

TECHNICAL VISIT TO MALAYSIA AIRLINES BERHAD (ENGINEERING DIVISION)



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Members of METD and staff members of MAS Engineering Division posing in front of an A380-800

On 18 September 2019, the Mechanical Engineering Technical Division (METD) of IEM organised a visit to the engineering division of Malaysia Airlines Berhad.

Our group, comprising 31 members, was welcomed by Encik Helmi Mokhtar, manager of MAS Engineering Training Department (EETD) who gave an introduction slide presentation on the background of MAS and safety procedures.

MAS Background

Malaysia Airlines Berhad owns two subsidiary airlines: Firefly and MASWings. Firefly operates scheduled flights from its two home bases, Penang International Airport and Subang International Airport. It focuses on tertiary cities such as Alor Setar while MASwings focuses on inter-Borneo flights. A sister company, MASKargo, manages freighter flights and aircraft cargo-hold capacity for all Malaysia Airlines' passenger flights.



Aircraft turbine blade engine

The Malaysia Airlines fleet comprises 5 types of airplanes: A350-900, A330-300, A330-200, B737-800 and A380-800. Its biggest airplane is A380-800, which has 2 decks divided into First, Business and Economy classes. MASWings has 2 types of airplanes: 10 units of ATR72-500 and 6 units of DH-6 Twin Otter Series 400. Firefly has 12 units of ATR72-500 and MASKargo has 3 units of A330-200F.

After the briefing, we visited the MAS Engineering Division facilities. Encik Afnan and Encik Azhan from the EETD Division together with En. Ramesh from BMW Division (also a member of METD) accompanied us to the engine workshop at Hangar 5 and Hangar 6.

Engine Workshop and Hangars 5/6

Maintenance activities are carried out at the hangars for Airbus and Boeing aircrafts. The engine workshop is also located here. We were allowed to touch the engine fan blades and examine the turbine engine closely. The fan blades are made from titanium. We also saw a few Rolls Royce engines in the storage room.

Then we proceeded to Hangars 5/6 to see the facilities. During our visit, we saw maintenance work being carried out on the Boeing B737-800, A380-800 and A330-300. Encik Afnan gave us a short briefing on the differences between the Airbus and Boeing, especially the wheels and brakes. After the briefing, we were divided into groups and allowed to step into the Airbus A380-800 as well as the cockpit where Encik Azhan talked about the cockpit consoles, control panels and control buttons.

We also checked out the business suite area. There are 8 seats for First Class, 66 seats for Business Class and 412 seats for Economy Class, making a total of 486 seats.

Wheels & Brakes Workshop

Next, we visited the Wheel & Brakes workshop located nearby. Airplanes belonging to Malaysia Airlines are sent here for tyre replacements. The workshop uses the Lean Layout application to reduce wastage. The wheel hubs are washed and checked through visual inspection and details are checked with Non-Destructive Test (NDT) equipment before they are assembled and mounted.

Tyres are filled with nitrogen gas and tested for leaks and with pressure up to 36 hours. This is a standard procedure at MAS Engineering. An aircraft tyre is designed to withstand extremely heavy loads for short durations. The number of tyres required for an aircraft increases with the weight of the aircraft, as the weight of the airplane needs to be distributed more evenly. Aircraft tyre thread patterns are designed to facilitate stability in high crosswind conditions, to channel water away to prevent hydroplaning and for effective braking. Aircraft tyres are usually inflated with nitrogen to minimise expansion and contraction from extreme changes in ambient temperature and pressure experienced during flight. Dry nitrogen expands at the same rate as other dry atmospheric gases (normal air is about 80% nitrogen), but common compressed air sources may contain moisture which will increase the expansion rate with temperature. Using an inert gas for tyre inflation will eliminate the possibility of an explosion.

There is a station for wheel balancing, the process of balancing the weight of a tyre and wheel assembly so that it travels evenly at high speed.

For the last leg of the visit, we were brought to the Brake Installation Station. The visit ended at 2.00 p.m. We would like to thank the staff members and management of MAS for their hospitality. ■