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Review Facility Development Of Aircraft Tire Retreading In Indonesia

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Abstract - Aircraft tire retread is the process of retreading or reconditioning aircraft tires after being used several times for take-off and landing. Retreading an aircraft tire can be done many times, which is between 3-5 times depending on the level of wear of the tire layer. Data from INACA 'Indonesia Aviation Outlook 2017' shows that the number of jet aircraft owned by Indonesian airlines for Wide Body is 23 aircraft and Narrow Body is 338 aircraft. Where the number of aircraft tyre in the Nose Landing Gear / NLG and Main Landing Gear / MLG Wide Body aircraft are 55 EA and 216 EA respectively, while for Narrow Body aircraft each is 352 EA and 1488 EA. There is a huge opportunity in the need for retreading aircraft tires owned by Indonesian airlines, which is around USD 20 million per year, with 10% growth per year, so the next 5 years will reach around USD 30 million. However, this opportunity cannot be taken by MRO Indonesia because MRO Indonesia does not have the ability to retread airplane tires. The cause of the inability to take up an aircraft tire retreading business opportunity is partly because there is no government policy support to encourage aircraft tire manufacturers to collaborate with Indonesian investors to build a tire retread facility, there is business competition with aircraft tire retreading in Malaysia and Thailand, businesses most only think solely of big profits, and the unattractive business climate in Indonesia such as complicated licensing, inefficient supply chains and incentives provided are less attractive. The steps needed to capture the opportunity to retread aircraft tires are to carry out continuous campaigns and incorporate aircraft tire retread facilities development programs into the National Strategic Program and the Aerospace Industry Roadmap.

Keywords: *Retread Aircraft Tire, MRO, Tire Retreading, Aerospace Industry Roadmap*

I. INTRODUCTION

1.1. Background

Retread aircraft tire is the process of retreading airplane tires where the airplane tires are reconditioned after taking off and landing several times and wear and tear strength decreases. Vulcanizing work of aircraft tires can be done many times, which is between 3-5 times depending on the wear conditions that occur on aircraft tires[1].


From Table 1.1 Types of Aircraft Jet and Tires Belonging to Indonesian Airlines' Source INACA Aviation Outlook 2017 above[2], it appears that the number of tires in Nose Landing Gear / NLG and Main Landing Gear / MLG wide body aircraft / Wide Body (B777- 300 and A330-200 / 300) are 55 EA and 216 EA, respectively. Meanwhile for the number of tires in NLG and MLG narrow body aircraft / Narrow Body (B737-800 / 900 / MAX and A320-200) are 352 EA and 1488 EA, respectively. From

various trusted sources, it is said that the business opportunity for retread tires in Asia Pacific is promising with an average growth of 10% / year. Information submitted by one competent official officer from an MRO states that the need for a tire retread in one of the major airlines in Indonesia every year is around USD 12 Million and when combined with the needs of another airline's tire retread is around USD 20 Millions per year with growth of around 10% / Year for the next 5 years [3][4][5]. The need to retread the tire is a very promising and very attractive opportunity to be able to held at Indonesia's MRO. Meanwhile there is a plan from Dunlop Aircraft Tires Ltd. from England to invest around USD 70 Millions, Table 1.2 List of IAMSAs Members 2019 and Its Capability who will make cooperations with PT. Rubberman Indonesia [6][7].

Table 1.1 Types of Indonesian Aircraft Jet & Tire of Indonesia's Airline^[2]

No	AIRCRAFT	NUMBER OF AIRCRAFT	TIRE POSITION	NUMBER OF TIRE	SPARE	TOTAL TIRE
1	B 777-300	4	NLG	8	2	10
			MLG	32	6	38
2	A 330-200	8	NLG	16	3	19
			MLG	64	12	76
3	A 330-300	11	NLG	22	4	26
		23	MLG	88	18	106
NLG NB*		Total 55 EA	*NB : Narrow Body			
MLG NB		Total 216 EA				
4	B 737-800	139	NLG	139	14	133
			MLG	556	56	612
5	B 737-900	75	NLG	75	8	83
			MLG	300	30	330
6	B 737-MAX8	9	NLG	9	1	10
			MLG	36	4	40
7	A 320-200	115	NLG	115	11	126
		338	MLG	460	46	506
NLG WB**		Total 352 EA	**WB : Wide Body			
MLG WB		Total 1488 EA				

Table 1.2 List of IAMSAs Member 2019 and it's capability

IAMSAs MEMBER's 2019					
No	Nama	Kategori	No	Nama	Kategori
1	PT Aero Nusantara Indonesia	Engine	16	PT GMF AeroAsia	Airframe, Engine, LM
2	PT Aero International Teknologi	Airframe	17	PT Indopelita Aircraft Services	Airframe, Engine
3	PT Adhi Luhung Wicaksana	AEI	18	PT Indo Aero Semesta	AEI
4	PT Avtek Trans Utama	AEI	19	PT JAS Aero Engineering Services	Line Maintenance
5	PT Batam Aero Teknik	Airframe, Engine	20	PT Kalimasada Pusaka	Airframe
6	PT Bandung Jet Aero	Airframe	21	PT Kadomas Aviasindo	AEI
7	PT Bagas Nusantara Putra	AEI	22	PT Kandiyasa Dirgatama	AEI
8	PT CMI Teknologi	AEI	23	PT Maura Cipta Arta	Special Services
9	PT Dewata Angkasa	AEI	24	PT MuladaTU	Special Services
10	PT Dwi Angkasa	AEI	25	PT Merpati Maintenance Facility	Airframe, Engine
11	Directorate Aircraft Services (ACS) PT.DI	Airframe, Engine	26	PT Nusantara Turbin dan Propulsi	Engine
12	PT Enggal Makmur Abadhi	Engine	27	PT Putra Elang Angkasararaya	Airframe, Engine
13	FL Technics Indonesia	Airframe, Engine	28	PT Rekatama Putra Gegana	AEI
14	PT Focus Angkasa Abadi	Airframe	29	PT Travira Air AMO	Airframe, Engine
15	PT Fineks Utama	AEI	30	PT Tribuana Aerospace	AEI
			31	PT Wira Jasa Angkasa	Airframe, AEI, SS

1.2 Formulation of The Problems

From Table 1.2 'IAMSA 2019 Member List and Capability' Source of the IAMSA above, it appears that none of the MRO members of IAMSA in Indonesia have the capability or ability to retread tires. Meanwhile there is a need to retread tire of airline that operating in Indonesia, which is quite large, around USD 20 million per year. Currently retreads of aircraft tires owned by Indonesian airlines are carried out in Malaysia and Thailand [7].

1.3 Objective

The objective of this publication is to review how big is business opportunity to build aircraft tire retreading facilities in Indonesia.

II. DISCUSSION

2.1. Methodology

The methodology of this publication is a combination of literature studies, data collection and analysis from aviation industry publications, and data collection through interviews with MRO officers who are competent in retreading aircraft tires [2][6][7].

2.2. Analysis

There is a big business opportunity in tire retreading, around USD 20 Millions/year, according to MRO Officers. Dunlop will invest USD 70 Millions for this[7].

Several reasons why tire retreading has no capability yet at MRO Indonesia are :

1. The absence of full support from the government to force aircraft tire manufacturers (Goodyear / Goodrich / Bridgestone / Michelin) to be willing to work with MRO Indonesia to build a tire retread facility in Indonesia.
2. There is an unwillingness of aircraft tire retreading companies in Malaysia and Thailand which have been receiving aircraft tire retreading orders from Indonesia.
3. Most of business men only want to get big profits without investing in what they should.
4. Aircraft tire manufacturers are not interested in building aircraft tire factories in Indonesia due to the

convoluted rules and licensing, inefficient supply chain and lack of attractive incentives provided by the government.

2.3. Steps to seize opportunities

The Steps needed in order to realize the facilities of aircraft tire retreading in Indonesia :

1. Conducting continuous campaigns to the government cq the Ministry of Industry and Ministry of Transportation to provide full support in the construction of aircraft tire retreading facilities in the country by providing an overview of business opportunities.
2. Incorporate an aircraft tire retreading facility development program into the National Strategic Program and into the Aerospace Industry Roadmap.

III. CONCLUSIONS AND SUGGESTIONS

3.1. Conclusions

The number of aircraft tires in Indonesia that are retread abroad for wide-body and narrow-body jets is very large, namely for wide-body jet airplanes for Nose Landing Gear/NLG and Main Landing Gear/MLG, respectively the number is 55 ea and 216 ea. For narrow body jets, each for NLG and MLG the number is 352 ea and 1488 ea. Where the total cost of retreading the tire is about USD 20 million per year and until now there are no facilities for retreading aircraft tires in Indonesia.

The cause of the lack of aircraft tire retreading facilities in Indonesia are due to the lack of government support, competition from facilities in Malaysia and Thailand, lack of loyalty of domestic business players in investing, and also aircraft tire manufacturers less interested in building their factories in Indonesia.

The steps to be able to take the business opportunity to retread aircraft tires is to carry out a continuous campaign to the government to ask for support and to include an aircraft tire retreading facility development program in the National Strategic Program and into the Aerospace Industry Roadmap.

3.2. Suggestions

Large business opportunities in the airplane tire retreading industry in Indonesia, which is around USD 20 million per year, it is recommended to conduct further research on the feasibility and strategy of constructing aircraft tire retreading facility.

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