph(39kph)

3rd gear: 38mph(61kph)

4th gear: 55mph(88kph)

6. For economical operation of the car and the best output from the heater in cold weather, always fit the grill muff when the temperature drops below 10°C (50°F), around the beginning of October and leave it on all the winter unless the weather becomes very mild. If the muff has been lost make a temporary one from a piece of PVC.

When the temperature outdoors

rises to above 15°C (59°F) the grill muff must be removed.

The grill muff can be left in position on long or motorway journeys provided the maximum temperature, that day, does not rise above 150(59 °F).

7. Never undertake a long or motorway journey unless you have checked that :

- a) The engine oil cooler exterior fins are clean.
- b) The engine oil level is at its maximum level.
- c) The gearbox oil level is correct.
- d) The tyres are in good condition and pressures are correct.

8. Never race the engine when cold, this could damage pistons and cylinders. In addition the excessive oil pressure will cause leakage and possible damage.

9. Never lubricate the gear rod bush which passes through the bulkhead. If stiff de-grease with petrol and polish the rod and dust with talcum powder.

10. Never try to start a car fitted with traffic clutch as the clutch does not engage on over run and will not turn the engine.

11. If the oil pressure warning light (602 cc engines since 19.2.70) goes on whilst driving, stop the engine as soon as possible, remove the grill muff and check the oil level in the engine and top up if necessary.

12. Never start the engine if the engine oil filler cap is open or the dipstick is not pushed right in otherwise all the engine oil will be discharged under the bonnet.

CHAPTER 3.

RUNNING-IN

1. New Tyres.

During the first 100 miles.

Check for correct pressures when cold.

Do not exceed 80 k.p.h.(50 m.p.h.).

Avoid harsh acceleration.

Avoid fierce braking.

Avoid impact with and scuffing along curb.

After the first 100 miles.

Check for correct pressures when cold.

Increase to maximum speed in gradual steps.

2. New Brake Linings Drums or Discs.

Check brake fluid level regularly.

Avoid fierce braking for the first 600 miles(1000 km).

Increase use of brakes gradually.

Check condition and adjustment of linings at 600 miles (Road test).

3. New Car, Reconditioned Engine or Transmission.

a) Do not exceed the following speeds
in the first 1200 miles.

2CV4 & Dyane 4

2CV6, Dyane 6, Ami 8.

1st gear

10

14

2nd gear

20

25

3rd gear

35

37

4th gear

50

55

b) Gradually increase to maximum speed after 1200 miles(2000 km).

c) Avoid labouring engine at low revolutions, changed down into a lower gear.

d) Avoid harsh acceleration in the first 1200 miles(2000 km).

- f) Avoid fierce braking.
- g) Avoid long journeys at constant speed (vary the speed and use lower gears on hills), remove foot from accelerator pedal from time to time, particularly as speed rises downhill.
- h) Never forget to have the first 600 mile service carried out properly.
- i) Check fluid levels before every trip in the first 1200 miles (2000 km).

Chapter 4.

STARTING.

Starting Handle.

This can be used:

- a) To "free" the engine in very cold weather before starting, or if the car has been stored for more than 2 weeks. Rotate engine 10 times with ignition off & choke pushed right in.
- b) To start engine on a virtually flat battery. Ignition on, choke out.
- c) To wind car out of floods, snow, mud or sand. First or reverse gear engaged (They are both equal ratio) ignition off. (NOT APPLICABLE TO VEHICLES WITH "TRAFFICLUTCH").
- d) To rotate engine to check ignition or valve timing.
- e) To rotate engine to check spark at spark plug.
- f) To rotate engine to check valve clearances.
- g) To rotate engine to check fuel pump discharge and pressure.
- h) To operate jack.

- i) To remove hub cap bolts and wheel nuts.
- j) To remove front wing securing nuts(2CV).

Before Starting

A quick glance at the "Pre-start check list", see page 15, can avoid an oversight.

Starting the Engine.

Do not run the engine in an enclosed space.

Do not touch the accelerator pedal.

Ensure that the gear lever is in neutral and that the handbrake is on.

Turn the ignition on until :

The fuel gauge needle moves, or

The low oil pressure warning lamp comes on(all 602cc engines since Feb.70).

If the engine does not start immediately, operate the starter for at least 10 seconds before trying again.

If the engine is cold:

1st Method.

Pull the choke control knob right out and keep it there,

Operate the starter until the engine starts to run,

Release the choke control knob a few seconds after the engine starts, the choke control will automatically return to its mid-way position. (Later cars have no spring on the choke control, the knob should be adjusted to give a fairly fast idling speed.)

Let the engine warm up for not more than one minute in neutral without racing it, then drive off.

2nd Method.

Fully depress the accelerator pedal twice in quick succession then remove foot from pedal.

Pull choke control knob right out and release it to its intermediate position.

Operate starter until the engine starts to run, control speed with accelerator pedal.

Let the engine warm up for not more than a minute in neutral without racing it, then drive off.

If the engine is warm or hot.

Fully depress the accelerator pedal and do not move it at all until the engine has started to run.

Operate the starter until the engine starts to run.

Gradually release the accelerator pedal as the engine accelerates.

If the engine does not start at the first attempt, do not in any circumstance release the accelerator pedal. Switch off the ignition, wait a few seconds, switch on again and operate the starter.

Starting in mountainous areas after a short stop.

Operate the starter without pressing the accelerator pedal.

If the engine does not start, pull out the choke control knob to its intermediate position and try again.

Before engaging first gear.

If necessary reduce the engine speed progressively by pushing in the choke control knob.

After a few minutes driving the choke is no longer necessary so push it home fully.

The engine oil pressure warning lamp must go out.(If fitted).

Chapter 5.PREVENTIVE MAINTENANCE.

"Prevention is better than cure" and much cheaper too, this is the basis of all vehicle maintenance. Components are most likely to fail when they are most needed and when road conditions are bad.

Preventive Maintenance will eliminate roadside breakdowns and ensure optimum Safety, Reliability and Economy.

NOTE. Positions described as Right Hand (RH) or Left Hand (LH) are as seen by a person sitting in the car looking Forward towards the bonnet.

The frequency of lubrication and general maintenance is based on 3000 mile (5000 KM.) intervals and multiples of these intervals, this applies to a vehicle working under normal conditions.

The important adjustments are based on the numbers 2 - 4 - 6 i.e.

Valve clearance = 0.2 mm, (new valve clearance is 0.15 mm). Contact breaker gap = 0.4 mm, and spark plug electrode gap = 0.6 mm.

If road conditions are unfavourable, e.g. town use, door to door, dusty roads, then the services must be more frequent.

If the annual mileage is less than 3000 (5000 KM) then the 6000 mile Service and its multiples must be carried out at least once a year. In addition the brake fluid, on vehicles fitted with "all drum" brakes, must also be changed annually.

Furthermore it is recommended that the following items are checked every 6000 miles or at least once a year to conform with safety and anti-pollution regulations which are in force:

The ignition and charging circuit,
 Carburation and exhaust systems,
 All electrical components,
 The braking system,
 The tyres for wear, damage and pressure; also the wheel nuts for security;
 The vehicle heights;
 The steering geometry;
 Seat belts and anchorage points.

Chapter 6.

LUBRICATION.

The importance of correct lubrication cannot be overstated, always use the recommended oils and greases as detailed below. If these are not obtainable locally then use the equivalent grade of SHELL, B.P, ESSO, MOBIL, CHEVRON, CASTROL, TEXACO or GULF.

" CITROËN PRÉFÈRE TOTAL " the reason for this slogan is that all research and development of Citroën cars is done using TOTAL fuels and lubricants.

TOTAL also support Citroën cars in Formula Blue racing, long distance Rallies and 2CV Cross.

Recommended Lubricants.

Engine oil, Summer and Winter;

Europe(Except U.K., Spain and France);TOTAL GTS 15W50.

U.K: TOTAL 20/50 (In Silver tin),or TOTAL Gold 10W40.

France: TOTAL GTS 15W40.

Spain: TOTAL GTS 20W50.

In very cold countries(i.e.where the temperature is frequently below -10°C (14°F),use:

TOTAL GTS 10W30 or TOTAL Altigrade GT 10W 30 in France)

NEVER USE ADDITIVES.

Gearbox oil:

TOTAL EP 80 or EP SAE 80W/85W

Some dealers now use EP 90 as this provides quieter running.

General greasing:

TOTAL Multis grease.

Constant velocity joints:

TOTAL Multis MS grease(contains Molybdenum Disulphide) or GL 245 MO.

Brake fluid;

or EMB 77327

VEHICLES WITH FRONT DRUM BRAKES AND ALL LN, LNA and VISA models:

TOTAL Fluid 70 R3, TOTAL Fluid SY, TOTAL Brake and Clutch Fluid; also

SAE J 1703, Lockheed 329s or NFR 12640 S or V.

VEHICLES WITH FRONT DISC BRAKES except LN, LNA and VISA.

TOTAL or Castrol LHM,

SHELL S 6682

Green fluid.

In an emergency use SAE 10 or 20 engine oil, or Suffix A or Dexron ATF (Automatic Transmission Fluid). Any engine or transmission oil must be drained from the braking system at the soonest opportunity. If the system has lost fluid because of worn or damaged seals, do not drive the vehicle.

General Lubrication: Total oil, for small articulating joints.

Battery felts,Suspension cylinders:

Castor Oil

Door locks,door and window seals:

Glycerin

Lamp holders,switches,connections,ignition components:

Rocket WD 40.

Due to a number of design features which differ from conventional Automotive Engineering(see below), never use any additive to the engine or gearbox(Viscosity improvers,Moly,Graphite etc).The lubricants previously recommended contain all the necessary additives for a high standard of performance and reliability.

Engine.

All parts are made and fitted to very fine limits.

The oil cooler and external oil pipes have very narrow passages.

The pistons and exhaust valve guides are cooled by the oil.

Gearbox.

The synchromesh cones are sensitive to the viscosity of the oil.

Bottom and reverse are the same ratios and are very low.

Top gear is an indirect drive.

Chapter 7.

TOOLS

Citroën recommend the use of tubular box spanners in preference to plain spanners and infinitely superior to adjustable spanners. Whilst this recommendation is sound advice when repairing and overhauling components,other types must be used for Maintenance due to problems of accessibility.

Special tools are detailed in chapters 12,13 and 14. Special tools followed by the letter 'T' are supplied by

Establishments Fenwick, 15 Rue Fénélon, Paris 10^e, through Citroën dealers.

Special tools preceded by the letters M R can be made locally from Drawings published in Citroën Repair and Overhaul Manuals, see chapter 20.

Maintenance Tools.

Box Spanners

- 8 and 12 mm (General work)
- Long 14 mm (Fan centre bolt)
- 21 mm (Engine and gearbox drain plugs, gearbox filler/level plug)
- 13/16 inch A.F. with universal joint. (Spark plugs)

Open End Spanners.

- 8 mm (Body work)
- 9 mm Short cranked (Suspension tie rods)
- 10 mm (Battery connections)
- 11 mm (Exhaust clamp bolts, alternator belt adjustment)
- 12 and 13 mm (Various)
- 16 and 19 mm Thin (Clutch adjustment)
- 19 mm (Brake pipe Banjo connections, older models).

Ring Spanners.

- 8 and 9 mm Open ring, pipe spanner (Brake pipe nuts)
- 8 and 9 mm (Brake bleed nipples)
- 10 mm (Rocker adjusting screw lock nut, brake cylinder securing screws.)

11 mm (exhaust clamp bolts)

12 x 14 mm thin flat (Carburettor filter, rocker cover nuts, alternator belt adjustment, brake shoe adjustment)

13 mm Clutch adjustment (older models)

21 mm single ended (Engine and gearbox drain plugs, gearbox filler/level plug). Spark plug spanner fits sump and gearbox drain plugs.

Other Tools

Set of feeler gauges (Valve clearances, contact breaker points, spark plugs)

4 mm Hexagon (Allen) key (Door locks). Later cars fitted with torq screws.

Short piece of 3 mm silver steel (hose clip winder)

Lubrication.

Oil can (cables, locks, pivots). Oil filter removal strap or chain spanner.

Lever type squirt can with plastic tube extension (Suspension cylinders)

Lever type grease gun (King pins, drive shaft splines)

Tin with a hole and brush in lid, containing a mixture of oil and grease (Suspension knife edges).

Screwdrivers.

Large and long

Small (Carburettor ,electrical)

Phillips (bodywork, fuel tank trans-mitter and gauge, dashboard)

Right angle or cut down 'Dumpy' (Rocker adjustment screw)

Chapter 8

MAINTENANCE SCHEDULE.

Pre-start check list, prior to a long journey or once a week.

Check levels of :

Engine oil

Brake fluid (Some later cars are fitted with a low level warning light and test button)

Battery Electrolyte

Windscreen washer bottle

Check operation of:

Engine oil pressure warning light (602 cc after Feb 1970)

Horn

Headlamp flashers (Later Ami 6 and Ami 8)

All exterior lights

Directional Indicators

Brake lights

Hazard warning lights when fitted

Check :

Setting of rear view mirrors

Window and lamp glasses are clean

Tyre pressures

Grill Muff

Engine oil filler cap is closed and dipstick is pushed right home.

'A' Service Every 3000 Miles

1. Drain engine oil when hot, fill with new oil.

2. Grease front hub king pins (2 nipples), front of car jacked up.
 3. Grease drive shaft splines (2 nipples),grease UJ cross pieces when fitted to pre 1970 models(up to 4 nipples)
 4. Grease suspension rod knife edges (4 in number)
 5. Oil the carburetter,brake and clutch cables,pivots and linkages.
 6. Oil the clutch thrust bearing,5 drops of engine oil into oiler cup on operating lever(Older vehicles only).
 7. Check level in brake fluid reservoir and top up as necessary:

"All Drum Brakes: Total SAE 70R3 or Lockheed 329s.

Vehicles with front disc brakes: Green Mineral Oil i.e. Total LHM,Castrol LHM or Shell S6682.
 8. Disc brakes only,check main brake pads for wear in situ.
 9. Check gearbox oil level,leave to cool for 30 minutes,top up if necessary,do not overfill.
 10. Check level in battery,top up with distilled water if necessary,clean terminals,oil felts with Castor oil.
 11. Check level in windscreen washer bottle,top up with water and additive (non freezing in winter) if necessary.
 12. Check and adjust tyre pressures.
 13. Road test car.
- 'B' Service Every 6000 miles or every year (plus 'A' service), which-ever is the sooner.
1. Wash air filter element in petrol,dry,dip in or spray with engine oil and drain completely.Latest cars have a foam plastic element which is wetted with a mixture of oil and petrol,see instructions on cover.
 2. Clean the carburetter fuel filter and jets which are removeable externally.
 3. Check the valve clearances and adjust if necessary,this check goes to 18,000 miles after the first 6000 mile check from new or the cylinder heads retightened.

4. Check the engine idling speed, adjust the carburetter if necessary.
5. Check the tension of the alternator or dynamo driving belt, adjust if necessary (Not fitted to 6 volt 425 cc 2 CV).
6. Adjust the clutch pedal free play.
7. Adjust the front and rear brake shoes, front disc brakes are self adjusting.
8. Check the handbrake operation, adjust if necessary.
9. Check all brake pipe connections for leaks.
10. After draining engine oil renew the external oil filter cartridge (602 cc made after Nov.1970).
11. Fit new spark plugs (Remember prevention better than cure).
12. Clean external finning of oil cooler.
13. Check and adjust the headlamp beam alignment.
14. Check the operation and condition of the windscreen wipers, blades and screen washer.
15. Check the condition of the tyres.
16. Oil all door hinges, bonnet and boot lid hinges and locks. Check door seals.
17. Check steering, wheel bearings and king pins for play.
18. Road test car.

'C' Service Every 12000 miles.

1. Drain and refill gearbox when hot, do not overfill.
2. Renew the spark plugs.
3. Fit new contact set, condenser and fan belt. (Remember its easier to prevent possible problems).

4. Check the crankcase vacuum (minimum of 6 cm) using a 'U' tube at dipstick hole, engine hot and idling.
5. Check the condition of front brake linings, one side only.
6. Check the alignment of the wheels.
7. Lubricate the speedometer cable, grease gearbox end only.
8. Check the suspension heights and correct if necessary.

'D' Service Every 18000 miles.

1. Change the brake fluid "All drum" braked vehicles.
2. Inspect rubber brake hoses for cracks or swelling, renew if necessary (Where fitted to older vehicles).
3. Lubricate inside of suspension cylinders with castor oil.
- 4 Adjust door and bonnet locks.
5. Change tyres around in pairs, least worn to front.

'E' Service Every 36000 miles.

1. Check the condition of the front drum brake cylinders, renew seals and remove rust if necessary.

STOP PRESS

602 cc engines with external oil filter cartridge (after Nov' 1970).

Oil filters are now fitted with a by-pass valve and need renewal only at 12,000 mile intervals.

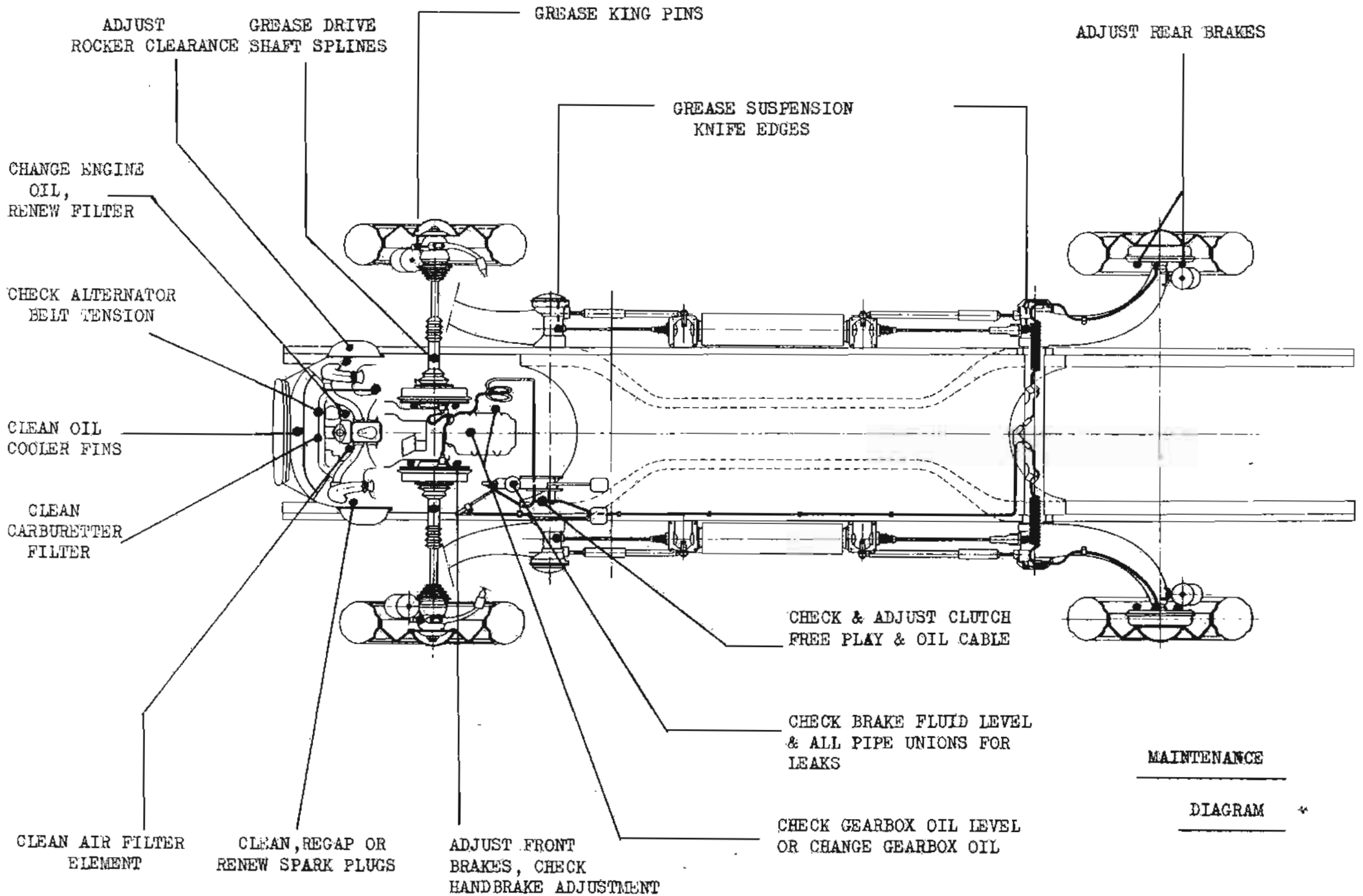
Cars which do less than 6000 miles a year should have this filter renewed every 12 months.

THE "NEW" M.O.T. TEST

From January 1st 1977 all cars 3 years old and over are required to pass the new Department of Transport test Annually. Detailed requirements are detailed below.

ITEM	DETAILS	REQUIREMENTS.
Lights	Side/Tail Headlamp dip Headlamp main Brake lights Flashers Reflectors	Check for poor earth if bulbs are black Check for dazzle. Check for spread. Test with side lights on. To operate at 60 to 120 per minute, pilot bulb and clacker to work. Should be clean and not cracked.
Brakes	Action Pull Handbrake Hoses and pipes	Should lock front wheels at 20 mph. Car should stop in a straight line. Should pull up sharply at 20 mph. Hoses should not be twisted or cracked. Rust on pipes should not weaken walls.
Tyres	Type Damage Tread Seating	Same type on each axle. Check for sidewall cuts, bulges, lumps and structural failure. Is it at least 1mm all round and across full width of tyre. Should be evenly fitted to rim.
Steering	Ball joints Rack and pinion Wheel bearings Road test	Check for play Check for smooth rotation of steering wheel, free play and tightness of clamp. Check for wear and droning at certain speeds. Check for vibration and pulling to one side.

ITEM	DETAILS	REQUIREMENTS
Suspension	Arms Dampers Kingpins & knife edges	Check for damage, i.e. kinks, rust. Should function, try "Bounce test", check for leaks and loose mounts. Check for play & wear.
Chassis/Body	Corrosion	Check in load bearing areas i.e. Suspension mountings, engine mountings and axle tube bolts.
Seat belts	Damage. Retraction	Check that belts are fitted to all cars after 1st Jan 1965. If webbing is frayed/cut/damaged. Are mountings secure, fittings distorted or cracked. Check buckle under load. Check mounting areas under floor. There should be no weakening corrosion within 12" of the mountings. Inertia belts should reel-in freely.
Wipe/Wash	Wipers Washer	Check action and condition of blades & arms. Should work well & clear screen.
Exhaust	Noise Leaks Mountings	System must be complete & silencer effective. System must be free from holes & leaks. Must be in good condition.
Horn	Operation	Check for adequate warning note.



MAINTENANCE

DIAGRAM *

CHAPTER 10. MAINTENANCE TASKS IN DETAIL.

1. Drain engine oil, refill with fresh oil.
2. Renew external oil filter cartridge (602 cc engines after 11/70)
3. Clean external fins of oil cooler.
4. Grease front hub king pins (2 nipples)
5. Grease drive shaft splines (2 nipples), renew drive shaft gaiter.
6. Check gearbox oil level (see 7).
7. Drain and refill gearbox.
8. Clean the air filter element.
9. Clean carburettor filter and jets.
10. Check the engine idling speed and adjust.
11. Check the engine valve clearances and adjust if necessary.
12. Check the tension of the alternator belt, renew the belt.
13. Check the clutch pedal free travel, renew clutch cable.
14. Clean and adjust the sparking plugs, see Chapter 12.
15. Check the contact breaker dwell angle and ignition timing, see Chapter 12.
16. Check level in brake fluid reservoir, see Chapter 14.
17. Change the brake fluid, see Chapter 14.
18. Adjust front and rear brake shoes, replace front brake shoes, see Chapter 14.
19. Adjust the handbrake (Parking brake), renew parking brake pads (Disc Brakes), see chapter 14.
20. Check the brake pipe connections for leaks, see Chapter 14.
21. Check the condition of the front brake linings, see Chapter 14.
22. Check the condition of the front drum brake cylinders, see Chapter 14.
23. Inspect rubber brake hoses (where fitted), see Chapter 14.
24. Disc brakes, check front main brake pads for wear, renew if necessary, see Chapter 14.
25. Grease suspension knife edges (4), see Chapter 13.
26. Check the suspension heights, adjust if necessary, see Chapter 13.

1. Drain engine oil, refill with fresh oil.

If the engine is not hot take the car for a brisk 3 mile run, park the car on a level surface then stop the engine. Place a container under the drain plug(Fig. 2),remove the plug using a 21mm ring spanner.Allow the oil to drain for about 10 minutes into a suitable container.Examine the magnet on the plug for metal particles and clean off.Soften the copper washer(quench in cold water from red heat) or renew.

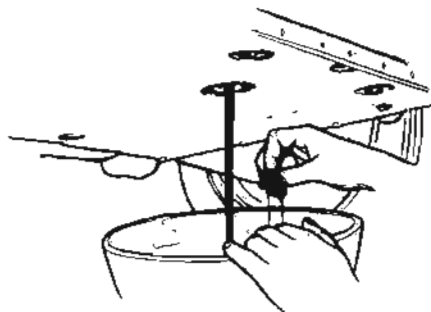


FIG. 2. Drain engine oil.

C.Oil Filler Cap.
G.Oil Filler/Breather
D.Dipstick

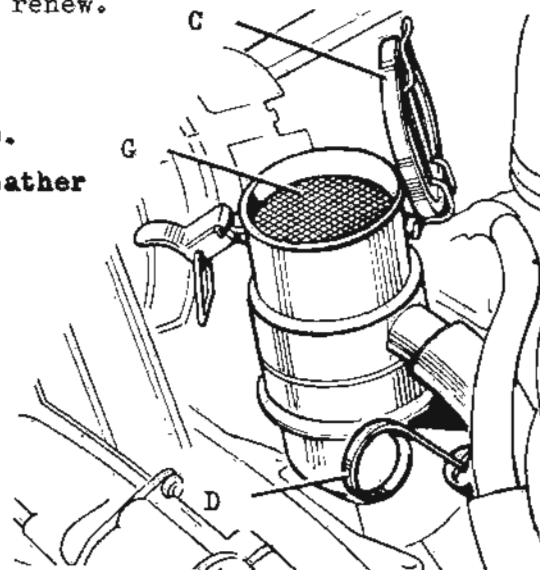
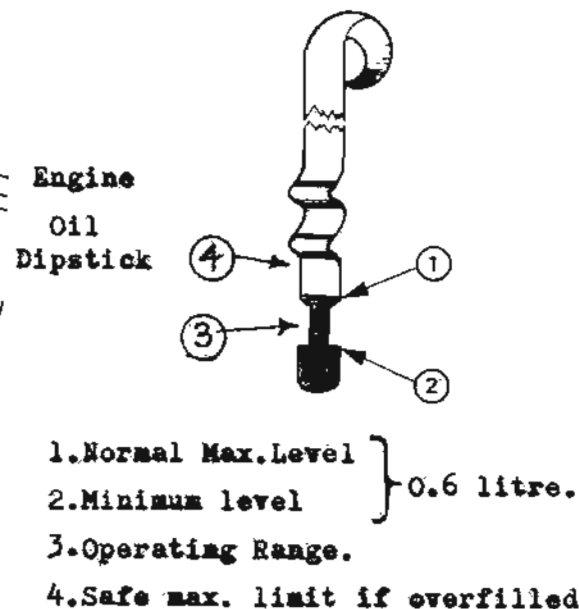


FIG.3 Oil filler and dipstick.



Wipe the engine sump clean,fit the plug with its washer,tighten to 3.5 mkg(25 lbft),do not overtighten otherwise the threads in the sump may be damaged.

Pour in about four pints of oil,close and secure the filler cap,check that the dipstick is pushed right in. Start the engine and run at a slightly fast idle until the oil pressure warning light goes out permanently (fitted to the dashboard of all 602 cc cars since Feb.1970)or at least one minute.

Stop the engine and check the oil level 5 minutes later.Top the sump up to the maximum mark on the dipstick(the vehicle must be on level ground).Do not drain excess oil if the final level is a little above the maximum mark on the dipstick.Overfilling has no detrimental effects on the Citroën Flat Twin.

2. Renew external oil filter cartridge (M28 and H28/1 engines since 11/70.

Drain engine oil as in 1, use special tool MR 603-14/55 (Fig. 4) or a strap wrench to unscrew the cartridge from behind the rear cylinder. If these tools are not available drive a long screwdriver through the cartridge and use it as a tommy bar, clean up the spilt oil. (Oil filter tool available under 'T' part number from dealer network, tool number 1683T).

Wipe the crankcase face clean. Lightly grease the oil seal of the new cartridge and screw onto the stud until it contacts the crankcase. Tighten to 1.5 mkg (11 lb.ft.) or three quarters of a turn.

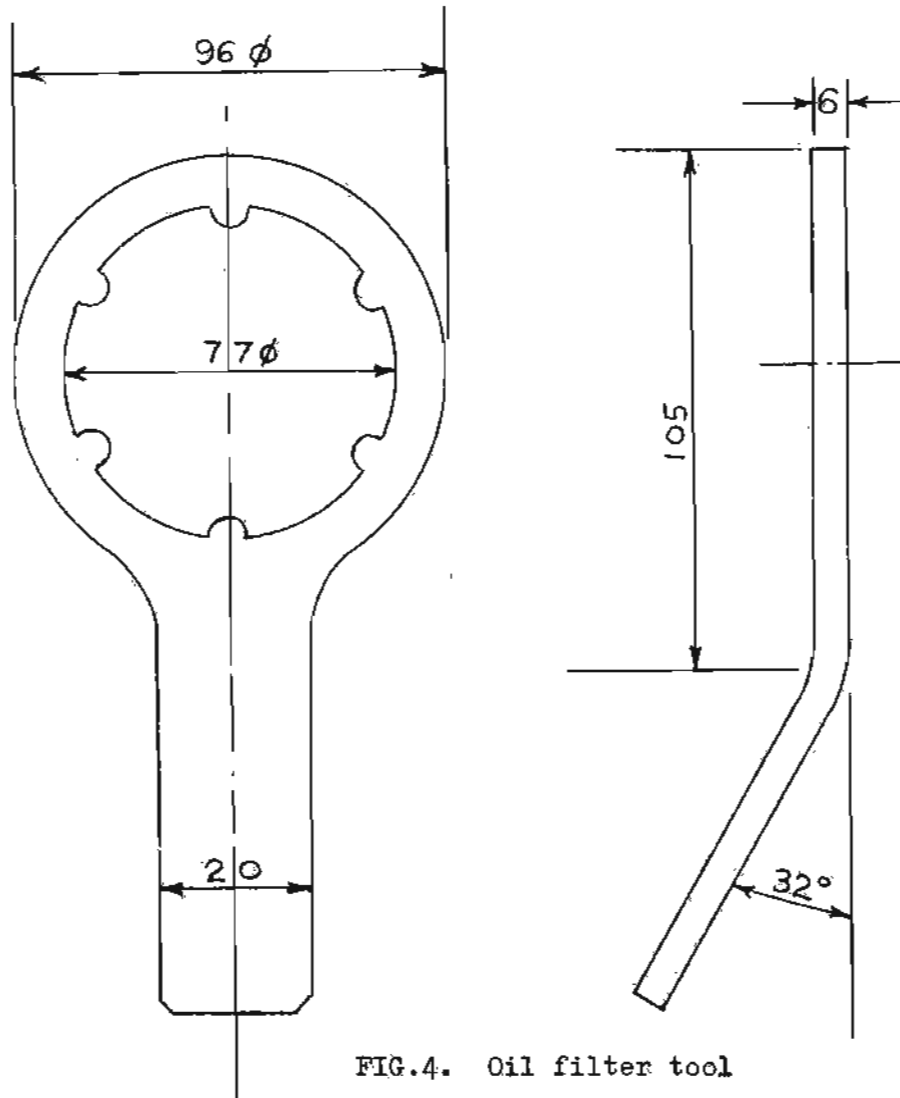


FIG.4. Oil filter tool

3. Clean oil cooler fins.

Oil spillage during topping up or oil changes quickly causes clogging of the oil cooler fins particularly in dusty conditions. Remove the front grill and the fan (see chapter 12).

Clean the external surfaces of the cooler with petrol and a brush, blow through with a high pressure air hose from the front. Alternatively brush on 'Gunk' and hose out with a jet of water from a hosepipe.

Carefully dry out the coil, points box and alternator with a cloth. Refit the fan and front grill. (See chapter 12).

4. Grease front hub king pins.

In order to allow the grease to penetrate, jack up the front of the car to take the weight off the thrust washers. Clean the grease nipples (G, Fig 5) and pump in grease until it exudes from top and bottom of the arm (a & b), Fig 5a.

If the grease does not show at the bottom (b) then a more powerful grease gun may be necessary, i.e. Wanner.

If there is still no movement of grease at this point it will be necessary to heat the suspension arm, between a and b, to a temperature of about 150°C with a fine blowlamp flame. Be careful not to damage the drive shaft gaiter.

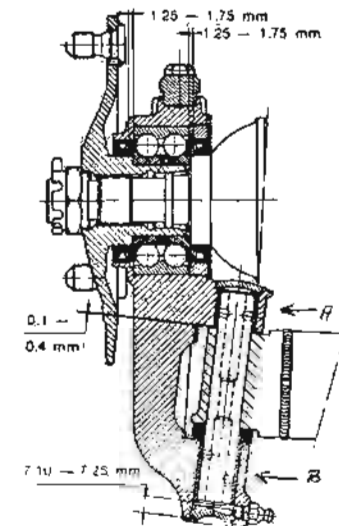
Renewal of the king pins and bushes (See Fig. 5) can only be accomplished with great difficulty as they are often very stubborn.

Excessive vertical play of the hub on the pin is often mistaken for wear of the pin and its bushes. It is due to the wear of the thrust washer (6) and the spacers (5). Application of a heavy grease (Transmission Grease Part No. emb 69389A) as used in Constant Velocity Joints before a vehicle is taken for M.O.T. This often ensures a pass for the king pins.

The spacers (5) are available in three sizes in order that on assembly of the king pins and bushes the correct vertical play of $0.1\text{--}0.4\text{mm}$ ($0.004\text{--}0.016\text{ins}$) can be obtained. It is useful to have a slave pin made slightly smaller than the hole in the suspension arm so that the vertical clearance can be checked before the new pin is pressed in.

If grease escapes around the Welch washer (10) disconnect the driveshaft from the hub and give the washer a sharp blow in the middle, then peen over the metal surrounding the edge. If the grease still escapes the washer must be renewed, this entails removing the threaded plug (9) and driven out upwards using a thin drift. The king pin is hollow.

The king pin components of today's cars (including the Ami Super) are virtually the same as used in the original production 2CV in 1948, at that time the recommendation for greasing was 1200 miles. If this recommendation is retained then wear of the pins, bushes and washers will be greatly reduced.



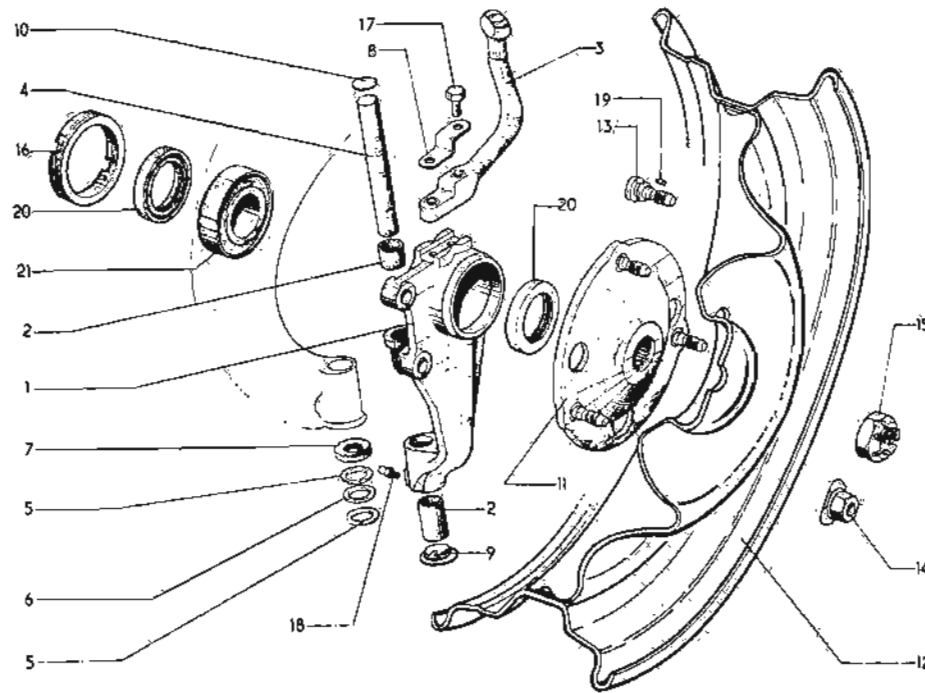


Fig. 5

1. Front swivel
2. King pin bushes
3. Steering arm
4. King pin
5. Spacers 2.3, 2.5 & 2.7mm. Thick
6. Bronze thrust washer
7. Dust cap
8. Locking washer
9. Threaded plug
10. Welch washer/core plug.
11. Hub
12. Wheel rim
13. Wheel stud
14. Wheel nut
15. Hub nut (fits on end of drive shaft)
16. Wheel bearing retaining ring nut
17. Set screw, securing steering arm
18. Grease nipple for king pin
19. Wheel stud dowel
20. Grease seals for wheel bearing
21. Wheel bearing (not adjustable)

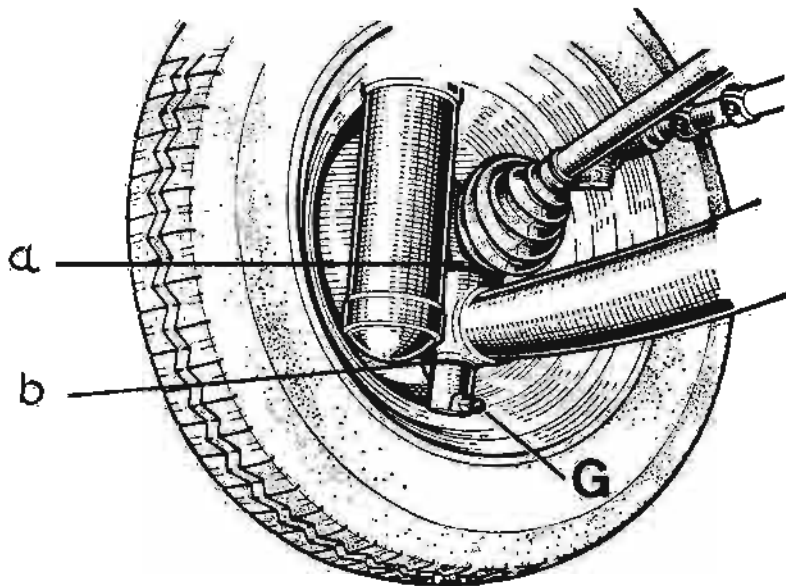


FIG. 5a
King pin
grease
nipple.

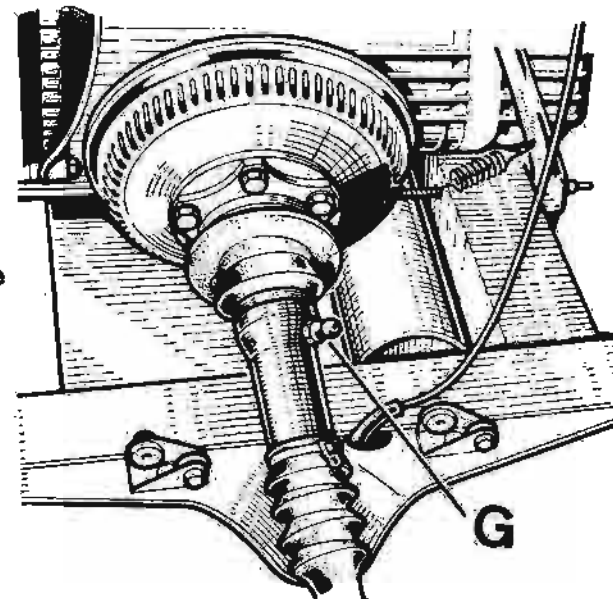


FIG. 6
Drive shaft
splines grease
nipple

5. Grease Drive Shaft Splines (Renew Gaiter(s)).

Wipe nipples clean before pumping in 10 to 20 shots of grease. Split gaiters should be renewed as soon as possible, check for grease sprayed inside wheel arch or engine compartment. If a hiss of escaping air is heard when gaiter is squeezed then it is split or the clips need renewal.

To renew any of the 3 gaiters (see Figs. 33, 34 or 35) slacken wheel nuts, jack up the front of the car, place wooden blocks under the axle tube bolt heads or use axle stands and remove the wheel. Remove the split pin & the 32mm (1¼ in. A.F.) nut securing the splined end of the shaft. Lock the hub to the arm with a bar through one of the 3 holes, later cars have a solid hub and an assistant is required to operate the footbrake. Slide the drive shaft inwards away from the hub to disengage, turn the steering wheel if necessary. Remove the outer clip of the centre gaiter and remove outer shaft. Remove the clips and the damaged gaiter. Clean the joint with a lint free rag, do not wash out the old grease. Re-pack the joint with GL 245 MD transmission or Moly Grease. If cold, warm gaiter by a heater then turn it inside out, grease well and fit over drive shaft. If this proves difficult use 2 or 3 slim screwdrivers to stretch the bore. Turn gaiter outside-in remove surplus grease and fit new clips with 'Ligarex' pliers (Obtain at reasonable price from any Citroën dealer with new clips). Assemble the shaft and fit into the hub. Tighten the nut to 35-40mkg. (250-290lb.f.ft) thread & faces greased. Use a ¾" drive 'T' bar and extension bar. Line up the split pin holes, fit new split pin & bend over legs. Replace the wheel, lower vehicle to the ground and tighten the wheel nuts.

6 and 7. Check gearbox oil level. Drain and refill gearbox.

Run the car for about 5 miles, stand on level ground, remove drain plug (21mm ring or socket). Allow oil to drain into a container. Clean magnetic plug and soften the copper washer, refit but do not overtighten the plug.

The following also applies to checking the gearbox oil level. Remove level plug from offside of gearbox casing (Fig. 7). Fill up with gearbox oil using a long tubed dispenser until the oil starts to drip out of the hole. Allow to drip for about ten minutes onto an old rag. Clean the magnetic plug and soften the copper washer, refit, do not overtighten. EP 90 oil results in quieter running. Old gearboxes which are very noisy benefit from the use of a multigrade gear oil e.g. Esso 85W-140.

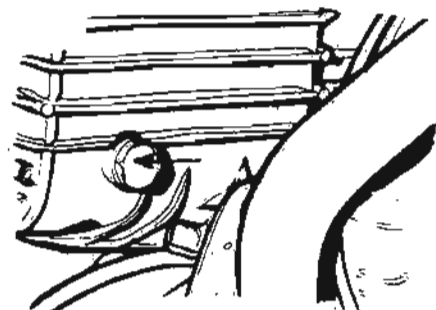


Fig. 7
Gearbox level
plug.

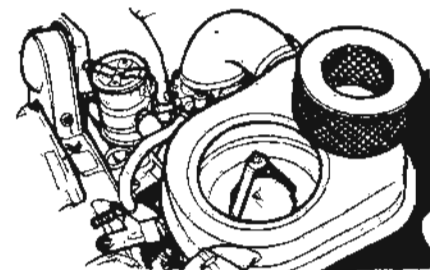


Fig. 8
Air filter and
element

8. Clean the air filter element.

Remove the wing nut, the cover and circular element. Some later cars have a bayonet fitting plastic cover. Wash the element thoroughly in petrol, drain for about 5 minutes and allow to dry. Dip in engine oil allow to drain before re-fitting. Alternatively spray element with a '3 in 1' Aerosol. Clean out the filter casing with a dry cloth do not allow any dirt to drop into the clean side of the casing. Re-assemble in the reverse order.

9. Clean the carburettor filter and pilot jet.

Remove the brass 14mm plug adjacent to the fuel inlet connection. Remove the gauze and wash in petrol. Insert the gauze into plug and screw back into the carburettor.

Remove the pilot (idling) jet which is brass and has a 8mm hexagon and a screwdriver slot, clean in petrol and blow dry. If jet hole is still blocked clean with a plastic brush bristle, do NOT use a metal wire.

10. Check the engine idling speed, adjust the carburetter.

(i) Solex carburetters made before September 1972.

--Idling speeds:

All vehicles with single choke carburetters:	800 - 850 rpm.
All vehicles with twin choke carburetters:	750 - 800 rpm., 800 - 850 rpm after July 1976.
All vehicles with centrifugal clutch:	Drag speed minus 50 rpm. (See (ii)b).

To adjust the idling speed (See Fig: 9):

Warm up the engine, check that the choke lever(2) is in the "off" position. Using the throttle stop screw (1) adjust the engine speed to around 800 rpm. Slowly screw in the mixture screw (8) until the engine starts to hesitate then unscrew it one third of a turn to obtain the correct mixture. Measure the engine speed with a tachometer, if it is not correct use the throttle stop screw(1) to obtain the correct speed.

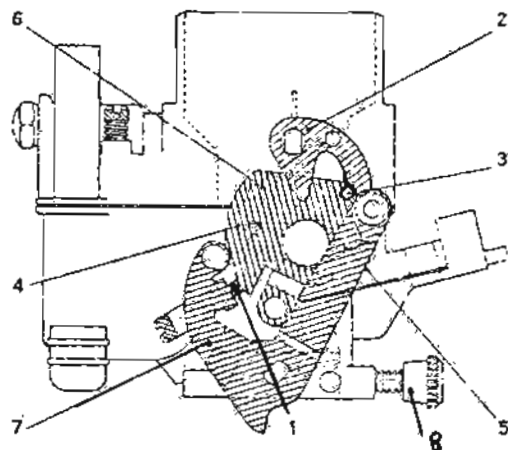


FIG. 9 Carburetter controls.

(ii) Solex carburetters made after September 1972.

Since September, 1972 all Solex carburetters have been constructed to satisfy European standards of de-pollution. In consequence adjustment of the idling speed is effected **without** touching the throttle stop screw. This is contrary to the method employed on previous Solex carburetters.

The setting of the throttle stop screw is by micrometer at the factory and under **no** circumstances should it be altered, otherwise idling and acceleration will be upset and the exhaust gas concentration of Carbon Monoxide (CO) will increase.

Only the Air regulating screw (Va), which controls the idling speed, and the Volume control screw (W), which controls the idling mixture strength can be adjusted.

If the engine does not operate efficiently, it is most important that the following points be checked **before** carrying out any work on the carburetter :

1. Valve Clearance.
2. Ignition, in particular the sparking plugs and dwell angle.
3. Centrifugal advance and strobe setting.
4. Cleanliness of the carburetter filter, tank filter and petrol pipes (blow through with compressed air).

The following anti-pollution carburetters are fitted to Citroën flat twins :

34 PICS 6	(Normal Clutch)	26/35 CSIC
34 PCIS 6	(Centrifugal Clutch)	26/35 SCIC
2 CV 4, Dyane 4		Dyane 6 (after Feb. 1970)
2 CV 6, Mehari		Ami 6 (replacement carbs.)
2 CV. & 3 CV Vans.		Ami 8. 2CV6 (after Jul. 79)
Idling Speed : 800-850 r.p.m.		Idling Speed : 750-800 r.p.m.

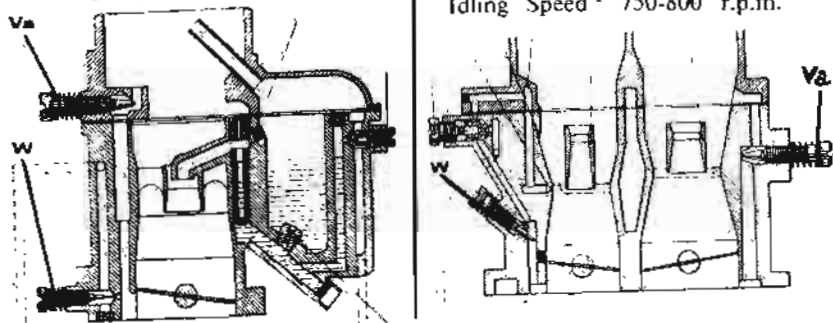


Fig. 10. Adjusting the Idling Speed (Engine hot)

(a) Vehicle with normal Clutch.

1. Set the idling speed to the value stated above by adjusting the air regulating screw (Va).
2. Obtain the maximum idling speed only by adjusting the volume screw (W).
3. Then tighten the volume control screw (W) and reduce the idling speed by 10 to 20 r.p.m. without affecting its regularity.
4. If the idling speed thus obtained differs from the value stated above, re-set by adjusting air regulating screw (Va) and repeat operations 2 and 3.

The exhaust gas should then contain :
0.8 to 1.6% Carbon Monoxide (CO)
9 to 12.5% Carbon Dioxide (CO₂)

(b) Vehicle with centrifugal clutch.

1. With the throttle return spring termination stem or tag positioned in the middle notch adjust the idling speed, by adjusting the air regulating screw (Va), until the clutch drum just starts rotating, then, reduce the idling speed by about 50 r.p.m.
2. Obtain the maximum idling speed only by adjusting the volume control screw (W), the clutch drum may be rotating at this point.
3. Then tighten the volume control screw (W) and reduce the idling speed by 10 to 20 r.p.m. without affecting its regularity.

4. If the idling speed thus obtained differs from the value stated above, re-set by adjusting the air regulating screw (Va) and repeat operations 2 and 3.

The exhaust gas should then contain :
0.8 to 1.6% Carbon Monoxide (CO)
9 to 12.5% Carbon Dioxide (CO₂)

Note: Correct idling speed should be centrifugal clutch engagement speed minus approximately 50 r.p.m.

ADJUSTING THE THROTTLE CLOSING DASHPOT

Carburettors of vehicles fitted with the centrifugal clutch incorporate a dashpot which prevents rapid deceleration of the engine speed. The effect of this dashpot can be varied by altering the tension of the throttle return spring. If engine deceleration is too rapid the centrifugal clutch will disengage as soon as the foot is removed from the accelerator causing loss of engine braking & consequent jerkiness when the accelerator is again depressed. This is inconvenient or even dangerous when travelling downhill or negotiating tight corners and roundabouts. The method of adjustment is as follows :

Make certain that the dashpot lever moves freely without hard spots.

Accelerate fully, then release the accelerator: Make a note of the time between when the throttle control lever touches the dashpot lever and when the end of the throttle stop screw touches the choke control cam. This time should be between 1 and 2 seconds. If this time is not achieved, after the tension of the throttle return spring by selecting the relevant notch for the spring termination stem or tag.

The higher the spring tension the more rapid deceleration of the engine and vice-versa.

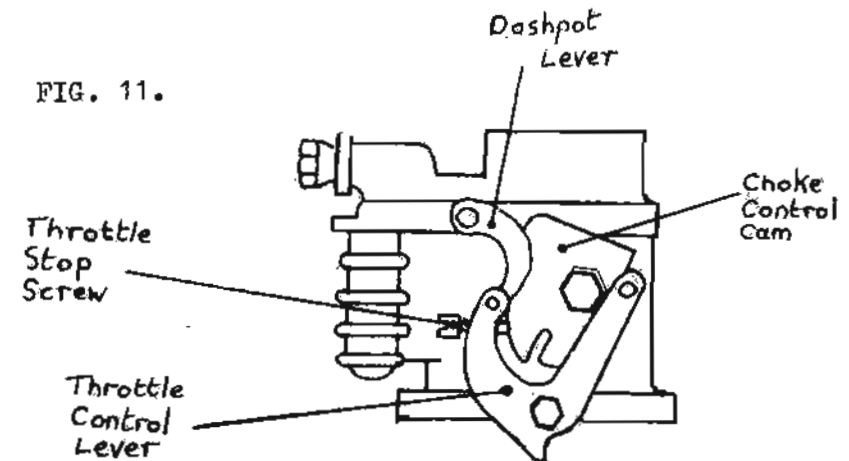


FIG. 11.

Poor starting, rough running, flat spots and poor fuel consumption can be due to incorrect float chamber level. The level of petrol in the float chamber is controlled by the action of the float(s) and the needle valve. The float has a lug which moves the needle valve on to its seat and stops the flow of petrol when the float reaches a pre-set position, similar to a ball valve on a water system. The lug can be bent using a pair of pliers to alter the level where necessary. The lug is bent upwards to lower the level and bent downwards to raise the level. The method of adjustment for the two types of carburetter.

34 pics 4/5/6 34 pics 4/5/6

Remove the air cleaner rubber connection from the top of the carburetter. Slacken the six screws securing the top cover then re-tighten any two diagonally opposite.

Run the engine for a minute or so then stop it, remove the top cover and lay it down on top of the engine with the fuel feed pipe still connected. Remove the float taking care not to loose the pivot pin.

Without delay measure the distance from the top of the float chamber to the fuel level. This distance should be 25 mm, including the thickness of the gasket. If this is not the case bend the lug on

top of the float as detailed above by the amount the measurement differs from 25 mm. Refit the float and top cover, tighten the six screws carefully and evenly. Fit the rubber connection between the carburetter and the air filter.

26/35 csic 26/35 scic

Disconnect the fuel feed pipe. Remove the air cleaner rubber connection from the top of the carburetter. Slacken the six screws securing the top cover of the carburetter, remove these screws carefully. Turn the cover upside down and check the level of the floats.

The distance between the centre line of the floats and the joint face of the cover (gasket in position) must be 18 ± 1 mm (0.72 ± 0.04 inches) and almost equal for each float (tolerance 1 mm (0.04 inches)). If this is not the case, alter the position of the float by adjusting the lug which rests on the end of the needle valve stem.

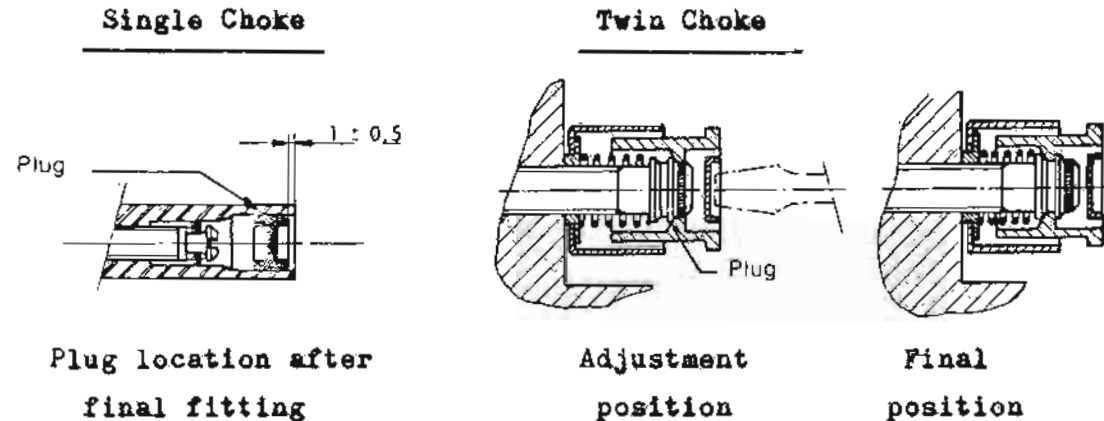
Refit the cover and the six screws, tighten them carefully and evenly. Re-connect the fuel feed pipe and the rubber connection between the carburetter and the air filter.

(iii) Solex carburetters made after September 1976.

Since September 1976 all carburetters have been "foolproofed".

The only adjustment which can be done is alteration of the engine idling speed, this is accomplished by rotating the throttle stop screw which is now no longer locked.

Mixture screws are fitted with plastic plugs which should only be removed if the idling mixture is incorrect. The plugs originally fitted are black, replacement plugs are white.



Since 1980 all vehicles have been fitted with twin choke carburetters 26/35 csic or scic, Mark 225 or 226. They have a smaller 1st choke, 18; and a larger 2nd choke, 26; for more torque at lower r.p.m. and greater economy. An anti-flooding capsule is fitted which is operated by manifold depression and limits choke (strangler) movement.

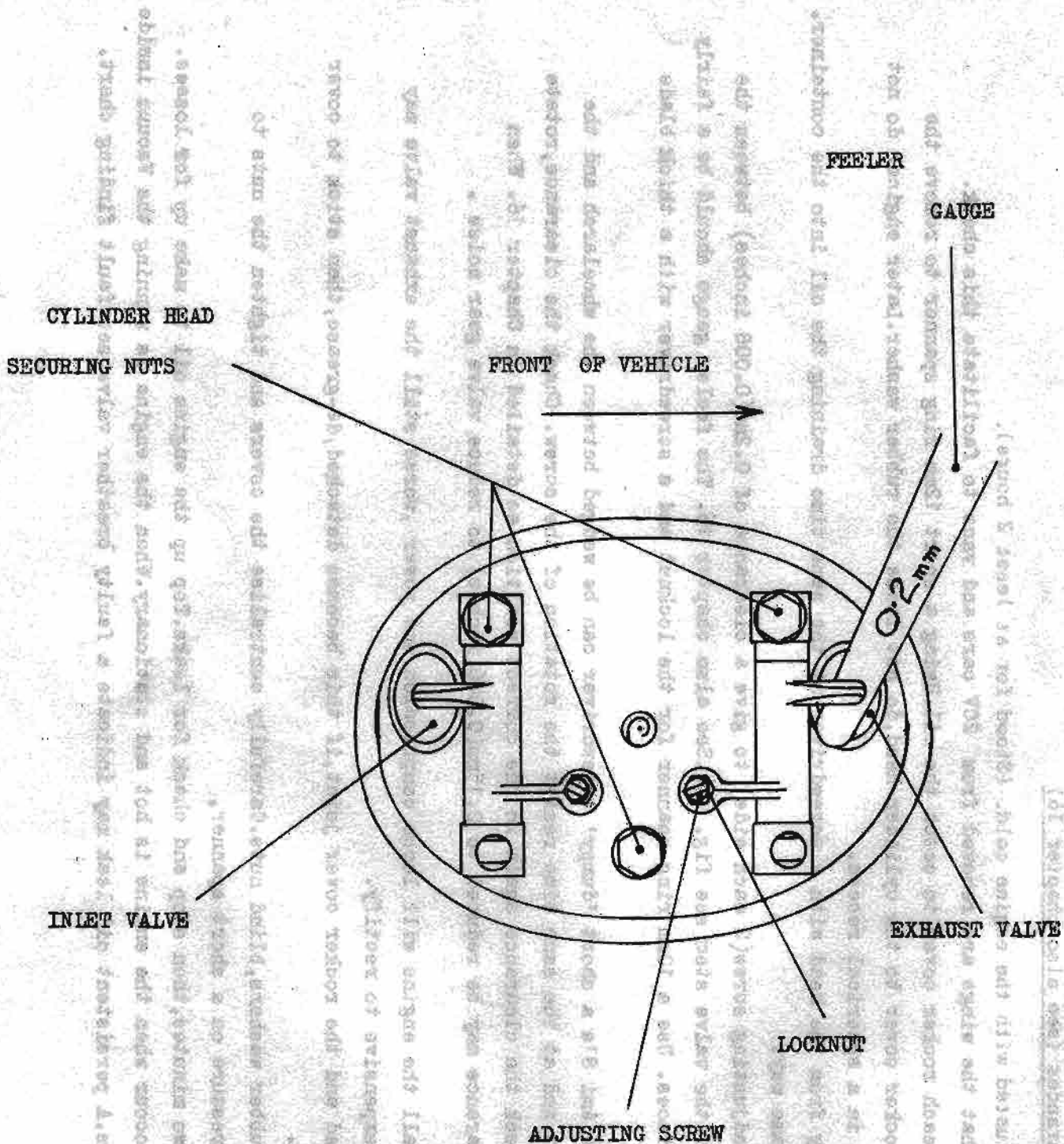


FIG. 12 CHECK THE ENGINE VALVE CLEARANCES.

11. Check the engine valve clearances (see also chapter 16)

Tappets should always be adjusted with the engine cold, (Stood for at least 2 hours).

It is recommended that the wings are removed from 2CV cars and vans to facilitate this check.

Place a small container under each rocker cover to catch the oil. Using a short 12mm ring spanner to remove the 'blind' nut which secures the rocker cover to the cylinder head, do not loose the rubber washer. Later engines do not have a washer as the nut seats in a spherical recess.

Prise the cover away from the head with a screwdriver at the same time draining the oil into the container. Remove the other cover in the same way.

Adjust each rocker adjusting screw (2 each side) to give a clearance of 0.2mm (0.008 inches) between the toe of the rocker and the top of the valve stem (see fig. 12). See also chapter 16. The feeler gauge should be a fairly stiff push fit between both surfaces. Use a 10mm ring spanner for the locknut and a screwdriver with a thick blade for the rocker screw.

For Dyane's, Ami 6 and Ami 8's a short 'dumpy' screwdriver can be wedged between the wheelarch and the rocker screw. Tighten the locknut and at the same time resist the rotation of the screw. Check the clearance, rotate the engine several times and check the clearance again in the correct position as detailed in Chapter 16. When adjusting a worn engine the clearance may be reduced to 0.15mm (0.006 inches) to reduce valve gear noise.

NOTE:

If the clearance is too small the engine will loose compression and power, worse still the exhaust valve may become damaged which is rather expensive to rectify.

Wipe the cylinder head and the rocker cover joint, if this becomes detached, de-grease, then stick to cover using a strong impact adhesive.

Fit the covers, the rubber washers, blind nuts. Carefully centralise the covers and tighten the nuts to 0.7 mkg (5 lb.ft), normal hand pressure on a short spanner,

Run the engine for two minutes, then stop and check for leaks. Top up the engine oil to make up for losses. Oil leakage is most likely to occur when the engine is hot and stationary. When the engine is running the Vacuum inside the crankcase prevents oil leaks. A persistent oil leak may indicate a faulty breather valve, see fault finding chart.

12. Check the tension of the alternator(dynamo)belt, renew the belt.

To reach the belt loosen the three 8mm nuts and slide off the cover(Fig.13),it is slotted for easy removal. Slacken the head of the 14mm bolt securing the alternator to the exhaust manifold.Slacken the bolt and nut (11 or 12mm or both) securing the alternator to the slotted stay.Place the palm of the hand under the alternator and apply firm upward pressure,tighten the staybolt at the same time.Tension of the belt should provide a deflection of 12mm($\frac{1}{2}$ inch) at mid span. Tighten the 14mm bolt and replace the belt cover,make sure that the washers are on the outside of the cover before tightening the nuts. The cover should be positioned as close to the alternator as possible without touching it as this cover guides the cooling air through the alternator which would otherwise get very hot as it is bolted to the exhaust manifold.

Breakage of the belt is not serious providing it does not get caught up in the fan and if the battery is in good condition.To fit a new belt remove the remains of the old and then procede as above. Thread the new belt through the blades of the fan at the same time rotating the fan,squeeze the two sides of the belt together and push the top part through the slot in the top of the cowling.Press the alternator down to engage the belt on the pulley,before tensioning make sure the belt is fully engaged on the fan pulley by rotating the engine with the starting handle.

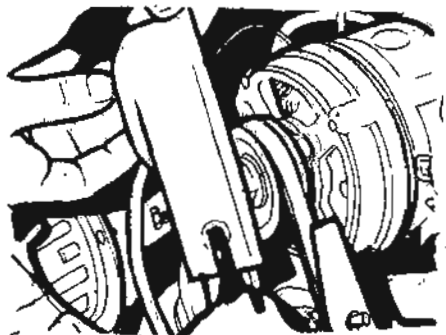


FIG. 13. Check alternator belt tension.



FIG. 14. Check clutch pedal free play.

13. Check the clutch pedal free play,renew the clutch cable.

(i).Vehicles fitted with chassis mounted pedal gear;

NOTE.The clutch pedal should project the same amount from the bulkhead as the brake pedal.The position of the pedal

can be adjusted by moving the split pin into another hole in the pedal shaft.

ADJUST the clearance by slackening the locknut at the top screwed end of the cable. Rotate the adjustment nut to obtain a clearance of 0.5 to 1mm between the nut and the clutch lever. This check is carried out whilst pulling the cable taut with the threaded end and then by pressing slightly on the clutch lever to bring the mechanism into contact with the thrust bearing. This equals a pedal clearance of 10 to 15mm. Tighten the locknut.

RENEW the cable by removing the lock and adjusting nuts; disconnect the inner and outer cables from the gearbox and the bell crank. Grease the new cable; immerse into a motorcycle chain lubricant e.g., Filtrate 'Linklyfe' or Duckhams 'Chainguard' (Work to instructions on tin). * Fit in reverse order, adjust as above, do not forget to tighten the locknut.

* A ticking speedometer cable can be similarly treated.

(ii) Vehicles fitted with pendant pedal gear, mounted on the bulkhead (Figs, 14 & 15).

Pedal height with the pedal up against stop 'a':

Ami 8 manufactured after 11/71 $L = 135 \pm 2.5\text{mm}$

All other vehicles $L = 130.5 \pm 5\text{mm}$

Adjustment is affected by bending stop 'a'.

Adjust the clearance: slacken locknut (6) - 16mm, rotate nut (5) - 19mm to obtain clutch pedal free movement of 20mm. Tighten the locknut.

To Renew the cable, slacken nuts (5 and 6) completely and disconnect inner cable from the pedal. Jack up and support front of car on wooden blocks. Disconnect inner cable from lower end of clutch lever and outer cable from bottom of clutch housing. Remove old cable. Grease new cable as in (i).

Fit new cable in reverse order, adjust as above, do not forget to tighten lock nut.

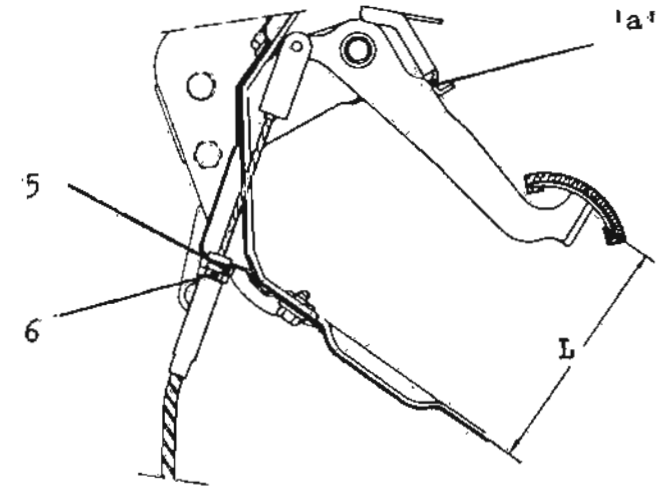


FIG. 15 Adjust clutch pedal free play.

Efficient and rapid fault finding depends on a systematic sequence of elimination. Always start from the beginning each time. No matter how obvious each stage may seem NEVER assume anything. Carefully read the Owners Manual and the Maintenance Guide.

Always ask the question "What was the last thing done to the car" this may give a clue to the fault.

Citroën two cylinder cars rarely break down completely but sometimes they become sick and need some Castor oil, Talcum powder or Vaseline to nurse them back to health.

ENGINE

FAULT	POSSIBLE CAUSE	CURE
Starter motor does not rotate engine (Solenoid does not click)	Loose or bad connections to solenoid or ignition switch Battery discharged. Solenoid defective Ignition switch defective.	Remake connections. Charge it, top up with distilled water. Replace. Repair or replace.
Starter motor does not rotate engine (Solenoid clicks) Car jerks.	Battery almost discharged Loose or bad connections. Starter motor brushes worn Solenoid switch not making. Starter motor bearings seized. Gear engaged, handbrake on.	Charge it, top up with distilled water Remake battery lead connections. Renew brushes. Adjust pinion travel. Overhaul motor. Select neutral.
Cold engine will not fire. Hot engine will not fire	Weak mixture. Rich mixture.	Pull choke knob right out. Do not use choke, press accelerator pedal to the floor and KEEP it there until engine fires and then release.
Engine will not start.	Fuel tank empty. No spark, ignition connections loose or broken. No spark, plugs dirty, worn	Fill it. Tighten or refit connections. Clean and regap or renew.

FAULT	POSSIBLE CAUSE	CURE
<p>Engine will not start(cont)</p>	<p>No spark,H.T.leads defective. No spark,C.B. points burnt or incorrect gap.</p> <p>No spark,C.B. points spring detached.</p> <p>No spark,C.B. points spring overheated & soft.</p> <p>No spark,coil leaking oil, tracking or H.T.coil open circuit.</p> <p>Fuel starvation,carburetter or tank filter blocked.</p> <p>Fuel drips continuously from under carburetter.</p> <p>Fuel discharges from filter hole but engine starved.</p> <p>No fuel discharge,pump disconnected.</p> <p>No fuel discharge,fuel pump not working.</p> <p>Valve clearance too tight or too loose.</p> <p>Valve(s) burnt,check compression pressure.</p>	<p>Fit new H.T. leads.</p> <p>Clean with points file & re-gap. Renew condensor if burnt or points spark badly with engine running.</p> <p>Remove moving contact,fit spring in slot correctly.</p> <p>Fit a new set of points,align contacts by bending fixed contact arm.</p> <p>Renew coil.</p> <p>Remove carburetter plug & filter, crank engine & check fuel discharge. Clean filters,blow thru'piping.</p> <p>Needle valve stuck open. Remove float chamber cover, clean & blow thru' valve or renew.</p> <p>Needle valve stuck closed.Action as above.</p> <p>Reconnect suction or discharge pipe.</p> <p>Check pushrod projection, and output pressure.If pressure below 0.14 kg/cm² (2.p.s.i.) overhaul pump or fit new pump.</p> <p>Adjust to 0.15 mm - 0.020 mm(0.006-0.008 inches)</p> <p>Remove cylinder head,de-coke and renew valve(s).</p>
<p>Engine fires but will not run.</p>	<p>Weak mixture.</p> <p>Ignition connections loose.</p> <p>Carburetter needle valve sticking.</p>	<p>Pull choke control right out.</p> <p>Remake connections.</p> <p>See above.</p>

FAULT	POSSIBLE CAUSE	CURE
<p>Engine will not idle or idles erratically</p>	<p>Engine cold.</p> <p>Idling mal-adjusted.</p> <p>Idling jet blocked.</p> <p>Air leaking past carburetter</p> <p>Needle valve sticking.</p> <p>Exhaust system leaking.</p> <p>Carburetter throttle spindle bearings worn.</p>	<p>Use choke until engine is warm, fit grille cover if temperature drops below 10° C (50°F).</p> <p>Re-set.</p> <p>Remove jet, clean & check air filter casing for damage.</p> <p>Carburetter flange distorted, remove and flat, clean off all filings. Fit a gasket.</p> <p>Clean and blow thru' valve.</p> <p>Repair or renew.</p> <p>Overhaul carburetter and renew nylon bushes or fit 'O' rings.</p>
<p>Engine pinks: runs on when ignition turned off.</p> <p>Engine carboned-up.</p>	<p>Low grade fuel.</p> <p>Incorrect grade of spark plug.</p> <p>Ignition overadvanced.</p> <p>Too many short runs, car not driven hard enough, Total engine oil not used.</p>	<p>Use correct grade of fuel (See chapt. 15, Vehicle Data).</p> <p>Fit correct grade of spark plug.</p> <p>Plug gaps too small, clean & reset. C.B. gap too large, dwell angle too small: re-set C.B. points.</p> <p>Ignition timing advanced, re-set.</p> <p>Excessive travel of centrifugal weights, bend in stops.</p> <p>Remove cylinder heads, clean, grind-in valves and fit new valve stem seals. Use the recommended Total oil.</p>
<p>Engine lacks power.</p>	<p>Low engine R.P.M.</p> <p>Air cleaner choked.</p> <p>Carburetter jets blocked.</p> <p>Fuel pipes blocked</p> <p>Brakes binding.</p> <p>Carburetter & tank filters clogged.</p> <p>C.B. points badly pitted.</p>	<p>Use lower gears up to red marks on speedometer.</p> <p>Clean element to instructions on filter cover.</p> <p>Remove jets and clean in thinners.</p> <p>Blow out with compressed air.</p> <p>Check adjustments, free slave cylinders if seized, change brake fluid.</p> <p>Clean both filters.</p> <p>Fit new points, & condensor.</p>

FAULT	POSSIBLE CAUSE	CURE
Engine lacks power (Cont.)	Ignition retarded or advanced	Plug gaps incorrect, re-set. C.B. gap (Dwell) incorrect, Re-set. Centrifugal advance incorrect, re-set. C.B. cam worn, replace.
Engine hesitates during acceleration (Flat spot). (Engine sounds 'Woolly')	Idling screw or jet dirty. Air leaking past carburetter Carburetter flange bowed. Carburetter progression holes blocked. Carburetter throttle spindle bearings worn. Dwell angle or Ignition timing incorrect. Breather valve(s) not working (high crankcase pressure, oil leaks, smokey exhaust).	Clean or renew, reset idling. Tighten carburetter and manifold securing bolts. Remove carburetter, file flange flat, remove filings carefully, fit gasket. Soak in thinners & blow thru' with compressed air. Overhaul carburetter, renew nylon bushes or fit 'O' rings. Reset. Renew crankcase breather, filler tube assembly. (or rubber valve(s) on older 2CV's and AMI 6.)
Poor Acceleration.	Carburetter accelerator pump: Leaking diaphragm. Obstructed inlet valve. Obstructed delivery valve or jet. Incorrect pump stroke	Replace. Remove and clean. Remove and clean. Check stroke; adjust if necessary (single choke carburetters only).
High oil consumption.	Erratic dipstick measurement. Filler cap not secured. Dipstick not pushed right in. Oil overheating. Oil leaks Worn valve stem seals. Worn piston rings.	Car must be on level ground, engine stopped for at least 5 minutes. Secure. Push dipstick in as far as it will go. Dirty oil cooler, clean fins. See below. Overhaul cylinder heads, renew seals. Renew, fit new pistons & barrels.

FAULT	POSSIBLE CAUSE	CURE
Leakage of oil	<p>Loose components.</p> <p>Rocker cover seals.</p> <p>Insufficient sump vacuum</p> <p>Oil cooler cracked or damaged.</p> <p>Oil pressure switch.</p> <p>Crankshaft seals worn. (Chirruping when idling)</p> <p>Excessive oil pressure. (leakage from oil filter or oil pump cover)</p> <p>Valves not seating.</p> <p>Piston rings and/or barrels worn.</p>	<p>Check tightness of sump plug, breather, fuel pump, oil pressure switch, oil filter (Grease seal before fitting)</p> <p>Tighten nut, if leak persists fit new seals.</p> <p>If breather is working leak will occur only just after engine has stopped.</p> <p>Renew breather assembly, or rubber valve(s).</p> <p>Renew oil cooler.</p> <p>Tighten or renew.</p> <p>Renew.</p> <p>Oil too thick, change to TOTAL GOLD 10W/50.</p> <p>Engine over-reved when cold, DONT !</p> <p>Relief valve seized, remove and free, check spring, & spacing washers if fitted.</p> <p>If compression pressure is below 90 p.s.i. (6.3 kg/cm²) remove cylinder heads de-Coke and grind-in valves.</p> <p>See above (high oil consumption)</p>
High fuel consumption. In excess of the Government figures.	<p>Short runs, excessive idling, traffic jams.</p> <p>Wide throttle openings.</p> <p>Slow warm up.</p> <p>Low tyre pressures.</p> <p>Choke control does not return completely.</p> <p>Fuel leaks.</p> <p>Sparking plugs worn out.</p> <p>Air cleaner choked.</p> <p>Incorrect float level.</p>	<p>Walk or cycle.</p> <p>Change to lower gear to accelerate smoothly on reduced throttle opening.</p> <p>Fit grill cover when temperature drops to 10°C (50°F).</p> <p>Inflate to Citroën's recommendations. An increase of 2 p.s.i. is permissible provided the tread centre does not wear more than the edges.</p> <p>Adjust cable, check that it does not foul throttle.</p> <p>Check pipe connections and carburettor top cover securing screws.</p> <p>Renew at 6000 miles.</p> <p>Clean in accordance with instructions on cover.</p> <p>Bend tab on float to correct level.</p>

FAULT	POSSIBLE CAUSE	CURE
High fuel consumption. (continued)	Brakes binding. Dwell angle incorrect. Plug or C.B. points incorrect. Timing incorrect. Valve clearances incorrect. Carburettor throttles or bearings worn. Accelerator pump defective. Carburettor jets worn.	See above, (loss of power) Reset. Reset. Reset. Reset. Overhaul or renew. Examine & clean delivery valve, check that ball moves freely. Renew.
Intermittent squeak from Flywheel/clutch area at idle.	Crankshaft oil seal letting air into the crankcase.	Needs no action if no oil leak when engine stops. Fit new seal when engine overhauled.
Engine noise, Pronounced tapping, when engine is cold.	Excessive valve clearance. Oil pressure relief valve knocking. Piston slap.	Reset. Do not race engine until warm. Piston rings/barrels/pistons worn, or not matched, renew at next overhaul.
Engine noise, like a Diesel when first started.	Common on newish 9 to 1 compression ratio engines,	No action required.
Engine coughs/spits/stops every few miles.	Fuel starvation, filler vent blocked. Fuel filter(s) blocked. Fuel pump worn.	Remove cap and clear vent holes. Clean carburettor filter. Clean tank filter, if disc type remove 2 discs. Check pushrod projection. Check bellcrank pin, diaphragm or pump assembly for wear.
Exhaust fumes in car when heater in use,	Exhaust manifold clamps loose. Heat exchanger pipe cracked/porous.	Check affected cylinder by turning heater off and check at wheelarches for fumes. Dismantle, clean and re-fit clamps. Renew heat exchanger.

FAULT	POSSIBLE CAUSE	CURE
Exhaust fumes in car when heater in use. (If engine is noisy & burns oil)	Cylinder joint face blowing.	Emergency measures not necessary. Remove cylinder head, have joint face lapped or machined.

TRANSMISSION, AXLES AND CHASSIS.

Difficulty in engaging gear. (All gears except 4th)	Oil cold. Spare wheel loose. Excessive clutch pedal free play. Gear lever loose on splines. Gearbox overfilled. Gearbox oil contains additives. Synchromesh out of adjustment. First gear selector ring unwinding, due to rapid and continued fast reversing.	Change gear less rapidly until oil warms up. Secure in correct position. Adjust clearance to 20mm(0.8 inch) Tighten clamp bolt at base of vertical lever. Remove level plug and allow oil to drain. Drain and refill with EP 80 or 90. Remove gearbox top cover, check action of selector rods. Adjust forks using gauges 1786T and 1787T Or 3153T. Dismantle gearbox, refit selector ringpeen securely.
Gear control rod stiff or squeaks.	Nylon bush dirty.	Clean rod with petrol or solvent. Lubricate with talcum powder or silicon fluid. DO NOT use any form of oil or grease.
Trafficlutch squeals.	Common occurrence due to resonance of drum, not detrimental.	None.
Trafficlutch not working. Trafficlutch operation defective or erratic.	Engine idling speed too high. Throttle closing dashpot adjustment incorrect.	Reset idling speed. Adjust throttle return spring tension

FAULT	POSSIBLE CAUSE	CURE
Engine races after gear change during acceleration.	Clutch not fully engaged. Clutch slip, inadequate clearance. Clutch slipping, worn, soaked in oil.	Remove left foot completely from clutch pedal. Adjust clearance to 20mm. Remove engine from gearbox, renew centre plate, and cover if worn. Re-face flywheel if grooved.
Clutch pedal stiff to depress, sluggish to rise.	Cable dry.	Remove and grease, adjust clearance.
Clutch clearance correct but gears difficult to engage.	Operating fork bent, cracked or pivot pin dislodged.	Remove engine from gearbox, renew fork and pivot pin with securing screw.
Gearbox noisy.	Not run-in. Low oil level.	Have patience, turn up the radio. Top up to level plug hole, leave to drain for 5 mins., refit plug.
Front suspension appears stiff & creaks, Suspension stiff & creaks & groans,	Drive shaft splines dry. Suspension cylinders dry. Knife edges dry. Drive shaft fouls wheel arch.	Grease with Total Multis MS or Shell Retinax AM, 20-40 shots. Slide tie rod gaiters away from cylinder ends and inject castor oil, jack up each side of car in turn and rotate cylinder 180°. 48 Clean off mud & old grease, brush in a mixture of grease & oil. Bend back wheel arch opening.
Wheel arch or engine compartment sprayed with grease.	Drive shaft gaiter split. Grease nipple defective.	Renew as soon as possible, gaiter kit contains correct amount of transmission grease (GL 245 MD). Renew.

FAULT	POSSIBLE CAUSE	CURE
Loud crack or creak from front or rear of car during acceleration or braking	Loose axle tube bolts.	Jack up car, remove each bolt in turn (17mm hexagon socket). Clean, grease threads and faces. Re-fit & tighten to 6 Kg.m. (43 lb. ft.). Retighten after run over rough ground. Lock tab washers.
Body level when not loaded, suspension bottoms on rough ground causing rusting wheel arch at rear where bump stop is welded.	Suspension heights incorrect, usually too low at rear.	Re-set heights, Front. ⁺ Rear. ⁺ All 2CV, Dyane & Ami saloons. 195 280 Ami estates. 195 290 Acadiane. 212 317 2CV van 205 335 3CV van 212 347 Mehari 236 346 + mm under axle tube bolts.
Regular droning from wheel, usually the front at around 50 mph.	Wheel bearing pitted or worn.	Renew, Garage or specialist job.
Sharp creak from friction dampers.	Water contamination.	Remove cover, spray with WD 40, working suspension up & down. Or remove damper, dismantle, clean plates & face linings on sand paper. Re-new paper joint.
Suspension squeaks.	Hydraulic dampers dry, covers rubbing. Hydraulic damper silentbloc bushes dry.	Clean off dirt. Spray with WD 40. Spray rubber bushes with WD 40.
Rear Suspension grates	Stone(s) trapped between arm & body.	Remove stones & widen gap.

BRAKING AND STEERING SYSTEMS

FAULT	POSSIBLE CAUSE	CURE
Excessive brake pedal travel.	<p>Excessive shoe travel,</p> <p>Defective rubber hose. (Pre-1970 vehicles)</p> <p>Master cylinder worn, scored, porous.</p> <p>Master cylinder seals leaking.</p>	<p>Adjust shoe clearance, (14mm Hex, ring or tube spanner).</p> <p>Renew.</p> <p>Renew.</p> <p>Overhaul cylinder, renew seals, bleed brakes.</p>
Excessive pedal travel, reduces after pumping. During motorway trip.	<p>Air in hydraulic system.</p> <p>Pads moving away from discs.</p>	<p>Bleed brakes: Single circuit; Rear first. Double circuit; Front first. Acadians with pressure limiter rear brakes must be bled with wheels on the ground. Pump brake pedal every 50 miles.</p>
Brakes squeal.	<p>Drums full of dust.</p> <p>Shoe pivots dry.</p> <p>Shoes not centralised.</p>	<p>Tap drums & backplates whilst rotating wheels, remove dust with vacuum cleaner.</p> <p>Remove drums, remove dust, lightly coat all pivots, springs, drum flanges and all metallic contact points with PBC or 'Copaclip'.</p> <p>Shoes must be very accurately centralised.</p>
Front disc brakes judder, squeal or grab.	<p>Pads or discs glazed.</p> <p>Discs rusted.</p> <p>Pads too hard.</p>	<p>Brakes under used, rub carefully with medium emery cloth, smear back of pads with PBC or copaclip. Remove with emery.</p> <p>Fit correct pads: 2CV & Dyane; 75 516 220 Ami 8; 5 434 279 Acadians; 95 551 761.</p>

FAULT	POSSIBLE CAUSE	CURE
Regular tapping from front discs.	<p>Discs touching pads due to differential clearance when high torque is transmitted.</p> <p>Excessive disc run out.</p> <p>Weak caliper piston seals.</p>	<p>Frequent occurrence, no action.</p> <p>Remove disc & refit in different positions until maximum run out is 0.2mm(0.008").</p> <p>Overhaul calipers, renew seals, bleed brakes.</p>
<p>Brake fluid warning light illuminates.</p> <p>Disc brakes only.</p>	<p>Fluid reservoir float sticking.</p> <p>Loss of fluid.</p> <p>Low fluid level due to worn pads.</p>	<p>Free float.</p> <p>Check for leaks and rectify. Top up to previous level with correct fluid.</p> <p>Renew pads, top up fluid to max level with correct fluid if necessary.</p>
Car pulls to one side continuously.	<p>Insufficient front shoe clearance.</p> <p>Front slave cylinder seized.</p> <p>Handbrake adjusted too tightly on one side.</p>	<p>Re-adjust brakes.</p> <p>Remove old pistons and seals, lap cylinder and fit 'FEG' overhaul kit No.4AA 95 554 041.</p> <p>Readjust.</p>
Car pulls to one side during braking	<p>Gearbox output seals worn or damaged, shoes contaminated with gearbox oil.</p> <p>Brake shoes contaminated with brake fluid.</p> <p>Disc pads worn un-equally.</p>	<p>Renew seals, check spacer for wear, check that differential backlash shims are retained.</p> <p>Renew paper gasket.</p> <p>Renew brake shoes, clean drums</p> <p>Centralise shoes and renew fluid.</p> <p>Remove old pistons and seals, lap cylinder and fit 'FEG' overhaul kit No.4AA 95 554 041.</p> <p>Renew shoes, fluid and bleed brakes.</p> <p>Renew complete set of pads.</p>

FAULT	POSSIBLE CAUSE	CURE
Handbrake does not hold car.	Handbrake mechanism needs adjusting.	Rotate wing nuts(Drum brakes). Adjust eccentrics to give 0.1mm (0.004") clearance, 24mm ring & 14mm socket spanners.(Disc brakes).
Handbrake does not hold car when fully adjusted.	Front drum shoes or disc handbrake pads worn. Handbrake cables stretched. Substandard replacement shoes fitted.	Renew shoes or handbrake pads. Renew. Fit genuine Citroën shoes with welded connecting links.
Front wheels vibrate at speed.	Wheel nuts loose. Tyres or wheels out of balance. Tyres worn,wheels damaged. Wheel bearings worn. Drive shaft(CV) joints worn.	Check wheels for damage,tighten nuts. Clean off grease or mud. Rebalance only if no fault is found. Renew. Renew. Renew.
Steering rattles at speed.	Track rod end ball joints loose. Steering damper rubber strip deteriorated. Track rod end spring broken.	Remove gaiters and split pins, tighten screwed cups. Renew(Part No. AZ 442-75) Renew(Part No. A 442-7)
Steering knocks when wheel is turned.	Steering column loose. Steering column support bearing loose. Steering column support bracket not in line with column. Front axle tube bolts loose. Track rod end spring broken. Track rod end ball joint cups worn (including rack cups) Steering rack compression pad loose.	Tighten clamp bolt at bottom of column. Tighten spring tension and clamp screws(AMI 6) Align bracket with soft mallet Tighten,see above. Renew(Part No. A442-7). Renew(Part No. AZ 443-2) Remove axle tube,split pin tighten screwed cup,renew split pin.

FAULT	POSSIBLE CAUSE	CURE
Steering knocks when wheel is turned(Continued)	Pinion bearing damaged or worn. King pins or bushes worn. Rack and pinion worn.	Remove steering column and renew pinion bearing. Renew. Remove axle tube,overhaul steering and renew worn parts.

WARNING: Vehicles fitted with disc brakes.

AFTER WORKING ON THE FRONT BRAKES PUMP BRAKE PEDAL SEVERAL TIMES BEFORE DRIVING OFF TO OBTAIN A 'FIRM' PEDAL.THIS IS NECESSARY TO ELIMINATE CLEARANCE BETWEEN PADS AND DISCS.

WARNING: Vehicles fitted with front drum brakes,also all LN,LNA and VISA vehicles.

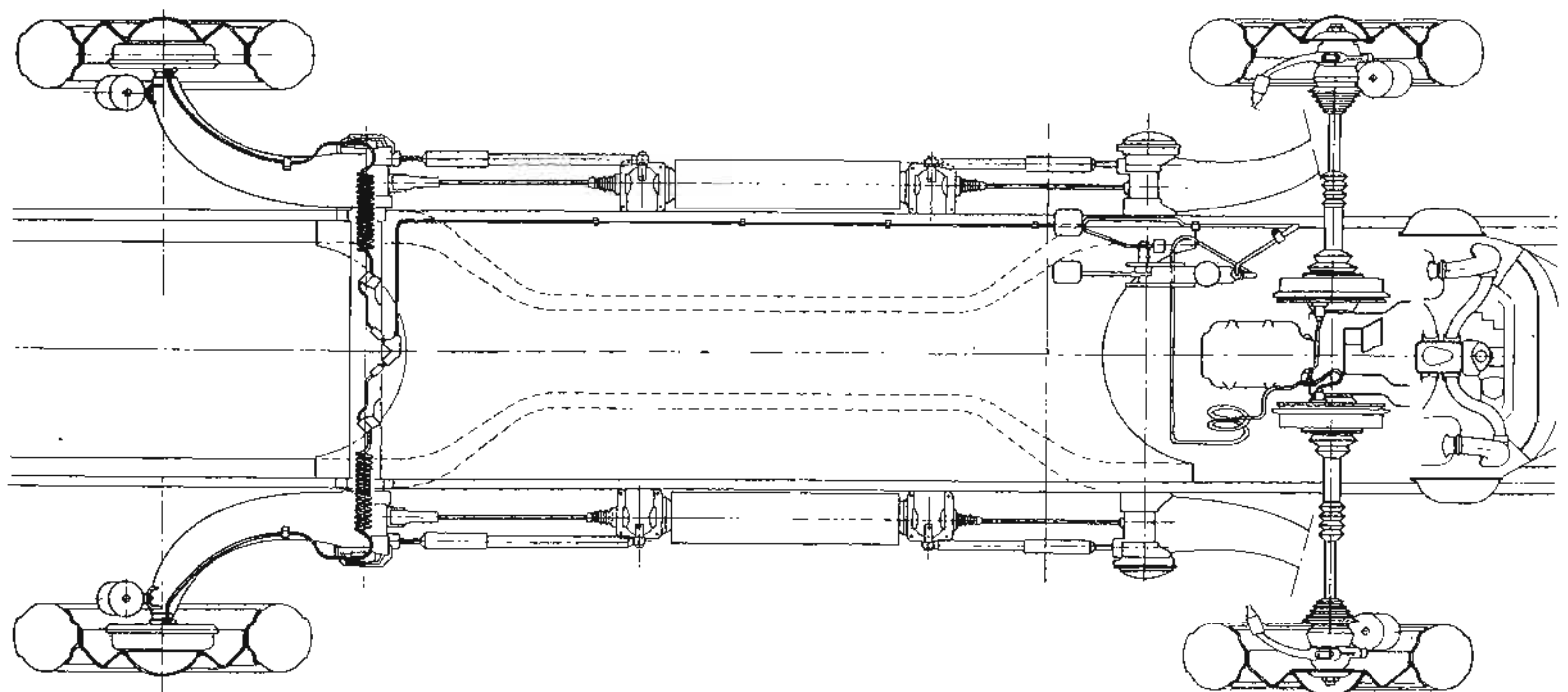
USE ONLY VEGETABLE/SYNTHETIC FLUID TYPES TOTAL fluid SY,TOTAL fluid 70R3 or TOTAL Brake and Clutch fluid.

WARNING: AMI 8, DYANE,ACADLANE,MEHARI and 2 CV Vehicles fitted with disc brakes. !!

USE ONLY GREEN LHM MINERAL OIL IN THE HYDRAULIC BRAKING SYSTEM.

!! Some Scandinavian Vehicles fitted with drum brakes use L. H. M. Check Vehicle Handbook.

DIAGRAM OF THE BRAKING SYSTEM,DRUM BRAKES,LHD.



FAULT	POSSIBLE CAUSE	CURE
Battery being overcharged. (Voltmeter needle stays in RH red sector with engine running)	Battery defective, discharged. Wiring defect. Regulator out of adjustment.	Charge or renew. Repair and remake connections, Remove cover, clean contacts, reduce spring pressure until charging volts = 14.6 at 2800 rpm. (Voltmeter needle in centre of white sector).
Battery not being charged. (Voltmeter needle stays in hatched sector with engine running).	Regulator resistances damaged or burnt out. Battery discharged Regulator out of adjustment.	Renew regulator. Charge or replace. Remove cover, clean contacts, increase spring pressure until charging volts = 14.6 at 2800 rpm. (Voltmeter needle in centre of white sector).
Voltmeter needle does not move when ignition is on.	Charging circuit fuse blown. Voltmeter defective. Ignition switch defective.	Renew fuse (Blue end to wire). Renew voltmeter. Repair or renew.
Voltmeter needle moves slowly right with ignition on, no further movement with engine running.	Alternator belt loose. Alternator fuse burnt out. Engine cooling fan loose. Alternator brushes missing or worn. Ignition switch worn or defective, Alternator diodes defective . Regulator out of adjustment. Regulator resistances damaged or burnt out.	Tighten to give 12mm($\frac{1}{2}$ in.) deflection at mid span. Examine fuse thru' slots in rear cover of alternator. Renew fuse or connect the 3 terminals with a piece of 15 amp fuse wire. Refit. Renew. Dismantle and clean (Non steering look type) or renew. Renew diode plate or end cover, depending on type of alternator. See above. Renew regulator.

FAULT	POSSIBLE CAUSE	CURE
Charging light glows with engine running(6 Volt systems).	<p>Incorrect charging lamp fitted.</p> <p>Battery defective.</p> <p>Dynamo brushes worn.</p> <p>Dynamo leads earthing due to chafing.</p> <p>Regulator defective.</p> <p>Generator assembly bolt insulation sleeves damaged.</p>	<p>Fit a 12 volt 1½ watt bulb.</p> <p>Charge or replace.</p> <p>Renew.</p> <p>Re-insulate leads and secure.</p> <p>Clean contacts,adjust charging rate (7.5 volts),or renew.</p> <p>Remove bolts and fit new sleeves</p>
Lights dim or flicker(6 volt systems).	<p>Dirty contacts and bulb holders.</p> <p>Bad earths.</p>	<p>Clean holders and remake connections.</p> <p>Clean and remake earths.Fit additional earth wires from each light assy. to chassis,or main earth connection on gearbox.</p>
Oil pressure warning light does not illuminate when ignition switched on.	<p>Circuit fuse blown(if other equipment also inoperative).</p> <p>Fuse blows when ignition is switched on.</p> <p>Bulb blown.</p> <p>Connections detached.</p>	<p>Renew fuse,check for cause of short and rectify.</p> <p>Wiper motor cover detached & shorting.</p> <p>Secure cover.</p> <p>Renew.</p> <p>Remake connections.</p>
Oil pressure warning light flickers when engine idling.	<p>Low oil level.</p> <p>Oil too thin, older engines.</p> <p>Oil overheating.</p> <p>Idling speed too low.</p> <p>Oil pressure switch defective.</p> <p>Oil pressure relief valve sticking or spring weak.</p>	<p>Top up engine oil to MAX mark.</p> <p>Drain and fill with TOTAL Silver 20/50.</p> <p>Remove grill cover.</p> <p>Clean oil cooler external fins.</p> <p>Set to 800 rpm.</p> <p>Renew.</p> <p>Renew valve and spring.</p>
Oil pressure warning light does not go out when engine revs increase.	<p>See above.</p> <p>Oil pump strainer fitted upside down.</p>	<p>See above.</p> <p>Strip engine and refit strainer correctly.</p>

FAULT	POSSIBLE CAUSE	CURE
Oil pressure warning light comes on whilst driving,	Low oil level. Oil overheating.	Stop as soon as possible, top up engine. Check that drain plug, filler cap, oil filter and dipstick are secure. Stop as soon as possible, remove grill cover if fitted, Also see above.
Speedometer needle flickers, ticking varies with vehicle speed. (usually RHD cars only)	Inner cable dry, stiff or stretched.	Check and re-route cable run. Remove cable, grease inner, check for stretch. Renew cable if necessary.

56

WHEELS AND TYRES

Loud knocking from front of vehicle when decelerating.	Front wheel nuts loose.	Remove wheel and renew if holes are oval. Refit wheel if undamaged. Grease threads (particularly if hub caps are not fitted) fit nuts and tighten with starting handle.
Tyres wear in centre of tread.	Overinflated.	Reduce pressures to correct value.
Tyres wear on both edges of tread.	Underinflated (can occur in cold weather as air contracts).	Increase pressures to correct value.
Front tyre(s) wear on outside edge of tread.	Insufficient toe-out. Suspension arm bent.	Shorten track rod(s) to obtain correct alignment. Renew.
Front tyre(s) wear on inside edge of tread.	Excessive toe out. Suspension arm bent.	Lengthen track rod(s) to obtain correct alignment. Renew.
Rear tyres wear on either edge of tread.	Suspension arm bent. Suspension arm bearings worn. Chassis damaged or bent.	Renew. Renew. Repair or renew.

--- FIN ---

The Citroën ignition system is similar to that used by Honda and Harley Davidson on their twins, in that it does not use a distributor, Fig 16.

The double lobed contact breaker cam is mounted directly on the front of the camshaft and can be removed by detaching a circlip. It is driven through two centrifugal advance and retard springs, there is no vacuum unit.

The contact breaker is housed in a waterproofed box set into a circular recess in the crankcase, it feeds the double ended coil and there are only two high tension leads, Fig 17.

The points operate in a better environment than that inside a distributor as there is no high voltage discharge. In consequence, once set correctly the points can operate satisfactorily for up to 20,000 miles without attention; the gap appears to remain constant despite deep pitting.

This design of ignition used on a flat twin engine provides a spark at each plug once every crankshaft revolution; on the compression stroke and the exhaust stroke in each cylinder. In addition one sparking plug is of negative polarity (i.e. centre electrode wears) and the other of positive polarity (i.e. side electrode wears).

Due to its simplicity and ideal operating conditions the Citroën ignition system gives more reliable and consistent results than any other system. If given the minimum required attention it will provide first time starting irrespective of wet or cold.

The 6 volt system is virtually identical to the 12 volt except for the coil which has different windings.

1. Spark Plugs

Due to the simplicity of the system and long life of the contact breaker points the spark plugs are the weakest part of the circuit and these should be checked first if ANY engine fault occurs.

Recommended Spark Plugs.

AC 42F	Marelli CW7 NBT (Ami 8 CW8NBT)
Bosch W225T1 or W7B	SEV-MARCHAL 35 (Ami 8 34S)
Champion L85 (Except Dyane 6 & Ami 8)	NGK BP6HC

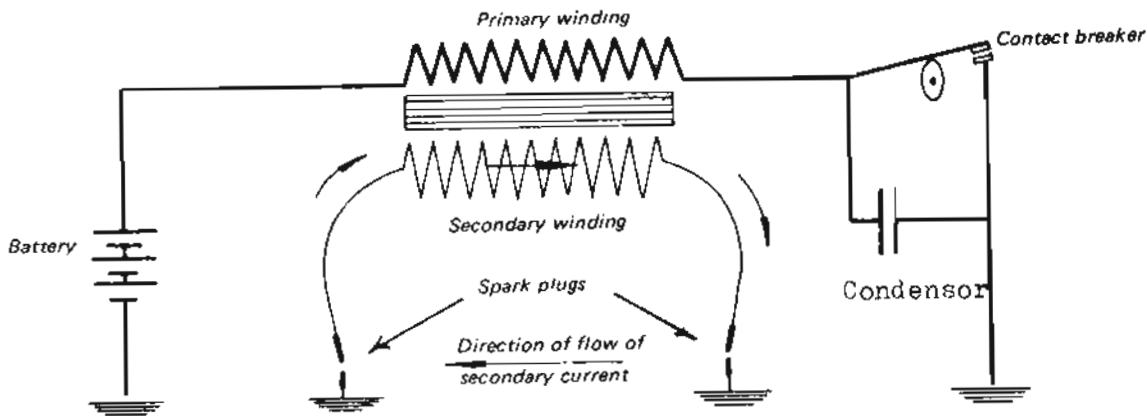


Fig. 16. Ignition Circuit

Maintenance.

Every 3000 miles, clean and reset.

- i. The only way to satisfactorily clean the modern type of spark plug is by abrasive blasting. A small unit called "Red Devil" can be purchased for around £ 3.00 and works off a 12 volt battery. Alternatively your local garage can clean plugs for a few pence each. If the plugs are oily wash in petrol first.
- ii. Wire brush the threads, open the gap slightly by lifting the side electrode and vigorously file the electrode sparking surfaces with a contact file.
Re-set the gap to 0.6 mm (0.024 in) by bending the side electrode. Never allow any pressure to bear against the centre electrode or core-nose when gap setting.
Change the plugs over cylinder to cylinder to equalise electrode wear. Lightly coat the threads with P.B.C. or 'Copaslip' and screw into cylinder head by hand.
Use a plug spanner (with universal joint and rubber inset) to tighten $\frac{1}{4}$ of a turn after plug has seated.
- iii. Clean the coil, plug leads and sleeves; check that all High tension & Low tension connections are clean and tight. Spray with 'WD 40' to clean & improve contact.

Every 6000 miles or annually

Fit new spark plugs. Check electrode gap and coat threads with 'P.B.C.' or Copaslip before doing so. Gold Palladium plugs can last up to 20,000 miles.

Suitable Alternatives:

AC 42 FF

Autolite(Motorcraft) AE 32(P)

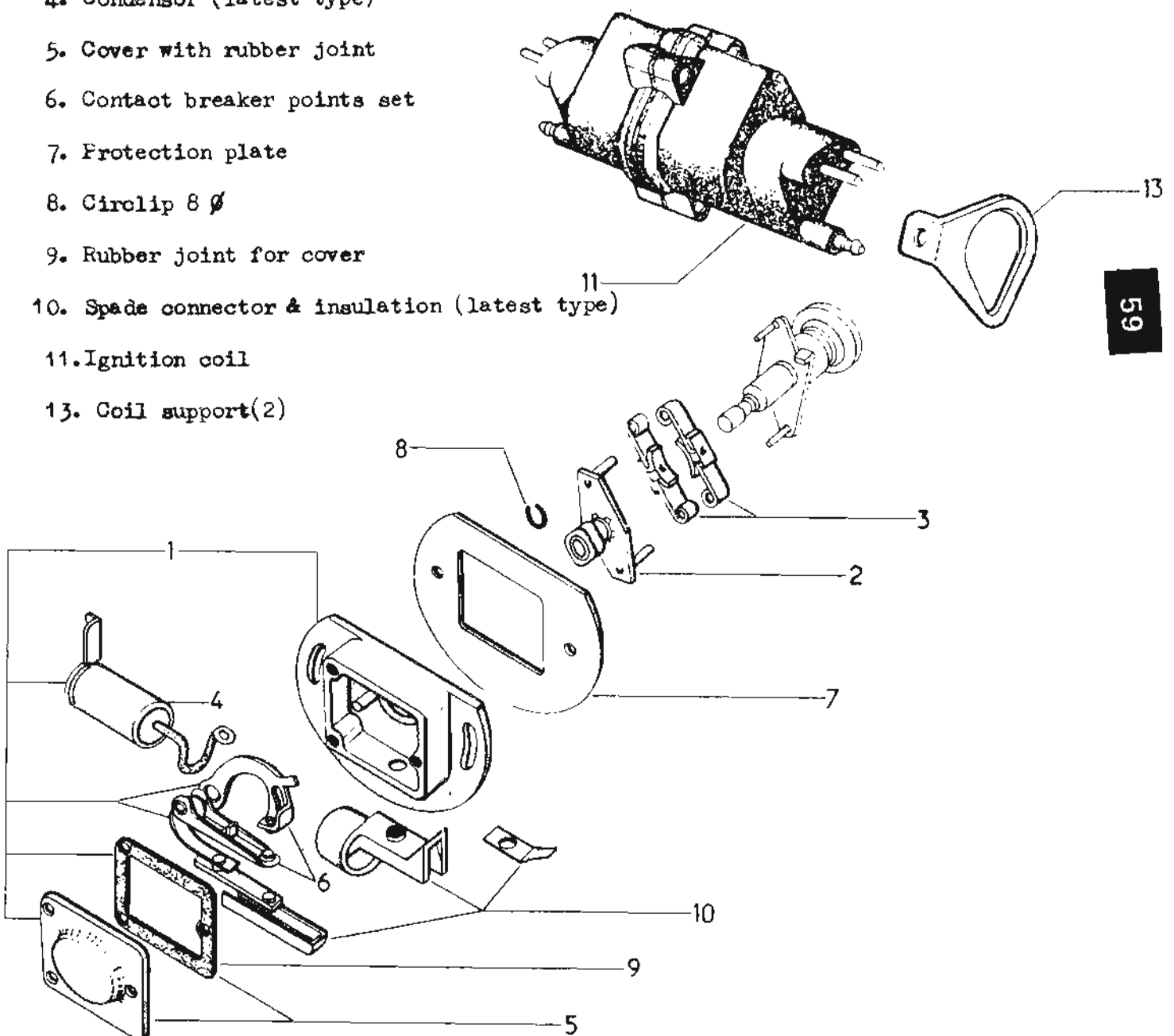
Champion L87Y

NGK B6HS (Anti-fouling in traffic), NGK B7HS for hard driving.

NGK B6HV (Gold Palladium centre electrode, for long life, anti-fouling and improved fuel consumption).

Key to Fig.17 . The Ignition System.

1. Contact breaker assembly
2. Cam
3. Advance & Retard weights & springs(31 mm)
4. Condensator (latest type)
5. Cover with rubber joint
6. Contact breaker points set
7. Protection plate
8. Circlip 8 ϕ
9. Rubber joint for cover
10. Spade connector & insulation (latest type)
11. Ignition coil
13. Coil support(2)



59

2. Contact Breaker Gap/Dwell Angle.

Dwell angle is the angle through which the contact breaker cam rotates while the points are closed. During this period the current builds up in the coil. theoretically the greater the dwell angle the bigger the spark. The Citroën flat twin has a dwell angle twice as great as for 4 cylinder cars and three times that of 6 cylinder cars, another reason for reliable starting.

The greater the contact breaker points gap the smaller the dwell angle. Dwell angle can be measured with a Dwell Meter without any dismantling. Contact breaker points gap is measured with feeler gauges and requires removal of the engine cooling fan.

Dwell angle for engines produced before Feb. 1970 = 142 - 146 Degrees.

Dwell angle for engines produced after Feb. 1970 = 106 - 112 Degrees.

This is equivalent to 0.40 - 0.45 mm (0.016 - 0.018 ins) points gap.

i. Checking the Dwell Angle.

Every 12,000 miles this should be checked, if satisfactory no attention to the contact breaker is required.

If a Dwell Meter is not available your friendly Citroën dealer may do it, it should only take two minutes. Do not use a 'Sparktune'.

The meter should be connected between the low tension feed to the coil and earth. Slide back the blue sleeve on the feed wire and connect the meter positive lead to the exposed brass sleeve. Connect the meter negative to a convenient earth.

Select the correct meter scale, it may be necessary to multiply the reading by 2 or 4 depending on whether the scale is for 4 or 8 cylinder engines. Start the engine, preferably when it is hot, and note the reading at idling. Accelerate the engine and note if there is any change.

If the reading is not within the limits quoted or the dwell angle varies by more than 6 degrees when engine speed alters then the contact breaker will require attention.

ii. Checking the Contact Breaker Points.

Access to the points is obtained as follows:

Remove the front grill, lock the flywheel with a large screwdriver in the flywheel teeth against the starter mounting. Using a long 14mm box spanner remove the setbolt from the centre of the fan/starter dog, a sharp blow on the tommy bar may be needed.

Removal of the fan/starter dog may be difficult, Citroën extractor 3006T bis will be of little use if the dog is damaged. Make up a tool from Mild Steel to the dimensions shown in Fig 21 enter into the centre hole of the dog and strike up-

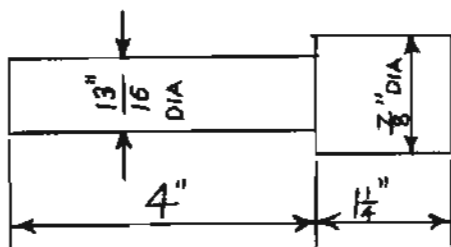


FIG. 21

Fan removal Mandrel

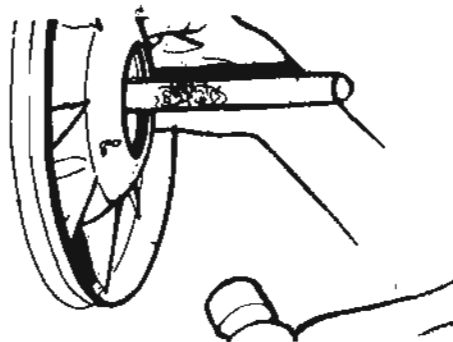


FIG. 18

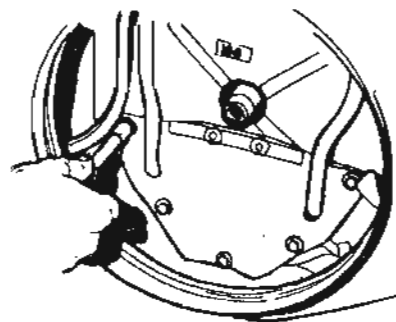


FIG. 19

ward sharply to break the taper. (Fig 18). In an emergency it may be possible to use the starting handle to rotate engine against locked flywheel.

Remove the Fan upwards and disengage the alternator belt (where fitted) at the same time. It should not be necessary to previously slacken the belt.

Remove the seven 8mm bolts and washers securing the rubber shield (Fig 19). Older cars do not have this rubber shield. With a brush soaked in petrol thoroughly clean the points box and the area around it.

Remove the three screws, cover and rubber joint, the points gap can now be checked 0.40 - 0.45mm (0.016 - 0.018 ins). The gap should be checked when fully open on each cam (Fig 20), if the gaps so measured vary by more than 0.05mm (0.002 ins) the cam is worn and should be renewed:

A 211-4 Original Cam, 2CV; A 211-4A 3 CV and Dyane Cam;

AM 211-204A Cam for latest engines 109 - 112° Dwell Angle.

Check that when set the feeler blade does not force the points open slightly. The cam should be free to rotate on the camshaft against the advance springs.

If the points gap has to be altered then the Ignition Timing must be re-set. Each degree the dwell angle is altered the timing is altered a similar amount.

If points replacement is necessary it is convenient to remove the box from the crankcase. Remove the two securing bolts with a 11mm box spanner, detach the spade connection and gently lever the box from its circular recess.

New or refaced points can now be fitted, it is advisable to renew the condenser at the same time. (Condenser fitted to vehicles before 10/68, part No. A 211-8 has a stud connection: condenser fitted to vehicles after 10/68, part No. AZ 211-8 has a wire connection). Ensure that spring is correctly fitted to moving contact.

Re-assemble points box, fit to crankcase and tighten the two 11mm bolts, turn the engine by the flywheel and set the gap as described above. Do not over-tighten the screw securing the fixed contact, if you do it can be tapped out to 2 BA and a 2 BA screw used. Fit the points box cover and rubber joint, tighten the 3 screws evenly.

iii. Ignition Timing; Static Method.

Always check the timing after resetting the points gap or fitting new or refaced points.

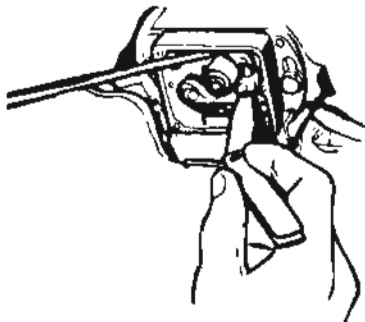


FIG. 20

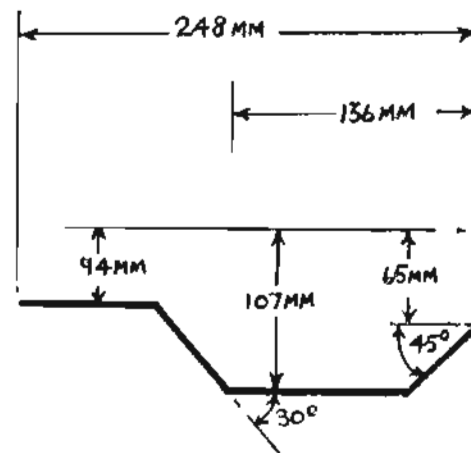


FIG. 22

Timing Rod, developed length 340mm

Place a No.4 crochet hook, a six inch nail or a rod made to the dimensions in Fig.22 from 6mm or 0 BA rod, through the hole in the R.H. top half of the crankcase into the hole in the front face of the flywheel. This will lock the engine at the ignition timing point i.e.

8° Before Top Dead Centre: M28 and M28/1 engines (AM2 & AK2)

12° B.T.D.C: All other engines

Paint a white line on one flywheel tooth and a corresponding line on the starter motor mounting.

Connect a small 12 volt lamp between the coil feed wire (blue sleeve)* and earth. Slacken the two 11mm bolts securing the points box and check that it can be rotated either way in the crankcase. * Slide back the blue sleeve.

Switch on the ignition, rotate the points box until the lamp just lights, gently tighten the 11mm bolts. Remove the timing rod (Very Important) and turn the engine clockwise by the flywheel. The lamp should just light as the two lines coincide, if not reset the position of the points box until they do, the two 11mm bolts must be tight at the time.

Clean and sparingly grease the tapers of the fan and crankshaft. If the fan is damaged it must be renewed, it is attached to the starting handle dog by 8mm screws. Fit to the crankshaft ensuring that the alternator belt is correctly engaged in the pulley. Fit the 14 mm bolt, position the fan so that when the white line on the flywheel is uppermost the slots for the starting handle are horizontally opposite. Lock the flywheel with a screwdriver and tighten the 14mm bolt to 5-6 mkg (36 lb.ft), Check the belt tension.

iv. Dwell Angle and Ignition Timing, Dynamic.

If a stroboscope and Dwell meter are available then the dwell angle and ignition timing can be set whilst the engine is idling.

Dismantle as for points adjustment, having marked the white timing lines on the flywheel and starter motor bracket with the timing rod in position, NEVER forget to remove the timing rod.

Connect the dwell meter as in (i.) and the strobe in series with either plug. Start the engine & idle at around 900 r.p.m. the engine will idle satisfactorily for about ten minutes without the fan or alternator.

Adjust the points gap until the dwell angle is correct. Tighten the fixed contact screw and stop the engine. Replace the points box cover and rubber joint, fit and tighten the three screws.

With a 11mm box spanner slacken the two points box securing bolts & check that the points box can be rotated when the two bolts are only just slackened, it may be necessary to remove the box and clean off any dirt or burrs.

Start the engine, first check that the dwell angle is correct then point the light at the timing marks, its best to do this in a dark place. The two white lines should coincide, if they do not rotate the box until they do. If the mark on the flywheel appears much wider than it is or the mark jumps about then the cam, its supports or the points are worn. Stop the engine connect the other spark plug in series with the strobe lamp and recheck the timing. If there is a small difference between the settings the points box can be rotated slightly to halve the error. If the difference is large the cam is worn or bent.

Accelerate the engine and check that the flywheel mark rotates anti-clockwise, this indicates that the centrifugal advance is working.

Tighten the points box securing bolts, re-check the dwell angle and timing before re-assembly as in (iii.)

v. The Coil

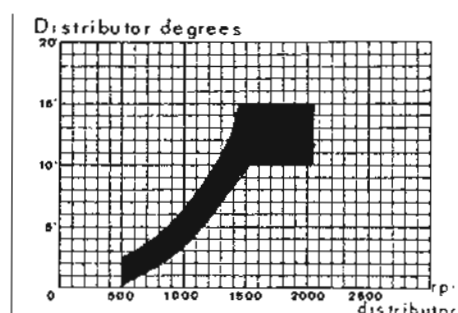
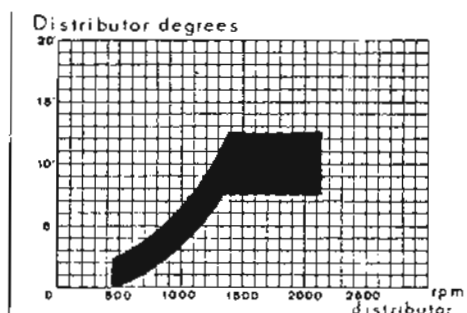
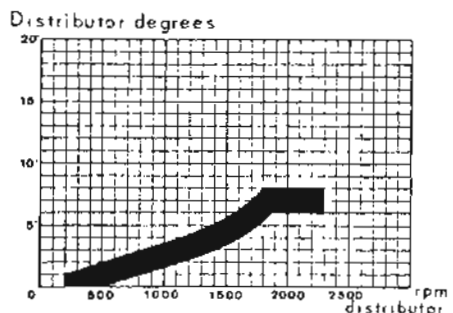
Make: Ducellier. 6 volt, Reference 2768; 12 volt, Reference 2769.

The coil is filled with oil which insulates the windings, if a leak occurs the coil should be renewed. The resistance of the primary circuit of a 12 volt coil is 3.6 plus or minus 0.2 ohms and the secondary is 9000-10,000 ohms. The resistance must not be measured with a generator type ohmeter.

The coil should always be kept clean and should not be loose in its supports (Fig 7.13) if it is, secure it with plastic or rubber cable clips.

64

IGNITION CENTRIFUGAL ADVANCE CURVES.



A53 & M4 Engines

A 79/0 Engines

A 79/1, M28 & M28/1 Engines

SUSPENSION

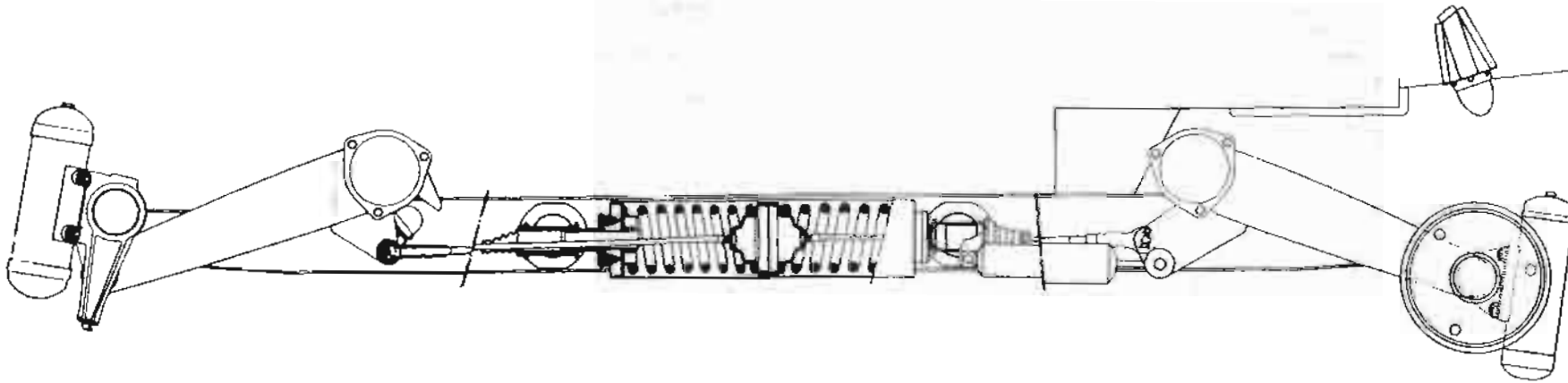
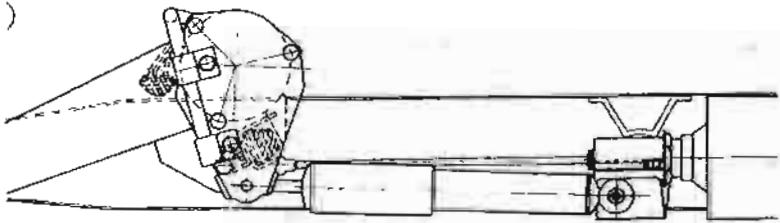
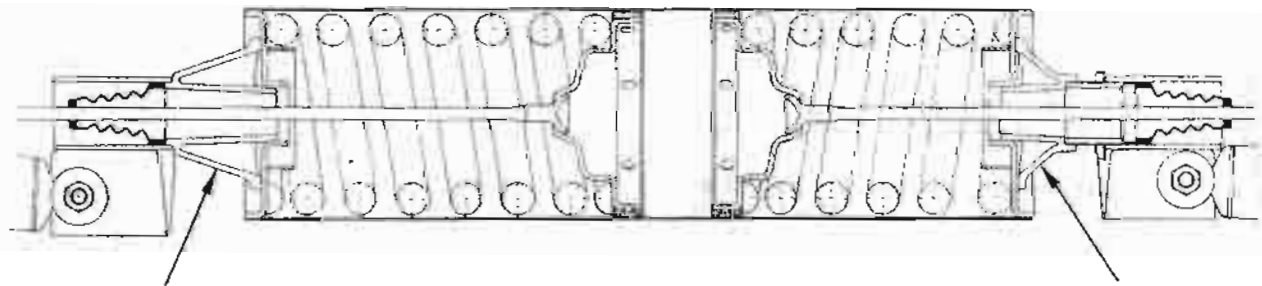


FIG. 23 THE CITROËN INTERCONNECTED SUSPENSION.



AMI 8 VEHICLES FITTED WITH AN ANTI-ROLL
BAR AT THE FRONT



AMI SUPER SUSPENSION

The suspension cylinder is secured to the chassis by the end brackets
which are arrowed.

The Citroen suspension is extremely rugged and trouble free. it requires only the simplest maintenance at infrequent intervals.

Most essential is the correct body height to maintain correct weight distribution, the correct working position for drive shafts, suspension arms, etc., and to prevent bottoming on the rear bump stops which will weaken the rear wheel arches. The height gradually reduces as the car gets older and requires checking from time to time especially in the first couple of years.

Adjustment is pretty straightforward and requires only a 9 mm open ended cranked spanner (FACOM 34-9, approx. £2.00) or the special tool in Fig.24 which can be made from a piece of hexagon bar and rotated by a suitable ring spanner with a slot cut in it.

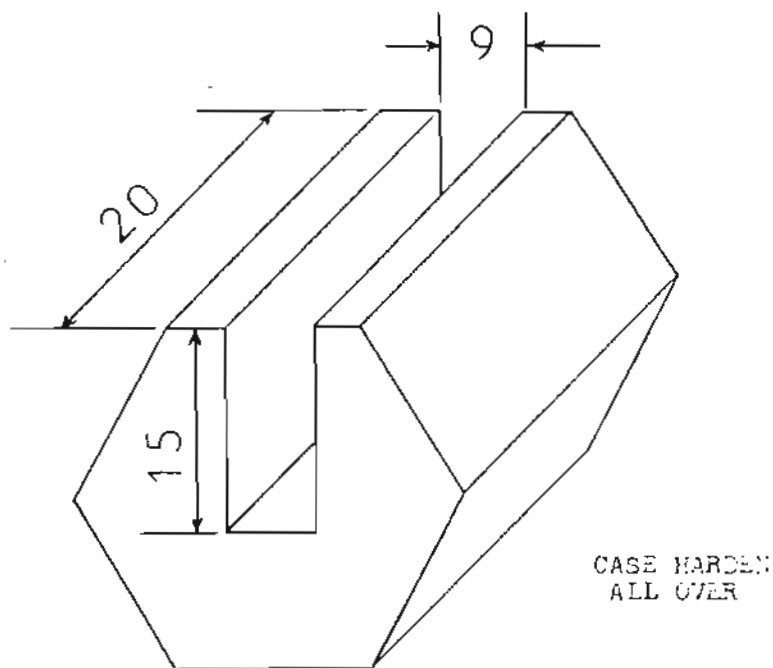


FIG.24. Special Tool 3455-T.

Adjustment. Place the car on level ground, unladen in normal running trim, using a steel tape measure the four heights and record them in order to establish which has to be raised or lowered.

Jack the car on one side until both wheels are off the ground, make sure that the other wheels are chocked. Lubricate the threads of the tie rods.

To raise the height screw the tie rod into the rod end, to lower the height screw the tie rod out of the rod end. Each rod has a 9 mm wide flat where the spanner engages. Rotate each tie rod about three complete turns then lower the car and measure the heights again. Repeat until the correct heights are obtained on that side, repeat the procedure on the other side.

The correct heights are as follows in MM measured between the road and underside of the chassis (between the axle tube bolts)

	Front	Rear
All 2CV, Dyane & Ami Saloons	195	280
Ami Estates	195	290
Acadiane	212	317
2CV Van	205	335
3CV Van	212	347
Mehari	236	346
Mehari 4x4	248	333
Bijou	298	385

When adjusting interconnected suspension adjustment at one end will affect the adjustment at the other.

Routine Maintenance.

Every 3,000 Miles. Using a brush dipped in grease lubricate the area around the knife edges, work the grease in between the suspension arm brackets and the tie rod ends.

The small Citroens are all suspended on these four frictionless edges similar to the beam pivot of a set of scientific scales.

Every 10,000 Miles. Check the suspension heights and correct if necessary.

Every 20,000 Miles. Slide the four rubber gaiters from each end of each suspension cylinder. Fit a long plastic pipe to a "squirt can" which is filled with castor oil. Pass the plastic pipe through the threaded sleeve into the end of the cylinder. Inject a few shots of Castor Oil into each end of each cylinder, then replace the gaiters.

If the cylinder squeaks during running after this treatment: take the weight off both wheels that side and rotate the cylinder 180 degrees, release the rubber support band on later models.

In severe cases of squeaking and groaning, punch a small hole in the centre of the cylinder and inject castor oil, seal the hole with a rubber bung and rotate the cylinder 180 degrees. Then take the car on a rough surface at high speed.

Dampers.

Inertia Dampers. Remove each damper in order to test; the upper securing bolt is a driving fit. Shake up and down to check whether the weight is free and attached to the spring.

Drop onto soft grass from a height of 6 inches and if it behaves like a jumping bean it is O.K. If not replace with a secondhand one from a scrapped car. If the damper appears O.K. remove the filling plug, hold the plug in a vice and unscrew the damper from it, don't lose the copper washer. Drain the old oil, shake the damper vigorously until all the oil is drained. Refill with 85 c.c. of L.H.M. or light machine oil. Replace plug and copper washer, de-rust and paint damper and refit.

Friction Dampers. There are two types, adjustable and non adjustable. They can be removed after taking the plate from the end of the axle tube. A special tool makes this easier as it is necessary to rotate the damper against a torsion spring to disengage it from the dogs projecting from the end of the axle tube. The Citroen tool is 3451-t.

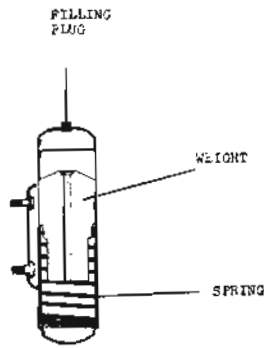


FIG. 26. INERTIA DAMPER.

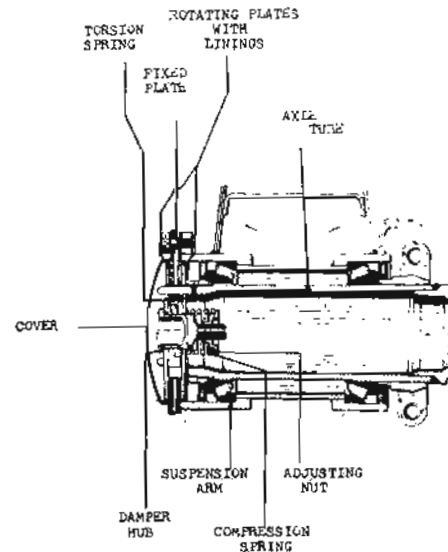
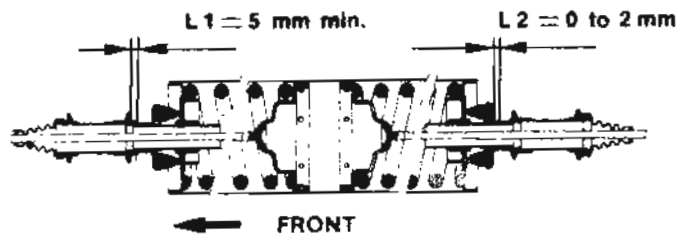


FIG. 27. ADJUSTABLE FRICTION DAMPER.

The adjustable dampers can be dismantled and the linings degreased and re-faced with medium sandpaper laid on a perfectly flat surface. Re-assemble and tighten adjusting nut until damper re-



quires 20 ft. lb. torque to rotate. Using jig 3452-T the damper can be worked up to temperature by repeated rotation and the torque varied to 20 ft. lb. which is the setting for this condition.

Refit to the axle tube, make sure that the paper joint between the cover and axle tube is undamaged and water tight.

Hydraulic Dampers. First fitted on the Ami 6 and AK van in June 1963, they have gradually replaced friction and inertia dampers on virtually all models.

Since December, 1975, all 'A' models are fitted with 4 hydraulic dampers. The friction and inertia dampers are discontinued.

To test, rock the car until they start "creaking", then push down one corner of the vehicle down as far as it will go then release, if it bounces more than twice the damper is weak and requires replacement. Repeat on the remaining three corners. The life of the German produced "Boge" dampers is in excess of 60,000 miles, they are manufactured by the same Company which produces the self levelling units for the Range Rover and the new Rover 3500.

The design of the Citroen suspension is very good and sometimes it is difficult to identify defective dampers during normal driving.

If a damper squeaks during normal use the rubber 'silentbloc' mounting bushes are probably dry, lubricate with an aerosol rubber lubricant. Sometimes the hydraulic seals are tight or the covers rub, (no action necessary).

The position and location of the hydraulic dampers is very important and they should be fitted as indicated in Fig. 28

Koni hydraulic dampers have been fitted, successfully, by a number of club members. For details write to:

J. W. E. Banks and Sons, Ltd, Crowland, Peterborough. PE6 0JP.

Tel. Crowland 316/7/8.

Girling list shock absorbers Part no. 2811 for the front of Ami 6 & 8.

Suspension unit (with interaction):

Assembly: Identification mark (front) on cylinder directed towards the front.

Adjustment: Location of the front end-piece: $L1 = 5 \text{ mm min.}$
Location of the rear end-piece: $L2 = 0 \text{ to } 2 \text{ mm}$
Clearance between bump stop and front suspension arm: $3 \text{ to } 6 \text{ mm}$

Torque for end-piece nuts: 18 to 22 m.daN.

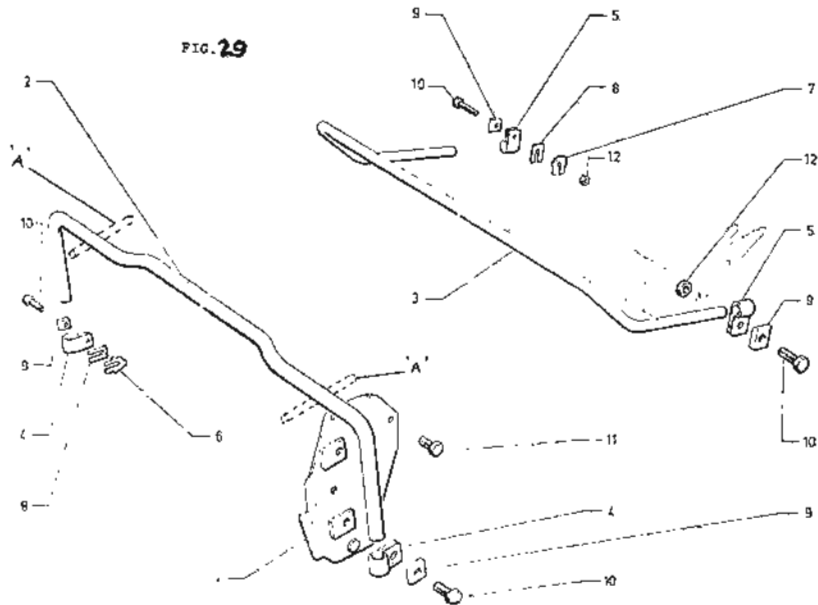
Suspension unit (without interaction): (All 3CV 11/76 →)

Assembly: Identification mark (front) on cylinder directed towards the front. The longest spacer is located at the rear of the suspension unit

Tightening torque:

Nut for front adjustment end-piece: 3.4 to 4 m.daN.

In order to limit body roll of the heavier cars, Citroen fit anti-roll bars to the front suspension of the Ami 8 and to front and rear of Ami Super vehicles.



- | | |
|---------------------------|--------------------------------------|
| 1. Front axle tube cover. | 7. Stop shim, rear bar. |
| 2. Front anti-roll bar. | 8. Adjusting shim. |
| 3. Rear anti-roll bar. | 9. Thrust block. |
| 4. Clip for front bar. | 10. Bolt securing anti-roll bar. |
| 5. Clip for rear bar. | 11. Bolt securing axle tube cover. |
| 6. Stop shim, front bar. | 12. Nut securing rear anti-roll bar. |

It is advisable to disconnect the righthand side of each anti-roll bar before adjusting the body height.

It is possible to fit anti-roll bars to the front of those cars not fitted with front friction dampers, provided that the front axle tube covers are modified or Ami type are fitted.

Replacing Anti-Roll Bar

- Remove.**
1. Raise the front of the car, remove the front wheels.
 2. Remove the securing bolts (10) L.H. side then R.H. side (note the location and direction of the stop and adjusting shims).
 3. Free the bar and remove from the L.H. side.

Fit.

4. Offer up the bar fitted with its clips (4), (5) from the L.H. side. The curved part of the front anti-roll bar must face the rear of the car.

5. L. H. side front; adjust the clearance. Insert a pin 'A' (6mm diameter) between the bar and the top face of the suspension arm. Fit the securing bolts (10). Arrange the rounded edge of the thrust block (9) toward the clip (4). Tighten the bolt to 43 ft. lb. (60 m/N, 6 m. kg.). Remove pin 'A'.

6. R.H. side front, adjust the clearance in the same way as for the L.H. side.

7. Adjust the end play of the bars; with the R.H. side bolts free. Measure the clearance between the cover (1) and the clip (4). The thickness of the adjusting shim should provide a clearance or interference of 0.5 mm at this point, including the thickness of the stop shim (6), (7). If the existing shims are not of suitable thickness, make up correct shims from steel strip using the existing as a template.

8. Fit the stop shims (6), (7), adjusting shims (8), thrust blocks (9) and securing bolts (10) make sure that the rounded corners of the thrust blocks (9) are towards the clips (4), (5).

9. Tighten the securing bolts to 43 ft. lb. (60m/N, 6 m. Kg.)

FITTING OF - LIPMESA - SHOCK ABSORBERS

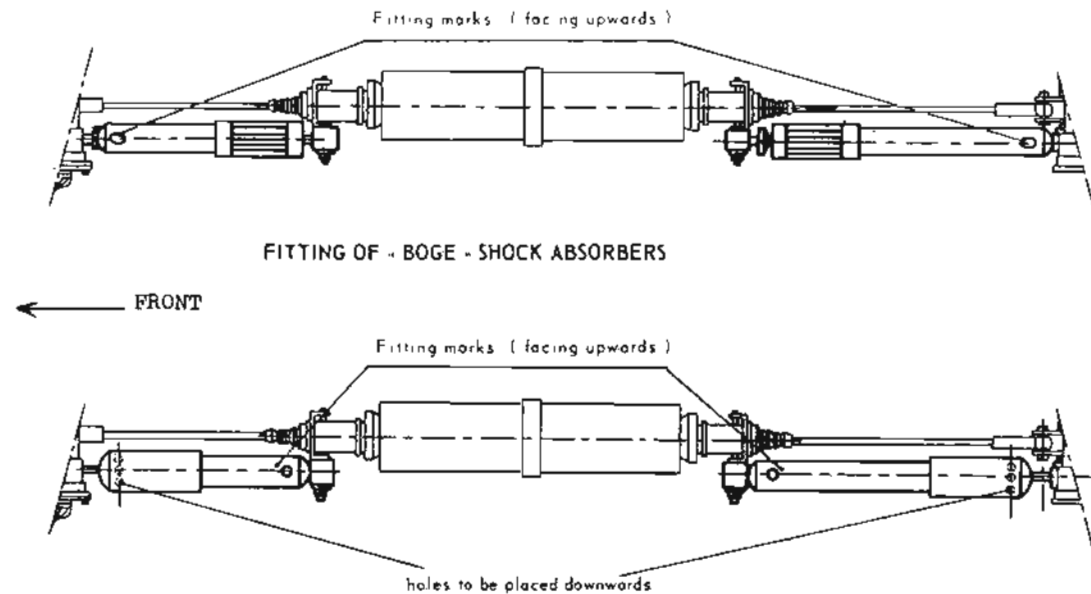


FIG. 28

CHAPTER 14. THE BRAKING SYSTEM.

PART 1. VEHICLES FITTED WITH DRUM BRAKES ALL ROUND

2CV, AZAM/6, 2CV4, Bijou, Dyane 4, Sahara, 2CV Van,
All 3CV Vans (Except Acadiane), Dyane 6 & Mehari
(Upto Sept. 77), All Ami (Up to Sept 69), 2CV6 (Up
to Sept. 81)

These vehicles use Synthetic Brake Fluid to SAE 70R3 specification, i.e. Total SAE 70R3 or Lockheed 329s.

Use only Alcohol, Surgical Spirit or Methylated Spirits for cleaning.

Use Bendix/Lockheed (DBA) parts and seals. All seals should be identified with a red or white mark, and are made from SBR (Styrene-Butadiene Rubber). NEVER use parts or seals which have a green mark.

TYPE OF VEHICLE	DIAMETER IN MM.				
	master cyl.	front slave cyl.	rear wheel cyl.	front drum	rear drum
AZ, AZU (up to Jan. 72).	22	28.57*	19	200	180
2 CV 4 & 6 AZU (after Jan. 72)	20.6	28.57	17.5	200	180
Dyane, Dyane 4	20.6	28.57	19.	200	180
Ami 6 Saloon (up to May 68)	22	28.57	17.5	220	180
AK (up to May 68), Ami 6 Estate (up to May 68)	22	28.57	19	220	180
Dyane 6, Mehari, Ami 6 Saloon (after May 68), Ami 8 Saloon (up to Sept 69)	20.6	28.57	17.5	220	180
AK (May 68 onwards), Ami 6 Estate (May 68 onwards)	20.6	28.57	19	220	180
* 25.4 (1 inch) French 2 CV Saloons (AZ).					

The hazardous driving conditions on the roads today demand that vehicles should be as nearly perfect as possible. This is particularly relevant to the braking system.

Extreme cleanliness is essential for the correct operation of the hydraulic system. It is also very important that the correct brake fluid is used, as a change or mixture of fluids can quickly damage the seals and cup washers in the system and clog all the pipes with rubber debris.

1. Weekly or prior to a long journey, and every 3,000 miles.

Check the level of fluid in brake fluid reservoir and top up if necessary with fresh fluid.

2. Every 6,000 miles.

Adjust front and rear brake shoes.

Adjust the handbrake.

Check the brake pipe unions for leaks.

3. Every 12,000 miles.

Check the condition of the front brake linings, one side only

4. Every 18,000 miles or 18 months whichever is sooner.

Change the brake fluid.*

Inspect all rubber brake hoses for cracks or swelling, renew if necessary (where fitted on older models only)

5. Every 36,000 miles.

Check condition of front drum slave cylinders, remove rust and renew seals if leaking.

*If the brake fluid is changed regularly it should not be necessary to inspect the rear brake linings before 60,000 miles.

(i) BRAKE FLUID RESERVOIR.

This is fitted either on top of the master cylinder or on the bulkhead, and is made of glass or translucent plastic. The level of fluid must never fall below the "Dinter" mark.

Wipe the cap before and after removing it using a piece of clean rag, pay particular attention to the threads. Check that the vent hole is clear.

Handle brake fluid with care, it is a powerful paint stripper and is hygroscopic that is it attracts and absorbs moisture. If surplus fluid is not wiped from metallic parts severe corrosion will occur. NEVER top up with old or used fluid as it will contain water which will rust the inside of pipes and cylinders.

(ii) ADJUSTMENT OF FRONT BRAKE SHOES (Fig 30)

Release the handbrake (the car to be on fairly level ground)

There is always sufficient play in the drive shaft joints to rotate the drums sufficiently to check the brake shoe adjustment. The Hexagon head of each adjustment cam bolt can be found on the external face of the backplate. If the bolt is stiff spray sparingly with 'plus gas' or 'WD 40'.

Using a thin 14mm ring spanner rotate each cam bolt in the direction shown by the arrows, at the same time turn the drum by hand, until the brake shoe can be felt to contact the drum.

Move the spanner back slightly to release the shoe, then bring it back slightly until the shoe exerts a light rubbing on the drum

NEVER finish the adjustment by moving the shoe away from the drum. The shoe must be adjusted to be as near to the drum as possible to ensure short pedal travel.

Proceed in the same manner for the other shoe.

Carry out the same operation on the other drum.

Move the car forward until the drums have rotated half a revolution then check if any shoes are binding. If there is binding repeat the above procedures in the position where the binding occurs.

(iii) ADJUSTMENT OF THE REAR BRAKE SHOES. (Fig 31)

Raise one side of the rear of the car, check the diagonally opposite wheel. Place a block of wood under the chassis to support it should the jack slip.

Proceed as indicated for the front shoes, but rotate the drum completely by rotating the wheel.

Repeat the same operation on the other wheel.

To remove the dust from the rear drums proceed as follows when the wheel is off the ground. Tap the backplate with a small hammer in several places at the same time rotating the wheel, continue

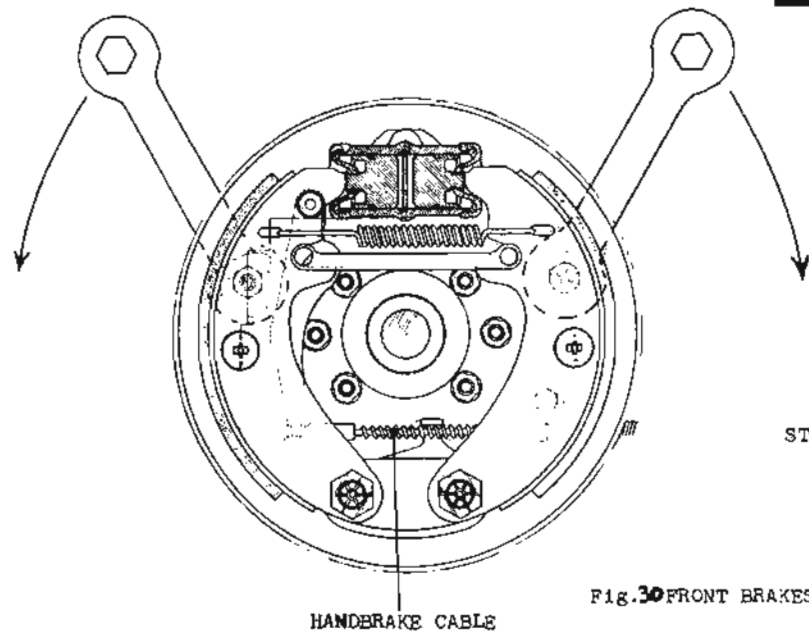


Fig.30 FRONT BRAKES

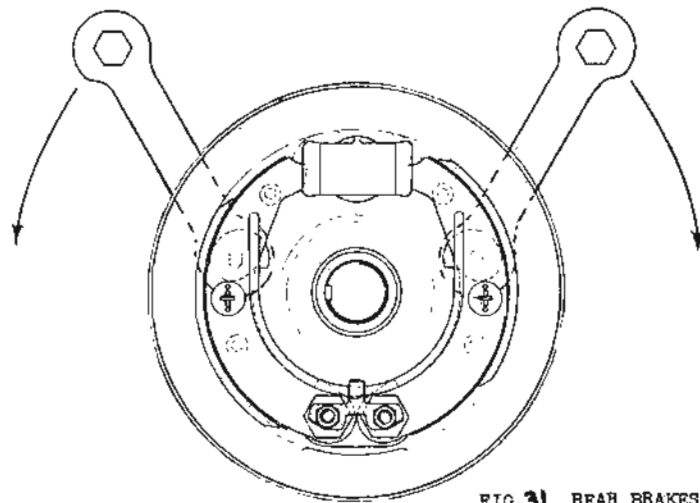
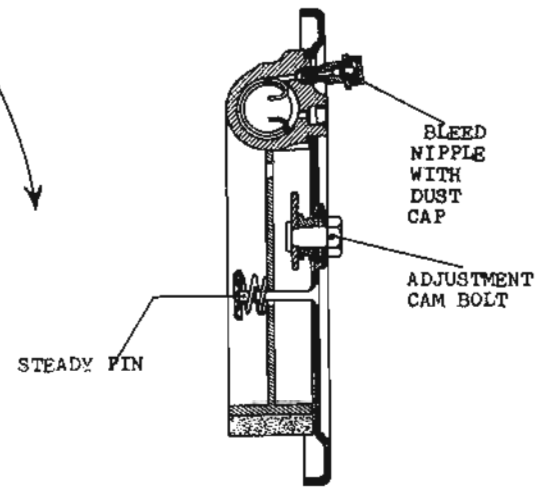
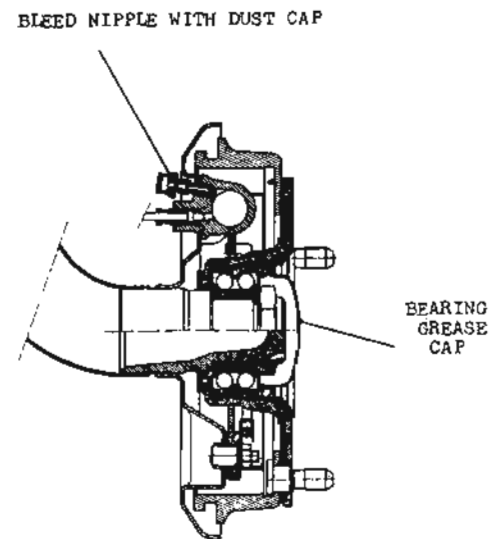


FIG.31 REAR BRAKES



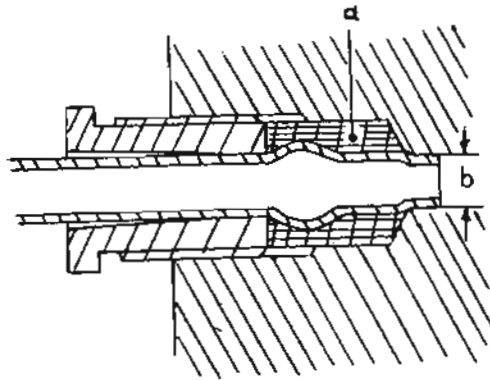


FIG. 32 BRAKE PIPE UNION
WITH RUBBER SEAL

until no more dust is released. Using a vacuum cleaner get an assistant to suck out the dust from between the drum and the backplate via the small gap between the two. NEVER blow the dust out, for ASBESTOS can be dangerous.

(iv) ADJUSTMENT OF THE HANDBRAKE.

Adjust the front brake shoes, see (ii). Pull out the handbrake handle three notches.

Tighten the brake cables by rotating the brass wing nuts (located behind the gearbox on the chassis crossmember until the brake shoes begin to tighten on the drum.

When the handle is on the fifth notch the drums should be completely locked. Release the handle completely and check that the drums are not binding.

(v) CHECK THE BRAKE PIPE UNIONS FOR LEAKS.

Examine all brake pipe connections to: master cylinder, slave cylinders, brake hoses (when fitted), three-way connections, etc., for leaks when the brake pedal is pressed down hard.

Older cars are fitted with Banjo connections which seal by copper washers each side of the banjo. If the leak cannot be cured by tightening then soften* or replace the copper washers.

*To soften copper washers, heat to red heat over a gas ring and plunge immediately into clean cold water.

Later cars are fitted with union nuts and rubber seals, see Fig.32 (4.5 mm or 3.5 mm on the latest models).

Tighten the nut moderately (6 lb. ft.), excessive force will make the leak worse because the pipe will become deformed. If the leak persists then a new seal should be fitted:

Dismantle and clean the union, lightly coat the new seal (a) with brake fluid. Fit the seal so that it is 2 mm from the end of the pipe.

Centre the pipe in the hole, inserting it along the centreline of the hole. Ensure that the end of the pipe penetrates well into the small bore (b).

Hold the union nut in the hand and tighten moderately, (to 6 lb. ft.).

Recommended Fluids for cars with drum brakes all round.

Lockhead 55, Lockhead 329s, Total SAE 70R3, Castrol-Girling Crimson, LHS 2, Idafren. Do not mix these fluids. If you wish to change to one of the alternatives, drain the system and flush out with the new fluid first.

(v) Inspect the front brake shoes (linings).

Before attempting to remove the brake drums, it is worth while considering removing the wings and wheel arches. The time taken will not be wasted as the improved accessibility and visibility will save time in the long run.

The 2 CV wings can both be removed in less than 10 minutes; removal of the Dyane wings, still attached to the wheel arches; is a 20 minute job. Ami 6/8 wings and wheel arches is quite a long job, between 30 and 40 mins.

If the shoes or wheel cylinders are to be removed then removal of these items is virtually essential.

Clean the gearbox, brake drums and drive shafts before starting work, absolute cleanliness is essential when working on drive shafts and the braking system.

Release the brake shoes away from the drums by rotating the adjusting cam bolts in the opposite direction to that shown in Fig. 1.

Removal of the drums is as follows:

(a) Older 2 CV, Bijou, older Dyane and Dyane 4 with simple crosspin drive shaft universal joints (see Fig.33).

Loosen and remove the 4 nuts (2491's) securing the drum, slide the drum away from the gearbox.

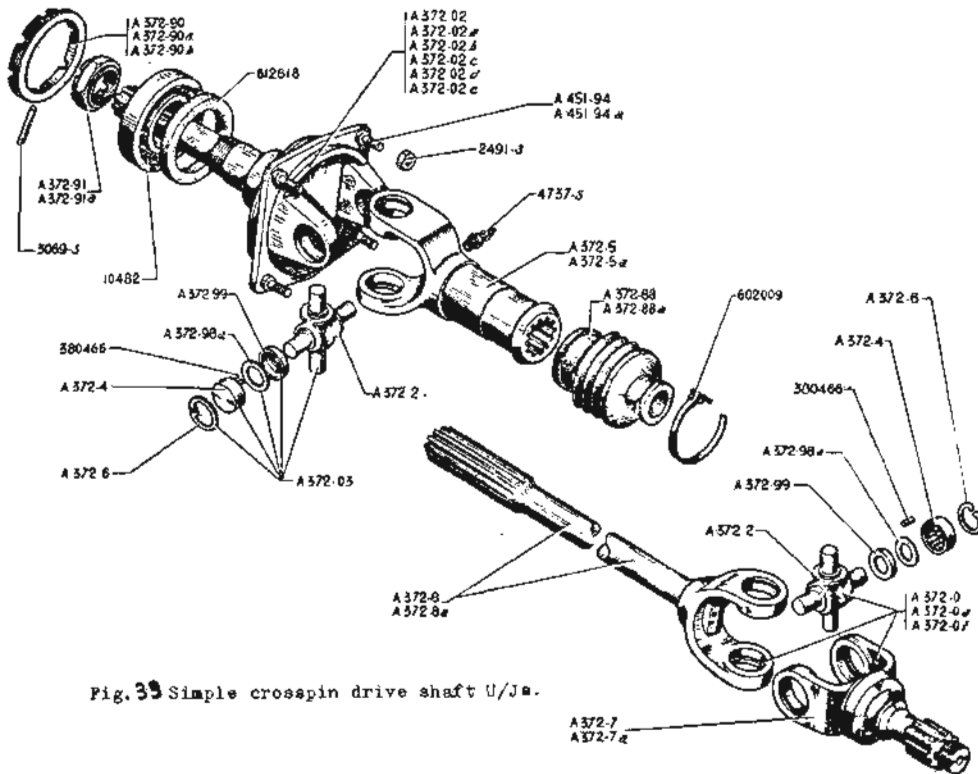


Fig. 33 Simple crosspin drive shaft U/J.

Tightening torque for these nuts is 1.4 — 1.9 k.g.m. (10 — 14 lb. ft.)

(b) **2 CV, Dyane, Ami 6, Mehari with double crosspin drive shaft constant velocity joints (see Fig. 34)**

Unscrew the drive shaft grease nipple (4737 or 617257), don't loose it, remove the two rubber rings (A 373-96) from the gaiter and slide them away from the gearbox.

Slide the gaiter (AM 373-99) away from the gearbox.

Gently tap the cover (AM 373-89) down the driveshaft away from the gearbox.

Loosen and remove the 4 nuts (2489-S) securing the drum, slide the drum and cover (AM 373-80a) away from the gearbox.

Tightening torque for these nuts is 1.4—1.9 k.g.m. (10—14 lb. ft.) Take care that no dirt gets into the CV joint.

(c) **Some 2 CV 4, 2 CV 6, Dyane 4 & 6, Mehari, Ami 6 and all Ami 8 with ball type CV joints (Rzeppa), (See Fig. 35).**

Loosen and remove the 6 bolts (AM 373-102) securing the drive shaft flange and the drum, move the flange away from the gearbox thus compressing the splined shafts. Remove the drum from the gearbox.

Tightening torque for the 6 bolts is 4.5—5 m.k.g. (33—36 lb. ft.)

With this type of joint the drum can be completely removed from the vehicle.

Removal of drums from all types of joint can be facilitated by bending back the engine cooling cowling lug.

The leading shoes normally wear faster than the trailing shoes, if the lining thickness on any shoe is less than 2 mm, it is recommended that all four shoes are relined or exchanged. Shop around for shoes, some local firms will reline them.

If the lining thickness is O.K. brush the dust out of the drum and brake mechanism. Lubricate, sparingly, with 'Copaslip' or p.b.c. all metallic parts in contact; without dismantling.

De-grease the linings and drums with meths, remove the glaze with medium emery cloth.

Caution, use a vacuum cleaner to remove the dust as Asbestos dust is dangerous.

Replacement of the drums is the reverse of removal, make sure all mating faces are clean and lubricate sparingly with 'Copaslip' or 'P.B.C.'. Tighten the nuts or bolts to the torques as indicated for each type of driveshaft joint.

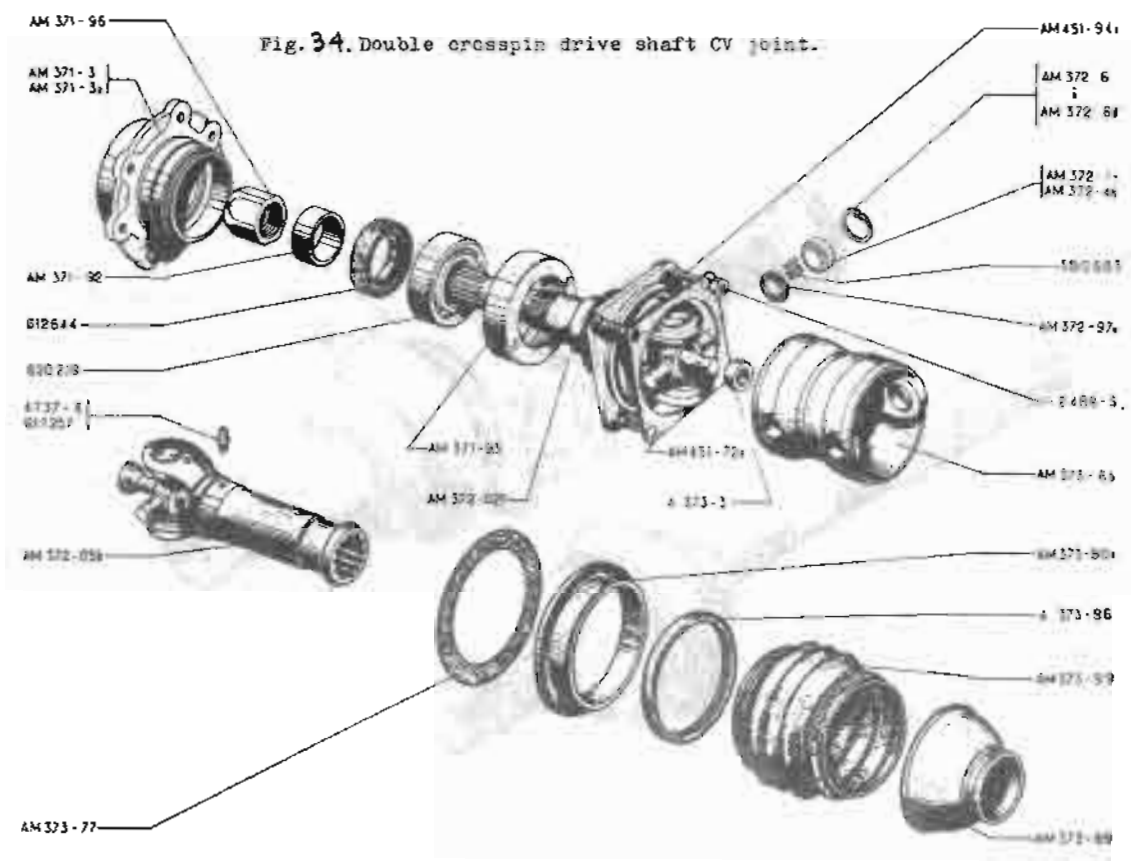


Fig. 35. Ball type drive shaft CV joints.

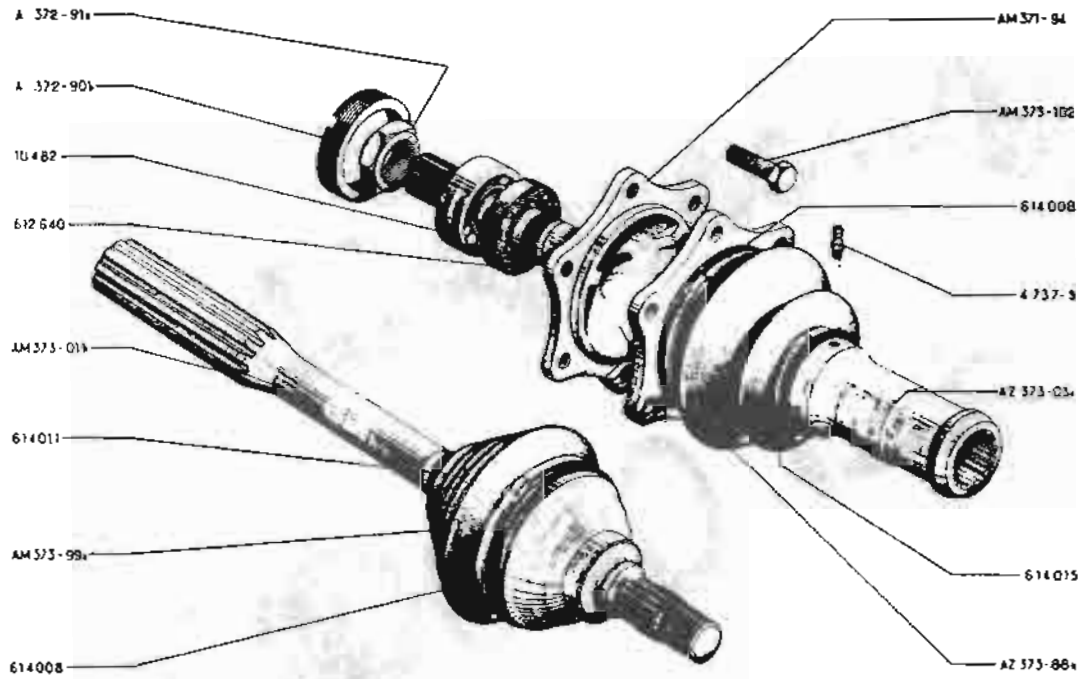
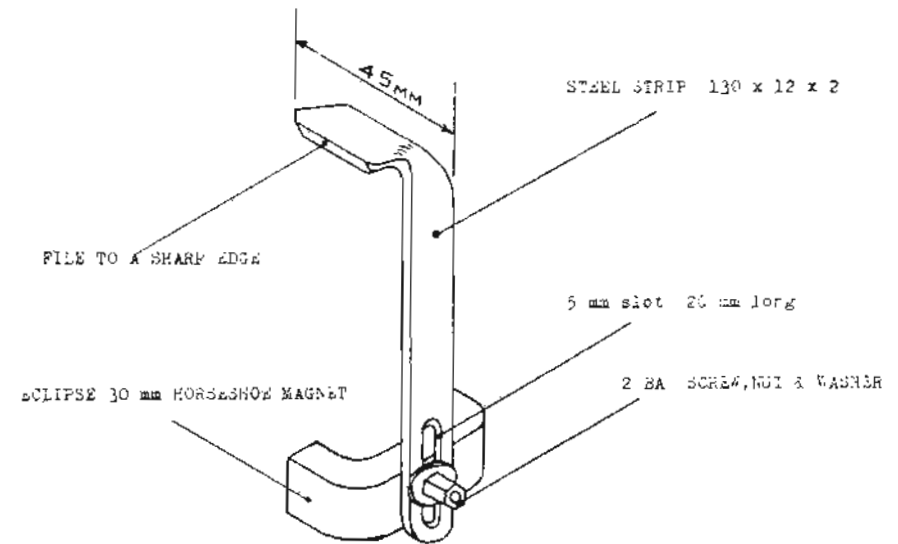


FIG. 36 BRAKE CENTRALISING TOOL.

**(vii) Renewal of the front brake linings (shoes). Fig. 37****(a) Removal.**

Proceed as described to inspect the shoes.

Separate the shoes by rotating the cam bolts (5) in the direction shown in fig 1. Slacken the handbrake adjusting wingnuts to the end of the cable threads.

Disconnect the brake pipes from the back of the brake cylinder, plug the end of the pipe. Remove the two 10 mm set bolts securing the cylinder to the back plate, remove the cylinder.

Rotate the cambolts (5) so that the shoes close together. Remove the two slotted caps (18); use circlip pliers or small roundnose pliers. Press the head of the steady pin (10) towards you with one finger, at the same time compress the cap (18) and spring (11) with the pliers and rotate 90°. Remove the spring and pin.

NOTE :

It is essential to secure the front steady pin or it may fall into the clutch housing.

Remove the split pins, nuts (17) and washers (16).

Remove the eccentrics (8), they will probably be rusted, so free them with 'plus gas' and an engine drain plug spanner.

If the front or rear cam adjusters are seized or rounded obtain MOPROD replacement brake adjuster kit MPK4 to suit Landrover. The only modification to the back plate is to enlarge the hole for the new adjuster.

Unhook the hand brake cable from the leading shoe lever.

Remove the two shoes (2 and 3), remove the return spring (7) by separating the lower ends of the shoes.

(b) Preparation.

Clean the backplate and drum, degrease the inside of the drum and remove the glaze with medium emery cloth.

Check that the eccentrics fit the holes in the bottom of the new shoes.

Lubricate both sides where the bolt (5) passes thru' the backplate. Rotate the bolt several times to ensure that future adjustment is easy.

Check the backplate securing nuts are tight (19).

Check that the handbrake levers are free

NOTE.

1. Ensure that the new lining surfaces are dry and free from any trace of oil or grease.

2. To maintain an even braking distribution it is necessary to renew all four shoes on the same axle.

3. If the drums are badly scored they can be skimmed up to a maximum of 2 mm above original diameter. Maximum drum eccentricity = 0.10 mm.

4. Before re-assembly apply a small amount of High Melting point grease to every metal contact point of the shoes, i.e. eccentrics, support faces, pegs, return spring slots, piston contact tips, cam, and handbrake levers.

(c) Fitting.

Hook the handbrake cable onto the leading shoe (2) lever. Place the trailing shoe (3) in position and fit the return spring (7), making sure that the horizontal handbrake link engages in the slots in both shoes. Hold the spring (7) in position when closing the lower part of the shoes.

Fit the lower end of the shoes over the studs (4), fit the eccentrics (8), the washers (16) and nuts (19), provisionally tighten the nuts.

Open the shoes by turning the bolts (5), fit the brake cylinders, the two 10 mm bolts and shakeproof washers. Provisionally tighten the bolts.

Fit the springs (11), cups (18) and lock them onto the pins (10).

(d) Centralising the shoes.

Proper centralization will ensure that the shoes will wear evenly, thus prolonging their life and preventing brake squeak.

Adjust the shoes so that the drum can be fitted easily.

Secure the drum, where ball type CV joints are fitted use three of the bolts with 7 mm thick spacers under the bolt heads.

Turn the bolt (5) on the rear shoe until the lining just touches the drum, rotate the drum to check any eccentricity.

Remove the drum then fit the centralising tool to the gearbox output flange. The magnet is placed on the vertical face where the drum contacts the flange.

Adjust the sharp edge of the tool so that it touches the upper part of the rear lining.

Rotate the gearbox output flange, the linings are central when the sharp edge of the tool just touches both linings throughout their length.

Obtain this condition by successive adjustment of the eccentrics (8) and the bolts (5).

Remove the tool, then tighten and split-pin the eccentric nuts (17). Slacken the bolts (5) to permit easy fitting of the brake drum.

Remove the plug from the brake pipe and reconnect the pipe to the brake cylinder, see item (v) for sealing and tightening.

Fit the brake drum and re-instate the drive shaft.

Adjust the brakes, adjust the handbrake and bleed the brakes. Slightly slacken the bolts securing the brake cylinders, apply the brakes hard two or three times, hold them on, tighten the fixing screws.

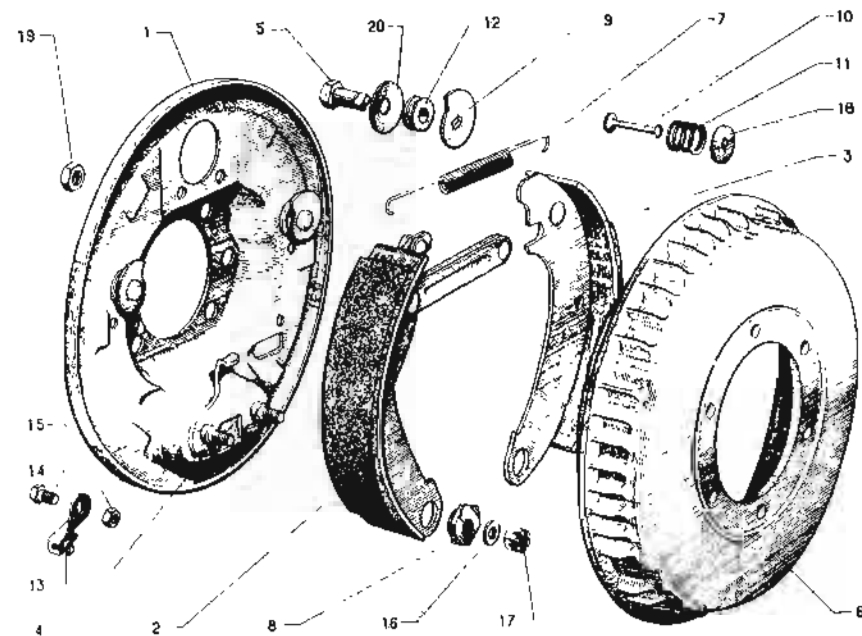


FIG. 37

- | | |
|--|------------------------------|
| 1. Backplate. | 10. Shoe steady pin. |
| 2. Leading brake shoe with handbrake levers | 11. Spring. |
| 3. Trailing shoe | 12. Bush |
| 4. Stud for eccentric. | 13. Handbrake cable clip. |
| 5. Adjusting cam bolt. (ball type CV joint). | 14. Set bolt. |
| 6. Brake drum, 6 hole fixing | 15. Nut. |
| 7. Coiled return spring. | 16. Washer |
| 8. Eccentric. | 17. Castelated nut. |
| 9. Adjusting cam. | 18. Slotted cap. |
| | 19. Nuts securing backplate. |
| | 20. Belleville washer. |

(vi) **Inspect and/or renew Rear brake shoes (linings) (Fig. 38 and 39)**

If the brake fluid has been changed regularly, every 18,000 miles or 18 months, inspection of rear brakes should not be necessary before 60,000 miles and renewal before 100,000 miles.

First obtain a rear hub grease cup for a D model, part number DS 42298 (62 mm diameter). The only special tools required are a 44 m/m (1½ in.) A.F. socket with a strong ¼ in. drive tee bar, and the centralising tool.

Jack the rear of the car, chock the opposite front wheel, remove the wheel. Place a chock under the chassis and under the hub being worked upon.

Using a sharp tool pierce grease cap (1) (fig.38) and lever it out of ringnut (2), this operation wrecks the cap. Bend back the peening from the top of the shaft nut (3).

Using the 44 mm (1½ in.) A.F. socket undo the shaft nut (3) and remove it from the stub shaft.

Slacken the brake adjusting cambolts to move the brake shoes away from the drum.

Replace the wheel and tighten the three nuts. Block up the rear of the car, use leverage by hand or feet from under the car "wriggle" wheel and drum (4) complete with bearing (5) from shaft. Remove the wheel nuts and wheel.

Remove the split pins if fitted, eccentric locking nuts (13), fig 10 and lock washer (8). The 'U' spring can then be removed, with a screwdriver, older cars have a conventional coil spring to return the shoes. Old type shoes can be fitted to the later vehicles provided the holes 'h' fig. 39 are drilled out to take the ends of the 'U' spring.

Proceed in the same manner as for the front brakes, the centralising tool can be used by placing the magnet squarely on the plain part of the stub axle. Alternatively an old shaft nut can be used with a piece of stiff wire soldered to one of the flats. The nut is then screwed on the thread, the wire bent to touch the linings, then the nut rotated to check centralisation.

Before refitting the drum/bearing onto the shaft make sure that the inner bore of the bearing is perfectly clean and that no burrs or scores are present on the shaft, polish with fine emery then clean.

Gently tap drum onto shaft making sure it goes on perfectly square otherwise it will jam.

Fit nut (3) and tighten to 35-40 mkg. (250-290 lb. ft.).

Peen over fresh portion of nut into slot.

Put a small amount of bearing grease into new cap, do not fill, tap the new cap into the ring nut (2) bores. Adjust the brake shoes, check and top up brake fluid reservoir. Replace the wheel, tighten the wheel nuts securely. Lower the car to the ground.

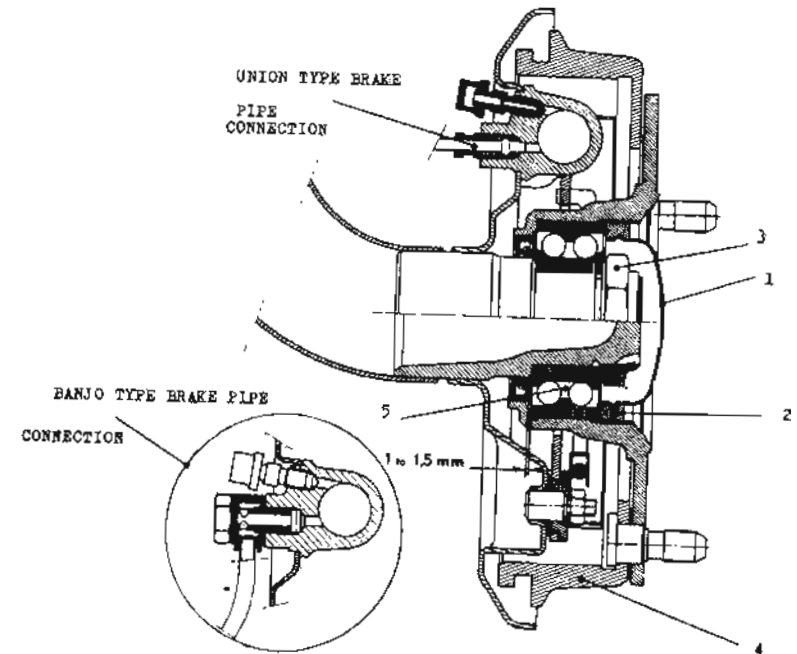


FIG. 38 CROSS SECTION THROUGH REAR BRAKE DRUM AND HUB.

vii **Change the brake fluid, bleed the brakes.**

Each brake cylinder has a bleed nipple which should be protected by a rubber dust cap. To change the fluid it will be necessary to bleed about ¼ pint of fluid from each nipple. If the system has been disturbed, the brake pedal is spongy or needs pumping then bleeding is necessary.

Top up the fluid reservoir with the recommended fluid and remove the rubber dust cap from the bleed nipple in the L.H. rear cylinder.

Fit a length of transparent plastic tube over the bleed nipple and immerse the other end of the tube into a jar, half filled with brake fluid of the same type as used in the system.

Slacken the bleed nipple half a turn and fully depress the brake pedal over its entire travel. Tighten the bleed nipple when the brake pedal is at the end of its travel, release the pedal so that it can turn to its original position and re-open the bleed nipple.

Repeat this operation until the fluid entering the glass jar is completely free of air bubbles and clear. Finally tighten the bleed nipple and top up the the fluid reservoir.

NOTE: The bleed nipple should only be tightened when the brake pedal is being pressed to the floor.

Repeat the above procedure on the remaining cylinders in the following order, R.H. rear; L.H. front; R.H. front. Make sure that the fluid reservoir is always topped up, and that the level never drops below "DANGER". Wipe away all traces of fluid and replace the rubber dustcaps.

NOTE: For L.H. Drive cars the sequence for bleeding is R.H. rear, L.H. rear, R.H. front, and L.H. front.

DOUBLE CIRCUIT braking systems.

Always bleed a front and rear brake at the same time.

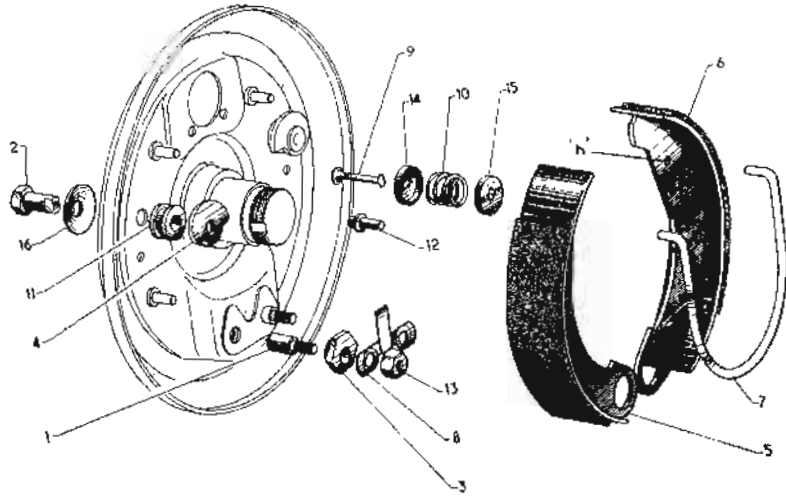


FIG. 39 REAR DRUM BRAKES.

- | | |
|---|--|
| 1. Eccentric stud. | 9. Steady pin for shoe. |
| 2. Adjusting cambolt. | 10. Spring for pin. |
| 3. Eccentric. | 11. Bush. |
| 4. Adjusting cam. | 12. Steady peg, rivetted to backplate. |
| 5. Leading brake shoe. | 13. Nut. |
| 6. Trailing brake shoe. | 14. Slotted cup (not always fitted) |
| 7. 'U' return spring, earlier vehicles have coil springs. | 15. Slotted cap. |
| 8. Combined lockwasher and spring clip. | 16. Dished spring washer. |
- "h" holes for ends for spring

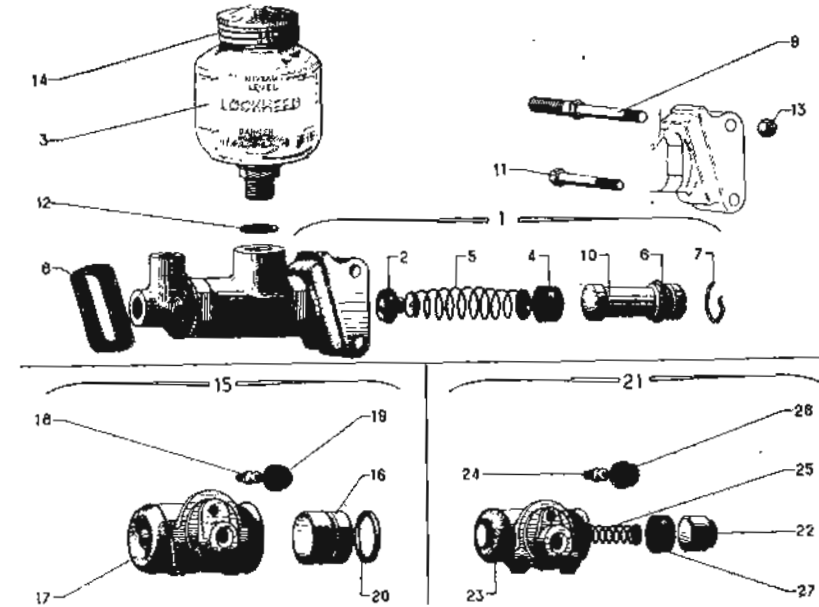


FIG. 40 MASTER CYLINDER AND BRAKE CYLINDERS.

- | | |
|---|----------------------------|
| 1. MASTER CYLINDER : | 15. FRONT BRAKE CYLINDER : |
| 2. Valve with spring. | 16. Piston. |
| 3. Reservoir. | 17. Dust cover. |
| 4. Main cup. | 18. Bleed screw. |
| 5. Spring with end piece | 19. Dust cap. |
| 6. Secondary cup. | 20. Sealing 'O' ring. |
| 7. Snap ring for piston. | 21. REAR BRAKE CYLINDER : |
| 8. Bulkhead joint. | 22. Piston. |
| 9. Accelerator pedal support. (late Ami 6 & 8.) | 23. Dust cover. |
| 10. Piston with cup. | 24. Bleed screw. |
| 11. Securing bolt. | 25. Spring with end piece. |
| 12. Copper joint. | 26. Dust cap |
| 13. Nut. | 27. Sealing Cup. |
| 14. Cap. | |

FRONT SLAVE CYLINDER OVERHAUL KIT ('FIG').

CITROEN part No. 4AA 95 554 041 contains:

Pistons with helical grooves, seals and end caps.

To be fitted when cylinder bore has been cleaned and polished. (Not to be used with L.H.M. disc brakes.)

DOUBLE MASTER CYLINDER OVERHAUL KIT.

Citroen part No. 75 511 661 (Not for L.H.M. Disc Brakes).

PART II. VEHICLES FITTED WITH DISC BRAKES.

Ami 8 (After Sept. 1969), Dyane 6 - Mehari & Acadiane
(After Sept. 1977), Mehari 4 x 4, 2CV (After Sept. 1981).

In September 1969 L.H.M. disc brakes were fitted to all Ami 8 Vehicles.

The braking system was completely new using LHM fluid and eliminated all rubber hoses. It was introduced originally as an experiment but proved so successful that eventually all 'A' models will be equipped.

LHM (Liquide Huile Mineral) is a green mineral oil of the same type as engine oil. Compared with 'ordinary' brake fluid (vegetable base LHM has a higher boiling point, better lubrication properties and is not Hydroscopic (it does not absorb moisture).

All assemblies, seals, 'O' rings and cups are marked with green paint and must only be replaced with identical items similarly marked. They must only be used on Citroen vehicles fitted with disc brake.

The use of any fluid other than LHM would cause rapid and complete deterioration of seals and rubber items in the system and blockage of pipes and orifices.

Cleaning can be carried out with petrol or white spirit, dry with compressed air. Do not use alcohol (Meths).

In an emergency engine oil of SAE 20 viscosity can be used instead of LHM, the system should be drained as soon as possible afterwards and flushed out with LHM.

Due to its lubrication and anti-corrosion properties LHM does not require changing, pistons and seals last longer, but rear brakes require inspection at least every 20,000 miles.

Renewal of front disc pads is only a 15 minute job and although they last only about 10 to 15,000 miles they are half the price of drum brake shoes.

The discs are cooled by air taken from the engine fan through hoses and ducting.

As a result of these advantages the Ami 8 is cheaper to run than any other Citroen, given the same use and care, this will apply to the new Dyane when introduced in the Autumn.

The handbrake works on the front discs using circular pads which are separate to the main pads and is not as efficient or trouble free as drum brakes.

Technical Data :	Original Thickness — 7 mm (0.276 ins.)
Front Brakes :	Minimum Thickness — 4 mm (0.157 ins.)
Disc Diameter — 244 mm (9.6 ins.)	Maximum run-out — 0.2 mm (0.008 ins.)
	Position of caliper in relation to disc :
	Joint face of caliper halves in line with disc centre line to within 0 ± 0.5 mm.

Minimum pad lining thickness — 2 mm (0.08 in.)

Main pad lining area — 22 cm²

Parking brake pad lining area — 7 cm²

Running clearance between parking brake

Pad and disc at point of maximum run out — 0.1 mm (0.004 in.)

Caliper piston diameter (2 per unit) — 42 mm (1.65 ins.)

Master cylinder bore — 17.5 mm (0.689 ins.)

Clearance between push rod and piston — 0.5 mm (0.02 ins.) max.

Rear Brakes :

Rear wheel cylinder diameter — 16mm (Saloon) 17.5 mm (Estate and Van).

Piston seals are 'O' rings.

Apart from the shape of the return 'U' spring the rear brakes are dimensionally the same as those fitted to all drum braked Ami 8.

Tightening Torques :

Master cylinder push rod nut — 1—2.5 m.kg (7—18 lbs. ft.)

Brake pipe unions — 0.8—0.9 m.kg. (5.8—6.5 lbs. ft.)

Caliper assembly bolts — 4.5—5 m.kg. (32.5—36 lbs. ft.)

Disc/Drive shaft securing bolts — 4.5—5 m.kg. (32.5—36 lbs. ft.)

Parking brake eccentric bolts — 4 m.kg. (29 lbs. ft.)

Parking Brake cable lock nut — 1.5 m.kg. (11 lbs. ft.)

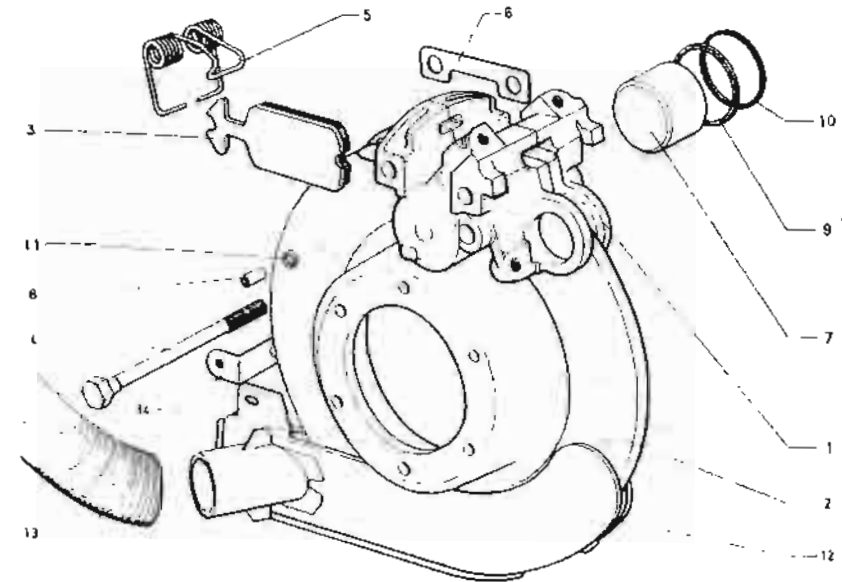


Fig 4) Front disc brake assembly.

- | | |
|---------------------------------------|--------------------------------------|
| 1. Caliper (in halves) | 8. Hollow assembly dowel |
| 2. Disc | 9. Piston seal. |
| 3. Brake pad. | 10. Dustproof ring. |
| 4. Caliper assembly bolts (4) | 11. Sealing ring for caliper halves. |
| 5. Brake pad securing spring. | 12. Cooling duct. |
| 6. Adjusting shim for caliper halves. | 13. Cooling hose |
| 7. Caliper piston. | 14. Dust bracket, screw and locknut. |

WARNING: Immediately after working on the front disc brakes, and before driving the car, press the brake pedal several times to position the pads close to the discs. Failure to heed this warning could result in the brakes not working when next used on the road.

Renewal of Front Brake Pads, (Fig.43).

Make sure that the LHM reservoir is not too full, otherwise it will overflow when the caliper pistons are pushed back to receive new pads.

Using the tapered end of tool (Fig.42), or place Mole grips across backing plate and caliper and squeeze, lever old pad away from disc carefully until there is sufficient room to fit a new pad. Never touch the caliper piston with a metal tool.

Using a screwdriver or tool (Fig.42), lever the end of the pad securing spring (5) forwards and upwards to disengage from notch in pad backing plate. Allow old pad to drop out.

Lightly coat the steel backing plate of the new pad with P.B.C. or 'Copaslip'. Fit into the caliper by pushing it in as far as possible.

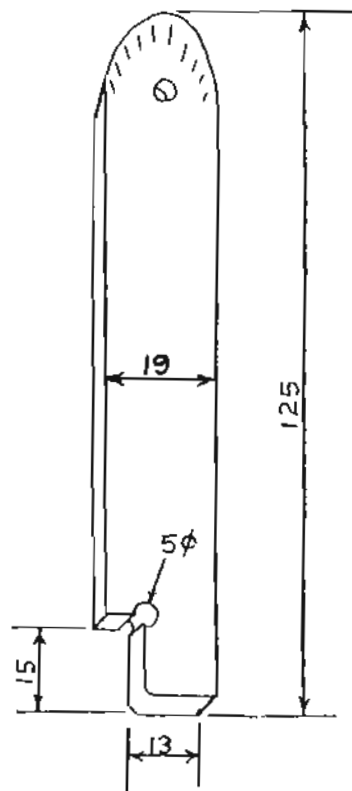


FIG. 42. Tool for disc brakes.

CUT FROM 3 mm THICK

STEEL PLATE.

END TO BE TAPERED

TO A SHARP EDGE.

then raise the front of the pad so that the end of spring (5) engages in the notch on the steel backing plate.

Repeat the above procedure to the remaining pads, ensure that new pads are fitted in sets of four and that each lining is of the same type.

Ensure that the brake pedal travel is normal after applying it several times.

Renewal of Parking Brake (Hand Brake) pads (Fig.44).

The parking brake assembly on Ami 8's is at the rear of the calipers and is not very accessible. Citroen advise removal and splitting the caliper halves to renew the pads, however it can be done without removal as described below.

The calipers on the Dyane 6 are reversed and the parking brake assembly faces the front of the car and accessibility is very good.

Slacken the cable nuts and locknuts (15) then remove the eccentric locking bolts (14) with the eccentrics (7) and the sleeves (8) if they are loose. Remove the anti rattle springs (6) if fitted.

Using the bent piece of stiff wire between the disc and the pad (3), lever out the old pad from the bore of the caliper.

Fit the new pads (3) into the caliper bores (Fig. 12), check that the lining material faces the disc, the pad is free and square to the disc.

Assemble levers (4), sleeves (8), eccentrics (7) and bolts. Fit the anti-rattle springs, bend two corners of each spring 90° to bite lightly into aluminium of caliper.

Adjustment of Parking Brake (Fig.44)

Note: The adjustment is made by the eccentrics NOT the cable. Slacken the eccentric locking bolts slightly. Place the eccentrics

(7) with the notches uppermost, later cars have 24mm Hex.

Insert a 0.1 mm (0.004 in.) feeler gauge between the disc and pad. Turn the eccentrics by moving the ears upwards until the feeler becomes just tight between the disc and pad. Tighten the locking bolts (14) to 4 m.kg. (29 lbs. ft.), ensure that the eccentrics do not rotate during this tightening.

Remove the feeler gauge.

Adjustment of the Parking Brake Cable (Fig.44)

Ensure that the outer cables and sleeves (1) are correctly engaged in levers (4).

Tighten nuts (15) on both cables until the brakes begin to rub when the handle (3, Fig.45) is pulled to the third notch. On the fifth notch the brakes should be completely locked.

The two lengths of cable threads should be equal within 5 mm. Tighten the lock nuts (15) to 1.5 m.kg. (11 lbs. ft.)

Check that the brake does not release itself when in the braked and locked position.

Check that after operating several times the adjustment does not vary.

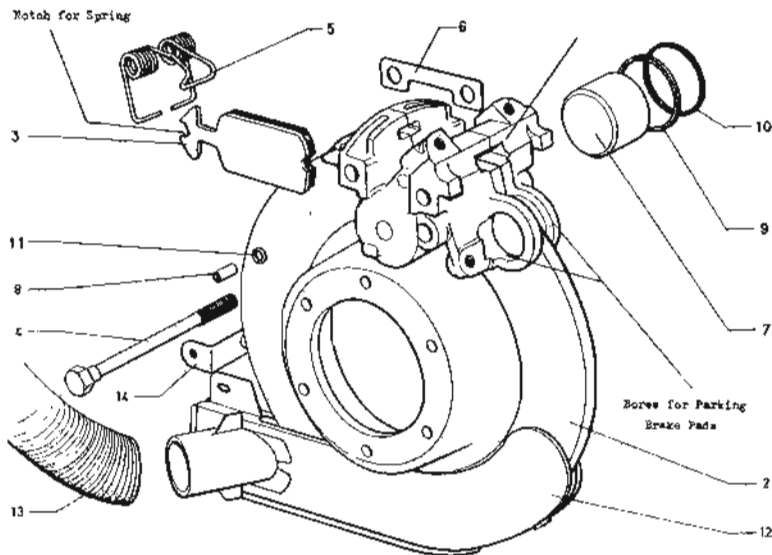


FIG. 43 FRONT DISC BRAKE ASSEMBLY.

- | | |
|---|---|
| 1. Caliper (in halves). | 8. Hollow assembly dowel (2) |
| 2. Disc. | 9. Piston seal (4). |
| 3. Brake pad. | 10. Dustproof ring (4). |
| 4. Caliper assembly bolts (4). | 11. Sealing ring for caliper halves (2) |
| 4. Brake pad securing spring (2). | 12. Cooling duct (2) |
| 6. Adjusting shim for caliper halves (2). | 13. Cooling hose (2) |
| 7. Caliper piston (4) | 14. Duct bracket, screw and locknut. |

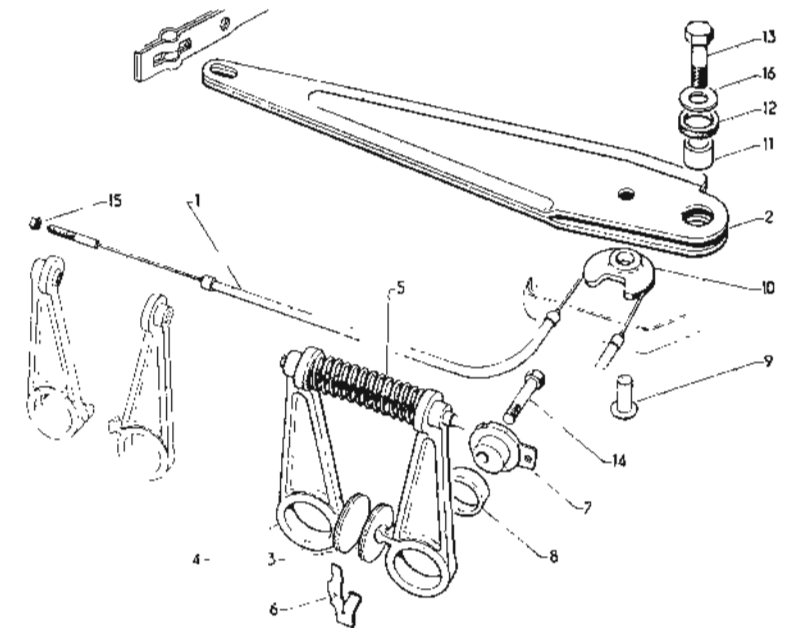


FIG. 44. PARKING BRAKE CABLE ASSEMBLY.

- | | |
|----------------------------------|---------------------------------------|
| 1. Cable (double sheath) | 9. Pin for roller |
| 2. Lever. | 10. Cable roller. |
| 3. Parking brake pad (set of 4). | 11. Distance bush. |
| 4. Caliper lever (4) | 12. Anti rattle sleeve. |
| 5. Spring 14 coils (2) | 13. Pivot bolt. |
| 6. Anti-rattle springs (4). | 14. Eccentric locking bolt (4) |
| 7. Eccentric (4) | 15. Nut & locknut for inner cable (4) |
| 8. Sleeve (4) | 16. Washer. |

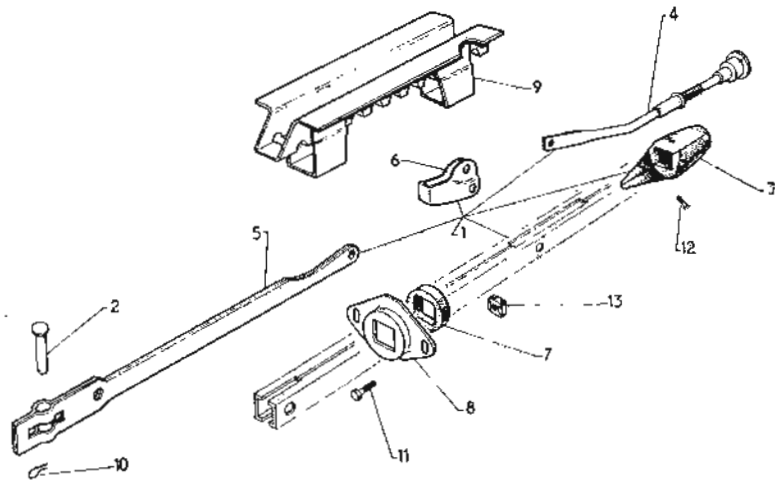


FIG. 45 PARKING BRAKE HANDLE & RODS.

- | | |
|----------------------|----------------------------------|
| 1. Handle assembly. | 8. Cage for felt. |
| 2. Pin. | 9. Rack. |
| 3. Handle (2 halves) | 10. Clip for pin |
| 4. Ratchet rod. | 11. Screw (2). |
| 5. Inner rod. | 12. Screw for handle halves (2). |
| 6. Catch. | 13. Caged nut (2). |
| 7. Sealing felt. | |

Master cylinder and Brake Pedal Gear.

Between September 1969 and November 1971 the master cylinder fitted was as shown in Fig. 16, and does not incorporate a residual pressure valve.

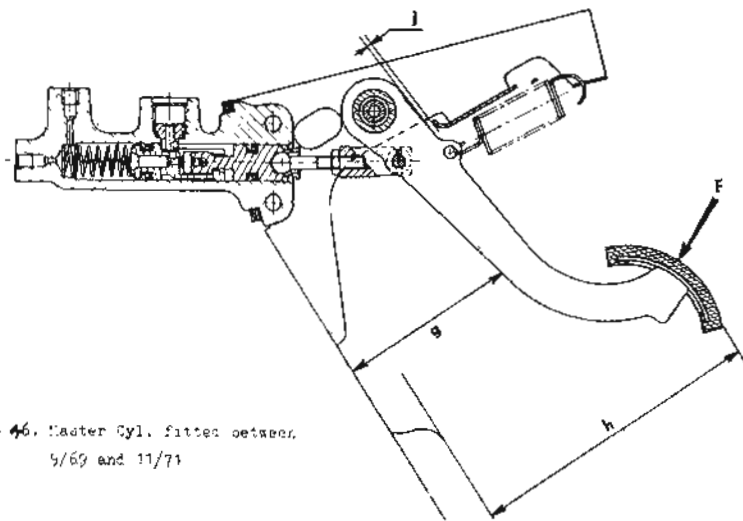


FIG 46. Master Cyl. fitted between 5/69 and 11/71

Dimensions :

Clearance between pedal and bracket $j = 2 \text{ mm}$ minimum.

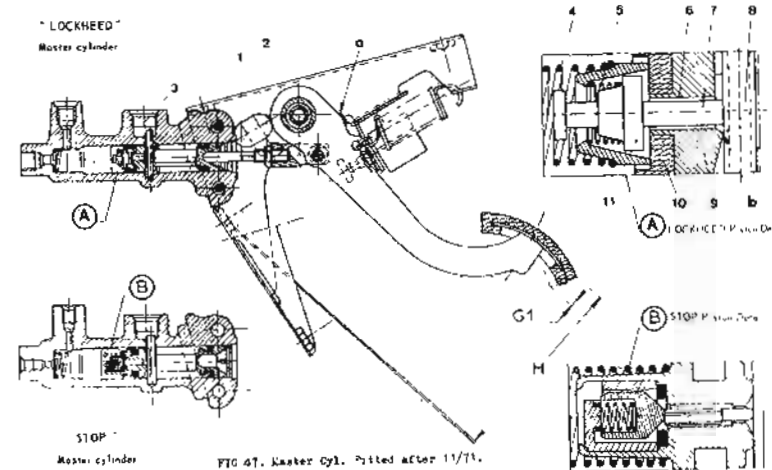
Clearance between pedal and bracket $h = 120 \pm 2.5 \text{ mm}$

Gap between pedal and floor under load of $F = 300 \text{ kg}$

$g = 50 \text{ mm}$ minimum

Stop lamp lights at pedal movement of : 10 mm .

Since November 1971 a different type of master cylinder has been fitted, it incorporates a central re-circulation valve and can be manufactured by either "LOCKHEED" or "STOP". The brake pedal and push rod were also modified at the same time (Fig. 17.)



Checking the Pedal Height :

With the pedal gear secured and the pedal held at 'a' the height of the pedal should be $H = 125 \pm 2.5 \text{ mm}$ (measurement between the upper edge of the pad and the bent edge of the pedal floor).

If this is not the case, bend the bracket plate at 'a' to obtain this measurement.

Adjusting the pedal clearance :

Slacken the lock-nut (2). Screw or unscrew the push rod (1) to obtain a clearance G_1 of 1 to 5 mm at the pedal. Tighten the lock nut (2).

Checking the travel of the pedal :

Press the brake pedal home in the normal way and check that there is a minimum clearance of 45 mm between the pedal and the floor.

NOTE : Attention to rear brakes and fitting brake pipe unions is identical to vehicles fitted with drum brakes all round, except for the use of LHM.

DISC BRAKES, DOUBLE CIRCUIT.

Dyane 6 - Méhari (7/77 →)
Acadiane (2/78 ← 10/79)

NOTE: Acadiane (10/79 →): Reversal of front and rear supply circuits on master cylinder.

Méhari 4 x 4 (12/79 →)
Thickness of discs: 7 mm (min. 4 mm).

Piston diameter: 42 mm.

Pedal height: With pedal in abutment on "a", $H = 143 \pm 4$ mm if not bend plate "a".

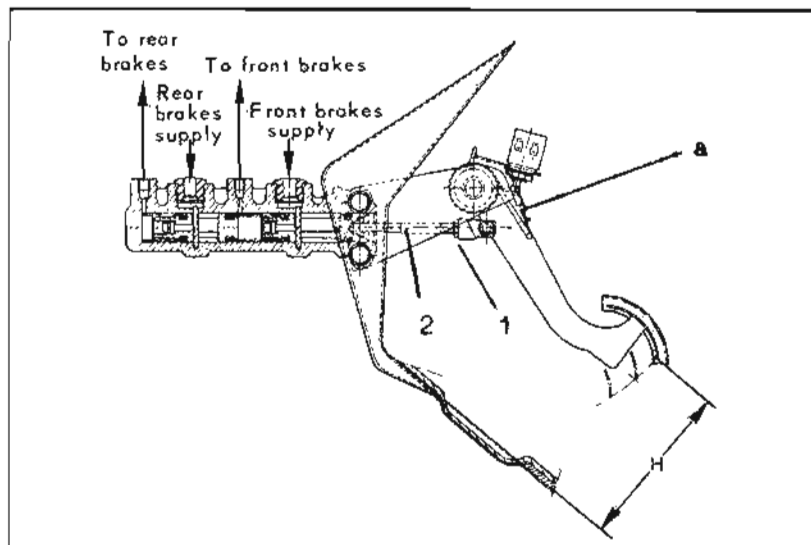
Pedal clearance: Adjust locknut (1) and push-rod (2) to obtain clearance $G = 1$ to 5 mm.

Méhari 4 x 4: Discs at rear.

Fluid used: TOTAL LHM.

Bleeding: Bleed one front and one rear brake at the same time.

NOTE: On Acadiane van (10/79 →) fitted with pressure limiter, the rear brakes must be bled with wheels on the ground.



The height of the pedal, measured between the upper corner of the pad and the floor, « without carpet » must be :

$$H = 143 \pm 4 \text{ mm (5.62} \pm 0.15 \text{ in)}$$

Double Master Cylinder Overhaul Kit.

Citroën Part No. 75 511 660 (L.H.M. only).

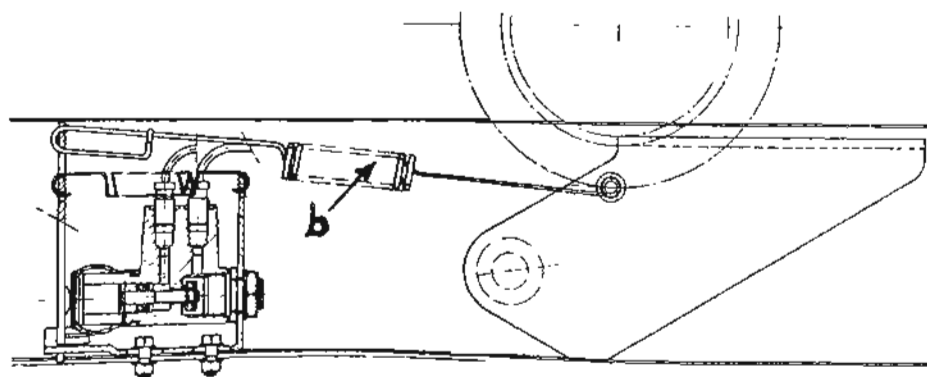
BRAKE PADS. CITROEN PART NUMBERS.

Ami 8 - 5 434 279

Dyane 6 - 75 516 220

Acadiane - 95 551 761 (Very hard for vehicles with rear brake limiter).

REAR BRAKE LIMITER.



Some vehicles, i.e. Ami Super and later Acadiane are fitted with this device which limits the pressure to the rear brakes according to the load carried.

ADJUSTMENT.

Vehicle unladen, in running order, heights adjusted & and a load of 70 Kg. in the drivers seat. Locate the limiter (on the chassis) to obtain a longitudinal clearance on spring b. of 0-2 mm when brake pedal is pressed.

CHAPTER 15.

VEHICLE DATA (Imperial Units)

VISA	LNA	LN		2CV	3CV	2CV4	2CV6	2CVvan	3CVvan	DYANE4	DYANEG	MEHARI	AMI 6†	AMI 8†	ACADIANE		
VDVA	RBRD	RB RB	SYMBOL	AZ,BJ	AZAM6	AZA2	AZKA	AZU	AK,AKB	AYA	AYA3	AYCA	AM/B	AM3	AYCD		
				AZAM	AX			'250	AKS400	AYA2	AYCR		AM2/B	AMB3			
1978	1978	1976	Date	1954	1965	1970	1970	1951/1970	1961	1967	1968	1968	1964/4	1969	1978		
652	652	602	c.c.	425	602	435	602	425/435	602	425/435	602	602	602	602	602		
V06/638	V06/630	R06/627	Engine	A53	A72	A79/1	M28/1	A53/A79/1	A72, MA	A79/1	M28/1	M28/1	A72, M4	M28	M28/1		
								A79/1	M28/1	A79/1	M28		M28		AM2A		
12'-1½"	11'-1¼"	11'-1½"	Length	←	12'-7"	→		11'-10"	12'-6"	← 12'-10"	→ 11'-7"	← 13'-1"	→ 13'-2½"				
4'-11½"	4'-11¾"	4'-11¾"	Width	←			4'-10"	→		← 4'-11"	→ 5'-1"	← 5'-0"	→ 4'-11"				
4'-7½"	4'-6¾"	4'-6¾"	Height	←	5'-3"	→		5'-8"	5'-8½"	← 5'-0"	→ 5'-2½"	4'-9½"	4'-10¾"	5'-11¾"			
								6'-1"									
7'-11¾"	7'-8½"	7'-8½"	W'base	←					7'-10½"						8'-4"		
4'-2¾"	4'-2¾"	4'-2¾"	Track						4'-1"						4'-1½"		
30'-6"	29'-2¼"	29'-2¼"	Turning Ø	←		35'-2"	→						← 37'-4"	→ 36'-9"			
1620	1565	1556	Kerb wt	1180	1292	1267	1289	1235	1408	1320	1344	1152	1400/1521	1571/1598	1499		
728	716	725	Pay load	738	703	705	683	738	1047	697	720	880	705/816	827	882		
816	771	771	Trailer	←		440 lbs	→	595 lbs	←	440 lbs	→	550 lbs	←	739			
1102	1102	1102	" + brake	←		880 lbs	→	1100 lbs	←	880 lbs	→	1100 lbs	←	1102			
100	110	110	Roof rack	←					66 lbs					66			
88	88	88	Nose wt	←					77 lbs					77			
8.8	8.8	8.8	Fuel	←		4.4 galls	→	4.4 or 5.5 galls	4.4 g	←	5.5 galls	→	7 galls	5.5			
5.3	5.3	4.4	Eng. oil	←	3.5 pints	→	4.4 pts	3.5 pts	3.5 or 4.4	3.5	←	4.4 pints	→	4.4			
2.5	2.5	2.5	GB. oil	←					1.6 pints					1.6			
½ pt	¾ pt	¾ pt	Brake fluid	←					7/8 pint	(0.5 litres)				¾ pt			
135	13 X 2 X		Tyres	125 X 15X	Saloons.			135 X 15X	or	135 X 15ZX	Estates	and Vans			135/145-15X		
25	23	23	Front Press	18		20		20	20		20		22	20	26	20	20
29	27	27	Rear Press	20		26		26	29		26		26	25	26	26	26
32	30	30	Spare	28		29		29	32		29		29	30	30	30	29
12	12	12	Voltage	6	6	12	12	6 or 12	6 or 12	6 or 12	12	12 or 24	6 & 12	12	12		
Negative Earth			Earth	←												Negative	
Toe-in 1 ± 1mm			Alignment	FRONT WHEELS: 0 - 3mm				TOE-OUT. REAR WHEELS: 0-4mm					TOE-IN or TOE-OUT			Toe out 1-3mm	
SAE 70R3 or J 1703			Brake Fluid	← LHS, SAE 70R3, 'S or 'V				NF-R 12640 or SAE J1703 a.					→ LHM		LHM		
				† Where a second figure is shown this applies to Estates.													
				* BJ = Bijou, length = 12'-11", width = 5'-2" and height = 4'-10"													
← 4 Star			Petrol	All vehicles can use 2 star, except those fitted with the M28 Engine (AM2(M)), 4 star													

ENGINE

Spark plug gap: 0.6 - 0.7mm (0.024 - 0.028ins). Contact breaker gap: 0.35-0.45mm (0.014-0.018ins)

Dwell angle: 144° before Feb. 1970; 109° after Feb. 1970.

Static timing: 8° B.T.D.C. (602cc. after 1968, AM2 & AK2 engines), 12° B.T.D.C. (All other engines)

Engine Number Plate Identification:

<u>Engine Plate</u>	<u>Engine Type</u>	<u>Capacity (c.c.)</u>	<u>Power (S.A.E.)</u>
AZ,AZU	A53	425	12,13.5 or 18
AYA	A79/0	425	21
AYA2	A79/1	435	26
AM	A72,M4	602	22,26 or 28
AK2 (A06/635)	M28/1	602	32
AM2(M) (R06/627)	M28	602	35
AM2A	M28/1	602	34

The first three numbers of the Engine Serial No. indicate the type of engine:

045 - A 79/1 ; 048 - M 28 ; 050 - M 28/1 ; 062 - M 28/1 (Acadiane) ; 090 - M 28/1 (2CV6 Twin-Choke)

The fourth number indicates the year of manufacture i.e.

0489045744 is a M 28 engine manufactured in either 1969 or 1979, as it has an external oil filter the year is 1979.

Valve Clearance.

(i) 0.20mm (0.008ins) Cold (M28/1, M28 and A79/1). Adjust one valve when corresponding valve on opposite cylinder is fully open.

(ii) 0.20mm (0.008ins) Hot (A53, A79/0, A72 and M4). Adjust one valve when opposite valve on SAME cylinder is fully open

Cylinder Head Tightening Torque:

(i) M28/1, M28 and A79/1 engines.	} Engine Cold	(ii) A53, A79/0, A72 and M4 engines	} Engine Hot
1st tightening 1.5 mkg (10lb ft)		1st tightening 1 mkg (7½lb ft)	
2nd tightening 2.3 mkg (16lb ft)		2nd tightening 2.5 mkg (18lb ft)	

Sequence: Top front nut, rear top then bottom nut. Bottom nut, front top then rear top nut.

NOTE: When checking tightness or retightening cylinder head nuts, always slacken first in correct sequence.

Pistons: Arrow to point to front of engine.
Piston ring gaps spaced 120° apart.

Marks on piston rights to face top of piston.
Pistons and barrels are matched and should be fitted in engine sets (also available from Hepolite).

NOTE: When fitting new rings to old pistons and barrels:

- | | |
|--|--|
| (a) Bores to be "deglazed" with coarse emery. | (d) Rings should be free in grooves, grooves should not be worn. |
| (b) Bores should not be worn. | |
| (c) Grooves must be cleaned using an old ring broken to reveal a sharp edge. | (e) 'U' flex oil control rings have no gap, compress into bore. |

'U' Flex oil control piston rings

These piston rings can be fitted to Mahle pistons provided they have deeper ring groove. These pistons are marked with an 'A' on the top and have been fitted since June 1972.

Nova pistons do not require modification as the depth of the groove allows the fitting of a 'U' Flex ring.

The Nova piston differs from the Mahle by having 2 holes situated under the ring grooves and on both sides of the centre, as well as by the passage at the right of the gudgeon pin bore.

Tightening Torques:

Cylinder head cover nut: 0.5-0.7 mkg (3.6-5lb ft)

Inlet and Exhaust manifold nuts and bolts: 1.9 mkg (13.75lb ft)

NOTE: The manifold must be tightened down after the 1st tightening and before the 2nd tightening of the cylinder head nuts.

Flywheel securing bolts (to be replaced after each dismantling): 4.2-4.5 mkg (30-33lb ft) **Latest type, indented heads.**

Fan securing bolt: 5-6 mkg (36-43lb ft) **3.5-3.8 mkg (25-27 lb.ft) Old type, plain heads.**

Engine oil pressure: at 80°C with TOTAL 20/50 SILVER or GOLD 10W40

A53, A79/0, A72, M4 : 2.5-3.1 bars (36-45 psi) at 4000 rpm.

A79/1 : 4-5 bars (58-73 psi) at 5000 rpm.

M28/1, M28 : 5.5-6.5 bars (80-94 psi) at 6000/6500 rpm.

For engines: A53, A79/0, A72 & M4 : Adjustment by washers.

For engines: A79/1, M28/1 & M28 : No adjustment (change the spring or relief valve)

COMPRESSION PRESSURES.

Disconnect the low tension connections from the coil, remove both spark plugs. The engine should be hot and cranked by the starter motor, the throttle(s) should be fully open whilst taking the readings.

A 79/1 $10.5 \text{ kg/cm}^2 = 149 \text{ p.s.i.}$; M 28/1 $10.5-11 \text{ kg/cm}^2 = 149-156 \text{ p.s.i.}$; M 28 $11.5-12 \text{ kg/cm}^2 = 164-171 \text{ p.s.i.}$
 V 06/630 $10.5-11.5 \text{ kg/cm}^2 = 149-164 \text{ p.s.i.}$

CLUTCH

<u>Type</u>	<u>Engine</u>	<u>Date</u>	<u>Thrust bearing</u>	<u>Pedal Clearance</u>
FERODO PKH3	A53	- 2.70	Graphite *	10-15 mm
	A79/0	- 1.72	Graphite *	10-15 mm
FERODO PKH4	A72,M4	- 5.68	Graphite *	10-15 mm
* Some were fitted with oil lubricators, since 4/63				
FERODO PKHB4.5	A79/0	1.72-)	Ball Race	20-25 mm
	A79/1	3.68-)		
	M28/1	5.68-)		
	M28	3.68-)		

AXLES, SUSPENSION & STEERING.

Front Camber: Wheels straight: $1^{\circ} \begin{matrix} +45' \\ -15' \end{matrix}$. Full lock: $9^{\circ} 30' \begin{matrix} + \\ - \end{matrix} 1^{\circ} 20'$
 Front Castor: 15° (Not adjustable). Front wheel Alignment: Toe out: 0-3mm.

Toe Out Adjustment: Adjust with vehicle Heights correct (See chapter 13). Rotate RH & LH track rod sleeves. One turn of sleeve varies wheel position by 6-7 mm. Make sure that the screwed parts of rod & end fittings in the sleeves are equal.

Rear Camber: (not adjustable) $0-0^{\circ}30'$

Rear wheel alignment : Toe-in or Toe-out, $0 \pm 4 \text{ mm}$ (not adjustable)

Vertical play of front hub on king pin : 0.1 - 0.4 mm (0.004 - 0.016 ins).

CHAPTER 17. THE ELECTRICAL SYSTEM

IMPORTANT NOTES: All vehicles are NEGATIVE earth.

6 volt systems.

The correct bulb for the dashboard charging warning light is 1.5 Watt ,12 Volt.

Fuses are not normally fitted.

12 volt systems with alternators.

Never rotate the alternator unless connected to the battery.

Never connect the alternator to a battery with posts reversed.

Never check the operation of the alternator by short circuiting the " + " terminal and the chassis or the "EXC" and the chassis.

Never recharge the battery or use an arc welder on the chassis without disconnecting the battery.

Always remove the negative terminal first when disconnecting a battery.

RADIO SUPPRESSION.

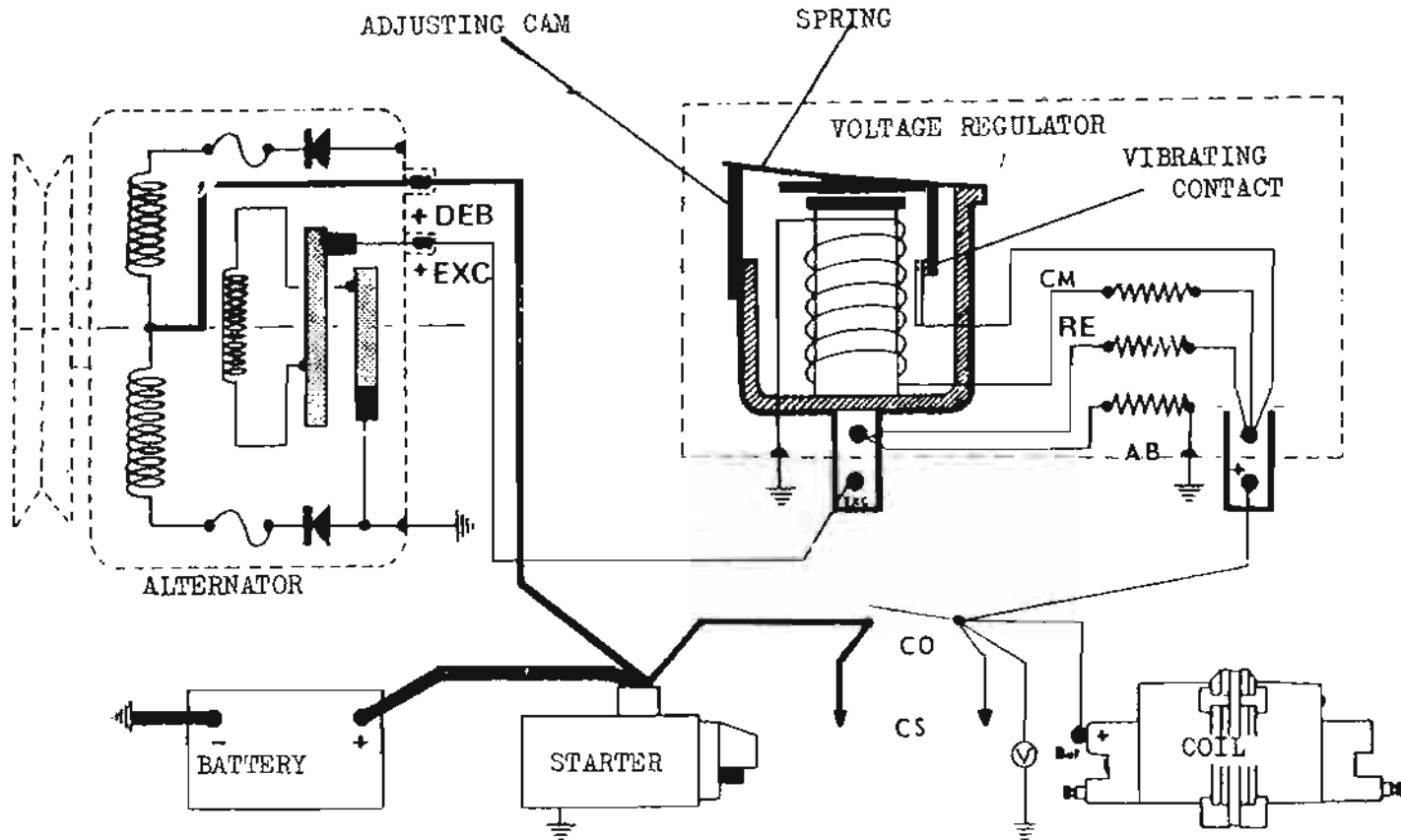
Do not connect a radio suppressor capacitor to the "EXC" terminal of the Dynamo, Alternator or Regulator.

Do not connect a radio suppressor capacitor to the "RUP" terminal of the coil. Fit the capacitor to the " + " or "BAT" terminal of the coil.

Fit a radio suppressor capacitor to the " + " Debit(Output) terminal of the Alternator, i.e, where the thick wire is connected by a nut and washers.

The best place to fit an Aerial on the 2CV and Dyane is on the rear panel just above the rear wing.

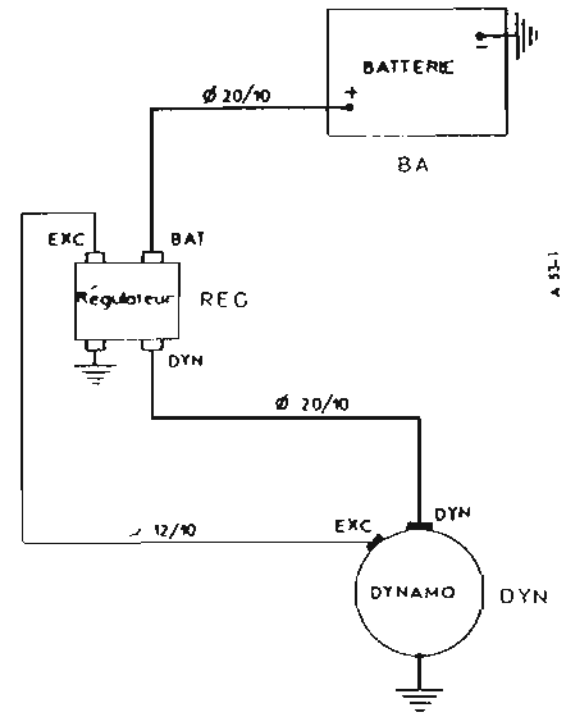
A roof Aerial is recommended for the Ami 6 and 8.



CHARGING CIRCUIT 12 VOLT ALTERNATOR

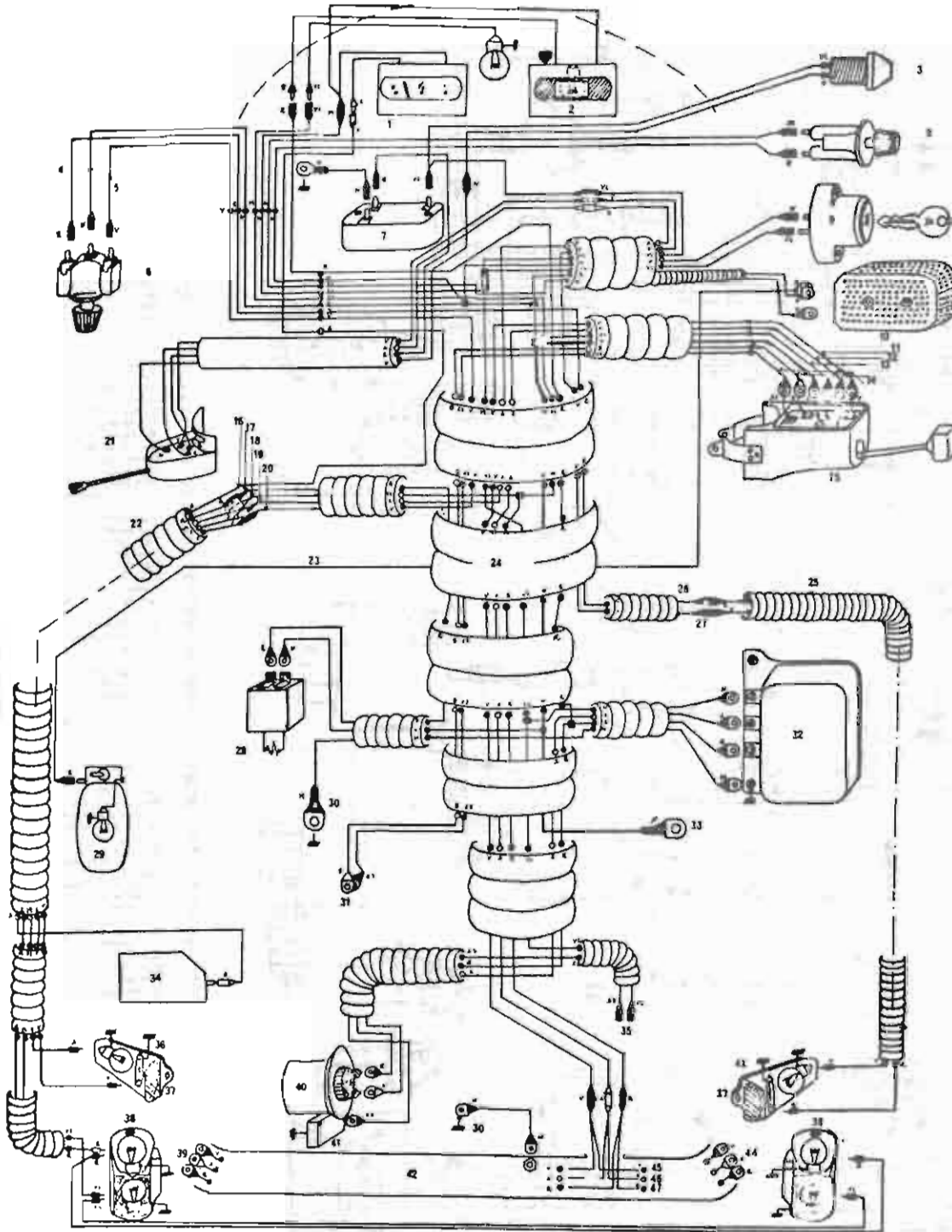
KEY:

- | | | | |
|----|-----------------------|-----|-----------------------|
| AB | Absorbtion resistance | CS | Circuits |
| CM | Balancing resistance | DEB | Output |
| CO | Ignition switch | EXC | Excitation |
| | | RE | Regulation resistance |



CHARGING CIRCUIT 6 VOLT

WIRING DIAGRAM FOR AZL SALOONS

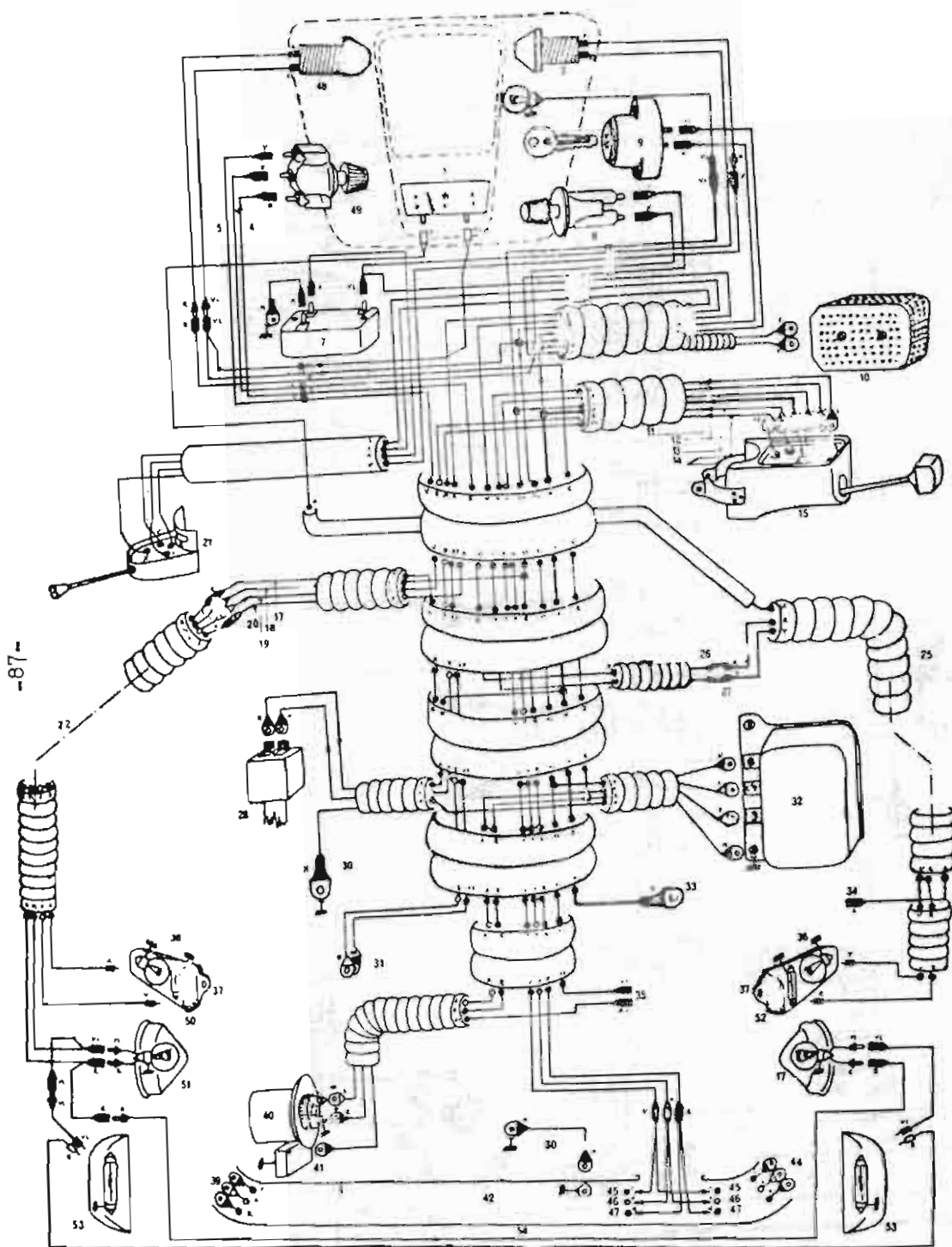


Colour Code for Cables and Connections.

A.	Yellow	R.	Black
AZ.	Blue	R.	Red
B.	White	V.	Green
M.	Brown	VL	Violet

1. Fuel level indicator
2. Battery
3. Flasher warning light
4. Right hand
5. Left hand
6. Light switch
7. Flasher relay
8. Windscreen wiper switch
9. Ignition switch
10. Windscreen wiper motor
11. Dipped beam
12. High beam
13. Side and instrument panel lights
14. Horn
15. Light switch
16. Fuel gauge
17. Stop light
18. Side light
19. Parking light
20. Flashers
21. Flasher switch
22. Left hand wiring harness
23. Cable routing inside the body
24. Main cable harness
25. Right hand wiring harness
26. Parking light
27. Flasher
28. Stop light switch
29. Interior light
30. Earth (engine)
31. Horn
32. Control box (regulator)
33. Starter motor (Vee terminal of battery)
34. Fuel gauge
35. To the coil
36. Flashers
37. Parking light
38. Stop and rear side lights
39. Number plate light
40. Dynamo
41. Ignition box
42. Headlamp supporting bar
43. Flashers
44. To right hand headlamp
45. Dipped beam
46. Main beam
47. Side light

WIRING DIAGRAM FOR AZU VAN

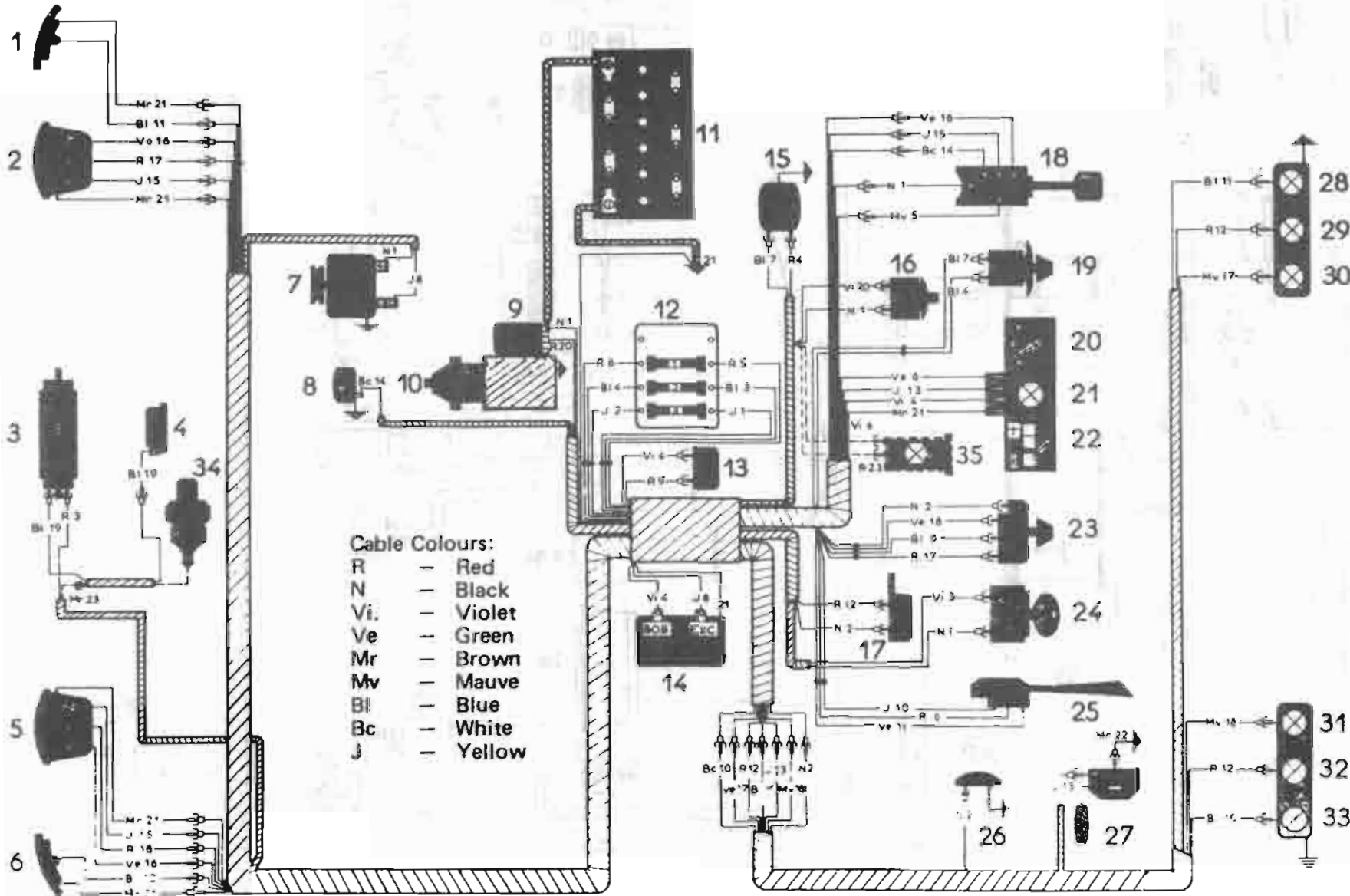


Colour Code for Cables and Connections

A	Yellow	N	Black
AZ	Blue	R	Red
B	White	V	Green
M	Brown	VI	Violet

1. Fuel level indicator
2. Battery
3. Flasher warning light
4. Right hand
5. Left hand
6. Light switch
7. Flasher relay
8. Windscreen wiper switch
9. Ignition switch
10. Windscreen wiper motor
11. Dipped beam
12. High beam
13. Side and instrument panel lights
14. Horn
15. Light switch
16. Fuel gauge
17. Stop light
18. Side light
19. Parking light
20. Flashers
21. Flasher switch
22. Left-hand wiring harness
23. Cable running inside the body
24. Main cable harness
25. Right-hand wiring harness
26. Parking light
27. Flasher
28. Stop light switch
29. Interior light
30. Earth (engine)
31. Horn
32. Control box (regulator)
33. Starter motor (one terminal of battery)
34. Fuel gauge
35. To the coil
36. Flashers
37. Parking light
38. Stop and rear side lights (number plate light)
39. To left-hand headlamp
40. Dynamo
41. Ignition box
42. Headlamp supporting bar
43. Flashers
44. To right-hand headlamp
45. Dipped beam
46. Main beam
47. Side light
48. Changing warning light
49. Light switch
50. Side light
51. Stop light
52. Side light
53. Number plate light
54. Cable running underneath the body

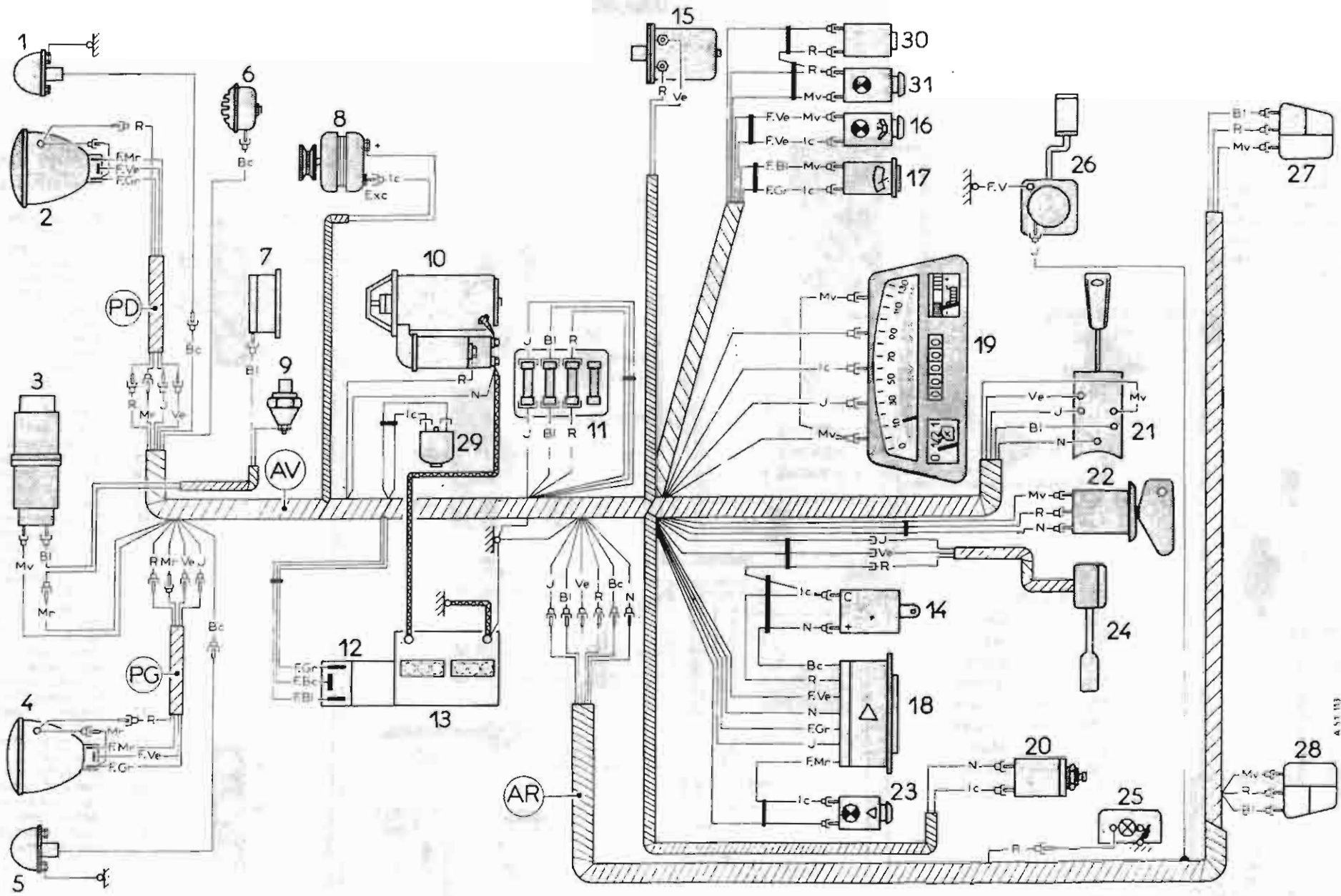
-87-



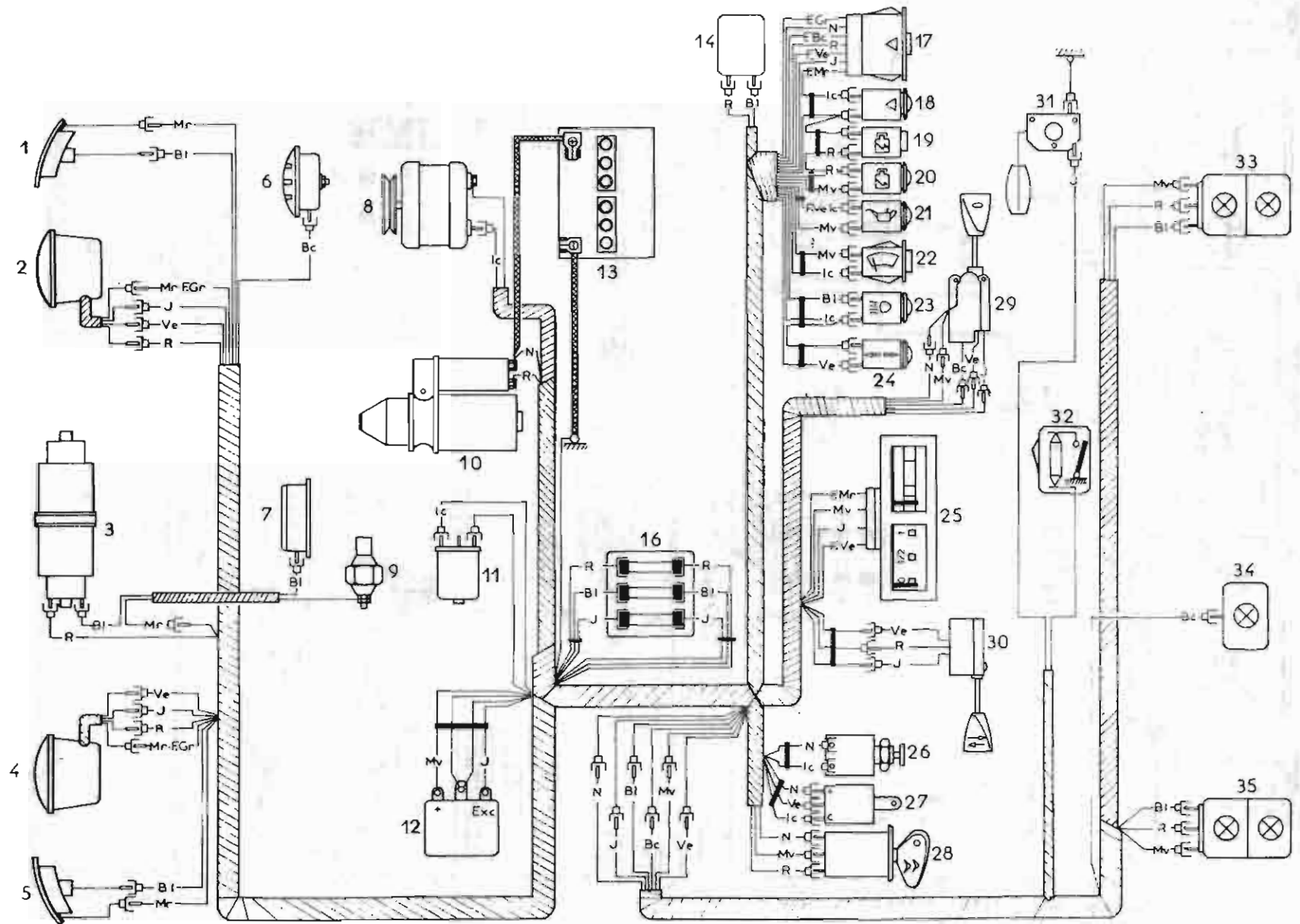
Cable Colours:
 R — Red
 N — Black
 Vi. — Violet
 Ve — Green
 Mr — Brown
 Mv — Mauve
 Bl — Blue
 Bc — White
 J — Yellow

WIRING DIAGRAM FOR DYANE 6

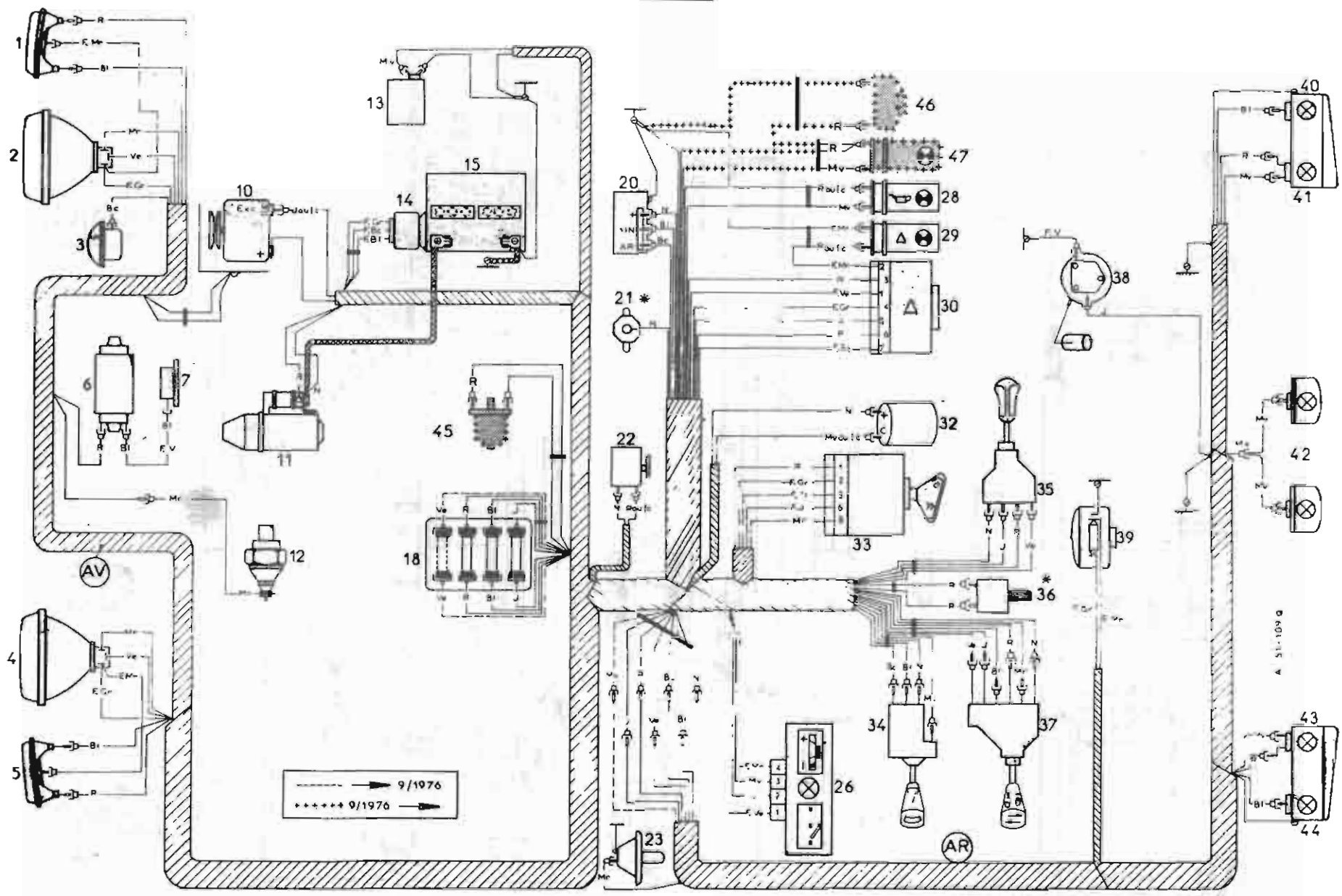
1. Direction indicator front, R.H.
2. Front R.H. headlamp
3. Ignition coil
4. Contact breaker
5. Front L.H. headlamp
6. Direction indicator front L.H.
7. Alternator
8. Horn
9. Solenoid
10. Starter motor
11. Battery
12. Fuse box
13. Flasher unit
14. Voltage regulator
15. Windscreen wiper motor
16. Starter motor switch
17. Stop light switch
18. Lighting and horn switch
19. Windscreen wiper switch
20. Petrol gauge receiver
21. Dashboard lighting
22. Charge indicator
23. Parking lamp rocker switch
24. Ignition switch
25. Direction indicator switch
26. Interior lamp
27. Petrol gauge transmitter
28. Rear R.H. indicator
29. Stop lamp, R.H.
30. Tail and number plate lamp, R.H.
31. Tail and number plate lamp, L.H.
32. Stop lamp, L.H.
33. Rear L.H. indicator
34. Engine oil pressure warning lamp
35. Engine oil pressure warning lamp



A TYPICAL WIRING DIAGRAM FOR 2 CV 6.



WIRING DIAGRAM FOR ACADIANE VAN (DYANE 6 - 400)



WIRING DIAGRAM FOR AMI 8 SALOONS AND ESTATES.

	2CV.6volt	Dyane 6V	2CV4 & 6	Dyane 4&6	Ami 6	Ami 8
Headlamp	36/36W	36/36W	45/40W	45/40W	45/40W	45/40W
Front side	4W	4W	4W	4W	4W	5W
Front flasher	15W	15or21W	21W	21W	15W	21W
Number Plate	4W	4W	5W	4W	5W	5W(2)
Rear Side	4W	4W		4W		5W →
Rear Flasher	15W	15 or 21W	21W	21W	15 or 21W	21W
Stop		15 or 21W	21W	21W	21W	→/21W
Parking	2W					
Interior	7W	7W	7W	7W	7W	7W
Oil pressure warning	-	-	1.5W	1.5W	-	1.5W
Hazard warning	-	-	1.5W	1.5W	-	1.5W
Instruments	2W	2W	2W	2W	2W	2W
Ignition warning	1.5W12V	-	-	-	-	-

602 cc engines only.

FUSE TABLE. 12 Volt cars only.

VEHICLES WITH ONE FUSE BOX

Blue Lead (16 Amp Fuse): Windscreen washer(if fitted),windscreen wiper,voltmeter,fuel gauge,direction indicator:
Alternator field.

Red Lead (10 Amp Fuse): Side and tail lamps,number plate lamps,instrument lighting.

Yellow lead (10 Amp Fuse): Interior light,parking lights,stop light.

The fourth fuse is a spare.

The horn,headlights & ignition coil are not fused.

RHD VEHICLES WITH TWO FUSE BOXES2 CV 4 and 6Upper Fuse Box

Green Lead (10 Amp) : LH side & Tail lights, number plate light.

Red Lead (10 Amp) : RH side & tail lights, number plate light.

Yellow lead (16 Amp) : Stop lights, interior light, hazard warning lights (if fitted).

Blue lead (16 Amp) : Fuel gauge, Direction indicators, windscreen wipers, alternator field, voltmeter, oil pressure warning light (2CV6).

Lower Fuse Box

Green lead (16 Amp) : RH dipped beam.

Red lead (16 Amp) : LH Dipped beam.

Blue lead (16 Amp) : LH main beam.

Yellow lead (16 Amp) : RH main beam.

AMI 6LH Fuse Box.

Green lead : RH Main beam.

Blue lead : RH Dipped beam.

Red lead : LH Main beam.

Yellow lead : LH dipped beam.

RH Fuse Box.

Yellow lead : Stop lights, interior light, accessory terminal.

Red lead : Lh front & rear parking lights.

Blue leads : Indicator lights, windscreen wipers.

Green lead : RH front & rear parking lights.

NOTE: The accessory terminal is situated behind the ashtray and is designed to supply a maximum of 10 amps.

DYANE 4 & 6.LH Fuse Box.

Green lead (10 Amp) : LH side & tail lamps, instrument panel lamp.

Red lead (10 Amp) : RH side and tail lights.

Blue lead (16 Amp): Fuel gauge,windscreen wipers,oil pressure warning light,direction indicators,voltmeter.

Yellow lead (10 Amp): Interior lamp,brake lights.

RH Fuse Box.

Yellow lead (16 Amp): LH main beam.

Blue lead (16 Amp): RH main beam.

Red lead (16 Amp): LH dipped beam.

Green lead(16 Amp): RH dipped beam.

AMT 8.

LH Fuse Box

Green lead (16 Amp): RH dipped beam.

Red lead (16 Amp): LH dipped beam.

Yellowlead (16 Amp):RH main beam.

Blue lead(16 Amp): LH main beam.

RH Fuse Box

Green lead(10 Amp): RH side light,number plate lights.

Red lead(10 Amp) : LH side lamp.

Yellow lead (10 Amp): Brake lights,interior lamp.

Blue lead (10 Amp) : Alternator field,direction indicators,windscreen wipers & washers,fuel gauge,
voltmeter,oil pressure light,hazard warning lights.

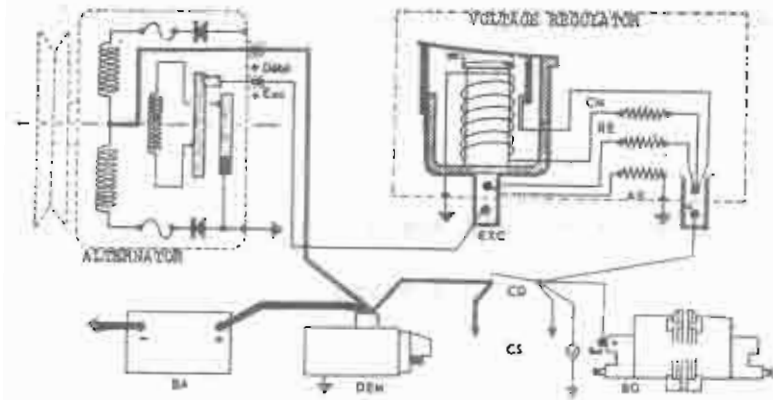
Some Ami 8 have an additional Fuse Box:

White lead (10 Amp): Instrument lights and number plate lights.

THE ALTERNATOR

Citroen first introduced alternators on their small cars in 1966, i.e. to the Ami 6 and the AK350 van.

Compared with a dynamo (a DC machine) the alternator (an AC machine) produces a greater output at engine idling speed, is smaller



Alternator charging circuit.

Key to Charging circuit :

AB Absorption.	CS Circuits.
BA Battery.	DEB Output.
BO Coil.	DEM Starter motor.
CM Balancing.	EXC Excitation.
CO Ignition switch.	RE Regulation.

thus compact, is driven at a higher speed and does not use a commutator.

The alternator produces alternating current which is rectified into direct current by diodes, built into the rear cover of the alternator, and is self-regulating as far as current (Amps) is concerned. The voltage is controlled by a vibrating contact regulator, which is a small black box fitted to the battery or the bulkhead. This excitation control is fed to the armature via two small carbon brushes and continuous brass sliprings. The output from the alternator stator is fed to the battery via a threaded terminal and thick blue wire. This circuit is always alive even when the ignition is switched off (see Fig. 1).

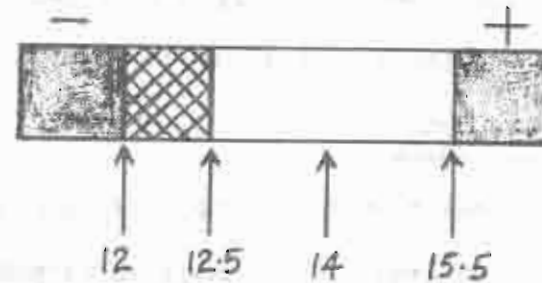
Precautions

- Never rotate the alternator pulley quickly unless the alternator is connected to the battery.
- Never connect the alternator to a battery with the connections reversed.
- Never check the operation of the alternator by short circuiting the "+" terminal and earth, or the "exc" terminal and earth.
- Never recharge the battery or use an arc welder on the vehicle before disconnecting the battery.
- Always remove the negative connection first when disconnecting the battery.

Failure to carry out these measures will result in expensive damage to the diodes and/or windings.

Battery Charge Indicator

Up to 1970 most cars were fitted with a warning lamp which extinguished when the battery was being charged. Since then all vehicles have been fitted with a battery charge indicator (Voltmeter) see fig. 2.



Battery Charge Indicator, voltage values are approximate.

The needle of this instrument is moved by a heated wire and takes some time to stabilize when the ignition is turned on, likewise when the engine is started.

In order that the current may flow into the battery the voltage from the alternator must exceed that of the battery, therefore the needle should be in the white sector when the engine is running. Normal charging voltage is around 14, this varies slightly with temperature.

If the needle does not move up towards the hatched area when the ignition is switched on then the following faults could be present :

- Battery connections loose or dirty,
- Connections detached from ignition switch or voltmeter,
- Blown circuit fuse,
- Defective ignition switch.

If the needle stays in the L.H. red sector when the engine is running this could indicate that :

- The alternator driving belt is broken,
- The fuse inside the alternator is blown,
- The output connection is detached or broken.
- The brushes are worn,
- The diodes or windings are defective.

If the needle stays in the hatched area when the engine is running and the headlights are lit. This indicates that the battery is only partially charged. Normally when the car is being driven the battery should become fully charged within 2 hours and the needle should return to the white sector.

If the needle moves into the R.H. red sector this could indicate that :

- The battery may be defective,
- The wiring may be defective,
- The voltage regulator is defective.

Stripping

1. First remove the pulley (3), this may be difficult. Grip the pulley in a vice, using an old belt. Never tighten it directly in the vice jaws. Unscrew the nut (1) and remove the pulley, note the position of the washers and distance piece (2 and 4). Remove the woodruff key (7).

2. Remove the tie rods (6) and withdraw the rear bearing cover (10) with stator (9) from the rotor (8), also the front bearing cover (5). Note the position of the various units in relation to each other. Remove the stator (9) from the rear bearing cover (10).

3. Remove the rear bearing, terminals, fuses, brushes and brush holders.

Do not attempt to extract the diodes to renew them, it is necessary to renew the complete cover (10) Ducellier, or diode holder Paris-Rhone.

4. Clean carefully all parts except the factory lubricated bearings.

Checking

5. Check the fuse using a battery and a lamp.

6. Check each diode as follows, using a 12 volt battery and a test lamp:

(a) Forward direction: Test lamp positive connected to the base of the diode and the negative to the diode connecting wire: the test lamp should light.

(b) Reverse direction: Test lamp negative connected to the base of the diode and the positive to the diode connecting wire: the lamp should NOT light.

For (a) if the diode is open circuited the lamp will not light. If the test lamp lights in both directions the diode is short circuited.

In both cases, the rear bearing cover (Ducellier) or diode holder (Paris-Rhone) should be renewed.

7. Check the resistance of the coils. Rotor: approx. 7 ohms. Stator: approx. 0.3 ohms.

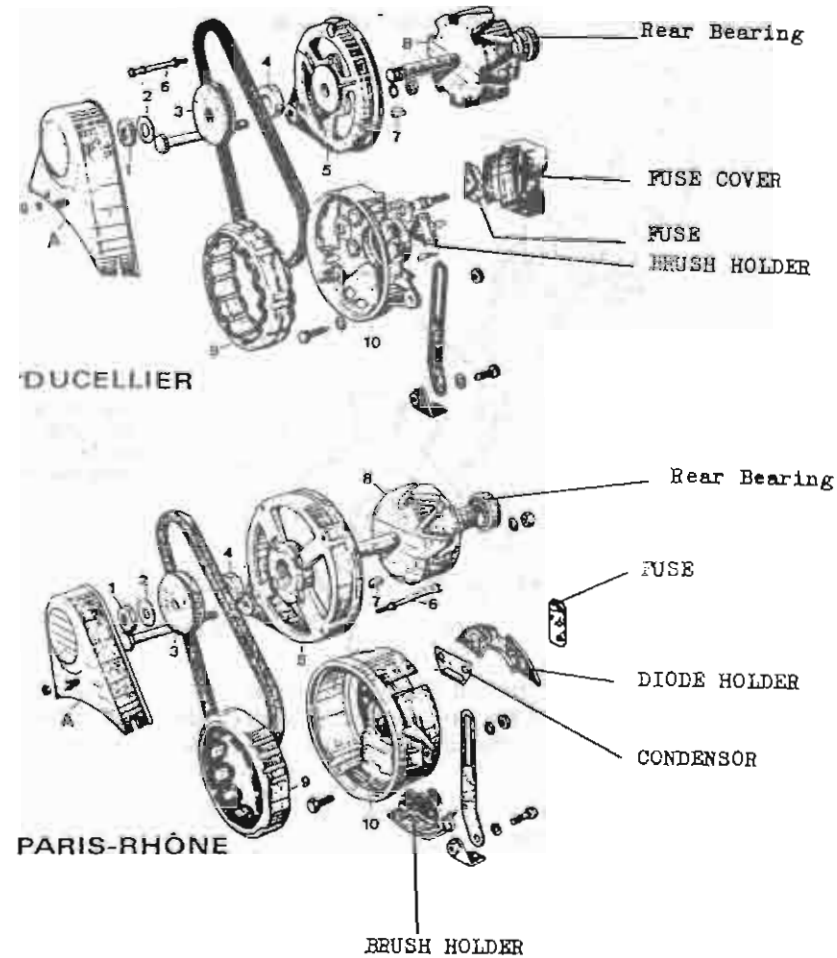
8. Check the insulation of the rotor and stator if you have a 110 or 220 volt line tester.

Rotor: place one probe on one slipring and the other to earth (rotor shaft) the lamp should not light.

Stator: Place one probe on one winding connection wire and the other to earth (casing) the lamp should not light.

9. Ensure that the slip rings are in good condition. They should be smooth with no trace of grease. Clean them in a cloth soaked in petrol, then polish with very fine abrasive paper.

10. Check the length of the brushes, ensure that they slide freely in their holders.



Assembly

11. Assemble the rear bearing cover: terminals, fuses, etc.

12. Grease the bearings if necessary.

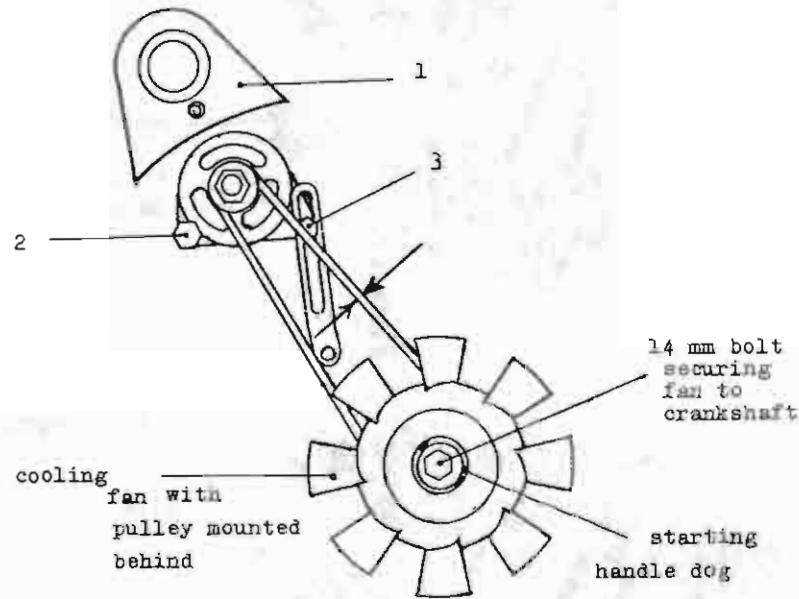
13. Fit the stator to the rear cover and connect the leads.

14. To fit the rotor to the front bearing cover, assemble to the stator and rear cover, respect the location of parts noted on stripping. Fit the tie rods (6) and nuts, tighten the nuts to 2.2 lb. ft. (0.3 m.k.g.), fit them with LOCTITE (Part No. GX 01 45901A) fit locking washers.

15. Fit the woodruff key (7), washers and distance piece (2 and 4) in their correct location on the rotor shaft. Fit the pulley and hold it with a used belt in a vice as described in 1. Tighten the nut to 29 lb. ft. (4 m.k.g.).

16. Fit the brush holder and brushes.

Checking the tension of the alternator drive belt



To obtain access to the belt loosen the 3 8mm. nuts and slide off the cover (1), it is slotted for easy removal. Slacken the head of the 14mm. bolt (2) securing the alternator to the exhaust manifold.

Slacken the bolt and nut (11 or 12mm. or both) (3) securing the alternator to the slotted stay.

Place the palm of the hand under the alternator and apply firm upward pressure and tighten the stay bolt at the same time (3); then tighten the 14mm. bolt (2). Correctly tensioned thus the total deflection at mid span should be 12mm. ($\frac{1}{2}$ in.) using firm pressure with the thumb in both directions as shown by the arrows.

Replace the cover (1), make sure that the washers are on the outside of the cover before tightening the 8mm. nuts. The cover should be positioned as close to the alternator without touching it as this cover directs the cooling air through the alternator which would otherwise get very hot as it is bolted to the exhaust manifold.

Renewing the alternator belt

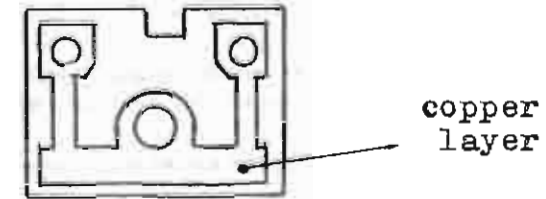
Breakage of the belt is not too serious providing it does not get caught in the fan and the battery is in good condition.

Take off the front grill, remove the remains from between the fan blades then proceed as above.

Thread the new belt through the fan blades, bending each blade gently, in turn; then push the free end of the belt through the slot in the top of the engine cooling cowling. Press the alternator down and engage the belt on its pulley. Before tensioning make sure the belt is fully engaged on the fan pulley by rotating the engine with the starting handle.

Renewing the alternator fuse

Disconnect the battery, remove the negative lead first. Remove the output lead (blue) from the alternator, i.e. slide back the rubber cover and remove the terminal nut and washers. Remove the black plastic cover, on some cars a stout wire cable clip may have to be removed. This reveals the fuse (Fig. 2) which is a thin layer of copper on a slice of tufnol.



Alternator output fuse(Ducellier)

Remove the central terminal nut and the two small screws and washers securing the fuse. Fit a new fuse, make sure the washers are replaced properly.

Sometimes a fuse blows with no apparent cause often on cars around five years old, this is due to ageing of the thin copper layer. If you are unable to obtain a new fuse a piece of 15 amp domestic fuse wire can be used as a temporary cure.

Remove the central terminal nut, the two small screws and washers, leave the blown fuse in position. Carefully wind the middle of a piece of fuse wire around the central terminal stud and bend it into the shape of the copper. When replacing the two small screws wind the ends of the fuse wire around the threads after fitting the washers then tighten. Fit the washer and nut to the central terminal and tighten the nut.

Assemble the remaining parts in the reverse sequence to dismantling.

Renewing the alternator brushes

Another reason why the alternator should stop charging is worn, sticking or dirty brushes. Wear can be a function of age or due to operation in a dusty atmosphere. Usually one brush wears a lot more than the other and it may be possible to extend its life by stretching its spring.

Dirty or sticking brushes can occur if the vehicle is operating in an industrial atmosphere, they should be freed using petrol.

To remove the brushes proceeds as follows:

Disconnect the battery, remove the negative lead first then disconnect the spade connector from the brush holder.

On the Ducellier alternator the brushes are fitted in the top and are secured by two 7mm. screws. Just remove the screws and withdraw the brushes, make sure that the new brushes are free in the slots and clean the sliprings with petrol before fitting.

On Paris Rhone alternators and brushes are fitted in a plastic housing on the underside of the alternator and it may be necessary to remove it if it cannot be swung over sufficiently on the 14mm. bolt (2).

Renewing the alternator bearings

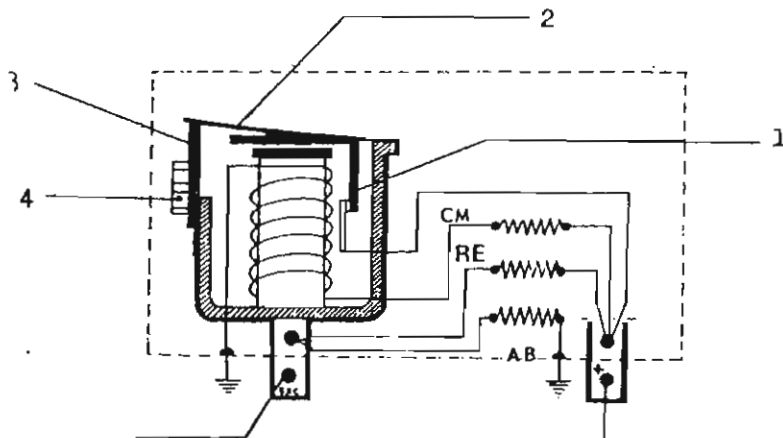
Usually the front bearing, at the pulley end, fails first and often makes a terrible grinding noise like a worn out gearbox. Dismantle the alternator as described in part 2 (Citroenian, April 1978). The front bearing is secured in the front bearing cover by a steel plate which is held in place by 3 screws. Sometimes this plate is riveted to the cover and the rivets will require drilling out. Drive the bearing out from the rear of the cover and fit a new bearing, fill the bearing with high melting point grease and wipe off any surplus before assembly of the alternator.

If the bearing securing plate was riveted assemble with new rivets, otherwise re-use the original screws.

The rear bearing usually comes out of the cover when the rotor is removed. Carefully drive the rotor shaft out of the bearing with a soft hammer.

An alternator automatically adjusts its current (AMPS) output in accordance with the demands of the battery and the electrical components.

The voltage is controlled by a separate voltage regulator of the vibrating contact type on the Citroen twins. With some alternators (on larger and British cars) the voltage regulator is of the solid state type (electronic) which is built into the alternator, this type is difficult, if not impossible to repair or adjust.



The contact (1) vibrates to maintain a constant voltage, between 14 and 14.6. The tension of the leaf spring (2) determines the voltage setting, this tension can be altered by rotating cam (3) by star wheel (4) which is riveted to it.

(a) Checking the operation of the Voltage Regulator

Connect a voltmeter across the battery terminals, it should read around 12 volts, start the engine and allow to idle; the voltage should rise slightly to around 12.5. Slowly increase engine speed, the voltage will increase until it reaches a maximum and stabilises with a jerk.

Reduce engine speed, the voltage should then fall to around 12.5. If the voltage stabilises above or below 14 to 14.6 then the spring tension requires adjustment.

(b) Adjusting the voltage

Disconnect the battery, remove the negative lead first. Remove the plastic cover from the voltage regulator. It may be necessary first to remove the whole regulator when fitted to the bulkhead. Older regulators have their covers secured with small hexagon headed screws, current regulators have black hollow plastic rivets. To release these press out the centre plastic pin with a small nail then prise the head up with a knife blade. Lift off the cover, do not loose or damage the cork gasket.

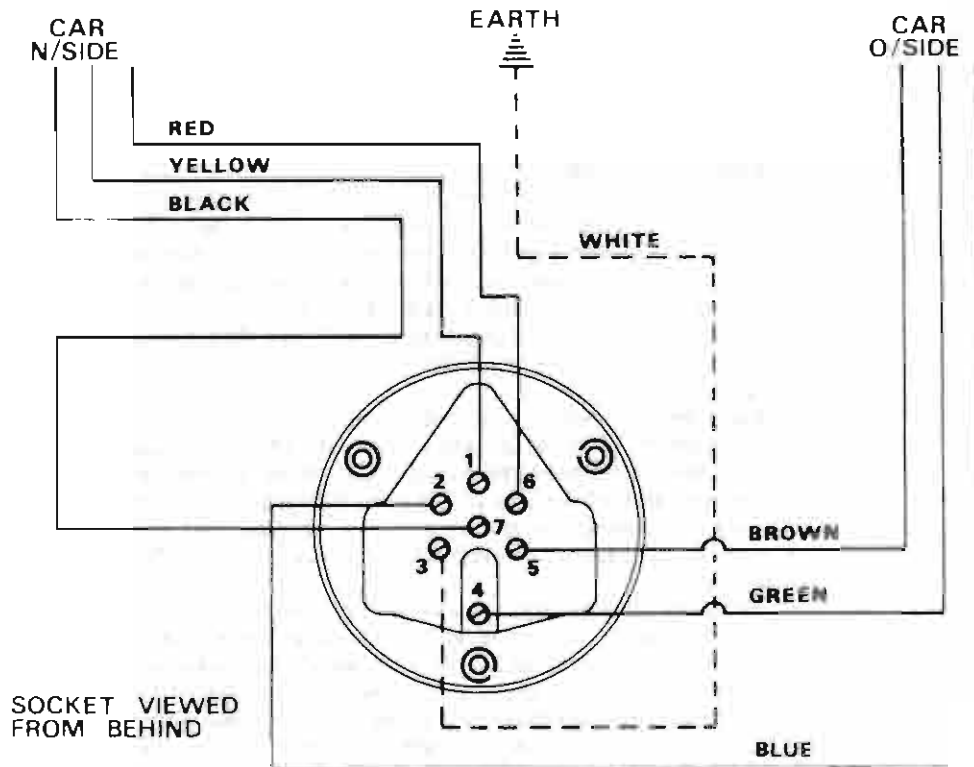
Examine the contacts (1), if they are pitted or burnt dress them up with a points file then fine wet and dry silicon carbide paper. The gap between the contacts can be adjusted. Paris Rhone specify 0.25 to 0.30 mm. and an air gap of 1.5 mm. between the top of the coil core and the moving contact arm. Once satisfied that the contacts are satisfactory support the regulator securely to avoid short circuit during testing.

Reconnect the battery, connect the negative lead last. Carry out the test detailed in (a) if the voltage stabilises below 14 the spring tension should be increased by rotating cam (3) by means of the star-wheel (4). The cam starwheel may be very stiff, a special tool can be obtained from the manufacturers, a pair of round nose pliers can also be used. If the voltage is too high rotate the cam in the opposite direction to reduce the spring tension.

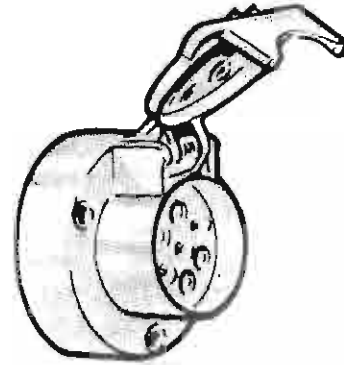
Once the voltage has been set make sure the inside of the regulator is clear of dust and dirt before replacing the cover. Check that the cork gasket is not damaged and is correctly located. Push the hollow plastic rivets home into their respective holes then insert the plastic pins as far as they will go. Secure the regulator and check all connections are tight.

ELECTRICAL REQUIREMENTS FOR TOWING.

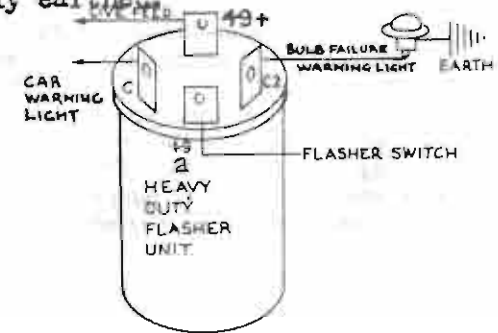
CAR WIRING



SOCKET VIEWED FROM BEHIND

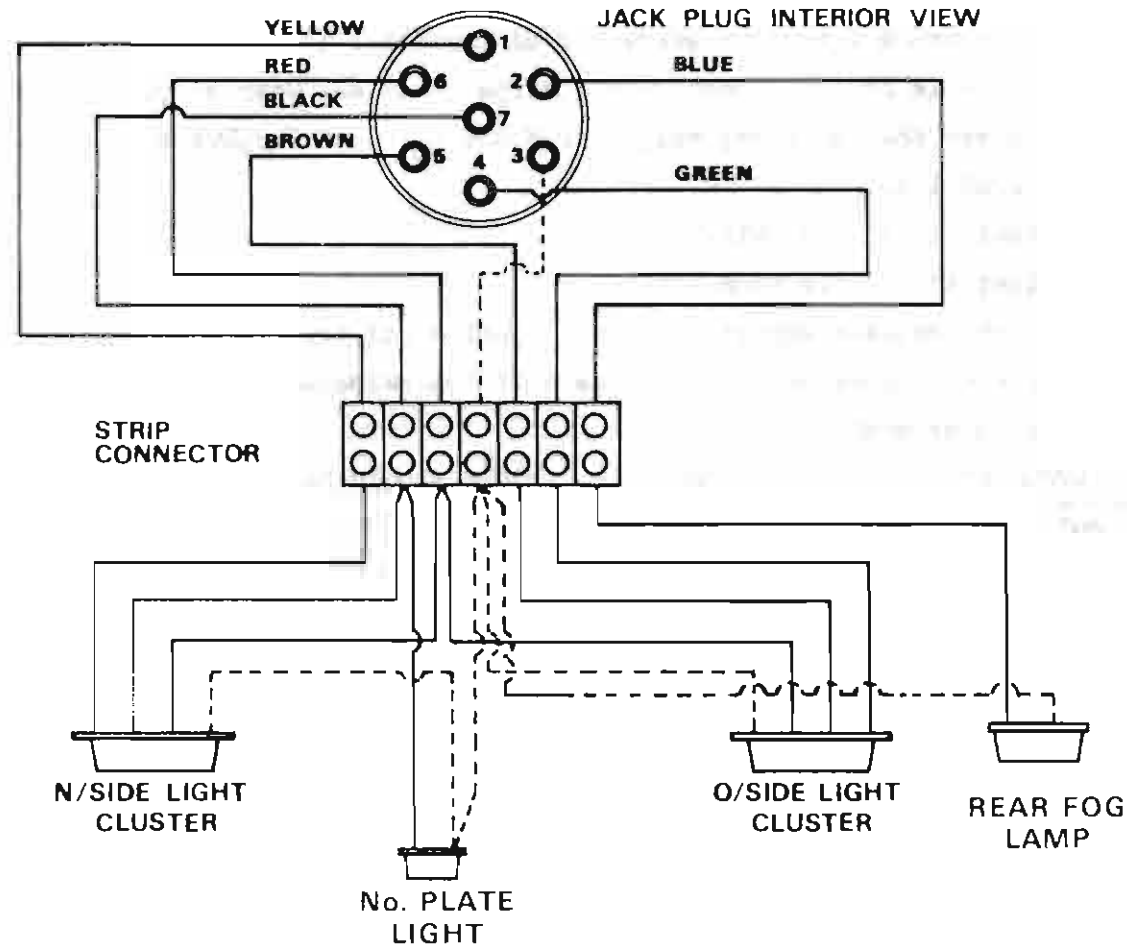


In order to maintain the legal requirement of 60-120 flashes per minute a heavy duty flasher unit is fitted. Compared with the original, which has 3 terminals, has an extra terminal for an obligatory bulb failure warning light mounted on the instrument panel and suitably earthed.



NO.	REF.	COLOUR	FUNCTION
(1)	L	YELLOW	N/SIDE INDICATOR
(2)	54G	BLUE	REAR FOG LAMP
(3)	31	WHITE	EARTH
(4)	R	GREEN	O/SIDE INDICATOR
(5)	58R	BROWN	O/SIDE TAIL
(6)	54	RED	STOP LIGHTS
(7)	58L	BLACK	N/SIDE TAIL & NO. PLATE

FLASHER UNIT CONNECTION	ORIGINAL 3-TERMINAL	HEAVY DUTY 4-TERMINAL
Live feed (via Ignition)	B or L	49+
Flasher Switch	P or X	49a
Car Warning Light	P	C
Bulb Failure Light	—	C2



When connecting the plug to the cable, allow sufficient length in the latter (suggest 12 in. (300 mm.) beyond the coupling), so that it cannot be pulled taut during an acute turn otherwise the plug is likely to be wrenched out of the socket, straining the terminal leads in the process. To help counteract this and if the plug is overlooked when uncoupling the trailer, the cable clamp within the body of the plug must be tightened to capture the outer covering as well as the cores.

CHAPTER 18 . OVERLAND JOURNEY PREPARATION.

The Mehari 4 x 4 with 4 wheel drive, 7 forward & 2 reverse gears and differential lock is capable of crossing virtually any terrain. The 2CV and Dyane are also suitable for transcontinental trips as is ANY Citroën properly prepared.

The main considerations are: (a) Do not exceed the following weights: 2CV 886 kg. (1950 lb), Dyane 920 Kg. (2030 lb), Mehari 925 Kg. (2040 lb).

(b) Ensure that it will be reliable.

(c) Ensure that it is safe from robbery.

(d) Ensure that adequate supplies of water, fuel & oil are carried.

The Acadiane has the greatest capacity and is more secure than the soft top saloons but could be more difficult to man-handle should it become bogged down in sand or mud.

The following minimum standard of preparation is recommended, the vehicle should be of the 'P.O.' type or modified to suit.

1. 36,000 mile service carried out, new points, plugs, filters, alternator belt. Oil cooler cleaned & oil tight, engine fan to be undamaged and secure, front grill to be undamaged, engine should not be using more than 1 litre per 1400 km. (1 Pint/500 miles).
2. New vehicles to have covered at least 3000 miles and had 600 and 3000 mile services.
3. Complete vehicle up to M.O.T. standard.
4. Gearbox to have no leaks, noise or play.
5. Driveshafts to have no excessive play, sticking or grease leakage. All gaiters to be secure with no splits.
6. Clutch to be operating correctly, not slipping; cable should be free & not frayed.
7. Brakes as per M.O.T., linings to be at least 4mm thick, handbrake cables free & not frayed.
8. Battery & charging system to be operating correctly, horn to operate loudly.
9. Suspension to be operating correctly, no knocks, creaks or groans (Inertia, friction & Hydraulic dampers to be secure, no leaks and properly sealed), front suspension height to be correct-rear height to be 35mm above normal.
10. Axle tube bolts to be tight (Remove one at a time, jack up vehicle, grease threads and bolt head faces, re-tighten to 45 lb.ft). Take particular care with the rear bolts of all vans.
11. Fuel capacity to ensue a range of 400 miles, vehicle fully loaded. Additional metal containers with screw caps: 5/10/20 litre of approved type and in good condition.
12. Laminated windscreen.
13. Sumpguard.
14. Fuel tank undertray.

107

TOTAL

CITROËN

TOTAL

594 YPT5

TOTAL



15. 5 new tyres & tubes, wheels to be in good condition. One new cover and two new spare tubes to be carried.
 16. One gallon of drinking water to be carried, only for emergency use.

ADDITIONAL PREPARATION for long trips over rough terrain:

1. P.O. front bumper.
2. Additional fine wire mesh in front of grill.
3. Two supplementary lamps with relay and protective grilles.
4. Loud horn (not musical).
5. Two spare wheels with new tyres & tubes (135 or 145 x 380).
6. Dust protection modifications, see "Ici commence l'aventure", Nov, 1981 edition.
7. Front of chassis strengthened in areas of front bump stops & axle tube bolts.
8. P.O. air filter in series with standard filter.
9. Extra fuel tank, with approved valves & piping, see "Ici commence l'aventure".

RECOMMENDED EQUIPMENT & SPARES.

First aid kit.
 Fire extinguisher, compass correctly set
 Nylon tow rope, warning triangle
 Plastic tubing & funnel, petrol resistant
 Emergency windscreen
 Set of tyre levers, pump & tube repair kit
 Schrader valves, caps, valve tool & pressure gauge
 Security alarm
 Powerful torch & camping light with spare batteries
 & bulbs
 Copy of "Ici commence l'aventure" (Nov, 1981 edition)
 Car handbook
 Technical handbook
 List of Citroën agents & clubs in areas to be visited

Set of C.B. points, plug leads, condenser and spark plugs.
 Three wheel nuts.
 Engine drain plugs with copper washers.
 Assorted hi-tensile nuts & bolts.
 Grease gun, tin of grease & paint brush.
 Five litres of engine oil, 1 litre of brake fluid.
 Set of bulbs & fuses (Keep inside car for quick access)
 2 Sand mats
 1 lightweight Aluminium sand shovel.
 Michelin maps.
 Alternator drive belt.
 Essential tool kit (See chapter 7)
 Insulating tape, electrical cable, alternator fuses, roll of
 steel wire.

For a long trip on rough terrain the following additional spares should be carried:

4 rear axle tube bolts	2 suspension knife edges
4 Knife edge clips	1 engine oil cooler
1 Engine cooling fan	Engine oil filters (No. a function of distance)
1 Clutch disc	1 ignition coil
1 Voltage regulator	1 alternator
1 Brake disc	1 rear spring
1 front suspension tie rod with yoke	1 rear suspension tie rod with yoke
1 fuel pump	

Plus the following if the expedition comprises of several vehicles:

1 RH & 1 LH front suspension arms & 1 front axle tube. 1 suspension cylinder
1 complete drive shaft.

PART NUMBERS OF EQUIPMENT NEEDED FOR MODIFICATION.

	2CV6	Dyane, AK, Acadiane	Mehari
P.O. air filter complete	5 508 267	5 508 267	5 508 267
Engine/transmission tray	-	AY 721 250A	AY 721 288A
P.O. Front bumper & tray	AK 6154 E	-	-
P.O. Aux. lamp mountings	7A 5 411 373 X	-	-
Sumpguard	3A 5411 263B	3A 5411 263B	3A 5411 263B
Fuel tank undertray	AY 721 71	AY 721 71	AY 721 71A
Triplex windscreen	-	AY 961 303A	-

CHAPTER 19. USEFUL ADDRESSES

CITROEN Cars Ltd.
Administration & After Sales,
Mill St., Slough SL2 5DE.
0753 23808

CITROEN Direction de l'Information
et des Relations Publiques,
F - 092208 Neuilly-sur-Seine Cedex.
France

Societe Automobiles Citroen.
Departement Technique Apres-Vent,
163 Avenue G Clemenceau.
92000 Nanterre,
France.

Direction de L'exportation Europe
La Boursidiere, Route National 186
92357 Le Plesis-Robinson-Cedex
PARIS

Societe Belge des Automobiles Citroen N.V.
Place de l'yser 7,1000 Bruxelles.
Belgium

Citroen S.A.
27 Route des Acacias, Geneve.
Suisse.

Citroen Automobile Akiengesellschaft
5 Köln 90 Nikolasstrasse.
W. Germany.

SALES, REPAIRS, SERVICE & SPARES

TWO HORSE STABLES
Unit 8, Skipton Road, Cross Hills, Nr. Keighley, W. Yorks.
0535 36781. Evenings (0535) 34811, 36759, 36930 and Skipton
68365.

B.W.B. SERVICES LTD.
53 Clapham Common (South Side)
London SW4 01 720 5287, 01 622 9240

CLIFTON CARS (ESSEX) LTD.
Swan St. Sible Hedingham, Nr. Halstead
Tel. Hedingham; 60538/61260

OSBORNE'S OF RENDHAM
Rendham, Suffolk
Tel. 470 30 St. John's Rd.
Saxmundham: 2033

CHEVAL VAPEUR ENGINEERING
6 Eckersley Road, Chelmsford.
Chelmsford 357678

LOVE-KYN GARAGES
Rear of 135 London Rd, Kingston-upon-Thames.
Surrey KT2 6NH 01 549 6588
also 2CV6 hire: 01 549 4990

STEVE HARDWICK, 114 Old Park Rd. Kings Hill Wednesbury.
Staffs.

ROY H.G. TOLLEY LTD.
Coln Garage.
115 Butt Rd. Colchester CO3 3DL. 74488/76803

Deux Chevaux et Charrette

Steve Hill,
27 Penn Road, Hazelmere,
High Wycombe, Bucks.
0494 714844

& 2CV Overland Preparation.

Voiture Technique Services
(John Gowers)
2 Brickfield Cottages,
Hertingfordbury, Hertford.
0992 553253

Specialised Citroën Service

(J & M Fraser)

Crossroads Cottage

Broms, Eye, Suffolk.

Eye 870312.

2CV Repair Garage

Malcom Jones

Carluddon Garage.

Penwithick. St. Austell.

Cornwall.

SPARE PARTS.

A & D Service Spares

15 Whitley Street, Reading, Berks.

0734 864818

also " 2CV Workshops", 3 Middletonkews,

Middleton Grove, off Camden Rd. London N.7.

01 607 8164.

Euro-Car Spares.

'Europa House'

Birkbeck Rd. Beckenham.

Kent. BR3 4SN.

01 659 5044/4. 01 659 6898.

'NORI'. Northfield Industries Inc.

P.O. Box 141, Kenilworth, Illinois.

60043. U.S.A.

Paris Parts b.v.

Den Haag. Witte de Withstraat 6-8.

Netherlands.

Tony Cenrue Ltd.

01 267 9576, 01 680 1010.

BODY REPAIRS & PARTS.

Patrick Stephens.

28 Station Road.

Sible Hedingham.

Halstead, Essex.

Tel. Hedingham: 61576.

'POP-ON" Body spares Ltd.

Skeldon, Hollybush.

By Ayr KA 6 7EB Scotland.

Tel: Dalrymple: 0292 56 544

Fibreglass Panels:

Honeybourne Mouldings

Eclipse Trading Estate.

Birmingham Rd.

Alcester. Warks.

Lodge Fibreglass Panels.

Dunnington Lodge.

Broom Lane.

Dunnington.

Alcester.

Warks.

TOURISTS EMERGENCY SERVICE

2CV Car Clinic

6 Baronald Drive,

Glasgow G 12 ONZ

EXCHANGE CRANKSHAFTS, OIL COOLERS,

& DRIVE SHAFTS

R.C.M. London.

82-86 South End, Croydon.

Surrey CR0 1DO

SOLEX CARBURETTORS

Gower & Lee Ltd.

27 Penbridge Villas.

London W 11. 01 229 1400

DUCELLIER & PARIS RHONE ELECTRICS

Autocar Marine & Diesel Ltd.

47C Sudbourne Road.

LONDON SW2 5AE 01 274 4041

Dixon & Roy, Electrical Division.

Billingham Road, Norton.

Cleveland.

S. E. V. (U.K.) Ltd.

Soulbury, Leighton Buzzard, Beds.

LU7 0EQ. 052 527 511

CIBE 052 527 511/2/3/4

MARCHAL 052 527 591/2

PARIS RHONE 052 527 594/5

SPECIAL TOOLS

Etablissements Fenwick, Departement AMA,

24 Bd. Biron-93404 St. Ouen

France.

HIGH QUALITY TOOLS WITH LIFETIME GUARANTEE

Facom Tools Ltd.

Bridge Wharf.

Bridge Rd. Chertsey.

Surrey. 0932866099.

(Agents throughout the U.K.)

Snap-on Tools Ltd.

Derbyshire House, Lower St

Kettering, Northants.

0536 515687, 0536 512674.

(Agents throughout the U.K.)

IGNITION AND DOOR KEYS

Your local Citroën Dealer or:

KEYS GALORE

96 Gloucester Avenue,

LONDON NW 1.

BALL & ROLLER BEARINGS

Relburg Ltd. Sussex House.

4 Shrewton Road.

London SW17 9HX

01 646 0713

MODEL CITROËN CARS AND BOOKS.

Model Import Co.

152 Barkham Road,

Wokingham,

Berks. RG11 2RP.

RIGID ROOFS & ESTATE CONVERSION KITS.

Two Horse Stables,

Unit 8, Skipton Road, Cross Hills,
Nr. Keighley, W. Yorks.

(0535) 36781

ADVENTURE & HISTORY

"2 men, 2 CV, 2 Continents by Jacques Cornet & Henri Lochon.

"Journey to the Land of Fire" by Jaques Cornet & Henri Lochon. Robert Hale Ltd.

"Drive round the world by J.Baudot & J.Sequela.MacDonald publishers.

"Au long cours en 2 CV by Claude Layec. Presses de Cite Publishers.

"Guide de l'automobiliste" by Jacques Sequela & Claude Massot. Livre de Poche-Library.

"Ici commence l'aventure" by Relations Publiques-Citroën.

"Raid Afrique" by Jacques Wolgensinger. L'aventure vecu, Flammarion.

"La Terre en Liberte" by Christian Callissian.Published by Arthaud.

"La 2 CV" by Jacques Borge & Nicholas Viasnoff.Published by Balland.

"Les Deuches" by Jean-Pierre Farey.Published by Solar.

"Citroën's Flat twins, their history, achievements and care." By John.P.Richards. Citroen Car Club.

"Raid Maroc" by Fred Annells & John P.Richards. Citroen Car Club.

'Sahara 84' by R. Paul Bateson, Two Horse Stables.

TECHNICAL

Citroën Repair Manual No. 559, Ami 8 since March 1969(Includes both drum & disc brakes).

Vol.1. Engine & general characteristics.

Vol.2. Gearbox clutch & transmission.

Vol.3. Axles, suspension & brakes.

Citroën Repair Manual No. 8161.Characteristics, Adjustments & Checks, (All 'A' models since 1963 including AMI 6 & 8)

Citroën Repair Manual No, 8162.Reconditioning, Electrical system, (All 'A' models since 1963 including AMI 6 & 8)

Citroën Technical Data Books are issued annually, they summarize all the numerical data necessary for the Maintenance Adjustment & Repair of each Year Model.

Peter Russek Ltd Marlow, Bucks. Repair Guides: 2CV, 2CV4&6, Dyane 6 & Ami 8.

Autobooks Ltd. Brighton. Workshop Manual No. 789. All Flat Twin Citroëns.

L'Expert Automobile, 19 Rue des filles du Colvaire, 75 Paris 3^e. Etudes Techniques for: 2 & 3 CV, 2 CV4 & 6, Ami 8 & Dyane.

Revue Technique, 20-22 Rue de la Saussiere, 99 Boulogne-sur-Seine. Revues Techniques for:

3 CV Saloon, Break, AK61-68; 2 CV saloon & AZU 50-68; Dyane 4&6 1968; Ami 8, Ami 6-35, AK-33 1969;
Dyane 4&6 (33 hp); Mehari 1969-70. Dyane - Dyane 6 (33 h.p.) - Acadiane - Mehari. 1968 - 81.

Auto Reparaturanleitung, Verlag A. Bucheli, Zug, Switzerland.

No. 78 Ami 6; No. 177 Dyane 4&6; No. 189 2 CV4 & 6, No. 192 Ami 8.

E.P.A. Libraire Automobile, 83 Rue de Rennes, 75006 Paris.

Votre Voiture Series: 2CV before 1970, 2CV4 & 6, Ami 6, Ami 8, and Dyane, Dyane 6, Mehari & Acadiane.

Haynes Publishing Group, Sparkford, Yeovil, Somerset.

Citroen 2 Cylinder Owners Workshop Manual, 2CV, Dyane & Ami. (Not Visa or Vans). Vol. No. 196.

Brookland Books. Available from Model Import Co. 152 Barkham Road, Wokingham, Berks.

2 CV Road Tests & Reports 1948 to 1982.

The Life & Times of the 2 CV. By Julian McNamara & Bob MacQueen. Great Ouse Press Ltd. 82 Castle Street, Cambridge. CB3 0AJ.

2 & 3 CV Fault Finding Chart, By John P. Richards.

Trailer Manual by B.J. Badland. M.I. Plant. E. Mechanical Services (Trailer Engineers) Ltd. Belmont Rd. Bolton BL1 7AQ.