HUNTER MODEL AUTO CLUB INC

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--SPECIAL EDITION GEARBOX—

Catalina PBY-5A Restoration Visit

Sunday 23 July 2023.

Catalina PBY-5A Restoration Visit Sunday 23 July 2023 by Paul Campbell

17 Hunter Model Auto Club members, family and friends visited the restoration project currently underway by the Rathmines Catalina Association at Beresfield NSW.

Always a good sign when the day starts with morning tea! And a talk about the aircraft – what stage they are up to and currently working. Also discussed were their completion plans for this great plane.

Sadly it's flying days are over and it now will be enjoyed as a static display from a bygone era.

A brief history from their website: -

In April 2013, after a seven year worldwide search, a Catalina Flying boat (PBY-5A) was located at San Juan Airport, Puerto Rico. The aircraft, which has become known as 'Our Girl', was built in late 1943 for the US Navy. Post war she was sold into private hands and the RCMPA purchased her from the Orinoco Mining Co.

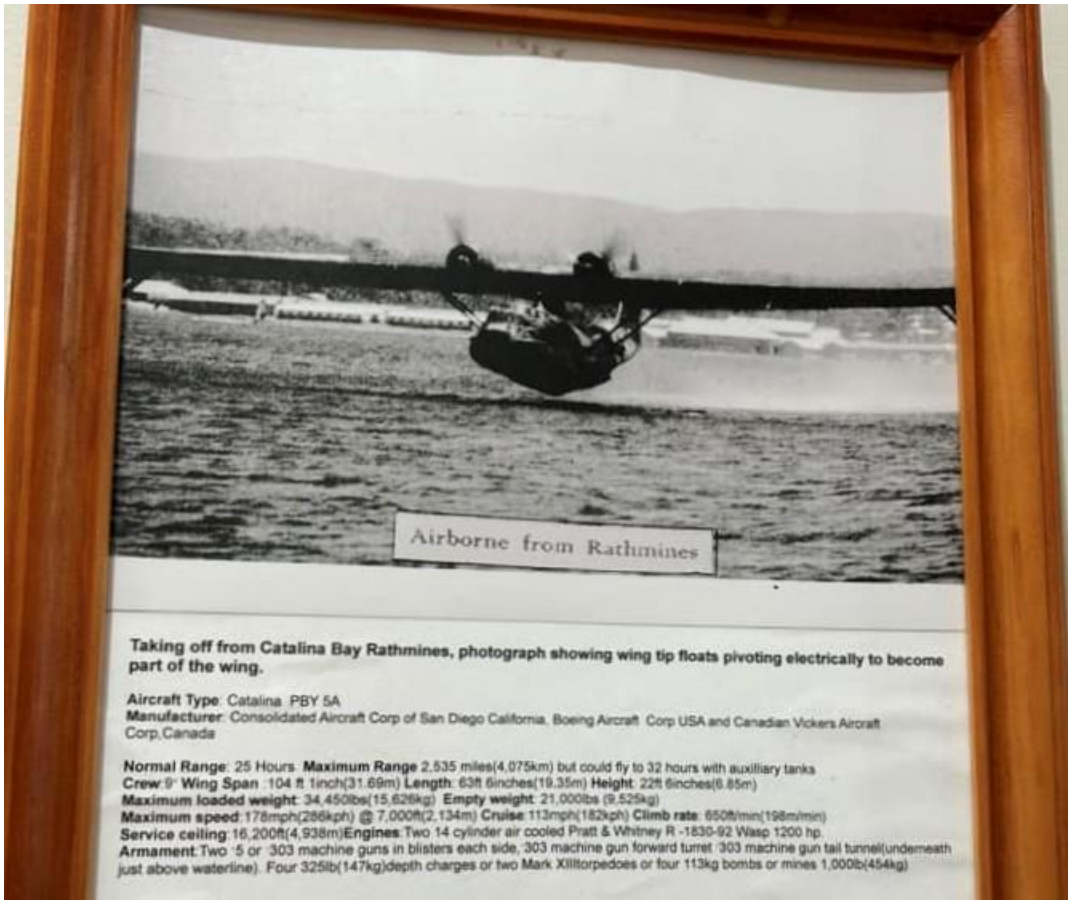
In poor condition after years of exposure to the weather, Association volunteers made numerous trips to San Juan to work on the logistics of dismantling and shipping the aircraft to Sydney. Prior to shipping, there was many hours spent in cleaning (ready for Australian quarantine inspection) and finally the aircraft was in five manageable sections and shipped over several months to Sydney.

Restoration commenced in May 2014, with three volunteers, to date over 25,000 hours of volunteer hours have been logged and volunteer numbers have grown to seventeen. It is anticipated that another 10,000 hours will be required to bring the aircraft to static display standards.

The aircraft will be brought back to WWII specifications, with the addition of side waist blisters, bow turret and the tunnel gun hatch. Wartime radio equipment, navigation and pilot instruments will be on display. Painting of the exterior fuselage and upper wing surfaces will be in a camouflage pattern, dark sea grey and a dark insignia blue. The underside wings and lower fuselage will be matt black.

The aircraft is currently in pieces with work underway on all sections. It was explained on our guided tour what they are currently working on and the problems with rust and oxidation they have encountered.

The restoration will include replacement of much of the Aluminium skin of the aircraft. This will be remade on site including some very detailed compound curved sections.



Taking off from Catalina Bay Rathmines, photograph showing wing tip floats pivoting electrically to become part of the wing.

Aircraft Type: Catalina PBY 5A
Manufacturer: Consolidated Aircraft Corp of San Diego California, Boeing Aircraft Corp USA and Canadian Vickers Aircraft Corp,Canada

Normal Range: 25 Hours **Maximum Range** 2,535 miles(4,075km) but could fly to 32 hours with auxiliary tanks
Crew:9 **Wing Span** :104 ft 1inch(31.69m) **Length**: 63ft 6inches(19.35m) **Height**: 22ft 6inches(6.85m)
Maximum loaded weight: 34,450lbs(15,626kg) **Empty weight**: 21,000lbs (9,525kg)
Maximum speed:178mph(286kph) @ 7,000ft(2,134m) **Cruise**:113mph(182kph) **Climb rate**: 650ft/min(198m/min)
Service ceiling:16,200ft(4,938m)**Engines**:Two 14 cylinder air cooled Pratt & Whitney R -1830-92 Wasp 1200 hp.
Armament:Two :5 or :303 machine guns in blisters each side, 303 machine gun forward turret :303 machine gun tail tunnel(underneath just above waterline). Four 325lb(147kg)depth charges or two Mark XIIItorpedoes or four 113kg bombs or mines 1,000lb(454kg)

This is a massive project in the hands of a passionate group of volunteers – HMAC will definitely be back again to check out the progress.

The day wouldn't have been complete without lunch with a great bunch of people at Mortels Café.

The next two pics show what the Catalina looks like in military livery.

A mighty `Black Cat' flying in modern times.

Another big thankyou to Paul for his report on the Club's visit to see the restoration of the type of aircraft that was once used by the RAAF and will replicate a genuine part of Australian Military history from WW2.

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As a follow up to Paul's report, this is a brief story about the secret operations of the RAAF Black Cats, in conjunction with the U.S. Seventh Fleet, in ***air-borne mine laying operations to disrupt Japanese supply routes in WW2.*** I was able to source this article from a book **`RAAF Black Cats – The secret history of the covert Catalina mine-laying operations to cripple Japan's war machine'** by Robert Cleworth & John Sutor Linton. This book is currently available for sale through the Australian War Memorial Shop in Canberra and can be purchased on-line.

If you are interested, it is well worth reading and gives accounts from those who took part as well. There are some interesting quotes from U.S. Military Officers as to the success of the RAAF Black Cats in their mine laying operations that included long hours in the air and extremely dangerous manoeuvres in completing their task under constant anti-aircraft fire in the target area as well as the chance of being attacked by Japanese fighter aircraft.

The RAAF Catalina was actually designated a heavy bomber and though slow, slightly vulnerable and designed for anti-submarine patrols, it became a major weapon for Australia's long range bombing and mine laying campaigns in WW2. Though the RAAF Catalina is well known as being used for reconnaissance and search and rescue operations in WW2, nearly 75% of its operations actually involved long range offensive strikes and mine laying in the Dutch East Indies and South West Pacific almost up to China's mainland. They were painted matt black due to their use in the hours of darkness.

In 1940 Australia had acquired 18 Catalinas from the U.S. under the lend-lease agreement to be used as patrol aircraft, but as Japan moved South, they were then used as long range bombers on enemy shipping and other targets. By early 1943, the RAAF had thirty serviceable Catalinas in operation and they were all `flying boat' types. Later in the year they would receive the `amphibious' versions. From 1943 to 1945, the versatile RAAF Catalinas mined Japanese occupied ports in the South West Pacific war zone, and at the end the war they conveyed urgent medical supplies to, and then ferried home, our released prisoners-of-war. They were also used for convoy escort duties, the delivery of Australian Z Special units behind enemy lines and the delivery of supplies to coast watchers behind enemy lines.

Many of us probably know little about the RAAF's mining operations in WW2 as secrecy was imposed on those who took part in this dangerous campaign. As well, in 1945 the RAAF and Australian Government decided to keep secret the development of the mines and how they were used operationally. In any case the records relating to this part of our military history were shipped off to the United States after the war, even though it was a joint operation between the RAAF and the U.S. Navy. However, the excellent results of these covert Black Cat operations were very important to MacArthur's strategy for the defeat of Japan.

These were very dangerous sorties flown by the Black Cats, often in appalling weather, to hamper Japanese supply routes. They flew in low and sometimes at around 60 to 150 feet above sea level to drop the mines and in complete darkness whilst experiencing close defensive anti-aircraft gunfire from the enemy. Maybe it is because the aura of Spitfire and Lancaster bomber stories in WW2 have predominantly held our interest as the years have rolled on, that we missed out on our RAAF Black Cat exploits.

In the European theatre of war, both sides had used mines as an offensive mode of warfare, but in the Pacific the U.S. had been slow on the uptake of mining to stop the Japanese from supplying and supporting their land-based troops. Submarines were now being used to release magnetic mines and in early 1943, Avenger torpedo aircraft were used to mine the Southern tip of Bougainville. Their mines were dropped from around 1500 feet and with the water being of various depths, if they settled into the deeper water they would be ineffective. The operation was considered successful for what it achieved, but this method of mining was considered challenging. These aircraft were not available after this operation as they were required for MacArthur's Rabaul offensive.

Japan was now concentrating their efforts in building up air and port facilities in the Bismark Archipelago North East of New Guinea with the intention of renewing their thrust towards Port Moresby, so U.S. Admiral Nimitz pushed for aerial mining of Japanese ports and harbours.
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To cut a long story short, a Royal Australian Navy Officer was seconded to the RAAF as he was experienced in aerial mine laying in the European theatre of war when attached to the Fleet Air Arm (Royal Navy.) He believed the Catalina would be ideal for aerial mine laying and subsequent meetings with Senior Officers in the Australian Military led to his ideas being passed onto MacArthur.

As U.S. Navy Catalinas were not available due to their use in other areas, the RAAF Cats were thought to be ideally suited for these operations and, in any case, the Catalina was the only suitable aircraft available in 1943 in the Pacific for mine laying. Though the B-24 Liberator bomber had the capacity and range, it was not available to the RAAF till 1944. The Catalina could alight and be refuelled on the ocean using submarines or surface tankers whereas the Liberator was restricted as to how far it could fly before returning to base for refuelling. After mine laying trials had been conducted successfully, the Senior Australian Officers were able to convince MacArthur that this was the way to go and he eagerly authorised their use from that point.

The Catalina was originally designed and built to meet U.S. Navy requirements in 1933 as a flying boat. The amphibious models could be used on both land and sea. The Catalinas used by the RAAF were modified out here for mine laying and as it did not have bomb bays, any torpedoes, bombs or mines were carried on racks under the wings. The RAAF also made alterations to the aircraft to improve performance levels and extend its range for mine laying. One example was the removal of some of the armour plating to lighten the aircraft, even though this made them vulnerable to small arms fire from ground troops as the Cats flew in so low to drop their mines. Modifications were made at either Lake Boga near Swan Hill in Victoria, or at the Rathmines base near Newcastle.

Great secrecy surrounded the mines as there had been many technological advancements made in achieving their destructive potential, especially in the area of magnetic and acoustic sensors which was a credit to those involved and resulted in specific operational procedures for deployment. Crews were ordered never to drop a mine into shallow water or on land. If they couldn't get to their target they were to return to base with the mines or drop them at a pre-determined safe location. The mines should never be allowed to fall into enemy hands. To add to the danger, some early sorties saw mines explode upon hitting the water and this could easily damage the Catalina due to its being flown so low.

At first the Japanese thought the mines were being laid by submarines as they believed that the targets would have been out of the range of aircraft. Eventually they came to realise that the mine laying operations were being conducted by the modified RAAF Black Cats.

An RAAF Black Cat that didn't make it back home. This pic taken on the beach at Balikpapan at War's end.

Overall, the operations conducted by the RAAF Black Cats had a positive impact towards assisting in the defeat of Japan by the Allied Forces. RAAF Catalinas flew 1,210 mine laying sorties over 240 nights with 1,130 of these being successful. Some sorties meant almost 24 hours in the air with only a short stop at an enroute base to refuel before returning back to their home base.

Parts of a post WW2 American report on the effects of the mining by the RAAF and U.S. Navy included the following benefits of these operations: The sinking of and damage to enemy shipping, the disruption and delay in movement of enemy shipping, the time lost by enemy ships due to delays in harbour awaiting the completion of mine sweeping operations and the holding up or loss of vital supplies such as oil and raw materials.

Importantly, it should be noted that seventy five crew members and eleven Catalinas were lost during this phase of the RAAF's operations that took place between 1943 and 1945. Terry.

-- PORSCHE 924 AND 944 – DIFFERENT --

Some time ago I posted a couple of pics on our Facebook page of a Porsche 944 that belongs to a local gent down here. ***See next pic.*** Today we usually think of Porsche as the embodiment of the rear-engined rear-wheel drive sports supercar. I think we forget that they also produce a Cayenne SUV and the four door Taycan and Panamera sedans and sports wagons. A quick glance at their Australian site will show twelve [12] *718* models and Twenty-six [26] *911* models currently available to purchase, and this is not including the four-door and SUV models. Now that is almost unbelievable, yet I would think many would have to be imported as special orders surely.

However, if we go back forty odd years, Porsche commenced a programme to transform their model range from being solely a rear-engined, rear-wheel drive sports car, to include a more orthodox type of automobile that could be considered closer to an entry-level creation, but still be seen as a respectable sports car. Enter the ***Porsche 924.***

Go back further and the original Porsche ***356*** series was replaced in 1964 by the larger, and more powerful 1.8 litre six-cylinder engined Porsche ***911*** which was basically, the only Porsche automobile on the market. Knowing that an entry-level sports car was required, and in collaboration with VW, Porsche developed the *912* series which would run from 1965 to 1969. The 912 was actually powered by a smaller 1.6 litre engine and, being slightly lighter with excellent handing and with a cheaper price tag, led to excellent sales over its four years in production. So it appears that with this proven production history, Porsche, and with collaboration with VW again, had no problems developing their ***Porsche 924*** along the same lines, that is, an entry level sports car that should be quite profitable and it hit the show rooms for the 1976 model year.

Minichamps 1:43 scale diecast model of a Porsche 924.

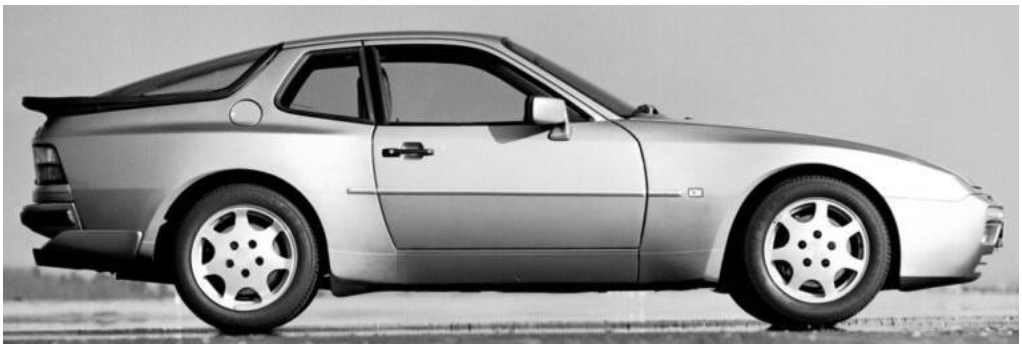
The Porsche 924, designed solely by Porsche, would also use parts from both VW and Audi and was built by Audi in Neckarsulm, where the old NSU vehicles had been built. Porsche was looking for a nice aerodynamic design and that included a flat bonnet with pop-up headlights. In 1983, They would include a black rear spoiler to lower their Drag Coefficient (Cd) level as shown in the model ***in the above pic.*** A liquid cooled engine would be used for the first time in a Porsche as had been used in the Audi 100, but modified by Porsche. It also drove the rear wheels through a transaxle structure which is where the actual transmission was in front of the differential, although both were housed together.

For the 1982 model year, Porsche introduced the new ***944*** and from 1986, the *924* model would now have an engine made by Porsche that came out of the *944.* This new 924 model would have the designation of 924 S and it was far more advanced than previous models in having, not only the 944 engine, but the 944 braking system, chassis components and some of its interior equipment.

The Porsche 924 was slightly underpowered initially, and not that popular in the U.S.A. However, later versions were certainly an improvement performance wise, and in any case, they had always been known for exceptional handling. Another plus for the 924 occurred in 1985 when seats from the 911 were added to the model. Some motoring historians have claimed that the 924 was indeed an unrealistic attempt by VW to produce a *`proper'* sports, but with the introduction of the 1982 model year ***Porsche 944***, they now had a front engined sports car that could be seen as a *`genuine'* Porsche sports car by motoring enthusiasts. As well, sales had been slipping for the 924 and the CEO of Porsche had seen the need for a replacement so development for the new model had already started in 1980.

Porsche 924 Turbo in 1:18 scale diecast by MCG.

Initially, the ***Porsche 944,*** though it was based on the 924 body, as far as pricing and performance went, sat between the 924 and the sole 911 version at that point in time, the 911 SC. The 944 had a 163 hp (120 kw) 2.5 litre in-line four-cylinder engine. By 1989, though now having been upgraded with a 2.7 litre engine with a slight increase in power, the 944 was becoming a bit dated, so it underwent a slight body styling change to appear more *`muscular'* and benefit from its quite powerful range of engine options. In fact, the 944 engines had received many improvements over the years, especially with its turbo charged power plants. Besides in Europe, the 944 was sold in the UK and the U.S.A. from 1982 and sales were very high for this model.



A more muscular profile of the 1989 Porsche 944 Turbo S.

Many versions of the 944 were turned out before production ceased in 1991 with the base model lasting through to 1989, even though it overlapped the 924 till that model finished up in 1988. The engineers at Porsche added a turbocharger to the 944 engine that resulted in the 944 Turbo Coupe that ran from 1985 to 1991. In 1989 they added another model, the 944 S2 Coupe that had a facelifted body and a 3.0 litre 16-valve DOHC four cylinder engine that produced 208 hp or 153 kw. As well, for the first time in the 911 series, Porsche introduced a cabriolet or convertible to the range. The special cabriolet body was made by the American Sunroof Company of Weinsberg, Germany and in the final year of 944 production, Porsche added a turbo cabriolet model to the range. All Porsche 944 models ceased production in 1991 to make way for the Porsche 968. The 944 was available with both naturally aspirated and turbocharged engines and in coupe and convertible models and they are often mentioned as being close to the best handling rear wheel drive car ever. *Terry.*

LOOKING BACK AT CORGI'S 1:50 SCALE DIECAST MODEL OF THE DAIMLER DC27 AMBULANCE.

Time to go back again in time to a past Gearbox and look at the Daimler DC27 Ambulance. *Terry.*
Being a collector of Corgi 1:50 scale diecast double decker buses in the ***`Classic'*** series, I also looked at other 1:50 scale models, and in particular, their ***`9 double 9'*** series of emergency vehicles. At the time, these were being produced by Corgi in Emergency Services models such as the Dennis F12 Fire Engine and the later model Mini Cooper Police sedans. Besides other emergency vehicle variations, Corgi also produced ambulances such as the `J' Model Morris ambulance and the Daimler DC27 Ambulance, to name a few.

Though models from that series are readily available on eBay Great Britain, my understanding is that Corgi no longer have this series in production. It is definitely not mentioned on their website. Anyway, and I am glad I took a punt and purchased one of the ambulances, the Daimler in the City of Birmingham Fire and Ambulance Service livery as shown in ***the lead-in pic.***

It is in 1:50 scale diecast and turned out to have excellent detailing. I was very happy as it only cost A$48 landed out here at the time and I thought it was excellent value for money. Pretty quickly I purchased another Daimler Ambulance in the livery of the Croydon Ambulance Service. This time it only cost A$42 landed from England. ***See next two pics.*** *[I'd say that these prices may have doubled, or even tripled today.]*

Around this time I discovered that Corgi had also introduced their new 1:76 scale *`Buses for London'* or, as some us know them, the *`Boris'* Buses. This is because the program to get them on the road was instigated to some extent by Boris Johnson, the then Lord Mayor of London. These new Corgi models were not cheap, but I just had to have a few. That meant no more Daimler ambulances for my display cabinet for a while. Maybe never now due to their prices.

It is hard to say what the attraction was for the Daimler as an ambulance to be modelled in the first place? The first Daimler ***DC27*** Ambulance was registered on 1 February 1949 and saw service in the central London district till the late 1950s. It has been recognised by many collectors that the Daimler DC 27 Ambulance is one of the most recognised British ambulances used in modelling, thanks initially to Dinky and then Matchbox. The Daimler was iconic in the 50's on the road as an emergency vehicle and also as a scale model. Interestingly, the Dinky versions, mainly from the early 50's, are in abundance on eBay and quite cheap, but are mostly very play worn. Many are repaints and some have reproduction wheels.

Those in good condition and with their original box are going to set you back anywhere from A$150 upwards landed in Oz. *[At the time of the original article]* Matchbox models are similarly priced, and their second series, issued from 1957 to 1961, and in excellent condition are mostly over A$400 landed. In play worn, but acceptable condition, Matchbox, like Dinky, can be as low as A$50 landed from Britain. ***In the next pic at left***, when sold on eBay Great Britain, it would have cost A$180 landed. It was advertised as in excellent condition with the original box. ***The pic at right,*** shows this play worn model that could have been yours for A$15 landed out here. New wheels perhaps, but definitely a re-paint would have turned it into a nice model.

A bit of history. After WW2, the London County Council (LCC) had a prototype ambulance made that, after inspection and modifications, satisfied an advisory committee from the Ministry of Health as to its suitability for emergency and accident duties. It was then decided to commission another ambulance from an English firm and Daimler produced their version built on their multi-purpose DE27 chassis. As well, besides having the main features required by the London County Council, it was designed specifically for use in the City area and could reach a top speed of close to 100kph. The Daimler's ambulance chassis became the ***DC27.***

The DE chassis was used by Daimler in their armoured cars and had a separate steel frame with side rails that were strengthened with cross shaped bracing. The chassis was then able to be used by coachbuilders to produce a vehicle of their own, or a commissioned design, which was often a large bespoke limousine styled saloon. The DE chassis came in two lengths, the short wheel based DE27 with their six cylinder engine and the long wheel based DE 36 that their eight cylinder motor sat in. The latter was used mainly for Royalty associated vehicles in Britain or special orders for overseas dignitaries.

To start with, the LCC ordered 120 of the ***DC27*** Daimler Ambulances. Interestingly, and a reflection on their build quality and longevity, the first ambulance registered in 1949 was used in the Central London district till the late 1950s and, after being decommissioned, was handed over to the London Ambulance Service Historic Collection. It has been maintained in its original condition with the equipment on board as used in that era. It is now part of a collection of classic ambulances maintained and available for television work and special events. There would be over 200 Daimlers ordered by the LCC and, with other British Ambulance Services using them, 499 of these Daimler Ambulances are believed to have been built and used throughout Britain.

The Daimler ambulance was built to be as low as possible to make it easy for crews to manipulate stretchers and their patients in and out of the rear of the vehicle. It had a large working area and that area was fitted with both heating and air-conditioning. A rear section of the floor was actually made from concrete for added weight to aid in handling on wet or muddy roads. Many were made with sets of built-in scissor jacks front and rear for quick tyre changing.

I read that the DC27 Daimler ambulance was built initially by Barker and Company, Coachbuilders, and later by Hooper and Company. The odd thing is that both companies were owned by the Birmingham Small Arms Company (BSA) who owned Daimler. Interesting! Though almost identical, the earlier Barker bodied models have a twin waist band as is evident on the above Matchbox model as well as the Corgi Birmingham liveried model. The Hooper bodied models have a single waist band as seen on the Croydon Ambulance Service Corgi model. Certainly nice models and genuine icons for collectors.