

ROLLS-ROYCE

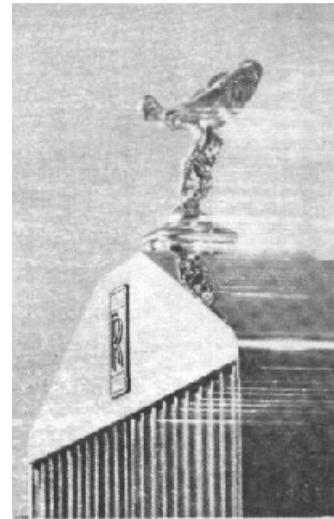
enthusiasts club

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FEBRUARY 1964 - Bulletin no. 25

The opening meeting of the season will be a dinner on Friday 3rd April in the galleried great hall of Weston Manor, at 7, for 7.30. Situated eight miles north of Oxford on the Bicester Road, at Weston-on-the-Green. The large quadrangle will be an ideal setting to show members cars in daylight before dinner. Members wishing to stay overnight can reserve accommodation by contacting the manager. Early application should be made to the Hon. Secretary, as we have a top limit of fifty-five tickets, price £1, inclusive of gratuities. An interesting film programme will follow the dinner. Dress, lounge suits.

FORTHCOMING EVENTS

International Rolls-Royce and Bentley Pageant - Saturday May 23rd and Sunday May 24th. On the occasion of the sixtieth anniversary of the Rolls-Royce car, at Goodwood Motor Course, Sussex. A dinner, dress lounge suits, will be held in the Portsmouth Guild Hall after the pageant and there will be a further meeting on the Sunday to be arranged for those who wish to meet the next day. Particulars for entry in the various competitions will be published in the next bulletin.

An inter-club meeting was held on Thursday 13th February, where it was agreed that the entries for the Concours will be 25/- per car. Non-concours entries 15/- per car. These prices will include 5/- charge for programme. It was also proposed to meet at Uppark on Sunday May 24th for those who wish to meet the following day. The price of the dinner in Portsmouth Guild Hall will be 27/6.

Concours d' Elegance - Sunday June 28th, at Blenheim Palace, picnicing from 12 noon, Concours starting at 2pm.

Rally at US Air Base, Upper Heyford, Oxfordshire - Sunday July 12th by kind invitation of the Commanding Officer. The station will be open from 12 noon for those wishing to picnic. The rally starts at 2pm and will be followed by a conducted tour of the base, followed by tea and hard drinks in the Officers' Mess. A large number of spectators are anticipated on this occasion and the cars will be under armed security guard, while members and their passengers are touring the base or being entertained in the mess.

Competition Meeting at Staverton Airport - Sunday September 6th. Picnicing from 12 noon, meeting starting at 2pm.

Rolls-Royce Meeting. New York Worlds Fair, August 27th-29th. 1964 - We have received an official invitation from the Rolls-Royce Owners Club of America to attend their meet at the New York Worlds Fair. Will members interested please inform the secretary; if 100 passengers can be gathered together, the return charter flight would be £65 per head. The location of this meet, at New York International Airport, only a few miles from the Worlds Fair, makes this an ideal holiday for enthusiasts and their families. The RROC members would have Rolls-Royces available for those who do not bring their own cars to this meet. In their behalf, we would be happy to make every arrangement for them at the new International Hotel at Idlewild (International) Airport, the site of the meet.

SLUGGISH WINDSCREEN WIPERS

This condition tends to be more prevalent in the cold weather and arises from the fact that the Klaxon and the Berkshire, which superseded this in the later models, has a reduction gear drive of a metal pinion driving a large fibre gear. The compartment in which these gears operate was packed with a light grease, which after twenty years forms the consistency of cold butter and makes very hard work for the motor rotating the gears. This, in turn, causes over-heating of the motor and the wires feeding it, resulting in electrical break-down. Treatment is to remove the wiper motor complete, by first slacking off the driving ferrule, then taking off the 3/16th nuts and bolts which hold it to the mounting bracket. Two connecting wires are then removed and the motor comes away. Two 3/16th screws from the driving end are removed when the gear box cover can be lifted away, as can the driver fibre gear-wheel, by pulling the driving shaft out of the gear-box. This can then be cleansed of its paste and goo and repacked with light vaseline. If the sleeving on

the interior wires is cracked by age and heat, opportunity should be taken while it is out to fit new sleeving before replacing the motor. These interior wires from field coils can be inspected by removing the end cover over the brush attachment. The brushes should also be inspected and renewed if necessary. The motor bearings should also be lubricated. To do this a small set-screw is removed from the top of the bearing housing, a few drops of oil passed and the set-screw replaced. The wiper will then be up to dealing with the winter snow and frost load. The gear-boxes which drive the twin wipers should also be cleansed of their goo every ten years and repacked with vaseline. Access to these twin gear-box drives is obtained by removing the wooden fascia strips at the base of the windscreen.

R.S.

DON'T FORGET THE DRIVER

On all pre-war chassis the coupling between the hub and the shaft is the wheel driver, which is splined to these two members. When correctly fitted, the driver is a close sliding fit on the shaft, and a hammer fit in the hub, and maintenance of this condition is important to the well-being of the shafts.

After prolonged service the wheel drivers may loosen in their hubs, giving rise to a knock on reversal of the transmission load. To rectify this, wheel drivers are supplied in a range of oversizes; the oversize referring to the width only of the external splines, all other dimensions being standard. To fit these oversize drivers, the internal hub splines must first be dressed up parallel and then the correct oversize driver selected to suit. This is really a Works job.

When the hubs, etc., are reassembled, a clearance must exist between the outer face of the wheel driver and the abutting washer (if fitted), to obviate axial loads to the differential.

R.H.

A SHORT TIP

Persistent blowing of the main fuse for the offside headlight on the Wraith can be caused by the breakage of a small thrust receiving roller of non-conducting material which lives within the foot operated dip-switch.

G.W.W.

Dr Myer of Cambridge has found citric acid, concentration 4 ozs to each gallon, very effective in cleaning choked waterways in iron engines. It is not advisable to allow this mixture to circulate through the radiator as the matrix can be rapidly attacked and it is advisable to run the engine on the mixture with two rubber pipes connected to a five-gallon oil drum. It should be left for three days and run intermittently to move the silt. Removal of the core plugs in the top of an iron head usually shows almost

complete obliteration of the water ways and water retention after draining the system in these areas has resulted in cracked cylinder heads.

SPARE PARTS TO CATALOGUES

The club has now acquired from the Australian Rolls-Royce Club spare part catalogues which they have duplicated from originals in their possession. These are especially useful in that they portray in diagram form every individual part of engine and chassis with dimension and length and the corresponding text indicates the part number and number of items required. I shall propose to reproduce the pictures and lists in future bulletins, as it will be most useful for members to see their parts illustrated before attempting an overhaul operation. We are starting off with the Servo motor and although this particular diagram refers to 20hp chassis, the individual parts are similar in later years. The books cover Silver Ghost, 20 hp, PI and PII, and are held by the chairman, to whom members may apply for any information.

CARS FOR SALE

- 1934 20/25 Park Ward saloon, new roof. £125
 - 1937 Dark blue, A. Mulliner sedance, rebuilt engine and chassis, 25/30, re-upholstered in blue, sliding metal roof. £450
 - 1929 PI Windover coach-work complete and original throughout.
 - 1939 vintage James Young 4-some drop head body, £100
 - 1938 Green & black Park Ward sun-roof saloon, rebuilt engine, 25/30. £325
 - 1939 Rolls-Royce Wraith, body by Mann Egerton, total mileage 76, 000. £600
 - 1933 20/25 saloon, Hooper body. £200
 - 1929 PII, Mulliner body for restoration or spares. £75
 - 1932 20/25 Barker limousine for breaking.
- For all these cars apply through the chairman.

PARTS WANTED BY MEMBERS

- PI starting handle, filler cap and wheel disc removal spanner. Replies to D. Willmore, 241 Plashet Grove, Eastham, London E6
- P100 head lamps

LIST OF MEMBERS NEWLY JOINED SINCE THE LAST BULLETIN

- Miss D, A. Trott, 14 Western Ave, Branksome Park, Poole, Dorset
- 1931 20/25
- G. Onnermark, 32 Sempley Road, Morbury, London SW16. 1920 Silver Ghost, Barker & Rotschild et fils lim.
- L. W. F. Douglas, 46 Waysbrook, Letchworth, Herts.
- 1938 25/30 T&M o/d sal.

LIST OF MEMBERS (continued)

- G. Buckley, Lombard House, 71 Hough Hill Road, Stalybridge, Cheshire
1933 20/25
- J.A.Kelly, 26 Redburn Road, Baguley, Manchester. 1935 20/25 Rippon
- E.B. Levin, 72 Bridge Lane, London NW11. 1939 Wraith
- J.B.Drake, 'Braecot', Castle Hill Road, Upper Stonnal, Walsall, Staffs
1933 20/25 Park Ward saloon
- R. S. Partridge, 17 Harpes Road, Oxford. 1933 PII Hooper limousine
- P.Hirons, 34 Ledbury Road, London W11. Associate member
- Dr Heyworth, Rothdene, Helmshore Road, Haslington, Rossendale,
Lanes. 1926 cabriolet
- Capt J. E. Gordon, 23 Woodside, Barnard Castle, Co. Durham
- R.L.Ferguson, PO Box 66, Cape Town, South Africa. 1937 25/30
- A. C.N.B.Scott, Green Mile, Babworth, Retford, Notts. 1938 PIII
- R. J.Haslam, 113 Church Road, Urmston, Manchester. 1938/39 PIII
- J. Clothier, Honeycroft Farm, Holsworthy Hamlets, Devon. 1924 20
- Mrs C.Floris, Tall Trees, Ascot, Berks. 1937 20/25 Mulliner
- P.Rolfe, Bridge Street, Kineton, Warks. 1927 20hp Park Ward lim.
- A.Dillon, Kilteragh Lodge, Westminster Road, Foxcock, Co.Dublin
1935 PII
- R. M. Jobson-Scott, 10 Glebe Close, Ambrosden, Bicester, Oxon
1935 20/25
- W. R. Slater, 29 Kensington Road, Rusholme, Manchester 14. 1937 25/30
- J. fcW.C.Haslehurst, Church Lane, Harworth, Doncaster. 1939 Wraith,
1936 PII
- Lt-Col E. C. Arden, LIB, TD, Alvanley House, 521 Aigburth Road,
Liverpool 19. 1934 20/25
- M. J. Forster, Yacht "Bronyewing", The Canal, Bidham, W.Sussex
1925 20
- B. Hart, 3 Souldern St, Watford, Herts. Associate member
- J. W.Ingarfield, 128 Eskdale Ave, Chesham, Bucks. 1934 20/25
- Miss M.W.Kelly, c/o N. P. Bank Ltd, 15 Bishopsgate, London EC2
1961 Silver Cloud II
- D. P. Milinair Schneider, Woburn Abbey, Bletchley, Bucks. 1939 Wraith

LIST OF RECOMMENDED REPAIRERS

- Ristes Motor Co Ltd, 67 Forest Road, Nottingham
- One of our members, Mr Douglas Wood, specialises in body work, and
his address is: D. H. Wood Ltd, Bridge Works, Boroughbridge, Yorks
and the telephone number is Boroughbridge 783.
- J.Jones & Co Ltd, Christleton Road, Chester, tel. Chester 25733.
Specialist engine repairers.
- Evans Bros, The Garage, Sun Street, Ffestiniog, Merionethshire,
tel. Ffestiniog 749. Chassis and body repairers.

DISMANTLING OF PIII ENGINE

It was necessary to remove the inlet manifolds in sections as there are inaccessible water and drain tube connections immediately under the carburettor. These were fairly tricky and require a very short 5/16 BSF spanner to get well down into the vee. Oils, water and fuel pipes and the oil rails (1 per tank, 3 unions each) were then removed and presented no great problems. The distributor caps and wiring harnesses were removed by undoing 2 x 1/4 BSF nuts 2 x 1/8" BSF for the exhaust back and 6x 2BA units per bank for the inlet harnesses. The distributor units may be removed by undoing the 3 x 1/4 BSF nuts at the base of the towers with a dog-leg 1/4BSF ring spanner. Having disconnected the advance and retard mechanism, the distributor may be pulled out. However, great care should be exercised, as they are very fragile due to their immense size. It will be noticed that two sets of distributor points 150° apart allow 12 sparks per distributor revolution using a 6-lobe cam. The oil pump drive comes away with the A bank distributor.

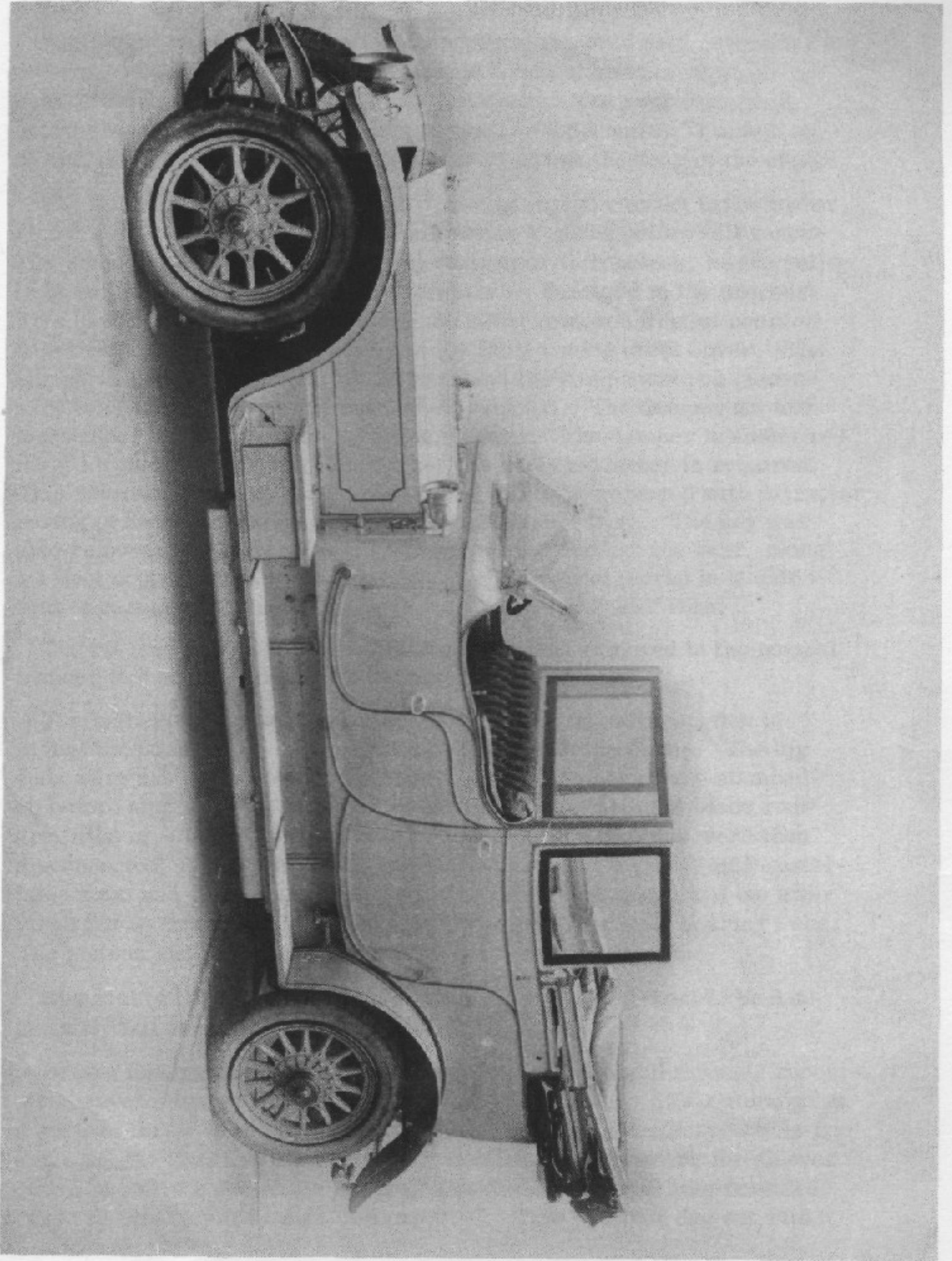
The lubricating oil system was removed next and proved straight forward, the pump being held on with 4 x 1/4" BSF nuts. The filter is also held on by 4 x 4 1/4" BSF but the pressure regulator block is held on by four nuts of the most obscure dimensions which were screwed back on afterwards rather than going into the communal nut tin. The crankcase breather and the oil drain tap/sump level indicator unit were removed next, but it is advisable to have a tin at hand, otherwise oil tends to go all over the place although the system had been drained beforehand.

Possibly the hardest part of all was the cylinder head removal. Wooden wedges, Duralinium wedges, fibre mallets, blocks of wood and other unmentionables were all unequal to the task.

It was possible to work the heads a small way up the block by the power of wedges. Although they were moving about 5" and were worked up and down hundreds of times with penetrating oil, some studs refused to release the head. These particular studs were identified and cut through with a hack-saw and many hours of struggle to remove the cylinder heads were over. The remaining studs in the block were removed easily by arc-welding a nut onto the top of the sawn off stud, the heat of the welding allowing the stud to be wound out of the block.

The removal of the valve gear was straight forward but the removal of the tappet covers and tappet blocks revealed wrecked tappets and grooves in the cams 3/32" deep - obviously a new cam-shaft required.

(continued on page 9)



Show cabriolet on Silver Ghost chassis

DISMANTLING OF PIII ENGINE (continued from page 6)

The clutch, flywheel and bell-housing were removed next, revealing a worn-out plate and fearful scores on both flywheel and pressure plate, both of which were rapidly machined flat again. The rear cam-shaft bearing was then revealed, held on by 3 x 1/4" BSF nuts. This was removed prior to withdrawing the cam-shaft through the rear of the engine.

The fan pulley may either be withdrawn using the correct extractor or else a well-aimed crack with a tyre lever in V of the pulley will generally remove it. An ordinary leg type extractor is hopeless, as the pulley is of very thin section and will be irreparably damaged in the process. This part relies on the nut and lock tab being removed first of course. It is then a simple matter to remove the front timing chest cover. The engine was then turned over on its back and the sump removed (necessary in order to remove the crankshaft damper). The damper nut and lockwasher were then removed using spanner. The damper is easily removed by a tap with a fibre mallet but generally extractor is required. This revealed the cam-shaft wheel which has to be removed with extractor, having of course removed the nut and lock washer first. The key was also removed and the cam-shaft was tapped out through the rear, using a 4-foot copper draft. The fibre intermediate wheel (scrap in 90 per cent of cases) was removed by undoing the 6 x 3/32" BSF nuts.

The oil feed rail to the main bearings was next removed in the normal manner leaving the crankshaft bearings accessible.

The main bearings may be removed after a wire brush session to reveal the numbering. Care should be taken with the shims. The big ends were not visibly numbered, consequently numbers were stamped on before anything was touched. It should be noted that the blade rods are fitted to A bank, the fork rods to B bank. The big ends were then disconnected, (2 x 5/16th" BSF castellated nuts and 4 x 1/4" BSF castellated nuts) and pushed up the bores. The crank was then lifted out after turning it so that the balance weights did not foul the main bearing webs. The pistons and rods were then drawn out through the bottom.

Removal of the crankshaft sludge trap caps revealed them to be dangerously full even after 58000 miles.

Before making any comment on sleeve removal I would strongly recommend anyone else to leave them well alone if possible. Their removal is a serious threat to the cylinder block and replacing them correctly is far and away the trickiest job of the lot. However, on removing the sleeves with a massive home-made weapon, a vast amount of silt was revealed round the rear cylinders as was expected. This was then dug out with a

DISMANTLING OF PIII ENGINE (continued)

suitable scraper - about one quart of silt per bank being obtained. Slight pitting of the sleeves round the sealing rings was filled in with solder. It is incontestable that the only 100 percent method of de-silting the engine is to remove the sleeves but I am not sure that the price was not too high - a 90 per cent job can be done by removing the rear four only.

The sleeves are extremely fragile and must be treated with the greatest care. They are nickel plated and after polishing the plating was revealed to be perfect. The bottom grooves for the sealing washers were cleaned out with a suitably contoured lathe tool which cut away the corrosion, ensuring a good seat. The rubber sealing rings, white on top and red on the bottom, were then manually stretched and greased with rubber grease and placed in their grooves. The sleeves themselves were covered with glycerine. Before entering the sleeve it is most important that it is turned about $3/16$ " against the direction of rotation of the pressing-in tool as the sleeve invariably creeps. However, the amount and speed of creep is inconsistent and while some sleeves can be surreptitiously "steered" en route, others cannot, necessitating removal and another try. The patience of Job is required for this job. For the initial push it is necessary for someone to be underneath to make 100 per cent sure that the rings are not picked up on the way - to allow for casualties one should have at least 6 spare rings of each type - in my experience very necessary. However, the battle is by no means won, as a check with a Mercer revealed all the bores in the neighbourhood of the rubber rings to be $-.003$. Removal of several sleeves showed this to be permanent, which frightened me more than somewhat. After consulting various highly knowledgeable friends, I elected to leave them as they were in the hope that they would settle down - we shall see. The bore wear incidentally proved to be about $.0065$ in 56,000 miles and almost all of it in the top $1\frac{1}{2}$ " of the sleeve.

The pistons were cleaned and polished up and the ring grooves turned out to take special rings supplied by AES Ltd - the top one being stepped, the second taper compression and the third being Wellworthy duaflex. I stress these types as bitter experience has shown them to be imperative - the fitting of any other type will merely result in excessive oil consumption - even with new sleeves. I feel I ought to mention in passing that the sleeves should never be less than $.0025$ " proud of the block face, otherwise gaskets will blow with monotonous regularity.

Damper adjustment is quite straight forward and well covered in other publications, so I shall not comment. However, the advantage of the PIII damper is that no mandrel is necessary since the timing gear itself may be clamped in the vice using fibre jaws. A careful study of the

DISMANTLING OF PIII ENGINE (continued)

rear face of the crank wheel reveals it to be spring loaded - this will invariably be sludged up solid but should not be dismantled. Tapping with a mallet while immersed in paraffin will clear it. A halo washer is interposed between this face and the crank and also between the damper and the gear, though dismantling of the spring drive is necessary to attend to the latter. This is easily achieved using the 17½ " damper adjusting tool.

The technique is to clamp the gear in the vice and pull the damper one way, whereupon one set of springs becomes loose and can be removed. Turning it the other way will do the same for the remainder. The damper is then lifted off the gear and the smaller halo washer is revealed. If either of these washers are missing, the timing gear rattle will be indescribable, resulting in the destruction of the fibre intermediate. The cleaning of the connecting rods and main bearing is best done in hot trichloroethylene, which saves many hours of work. If the bearings have lumps missing from them, as the blade bearings generally do, they may be filled in using a soldering iron, white metal and a copper mandrel to prevent overheating and collapse of the inner (fork rod) bearing. This of course is always assuming that the bumps are not too large, but I would stress that this is a highly skilled operation and should be entrusted to an expert. Any damage in excess of the above should be entrusted to Rolls-Royce Ltd only.

A new cam-shaft will in 99 per cent of cases be a must, and since only solid tapet cams are available, all engines will have to be converted. This may be done by two methods - fitting DL series valve gear or fitting the standard plunger boxes with solid plungers and setting clearances to .010. If this is done then the bleed holes in the pedestals must be soldered up, a low pressure relief valve spring fitted and the valve gear filter element discarded. In the interest of low oil consumption a needle valve may be incorporated into a main valve gear feed union (drawings are available from the Club). It is also advantageous to replace the 1/16" Dia felts in the rockers themselves. The centre valve spring should always be discarded and the guide shroud replaced by the modified type (DL series differs slightly).

Concerning the cam followers themselves - the Achilles heel of this engine - I do not intend to say anything as it will be the subject of a complete series of articles by itself. Suffice it to say that a very large amount of thought, work and research is being done on the problem by both the chairman and myself, and this embraces stellite, nitrated, barrel, cast iron and even roller cam follower conversions.

DISMANTLING OF PIII ENGINE (continued)

The valve seats should be checked for tightness by belting a suitably shaped piece of wood into the seats and seeing if they move. If they do they should be screwed up tight and pinned, using a 4 BA grub-screw. Apart from this the valve gear is quite straight forward.

A new fibre intermediate timing wheel will invariably be required and this should be checked for tooth contact with blue in the normal manner. It will be noticed that the holes securing the idler spindle to the block are oversize, allowing it to be shifted about to equalize the backlash. Dowel holes should be plugged and redrilled later. It will also be apparent that the dynamo drive housing is eccentric, allowing the actual backlash to be adjusted within certain limits. The cam-shaft endfloat should be adjusted on the bench by setting up the cam-shaft in bumps of wood in the vice and assembling the bearings onto it - not forgetting the thrust washers on either side. If the camwheel is then pulled down it will be noticed that the tighter the nut is done up the less clearance - this due to the walls of the base being rather thin so that if one sets the clearance at .006" and pop-marks the nut the same clearance may be reproduced on the engine by doing the nut up to the pop-mark again. Not quite Hythe Road but simple, quick and effective.

The oil pump was dismantled and checked for wear and found to be in A1 order; consequently it was merely polished and replaced.

The distributors were both completely stripped, checked, reassembled and adjusted according to the procedure detailed in existing workshop manuals. The replacement and re-enamelling at the h.t. cable and conduits was an extremely lengthy and boring job but I feel sure it will be justified by results. Concerning the ignition in general, it has been found from experience that two Lucas Sports coils and Champion N5 plugs with .030" gaps gives excellent all-round performance, especially noticeable is a superb tick-over. Whilst I have yet to try this myself, the information comes from a very knowledgeable source. The use of the above, however, presupposes an engine in A1 order - hotter plugs obviously being necessary in a worn engine.

To sum up, the engine now has half its pistons in it, all its sleeves, its cam-shaft and its cam followers. It has, I find on doing my sums, had no less than 200 hours spent on it so far.

C.B.