



1. Effectivity

All aircraft owners, operators and maintainers responsible for selecting and/or installing tyres on Australian aircraft.

2. Purpose

To provide general guidance regarding selecting aircraft tyres which are eligible for installation on Australian aircraft.

3. Background

A frequently asked question is: "Can a tyre which is listed in an aircraft tyre manufacturer's Parts Manufacturing Approval (PMA) catalogue, and which appears to match all the aircraft manufacturer's requirements such as the specific Technical Service Order (TSO) specification, ply rating, maximum load, speed rating and size, as shown in the aircraft illustrated parts catalogue (IPC), be fitted to an aircraft?"

While the above question addresses most of the details which must be taken into account when selecting a PMA tyre, another key consideration should be "Does the PMA catalogue approve the tyre for installation on the aircraft make and model in question?"

Unfortunately, there is more than one example where the installation of an unapproved PMA tyre has resulted in serious damage to the tyre. Defect reports describe the discovery of serious grooving in the main landing gear tyre side wall during a routine inspection. It was found that the sidewall had been rubbing on the brake housing. Further investigation found that the recently installed tyre had not been approved by the PMA manufacturer for that aircraft, even though all the dimensions and ratings in the PMA catalogue matched those in the aircraft IPC. In this case, the PMA tyre had a softer sidewall than the original equipment manufacturer (OEM) tyre, which allowed it to rub on the brake housing, during landing and taxiing, a condition that would not be apparent at initial installation and while the aircraft was on jacks.

Even though a PMA tyre may have the same dimensions and manufactured to meet the same or later revision TSO as the tyre found in the IPC, there may be subtle differences in construction that may make it unsuitable for an aircraft make and model.

Caution should be exercised when considering changing from the tyre identified in the aircraft manufacturer's IPC to another tyre, because the tyre identified in the IPC was used in the original certification of the aircraft type, which included the effects of the tyre on the design, including shock absorption characteristics of the undercarriage and effects on the aircraft structure.



Selecting Aircraft Tyres

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Tyres that may be considered eligible for installation on Australian aircraft are those tyres which:

- a) are not subject to the requirement of Airworthiness Directive (AD) to withdraw the tyre from service or Suspected Unapproved Parts (SUP) notification, Service Bulletin/Letter to not install the tyre on the aircraft;
- b) have been manufactured under an approval from a recognised country, such as the FAA, under a Parts Manufacturer's Approval (PMA) or equivalent, and
- c) are approved for installation on the aircraft model as per the aircraft PMA tyre manufacturer's catalogue, or CASA 21M or Supplemental Type Certificate (STC) approval, and
- d) have approved data for installation and have instructions for continuing airworthiness (ICA) available from the aircraft or tyre manufacturer, or from the CASA 21M approval or STC documentation and
- e) are supported by documentation that satisfies the requirement of Civil Aviation Regulation (CAR) (1988) 42WA for aircraft parts

NOTE: *Airworthiness Directives for Wheels and Tyres are typically found on the National Airworthiness Authority website, such as the CASA AD/WHE/series or in the ADs issued for an aircraft type.*

As with any aircraft part, when replacing tyres, don't just read the details off the old tyre and presume that which had been fitted was the correct tyre. Check that the replacement tyre under consideration is approved for that aircraft and model by referring to the approved data, the aircraft IPC.

An airframe manufacturer typically provides the brand and specifications for the tyres and may offer a range of alternate tyres that may be used in the IPC. When using a PMA tyre manufacturer's catalogue to select a replacement tyre, take care to ensure that the tyre under consideration is specifically approved for installation on the intended aircraft.

Also consider that the aircraft may have been modified for an operational role by an Engineering Order or an STC, and which may specify different tyres to those identified in the aircraft IPC or PMA tyre application catalogue.

In the case where there are no tyre specifications in the aircraft manufacturer's IPC, or if the tyre identified in the IPC is no longer manufactured and can no longer be obtained, then the selection and approval of a replacement tyre can become quite complex and should be accomplished under an Engineering Order approved by a CASR Part 21 Subpart M approved person or via a Supplemental Type Certificate (STC).



Documentation Required

Tyres are to be accompanied by documentation that satisfies the requirement of CAR (1988) 42W and 42WA for aircraft parts. Civil Aviation Advisory Publication (CAAP) 42W-1 provides examples of acceptable documentation.

4. Recommendations

Only install tyres which meet the aircraft manufacturer's type data, PMA approval and/or CASA 21M approved modification or STC specification etc., as per Para 3 a), b), c), d) and e) above.

Check the new tyre for potential interference when fitted to the aircraft, for example, in wheel wells and doors in aircraft with retractable undercarriages, wheel spats and brake housings. Monitor tyre condition in accordance with the Instructions for Continuing Airworthiness (ICA) during the service life of the tyre.

It is the operator's responsibility to ensure the selected tyre meets the original aircraft manufacturer's type data, approved modification or STC specification. Do not install unapproved tyres on an aircraft because it may result in tyre failure which may cause property damage, serious injury, or loss of life.

5. Reporting

Report all tyre defects to CASA via the defect reporting system:
http://www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_90818

6. Enquiries

Enquiries with regard to the content of this Airworthiness Bulletin should be made via the direct link e-mail address:

AirworthinessBulletin@casa.gov.au

or in writing, to:

Airworthiness and Engineering Standards Branch
Standards Division
Civil Aviation Safety Authority
GPO Box 2005, Canberra, ACT, 2601