

1.5 Flying Squirrel Identification Notes

FLYING SQUIRREL MODELS : DISTINGUISHING FEATURES**Jack Dodds**

The features described were noted by the writer on machines owned by members of his family and friends and exhibits at Motor Cycle Shows from 1925 to 1938, and corroborated in many cases by catalogues.

The Flying Squirrel Model was introduced at the 1925 Show for the 1926 Season.

1926 Flying Squirrel

This was the production model of the 1925 T.T. machine and was an improved version of the Super Squirrel. The points distinguishing it from the Super Squirrel were as follows:—

1. **Engine.** The crankcase had a bulge around the crankcase doors to accommodate the wider big ends, which was the only visible difference between it and the Super Squirrel engine of previous years.
2. **Tank.** A long tank was introduced, not quite as the T.T. machine; in fact there seem to have been two patterns: one which extended well behind the seat tube over the magneto and the other shorter, which allowed a magdyno to be fitted. The filler caps were fore and aft, the rear one for the oil tank, which passed right through the petrol tank, with a more or less semi-circular bulge underneath, in which the hand pump for the two-speed gear was mounted. It was black enamelled, with white lining on the side panels and the Flying Squirrel transfer on each panel, towards the front. For the faithful, who preferred the oval tank, the standard Super Squirrel tank was fitted, but the petrol tank had on its front a red diamond outlined in silver, bearing a Flying Squirrel transfer.
3. **Forks.** These were of the Super Squirrel type, but with Bentley & Draper dampers. Some of the models had the 5in brakes with narrow forks and some the wide forks with 7in brakes, as on the T.T. machines.
4. **General.** The last Shipley "Book of the Scott" shows a 1926 Flying Squirrel with a "short" long tank and limit gauge transfer on the side panel, with no hand pump underneath the tank, but the writer does not think this was standard.

In general the rest of the machine was as the Super Squirrel and it was available as a two-speeder or a three-speeder; the latter, as in the Super Squirrel three-speeder, had a 2in longer wheel base, an aluminium under tray carried the engine and gear box and replaced a section of the frame, the rear forks were wider, 8in in fact, to take the 4in chain line and carried a quickly detachable rear wheel, with the usual 7in Super Squirrel rear brake.

1927 Flying Squirrel and later.

For the 1926 T.T., Scotts used a three-speed gear for the first time in racing, with a new design of frame and forks and a redesigned engine. This basic design of frame and engine was used up to 1950. Modifications to the various Flying Squirrel models are outlined below:

1927 & 1928.

In these two years, only one model of the Flying Squirrel was made. At the 1926 Show, the production model of the 1926 T.T. machine was introduced as the 1927 Flying Squirrel, and with minor modifications was continued in 1928.

1. **Engine.** The new design had separate exhaust ports for each cylinder, a more robust crankcase, which ran vertically down from the rear engine bolt and was supported in the frame by three well-spaced bolts of $\frac{3}{4}$ in diameter. The bore and stroke of the 500c.c. engine remained 68.25mm. x 68.25mm. and the 596c.c. engine retained the bore of 74.6mm. with a stroke of 68.25mm. The duplex frame described later allowed the carburetter to be mounted on the centre line of the engine and the three-jet Binks carburetter had an angled float chamber, which enabled the body of the carburetter to be directly flange-mounted on to the crankcase. Some other carburetters were fitted on a swan-neck induction pipe. Lubrication was now by a duplex Pilgrim pump, mounted on the magneto platform, and driven from the mag. sprocket, instead of the Best & Lloyd used in 1926. Incidentally, I understand that some T.T. models used the Best & Lloyd pump, certainly J. H. Welsby's, and some used the Pilgrim.

2. **Exhaust System.** The 1927 engine had a front expansion chamber, similar to the Super-Squirrel, but fed by two short curved pipes, each with its own rectangular flange, and each held by two $\frac{5}{16}$ in bolts, 26 t.p.i. and had two tail pipes, instead of one, as in the Super Squirrel. They terminated just behind the gear tray. The 1928 engine had a two-to-one aluminium alloy manifold, leading to a 2in diameter pipe, running under the left foot rest to a Howarth silencer. The manifold was held to the cylinder block by a $\frac{1}{2}$ in diameter stud, 26 t.p.i. centrally mounted between the exhaust ports and two $\frac{5}{16}$ in bolts at each end of the manifold. The manifold gasket had a central $\frac{1}{2}$ in hole for the stud nut and four $\frac{5}{16}$ in holes, so that it would suit either the 1927 or 1928 exhaust system, and the same gasket was used for all subsequent Flying Squirrels. Incidentally, the 1926 T.T. machines used two separate exhaust pipes, the same length; viz., 23in. as on the earlier single port engines for racing; but in 1927, the T.T. machines used two-to-one exhaust pipes on the left hand side, also 23in long. It is interesting to note that Scotts obtained a special dispensation from the A.C.U. to use the short exhaust pipes, as T.T. regulations stipulated the exhaust pipes should terminate near the rear wheel spindle.
3. **Frame.** The new frame was now duplex throughout, the old top down tubes and seat pillar being duplicated and the wheel base was 56in. The three-speed box was mounted in the frame on a shorter under tray than on the three-speed Super Squirrels and did not form part of the frame. The frame had tapered roller bearings for the steering head. The rear stand was forged steel instead of tubes, as on the Super Squirrel, and a form of front stand, basically similar to that on the Super Squirrel, but more robust, was fitted on the front engine bolts.
4. **Brakes and Wheels.** The rear wheel now employed the Enfield Cush Hub and 8in brake on the off side and the front wheel used the 7in Webb brake and hub. The rear wheel bearings had tapered rollers and the front wheel bearings were the usual cup and cone type, mounted on a hollow spindle, as on previous Scotts. The rims were W.M.2. 19in diameter, with 19 x 3.25in tyres as standard, but these could be varied at the customer's request. 20 x 3in and 21 x 2.75in tyres were sometimes fitted to the front and 19 x 3.50in tyres to the rear, and in at least one case (mine) a 4in rear tyre was fitted, with satisfactory results.
5. **Front Forks.** These were still of the telescopic type, but unlike the Super Squirrel forks were strutted both in front and behind the sliders from the top of the head lug to the bottom slider and controlled by a single barrel compression spring. The sliding forks had a cross member or crown which engaged the bottom end of the above-mentioned spring, sliding on a central rod, supported by the top and bottom fork crowns. The only difference between the 1927 and 1928 forks was that the girders top and bottom on both sides were $\frac{1}{2}$ in tubing with external lugs on the 1927 forks, whereas the 1928 forks had the bottom tube tapering from the $\frac{1}{2}$ in diameter at the crown lug, which went inside the tube, to $\frac{3}{4}$ in diameter at the bottom lug, into which the tube fitted.
6. **Tank.** This was a new design; it was a "long" tank, which filled the gap between the top down tubes and the seat tubes and was unusual, in that to support the tank a tube was built into it and the tube was clamped in a lug at the top of the steering head and a lug on the top of the seat tubes. This tank was known as the slim tank and carried a compartment for oil as well as petrol, capacities 2 $\frac{1}{2}$ gallons of petrol, half a gallon of oil. Filler caps were arranged side by side, near the front; oil on the right hand side. There was a boss on the tank tube at the front, to take the steering damper arm. Colour of the tank black with Scott purple panels outlined in red and a purple diamond on the top, also outlined in red; the Flying Squirrel transfer was on each side panel, towards the front, and on the diamond the limit gauge transfer was used on some and the Flying Squirrel transfer on others. The difference between the 1927 and 1928 tank was that the 1928 tank had a manually operated pump underneath the oil tank, to feed the cylinder wall oiling. This pump was operated by various types of lever, according to the customer's requirements.
7. **Tool Box.** This was fitted in the space between the back mudguard and the magneto and had a leather flap cover on the right hand side, though the Show model in 1926 had a metal cover with a lock, but I can never remember seeing any on the road.

1929.

At the 1928 Show, Scotts introduced their new range, which included two-speed Super Squirrels and three-speed Flying Squirrels, the three-speed Super Squirrels having been dropped. New models in the Flying Squirrels were: The Tourer, The De Luxe and the Replica. The Replica was a production version of the T.T. Machine of 1928. The differences in the three models were as follows:

1. **Engine.** The Tourer and De Luxe used the short-stroke engine, virtually the same as the 1927 Flying Squirrel, not quite so highly tuned perhaps and no cylinder wall oiling, of course. The Pilgrim pump was still mounted on the mag. platform, as in 1927 and 1928. The Replica used the new long-stroke engine, used in the 1928 T.T. with a bore of 66.6 and stroke of 71.4mm. for the 498c.c. model and for the 595c.c. a bore of 73.0 and stroke of 71.4mm. The Pilgrim pump was mounted on the crankcase door and the barrels were fitted with cylinder wall oiling.
2. **Exhaust System.** The Tourer and De Luxe models had a front expansion chamber, with domed aluminium end-caps, held on by a long through bolt; the left hand end cap had a tangential outlet at the top, 1 $\frac{1}{4}$ in outside diameter, and a 1 $\frac{1}{4}$ in diameter pipe swaged out to fit over it, passed under the foot rest to a Howarth silencer, the pipe and silencer being chromium plated. The Replica had a two to one 2in diameter pipe running along the left hand side of the machine to a Howarth silencer. In all cases the Howarth silencer clipped to a lug on the frame, just in front of the rear fork lug.
3. **Frame.** The 1929 Flying Squirrel frame was 1in shorter than the 1927 and 1928 models, and in the case of the Replica, the frame had an additional brake anchoring mounted on the chain stay behind the mag. platform lug, just about level with the mudguard, to take the long brake anchor arm, which was used on this model only. The seat lug was also modified, as the Replica tank had the tube running through it at a different angle and the rear fixing was below the seat lug, instead of on top of it.
4. **Forks, Brakes and Wheels.** The Tourer had Webb Forks and the standard Webb front wheel, which did not use the hollow spindle. Also the rear wheel was a standard Webb, without a Cush Hub and it had a 7in brake. The De Luxe model had Scott Girder forks with a 7in Webb brake and hollow spindle hub and the rear hub was the Enfield Cush Hub with 8in brake. The Replica had Scott girder forks and in some cases, but not all, Bentley & Draper dampers, with the same wheels and brakes as the De Luxe model, except that the rear brake plate had a long anchor arm. Normally wheel rims were W.M.2 for 19 x 3.25in tyres, but again customers could vary this at will. Front mudguards of all models were valanced. All front brakes now had a water deflector on the bottom edge of the brake plate.
5. **Tank.** The Tourer and De Luxe models had the long slim tank, as the 1927 model, except for colouring. The Replica had a new wide design of tank, which was waisted towards the rear and had a ribbed edge. It also had a larger petrol capacity and the incorporated oil tank, as on the 1928 Flyer, had a manually operated pump below it, for cylinder wall oiling. In all cases the colour was black with white side panels, outlined in red, and a white diamond on the top of the tank, also outlined in red. In each side panel was a Scott limit gauge transfer towards the front and the diamond also carried a limit gauge transfer.
6. **Rear Carrier and Legshields.** These were fitted as standard equipment to the De Luxe Flyer, but could be fitted as extras to the Tourer and Replica if required.
7. **Tool Boxes.** These were now conventional rectangular metal boxes, leather-lined, with strap down fronts.

(to be continued)

FLYING SQUIRREL MODELS — DISTINGUISHING FEATURES (2).**Jack Dodds**

Before continuing with the distinguishing features of the 1929 Flying Squirrel I must rectify an omission in the description of the 1929 engine. This concerns the vertical flange on the back of the crankcase, between the fixing bolts. This differed from the 1927 and 1928 Flying Squirrel crankcases, where the rear flange was flush with the bosses or lugs for the engine bolts. The 1929 crankcase had the back flange recessed, so that it was in line with the centres of the engine bolts, and the lugs stood out at the top and bottom. This was due to the shortening of the frame, which necessitated moving the gear box nearer the engine and recessing the back flange of the crankcase assisted access to the primary chain and clutch.

In connection with tank colouring Mr. Les Heath, New Zealand Section Secretary, drew the Editor's attention to the colour of the diamond on the tank top, and this will be covered in the paragraph on the Tank under 1930 models.

Now continuing:—

1929.

8. **Gear Box Undershield.** This was 1in. shorter than the 1927 and 1928 models and is easily distinguished by the "square shoulders" by the engine bolt lug at the front, whereas the 1927 and 8 models have shoulders at 45 degrees. All subsequent gear box undershields are of this short pattern.
9. **Rear Brake Pedals.** On the Tourer and De Luxe models the pedal was the same as the 1928 model, i.e. 5½in. long from the centre of the pivot to the tip, but on the Replica, which now had the oil pump on the right hand crankcase door, the pedal was modified. The boss was extended ½in. to bring the pedal arm out far enough to miss the pump, the pad of the pedal was flush with the arm on the inside and the arm was extended approximately 1½in., to keep the rider's foot clear of the pump.
10. **Handlebar Mountings.** On some later models during 1929, where Scott girder forks were fitted, the mounting was modified to give more adjustment, by mounting the handlebars on swivelling lugs, similar to those on the Webb forks, instead of being clamped directly into the top fork lug, but I do not think this was universal on the 1929 models.
11. **Carburettors.** During 1928 Amalgamated Carburettors came into being, the name being contracted to "Amal" before very long, and for 1929, as Binks, Amac, B. & B. and possibly Senspray and others were included in the amalgamation, the original Binks carburetter became an Amal-Binks carburetter. That used on the Scott was still a three-jet, with the same internal dimensions as the original Binks, but was no longer the massive phosphor bronze instrument, with a heavy castellated nut on the top of the mixing chamber, with a spring locking device, but was a much lighter instrument, with a knurled clamping ring on the top of the mixing chamber.

1930

For 1930 the three Flying Squirrel models were continued, with the addition of the Sprint Special and a Dirt Track model, which used the Replica engine with open frame. These were introduced officially at the 1929 Show.

1. **Engine.** I should perhaps have mentioned engine number prefixes before this, which distinguish between short stroke, long stroke, Replica and the Power Plus introduced in 1930. Up to 1930, therefore, the table is as follows:—

		Stroke	498	596
		mm.	cc.	cc.
1929 to 1928	<i>Flying Squirrels</i>	68.25	FZ	FY
1929 " "	<i>Tourer and De Luxe</i>	68.25	FZ	FY
1929 " "	<i>Replica</i>	71.4	RZ	RY
1930 " "	<i>Tourer and De Luxe</i>	68.25	FZ	FY
1930 " "	<i>Replica and Sprint Special</i>	71.4	PZ	PY

The Tourer and De Luxe models used the same engine as in 1929, with the Pilgrim pump mounted on the magneto platform. The Replica engine was now re-named the Power Plus engine and fitted to the T.T. Replica and Sprint Special, still with a Pilgrim pump mounted on the crankcase door and manually controlled cylinder wall oiling.

- Exhaust System.** A fishtail was fitted to all Flying Squirrel models and I should perhaps have mentioned that from 1928 onwards some, but not all, Flyers fitted with a Howarth silencer had fishtails.
- Frame.** This was unchanged on the Tourer and De Luxe Flyers and on the Replica the only change was that the brake anchor lug reverted to its original position as on the 1927 and 8 Flyers. The Sprint Special used a new frame, which was basically a reversion to the Super Squirrel type frame, for it had a single down tube from the top of the steering head to the top rear engine bolt and a single seat tube. Lugs were welded to the top down tube for the gear change mounting, as on the 1928 Three Speed Super Squirrel.
- Forks, Brakes and Wheels.** These were virtually unchanged for the Tourer and De Luxe models, but the rear brake of the Replica reverted to the short anchor arm, as in 1928, and the Scott girder forks now had taper tubes top and bottom. The Sprint Special had Webb forks, with a standard 7 in. Webb front brake and a standard Enfield rear hub, with the 8 in. brake. Rim sizes on the Sprint Special were to customer's order.
- Tank.** The Tourer, De Luxe and Replica tanks were the same shape and size as in 1929, but the colouring brings us to Mr. Heath's comments, which were that the 1929 and 1930 tanks had white tops with black diamonds, instead of black tops with white diamonds, as I stated for 1929. I think there must be some over-lapping here, because the white tops with the black diamond were not introduced until the 1929 Show, for the 1930 models. A possible explanation is that a 1930 model was registered after the Show, but before December 31st 1929. The only models I have seen with a black diamond on a white top had the cast aluminium gear shields, which were fitted for the first time to 1930 models. I have seen some 1930 models with black tops with white diamonds, and such a model is shown on page 55 of the Book of the Scott, 1932 issue, and page 8 of the Birmingham issue, updated, which covers models up to 1952. The 1930 models can, therefore, be considered to have the same colouring as in 1929 or the alternative with white side panels and a white top with black diamond. The Sprint Special was a specially built machine, so that virtually no two were alike and the most obvious variation was in the tanks. There were two basic variations; first, an oval petrol tank, with separate top tube mounted oil tank, like the Super Squirrel, the hand pump, if fitted, being used for cylinder wall oiling; second, a long slim tank, mounted like a 1926 Two Speed Flyer long tank, though its shape was often more like a 1927/8 Flyer. This long tank had petrol and oil compartments and usually had a manually operated pump below for cylinder wall oiling. There were, however, many variations of both these arrangements, to suit the particular customer. However, the generally accepted tank for the Sprint Special is the oval petrol tank of about 2-gallon capacity, with separate oil tank on the top tube. Some of those oval tanks were of the conventional pattern of

tinned plate, with black top and bottom and Rexine cover in the usual Scott colour round the middle. Others were of welded steel construction and enamelled with a reddish version of the Scott purple. All tanks, of course, had the Limit Gauge transfer on them.

6. **Rear Carrier and Legshields.** As 1929.
7. **Tool Boxes.** As 1929.
8. **Brake Pedals.** As 1929, the Sprint Special being the same as the T.T. Replica.
9. **Handlebar Mountings.** As late 1929, the Sprint Special having the usual Webb fork mounting.
10. **Carburettors.** As 1929, the Sprint Special having the same as the T.T. Replica.
11. **Gear Shields.** Polished cast aluminium gear shields were fitted to all Flying Squirrel models, including the Sprint Special. Those on the Tourer, De Luxe and T.T. Replica on the near side covered in the space between the crankcase and the rear mudguard, protecting the final drive sprocket and chains, while those on the off side covered in the gear operating lever by the crankcase, extending over the top of the gear box, over the magneto drive and round to the back of the gear box, leaving the end of the gear box visible. Those on the Tourer and De Luxe models were cut away so that the oil pump, driven from the magneto sprocket, was visible. The shields on the Sprint Special were practically identical to those used on the 1928 Three Speed Super Squirrel, that on the near side covering the space between the crankcase and the rear mudguard and extending high enough to cover the magneto drive. That on the off side covered the gear box and curved over the top of the gear box and frame tube to the mag. platform and had a cutaway to allow for the kick starter and the gear rod. This off side gear shield on the Sprint Special necessitated a cranked foot rest to clear the shield.
12. **Magneto Drive.** On the Sprint Special this differed from the duplex framed Flying Squirrels, which all have the magneto driven from the sprocket on the right of the flywheel, which is not possible on the open frame machines. Therefore the drive is taken off a sprocket mounted on the clutch drum, outside the primary gear sprocket, so that the magneto is driven from the near side, instead of the off side.

(to be continued)

FLYING SQUIRREL MODELS — DISTINGUISHING FEATURES (3)

Jack Dodds

V10/7 Sept. 1977

1931

Again the 1931 Flying Squirrel range comprised the Tourer, the De Luxe, T.T. Replica and the Sprint Special. Any changes to this range were confined to the Tourer and De Luxe models.

1. **Engine.** The engines were the same as in 1930, except that both the Tourer and De Luxe now had the Pilgrim pump mounted on the right hand crankcase door.
2. **Exhaust System.** This was virtually the same as in 1929 and 1930, except that the tangential outlet from the left side of the expansion box was now at the bottom of the end cap, instead of the top. This is shown on page 8 of the latest Book of the Scott and was on the stand at the 1930 Show. However, some of the 1931 machines appear to have been turned out with the original type end caps and some of the De Luxe models were supplied with the Replica type exhaust, so one cannot be too dogmatic as to what was original in this respect.
3. **Frame.** The Tourer and De Luxe Flyers now had the open frame, like the Sprint Special, except that they had no lugs on the frame for the gear change and were fitted with a centre stand, instead of the rear stand which was standard on all duplex framed Flyers and the Sprint Special.

4. **Forks, Brakes and Wheels.** These were unchanged.
5. **Tanks.** The Tourer and De Luxe models now had Replica shaped tanks, filling the open frame. These had a recess to fit half round the down tube and the rear end rested on a bracket clamped round the seat tube. The seat tube did not go through the tank in this case. On the right side of the tank was welded a pivot for the gear lever and a couple of bosses on which to mount the gear change gate. The tanks normally had white side panels with a white diamond on a black top, or alternatively a black diamond on a white top. There was also listed an all chrome tank, with red lining on the sides. A point to note was that these tanks had a capacity of 4 gallons of petrol and $\frac{1}{2}$ -gallon of oil, which was a greater petrol capacity than the Replicas.
6. **Rear Carrier and Legshields.** Unchanged.
7. **Tool Boxes.** Unchanged.
8. **Brake Pedals.** On the Tourer and De Luxe models these were now the same as the T.T. Replica and Sprint Special.
9. **Handlebar Mounting.** Unchanged.
10. **Carburettors.** Unchanged.
11. **Gear Shields.** The polished cast aluminium gear shields on the Tourers and De Luxe models had to be modified, due to the adoption of the open frame. The off side shield was the same as the 1930 Sprint Special, but the near side was modified because of the battery mounting. This shield filled in the space in the same way as that on the Sprint Special, but was cut away to miss the battery carrier mounting on the magneto platform. This is shown on page 8 of the latest Book of the Scott. The off side foot rest was again cranked, to miss the gear shield.
12. **Magneto Drive.** This was as on the Sprint Special.
13. **Battery Mounting.** Contrary to previous practice, where the battery carrier had provision for clipping to the most convenient place on the frame, the 1931 Tourer and De Luxe models had their magneto platform extended to carry the battery and its carrier. This carrier incorporated a steel plate magneto chain guard, which curved round to meet the cast aluminium gear shield.

(to be continued)

ERRATUM

A couple of small slips crept into the *Flying Squirrel Models—Distinguishing Features* article in the July 1977 issue, which Jack Dodds has asked me to correct.

Turning to the top of page 109, the chart in italic script should read as follows:

	<i>Stroke</i>	498	596
	<i>mm</i>	<i>cc</i>	<i>cc</i>
1926 to 1928 <i>Flying Squirrels</i>	68.25	<i>FZ</i>	<i>FY</i>
1929 <i>Tourer & De Luxe</i>	68.25	<i>FZ</i>	<i>FY</i>
1929 <i>Replica</i>	71.4	<i>RZ</i>	<i>RY</i>
1930 <i>Tourer & De Luxe</i>	68.25	<i>FZ</i>	<i>FY</i>
1930 <i>Rep & Sprint Spec</i>	71.4	<i>PZ</i>	<i>PY</i>

Jack also wishes it to be noted that the 1929 Replica sometimes had a black tank with a white line, similar in colour to the 1926 Flyer, but obviously a differently shaped tank altogether.

FLYING SQUIRREL MODELS — DISTINGUISHING FEATURES (4). Jack Dodds

V10/9 Jan 1978

Before going on to the 1932 range I would like to thank those who have commented on "Distinguishing Features" and have corrected or filled in omissions.

Re 1929 Replicas, there is an omission that has not been covered and that is that they had black tanks with white lines, and the white panelled tanks were an alternative.

1932. The range comprised the Replicas, the De Luxe, The Tourer and a new model called the Sports Flying Squirrel, which replaced the Sprint Special.

- 1. Engines.** The Tourer and De Luxe continued to use the short stroke FZ and FY engines and the Sports Flyer and the Replica had the long stroke Powerplus engines PZ and PY, with cylinder wall oiling.
- 2. Exhaust Systems.** The Tourer had the front expansion chamber with nearside tail pipe and Howarth silencer with fishtail. The De Luxe and Sports Flyer used the 2 to 1 left hand pipe, with Howarth silencer and fishtail, as on the Replicas.
- 3. Frames.** The open frame was used for all models except the Replica, which continued with the full duplex frame. On the open frame models the centre stand was dropped and replaced by the conventional rear stand, as on the Replica. On the open frame models the detachable seat stay unit was modified and was no longer similar to the Super Squirrel type, which had seat tubes running right up to the seat pillar lug, with a cross member to support the mudguard. The 1932 seat stay unit had two straight tubes running from the rear lugs to a point level with the mudguard fixing, where they were brazed into the large triangular lug of malleable cast iron. The base of the triangle was the cross member for the mudguard support and the side members ran up to form the seat pillar clamp and sidecar lug. The cross section of these three sides was an inverted "U" and the cross member carried three lugs, one for the mudguard bolt and two to support the chain oiler tank. The ends of the cross member also formed supports for the saddle springs.
- 4. Forks, Wheels and Brakes.** The Tourer retained the Webb forks and front brake with Enfield cush hub at the rear, as in 1931, but the other three models now used Brampton "Monarch" bottom link forks with Brampton front hubs, 7in. brake and speedometer drive in the brake drum. The rear hub was, as usual, the Enfield cush hub with 8in. brake.
- 5. Tanks.** In shape and construction these were unchanged. The Replica retained its 1931 colours, but the colours on the open frame models were now purple panels on a black background, with a purple diamond on the top, all outlined in red and reminiscent of the 1927/8 tanks, though the diamond was now practically square. The limit gauge was carried at the front end of each side panel and in the diamond. The Sports Flying Squirrel and Replica had the usual hand operated pump for cylinder wall oiling mounted beneath the tank and cable operated from a handlebar lever.
- 6. Rear Carriers, Legshields and Mudguards.** The De Luxe Flyer had legshields and carrier as standard and the Sports Flying Squirrel rather surprisingly had a carrier as standard. Both these models had hinged ends on the rear mudguard and a number plate hinged on the rear cross member of the carrier. This made removal of the rear wheel easier than with the usual detachable rear stay on the right hand side, which was retained on the Tourer and Replica.

All models had six inch rear mudguards, and, except for the Tourer, valanced front mudguards, as used with Scott girder forks in previous years.

7. **Tool Boxes.** These were the same rectangular boxes with leather fronts. I should have mentioned that from 1929 machines equipped with carriers as standard, or as an extra, carried two tools boxes, whereas those without carriers had only one, mounted on the offside chain stay.
8. **Brake Pedals.** Unchanged.
9. **Handlebars.** Unchanged.
10. **Carburettors.** These were now the Amal needle jet carburettors, with slow running adjustment screw and adjustable throttle stop. This was the first time Amal made this carburettor with an angled float chamber suitable for the Scott Flying Squirrel engine and from November 1931 was the standard carburettor on this engine, in spite of the statement in the 1954 Book of the Scott that 1932 models used 3 jet Amal/Binks.
- 11, 12 and 13. **Gear Shields, Magneto Drives and Battery Mounting.** As in 1931.
14. **Pillion Seats.** On the De Luxe and Sports Flying Squirrels with carriers, rectangular pillion seats of sponge or sorbo rubber were fitted to the 6in. mudguards. These seats were $6\frac{1}{2} \times 9\frac{1}{2}$ ins. and fitted the curve of the mudguard, being approximately 3in. high at the back and 4in. at the front.
15. **Chain Oiler Tanks.** These should have been mentioned earlier. From 1929 Replicas had a circular chain oiler tank, mounted beneath the seat stays, above the magneto or magdyno. It had two outlet pipes, with taps, to supply oil drips to primary and magneto chains. They were supplied as extras on other models. The taps were not easy to get at when in the saddle. A proprietary chain oiler tank, mounted on the offside chain say, was available for 1927 and 1928 Flyers as an extra, and had a feed to the rear chain as well.

(to be continued)

FLYING SQUIRREL MODELS — DISTINGUISHING FEATURES (5)

Jack Dodds

V10/11 June 1978

I have been asked about footrests on Flying Squirrels and apologise for not mentioning them earlier. From 1927 to 1933 they were on $\frac{1}{4}$ in flat strip and had a two-hole fixing to the frame member, just in front of the bottom rear engine bolt. They were unadjustable, except some in 1927, which pivoted on the rear fixing bolt, and the front bolt fitted in a number of holes in the strip radial to the rear hole, but I have only seen one or two of these. They may have been used on special machines, or only on the first few 1927 Flyers.

1933. The range consisted of the same four models as in 1932, with improvements.

1. **Engines.** The short stroke FZ and FY engines were discontinued and replaced by long stroke engines. These were the same as the previous years Power Plus engines, except that the compression ratio was probably rather lower and no cylinder wall oiling was used. The engine number prefixes were changed to LFZ and LFY and these engines were used on the Tourer and De Luxe models. The Power Plus engines used on the Sports Flyer and Replica models now had an aluminium alloy detachable head, held down by sixteen studs, and the prefixes were now DPZ and DPY. The lubrication system on the Power Plus engines was brought right up to date with the introduction of the throttle controlled swash plate oil pump, which had a feed to each main bearing and to each cylinder wall: a fifth feed was used for indication only. This pump, which was much larger than the Pilgrim pump, was also mounted on the right hand crankcase door, which was modified to carry it. The operation of the pump is described in the October 1965 issue of *Yowl* Vol. 5 No. 8.

with a Burgess silencer instead of the left hand 2in. pipe and Howarth silencer.

3. **Frame.** This was the duplex type, and it was said in the Show Report that the frame was shortened and the head lowered, though I am unable to confirm this. I believe, however, that this year the head bearings were changed from taper roller bearings to ball bearings and the housing for ball bearings was shorter than that for taper roller bearings, which could well have made the steering head itself shorter overall, and may have given rise to the statement in the Show Report.

The frame incorporated a cross-over brake mounting and the rear bottom engine lug was modified to mount foot rests on the bottom rear engine bolt, with radial serrations for adjustment.

It is possible that there were some frames turned out in 1935 with taper roller head bearings and without the modified brake mounting and foot rest adjustment.

4. **Forks, Wheels and Brakes.** Forks were now Brampton girder as standard, but some machines were fitted with Webb forks, possibly due to customer's requirements. The Show Model and that tested on the road by "Motor Cycle" had Brampton forks, but that illustrated in The Book of the Scott shows Webb forks.

Wheels had 19in. W.M.2 rims for 26in. x 3.25in. tyres as standard and the brakes were the usual Enfield cush-hub rear with 8in. drum and the 7in. drum brake at the front, as fitted to Brampton or Webb girder forks, with the internal speedometer drive introduced with the Brampton Monarch forks in 1931.

5. **Tanks.** This was the Replica type, without the hand pump for cylinder wall oiling and was black with white lining and the limit gauge transfers.

6. **Rear Carriers, Legshields and Mudguards.** Carriers and legshields were available as extras and the mudguards were both of unvalanced dee section, with flat stays, and there was no detachable or hinged end to the rear mudguard. The offside rear stay was detachable for wheel removal, reverting to the standard Scott practice on Flying Squirrels, except for 1932/3/4 models with carriers.

7. **Tool Box.** This was now an improved type, fitted between the vertical mudguard stay and the frame seat tube on the right and was shaped to fit the curve of the mudguard. It was of tinned steel plate, with leather front, having a top flap, and if I remember correctly gussets at either end of the lower part of the front, to improve access to the tools. It was of appreciably greater capacity than the rectangular type previously used.

8. **Brake Pedal.** This was on the left side with crossover shaft, of the type introduced as an extra when the foot change conversion was offered in 1933.

9. **Handlebars.** These were unchanged, but the inverted levers were finally abandoned. Up to this time officially that front brake and clutch had inverted levers, though individuals made amendments to suit themselves. Now, however, the conventional levers with external cables were used.

10. **Carburettor.** No change.

11 & 12. **Gear Shields and Magneto Drive.** As on previous Replicas.

13. **Battery Mounting.** Lucas had introduced the T Battery Mounting and this was now used on the left side to the rear of the mag-dyno, with the base of the battery just above the horizontal chain stay.

14. **Pillion Seat.** This was an extra to customer's choice.

15. **Chain Oiler Tank.** This was now an extra.

16. **Spring Up Stand Attachment.** This was no longer standard, but doubt-

less could be obtained as an extra.

17. **Horn.** I am not sure if this was still an extra, now that electric lighting was included in the list price, but the horn on the 1935 model was adorned with a bright metal grille bearing a golden limit gauge emblem with a Scott scroll on its lower part and a squirrel above the limit gauge. I believe this became available first in 1931 or 2 on a Klaxon horn.
18. **Gear Change.** Hand change was standard, but optional foot change was offered, and was considered to be likely to be preferred by the customer, as the exhaust system and brake pedal were now arranged to accommodate it, in fact some frames were actually built without lugs for the hand change. At this time the foot change equipment was bolted on to the gear box cover.

1936. This was virtually the same as the 1935 model; so far as I can ascertain there were only two changes, one concerned the radiator and the other tool boxes.

1 & 2. **Engine and Exhaust System.** Unchanged.

3. **Frame.** To accommodate the radiator, which now had its top fixing holes lower in the block than previously, the radiator mounting had to be modified. In some cases the lower head lug of the frame, which carried the ears for the radiator mounting plate, was modified to suit the lower top holes. In others the head lug was unchanged, but the mounting plate was modified.

4, 5 & 6. **Forks, Wheels and Brakes: Tanks: Rear Carriers, Legshields and Mudguards.** As 1935.

7. **Tool Boxes.** There was now a left hand tool box, to match the right hand one, which was the same as on the 1935 model.

8 to 12. **Brake Pedals: Handlebars: Carburetter: Gear Shields and Magneto Drive.** As in 1935.

13. **Battery Mounting.** This was as in 1935 except that it was about 1in. lower to make room for the left hand tool box.

14 to 18. **Pillion Seat: Chain Oiler Tank: Spring Up Stand Attachment: Horn: Gear Change.** As in 1935.

Radiators.

In view of the variation of radiators mounting mentioned for the 1936 model it may be of interest if I give the dimensions of three radiators which I have measured. These are for a 1928 Flying Squirrel, a 1932 Open Frame Flying Squirrel, and a 1949 Flying Squirrel. The first two are honeycomb radiators and the 1949 is a tube and fin radiator. The 1928 radiator has a solid honeycomb block, but the 1932 has a slot in the centre, similar to the Super Squirrel radiators, so that the top tube to the radiator can be kept clear of the central frame tube. Honeycomb radiators were used up to and including 1938, but in 1939 tube and fin radiators were introduced for Scotts and used thereafter.

Dimensions	1928	1932	1949
Header Tank Diameter	3½in.	3½in.	3½in.
Depth of Flat Side	6½in.	6½in.	6½in.
Width of Radiator	3in.	3in.	3½in.
Length of Radiator	13 ⁷ / ₁₆ in.	13in.	13 ⁹ / ₁₆ in.
Top Fixing Hole Centres	7 ⁷ / ₁₆ in.	7½in.	7 ⁹ / ₁₆ in.
Distance of Top Holes above Bottom Hole	5½in.	5½in.	4 ¹ / ₁₆ in.
Full or Slotted	Full	Slotted	Full

When considering replacement of a radiator the 1932 pattern can be used in any Flyer if the mounting plate is modified to suit the radiator holes. So far as I know the bottom fixing hole is always central and in the same relative position in all Flyer radiators.

FLYING SQUIRREL MODELS — DISTINGUISHING FEATURES (7)

For 1937 and 1938 the Flying Squirrel was continued as a single model, as in 1936, with either a 498cc or 596cc engine, and was virtually unchanged, so that the description in Distinguishing Features (6) in Vol. 11, No. 2, page 40, applies, except for items 4 and 18 and now items 19 and 20 described below.

4. **Forks, Wheels and Brakes.** Webb forks were now standard, with wheels and brakes continuing unchanged.
18. **Gear Change.** Foot change was now standard, with no provision on the frame for hand change and the off side gear cover was modified to suit. The foot change was still the bolt-on attachment first offered in 1933.
19. **Voltage Control.** Electric lighting had been standard since 1935 and, in fact, had been used since about 1924 and always used a charging system which the rider controlled by switching to "Charge" or not as he thought fit, during daylight hours, but in 1937 automatic voltage control was introduced. The control box for this on the Scott was fitted under the saddle, on the right hand side seat tube.
20. **Radiators.** At the very end of 1938 certain 1938 models may have been fitted with tube and fin radiators, which really belonged to 1939 models.

1939 Models.

For 1939, in addition to the standard Flying Squirrel, the Clubman Special was introduced, and as an extra on either model sprung rear suspension on the plunger system. All models were available with 498cc or 596cc engines, as required.

The Flying Squirrel was virtually unchanged, having the gear change modified as follows:—

18. **Gear Change:** The foot gear change was now built into the gear box end cover.
20. **Radiators.** The radiator was now a tube and fin radiator on car lines, not the honeycomb type used on all previous Flying Squirrels. It was chromium plated and from the side looked the same as 1938 models. The dimensions were, I believe, as given for the 1949 radiator, under the heading "Radiators" at the end of "Distinguishing Features (6)".

The Clubman Special. This was introduced in 1939 as a machine capable of matching, or surpassing, its sports competitors in speed trials, etc. and also as a superior road-going machine. It differed from the Flying Squirrel as regards the engine, tank, forks, rear wheel, carburettor, chain oiler tank, mudguards and stand clip.

1. **Engine.** This was standard in appearance, except for the cylinder wall oiling with an additional Pilgrim pump on the near side crankcase door and the suffix "CS" added to the engine number. There were, however, internal differences. The pistons had three rings, instead of the usual two, the porting was modified and the compression ratio was modified to suit particular conditions or purposes as requested by the customer

V11/12 Oct. 1980

FLYING SQUIRREL MODELS—DISTINGUISHING FEATURES (8)

4. **Forks, Wheels and Brakes.** Forks were now heavy weight Webbs and the brakes were the standard 7 in. front and 8 in. rear, with the Enfield cush hub, though I believe some particular Clubman models were fitted with an 8 in. front brake. Tyre sizes were as the customer requested and are known to have varied from 21 in. x 2.75 in. to 19 in. x 3.25 in. for the front and from 20 in. x 3 in. to 19 in. x 3.5 in. rear.
5. **Tank.** This was a wider version of the Replica tank and carried 4 gallons of petrol and $\frac{1}{2}$ gallon of oil, with two large quick-action filler caps. Black with gold lining was the standard finish, though I have no doubt variations would be made at the customer's request. Limit gauge badges were on the tank sides in the usual place, and on the tank top.
6. **Rear Carriers, Leg Shields and Mudguards.** Rear carriers and leg shields were available as extras, but not likely to be used on this model. The mudguards were more elegant than on the standard Flying Squirrel, having flared ends and tubular mudguard stays, but no Terry spring clip for the rear stand.
10. **Carburettor.** This was a larger than standard Amal with, on the later models, twin float chambers.
15. **Chain Oiler Tank.** This was mounted on the off side seat stay and was of triangulated shape, with a screw-on filler cap and was generally speaking similar to that fitted to some 1928 Flyers, 1929 Replicas and the Reynold Specials, but was slightly larger and had only two outlets.

FLYING SQUIRREL MODELS — DISTINGUISHING FEATURES Pt. 9.

V12/2 Feb. 1981

16. **Spring Up Stand Attachment.** This was the 1933 spring up stand unit and replaced the Terry spring clip. The stand was the usual Flyer type, with suitable stops arranged at the fork ends.

Rear Springing. This, as stated above, was an extra on both models, 10 guineas on the Flying Squirrel and £10 on the Clubman Special. The suspension was on a straight-forward, if somewhat unusual, plunger system, with a comparatively small movement. Unlike the conventional plunger systems of the day the piston was fixed to the frame and the wheel to the cylinder. The cylinder had two diameters, with a slot extending its full length on the front, which made it necessary for the walls to be very thick, to give the required rigidity. The centre portion had the larger diameter to accommodate the piston, which was recessed on each end to take the inner ends of the springs. There were two concentric springs of square section on either end of the piston, the lower ones being longer than the upper ones, which were the rebound springs. The cylinder on its rear carried the substantial fork end and lug for the rear stand, which was a shortened version of the standard item, with the springup stand attachment. The ends of the cylinder were closed by heavy screw on caps, each carrying a grease nipple. The wheel spindle was carried in the fork ends, with the usual wheel adjusters and, in some cases at least, specially toughened spindles were used.

To be continued.