

# WAMASC Newsletter

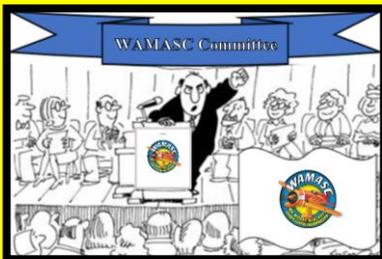


November 2019

## Correct Colour Scheme



## WAMASC Committee



## CASA part 149



## Car Radio



should any individual have anything at all they would like to contribute, share or add to this newsletter, please feel free to contact the [editor](#) through the [Club Secretary](#) via [✉ secretary@wamasc.com.au](mailto:secretary@wamasc.com.au) – enjoy

## Correct Colour Scheme?

Whenever we go flying our aircraft and are airborne - one of the **biggest criteria** to take into consideration is **visual orientation**. Let's face it, if you don't know which way your aircraft is facing or heading (attitude) – it's going to end in tears.

Now we all know that contrast is the key to producing a beautiful, visible paint scheme. But what paint schemes are easy to see and show aircraft orientation? Good question; but here are some facts that have been derived from a lot of scientific research.

**The paint scheme of an aircraft is actually irrelevant.** All this talk about colour and contrast improving the ability to see and control an aircraft from great distances is hog wash.

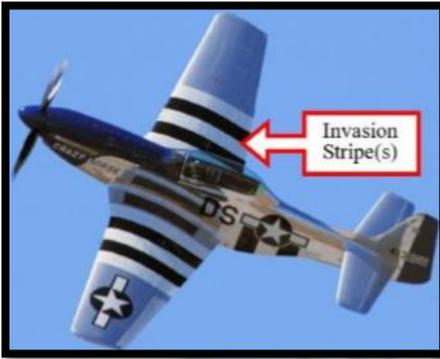
The fact is to gain better orientation one would have to change the size of their model or fly closer to the ground.

On the ground, or in line-of-sight near parallel to the ground, colours and patterns do make a direct impact on visibility and orientation. But against a sunlit sky, colour does very little to increase visibility.

That said 'colour research' determined that what one sees on the ground had no relation to what was visible when airborne (in the sky). This is because when an aircraft flies between you and a source of light, such as the sun, the aircraft becomes a mere silhouette in as little as 250 feet of distance (obviously this is dependent on the relative size of the model).

Obviously then, a paint scheme should be organised to orient the aircraft during its three most critical phases of flight: take-off, landing and low manoeuvres.

Now for another surprise, the most visual and effective design tested are 'invasion stripe(s)'. The same stripes that were used in Europe during WWII to identify allied aircraft. Invasion stripes are a pair of large wide stripes running with the cord of the wing or vertically on the fuselage. The stripes wrap completely around the surface covering both the top and



bottom with no breaks. Sunburst, diagonal stripes, and smaller forms of stripes help little in increasing visibility or orientation. Large areas of contrast, such as the entire bottom of the aircraft or 50% or more of a wing panel proved effective but, believe it or not, did not offer the banking orientation that the invasion stripes did.

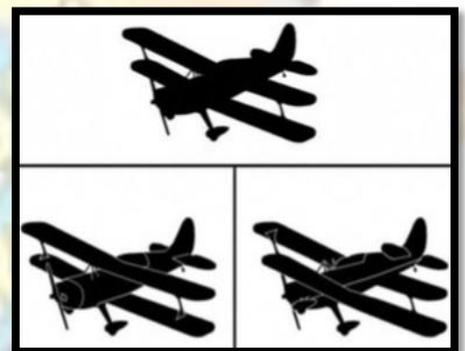
Invasion stripes seem to form a **3-D effect** in the air. The shape of the leading edge and the contrasting area between the stripes creates this 3D effect. You really have to see it to believe how something so simple can be so effective.

It is quite easy to determine the bank of the wing or direction of the turning aircraft by the apparent shape of the invasion stripes. My guess is that someone knew exactly what they were doing back then. Whether they stumbled onto this pattern effect or found it through a lot of testing is unknown. The fact remains that it gave fighter aircraft of the day a tactical advantage and edge during dog fights especially when co-ordinating aerial movement from and with ground-based observers.

Having good visual sight of your aircraft at all times is an understatement – it is absolutely crucial, and essential. Probably more so, if, and when, flying pattern. So, what about disorientation? Whenever I mention this problem to a novice, beginner, or someone who is not involved with aeromodelling, it always appears as if the extent of the problem doesn't sink in or just doesn't exist. I think a lot of people believe that it just can't happen to them. Any experienced aeromodeller will confirm that disorientation is a very real problem indeed.

**Disorientation** simply means that the model looks like it is going one way when in fact it is going in another direction altogether. You might think that if you keep the plane in close then it won't be possible to become disoriented. That simply isn't true. One can become disoriented regardless of the distance the model is from the pilot. Being quite honest I still occasionally lose orientation of my models but don't let on, and I have been flying for more years than I want to think about. When I lose orientation with an aircraft at a high altitude it doesn't trouble me too much because I can slow the model down and work its direction of travel by moving the controls and watching what my model does in response.

More disconcerting is becoming disoriented when the model is at a low altitude. If you find out that the model really is going in a different direction than you think it is then you may not have time to do anything about it before you plant, it. **Do not panic** when and if you become disoriented. **Often the model is going the way you think it should be going regardless of the message your eyes are sending to your brain.** You can have confidence that the model is most likely on the course you last set it on unless the model just flew through the **Bermuda Triangle**. Let's face it – if you are on approach



for a 'touch & go' or 'landing', you will have already set up and would be aware of your aircraft's orientation. If you do however feel that you have reached that – "Houston we have problem" moment, don't give any abrupt or prolonged control inputs. Just wiggle the ailerons or elevator gently and watch what the aircraft does. The response of the model should give you clues as to what orientation or attitude it is in. The picture of three aircraft (silhouetted above right) depicts what we actually see at times. Look closely – all three (3) are in a **different** state

of direction hence it is an aircraft's marking(s), not its colour scheme, that are extremely important for visual orientation.

**Situational awareness** is always helpful. Even before take-off one should be aware and know who else is flying and who is standing in nearby proximity to your pilot station. If you become disoriented don't be afraid to call out to someone and make them aware of your predicament. They will most likely be able to assist and see which direction your model is heading from a different viewpoint.

Remember it is great to view and see a great looking aircraft on the ground – we all appreciate a great colour scheme and paint job. Unfortunately, it is not the colour, but marking pattern, that assists our visual orientation.

## **WAMASC Committee**

I make special note that a lot of work goes on behind the scenes which is often never seen, acknowledged or even heard of. I would like to take this time to thank those who have had the gumption to step up to the plate and perform the tasks required to keep a Club such as WAMASC running – they are numerous. It is not always an easy task or thing to do without thanks or recognition.

Please take the time to note; that those of us who, 'just want to go and fly' - only do so, due to the dedication and input of those who selflessly volunteer their time and services freely. Without them, it all could not be achieved and would not happen in a controlled and insured airspace.

The old and very true adage of "**You can please some of the people some of the time - but not all of the people all of the time**", should be remembered as it is an impossible task to have each and every person on side and happy with conditions. Please be mindful that right, wrong or indifferent the people who work behind the scenes are only human and are there for you and are doing their best. Their best may not always be up to scratch or par; but they are doing something.

## **MAAA invited to become an ASAO**

**In early January 2012 the news from CASA was that it expected that most RAAO (Recreational Aviation Administration Organisation) facilities, such as WAMASC, would start the move to becoming an ASAO (Approved Self-administering Aviation Organisation) body under CASR Part 149 sometime in 2019. That time is nearly upon us and it means there will be some changes to how we do business.**

How that will affect the 'man on the land' (**the daily flyer**) is quite important and one should be very aware of their responsibilities under these new laws which are mapped out by CASA and administered through the MAAA using its State Association of the AWA.

These new laws (regulations) have come about and been put in place due to the myriad and frequency of misdemeanours' occurring with regularity with model aircraft that share the skies with their larger full-scale rivals. The main cause and focus on ceiling height offences above 400'. There are massive fines in place that will be administered to the individual perpetrator(s) when found; hence, it would be extremely advisable and prudent for an individual to be very much aware and know his **MOP's** (Manual of Procedure's).

MOP's are there for the benefit of all. Like any set of rules, which we all live by, the excuse of – I wasn't aware of them will not wash.

The adage that ‘you can lead a horse to water – but, you can’t make it drink’ runs very true. The information is out there for all and sundry; but one has to read it.

For ease of access herewith a link to the MAAA MOP’s <https://www.maaa.asn.au/club-support/maaa-documents>.

CASA has delegated responsibility for administering particular sectors of recreational aviation to the following:

- RAAO (Recreational Aviation Australia Organisation),
- SAAA (Sport Aircraft Association of Australia),
- GFA (Gliding Federation of Australia) and the
- AFP (Australian Parachute Federation).

The introduction of CASR Part 149 creates the higher-level ASAO status, which the MAAA (Model Aeronautical Association of Australia) will become. The trickle on effect provides for organisations other than recreational groups to self-administer their own activities. In short this means a Club, such as the likes of WAMASC, will have increased responsibilities and be more liable for any faux pas committed due to self-administration.

CASA is very much aware that Part 149 will require a baseline governance capability that is in line with modern expectations but not beyond the safety and governance level of the organisation(s).

Already in legislation CASA have placed the onus on organisations seeking to be granted a Part 149 certificate to improve their safety and administrative governance arrangements.

Part 149 self-administration functions **will not** be placed in regulation but rather in a **MOS (Manual of Standards)** allowing for easier growth of available aviation functions/organisations that are self-administered and also allowing Parliamentary review of who/what is allowed self-administration through the MOS amendment process.

CASR Part 149 will specify the requirements for the certification and operation of the aviation administration organisations applicable to the administration of **sport and recreational aircraft activities**. Currently there is no certification process and no standards have been set. This Part will allow existing organisations to continue to administer their own activities provided they meet, and continue to meet, the prescribed standards.

The Civil Aviation Act 1988 (the Act) establishes the regulatory framework for maintaining, enhancing and promoting the safety of civil aviation, with particular emphasis on preventing aviation accidents and incidents.

The Civil Aviation Legislation Amendment (Part 149) Regulations 2018 (the Regulations) makes various amendments to the Civil Aviation Regulations 1988 and the Civil Aviation Safety Regulations 1998 (CASR), primarily to make a new Part 149 of CASR - Approved Self-Administering Aviation Organisations.

**At present, no formal regime exists for the regulatory oversight of sport and recreational aviation organisations. Instead, the focus of existing civil aviation legislation governing sport and recreational aviation activity is on the operation of certain kinds of aircraft by individuals in accordance with specific exemptions against the relevant regulatory requirements, rather than on the organisations that administer sport and recreational aviation activity.**

The introduction of CASR Part 149 improves aviation safety through the introduction of a consistent framework, for a wider field of activities beyond those administered by sport and recreational aviation organisations, that would require each organisation to ensure its activities are not likely to have an adverse effect on the safety of air navigation, i.e. on the safety of all airspace users, not just the affiliates and members of individual organisations.

## CASA part 149



Australian Government

Civil Aviation Safety Authority

CASA part 149 has now entered legislation and the MAAA has been invited to become an ASAO (Aviation Safety Administration Organisation). Prior to the MAAA entering into any agreement, Part 101 must be changed. In respect to club operations, nothing will change. Part 149 places several extra administration activities upon the MAAA but these will not flow down to ordinary members or clubs. As mentioned, Mr. Kevin Dodd is currently preparing the necessary expositions and job profile for an MAAA Safety Manager. More will be advised as 2019 progresses.

The Senate deliberation, in respect to unmanned aircraft, has concluded and recommendations submitted. Although the Federal Government has not agreed to all recommendations, it has agreed to the compulsory registration of all pilots and/or aircraft. The MAAA has been invited to join a working group in respect to the implementation of this process, the MAAA Secretary being our representative. It is our belief that the MAAA safety systems and operating procedures are such that membership of the MAAA should be enough to avoid compulsory registration. The MAAA Executive believes the current training processes, club culture and safety attitude of members is far superior to any proposed process implemented by the authorities. The safety record of MAAA members has been publicly acknowledged by CASA and other organisations on many occasions. This is the very reason we enjoy the privileges we do today. The MAAA will continue to repeat our views in an endeavour to ensure members' rights are maintained.

The direction by CASA in respect to height limits for all RPAs is now in place and from 30<sup>th</sup> October 2018, no model aircraft is permitted to be flown over 400 feet (121 metres) unless it is flown in an area approved by CASA. MAAA clubs that haven't applied for a height clearance and who desire to fly higher than 400 feet should do so through their State Secretary.

## Car Radio, an interesting Story

I recently received an interested email and had to pass it on. Radios are so much a part of the driving experience; it seems like cars have always had them. But they didn't. Here's the story with a very remarkable aviation connection. One evening in 1929, two young men named William LEAR, and Elmer WAVERING, drove their girlfriends to a lookout point high above the Mississippi River town of Quincy, Illinois USA, to watch the sunset. It was a romantic night to be sure, but one of the women observed that it would be even nicer if they could listen to music in the car.

LEAR and WAVERING liked the idea. Both men had, in some form, tinkered with radios previously - LEAR, serving as a **radio operator** in the **US Navy** during World War I. It wasn't long before they were taking apart a home radio and trying to get it to work in a car.



It wasn't as easy as it sounds. Automobiles have ignition switches, generators, spark plugs, and other electrical equipment that continually generate noisy static interference, making it nearly impossible to listen to a radio when the engine is running. One by one, LEAR and WAVERING identified and eliminated each source of electrical interference. When they finally got their radio to work, they took it to a radio convention in Chicago where they met **Paul GALVIN**, owner of the Galvin Manufacturing Corporation. He made a product called a **battery eliminator** a device that allowed battery-powered radios to run on household AC current.

But as more homes were wired for electricity, more radio manufacturers made AC-powered radios. Galvin needed a new product to manufacture. When he met LEAR and WAVERING at the radio convention, he found it. He believed that mass-produced, affordable car radios had the potential to become a huge business.

LEAR and WAVERING set up shop in GALVIN'S factory, and when they had perfected their first radio, they installed it in his Studebaker. Post that instalment GALVIN went to a local banker to apply for a loan.

Thinking it might sweeten the deal, he had his men install a radio in the banker's Packard. Good idea, but it didn't work – half an hour after the installation, the banker's Packard caught on fire (They didn't get the loan).

GALVIN didn't give up. He drove his Studebaker nearly 800 miles to Atlantic City to show off the radio at the 1930 Radio Manufacturers Association Convention. Too broke to afford a booth, he parked his car outside the convention hall and cranked up the radio so that passing conventioners could hear it. That idea worked – he got enough orders to put the radio into production.

**WHAT'S IN A NAME** - That first production model was called the **5T71**. GALVIN decided he needed to come up with something a little catchier. In those days many companies in the phonograph and radio businesses used the suffix '**OLA**' for their names – **RADIOLA**, **COLUMBIOLA**, and **VICTROLA** were three of the biggest. Galvin decided to do the same thing, and since his radio was intended for use in a motor vehicle, he decided to call it the **MOTOROLA**.

But even with the name change, the radio still had problems. When MOTOROLA went on sale in 1930, it cost about \$110 American uninstalled, at a time when you could buy a brand-new car for \$650 American, and the

country was sliding into the Great Depression. (By that measure, a radio for a new car would cost about \$3,000 American today.)

In 1930 it took two men several days to put in a car radio – the dashboard had to be taken apart so that the receiver and a single speaker could be installed, and the ceiling had to be cut open to install the antenna. These early radios ran on their own batteries, not on the car battery, so holes had to be cut into the floorboard to accommodate them.

The installation manual had eight complete diagrams and 28 pages of instructions.

Selling complicated car radios that cost 20 percent of the price of a brand-new car wouldn't have been easy in the best of times, let alone during the Great Depression – GALVIN lost money in 1930 and struggled for a couple of years after that. But things picked up in 1933 when Ford began offering MOTOROLA's pre-installed at the factory. In 1934 they got another boost when GALVIN struck a deal with the B F GOODRICH Tire Company to sell and install them in its chain of tyre stores. By then the price of the radio, installation included, had dropped to \$55 American. The MOTOROLA car radio was off and running. (The name of the company would be officially changed from GALVIN Manufacturing to MOTOROLA in 1947.)

In the meantime, GALVIN continued to develop new uses for car radios. In 1936, the same year that it introduced push-button tuning, it also introduced the MOTOROLA Police Cruiser, a standard car radio that was factory pre-set to a single frequency to pick up police broadcasts. In 1940 he developed the first handheld two-way radio – the 'Handie-Talkie' – for the US Army.

A lot of the communications technologies that we take for granted today were born in MOTOROLA labs in the years that followed World War II. In 1947 they came out with the first television to sell under \$200.

In 1956 the company introduced the world's first pager.

In 1969 it supplied the radio and television equipment that was used to televise Neil ARMSTRONG's first steps on the Moon.

In 1973 it invented the world's first handheld cellular phone.

Today MOTOROLA is one of the largest cell phone manufacturers' in the world. And it all started with the car radio.

The story does not end there - the two men who installed the first radio in Paul GALVIN's car, Elmer WAVERING and William LEAR, ended up taking very different paths in life.

WAVERING stayed with MOTOROLA and in the 1950's he helped change the automobile experience again when he developed the first automotive alternator, replacing inefficient and unreliable generators. This invention led to such luxuries as power windows, power seats, and, eventually, air-conditioning.

Lear also continued inventing. He holds more than 150 patents.

Remember eight-track tape players? Lear invented that.

But what he's really famous for are his contributions to the field of aviation.

He invented radio direction finders for aircraft. Aided in the invention of the autopilot. Designed the first fully automatic aircraft landing system.

And in 1963 introduced his most famous invention of all - the **Lear Jet (Learjet)**. The world's first mass-produced, affordable business jet.

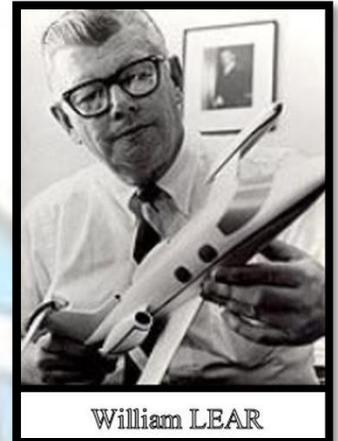
**A QUICK HISTORY OF THE LEARJET** - On the 07<sup>th</sup> of February 1963, assembly of the first Learjet began. The next year, the company was renamed the **Lear Jet Corporation**.

The first (original) all American built Learjet 23 was as a six-to-eight-seater twinjet, high-speed business jet created for a new market for fast and efficient business aircraft to cater to the mega-rich and first flew on the 07<sup>th</sup> of October 1963. The first production model was delivered in early October 1964.

Although the prototype crashed in June 1964 the Learjet 23 was awarded a type certificate by the FAA (Federal Aviation Administration) on the 31<sup>st</sup> of July 1964. On the 13<sup>th</sup> of October 1964, the first production aircraft was delivered. Production of the Learjet Model 23 ended in 1966 after one hundred and one aircraft had been delivered. In 1998, thirty-nine (39) Learjet Model 23's were estimated to remain in use. Twenty-seven (27) are known to have been lost or damaged beyond repair through accidents, the most recent in 2008.

It is still possible to purchase one.

Pictured adjacent right is a picture of William LEAR holding his first developmental prototype - the original Learjet 23, circa 1963. The newest model on the block is the Learjet 85. The company is now Canadian owned and a subsidiary of **Canadian Bombardier Aerospace**. The 3,000<sup>th</sup> Learjet was delivered in June 2017.





# SAFE FLYING

The Pessimist Sees Difficulty in Every Opportunity.  
The Optimist Sees Opportunity in Every Difficulty.

**Winston CHURCHILL**