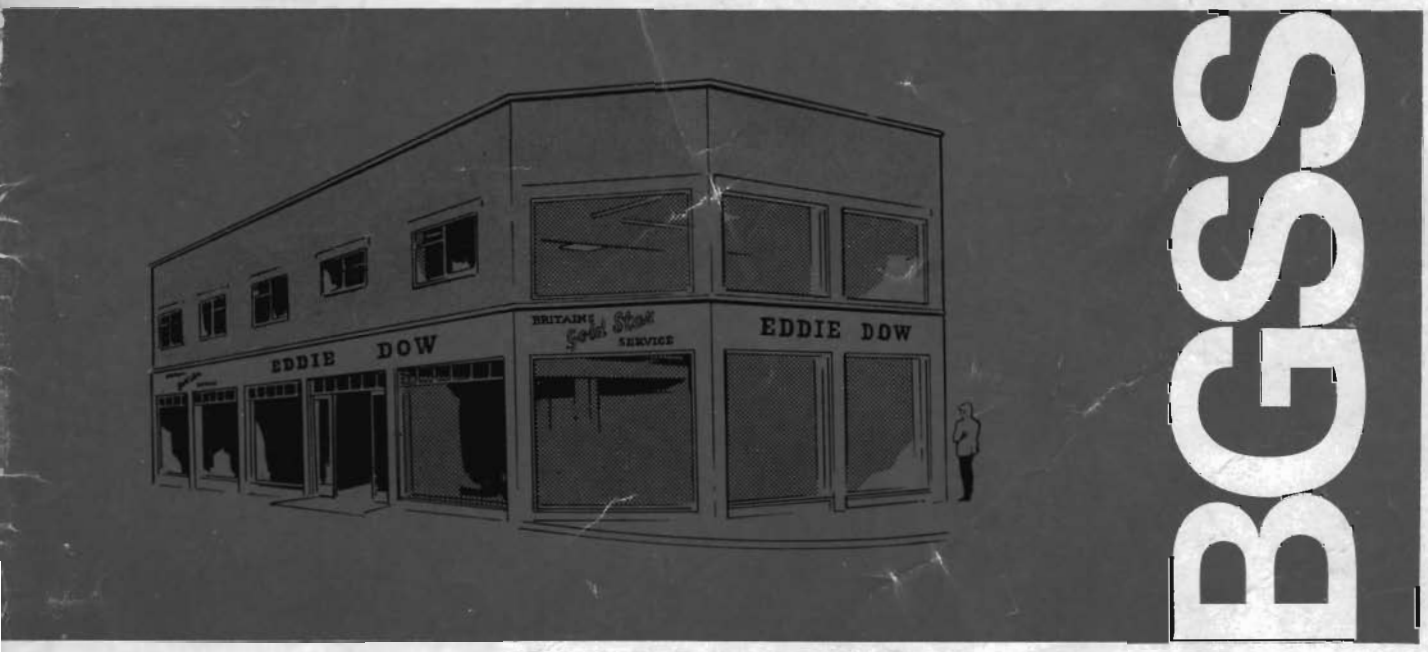
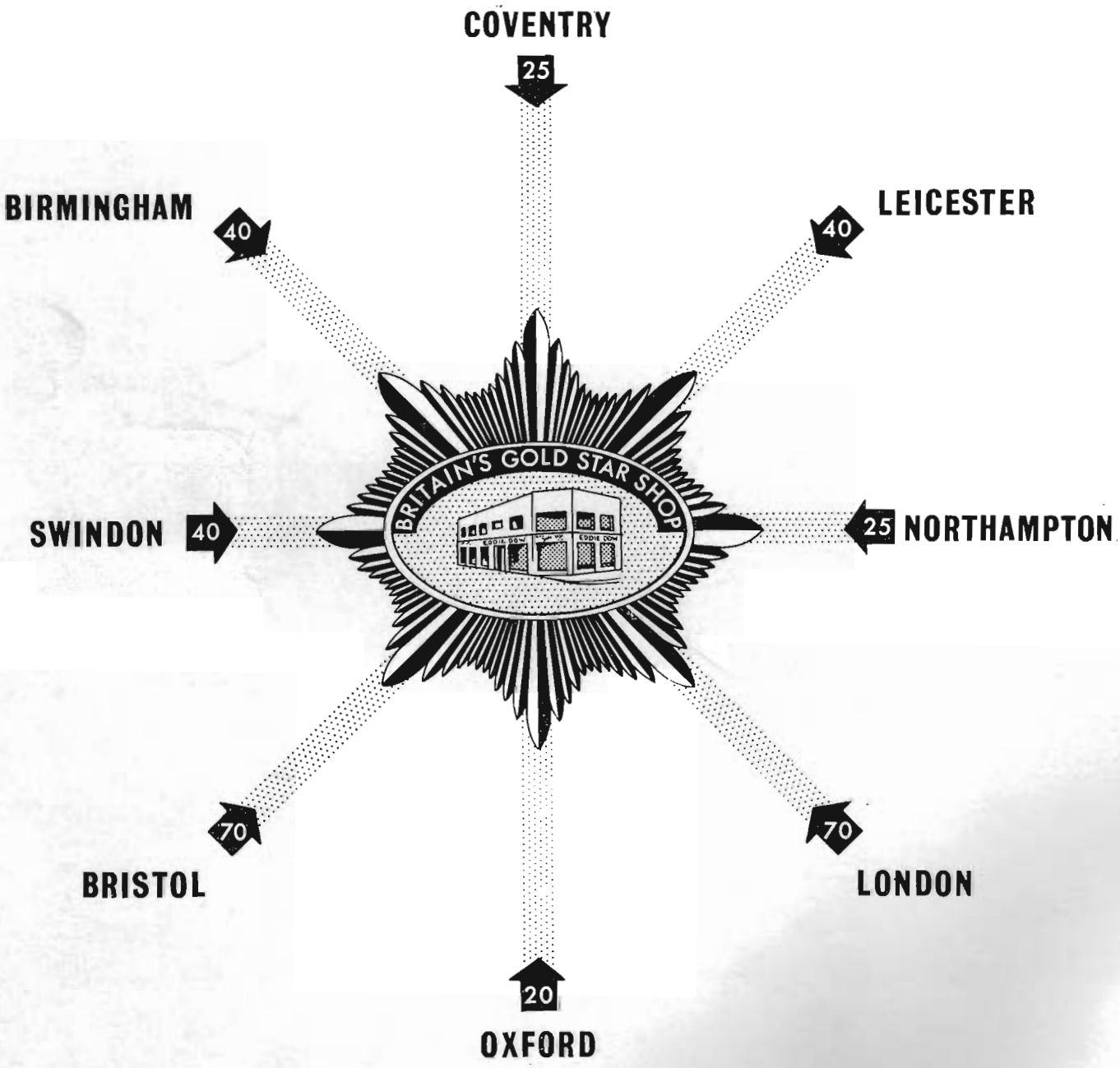
eddie dow Limited



BRITAIN'S GOLD STAR SERVICE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40
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SWINDON
40
25
NORTHAMPTON
70
BRISTOL
70
LONDON
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OXFORD

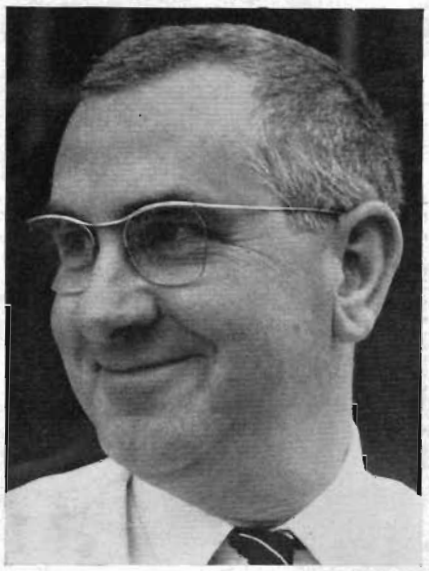
BRITAIN'S GOLD STAR SERVICE

TECHNICAL SALES GUIDE

CONTENTS

Come in and meet . . .

"E.D."



"BECAUSE of his competition successes and his business specialization in the marque, the name of Eddie Dow finally became synonymous with 'Gold Star' . . . altogether Eddie Dow can be said to have started the present-day trend of customization and specialization in racing 'goodies'." So writes C. E. "Tich" Allen in his "Gold Star Story," originally published in "Motorcycle Sport" last year, and re-printed with their permission in this "BGSS" handbook. What better way can there be of introducing "E.D." to anyone who may not have previously heard about him than to preface this potted background life story with that quote. It puts the whole story in a nutshell. But naturally, there is far more to it than that.

A special enthusiast since his schooldays, which were spent at Wilson, near Melbourne, on the outskirts of Derby, and within a hop-skip-and-a-jump-over-the-fence of Donnington Park, the famous pre-war race circuit, now of but sad memory, Eddie attended every meeting ever held there. With schoolboy tenacity he hung around the pits until someone gave him a job to do just fetching some water, oil or petrol. He progressed to riding mechanic in car practice sessions.

Just before the outbreak of war in 1939 he was apprenticed to Rolls-Royce at Derby, where he began as office boy to a Mr. Hives, who much later became Lord Hives, and the boss of the R-R organization. Doing his "bit," he joined the Home Guard, rode or owned about 40 motorcycles—and rode in H.G. Trials on a "tatty" Triumph T.80. At the end of the period with R-R he became the first apprentice to work on jet engines before his call-up in June, 1945.

Originally in the Royal Corps of Signals, he gained an Emergency Commission in the R.A.S.C., and went with them to Trieste in November, 1946. Thus began a long stay in Italy—and the sequence of events that were to lead, some ten years later, in his setting up in business. But then we're jumping ahead too quickly.

During his Italian stay he organized trials and scrambles for the "boys" and his own ability earned him a place in the Army team for the 1951 International Six Days Trial, in which he gained the first of his three Gold medals, riding, yes, you've guessed it —a Gold Star. His other "Golds" were in Austria (1952) and Wales (1954). On the trials side, too, he gained First Class awards, whilst in the Army, in the 1953 and '55 Scottish Six Days Trials.

His road racing career started when, in 1953 he bought his own private G.S. and entered it for the Clubman's T.T., then held on the Mountain Course. His feats on the Gold Star machines can be gleaned from the "Gold Star Story" sequence included in this booklet. Suffice to say that he made his mark in 1955 with a win in the Senior Clubman's event, and on the same machine —with that other Eddie, Crooks—won the first-ever Thruxton Nine Hour race (now the 500 Mile Race).

Still in the Army, it was at the end of 1954 that he was delegated the task of training Officers in the use of motorcycles for the R.A.S.C. intake, and it was with his help and encouragement that Roy Peplow and Ron Langston got their first "works" rides with Triumph and Ariel.

On "All Fool's Day," April 1st, 1956 Capt. W. E. Dow took his £1,000 gratuity and said "Goodbye" to the Army. He'd decided that 11 years was long enough in khaki. Answering an advert for a "working director" he subsequently joined forces with A. R. Taylor of Shipston-on-Stour, opening the new shop on the existing premises selling and repairing new and second-hand machines. But in 1958 began the specialized B.S.A. dealership—and the development of the "Britain's Gold Star Specialists" tag.

But motorcycles still mean much more to "E.D." than just selling them—or providing "goodies"—most of which are exclusively "Dow." Week-ends always saw him out watching a road race, scramble or trial—and it was this interest that led him one day to volunteer to announce at a local grass track.

Today he is one of the country's leading road race commentators, busily engaged at Brands Hatch, Snetterton or Mallory Park most weekends (Sundays). It is his way of relaxing; his way of keeping "with it." This way he is not simply a dealer with a name above the window selling goods without any real interest. He is continually meeting people—his customers—and would-be customers. He talks their language—YOUR language—and is ever anxious to give advice or guidance based on his own experience as a competitor—and as a specialist. With colleague commentator Murray Walker, he is a Vice-President of the B.S.A. Owners' Club.

Today, a decade after he started his business career, he is the sole owner (he amicably severed his relations with A. R. Taylor five years ago) of one of the most modern showrooms in the Midlands—certainly they are pleasantly conspicuous in historical Banbury—and his world-wide business decrees that he always carries between £20-25,000 worth of spares in stock —certainly the largest BSA spares stock in the world. He is in constant touch with the B.S.A. factory at Small Heath, Birmingham, and deliveries are almost daily. He exports to Sweden, Australia and the U.S.A. to "agents" handling his exclusive range of specialist parts and components.

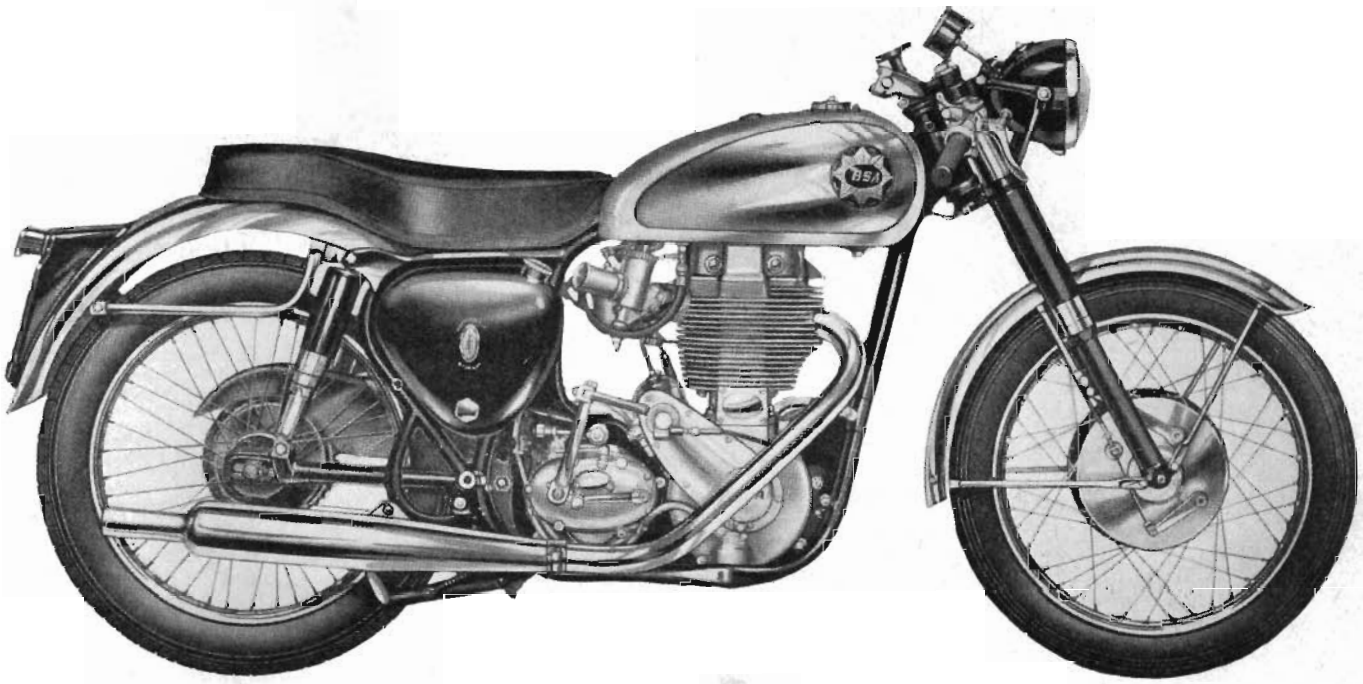
"E.D." keeps his finger on the pulse of the business, is always readily approachable for a talk over any small technical point on his favourite motorcycle. It is his determined dedication to any task in hand that has built his reputation.

What does he do for hobbies? . . . he enjoys a well cooked, well served meal, is a connoisseur of wines—a legacy from his long stay in Italy—and driving his rare Alfa-Romeo sports car. And taking holidays in Italy. You see his Army career made a big impression on "E.D."—Italy and B.S.A. —and that £1,000 gratuity!

How it all began . . .

BSA GOLD STAR

FROM HUMBLE BEGINNINGS TO A POSITION AS THE WORLD'S PRE-EMINENT CLUBMAN RACER



THE adage says that you cannot make a silk purse out of a sow's ear . . . not that anyone would want to in this plastic age. Translated into motorcycle language, it means that you cannot make a successful racer out of a roadster, and history supports the view . . . a roadster out of a racer has been a better bet. But one machine disproves the adage in no uncertain way, and that is the Gold Star B.S.A. which, from humble beginnings as a roadster, was developed into a clubman's racer which finally vanquished all its rivals in the Isle of Man Clubman's T.T. and blazed a trail of competition success right round the world.

Now out of production, it is being immortalized by young enthusiasts who see it as a " he man's " roadburner to contrast with the more sophisticated—perhaps more effeminate—multis of today. In fact it has been elevated to the niche once held by the International Norton, a roadster which *was* made out of a racer. Abbreviation of its name to " Goldie " indicates the same affection as did the contraction of International to " Inter."

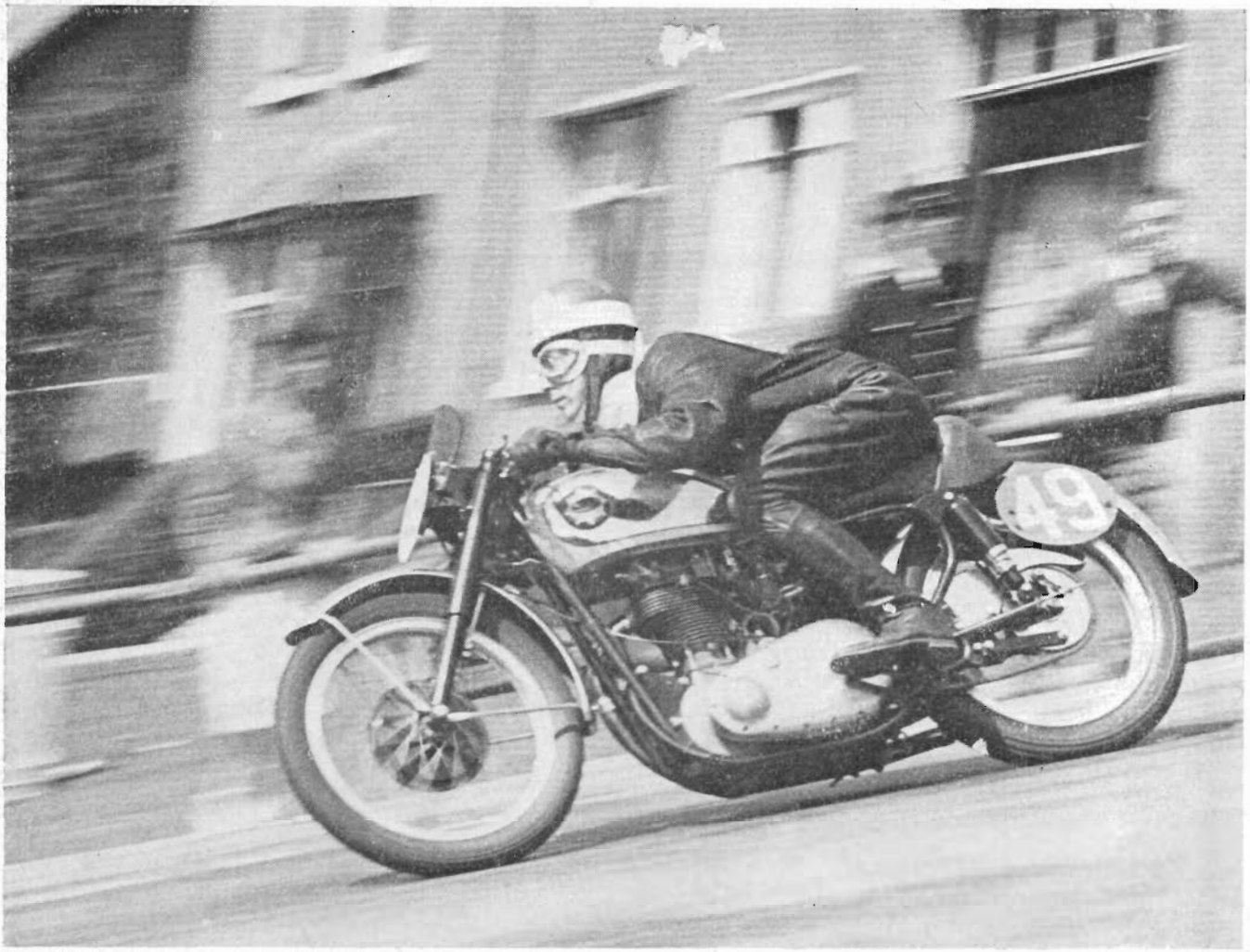
It has been said by cynics that the Gold Star was perhaps the only racing machine which made money for its maker . . . more were probably made, and paid for of course, than any other clubman's racer. In view of the close alignment with the current roadster machines, it is probable that they made a profit as well as prestige for the maker. It has been said too by students of motorcycle history that the final B.S.A. monopoly of the Junior and Senior Clubman's events . . . in the last of the series only Alan Shepherd's Norton, in third place in the Junior, spoiled a B.S.A. clean sweep of the first three places in both races . . . sounded the death knell of the races because other manufacturers lost heart.

We may never know the real story, behind the suspension and final abandonment of the Clubman's T.T. but if the theory of B.S.A. domination is substantiated it could be said that the Gold Star killed the race which laid the golden eggs as far as sales were concerned.

To start the Gold Star story at the beginning we must go back to July 1937 when Brooklands habitues were startled to see erstwhile Isle of Man idol Wal Handley wheel out a 500 c.c. B.S.A. for a three-lap outer circuit race. Handley, it should be appreciated, had been in retirement for several years and B.S.A. were well known for their dislike of racing . . . it went back to their 1921 debacle when all six works machines, advanced but insufficiently developed four-valve slopers, retired in the Senior. When Handley romped away with the race, winning at 102 m.p.h. and putting in a lap at 107.5 to win a Gold Star (Brooklands Gold Stars were awarded for a lap at over 100 m.p.h. in a race), tongues began to wag. Did it mean the B.S.A. were returning to the racing field? Well, it did not mean that but it did mean that they were going to produce a hot version of the five-hundred single which private owners could buy and race.

[Only one thing spoiled this rather sensational comeback of Wal Handley. Later in the meeting he tangled with another competitor and damaged his ankle. Tragically killed in a flying accident during the war, he was never to be seen on a starting grid again.]

At the 1937 show the new sports model—called the Gold Star, of course—was one of the sensations. Its outstanding feature then, and with subsequent Gold Stars, was the alloy barrel and cylinder head. Such exotic components had been in general use



Meteoric novice. In his first appearance in the Island in 1953 Eddie Dow broke the lap record on his 500 c.c. Gold Star and was lying second when he crashed. Until then no one believed the big Gold Star could go so fast

on works racers for some years but, off hand, I cannot recall any over-the-counter alloy engine earlier that the Gold Star. Then, as now, it rejoiced in chromium-plated mudguards and stays and a large star emblem in gold for the tank. It looked a " smasher " but I do not recall that there was a mad rush to buy. Everyone that year was trying to get their name down for the Triumph Speed Twin and, anyway, the real enthusiast regarded B.S.A.'s generally as being rather " bread and butter," all right to go to work on but hardly the thing for speed work. B.S.A.s had brought this image on themselves, of course, by eschewing road racing, and one flash in the pan victory at Brooklands was not enough to change it.

Potent this first Gold Star undoubtedly was and, I should think, pretty exciting to ride . . . and I don't say that in an altogether complimentary way, either, for B.S.A. handling at that time was not in the top flight. Take the cycle parts. Frame and forks were to all intents and purposes those of the dear old W.D. model M20, and the Gold Star type number M24, indicates the familiar relationship: those who soldiered on the M20 know that while the handling was perfectly satisfactory for ordinary purposes it did not exactly encourage " ear'oling." The gearbox, too, was the same type as the later W.D. model and was not renowned for snappy changes. For one reason or another racing men did not take to this hot stuff B.S.A. model. I seem to recall Roy Evans riding one at Donington and dropping it but cannot trace any speed success after that Brooklands debut . . . unless you include the New South Wales Speed Championships in 1938 when a certain H. Hinton won the senior race on a Gold Star. It was a B.S.A. benefit, actually, for E. McPherson won the Lightweight race on a 250 c.c. Empire Star B.S.A., was second in the Junior race on a 350 c.c. Empire Star, and Tony McAlpine won the 500 c.c. non-experts on a 500 c.c. Empire Star.

But as a trials machine the pre-war Gold Star soon won its spurs. Its light weight and punchy motor proved ideal for I.S.D.T.-type events. The Royal Tank Corp. team of Cpl. F. M. Rist, Cpl. R. Gillam and Sgt. J. T. Dalby won the *Motor Cycling* Trophy for Army teams in the 1938 International. Fred Rist gaining a gold medal, and in more sporting trials Harold Tozer began a long run of pre-war and post-war sucesses with a Gold Star sidecar outfit. The B.S.A. concern did not believe in improving the breed through racing but they did believe in testing through trials. Throughout 1938 they advertised the Gold Star as " The World's Finest Standard Sports 500," qualifying this rather extravagant claim by recalling that it was the machine on which the late Wal Handley won a Gold Star at 107.5 m.p.h.

Substantially but not quite correct. Wal's Machine had an iron barrel and head, being essentially an Empire Star model which was suitable for alcohol fuel but would not have performed anything like so well on petrol.

The pre-war Gold Star was always shown in illustrations as a fully equipped machine with Lucas Magdyno and the current large headlamp. At first it was shown with chrome guards of abbreviated sports type. By mid 1938 it had more touring, black steel guards, but for 1939 it had become a very de-luxe tourer with guards, oil tank and tool box identical to those on

the other M models, including the M21 side-valve which, in 500 c.c. form, became the W.D. model. It rather looked as if the firm had given up the idea of making a super sports machine for competition work.

A man who recalls the pre-war Gold Star with mixed feelings is Reg Spokes of Northampton who now runs the motorcycle business started by his father, the late Percy Spokes, in the early 20s. Reg rode an Empire Star B.S.A. as a private owner in the 1937 I.S.D.T., and won a gold, and as a result of this performance B.S.A.s gave him a works ride with Fred Rist and Jack Armott in the 1938 event.

" The Gold Star was certainly potent but it did not handle as well as my Empire Star and I think I fell off each day. We had spare fork links in the tool box so that we could alter the fork rake for different going but we didn't have time to change over. They slipped up somehow over my bike by gearing it too high and running it on Castrol R with the result that is was a pig to start each morning. I got a silver but the bad starting cost me my gold."

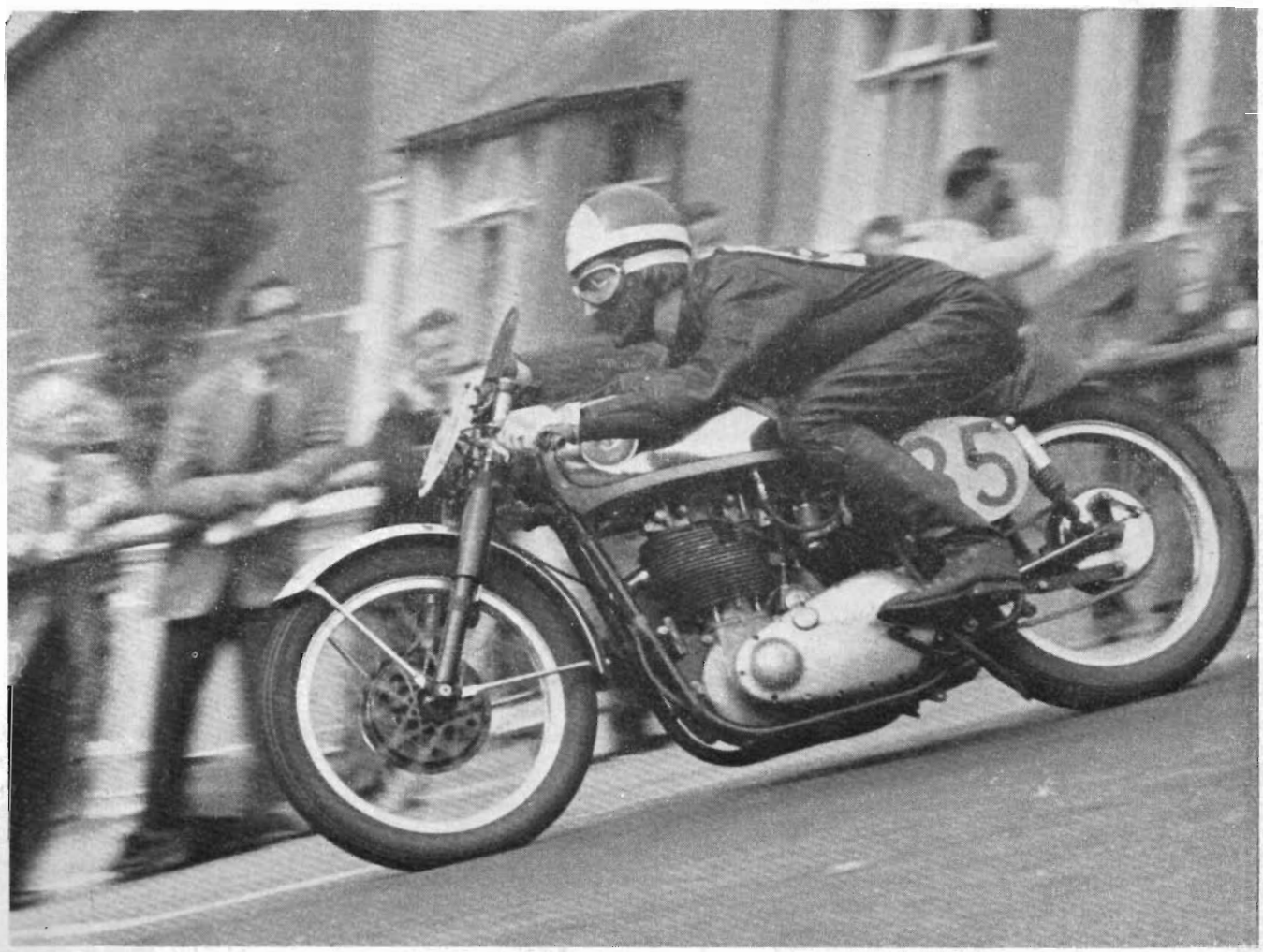
He had no complaints about the engine . . . his was timed at 95 m.p.h. in I.S.D.T. trim. He thinks the inferior handling, compared with the Empire Star, may have been caused by the altered weight distribution of the lighter alloy motors. Apart from the slimmer finning, it bears a striking resemblance to the later, post-war engines. The head was held down by seven studs screwing into cast-in inserts . . . late post-war engines have eight.

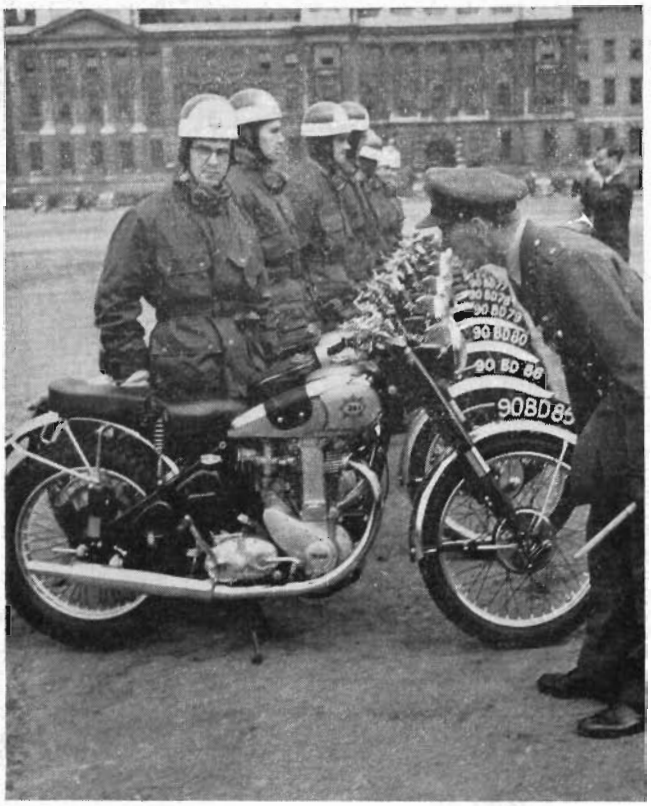
When production was resumed after the war B.S.A.s quickly rehashed the pre-war B and M range with telescopic forks, and with their traditional interest in trials soon produced a competition model, styled B32. This was more or less the pre-war engine, but the excellent B.S.A. telescopics made it a really good competition model which soon became very popular. Not only did it perform well but it looked the part with its chromium-plated guards on very flat section. Fred Rist, now out of the Army, had joined the factory and he and Bill Nicholson blazed a trail of B.S.A. competition successes. Rist got 350 and 500 c.c. models going very well on alcohol and cleaned up in a number of grass and hill-climb events. I remember well that he made a point of doing it in true clubman fashion, riding a machine to and from an event with a piece of straight pipe to replace the silencer in his haversack. We knew he could have turned up with a works truck but we admired the way he wanted to be one of us.

Whatever shortcomings the pre-war models might have had in the handling department, the telescopic forks cured them and thereafter all B.S.A. sports machines handled really well. After the 350 c.c. B32 competition model of 1946 came a five-hundred version, designated B34, in 1948. This time the big engine was based on the three-fifty using the same stroke of 88mm with an 85mm bore instead of 71mm. The pre-war Gold Star had had a typically long stroke of 94mm with 82mm stroke. It was a slow-revving motor which turned out its peak b.h.p. of 30 at a mere 5,800 r.p.m. In 1948 350 c.c. Gold Star models were announced with alloy barrels and heads not unlike the pre-war motors.

And once again the push-rods operated in a tunnel in the

Gold Star in the Manx. Dow rode his T.T. winner, stripped of clubman's equipment, in the Manx but retired on the last lap





On parade before the 1951 *I.S.D.T. Nearest the camera is Lt. Eddie Dow. Next to him 2nd Lt. Les Archer*

barrel and head, unlike the cast-iron engines which had a cast-alloy " lighthouse " push-rod tube outside the fins. The alloy head had the rocker boxes cast integrally, in the style of the cast-iron B31 of the same era. These early Gold Star engines were designated ZB. They now had the new B.S.A. plunger rear suspension and, in usual B.S.A. practice, had been thoroughly tested in trials. The 350 c.c. engine was capable of turning out 24 b.h.p. at around 6,500 r.p.m. and soon distinguished itself by winning the 1949 Junior Clubman's T.T. at 75.18 m.p.h. This was the beginning of the B.S.A. domination of the Clubman's, not merely by speed but by sheer weight of numbers, for there were over 30 entered in the Junior, twice as many machines as the Norton, next in popularity. This indicated the enthusiast's acceptance at last of the B.S.A. as a really competitive machine in this specialized field of clubman racing. It was largely due to the fact that within the limitations set by the management—that the Gold Star should retain as many parts as possible of the standard roadsters—the B.S.A. competition department had evolved a range of options which transformed the roadster-based machine into a made-for-the-job . . . for the Clubman's T.T. . . . mount.

The clubman modifications included a special cylinder head with a larger bore inlet tract to take a $1\frac{1}{16}$in TT 10 Amal, a high-compression piston (7.5 to 1 for " pool " petrol) and " hot " cams for a straight-through exhaust pipe. Close-ratio gears were available and alternative lugs for back-set footrests. The gear pedal could be reversed, there was a special rear-brake pedal and a folding kickstarter. It was this wide range of options which could transform a Gold Star from a fast tourer (in publicity matter B.S.A.s warned that the Gold Star was not for the tourist who wished to potter gently) to a trials machine, a potent scrambler or an out and out clubman's racer which made the B.S.A. so attractive and accounted for its considerable sales. I can think of no other machine which covered such a wide field of application.

Reverting to the 1949 Junior Clubman's victory of Harold Clark . . . another B.S.A., ridden by E. Harvey, lay second for most of the race until eliminated by a broken chain. At its first appearance in the Island this push-rod engine of humble origin proved faster than the race-bred Inter Nortons of J. Simitser and A. C. Taylor, which finished second and third, and showed praiseworthy reliability in private owner hands by figuring prominently in the finishing list. In a road test by *Motor Cycling* the 350 c.c. Gold Star did 78 m.p.h. at 5,570 r.p.m. in fast touring guise. The clubman conversion produced 90 m.p.h. in top and 86 m.p.h. in third at 6,400 r.p.m.

Man behind the development of the Gold Star at this time was J. H. Amott, a pre-war B.S.A. competition rider He was a wizard at cam design . . . a tuning wizard of the old school who could grind up cams to produce pretty well any characteristics you wanted. I am told that he kept a drawer full of cams for special purposes.

A 500 c.c. version was inevitable and, true to B.S.A. tradition, it appeared first as an International Six Days Trial machine in September and performed with some distinction. Fred Rist was a member of the Trophy-winning British team on one, and other big Goldies won 10 gold medals. Harold Tozer won a gold with his sidecar outfit. The 500 c.c. model went into production for 1950 and quite a few appeared in the Senior Clubman's, but they were nothing like quick enough to stay with the very fast Triumphs and Nortons. This was the year when the favourite, I. B. Wicksteed, went out with a split tank on the last lap with the race in his pocket and a record lap of 79.51 m.p.h. and Phil Carter won on a Norton at 75.6 m.p.h. The first B.S.A. rider was D. Bogie, down in 13th place at 70.8 m.p.h. But in the Junior the Gold Stars flew again and on the second lap they occupied the first four places. K. R. V. James, who set the pace, went out with engine trouble on the last lap an B. A. Jackson on at 74.25 m.p.h., I. McGuffie was second and A. D. Brown third, on a Norton. Three parts of the finishers were on B.S.A. machines.

The story was pretty well the same next year. Brian Purslow won the Junior Clubman's at 75.3 m.p.h., chased home by three Nortons, and Derek Farrant was fifth on a B.S.A.. In the Senior Wicksteed's Triumph looked like winning at a canter but was slowed down too much by his signallers, and Arber, on a Norton, snatched victory from him on the last lap to average 79.7 m.p.h. The first B.S.A. was J. Wright in 10th place at 75.85 m.p.h. Again in 1952 the 350 c.c. Gold Star outclassed the race-bred Nortons. Eric Houseley won at 78.9 m.p.h. and a newcomer, Bob McIntyre, was second at 78.57 m.p.h. K. R. V. James who, as in the previous year, had gone over to Nortons, was third. Fourth and fifth were C. E. Staley, B.S.A., and Derek Powell. B.S.A., and as usual the finishing list was studded with the initials B.S.A. In fact there were 45 of them out of 64. It was all extremely satisfactory from the points of view of both the competition and the sales departments.

The first B.S.A. in the Senior race was ridden by Derek Powell in eighth place at 79.5 m.p.h. Next was K. R. E. Prince in 14th place at 77.5 m.p.h. The big B.S.A. was getting faster but so were the Triumphs and Nortons, B. J. Hargreaves winning on a Triumph at 82.45 m.p.h., with K. R. V. James second on a Norton at 81.97 m.p.h.

In the International Six Days Trial that year B.S.A.s tried out a new pivoted fork rear suspension. It is at this point in the Gold Star story that W. E. Dow . . . Eddie Dow . . . comes into the picture as Lt. W. E. Dow, R.A.S.C., in the Army Motor Cycle Association " A " team for the 1951 I.S.D.T. in Italy. In 1950, after service in Italy, he had been stationed at Aldershot, had met the Archers . . . not the B.B.C. ones . . . and started scrambling on an old " iron " B34 with McCandless suspension. Later posted to Thetford in Norfolk, he had been a regular

competitor in local events, meeting up with Brian Stonebridge and Andy Lee. The best he managed was a third at a Castle Colchester scramble because the trials box of the old machine would not stand riding to win. The engine was running at 8½ to 1 on a mixture of petrol, meths and benzole . . . a not uncommon brew in those days. When the Army invited volunteers for the 1951 I.S.D.T., Lt. Dow was on the front row. His commanding officer was loath to release him but Lt. Dow got in touch with Major Lloyd, who was in charge of the operation at the War Office, and pointed out that not only could he ride but he could speak Italian fluently. Lt. Dow was in. In the selection test he tangled with a car and hurt his ankle . . . he was only able to ride in the speed test which followed at Thruxton because Les Archer—sorry, 2nd Lt. Archer, R.A.S.C.—poured a whole bottle of horse liniment into his boot.

The Army tackled the I.S.D.T. in the way it ought to be tackled. The two teams first rode in the National Rally on W.D. machines, all gaining maximum marks, and were then issued with new Gold Star B.S.A.s which they took out to Trieste.

From Trieste they went on training expeditions to Italy, covering the whole of the trial route and the night section three times. After a first and prohibitively expensive stay in a hotel, the teams lived rough, taking tents and rations. They found dust was the biggest problem. W.D. goggles did not keep it out and the air filters on the machines had to be changed every 500 miles. The machines were very reliable but Dow's machine had a valve guide work loose. A local police workshop got over the trouble by turning up an alloy bush. Incidentally the Italian Defence Ministry originally refused to allow the British Army teams to compete in the trial but finally agreed providing that they wore plain clothes. By the end of the 16,000-mile training period the original machines were a little secondhand, and for the trial B.S.A. supplied six new ones.

Pass storming in Austria. Lt. Dow in the 1952 I.S.D.T.

The Clubman's: "One had to buy a B.S.A. if one hoped to stand a chance"

IN THE TRIAL an unexpected snag cropped up. Oil filters . . . the fabric element in the tank would not pass oil quickly enough . . . for some reason the texture of the fabric had been changed. Sgt. Monk stopped with a sump full of oil and lost nine marks. Once the trouble was diagnosed the riders were told to remove the filter altogether. Unfortunately Les Archer did not remove his filter and next day it cost him 24 marks. Sgt. Rowthorn of the " B " team hit a lorry and was out of the trial, Sgt. Whittingham lost a mark on the fifth day which cost him his gold, and in the speed test Captain Miles retired with a stuck exhaust valve. Lt. Dow got his gold, as did S/Sgt. Arnott for the third consecutive year, and their team finished fourth in the club team contest.

During 1951 the Gold Star engine had been redesigned in detail. Barrels and heads were die cast and, reverting to pre-war practice on iron engines, the rocker boxes were bolted on instead of cast in one piece. Later in 1952 the BB type of engine was introduced, with a shorter connecting rod and larger valves. For the 1952 International this type of engine was issued to the Army teams in a new experimental pivoted-fork frame. This frame was the duplex frame which was later to become standard on all the larger B.S.A. models. The firm certainly believed in testing through trials. Eddie Dow recalls that these machines were a great all round improvement and, with the experimental 63-degree steering head angle, steered perfectly. In production the head angle was increased to 61 degrees in the interests of standardization throughout the range of the big singles.

Army-type training paid off in the 1952 I.S.D.T. and Capt. W. E. Dow, Capt. D. G. Miles and Sgt. R. A. Rhodes won golds. After winning a first class award in the Scottish Six Days Trial in an Army team, Eddie Dow bought his first personal Gold Star, a standard 500 c.c. Clubman's model, and entered for the Clubman's T.T., staying in real clubman fashion at Cunninghams Camp. Although the 500 c.c. Gold Star had never been regarded as competitive in the Island, Dow startled everyone by soon appearing on the practice leader board . . . although he was a complete novice in road racing. On the third practice session he actually topped the list with a lap at 81.1 m.p.h., the fastest practice lap of all, and was second in the final session. In the race, he lay third on the first lap behind the favourite, Bob Keeler (Norton), and Eddie Crooks (Norton). On the second lap both he and Keeler broke Geoff Duke's four-year-old record with laps in 26 minutes 48 seconds and 26 minutes 51s and Dow jumped to second place. This was simply unbelievable. No five-hundred B.S.A. had ever gone like this before. Experienced men shook their heads and said that no one could ride with the abandon which Dow was showing and stay on.

They were right. At Laurel Bank he overdid it (his words) in a big way and spent the next three months in hospital . . . nine fractures and a collapsed lung. The first B.S.A. to finish was D. Naylor, down in 17th place. B.S.A. won the Junior Clubman's . . . one is tempted to say " of course." Derek Powell led all the way and our present-day Mini man, Owen Greenwood, made a good second on another B.S.A. Dow's quite fantastic effort had far-reaching effects. B.S.A.s decided that there were possibilities in the five-hundred after all and set about looking for more steam. Roland Pike, who had done wonderful things in the past with two-valve 250 c.c. Rudges, was now working on Gold Star development and the result of a concentrated effort was a new CB model with massive finning on head and barrel, a shorter connecting rod . . . so short that the flywheels had to

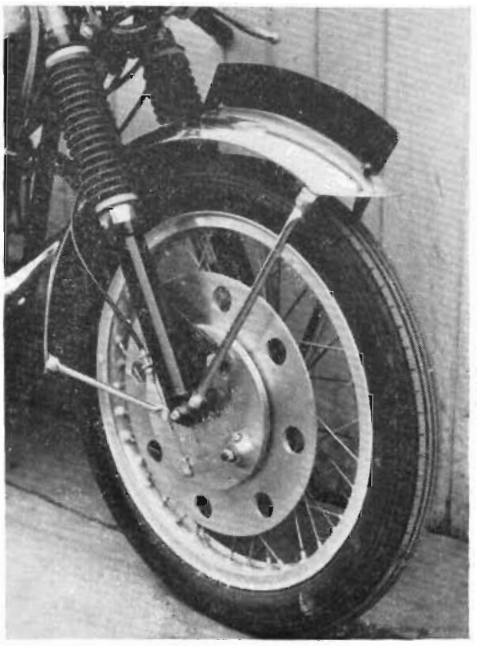
be turned oval to miss the piston skirt . . . on the five-hundred. To reduce valve gear weight the tappet adjustment was effected by eccentric rocker spindles, and nimonic steel was used for the valves. A G.P. Amal was used for the first time. The result of this redesigning, although the bottom end was virtually unchanged, was that usable revs went up from 6,400 r.p.m. to 6,800 on the three-fifty and from 6,200 to 6,600 on the five-hundred. The b.h.p. figures were now 30 and 37 respectively. Incidentally, Dow's 1953 five-hundred turned out 34 b.h.p. and pulled a 4.52 to 1 top gear. Roland Pike reckoned at the time that no one had ever gone so fast on so little power.

The result of the development was obvious when the T.T. came along. B.S.A. Gold Stars pulled off the only double triple in T.T. history by filling the first three places in the Junior and Senior Clubman's. In practice Gold Stars topped the leader board at each session in both classes, a new star of the future, Alistair King, soon establishing himself as favourite for the Senior.

In the race there were five B.S.A.s in the first half dozen on the first lap. E. M. Haldane and J. B. Donton fought a neck-and-neck duel for the lead for most of the race but back-marker King beat them both in the end by a fantastic last-lap record of 87.02 m.p.h. Eddie Dow was riding again in the Senior. What happened to him? Well, he finished way down, in 10th place. Detuned by his crash the year before . . . that's what many people said but they were wrong. He was just unfortunate in getting a bike with a jinx. It would not go and even the B.S.A. experts could not make it go. The Junior race was the usual B.S.A. benefit . . . virtually a monopoly, in fact, for out of 41 finishers 34 were B.S.A.s and apart from the Nortons of Geoff Tanner in fifth place and J. Muir in ninth place there was an unbroken line of Gold Stars down to 21st position. P. Palmer won, untroubled, at 81.83 m.p.h., with D. A. Wright and J. W. Davie close behind. What was notable was the immaculate condition in which all these B.S.A.s finished. All were free from oil leaks, and the riders had no complaints. One advantage the B.S.A. men had this year lay in the clip-on handlebars which gave a much better riding position than the normal handlebars on other machines.

Reverting to the Gold Star's other personality, as a trials machine . . . Eddie Dow was asked to select an Army team for the 1954 International Six Days in Wales. After eight weeks training on the ground, living in Army barracks, they won eight golds and a silver. The two teams finished third and fourth in the club contest. This time the mounts were a mixture of B.S.A Gold Stars, Triumphs and Matchlesses. The whole exercise was carried out on a budget of £1,000.

For 1955 Eddie Dow bought a new 500 c.c. Gold Star. This was the latest DB series with circular flywheels . . . it had been found that the piston could safely be shortened. There was now a bigger inlet valve and a larger, 1 1/16 in G.P. Amal for clubman racing. Dow tried it out at a pre-T.T. Silverstone meeting and finished second . . . starting with the kickstart was difficult. This time the Clubman's was on the Clypse circuit so no camparison of speeds is possible, but Dow was well up the leader board in practice. In the race he soon displaced the leading pair of Triumphs on the third lap and thereafter drew ahead, riding easily, without anyone to push him. He finished at 70.73 m.p.h., a good mile an hour faster than I. M. Atkinson, Triumph. Peter Ferbrache was fourth on a Gold Star, behind R. Kelly's Triumph, and then came a fairly even mixture of B.S.A. and Triumph, machines. Nortons were now very much in the minority. The firm had done little or no development to the International engine in the Clubman years and it was now completely outclassed by the push-rod B.S.A. single and the Triumph twins. As for the Junior, the B.S.A. monopoly was even more complete. The picture was the same as in previous years, only the riders were different. Jimmy Buchan won at



Not just an ornament. One of the Eddie Dow goodies is this 15in brake muff in ½in alloy shrunk on to the 8in B.S.A. brake

68.23 m.p.h., D. Joubert from S. Africa was second and Ferbrache, third. B.S.A.s filled the remaining places down to 27th.

Dow's machine finished in perfect condition . . . so good, in fact, that with the same tyres and chains and no more than a check over it was entered for the Thruxton nine-hour and, with Eddie Crookes as co-pilot, won at an average of 67.86 m.p.h. There could have been no better demonstration of reliability. After riding it in a number of short-circuit events, Dow prepared it for the Manx. It did not go too well and packed up on the last lap with a stripped timing pinion. Only one Gold Star, that of Manxman Jackie Wood, got among the leading Nortons and G45 Matchless machines. His clutch packed up when he was lying fourth.

Dow recalls that his Clubman-winning five-hundred was timed at 110 m.p.h. at 7,000 r.p.m., and in the race he frequently had to throttle back to prevent over revving.

By this time the Gold Star was a firm favourite with American riders, have distinguished itself at Daytona, and Development continued to satisfy the export demand for more and more power.

Eddie Dow finally left the Army and, not surprisingly, set up shop as a Gold Star specialist in 1956. At first he sold completely rebuilt secondhands, later a lot of new ones. In 1959, for instance, he sold 47 new Gold Stars, mostly for racing.

1956 . . . and the Gold Star is equipped with the "190" front brake and light-alloy tank. Power of the 500 tops 40 b.h.p.

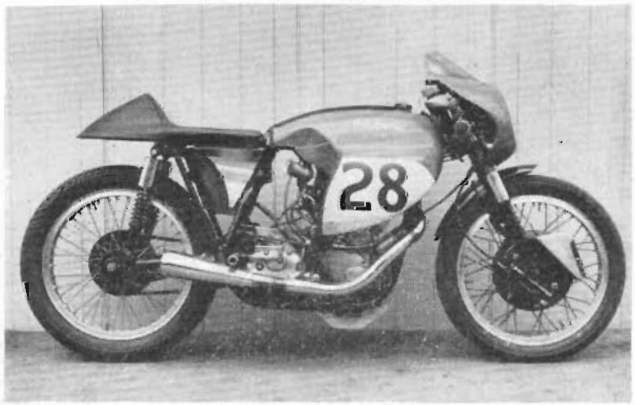
But the Clubman story of the Gold Star had one more year to run. In 1956 the Clubman races were banished to the week after the international events but were put back on the classic circuit. Much of the glamour was missing but the entry, which had been falling for several years and hit a depressing low in 1955, was up at 68 for the Junior and 42 for the Senior. B.S.A.s, of course, predominated with 63 and 31 respectively. Silencers were obligatory and Roland Pike had devolved a crafty combination of a megaphone and silencer which is still popular with customizers. It was announced that the shape was adapted to clear the folding kickstarter. I think there were other reasons! For the first time light alloy petrol tanks with knee cutaways

were available for the B.S.A.s and there was a new full-width front hub . . . the famous 190mm component. The carburettor size for the five-hundred had now reached Amal's limit for the G.P. at 1½in. Power output went up to 42 b.h.p. at 7,000 r.p.m.

With two exceptions, the Norton of Alan Shepherd and a Velocette prepared by Arthur Taylor and ridden by John Righton, the Junior was the usual B.S.A. private race. Bernard Codd, a protege of that famous Lincolnshire stable of Austin Munks and Sam Coupland, ran away with the race, a mile an hour faster than the next B.S.A. of John Eckart, but Alan Shepherd spoiled the pattern by forcing his lone Norton, notable for its quietness, into third place. Codd pulled off the first and only " double " of the Clubman series by winning the Senior race on the same day with the same consummate ease. His race average of 86.33 m.p.h. was a record and he came within 10 seconds of Alistair King's 1951 record lap. The Triumph challenge was desultory, only M. T. Brookes getting on the leader board and he finished pushing in. The first six places were filled by B.S.A.s, second and third men being R. E. Gerrard and A. H. Jenkins, and the first interloper was John Hurlestone who brought his Triumph in seventh, albeit 6 m.p.h. down on the winner. Bernard Codd kept up the tradition started by Eddie Dow by entering the Thruxton nine-hour in collaboration with Alan Rutherford and winning the 500 c.c. class as well as finishing second overall.

This was the end of the Clubman's T.T. It was announced in November 1956 that there would be no race in 1957 . . . it was the Golden Jubilee year and the organization resources of the A.C.U. would be stretched to the limit. It was hoped to remodel the event for the following year and suggestions for framing the regulations were invited. With the sequence broken, the Clubman's died quietly and a new generation lost the chance of riding over the Mountain circuit on " same as you can buy " machines. Without doubt the B.S.A. Gold Star takeover bid for the races and eventual monopoly had a lot to do with the decline in entries and interest, for no one really likes to see a race where all the machines are palpably the same . . . it lacks appeal to the technically minded enthusiast (the majority) in the same way that speedway fails to attract the enthusiast. It also spoiled the appeal to entrants. One had to buy a B.S.A. if one hoped to stand a chance.

There was no future in picking a machine of one's choice . . . the Gold Star had become the standard tool for the job because its makers had gone further along the road of a specially developed clubman machine than the other manufacturers who, for reasons known only to themselves, had been loath to modify their standard roadsters. It could be that the other manufacturers were sticking more to the original intention of the series, which was to provide a race for clubmen on standard roadsters, but no one could really blame B.S.A. for continuing the logical



Final development. The Taylor-Dow Gold Star Special with outside flywheel, Jaguar connecting rod, twin-leading-shoe front brake and embryo fairing

Bill Siddles on the T.-D. Special at Oulton Park

development of what was originally a quite humble machine. Rather did they blame manufacturers like Norton and Triumph for failing to develop *their* clubman models. In fact, today enthusiasts are now customizing these very machines to make them nearer the clubman ideal and are universally adopting features like clip-on bars, swept-back exhaust pipes and semi-megaphone silencers pioneered on the Gold Star. Nor do I really believe that in the B.S.A. development of the Gold Star was any cynical commercial motif . . . a desire to " cash in," as it were, on an event which promised a sellers' market for machines and publicity prestige to rub off on bread and butter models.

Having talked to men who were at the factory in the heady days of a booming industry, I am satisfied that it was enthusiasm and exhilaration of being in the racing game after so many years of strictly bread and butter production that spurred all those concerned on to such triumphant efforts. I am told that James Leek, chairman of the B.S.A. board in the formative years of the Gold Star project, urged the development team to find more horses but always insisted that they stick to the basic push-rod design. Not for them the easy way of double overhead camshafts . . . the silk purse had to be made out of the sow's ear.

Bert Perrigo explains the reasoning which led to the Gold Star idea . . . " we needed a more sporting image "

I talked to Bert Perrigo, now B.S.A. development engineer, who was the firm's leading competition rider before the war. He explained the reasoning which led to the Gold Star idea.

" In 1937 we were seeing the motorcycle change over from a utilitarian, ride-to-work machine into a machine for sporting use. B.S.A. had always enjoyed a good reputation for utility machines but lacked a sporting one. We felt that if we could demonstrate that we could make real sports models we might get a share of both markets. We had always been able to make engines go when we wanted. The 499 c.c. model I rode in the 1932 International . . . it was subsequently marketed as the Special . . . was faster than some of the detuned racers which other riders were using. What we needed was a more sporting " image," as you say today. We had made Blue Stars, were now making Empire Stars. It seemed a good idea to go for a Gold Star by lapping at over 100 m.p.h. in a race and add a new sports model to the range."

Regarding the use of experimental machines in the I.S.D.T., he agrees that it might have appeared risky but says that in fact

such machines had been completely tested first. They were not using the I.S.D.T. as a test so much as a first public appearance of new models.

And concerning the B.S.A. domination of the Clubman's races: " After our early success we felt sure the other manufacturers with more racing experience would wake up and challenge us. It was that thought which gave us the urge to go on developing the Gold Star."

In fact, of course, the challenge never came. Triumphs had the speed but lacked the handling to go with it and were loath to depart from their standard roadsters. Nortons who could, one would have thought, have crossed the Manx with the International declined to do so and made no real effort to step up the performance or the Inter.

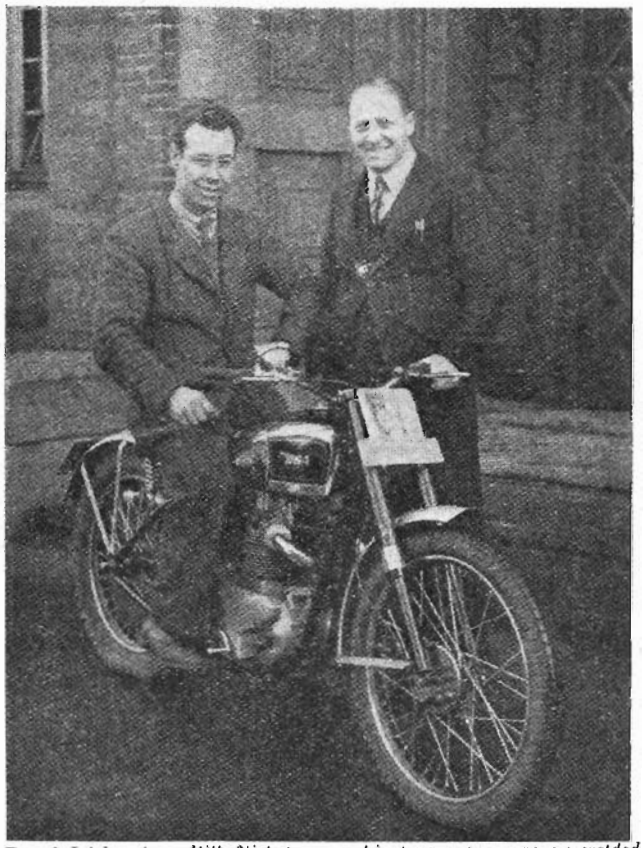
I have dwelt at length on the Clubman's T.T. chapter of the Gold Star story but parallel to this line of development was always the Gold Star scrambler. The many and varied options of pistons, cams and, later, cylinder heads made the Gold Star the most popular and successful scrambler as long as big bangers were popular. No one machine has done more to win competition prestige for this country in the rough than the lusty, husky Gold Star. Only the cheeky two-strokes eventually made it as obsolete as the dodo.

Enthusiasm prompted many way out experiments by Roland Pike and his helpers. Chief among these were the experimental 250 c.c. Gold Stars which he built. These were never official and were probably a private attempt to show what he could do with a humble push-rod two-fifty at a time when the works were engaged on a very expensive and frightfully hush-hush Hopwood-designed four-valve o.h.c. " world beater " for real grand prix racing. One of Pike's experiments ended up as the G.M.S., the outside flywheel cut-down Gold Star bitza which Geoff Monty got going so well.

A larger experiment was an outside-flywheel five-hundred with a one-piece crank and a car-type big end. This was an attempt to overcome the inherent limitation of the Gold Star's built-up flywheel assembly . . . still basically a pre-war design with the mainshafts pressed into the wheels and secured by rivets as in vintage days. This was the basis of the controversial Taylor Dow special raced by Monty Buxton and later by Bill Siddles. At one time this was fitted with an experimental Hedland " prayer book " carburettor and 9.000 r.p.m. was talked of. But it did once finish third at Oulton Park, behind Beart and Lancefield Nortons.

This machine, the Taylor Dow (the Taylor part is A. R. Taylor, the notable Velocette tuner) Gold Star special, can be regarded as the shape the Gold Star might have taken if production had not been finally halted in 1964. One reason given by the factory for the death of the Goldie was that Lucas were no longer prepared to manufacture the Magdyno which had always provided sparks and lighting for the roadster versions. I rather think this was an excuse more than a reason. More likely reasons were that the engine had reached the limit of development without drastic modification and departure from the basic idea of a hotted up roadster which could still be roadworthy and that, as it was always a hand made job demanding the most expert fitters and subsequent bench testing, it was a production headache when the export market was calling and skilled labour was at a premium.

And the final reason was that the range of B.S.A. singles—the B31 and the B33 on which the Gold Star was based—had been discontinued. The Gold Star had always shared a great deal of the jigs and tools and basic castings for this range. To have produced the limited number of Gold Stars would have been uneconomic. (Production figures for the Gold Star had been between 1,000 and 2,000 per annum during its life, more than any other clubman machine but still a small figure by B.S.A. standards.)



Broad Irish grin. Bill Nichotson on his first lightweight all welded frame here fitted with a A 7 engine. This frame was the forerunner of the Gold Star duplex frame. With him is Fred Rist.

The 350 c.c. version was dropped in 1957 although in 1959 a few were fitted into 500 c.c. machines. It was really the insistence of American buyers that kept the five-hundred in production as long as 1962. It is said that an American importer once gave the factory an ultimatum . . . " If I can't have any Gold Stars I don't want any of the other models."

Altogether it is a unique success story in the history of British motorcycles and one that reflects great credit on the original designer, Val Page, draughtsman Ernie Webster (now chief B.S.A. designer), Jack Amott and Rowland Pike who developed it, and the fitters who put them together so well.

Because of his competition successes and his business specialization in the marque, the name of Eddie Dow finally became synonymous with Gold Star. Although the model is now obsolete he has no intention of letting it die. At his Banbury premises he carries what must be the largest stock of spares and exchange components in the world. When the manufacturers stock runs out he either persuades them to run another batch by giving them a massive order or gets the parts made elsewhere. It was his determination to keep the Gold Star alive and competitive which prompted such developments as his front fork modification which has become standard wear on nearly every racing Gold Star. The conversion consists of a special top yoke, longer bushes and a ball valve to give two-way damping. The conversion reduces fork travel from 5¾in to 4½in . . . which improves cornering ground clearance. He was early in the field with alloy fuel tanks and Dolphin fairings produced by Bill Jakeman and invented the float bowl extension cover for Monobloc carburettors which has now been " pirated " to such an extent that it is top of the pops with competition men and cafe cowboys alike.

Perhaps his greatest success story was with the American W and S valve springs. He first tried them in 1955, used the same set on his own machines until 1957 and then gave them to a

customer who used them for another three years. Now he imports 5,000 at a time and, believe it or not, they are used in Coventry Climax V8 grand prix engines, in Cosworth and Holbay Fords, by Bruce McLaren, Jack Brabham and Bill Lacey. They even lurk in Owen Greenwood's Mini. Dow sells them with a F.O.C. replacement-if-they-break guarantee . . . he's had no takers.

Altogether Eddie Dow can be said to have started the present-day trend of customization and specialization in racing " goodies." He is not too happy about the way the trend has gone.

Whereas all the bits and pieces he developed and sells were intended to be of real benefit, he feels too many get-rich-quick operators have jumped on the band wagon with the main object of making a fast buck. In fact he is no longer developing this side of his business, " I am not going to get in a rat race of selling rubbish " is how he puts it. The kind of thing that annoys him is the flood of Gold Star pattern silencers. He went to the trouble and expense of producing a silencer with the correct characteristics for the Gold Star when B.S.A. could not supply. Now the market is flooded with imitations without the correct insides. But in this case there is an amusing sidelight. One of the characteristics of a Gold Star with a genuine silencer is a whistling—a " twittering "—sound in the silencer on the overrun . . . it's to do with the extractor action of the silencer and the large degree of valve overlap. The lads know this and write to Dow: " Please send silencer that twitters."

The 'Gold Star' as a Trials 'iron' . . .

Although I have deliberately concentrated on the road racing development of the Gold Star, for it is as the World's pre-eminent clubman racer that it will be best remembered, this concentration does a grave injustice to the man who first put the Gold Star on the trials and competition map and was largely responsible for its development into a scrambles World beater. The man was Bill Nicholson, a cheerful Irishman with a broad grin and even broader brogue who hit the competition world with something like a sonic bang in 1946 by running away with both the 350 and 500 races in the classic Cotswold scramble on his home brewed 350 B.S.A. . . . the first time he had ridden in a scramble too. This was an important milestone in the history of the Gold Star for as a direct result of this sensational win Nicholson was given a job in the B.S.A. experimental department with a more or less free hand to develop and ride competition machines. Actually it goes a little further back than that and illustrates the astute talent spotting talent of Bert Perrigo, one time B.S.A. top competition rider and by this time competition manager. Nicholson had made quite a name for himself in trials and short road races in Ireland and had first come to England as a member of an Irish team in the Colmore trial in which riding a home built B.S.A. he was runner up to B.S.A.'s star rider Fred Rist.

Typical trials shot of Nicholson on his lightweight frame rigid Gold Star . . . unlike most of his contemporaries he preferred rigid frames for trials work

The Irish contingent were entertained at the B.S.A. works afterwards and invited to come over again a fortnight later for the Victory trial in which they gained first class awards. With his eye on this likely Irish lad, Bert Perrigo loaned him a brand new B.32 competition model on which he won the Coates Trial. The next important Irish event was the Hurst Trial and this time Bert Perrigo and Geo Savage of B.S.A. were there to watch Nicholson win. " How about having a go at scrambling?" asked Bert. Nicholson was not so sure, not having scrambled before. " You would not have to go any faster than you did in the Hurst " Bert assured him and there was more than a grain of truth in this because Irish trials were not far removed from scrambles. Bert saw to it that entry forms for the Cotswold scramble were sent to Nicholson who decided to have a go. But before he started out he got together with his friend and compatriot Rex McCandless who was experimenting with his then revolutionary pivoted fork rear suspension.

A McCandless rear end was hurriedly grafted on the rear of Nicholson's bike which had started life as a 1940 B.29, a model which before being killed off by the War had hairpin springs on an iron head and was known as the Silver Star. This was really the second milestone in the story of the Gold Star as we know it today for the impact of the softly sprung rear end on a competition world steeled to grin and bear it on solid frames was electric. Nicholson would be the first to admit that his double in the Cotswold was due as much to the spring frame as to his riding ability and the comparative ease with which he sailed over the rough was not lost on rivals and spectators alike. Not only was this a milestone in B.S.A. history . . . it can truthfully be said that it was a milestone in the development of motorcycles for from that moment on, hydraulically damped pivoted fork rear suspension was the " in thing " for scrambles and eventually changed the shape of motorcycles the world over. It was not really new of course, hardly anything ever is, for Velocettes had developed a similar layout for their works road racers and sold it to private owners on the Mk. 8 series of over the counter racers. The difference was that whereas Velocettes used a costly air sprung and oil damped " leg " derived from aircraft practice McCandless hit on the idea of adding springs to car type telescopic dampers . . . the Newton type used on pre-war Citroens. Although private owner scramblers rushed to fit McCandless conversions . . . marketed over here under the Feridax banner after the astute Jim Ferriday, then leading accessory baron, had spotted a good thing, it was a long time before B.S.A.'s adopted the new suspension and not without a great deal of travail and suffering by Bill Nicholson. Although he used his McCandless frame to win a double again in the 1947 Cotswold the firm was committed to a plunger design of rear suspension and for policy reasons he was seen on this in 1950 . . . though what the world did not

know was that he had cleverly introduced hydraulic damping inside the apparently stock plungers. But he was obviously at a disadvantage against rivals on McCandless frames and in 1951 he decided on a hurried D.I.Y. project . . . he had already built up lightweight duplex all welded solid frame on which he had won 3 open trials in a row. The new springer was to follow the same lines but be re-shaped at the rear end to take Girling " legs " which were modified car units.

" I got the tubing (Reynolds 531) on the Friday afternoon, worked all the week-end at it and had it in the enamelling shop first thing on Monday morning. On Tuesday morning I was down at Draper's farm (B.S.A. teamster John Draper was a farmer in Gloucestershire and had a private scramble course) to try it out " he told me. After that he never looked back and won almost every important scramble at home and abroad. The engine was by this time the ZB series of all alloy motor of many options and degrees of tune and to the official list of cams you can add the special Nicholson ones, different forms for different types of going.

John Avery, who was at that time a works supported team mate, told me a delightful story which illustrates the length Nicholson would go to prepare his machine. It happened at Namur.

" Bill arrived with his machine set up for dry conditions but the practice day was wet so he set to and changed cams and gear ratios over to his wet weather set. Race day was dry so he changed them all back again."

It was not all plain sailing for Nicholson and his new frame for the Girling dampers though perfectly satisfactory for cars could not stand the rigours of scrambling. The oil frothed and they just faded away. For the whole of 1951 he struggled with them in constant collaboration with Girlings . . . B.S.A.'s did not have available production facilities to make their own legs. " At the beginning of 1952 I just took their damper, threw it away and made my own." The Girling damper used dished spring washers as valves. Nicholson, who had gained a lot of damper " know how " from his early association with McCandless, substituted orifice control with substantial washers for non-return valves. The result was that he could replace the 160lb. springs of the Girling units by 90lb. springs and suspension benefited. This form of damping remained exclusive to B.S.A. for the next three years. More Nicholson damper " know how " went into a shuttle valve for the front forks which was used in Clubman's T.T. Goldies.

The early Gold Star gear box too came under Nicholson's critical scrutiny. It had been developed from the pre-war gear box, was weak in the clutch department and the positive stop mechanism though adequate for road work was inclined to get flustered and miscue in the heat of scramble battle. Nicholson looked enviously at the more modern unit bolted up in the A.7 twin. He cut off the plate mounting and Ernie Earles, that loyal friend and ally of D.I.Y. experimenters in those days, welded on lugs for a pivotal mounting with his then new Argon Arc equipment. The A.7 clutch was converted to take a single row primary chain . . . later a new main shaft was made up to take the B type clutch. From these experiments the pukka Gold Star gear box was evolved.

There were many experiments with fork rake and trail before the angles were finalized. Nicholson used different settings for trials and scrambles and the production frames had a midway compromise set up. One experiment was not intentional. It was in the Scott Trial, which he won four times. . . . " The Scott was harder on a bike than half a dozen other trials . . . if a bike will stand that it will stand anything," he says. He finished with his wheelbase shortened by 1½in. although he had not hit anything. The steering head had been forced back and the down tubes bent by the continual bulldozing through mud. " The interesting thing was that the bike seemed to handle better as the day went on so we measured it when I got back and found the head angle was back to 64 degrees. I used that angle afterwards."

John Avery one of the most successful and spectacular of the Gold Star riders of the late forties and early fifties in action on one of the early ZB engined models

With the Nicholson frame tried and tested in scrambles and in the I.S.D.T. and plunger suspension on the way out, B.S.A. decided to put it into production and in this case design procedure was reversed because they carted his frame up into the drawing office and drew it from life . . . only slight alterations being necessary to facilitate manufacture and make it fit the whole of the big machine range.

In the roaring fifties when big bangers were the wear for scrambles and the weeklies were full of pictures of them soaring higher and higher in the air over bumps, the Gold Star in 350 and 500 form with its race developed engine dominated the scene at home and abroad, and most of the greats of scrambling rode B.S.A. at one time or another.

On the Gold Star roll of honour should be recorded these names at least: Bill Nicholson, John Draper, Fred Rist, John Avery, Brian Martin, Brian Stonebridge, Geoff Ward, Basil Hall. John Burton, yes and a youthful Geoff Smith.

They did not have it all their own way of course. A.M.C. put up tremendous opposition throughout this period and in the later stages benefited from the B.S.A. concentration on the Isle of Man Clubman races. John Avery as a works supported privateer saw the duel from more of an outside viewpoint.

" The A.M.C. engines had bags of punch all the way whereas the later D.B. series engines developed for road racing and with T.T. carburettors popped and banged low down and we had to scream them all the time to keep up."

Neither of these two great marques was to succeed in the end. A new breed of featherweight two-strokes, easy to control and not prone to soar high into the air, was to make the Gold Star scrambler and its rivals as extinct as the dinosaur. But not before it had bequeathed to the roadster Goldie a frame, suspension and cycle parts tried and tested in the toughest, roughest jousting ground in motorcycling. C. E. A.

"GOLD STARLETS"

Hints on Tuning and Assembly of the B.S.A. 'Gold Star'

Compiled by Eddie Dow

THE first B.S.A. Gold Star model was introduced for the 1938 season and was the result of experience gained in numerous competitive events, with the sports version of the 500 c.c. Silver Star, culminating in the winning of a Brooklands Gold Star by W. Handley on the 30th June 1937.

The machine on which this honour was gained had a cast iron cylinder barrel and head, but the new model, designated the M24 Gold Star, had an aluminium cylinder barrel and head with a cast-in push-rod tunnel and this has been a feature of all subsequent models. The bore and stroke of 82mm x 94mm were the same as for its predecessor, but the internals of the engine were strengthened and polished to enable the increased power to be sustained.

The M24 Gold Star was continued for 1939, but the outbreak of war prevented any further development, and it was not until 1949 that it became possible to reintroduce the model! In that year the 350 c.c. B32 Gold Star was produced and achieved an instant success by winning the Junior Clubman's T.T. Race.

The new Gold Star had a bore and stroke of 71mm x 88mm and in 1950 a 500 c.c. B34 Gold Star model was produced with a bore and stroke of 85mm x 88mm these basic dimensions being continued until the present day.

The post war Gold Star engine had rocker boxes cast integrally with the cylinder head, but for 1952 the engine was redesigned and a reversion made to pre-war practice, in that a separate rocker box is employed.

In 1953 an all-welded, duplex frame with swinging arm type rear suspension was fitted for the first time, together with a new type of gearbox which provides a very wide range of ratios suitable for all types of events.

The basic engine and frame specifications have been continued up to the present day, but a number of detail design changes have been carried out which have resulted in the constant improvement in all round performances so ably demonstrated by Gold Star models in competitive events all over the world.

ENGINE DATA

Engine Capacity: 499cc or 348cc.
Cylinder bore: (nominal) 85mm (500) 78mm (350).
Cylinder bore: (actual) 3.345-3.344 in.
Stroke: 88mm.
Valve timing (at .018 in valve clearance):

Inlet Cam	Opens before B.D.C.	Closes after B.D.C.	Cam lifting including valve clearance
65-2442	65°	85°	.442 in.
65-2446	63°	72°	.400 in.
65-2454	50°	80°	.415 in.
Exhaust Cam	**Opens before T.D.C.**	**Closes after T.D.C.**	**Cam lifting including valve clearance**
65-1891	85°	60°	.428 in.
65-2446	80°	55°	.400 in.
65-2450	70°	45°	.385 in.
65-2491	95°	50°	.428 in.

Engine shaft pinion 65-696 advances the timing by 10° 350cc only.
Connecting rod centres: 6$\frac{13}{32}$ in. Mang. Molybdenum steel.
Connecting rod internal diameter: (small end) .7506-7503 in.
Connecting rod internal diameter: (big end) 1.7704-1.7702 in.
Gudgeon pin diameter: .7502-.7500 in.
Rocker spindle diameter: .561-.560 in.
Cam spindle diameter: .6235-.6230 in.
Piston rings: (compression) .0625 x .120 in.
Piston rings: (oil control) .125 x .104 in.
Valve stem diameter: (inlet) .310-.309 in. En. 54.
Valve stem diameter: (exhaust) .3485-.3474 in. Nimonic.
Valve spring (outer): free length 1.670 in.
Valve spring (outer): fitted length 1.312 in.
Valve spring (inner): free length 1.500 in.
Valve spring (inner): fitted length 1.218 in.
Sprockets:—Engine 16, 17, 18, 19, 20, 21, 22 or 23 teeth.
Gearbox 19 teeth (Scrambles—16 teeth).
Clutch 43 teeth.
Rear wheel 46 teeth.
Capacities:—Fuel tank 2, 4 or 5 imp. gals.
Oil tank 5$\frac{1}{4}$ pts.
Gearbox 14 fl. oz. (400cc).
Front forks 7$\frac{1}{2}$fl. oz. (213cc) each leg.
Primary chaincase 8fl. oz. (225cc).

GENERAL DETAILS

Front brake size: Scrambles 7 in. diameter, 1$\frac{1}{8}$ in. wide.
Front brake size: Racing Clubman's 8 in. diameter, 1$\frac{1}{8}$ in. wide, or 7$\frac{1}{2}$ in. diameter, 1$\frac{1}{4}$ in. wide.
Rear brake size: 7 in. diameter, 1$\frac{1}{8}$ in. wide.
Front chain size: $\frac{1}{2}$ in. x .305 in.
Pitch—Scrambles: 67: Racing Clubman's 70.
Rear chain size: $\frac{5}{8}$ in. x $\frac{1}{4}$ in. Pitch, 99 (Scrambles 98).
Front suspension movement: 5$\frac{1}{4}$ in.
Rear suspension movement: 3$\frac{1}{2}$ in.
Dynamo output: 60 watts. Battery capacity: 13 ampere hours.
Overall length: 85 in. Wheel base: 56 in.
Ground clearance: 5 in. (6$\frac{1}{4}$ in. Scrambles).
Steering head angle: 61°; steering lock 45°.
Steering trail: 3.46 in. (19 in. wheel) 3.73 in. (21 in. wheel).

ENGINE

The connecting rod and big end assembly should be changed after 50 racing hours, or during your winter overhaul. No exchange service available for complete flywheel assemblies.

Whilst stripped carefully inspect flywheels for cracks or damage, security of big end bearing thrust washers. Tightness of shafts and rivets, and tightness of bearings on shafts. Loose or worn shafts can be replaced, oversize shaft being available.

VALVE GEAR

An alternative timing pinion which advances the overall valve timing to 10 degrees is available for 350 DB engines. This timing pinion should be used in conjunction with Inlet cam 65-2442, and Exhaust cam 65-1891 for racing. This pinion can be identified by the fact that it does not have a tooth over the key-way. Part No. 65-696.

The rotary breather in the timing cover is driven by the peg on the timing pinion. When the piston is at TDC on the firing stroke, the peg should be at the 2 o'clock position, opposite a tappet cover screw hole, for correct breather timing this means that when the ignition is retimed, the breather timing must also be checked. Breather opens 20° BBDC and closes 40° ABDC.

MAGNETO

When fitting magneto, check that the peg on the magneto pinion does not protrude above the face of the timing case. If the peg protrudes it will foul the timing cover causing damage and seizure of the breather.

When fitting magneto, check backlash of half-speed pinion to magneto pinion. Adjust with brass shims on magneto platform. Timing gear whine is usually caused by insufficient backlash. Magneto Base shim Part No. 66-2347.

The idler gear driving the magneto pinion must be fitted with the widest flange towards the crankcase. Viewed endwise, it will be seen that the central flange is slightly wider on one side than the other. Incorrect fitting results in only half the width of the gear being engaged with the magneto pinion and inlet cam wheel. A special dural lightweight idler gear is now available.

The oil valve spring retaining screw in the timing cover should be drilled and secured with locking wire. Serious damage can result from loss of this screw.

OIL PUMP

During overhaul or following failure of any engine component, the oil pump should always be changed. Efficiency is easily affected by metal particles.

The length of the engine push rods should be checked every time the cylinder head is lifted, or if the minimum tappet clearance cannot be obtained. The standard length, excluding the spigot is 9.0625in. Replace if more than .025in shorter than standard length. Part No. CB, DB and DBD models 65-18581.

VALVES AND GUIDES

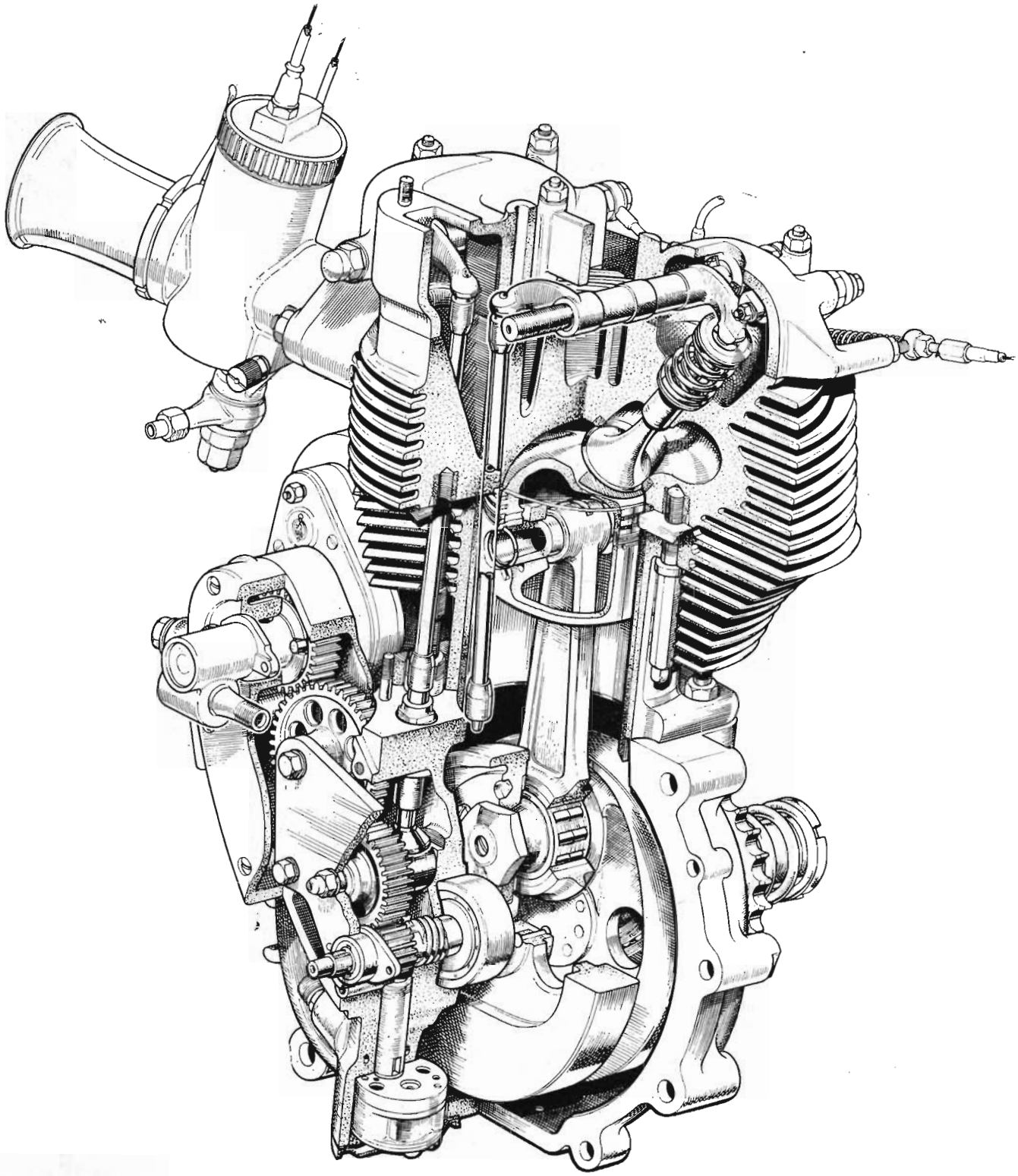
Loss of power is often caused by worn Valve Guides. The guides should be changed when any perceptible wear occurs. Valve seats should always be recut after new guides are fitted. Oversize Valve Guides are available. Part No. DB and DBD models 350 c.c. Inlet 65-2497. 500 c.c. Inlet 65-645 Exhaust 65-646 Valve Guide removal tools No. inlet 61-3263. Exhaust 61-2267.

The recommended safe life of the NI 80 Exhaust valve is 20 racing hours. Part No. DB and DBD models 350 c.c. 65-2485. 500 c.c. 65-2512.

Standard B.S.A. Valve Springs should be replaced whenever the free length of the spring is less than Outer 1.675in. Inner 1.550in. Part No. DB and DBD models Inner 65-2495. Outer 65-2494.

Withams Valve springs imported by Eddie Dow are the world's Finest Valve Springs. Allowing increased R.P.M. with reduced valve seat wear, fitted length 1$\frac{3}{32}$in. Seat Poundage (115) 96. Full lift

THE 'GOLD STAR' ENGINE



(190) 230lbs. (Standard figures shown in brackets). Suitable only for DB and DBD engines.

Springs must be fitted with the closed coil end of the spring to the base washer.

VALVE COLLETS

Due to difference in valve stem diameter, the valve collets are not interchangeable. A careful check should always be made when re-fitting valves. Replace if hemispherical locking ridges are worn.

TAPPET ADJUSTMENT

Tappet adjustment CB, DB and DBD models. To ensure that the rocker arm is correctly aligned to the valve stem, tappet adjustment should be made with the eccentric adjustment in the correct rotational setting. This is anti-clockwise for the Inlet, and clockwise for the Exhaust valve when viewed from the spark plug side of the engine. See page 12 of the Manual.

ENGINE SHAFT SHOCK ABSORBER

The standard length of the shock absorber spring is 1.675in. This should be frequently checked and the spring replaced if below standard length. This is important to avoid wear on the mainshaft spacing collar and possible loosening of the main bearing on the mainshaft. Part No. 67-1136.

A full range of engine sprockets are available 16-22T. The BB and CB sprockets have four lobes and the DB and DBD two lobes—always state type required when ordering by post.

ROCKER OIL FEED

To cure oil leaks replace the long rocker oil feed pipe and rubber connection with polythene tubing. The oil feed banjo bolts are drilled transversely. The bolt with the large hole must be fitted to the exhaust rocker spindle.

GEARBOX AND CLUTCH

Gearbox specification is indicated by the letter stamped on the gearbox casing. Always quote when ordering spares the letter "T" indicates needle roller layshaft.

Extra Close	RRT2
Extra Close	RR (Lower bottom gear.)
Scrambles	SC
Standard	STD
Trials	TRI

Jamming of the kickstarter is due to wear on the kickstart ratchet pinion. Rapid wear will occur if persistent back firing is permitted. The ignition should be retarded before attempting to kickstart. Part No. of ratchet pinion 67-3376.

Jumping out of gear is usually due to incorrect adjustment of the camplate plunger. This should be screwed into the casing until one thread only shows above the locknut.

Lighter operation of the clutch lever can be achieved by adjusting the operation arm so that it is parallel to the gearbox inner cover, before the clutch lever is withdrawn. The operation lever is offset internally thus ensuring the optimum leverage without side thrust when the clutch is withdrawn.

Do not overfill gearbox with oil, allow surplus to drain from level screw. Overfilling results in oil passing clutch push-rod into clutch. For racing a gearbox breather is advised.

Plain and not slotted clutch plates should be used with the latest type friction plates.

The clutch chainwheel and inserted plates are no longer exchangeable. Nyloc nuts should be fitted to the clutch spring studs to replace the locknuts used previously.

For correct gear selection on re-assembly of gearbox, it is important that the centre casing is fitted as follows:—

1. Rotate camplate by removing spring plunger until bottom gear is engaged. Count the notches on the rim of the camplate, noting the neutral between first and second.
2. Slide centre cover home, ensuring that the swinging fork is raised almost to the top of its slot.
3. When the selector engages with the pinion on the camplate, note its position. If it is tight at the top of the slot in the centre casing, it is one tooth too high. If there is a gap of more than $\frac{1}{4}$in. then the engagement is one tooth too low. Ignore all markings on case and selector fork.
4. Reassemble outer casing and test.
5. Refill with oil to level plug.

CYCLE PARTS

FOOTRESTS

To give a lower footrest position the nearside footrest can be fitted direct to the brake pedal pivot by removing the stud. The offside footrest is adjustable to the same height.

REAR BRAKE

The rear brake rod is often bent due to lack of clearance on the clevis connection with the brake lever. Check for clearance with brake lever fully depressed.

The locknut on the rear brake shoe pivot pin, which also secures the torque arm, should be drilled and wired. A loose pivot pin can cause the rear wheel to lock when the brake is applied.

CHAIN ADJUSTMENT

For accurate rear chain adjustment remove lower bolt from rear suspension units. Any free undamped movement of the damper rod will adversely affect handling and steering particularly through fast bends. Any loss of fluid will result in loss of damping efficiency.

FRONT FORKS

The effectiveness of the hydraulic damping of all B.S.A. forks can be improved by fitting T-D Fork damper units. An alloy damper valve provides differential compression and rebound damping, which can be varied by the grade of oil used in the fork legs. Fitted without stripping forks.

Gaiters are practical fittings for both front forks and rear suspension units. Made from P.V.C. and secured with Jubilee clips they serve as dust and mud excluders and overcome the rattle inevitable with the steel sliders.

FRONT BRAKE

A 'Spongy' front brake is often caused by misalignment of the back plate when torque arm is tightened. A cure can be effected by altering the 'set' of the torque bracket. When tightening the securing nut make absolutely certain that no misalignment of the back plate occurs.

CARBURATION

It will be noted that the induction tract of DB 350 and DBD 500 Gold Star is slightly smaller than the choke diameter of the carburettor. Modifications should not be made without professional advice.

Road racing exhaust pipe and megaphone combinations for CB, DB and DBD engines.

350 c.c. Exhaust Pipe $1\frac{3}{4}$ in. Part No. 42-2912.
Megaphone. Part No. 42-2817.

500 c.c. Exhaust Pipe $1\frac{7}{8}$ in. Part No. 42-2805
Megaphone. Part No. 42-2816

The exhaust pipe used with the silencer cannot be used for road racing with the megaphone. The 350 c.c. road racing exhaust pipe must not be shortened, it is intended to project into the megaphone.

Some 500 c.c. models using the 3 GP carburettor are fitted with a weak needle marked 3 GP 6. If the carburation is unsatisfactory, particularly between 3,500-4,500 R.P.M. the needle should be replaced with a standard needle marked 3 GP.

Flooding is a common cause of poor carburation. Check for wear on the alloy float needle. Mount as rigidly as possible, taping the fuel pipes to the frame for extra support.

Float chamber height relative to the main jet is essential. A line marked $1\frac{5}{16}$ in. from the top flange of the float chamber should be opposite the base of the circle marked on the air jet plug on the mixing chamber to give the correct fuel level.

The racing Q.A. Twisgrip has a limit adjusting screw in the open position to avoid strain on the throttle cable. Check adjustments frequently, over adjustment prevents throttle opening fully.

Alloy induction port spacer blocks 1 in. thick can be supplied 65 mm stud centres only. Choke sizes $1\frac{1}{16}$ in. for 10 GP. 350 c.c. and $1\frac{1}{4}$ in. for 3 GP 500 c.c. One or more spacers can be fitted to suit individual requirements. Longer studs are also available.

SPECIAL ITEMS

We make alloy blank plugs to replace auxiliary units removed for road racing.

Blank for—Exhaust lifter assembly.
" " Speedo drive union.
" " Kickstart axle.

CIRCUIT GEARING 500 c.c.

Recommended gearing for 500 c.c. Racing Gold Star. Silverstone G.P., Oulton Park, Castle Combe, Scarborough—46T wheel, 22T engine, or 42T rear wheel, 20T engine.

Cadwell, Silverstone Clubmans, Crystal Palace, Brands GP—46T rear wheel. 21T engine, or 42T rear wheel 19T engine.

Thruxton, Aberdare, Mallory—46T rear wheel, 20T engine or 42T rear wheel 18T engine.

For 350 c.c. Gold Star gearing—1 tooth less on engine sprocket than 500 c.c. sizes recommended.

'DUETTO' PERFORMANCE CONVERSIONS, CUSTOM EQUIPMENT AND SPECIAL COMPONENTS FOR THE 'GOLD STAR'

W. & S. RACING VALVE SPRINGS
A must for engines tuned and capable of exceeding standard r.p.m. range. W. & S. Springs imported from makers in USA by EDDIE DOW are guaranteed genuine. We supply Brabham, Holbay, McLaren etc. for racing car use. Bill Stuart, Geoff Dodkin, Bill Lacey etc. The experts know that W. & S. are best.
Cat. No. 52

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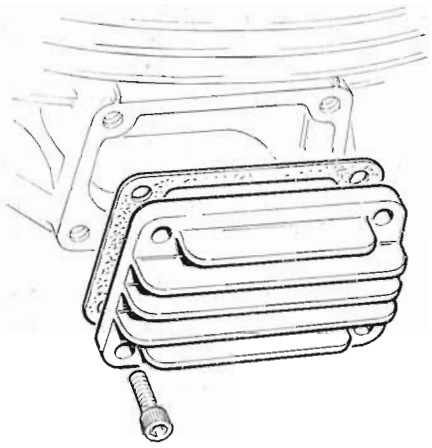

ALLOY TAPPET COVER
Finned for heat dissipation. Cuts out oil leaks. Supplied c/w set Allen screws and gaskets.
Illus. 2 *Cat. No.* 2

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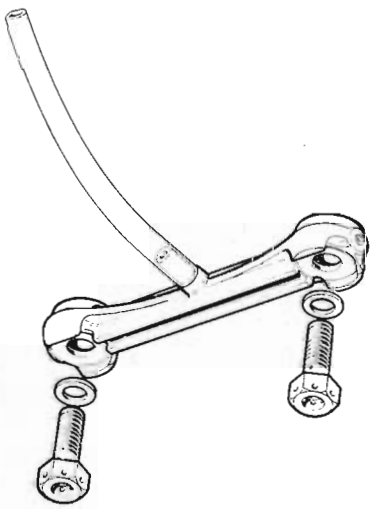
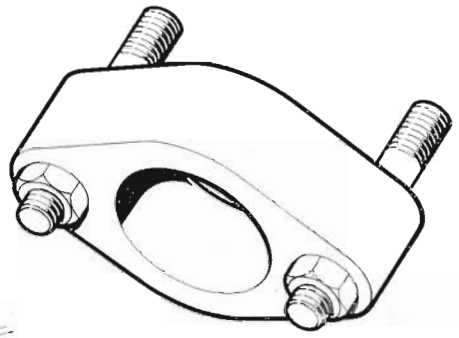


ROCKER OIL FEED MANIFOLD
The answer to oil leaks and pipe fractures. Supplied c/w banjo bolts, fibre washers.
Illus. 3 *Cat. No.* 3



INDUCTION SPACER BLOCKS
Polished finish 1in. thick. 65mm stud centres. 1 5/16in. for 350 c.c., 1 3/8in. for 500 c.c., supplied c/w lengthened studs and nut.
Illus. 1 *Cat. No.* 1

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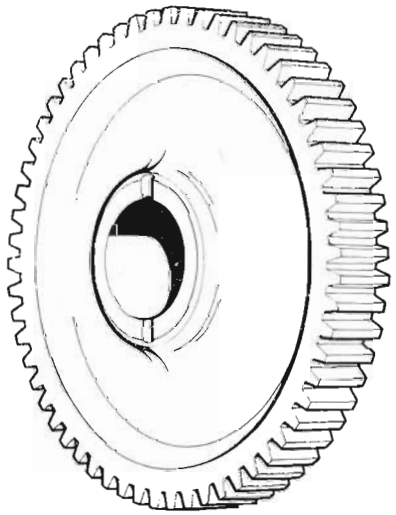
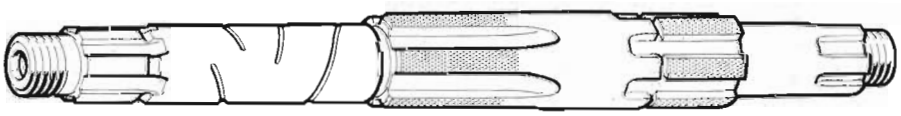


ALLOY IDLER WHEEL
Precision machined from hi-grade dural. 50% weight saving. Reduces pinion wear and power losses.
Illus. 5 *Cat. No.* 4

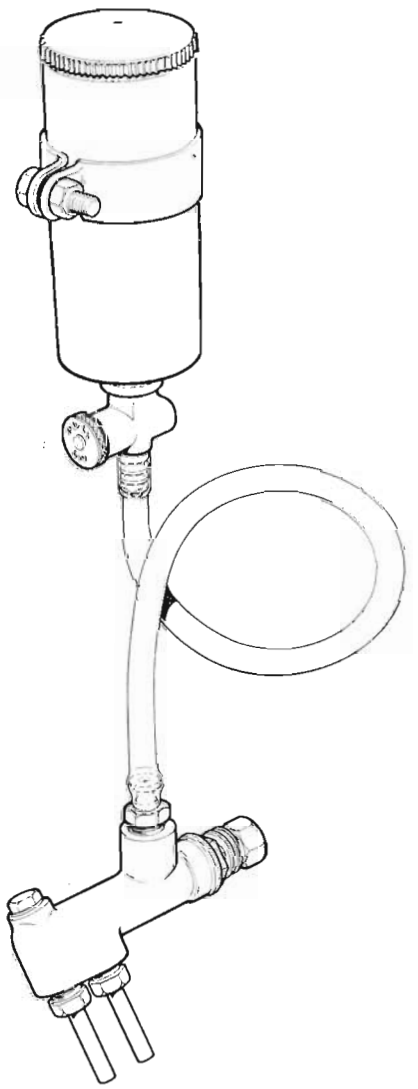
★

MAINSHAFT FOR AMC/NORTON CLUTCH
Replaces standard mainshaft in S.C.T. RRT2, and STD T gearboxes. Splined at drive end to accept AMC/Norton clutch.
Illus. 11 *Cat. No.* 9



PRIMARY CHAIN OILER
Twin feed type. Engine plate mounting. Proved design. C/w jets, pipes etc.
Illus. 6 *Cat. No.* 5

CHAIN OILER RESERVOIR
Alloy body. Standard size screw cap. Mounting bracket. Tap and feed pipe supplied.
Illus. 6 *Cat. No.* 6



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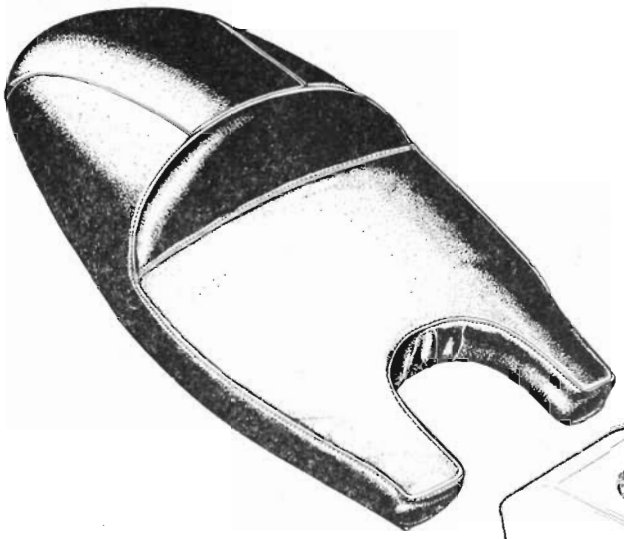
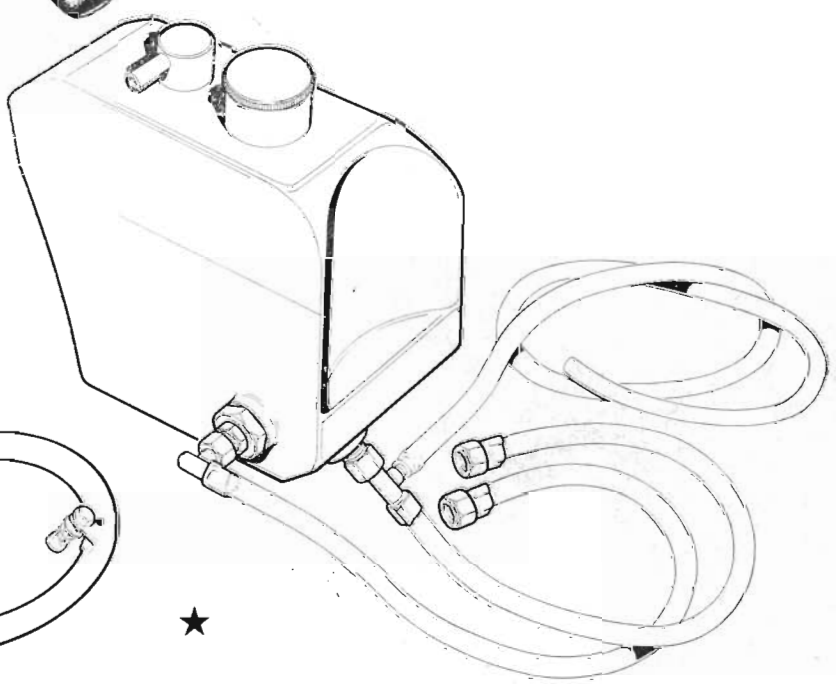
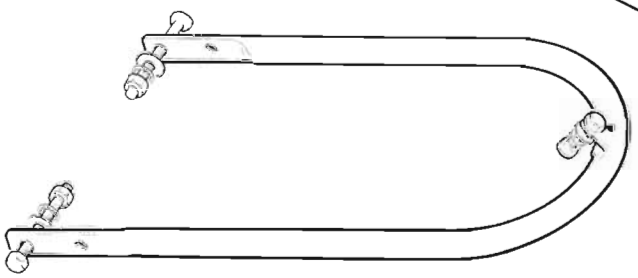


DUETTO RACING SEAT
Fits direct to subframe. Cutaway for oil filler cap. Reinforced glassfibre base. Strong vinyl cover.
Illus. 16 *Cat. No.* 17

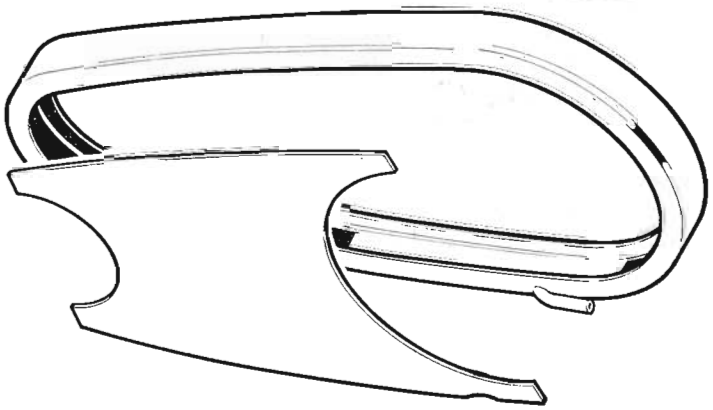
Racing seat support loop. Bolts to existing lugs on frame. Essential if rear mudguard is removed.
Illus. 17 *Cat. No.* 18

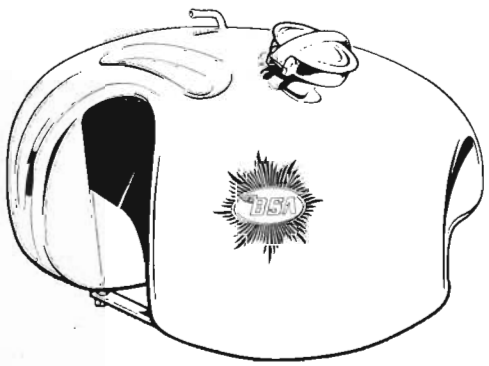
ALLOY CENTRAL OIL TANK
Heavy gauge alloy. Detachable return pipe. Standard screw cap. Supplied with all pipes and fittings. Centre filler as illustrated, or with side filler.
Illus. 10 *Cat. No.* 8





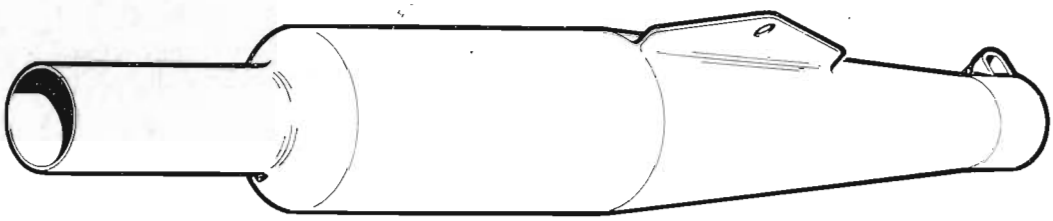
ROAD RACING PRIMARY CHAINCASE
All alloy. Redesigned to comply with curent regs. Detachable front cover. Drain pipe.
Illus. 8 *Cat. No.* 7





ALLOY PETROL TANK
5 gall. capacity Monza Q.A. filler. Twin feed, overflow pipe. The classic shape. Super polished finish.
Illus. 19 *Cat. No.* 20

TANK TRANSFERS
3" dia. Gold Star varnish type.
Illus. 19 *Cat. No.* 77



EXHAUST SYSTEMS
1⅞ dia. road racing exhaust pipe.
Cat. No. 11
1⅞ dia. reverse cone megaphone.
Illus. 15 *Cat. No.* 12
1¾ dia. Clubmans exhaust pipe.
Illus. 13 *Cat. No.* 13
1¾ dia. track silencer.
Illus. 14 *Cat. No.* 14
1⅝ dia. Clubmans exhaust pipe. To fit ZB32, B31, B33 models.
Cat. No. 15

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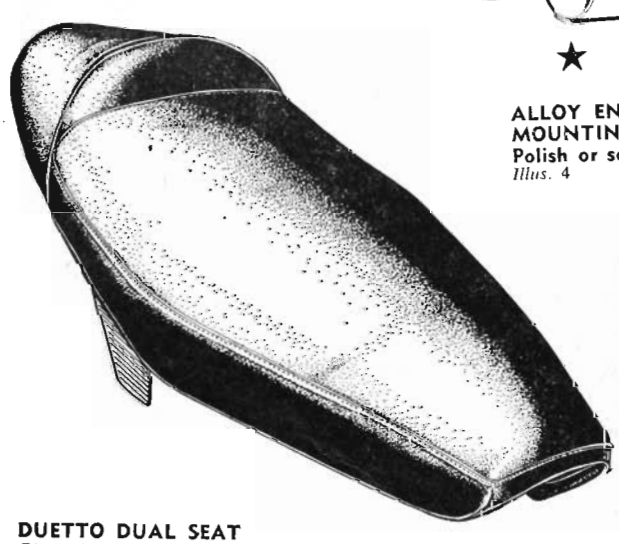
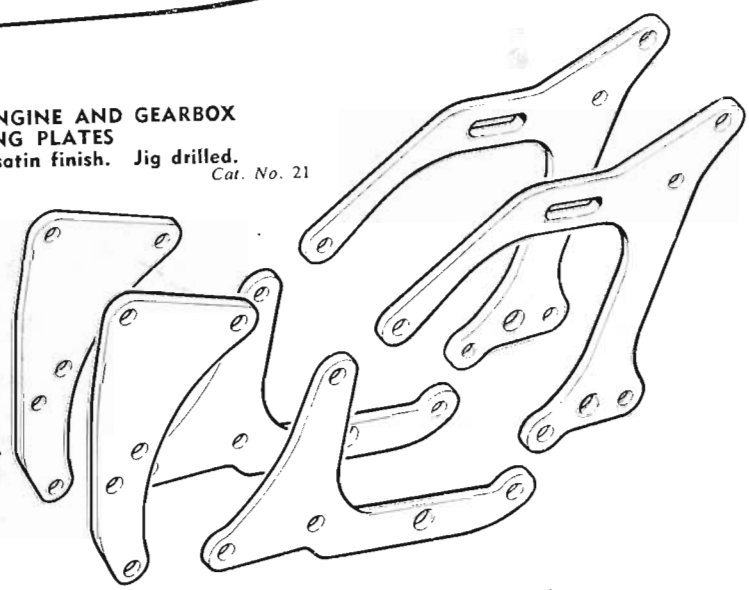


DUETTO DUAL SEAT
Gives lowest possible riding position with standard mudguard. Length from nose to squab 20".
Illus. 18 *Cat. No.* 19



ALLOY ENGINE AND GEARBOX MOUNTING PLATES
Polish or satin finish. Jig drilled.
Illus. 4 *Cat. No.* 21

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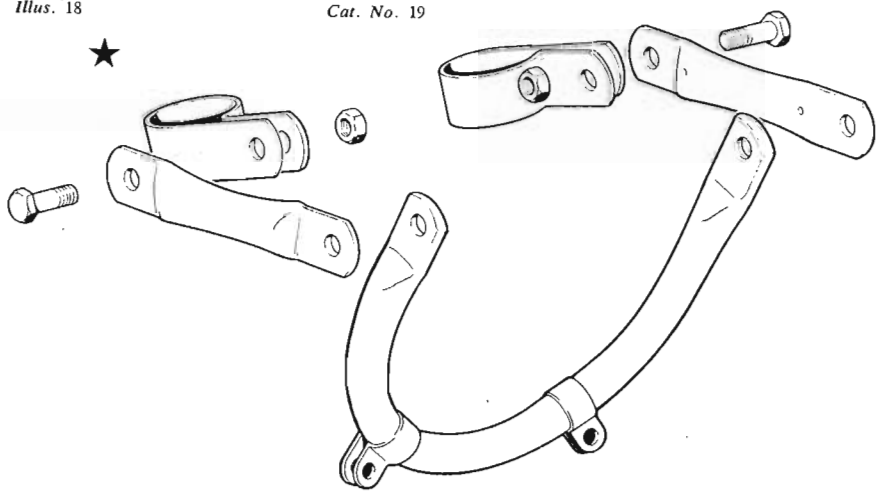


CHROME HEADLAMP MOUNTING SET
Comprising:—
'U' bracket with loose cadmium plated cups for universal fitting c/w nuts and bolts. Tubular top brackets and fork leg clips. C/w nuts and bolts.
Illus. 22 *Cat. No.* 31

CHROME HEADLAMP SHELL
Takes Lucas ammeter.
Cat. No. 32
Cibie 6v or 12v light unit.
Cat. No. 33
Chrome headlamp rim.
Cat. No. 34

REPLACEMENT MUDGUARDS

4x19" Rear polished alloy. *Cat. No.* 43

3x19" Front polished alloy. *Cat. No.* 44

3x21" Front polished alloy. *Cat. No.* 45

4x19" Front stainless steel. *Cat. No.* 46

5x19" Rear stainless steel. *Cat. No.* 47

★

B.S.A. Tank flash, self adhesive, length 6".
Illus. 48 *Cat. No.* 146

SUPERLEGGERA FORK CONVERSION
Designed by Eddie Dow to improve BSA front forks for road racing use. Gets rid of spongy action—fork judders—erratic hydraulic damping. Reduced movement —increased clearance for cornering, sensitive high speed handling.
KITS CONSIST OF:—

High Tensile Alloy Top Yoke, Embossed with 'Superleggera' (pronounced 'super-ledgair-a'). *Cat. No.* 22

Alloy Steering Damper knob and rod. *Cat. No.* 23

1 pair Hydraulic Dampers. *Cat. No.* 24

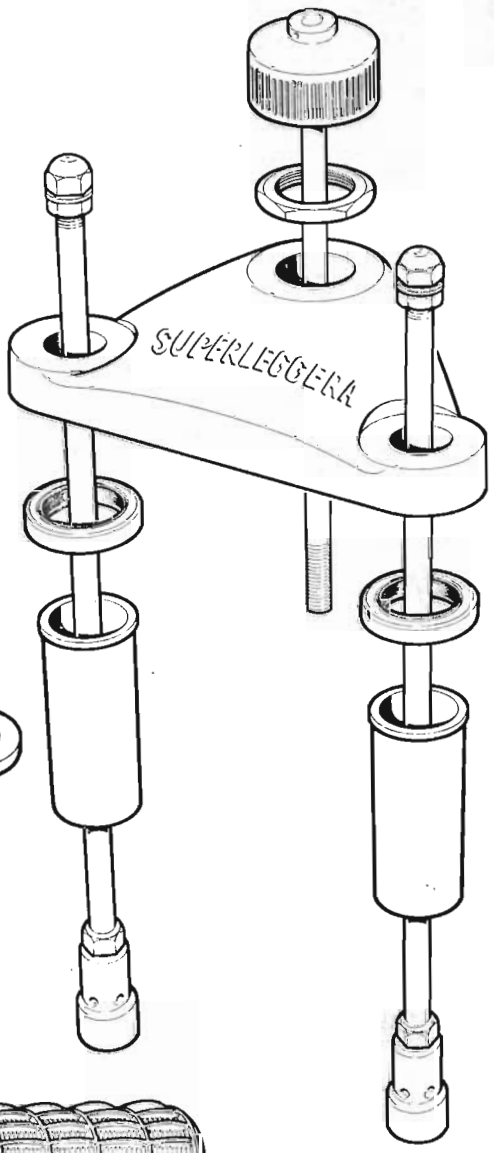
1 pair Fork Bushes. *Cat. No.* 25

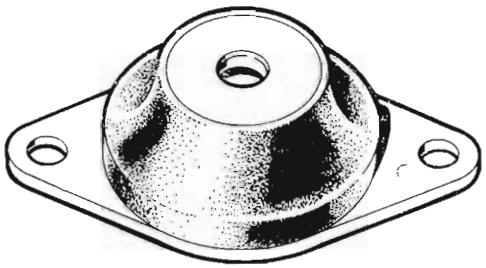
1 pair replacement oil seals. *Cat. No.* 26

Locknut for Steering Stem adjuster. *Cat. No.* 27

'Step - by - Step' fitting instructions. Complete kit. *Cat. No.* 28

Alloy fork top nuts.
Illus. 20 *Cat. No.* 134





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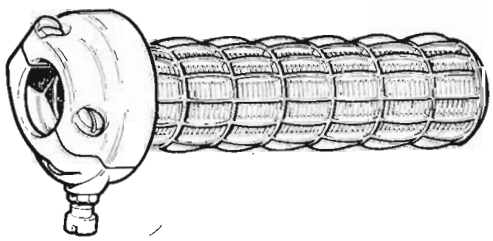
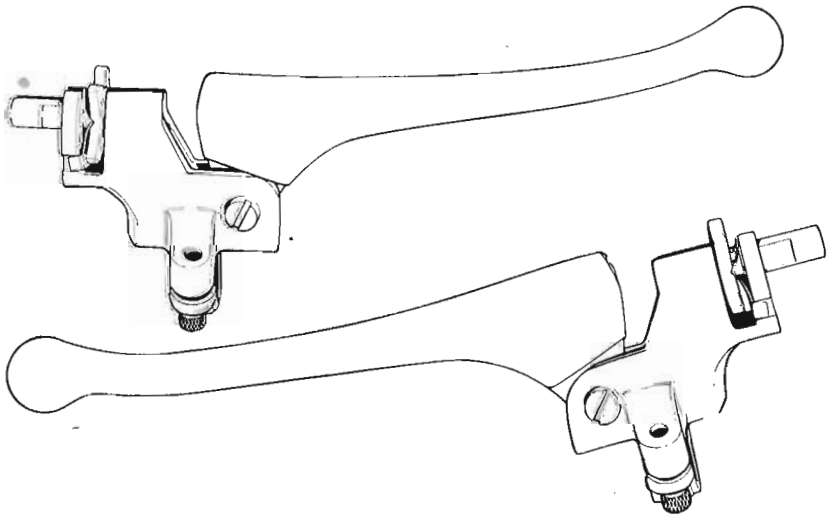
REMOTE FLOAT CHAMBER MOUNTING
Bonded metal/rubber shock absorbing mounting bush.
Illus. 51 *Cat. No.* 100



NEOPRENE FORK GAITERS
Resistant to oil and grease. Small convolutions.
Illus. 21 *Cat. No.* 29
Set of 4 gaiter clips. *Cat. No.* 30



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HANDLEBARS AND CONTROL LEVERS
Clip-on bars, $\frac{7}{8}$" for BSA forks. Ideal for conversions to use existing levers. *Cat. No.* 35

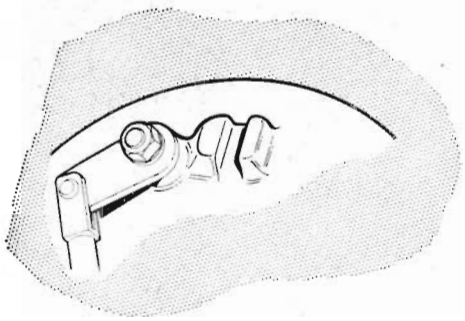
Alloy clutch and brake levers with adjusters. Steel handlebar clip.
Illus. 26 *Cat. No.* 36

Chrome blended clutch and brake levers. *Cat. No.* 37

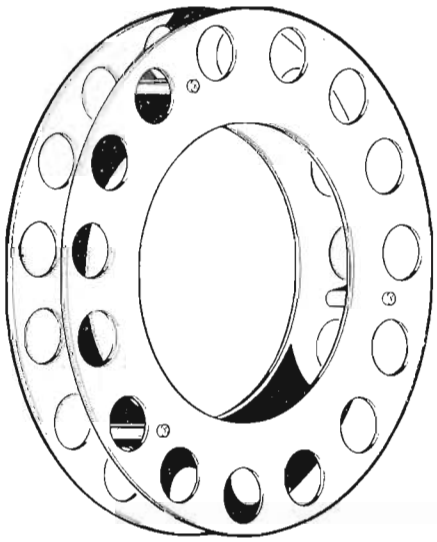
Magneto and air levers. *Cat. No.* 38

Quick action twist grip. Nylon lined, for friction free operation.
Illus. 27 *Cat. No.* 39

Scrambles bars. Lined, braced. The strongest and best. The original Bill Nicholson shape. *Cat. No.* 40



'VOLANTE' cooling rings. Supplied in pairs c/w fixing screws for 8" and 190mm hubs.
Illus. 28 *Cat. No.* 121



GOLD STAR DBD 500CC ILLUSTRATED SPARES LIST.
Cat. No. 75

DBD 500CC OWNERS HANDBOOK.
A comprehensive manual covering tuning for competition use, stripping and reassembly. A must for every Gold Star owner. Produced in lieu of Workshop Manual Sheets.
Cat. No. 76

BSA PILED ARMS TRANSFER
Cat. No. 78

GOLD STAR 3" DIA. POCKET BADGE
For sweaters and riding gear.
Cat. No. 79

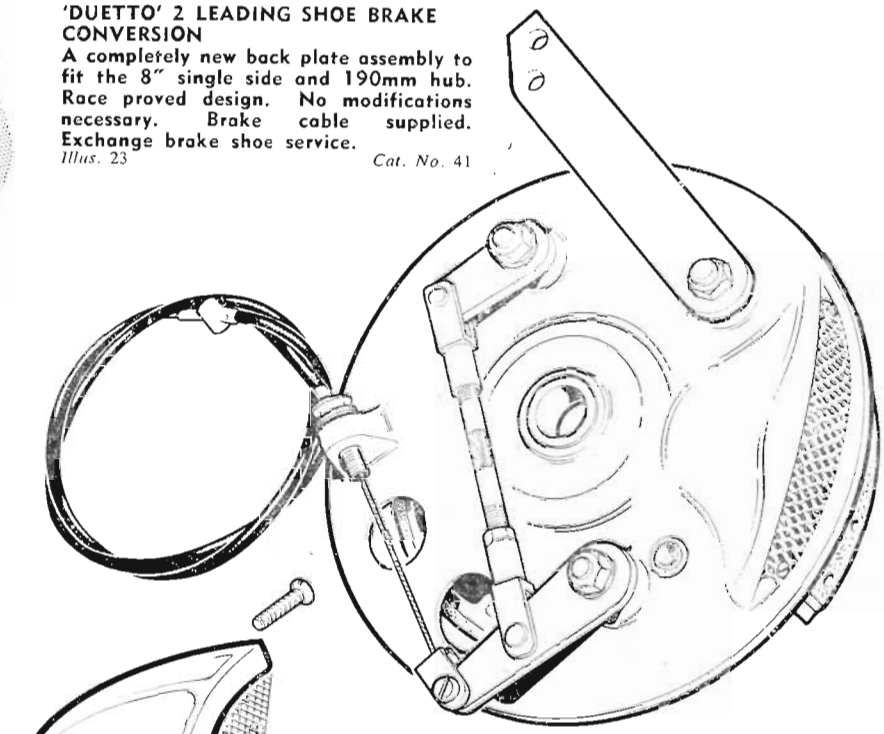
GOLD STAR NECKTIES
Gold Stars on Blue or Maroon background.
Cat. No. 80

★

'Duetto' Decal—Cloth Badge.
Cat. No. 81

'Duetto' lapel badge.
Illus. 9 *Cat. No.* 149

'DUETTO' 2 LEADING SHOE BRAKE CONVERSION
A completely new back plate assembly to fit the 8" single side and 190mm hub. Race proved design. No modifications necessary. Brake cable supplied. Exchange brake shoe service.
Illus. 23 *Cat. No.* 41



BRAKE AIR SCOOP
Polish alloy c/w gauze and fixing screws. Jig fitted to back plate if required.
Illus. 24 *Cat. No.* 42

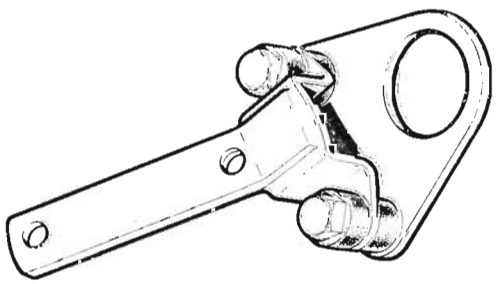
REV. COUNTERS
3" chronometric type.
Cat. No. 65

3' 2" Drive cable complete.
Cat. No. 66

3' 2" Inner cable only.
Cat. No. 67

Timing cover gearbox assembly.
Cat. No. 68

Individual speedo and rev. counter, shock absorbing plates.
Illus. 50 *Cat. No.* 69



120mph speedo head.
Cat. No. 70

Speedo drive cable.
Cat. No. 71

Blanking plug for speedo drive cable.
Cat. No. 72

Blanking plug for valve lifter assembly.
Cat. No. 73

Blanking plug for kick start axle.
Cat. No. 74

ALLOY RIMS, TYRES, SEC. BOLTS.
Dunlop Alloy Rims for WM1-19, 8" braked wheel. WM1-19, 190mm wheel.
Cat. No. 48

WM2-19 rear wheel.
Cat. No. 49

Wheels rebuilt with new spokes and nipples.
Cat. No. 50

Dunlop Triangular Racing Tyres.
300x19 front
Cat. No. 51

350x19 rear
Cat. No. 52

Dunlop security bolts for alloy and steel rims.
WM1-19 alloy.
Cat. No. 53

WM1-19 steel.
Cat. No. 54

WM2-19 alloy.
Cat. No. 55

WM2-19 steel.
Cat. No. 56

WM3-19 steel.
Cat. No. 57

Dunlop natural rubber racing inner tubes. All sizes of rim types available.
300x19
Cat. No. 58

350x19
Cat. No. 59

Dunlop Sports Scrambles Tyres.
300x21 front.
Cat. No. 60

400x19 rear.
Cat. No. 61

Avon G.P. 350x19 rear.
Cat No 62

GIRLING REAR SUSPENSION UNITS
Chrome springs 110 lb rate.
Cat. No. 63

Chrome covers. Upper or lower.
Cat. No. 64

"TWIN TIPS"

Hints on Tuning and Assembly of the B.S.A. 650 c.c. A10 Engine

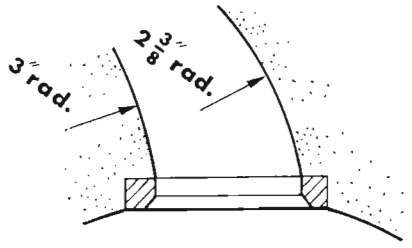
Compiled by Eddie Dow

MANY changes have taken place on the A 10 engine since its introduction for the Gold Flash in 1950, with a steady improvement in power output, culminating in the Rocket Gold Star, manufactured in 1962 which produced 50 b.h.p. The R.G.S. is already tuned to a high degree and the object of these notes is to help owners of older models to obtain an improved performance.

It is not advisable to increase the power output from a very old engine, especially if it is proposed to use the machine for racing purposes, because the possibility of fatigue failure of the more highly stressed components.

CYLINDER HEAD

The first modification to be made in order to improve performance is to obtain better filling of the cylinders. The inlet valves may be increased in diameter to 1.455 in. These are the largest size valves that can be accommodated in the head, partly because of the size of the seat inserts in the head, but also of the serious risk of "hooking" with the exhaust valve, and it is not advisable to exceed this dimension. The port throat (beneath the valve head) must also be increased to suit larger valves, the bore being 1.355 in. The cutter should be piloted off the valve guide bore and valve seat should be .060 in. wide, also piloted similarly. The main port size of 1 in. dia. should not be exceeded and must be carefully blended to the new throat size. Templates should be made to conform to the radii given in the sketch and the whole surface of both ports made as smooth as possible. The inlet valve guide may be shortened by .187in. where it protrudes into the port, filed to give an oval section, to offer less obstruction to gas flow.



The foregoing assumes that the alterations will take place to an aluminium cylinder head, but the modifications apply equally to a cast iron head. In this case however, the advantage of a cooler running aluminium head will be lost. A "tufnol" packing piece ¼in. thick, should be inserted between the carburettor and cylinder head to act as a heat barrier.

TWIN CARB. CONVERSION

This is not considered practical or worthwhile. The cylinder head casting does not have sufficient material thickness to safely adapt the induction tract. Without completely revising the engine design, little benefit if any, results, as our experiments have shown.

PISTONS

It will be readily understood that at high r.p.m. it is necessary for reciprocating parts such as pistons to be equalized in weight, to minimize engine vibration. Pistons may vary slightly in weight. This can readily be checked—on precision scales—and the heavier piston lightened by careful removal of material from the inside of the casting.

The compression ratio of 9.1 used on a Rocket Gold Star, requires the use of a premium grade fuel and is considered to be high enough for road use.

For competition purposes, pistons with a compression ratio of 10.5-1 are available and these must be used in conjunction with 100 Octane fuel. Pistons have also been made with a compression ratio of 14-1 and with these it is essential to use an alcohol fuel. A few of these pistons are still available (½mm and 1mm oversizes only) and whilst they will fit any 650 c.c. twin cylinders, it will be necessary to modify the valve pocket dimensions on any of the later engines using the bigger valves. The pocket diameter must be .005in. larger than the valve head. Remove all sharp edges from the pockets after carrying out any machining and polish the crown of the piston.

CAMSHAFT

For improved engine performance a Spitfire camshaft used in conjunction with valve clearances of .010in. (inlet) and .012in. (exhaust) are recommended, although this will result in a little more tappet noise, it also assists in power improvement. Use the standard timing marks on the gears. If the engine is to be fitted with 14-1 compression pistons and used with an alcohol fuel, the standard camshaft 67-356 will prove superior to the Spitfire. Standard cam followers are retained. These may be lightened by lengthening the slots. For competition use, we can supply followers with "Stellite" faces or build up your worn cam followers by this method.

CONNECTING RODS

The rods must be of equal weight and since these are machined from forgings they will vary slightly. Not only should the rods be equal in weight, but their little-ends and big-ends should weigh the the same. These can be checked by first resting the little-end on a precision scale and suspending the remainder of the rod horizontally. The heavier rod must then be filed (preferably on the gudgeon pin boss) until the same scale reading is obtained for both rods. Repeat for the big ends. File off all sharp edges and polish the rods all over.

The connecting rod bolts are highly stressed and in preparing for racing it will be advisable to replace these, together with their self locking nuts. It is essential that a torque spanner is used for tightening these nuts and should be set to 22lbs. ft.

CRANKSHAFT/FLYWHEEL ASSEMBLY

A later version of the crankshaft is preferable for an engine tuned for racing purposes and this will also necessitate new connecting rods because of the larger crankpin diameters, together with a larger main bearing. The whole assembly remains interchangeable with the earlier types. Not more than two re-grinds are permissible and a correct filiet radius is most important. Big-end shell bearings and main shaft bushes are available for reground crankshafts, and where we undertake the re-grinding these are always supplied together with a new timing side main bearing.

The flywheel may be lightened if required, by removing ¼in. off each of the side faces of the flywheel without machining any part of the bob weight which is formed with the flywheel, otherwise the balance of the engine will be affected. The flywheel bolts should be treated with "Loctite" to prevent any possibility of their becoming loose. Flywheel and crankshaft may be polished, but the utmost care should be taken to avoid any damage to the bearing surfaces.

Dismantle and clean the centrifugal sludge trap fitted in the centre of the crankpins. On earlier models this consists of removing the end plug(s) and scraping out the sludge, but on later models the trap takes the form of a detachable tube which can be withdrawn following the removal of the end plug. At the same time check that all the oil ways are quite clear of foreign matter and are absolutely clean. The end plugs must be centre punched after refitting to ensure that they are retained.

IGNITION TIMING

The ignition should be timed in the fully advanced position and this is given with the crank at 32° before top dead centre. Alternatively the piston should be set at .312in. ($\frac{5}{16}$in.) B.T.D.C. If set in the retarded position, any variation in the range of the automatic advance mechanism will give incorrect timing when fully advanced. Certain A.10 engines have manually controlled ignition timing and if this method is preferred, the automatic ignition control can be removed, and a special alloy driving pinion as listed in our catalogue, (cat. no. 87). The remaining items to convert the magneto are of Lucas manufacture.

VALVE SPRINGS

Stronger springs are necessary for use with camshaft 67-357, for inner spring, the part number is 67-883 and for the outer spring 67-884. Note specially that the outer spring has a closed coil at one end and this must be located against the cylinder head. The fitted length for the outer spring is 1.312in. We also recommend the Gold Star valve spring and alloy collar conversion listed in our catalogue or the W & S valve spring conversion for road racing or grass tracks.

The rockers and tappets can be lightened to reduce the loading on the springs to allow higher r.p.m. The rocker arms can be reduced in size slightly at the outer end and all sharp corners removed, finishing off with polishing. Similarly the tappets can be reduced in weight by slightly lengthening the longitudinal slots.

SPARKING PLUGS

Lodge 2 HLN or Champion N 3 (¾in. reach) or Lodge 2 HN or Champion L 5 (½in. reach) sparking plugs are suitable for use in tuned A 10 engines according to whether the cylinder head is of aluminium or cast iron. However, engine tune is the deciding factor, and it may be found preferable to use a racing type of plug, in which case the following may be fitted.

Lodge RL 49 or Champion N55T (¾in. reach).

Lodge R 49 or Champion L55T (½in. reach), depending upon the cylinder head material.

EXHAUST SYSTEMS

For maximum power at peak r.p.m., Siamese pipes in conjunction with the megaphone give best results, although in this case at medium r.p.m. there is a slight loss in power compared with twin pipes. The various systems are as follows:—

A. Two straight through pipes which should be 49in. long.
B. Two pipes each fitted with a megaphone. In this case the pipes should be 35½in. long and the megaphone to dimensions given in paragraph D, below.
C. Siamese pipes (the left pipe leading into the right side pipe of 35½in. length) and a single megaphone.
D. Optimum megaphone dimensions are, main body 13½in. long, maximum dia. 3⅝in., reversed cone 1⅞in. long and outlet dia. 2⅛in.
Ex. pipe fitting flange 1½in. internal dia. These are available to special order 10-14 days delivery unchromed, or 21 days chromed.

ENGINE R.P.M.

Peak horse power is developed at approx. 6,800 r.p.m. and safe r.p.m. 7,000 r.p.m. for sustained running. With W & S valve springs 7,200-7,400 r.p.m. may be used in lower gears.

GEARING

For racing, a close ratio gearbox is essential, and full details of the various gear ratios available for the A 10 gearbox, as used on models fitted with a swinging arm fork rear suspension, are available from us on request.

For earlier models fitted with plunger rear suspension, the close ratios cluster R.R. and S.C. will fit as replacement for the STD. ratios.

ENGINE BALANCE

The standard balance factor for all A 10 machines is 54%, but for racing purposes it is recommended to increase this to 65%. To rebalance the crankshaft, two balance rings representing the weight of the con rods and pistons must be made. The weight of each balance ring is arrived at from the following formula.

Weight of con rod, big end + 65% of the weight of the piston + the weight of the little end half of the con rod.

Weights of the different portions of the rod can be obtained by the method outlined in the paragraph 'CONNECTING RODS'. The rings must be in halves taped together or alternatively, joined by slack fitting bolts and should be over weight at the commencement of operations to allow for material lost in cutting in half. Adjustment to give the correct weight can be made by machining the side faces of the rings.

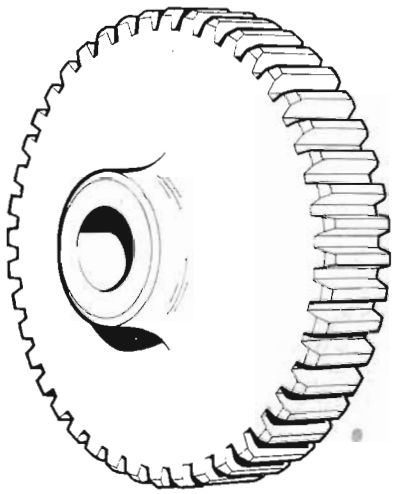
Fit the balance rings on the two crankpins and check the balance by mounting the crankshaft assembly on knife edges and drilling the flywheel rim on its centre line where necessary, so that the crankshaft assembly **will stay in any position** without rotating. Note that the oil holes should be filled with engine oil and sealed with a thin adhesive material so reproducing running conditions and all weight must be measured on high precision scales to the nearest dram. This is known as static balancing. Dynamic balancing requires the use of special equipment and if this is considered necessary, will have to be carried out by balancing specialists.

OIL PUMP

An alternative oil pump is not available, but the standard pump has a delivery capacity which is satisfactory for tuned engines. When refitting the oil pump make certain that a fibre washer is placed on the front mounting stud of equivalent thickness to the pump body gasket **before** fitting the pump. This is essential to avoid distortion of the pump body and ensure a good joint between pump and casing. The latest type of gasket is extended to the front stud to obviate possibility of omission on re-assembly.

It is our constant endeavour to provide the best possible spares service for all BSA models. The 'A' group twin unit is now extensively used in all forms of competition. The wide range of Gold Star gear ratios and many of the cycle parts are readily interchangeable. We welcome your enquiry. Our experience may be your short cut to improved performance, by the utilization of existing components designed for other BSA models.

ALLOY MAGNETO PINION
For Lucas manual control magneto. Precision machined from hi-grade dural.
Illus. 45 *Cat. No.* 87



PHOSPHOR BRONZE VALVE GUIDES
For minimum wear and efficiency.
Cat. No. 98

OVERSIZE INLET VALVES
1.440 dia. largest diameter that can be reseated to existing valve seats. For 'A' group twins only.
Cat. No. 88

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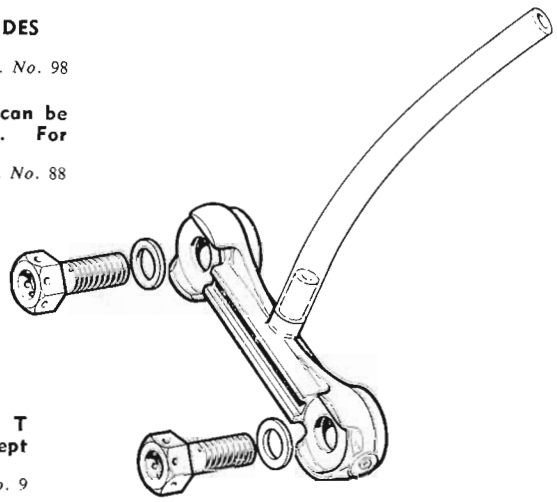
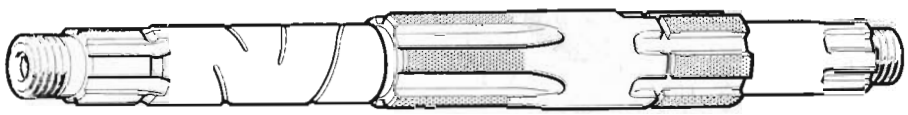
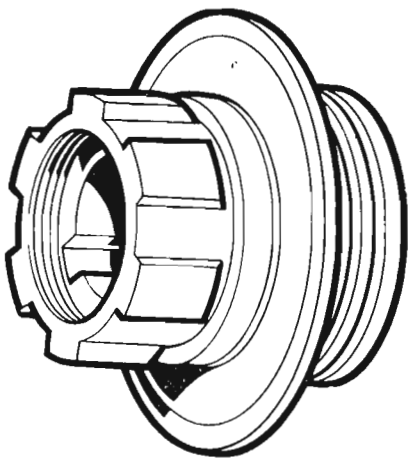
ALLOY ROCKER OIL FEED MANIFOLD
Finned to assist cooling, supplied with banjo bolts, fibre washers etc.
Illus. 43 *Cat. No.* 90



MAINSHAFT FOR AMC/NORTON CLUTCH
Replaces standard mainshaft on STD T and RRT2 gearboxes. Splined to accept Norton/AMC clutch assembly.
Illus. 11 *Cat. No.* 9



TRIUMPH CLUTCH—MAINSHAFT ADAPTOR
Special clutch centre for all BSA gearbox mainshafts, enabling Triumph clutch assembly to be used.
Illus. 12 *Cat. No.* 10



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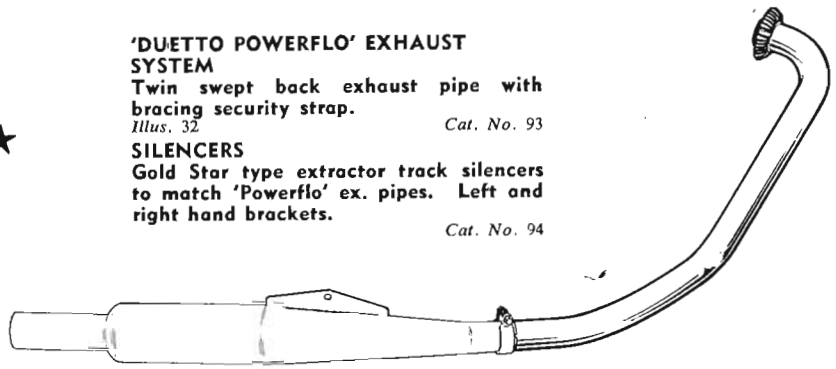
'DUETTO POWERFLO' EXHAUST SYSTEM
Twin swept back exhaust pipe with bracing security strap.
Illus. 32 *Cat. No.* 93

SILENCERS
Gold Star type extractor track silencers to match 'Powerflo' ex. pipes. Left and right hand brackets.
Cat. No. 94



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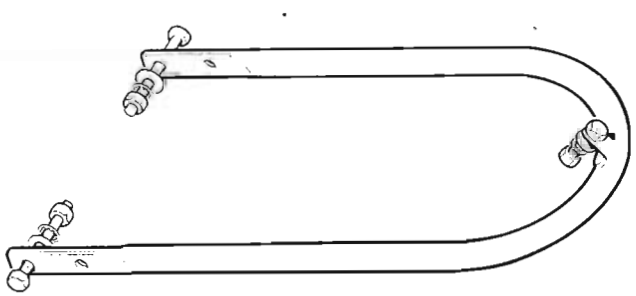
ROAD RACING EQUIPMENT FOR BSA 'A' GROUP TWIN
Duetto racing seat. Fits direct to sub-frame. Cutaway for oil tank with centre filler cap.
Illus. 16 *Cat. No.* 17

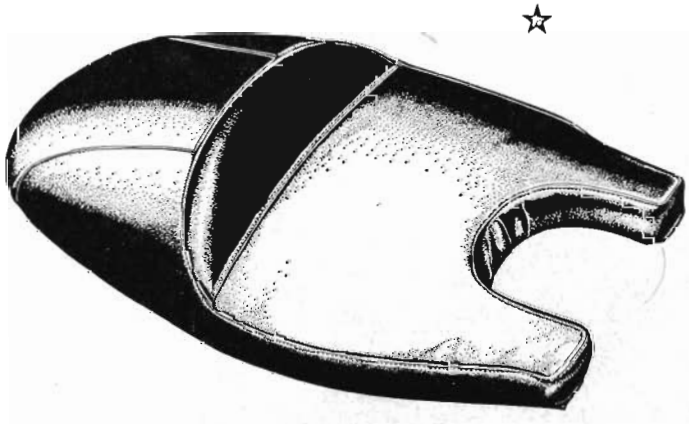
SIAMESE EXHAUST PIPES
Fits inside down tubes. Considered by many to be best system for use with single carburettor.
Cat. No. 95

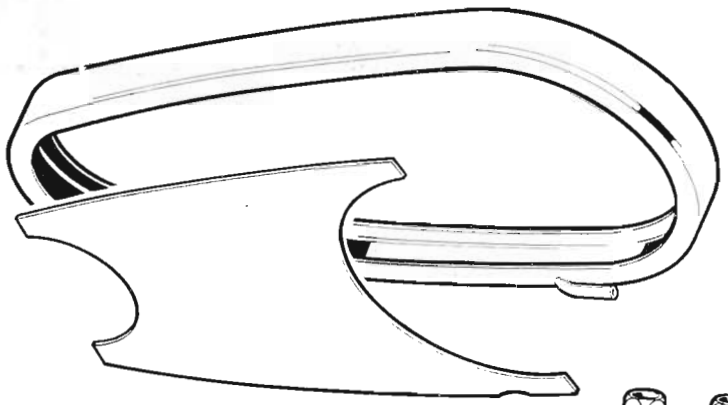
SILENCER
Gold Star extractor design to match Siamese exhaust pipes.
Cat. No. 96

☆

Support loop for racing seat.
Illus. 17 *Cat. No.* 18



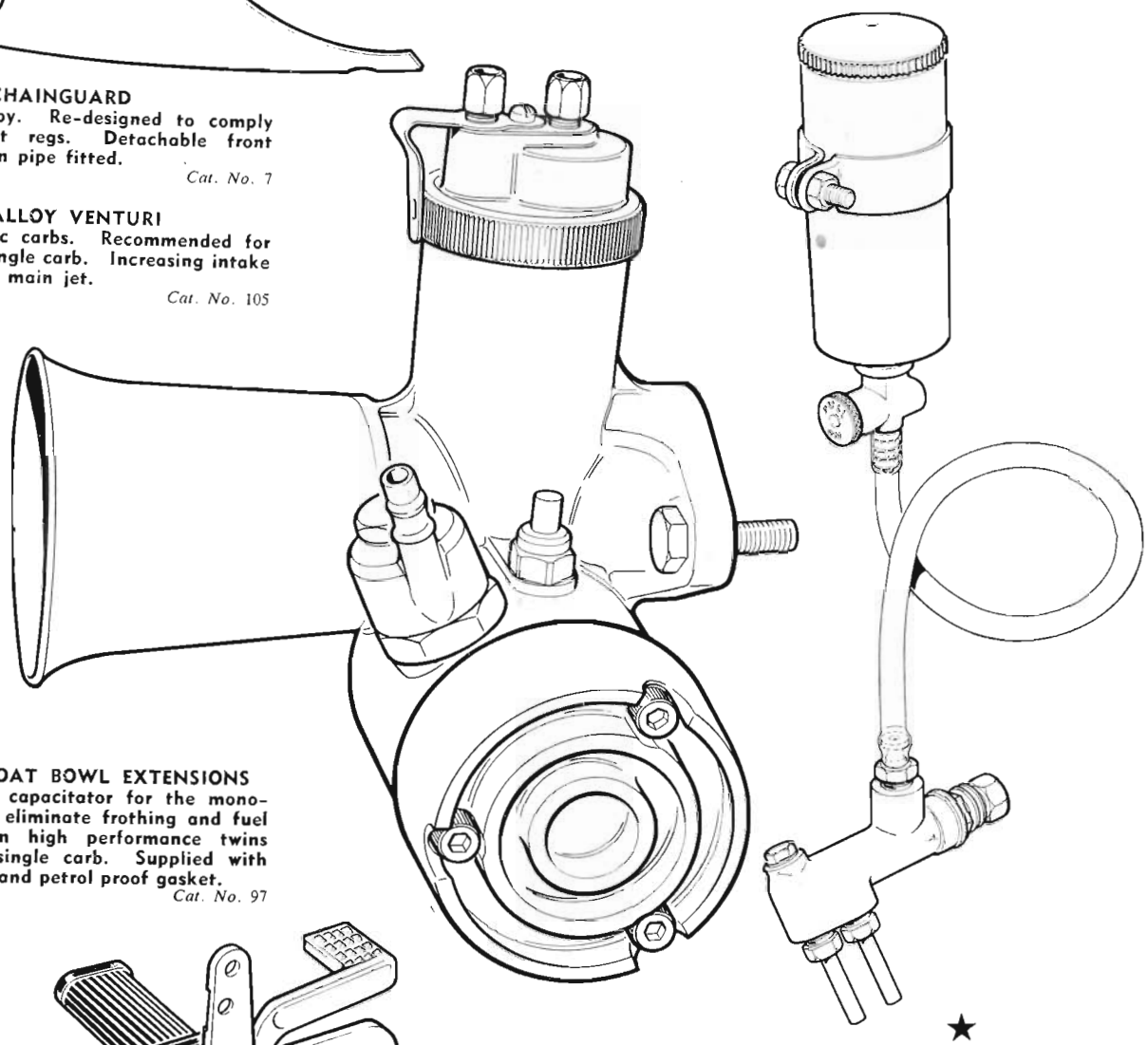


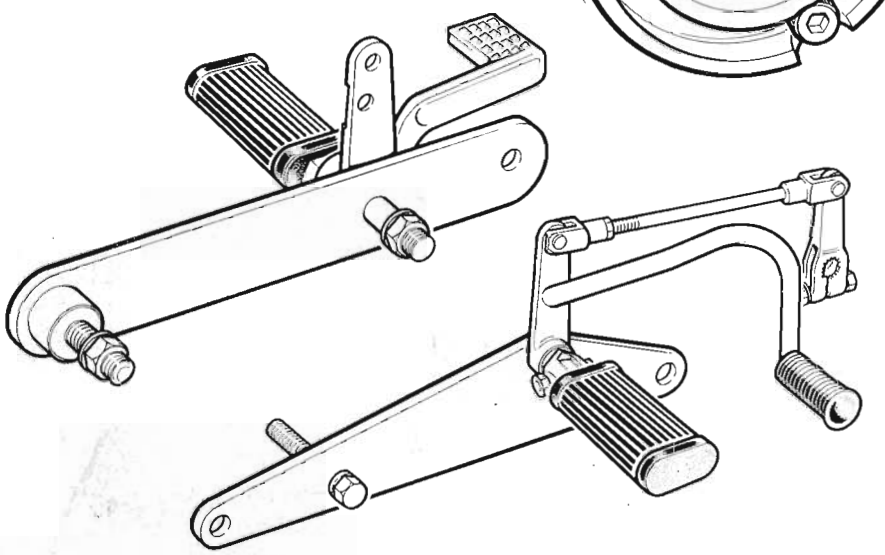


PRIMARY CHAINGUARD
Polished alloy. Re-designed to comply with current regs. Detachable front cover. Drain pipe fitted.
Illus. 8 *Cat. No.* 7

POLISHED ALLOY VENTURI
For monobloc carbs. Recommended for twins with single carb. Increasing intake velocity over main jet.
Illus. 30 *Cat. No.* 105

DUETTO FLOAT BOWL EXTENSIONS
The original capacitator for the monobloc carb to eliminate frothing and fuel starvation on high performance twins fitted with single carb. Supplied with Allen screws and petrol proof gasket.
Illus. 29 *Cat. No.* 97





PRIMARY CHAIN OILER
Twin feed type. C/w jets, pipes etc.
Illus. 6 *Cat. No.* 5

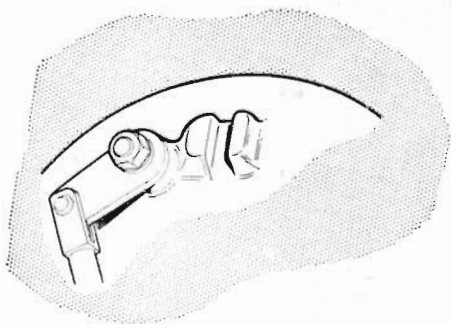
CHAIN OILER RESERVOIR
Polished alloy body. Standard screw cap. Chrome mounting bracket, tap and feed pipe supplied.
Illus. 6 *Cat. No.* 6

★

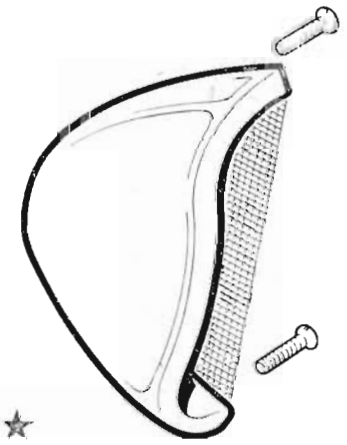
REARSET FOOTREST CONVERSION KIT
Comprising:—
Rearset footrest mounting plates. F/rests, f/brake and gear change. Lever on Manx pattern. Brake and gear lever ideally pivoted from f/rest spindle. Mounting plates accommodate exhaust and pillion mounting plates.
Illus. 31*b* *Cat. No.* 104

REARSET FOOTREST LUGS
Raw material lugs as fitted to Gold Star frame for brazing to sub-frame. For use with Gold Star folding footrests.
Cat. No. 101

FOLDING FOOTRESTS
Gold Star pattern.
Cat. No. 102



BRAKE AIR SCOOP
Polish alloy c/w gauze and fixing screws. Jig fitted to back plate if required.
Illus. 24 *Cat. No.* 42



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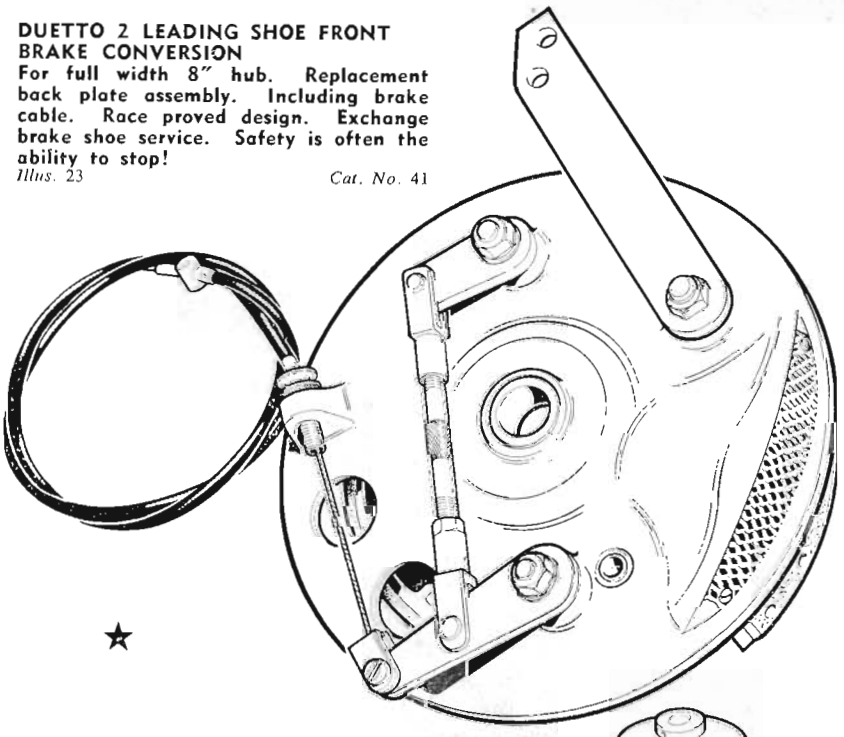
DUETTO 2 LEADING SHOE FRONT BRAKE CONVERSION
For full width 8″ hub. Replacement back plate assembly. Including brake cable. Race proved design. Exchange brake shoe service. Safety is often the ability to stop!
Illus. 23 *Cat. No.* 41



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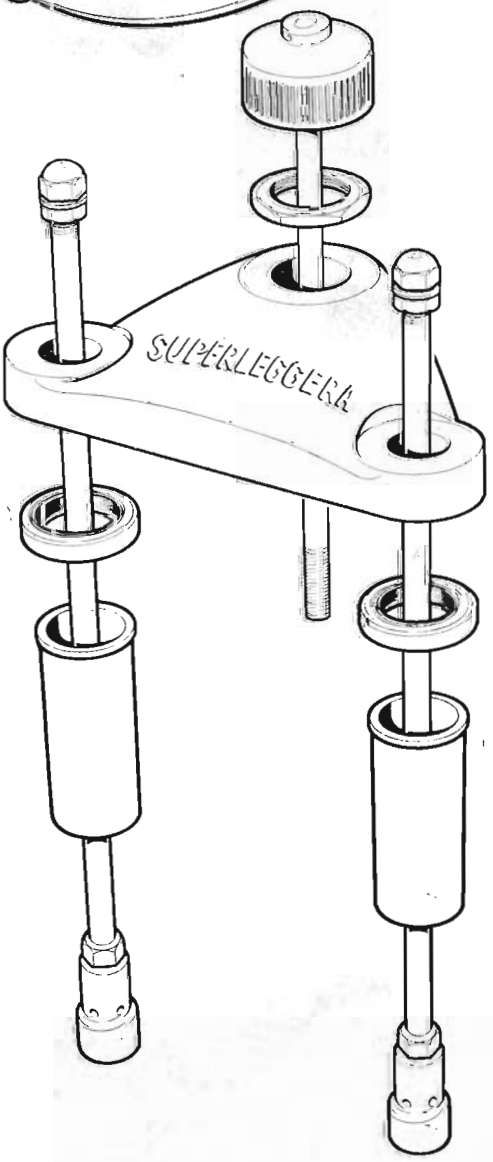


SUPERLEGGERA FORK CONVERSION
Designed by Eddie Dow to improve BSA front forks for competition use. This simple, effective conversion kit gets rid of spongy fork movement, fork judder under heavy braking—erratic handling.
THE SUPERLEGGERA PROVIDES
Effective two-way hydraulic damping. Reduced total movement ($5\frac{3}{4}$″ to $4\frac{1}{4}$″). Sensitive high speed handling.
Kit consists of:—
High Tensile Alloy top yoke, embossed with the name 'Superleggera' (pronounced super-ledgair-a).
Cat. No 22

Alloy steering damper knob and rod.
Cat. No. 23

2 Hydraulic dampers.
Cat. No. 24

2 Fork bushes.
Cat. No. 25

2 Replacement oil seals.
Cat. No. 26

1 Locknut for steering stem adjuster.
Cat. No. 27

'Step-by-Step' fitting instructions.
Cat. No. 28

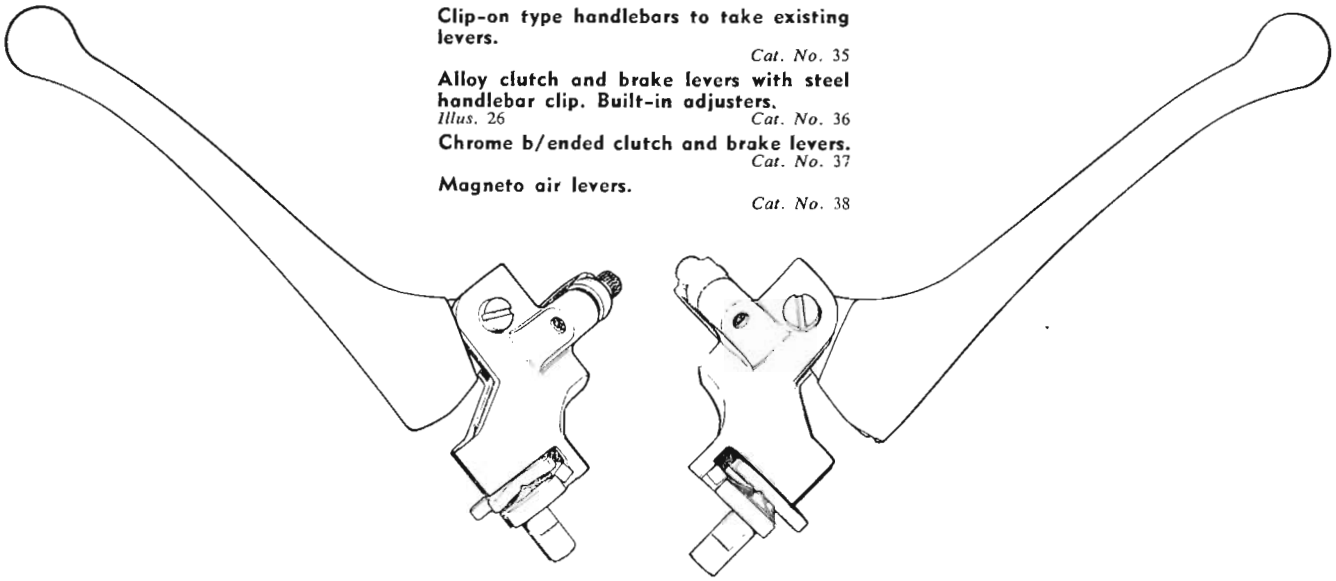
Complete Kit.
Illus. 20

★

B.S.A. Tank flash, self adhesive, length 6″.
Illus. 48 *Cat. No.* 146

NEOPRENE FORK GAITERS
Resistant to oil and grease.
Illus. 21 *Cat. No.* 29

Set of 4 gaiter clips.
Cat. No. 30



Clip-on type handlebars to take existing levers.
Cat. No. 35

Alloy clutch and brake levers with steel handlebar clip. Built-in adjusters.
Illus. 26 *Cat. No.* 36

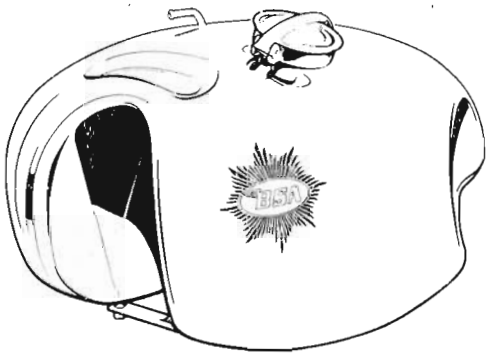
Chrome b/ended clutch and brake levers.
Cat. No. 37

Magneto air levers.
Cat. No. 38

ALLOY PETROL TANK—5 GALLON CAPACITY
Monza QA filler. Twin feed. Overflow pipe. The Classic shape. Super polished finish. C/w 3" BSA transfers.
Illus. 19 *Cat. No.* 20

☆

ALLOY ENGINE PLATES
Polished ¼ dural plate. Supported c/w spacers to replace offset gearbox plate.
Illus. 4 *Cat. No.* 21A



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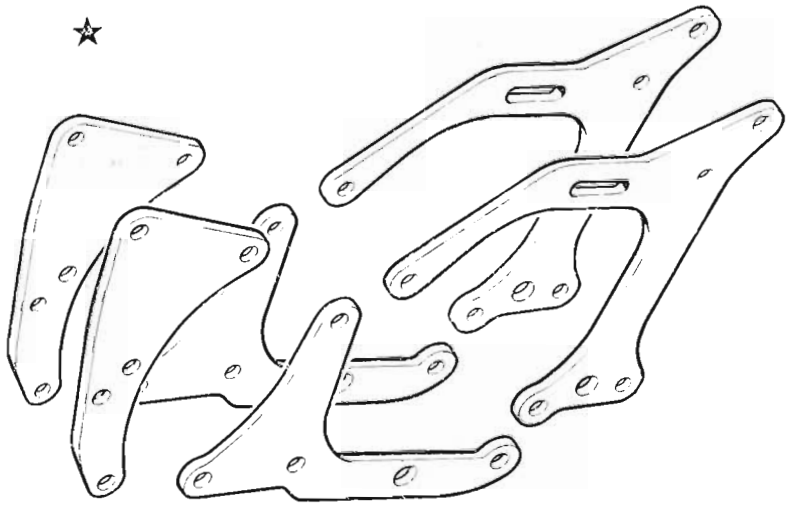
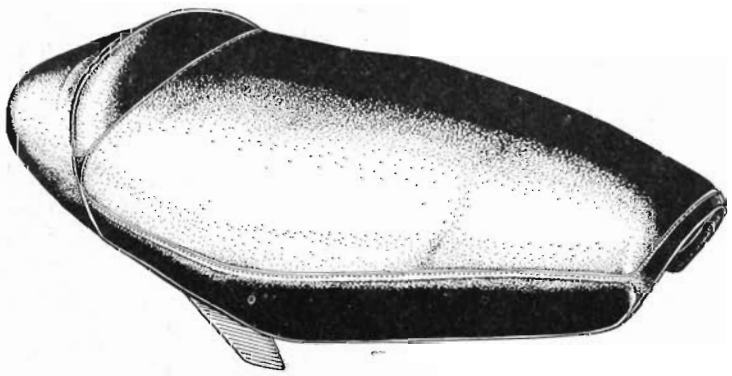
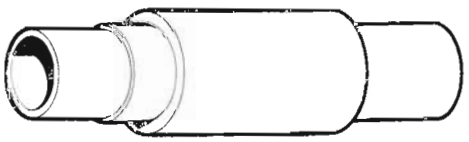


DUETTO DUAL SEAT
Giving lowest riding position over mudguard and battery.
Illus. 18 *Cat. No.* 19

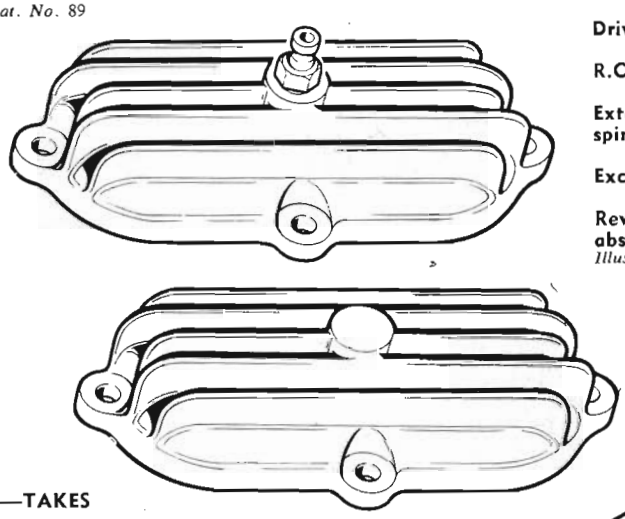
★





NORTON FORKS—BSA WHEEL CONVERSION
Hub bearing spacer for 190mm and 8" hub. Internal diameter machined to Norton spindle size.
Illus. 47 *Cat. No.* 147

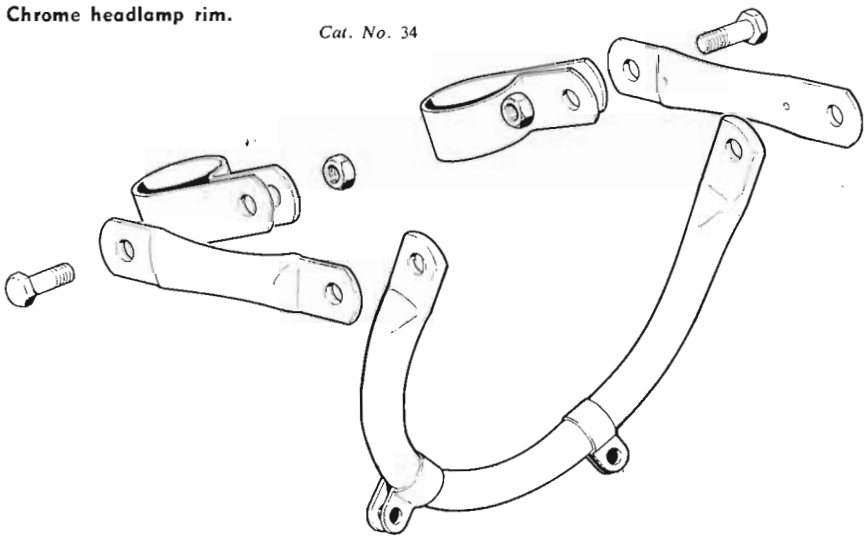
FINNED ALLOY TAPPET COVERS
Breather union fitted on inlet, sand cast alloy, polished finish. Breather reduces pressure—stops gasket blowing.
Illus. 36 *Cat. No.* 89



CHROME HEADLAMP SHELL—TAKES LUCAS AMMETER
Cat. No. 32

Cibie 6v or 12v light unit.
Cat. No. 33

Chrome headlamp rim.
Cat. No. 34



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ALLOY RIMS, TYRES AND SEC. BOLTS
Dunlop alloy rims for WM1-19 full width hubs. WM2-19 F.W. hub rear. WM1-19.190mm front.
WM2-19 QD rear.
Cat. No. 48

Wheels rebuilt with new spokes and nipples.
Cat. No. 49

DUNLOP SECURITY BOLTS
WM1-19 Alloy.
Cat. No. 52

WM1-19 Steel.
Cat. No. 53

WM2-19 Alloy.
Cat. No. 54

WM2-19 Steel.
Cat. No. 55

All sizes and types of rim available.
Cat. No. 58

CHROME HEADLAMP MOUNTING SET
Comprising:—
'U' bracket with loose cadmium plated clips give universal fitting. Tubular top bracket. Fork leg clips. Nuts and bolts.
Illus. 22 *Cat. No.* 31

★

REV-COUNTER KITS
Type A—Magneto drive—manual magneto
Rev-counter R1302/00.
Cat. No. 106

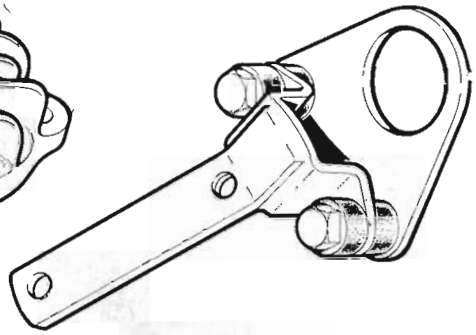
Drive cable.
Cat. No. 107

R.C. Gearbox.
Cat. No. 108

Extended drive nut—from magneto spindle.
Cat. No. 109

Exchange timing cover (if required).
Cat. No. 110

Rev-counter mounting and speedo shock absorbing mounting brackets.
Illus. 50 *Cat. No.* 69



Type B—Oil pump drive
Rev-counter R1303/03.
Cat. No. 111

R1302/00.
Cat. No. 106

Drive cable.
Cat. No. 112

Adaptor drive spindle.
Cat. No. 113

Adaptor drive oil sealing grommet.
Cat. No. 114

Oil pump with RC drive.
Cat. No. 115

Inner timing cover with provision for rev-counter if required.
Cat. No. 117

★

INSTRUCTION MANUALS
Covering:—
A.7 and A.7 Shooting Star.
A.10 Gold Flash and Super Rocket.
A.10 Rocket Gold Star.
State model when ordering.
Cat. No. 135

WORKSHOP SERVICE MANUAL
Fully illustrated—covering all 500 and 650 c.c. 'A' group twins. State model when ordering.
Cat. No. 136

SPARES LIST
Fully illustrated — covering 500 c.c. models from frame number—GA-101. And all 650 c.c. models from frame number GA7-101.
Cat. No. 137

TRANSFERS
Spitfire Mk.III Special.
Cat. No. 148

Hornet Crossed flags.
Cat. No. 148*A*

Special Crossed flags.
Cat. No. 148*B*

BSA Big Valve Super Rocket.
Cat. No. 103

'Duetto' decal cloth badge.
Cat. No. 81

'Duetto' lapel badge.
Cat. No. 149

'DUETTO' COMPONENTS FOR B.S.A. A65 SERIES

including

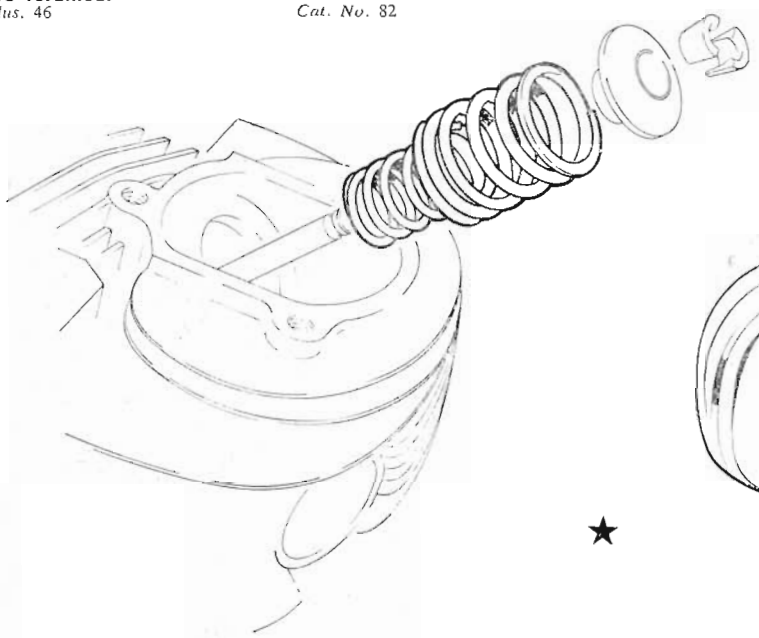
LIGHTNING—SPITFIRE—HORNET—WASP AND THUNDERBOLT MODELS

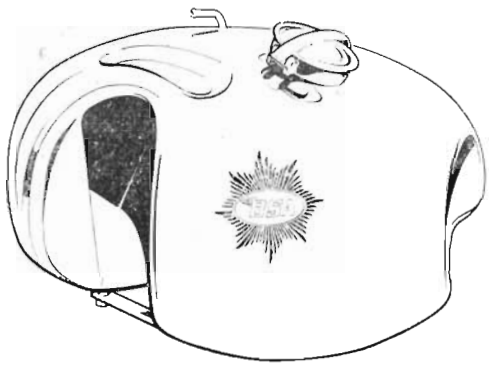
W. & S. VALVE SPRING CONVERSION
Comprising:—
Twin cylinder set of W. & S. Springs. Set of special Dural collars, giving correct installed length. Standard collets are retained.
Illus. 46 *Cat. No.* 82

HIGH COMPRESSION PISTONS
Suitable for use with all 654cc engines. Valve pockets allow for largest inlet. Valves available, 10.1 C ratio, STD, +020, +040.
Cat. No. 118

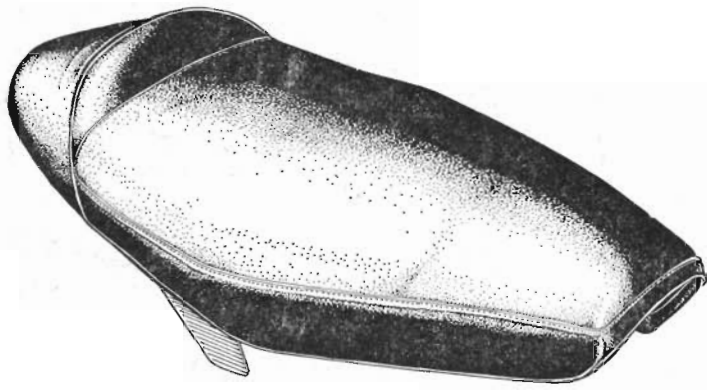
9.1 C ratio, STD, +020, +040.
Cat. No. 119

AMAL PAIRED CONCENTRIC CARBS
C/w cables. As fitted to latest models. State model, year and capacity when ordering.
Cat. No. 120





ALLOY PETROL TANK
5 Gall. capacity. Monza QA filler. Twin feeds, centre bolt mounting. Polished finish.
Illus. 19 *Cat. No.* 20



DUETTO DUAL SEAT
The racing style seat for two. Tough black vinyl cover. Reinforced glassfibre base.
Illus. 18 *Cat. No.* 19

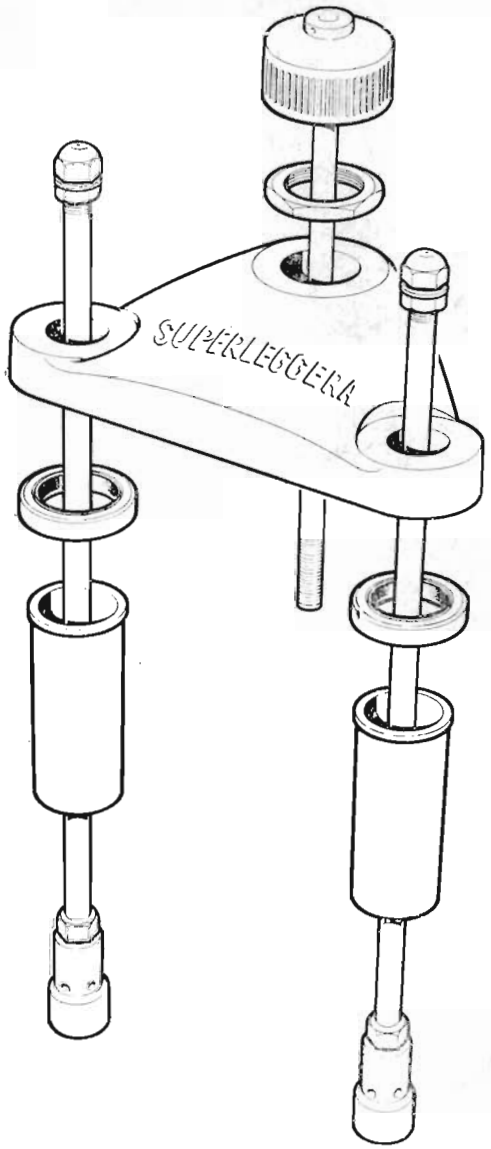
DUETTO FLOAT BOWL EXTENSIONS
The original capacitator designed to eliminate frothing and fuel starvation, the most common cause of poor carburation. Fits all monobloc carbs. Petrol proof gasket and Allen screws supplied.
Cat. No. 97

MONOBLOC VENTURI POLISHED ALLOY
To replace filters.
Cat. No. 105

DUETTO 'POWERFLO' UNIT TWIN SWEPT BACK EXHAUST PIPES
Optimum length for maximum performance. Bracing strap supplied.
Cat. No. 122

DUETTO TRACK SILENCERS
Left and right hand fitting for use with Powerflo ex. pipes or R.H. silencer only with Siamese system.
Cat. No. 95

Duetto Siamese Exhaust System.
Cat. No. 96



DUETTO SUPERLEGGERA FORK CONVERSION KIT
Designed by Eddie Dow to improve BSA front forks for road racing use. Gets rid of spongy action, fork judder, erratic handling. Provides effective two way hydraulic damping. Reduced—increased clearance for cornering, sensitive high speed handling.

KIT FOR 1965-66 TWINS

High Tensile alloy top yoke, embossed with 'Superleggera' (pronounced super-ledgair-a).
Cat. No. 22

Alloy steering damper knob and rod.
Cat. No. 23

1 pair hydraulic dampers.
Cat. No. 24

Locknut for steering stem adjuster.
Cat. No. 27

Step-by-Step fitting instruction. Complete 1965/6 A65 Superleggera kit.
Cat. No. 28

A revised kit is necessary for 1967/8 models, fitted with internal dampers and modified top yoke, consisting of:—

High Tensile polished alloy top yoke.
Cat. No. 22

Alloy Steering damper knob and rod.
Cat. No. 23

Locknut for steering stem adjuster.
Cat. No. 27

2 Lengthened fork tube bushes.
Cat. No. 25

'Step-by-Step' fitting instructions. Complete 1967/8 A65 Superleggera kit.
Illus. 20 *Cat. No.* 28

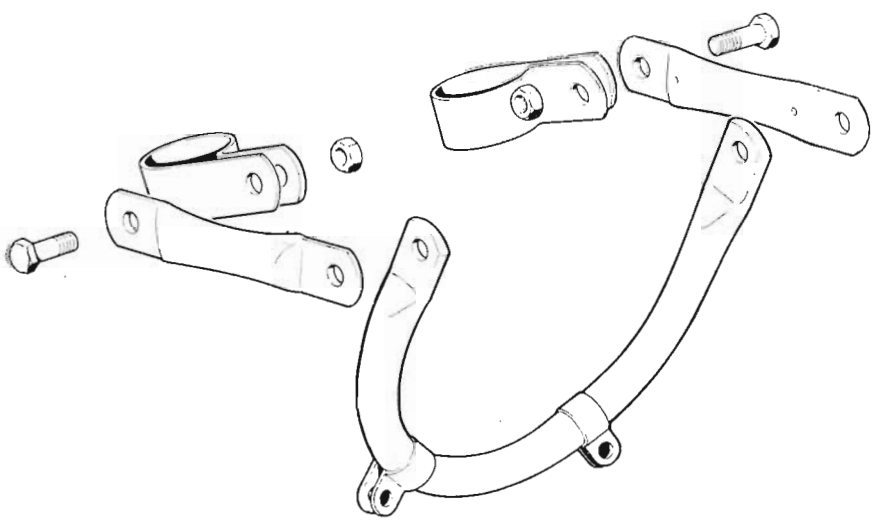
★

CHROME HEADLAMP MOUNTING SET
Comprising:—
'U' Bracket with loose cadmium clips for universal fitting. C/w nuts and bolts. Tubular top brackets and fork leg clips. C/w nuts and bolts.
Illus. 22 *Cat. No.* 31

B.S.A. Tank flash, self adhesive, length 6".
Illus. 48 *Cat. No.* 146

NEOPRENE FORK GAITERS
Resistant to oil and grease. Small convolutions.
Illus. 21 *Cat. No.* 29

Set of 4 gaiter clips.
Cat. No. 30

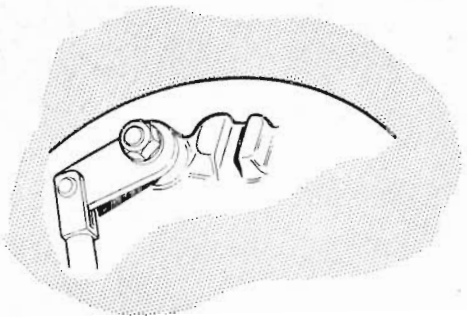


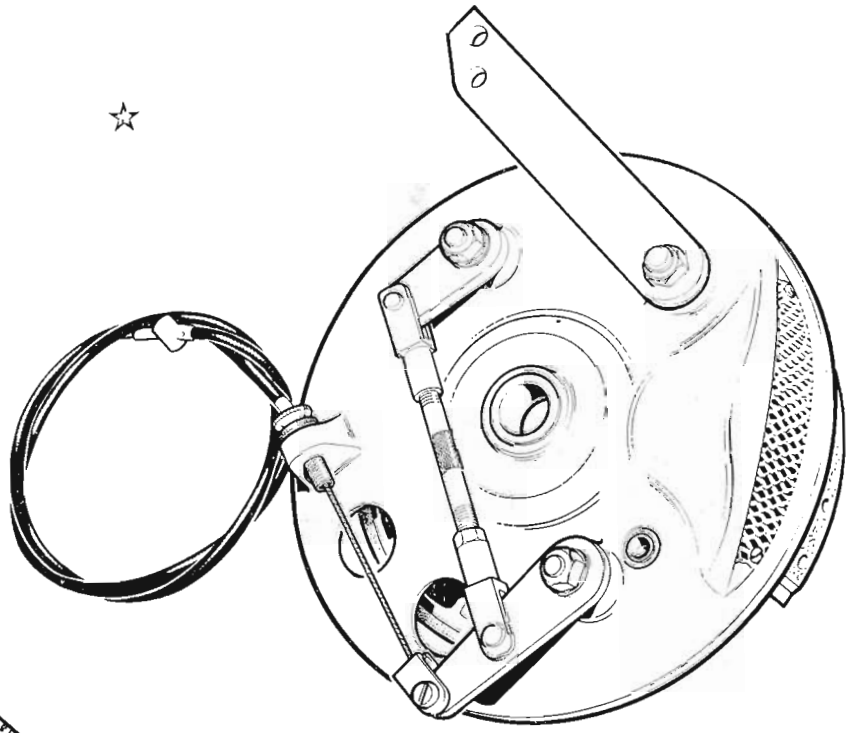
ALTERNATIVE GEAR RATIOS
The following range of gearbox final drive sprockets are available, for desired changes in overall ratios, 17T, 18T, 19T, 20T, 21T.
Cat. No. 124

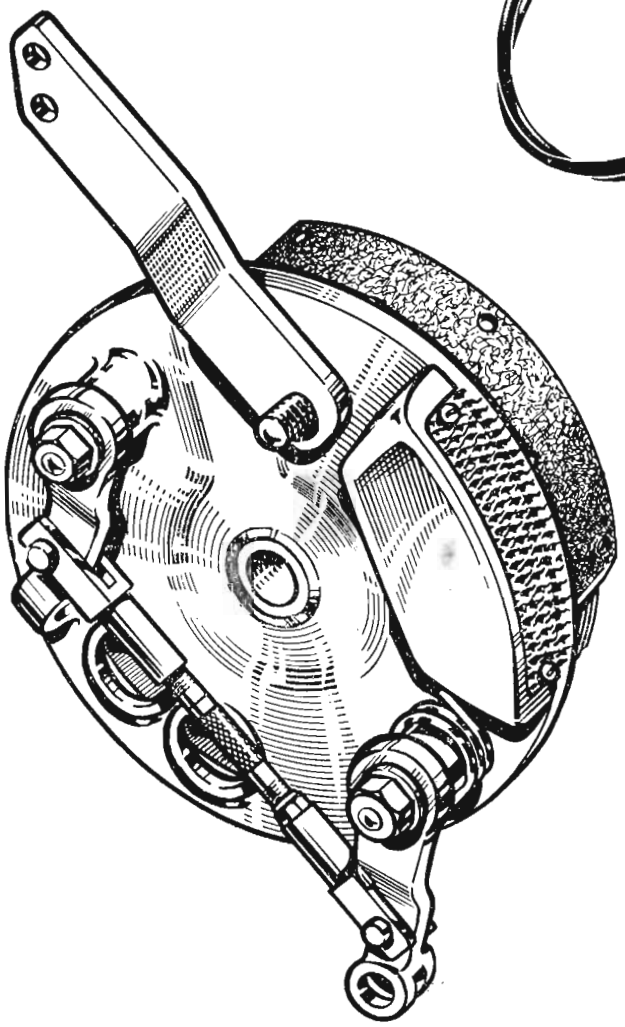
INSTRUCTION MANUALS
The 500 and 654 unit construction twin is produced to a widely differing specification to suit home and export tastes in styling. Performance and local regulations.
Royal Star A50R and A50IR, Wasp A50 2W, Hornet A65L and A65 2H. Lightning A65T and A65 2L, Thunderbolt A65T and A65IT, Spitfire MKII and MKIII special. Please state model when ordering.
Cat. No. 138

WORKSHOP MANUAL
A comprehensive fully illustrated manual covering every aspect of stripping, re-assembly and trouble diagnosis. A must for the home mechanic and enthusiast.
Cat. No. 139

SPARES LIST
Fully illustrated with easy part number reference. Covering all A50 and A65 models. State model when ordering.
Cat. No. 140







DUETTO 2 LEADING SHOE FRONT BRAKE CONVERSION

Complete replacement back plate. Race proved design. No modifications necessary. Brake cable supplied. Exchange brake shoe service.

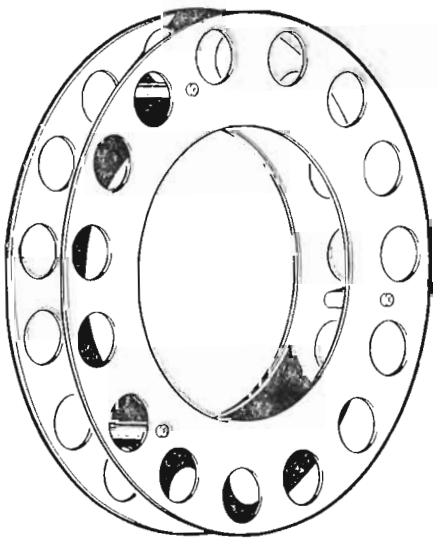
Illus. 23 *Cat. No.* 41

For 1965 Lightning models. Duetto 1. For alternative 190mm, fitted to Lightning and Spitfire. Duetto 3.

Cat. No. 41

For 1967/8 Lightning, Thunderbolt and Royal Star. Fitted with 203mm single sided brake with $1\frac{5}{8}$" width linings. Duetto 4.

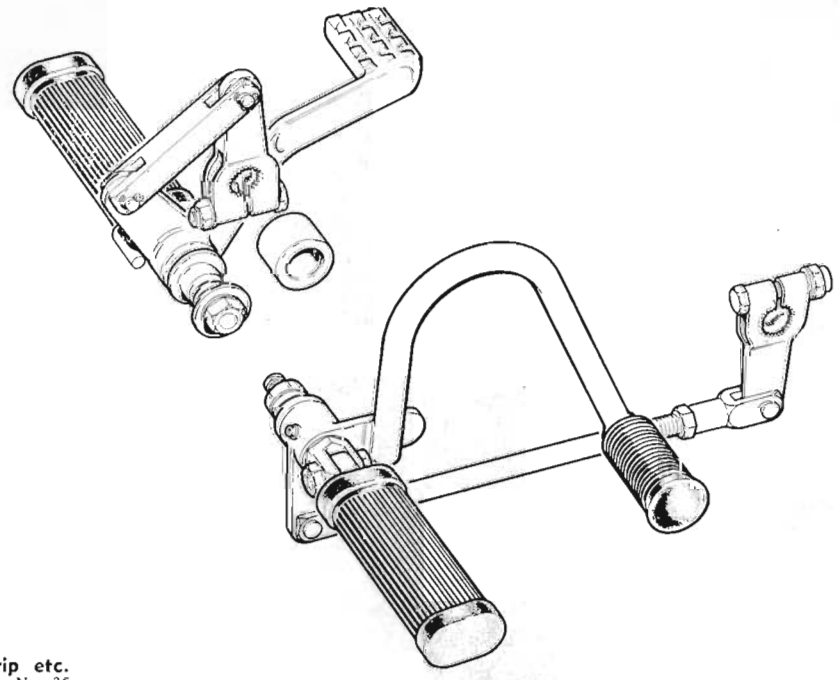
Cat. No. 41



'Volante' cooling rings
For brake drums. Supplied in pairs.
Illus 28 *Cat. No.* 121

★

J. T. REARSET FOOTREST KIT
Comprising:—
Polished dural mounting. Folding footrests. Chrome brake pedal. Chrome gear lever. Pivoting ideally from footrest spindle.
Illus. 31A *Cat. No.* 123



★

CHROME CLIP-ONS
To take existing levers, twist grip etc.
Cat. No. 35

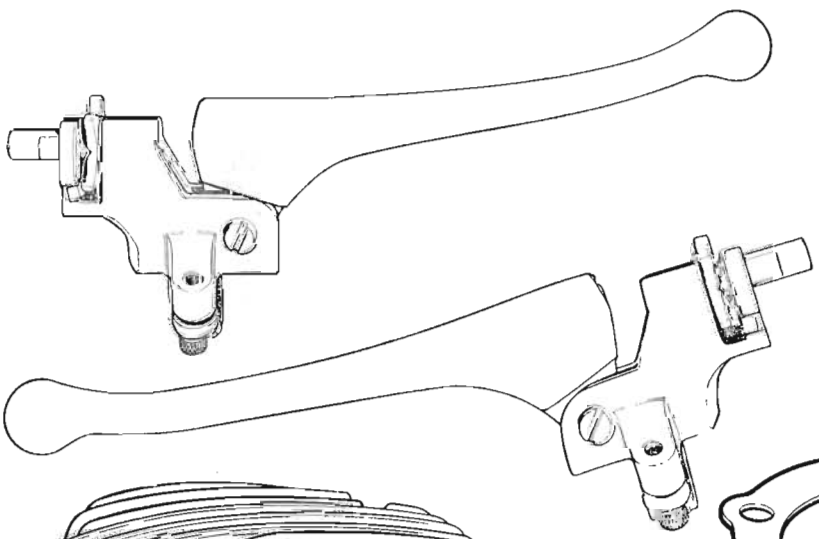
ALLOY CLUTCH AND BRAKE CONTROL LEVERS
Built in adjusters. Steel handlebar clip.
Illus. 26 *Cat. No.* 36

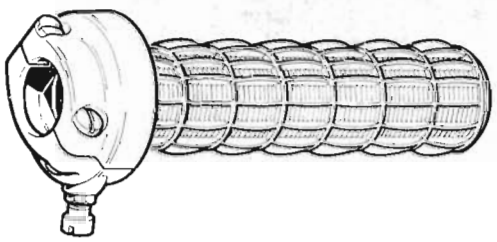
Chrome b/ended clutch and brake levers.
Cat. No. 37

Magneto and air control levers.
Cat. No. 38

★

Quick action twist grip
Nylon lined for friction free operation.
Illus. 27 *Cat. No.* 39





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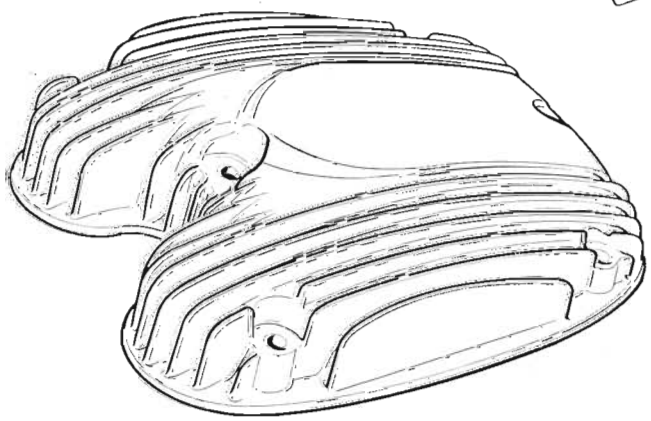
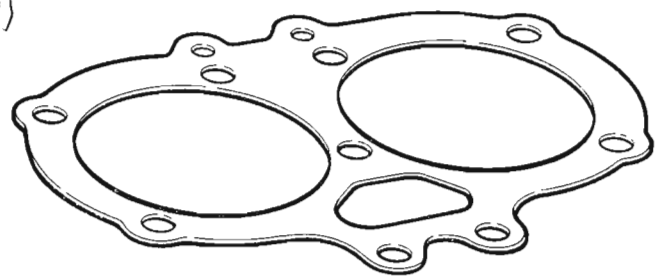




CYLINDER HEAD GASKET
Solid copper, nominal .030" thickness. Aneal when re-fitting. For all 654c.c. models.
Illus. 35B *Cat. No.* 86

FINNED ROCKER BOX COVER
For A50 and A65 group.
Illus. 37 *Cat. No.* 92

CHENEY MOTO-CROSS DEVELOPMENT

Well known for his ability as a rider, frame designer and builder of specials, Eric Cheney has now produced a range of lightweight components, many of which will be standard parts of the Cheney 360 G.P.

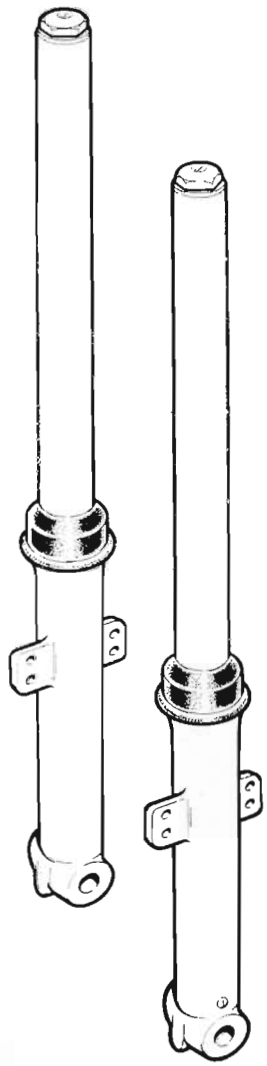
CERIANI FORKS

Elektron fork slider and lightweight 55 ton steel fork shaft conversion assembled ready to fit to Ceriani fork yokes.

Illus. 40 *Cat. No.* 125

Chrome plated front fork stays, to suit lugs on Ceriani sliders.

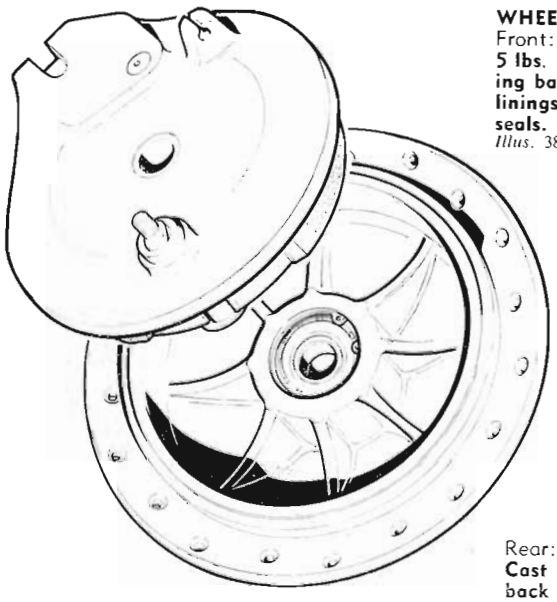
Cat. No. 126



WHEEL HUBS

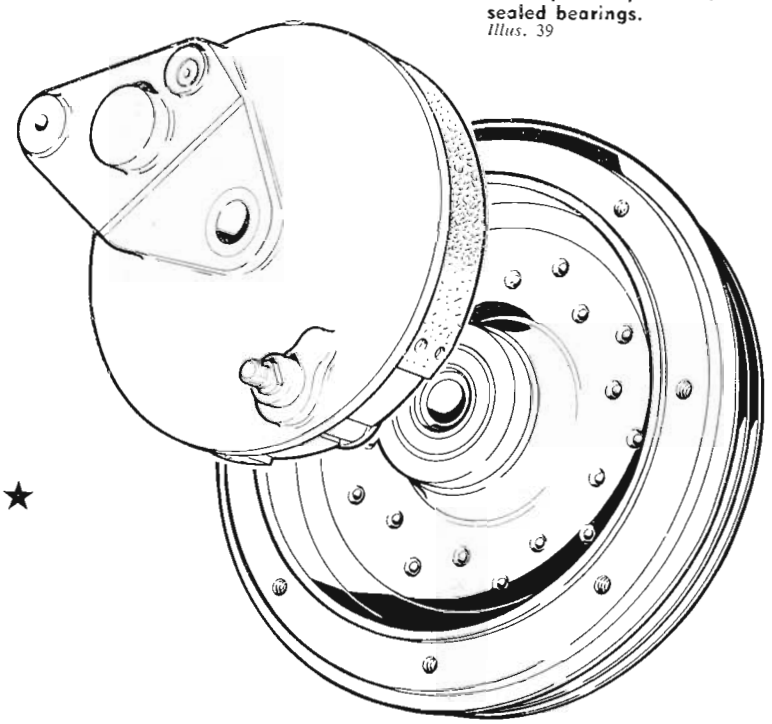
Front: **5½ brake drum dia. Weight 5 lbs. Cast elektron, adaptable to floating back plate operation. Racing Ferodo linings. Sealed bearings, additional oil seals. Dust, water seal and grease trap.**

Illus. 38 *Cat. No.* 127



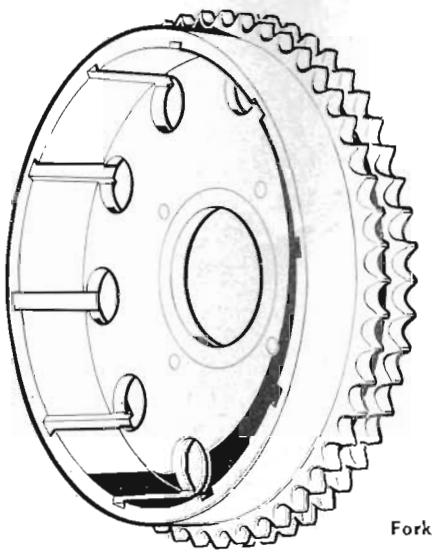
Rear: **7″ brake drum dia. Weight 9 lbs. Cast elektron. Adaptable to floating back plate operation. Racing linings, sealed bearings.**

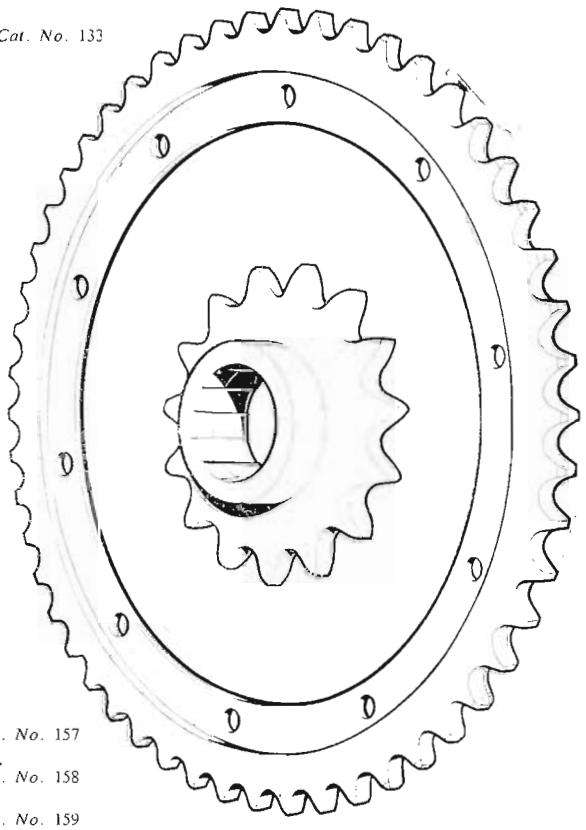
Illus. 39 *Cat. No.* 128



BSA VICTOR G.P. COMPONENTS
Dural clutch chainwheel. As used by works riders. Speeds up gear changes. Reduces wear. Better heat dissipation. Fitted thrust race outer ring.
Illus. 41 *Cat. No.* 129

Rear sprocket conversion to $\frac{5}{8}$ x $\frac{1}{4}$ chain.
52T dural rear sprocket.
Illus. 42A *Cat. No.* 132
15T steel gearbox sprocket.
Illus. 42B *Cat. No.* 133





Dural cam wheel—direct replacement for standard steel cam wheel.
Cat. No. 130

Duplex frame c/w swing arm. Nickel finish. Made to order. 4 weeks delivery.
Cat. No. 131

Alloy petrol tank. $1\frac{1}{2}$ gall. capacity. Monza Q.A. cap. Polished.
Cat. No. 91

★

Fork Bush—Ceriani Forks.
Cat. No. 157

Fork Leg Oil Seal—Ceriani Forks.
Cat. No. 158

Cheney Scrambles Handlebars.
Cat. No. 159

$1\frac{1}{2}$ gall. Victor Alloy Petrol Tank.
Cat. No. 160

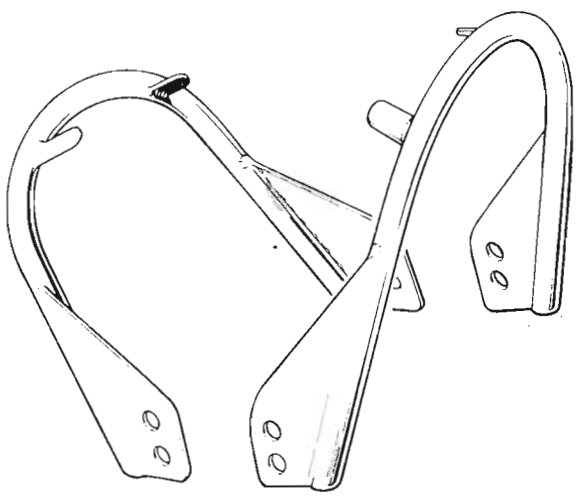
Polished Alloy Sub Frame Panels—Pairs.
Cat. No. 161

Gold Star Air Filter Assembly. All alloy suitable for Monobloc or Amal G.P.
Cat. No. 162

Foot Brake Levers for cable operation. Needle roller bearing pivot. Chromed finish.
Cat. No. 162

★

FRONT MUDGUARD STAYS
Chrome plated. For Ceriani forks.
Illus. 44 *Cat. No.* 126



WE accept that motorcycling in its many aspects becomes even more specialized and personalized. Motorcyclists are all 'Goddlers'—Self designers—improving by combination, individual design ideals in a composite model for personal pleasure, leisure, or as a competitive mount. To this end the following assorted variation of dural engine g/box plates are available from stock (a), or (b), to special order 10-14 days delivery.

MATERIAL SPEC.—H.S. 30 W.P. 22 ton tensile. Dural plate to B.S. 1470.

FINISH.—Polished or bright anodized—Gold, Blue or Red.

MATERIAL GAUGE.—$\frac{1}{4}$in. Plate standardized $\frac{7}{16}$in. to special order.

SPACERS.—Supplied with kits as required.

KITS AVAILABLE

(*a*) B.S.A. Gold Star	*Cat. ref.* 150
(*a*) B.S.A., R.G.S. and 'A' Group incl. A7, A10, A75 S., S. Rocket	*Cat. ref.* 151
(*b*) B.S.A. A65 to Featherbed frame	*Cat. ref.* 152
(*b*) 500 & 650 Triumph (unit) to Featherbed	*Cat. ref.* 153
(*b*) Gold Star to Featherbed frame. B.S.A. or Norton gearbox	*Cat. ref.* 154
(*b*) Tribsa — Triumph non-unit engine to B.S.A. frame with B.S.A. gearbox, AMC gearbox, or Norton gearbox	*Cat. ref.* 155
(*b*) 500 Triumph (unit const.) to B.S.A. frame	*Cat. ref.* 156

When ordering clearly state :
(1) *Engine.* (2) *Gearbox.* (3) *Frame.* (4) *Finish required.*

Maintenance Expenditure

DATE	SPARES PURCHASED	COST			REMARKS

USEFUL B.S.A. PART NUMBERS

A Summary Compiled by our Spares Dept. of Elusive and 'Ex-Directory' Part Numbers

500 DBD, 350 DB MODELS

65 — 2476	1 ⅜" Tufnol ins/washer 65mm centre.
65 — 1423	Rear magdyno strap. Also used as front strap with Lucas racing magneto.
65 — 1888	Front magdyno strap.
65 — 1425	Rear magneto strap. Lucas racing magneto.
67 — 716	Rev-counter gearbox screws.
65 — 1829	Cylinder liner DB and DBD 500.
65 — 2460	Cylinder liner DB 350 only.
67 — 66	Plug — valve lifter assy.
66 — 659	Inlet valve guide plus .002.
66 — 490	Big end outer ring — roller bearing.
65 — 2505	Outside mainshaft oil feed seal.
65 — 1766	.002 oversize inlet valve guide — 350 DB.
65 — 1767	.002 oversize exhaust valve guide — 350 DB.
65 — 1437	Rev-counter drive — from magneto pinion, CB models.
65 — 2266	Comp. ring (2 off), DBD only.
65 — 2269	Half scraper ring, DBD only.
65 — 2272	Half scraper ring, DBD only.
66 — 1681	Crankcase assy.
42 — 2850	Exhaust pipe, 1¾".
42 — 2896	Silencer, 1¾".
42 — 2835	Exhaust pipe, 1¾" scrambles.
65 — 2417	Bush — outrigger plate.
65 — 2418 — 2 off	Rivets, for outrigger plate bush.
65 — 528	Valve spring set, CB, B3, and B31. When Gold Star cams are used.

GOLD STAR GEARBOX

42 — 3135	Needle roller bearing. Constant mesh gear.
42 — 3074	Needle roller bearing. Layshaft gearbox shell.
42 — 3075	Needle roller bearing. Layshaft inner cover.
42 — 3095	Circlip — layshaft — T-type.
67 — 3215	Circlip — gear lever.
65 — 3123	Core plug — lay shaft.
65 — 3399	Speedo gear bush sealing unit.

CLUTCH

42 — 3119	Clutch plate — Neoprene inserts.
29 — 3832	Clutch plate — steel.
42 — 3224	Clutch chainwheel, 43T.
42 — 3220	Clutch centre — strengthened.
66 — 3903	Clutch centre — standard.

REAR CHAINWHEELS

42 — 6018	46T, ⅜" × ⅜", scrambles and club, 1958 - on.
42 — 6024	42T, ⅜" × ½", B group.
67 — 6024	42T, ⅜" × ½", A65 Lightning.

GOLD STAR CYCLE PARTS

42 — 5861	A group wheel weight, 1oz.
42 — 5875	S. Star wheel weight, 1oz.
42 — 5873	Gold Star wheel balance weight, ½oz.
42 — 8625	Throttle cable, G.P. 3-carb.
42 — 8622	Twist grip, alloy.
65 — 8680	Clutch cable — scrambles.
42 — 8033	Metalastic mounting — float chamber, G.P.
19 — 5205	Element — Gold Star air filter.
65 — 6308	Rear wheel — WM2 — 19 alloy rim.

MUDGUARDS

42 — 6872	Chrome mudguard bridge — rear.
42 — 6874	Chrome mudguard stay — rear — trials and scrambles.

REAR SUSPENSION — GIRLING UNITS

42 — 4294	90 lb springs. 9054/59.
42 — 4299	110 lb springs. 9054/70.
42 — 4302	130 lb springs. 9054/63.

FRAMES

42 — 4459	Oil tank platform.
42 — 4078	Socket — petrol tank bolt.
42 — 4845	Folding footrest complete, Clubman's.

FRONT FORKS

29 — 5334-5-6-7-8	Fork bush shims.
65 — 5391	Fork springs — 130 lb — scrambles and A10 S/Car (white).
42 — 5323	Gaiter clip.
89 — 5036	Fork springs — scrambles and Clubman (red and green).
65 — 5390	Fork springs — road racing.

SET OF STUDS FOR CRANKCASE/ENGINE PLATES

Gold Star Clubman's

1 — 65 — 4182	Stud.
1 — 27 — 5683	Studs.
1 — 27 — 5690	Studs.
3 — 27 — 5684	Studs.
1 — 42 — 4099	Stud.
T4— 2 — 46	Nuts.

SET OF GOLD STAR GEARBOX/MOUNTING STUDS

1 — 42 — 4816	Stud.
1 — 65 — 4182	Stud.
1 — 65 — 4077	Stud.
1 — 42 — 4074	Bolt.
1 — 42 — 4132	Bolt.
2 — 29 — 905	Nuts.
3 — 2 — 46	Nuts.
3 — 2 — 1925	Nuts.

ENGINE/GEARBOX MOUNTING BOLTS AND NUTS — ALL 'A' GROUP SWINGING ARM MODELS

1 — 42 — 4469	Bolts.
3 — 42 — 4470	Bolts.
1 — 42 — 4471	Bolts.
1 — 42 — 4472	Bolts.
1 — 42 — 4473	Bolts.
2 — 42 — 4474	Bolts.
6 — 42 — 4475	Nyloc nuts, ⅜".
2 — 42 — 4476	Nyloc nut, ⅝".

PLAIN BEARING MAINSHAFT BUSH, A7 & A10

67 — 790	Standard internal dia.
67 — 799	–.010" internal dia.
67 — 908/787	–.020" internal dia.

REV-COUNTER DRIVE FROM OIL PUMP — 'A' GROUP TWINS

42 — 195	Rev-counter cable drive adaptor — alloy.
42 — 196	Spade drive for 42 — 195.
42 — 3039	'O' ring for spade drive. Check that inner cover is drilled and had blanking plate. If not, new inner casing 42 — 153 will be required with modified oil pump drive.
67 — 713	Rev-counter drive nut — extended from magneto, A group with RC gearbox on timing cover.

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Minimum C.O.D. charge	3s. 6d.
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Total cost	13s. 9d.

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To open an account, forward a deposit of £1–£10 as and when you require parts. These will be despatched by the quickest, cheapest method and your account debited accordingly. Monthly statements are rendered. Credit balances refunded at any time on request.

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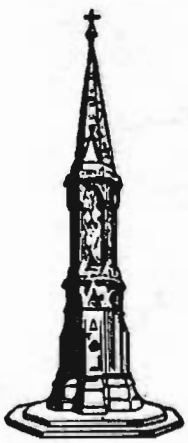

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