॥ नमस्ते ॥

RAIN PROCTECTION

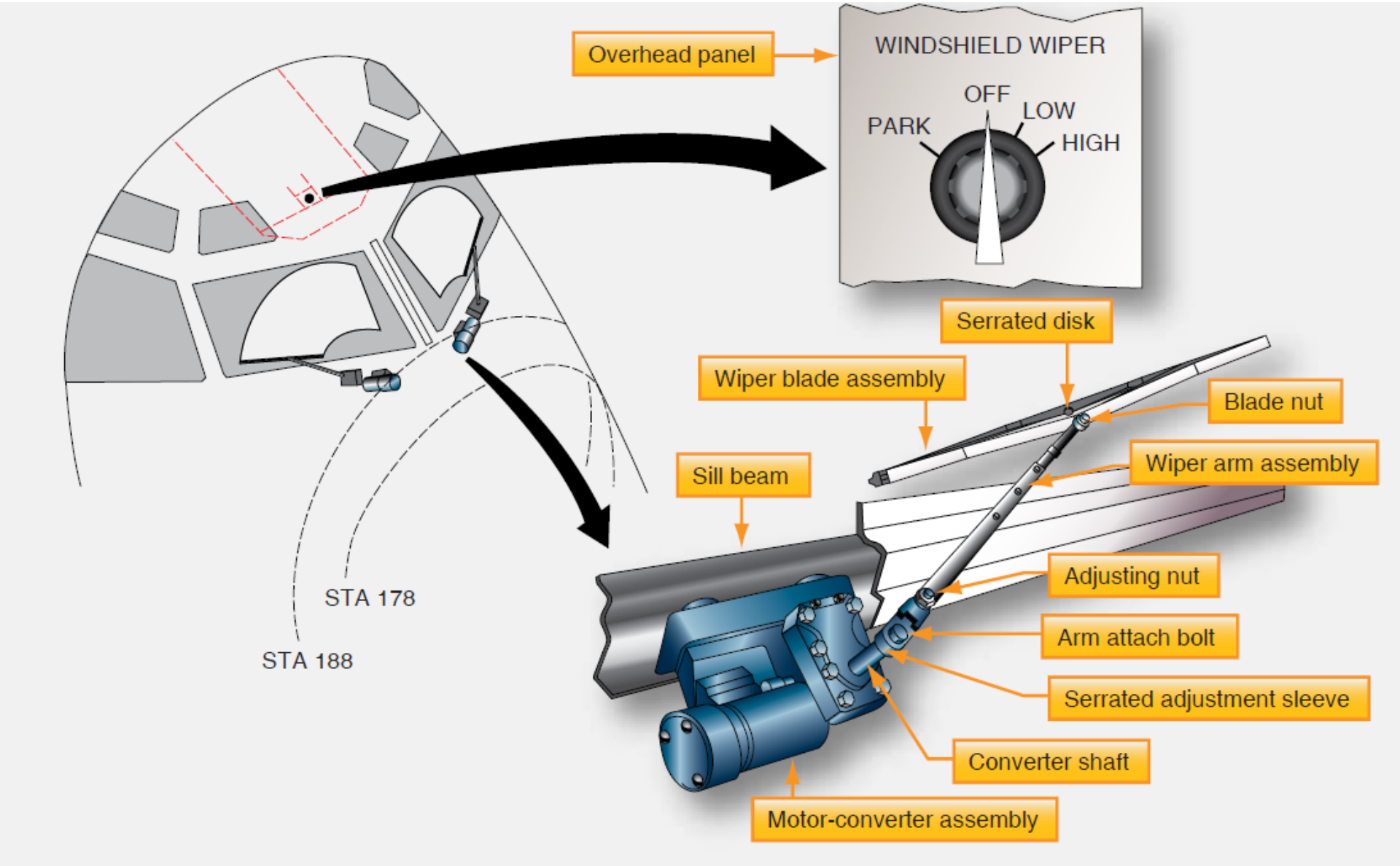
Most aircraft use one or a combination of the following systems:

1. Windshield wipers,
2. Chemical rain repellent,
3. Pneumatic rain removal (jet blast), or windshields treated with a hydrophobi surface seal coating.

1.WINDSHIELD WIPERS

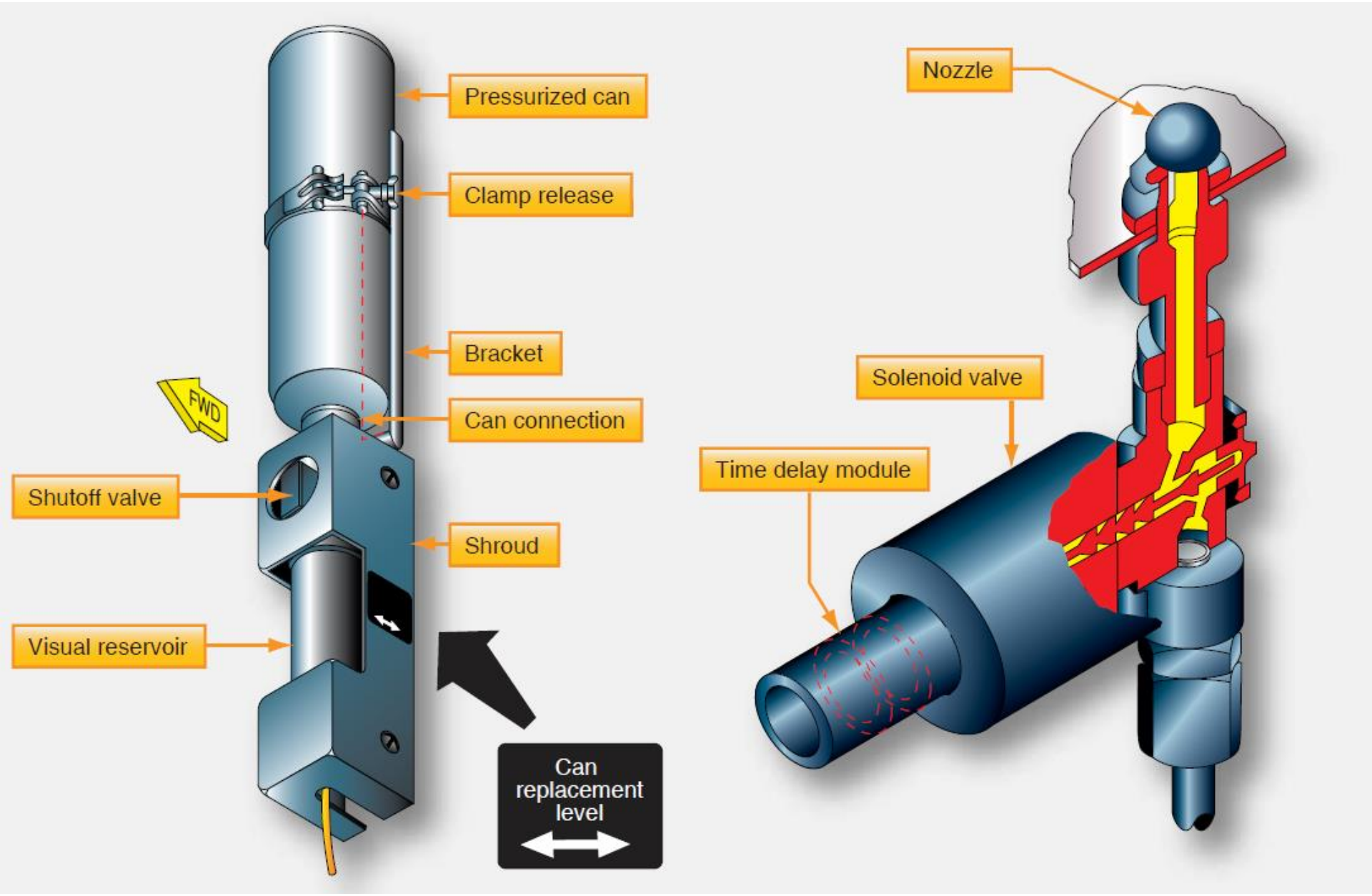
- In an electrical windshield wiper system, the blades are driven by an electric motor(s) that receive (s) power from the aircraft's electrical system.
- On some aircraft, the pilot's and copilot's windshield wipers are operated by separate systems to ensure that clear vision maintained through one of the windows should one system fail.
- Each windshield wiper assembly consists of a wiper, wiper arm and a wipe motor/converter.
- Most of the aircraft uses electrical motor but in past some aircraft had hydraulic motors

- During the check, make sure that the windshield area covered by the wipers is free of foreign matter and is kept wet with water.
- Adjustment of a windshield wiper system consists of adjusting the wiper blade tension, the angle at which the blade sweeps across the windshield, and proper parking of the wiper blades.


Overhead panel
WINDSHIELD WIPER
OFF
PARK
LOW
HIGH
Serrated disk
Wiper blade assembly
Blade nut
Wiper arm assembly
Sill beam
Adjusting nut
Arm attach bolt
Serrated adjustment sleeve
Converter shaft
Motor-converter assembly
STA 178
STA 188

2.CHEMICAL RAIN REPELLENT

- **Water poured onto clean glass spreads out evenly. Even when the glass is held at a steep angle or subjected to air velocity, the glass remains wetted by a thin film of water.**
- **However, when glass is treated with certain chemicals, a transparent film is formed that causes the water to behave very much like mercury on glass.**
- **The water draws up into beads that cover only a portion of the glass and the area between beads is dry.**
- **The water is readily removed from the glass.**
- **This principle lends itself quite naturally to removing rain from aircraft windshields.**
- **The high-velocity slipstream continually removes the water beads, leaving a large part of the window dry.**
- **Water Repellent** /Soil Resistn Agent fluorocarbon **chemical** resin emulsion based on C-8 **chemistry** which can impart durable **water** and oil **repellency** with soft hand to synthetic fibers like nylon and polyester and to natural fibers like cotton.

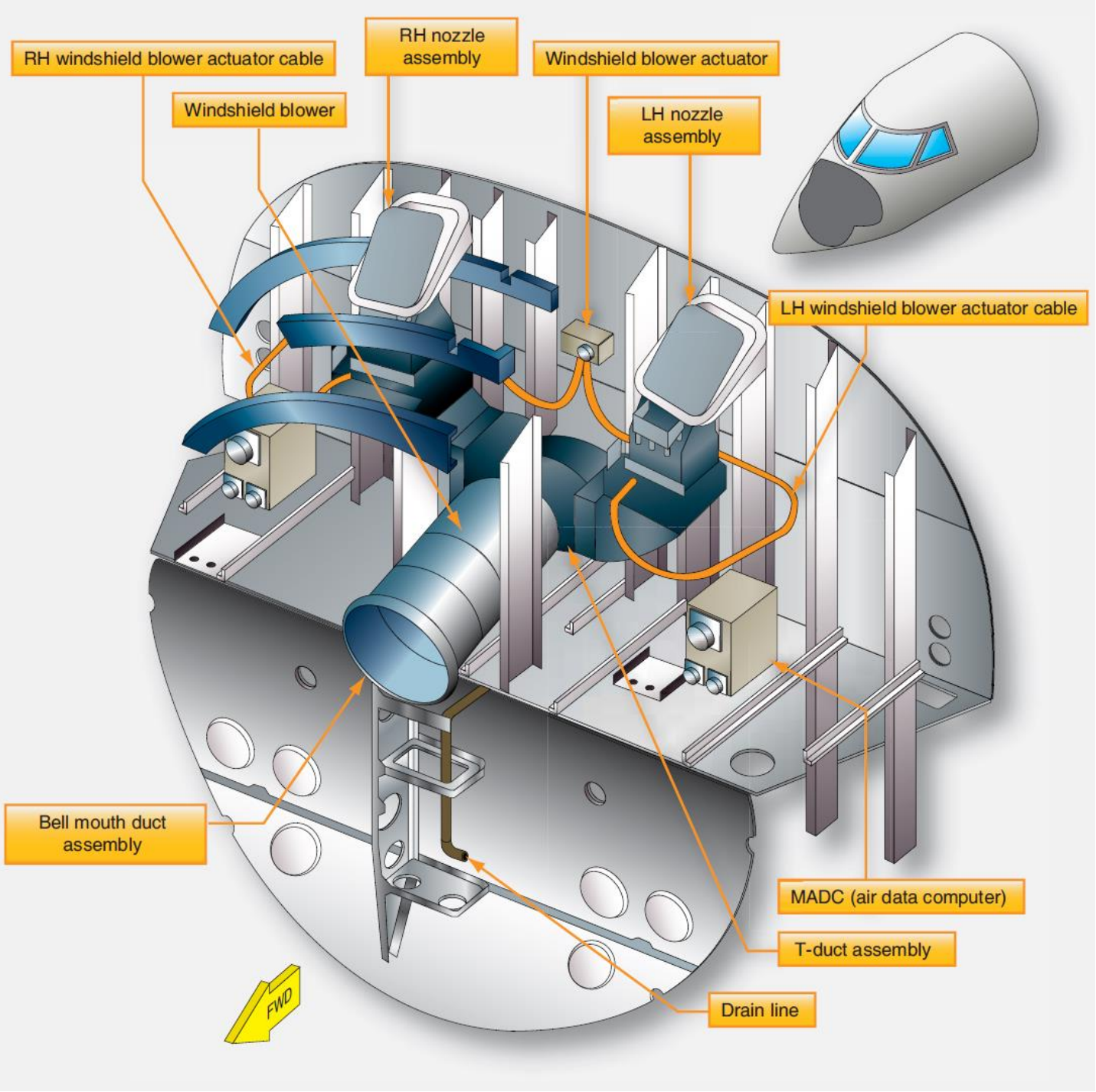

Pressurized can
Clamp release
Bracket
Can connection
Shroud
Shutoff valve
Visual reservoir
FWD
Can replacement level
Nozzle
Solenoid valve
Time delay module

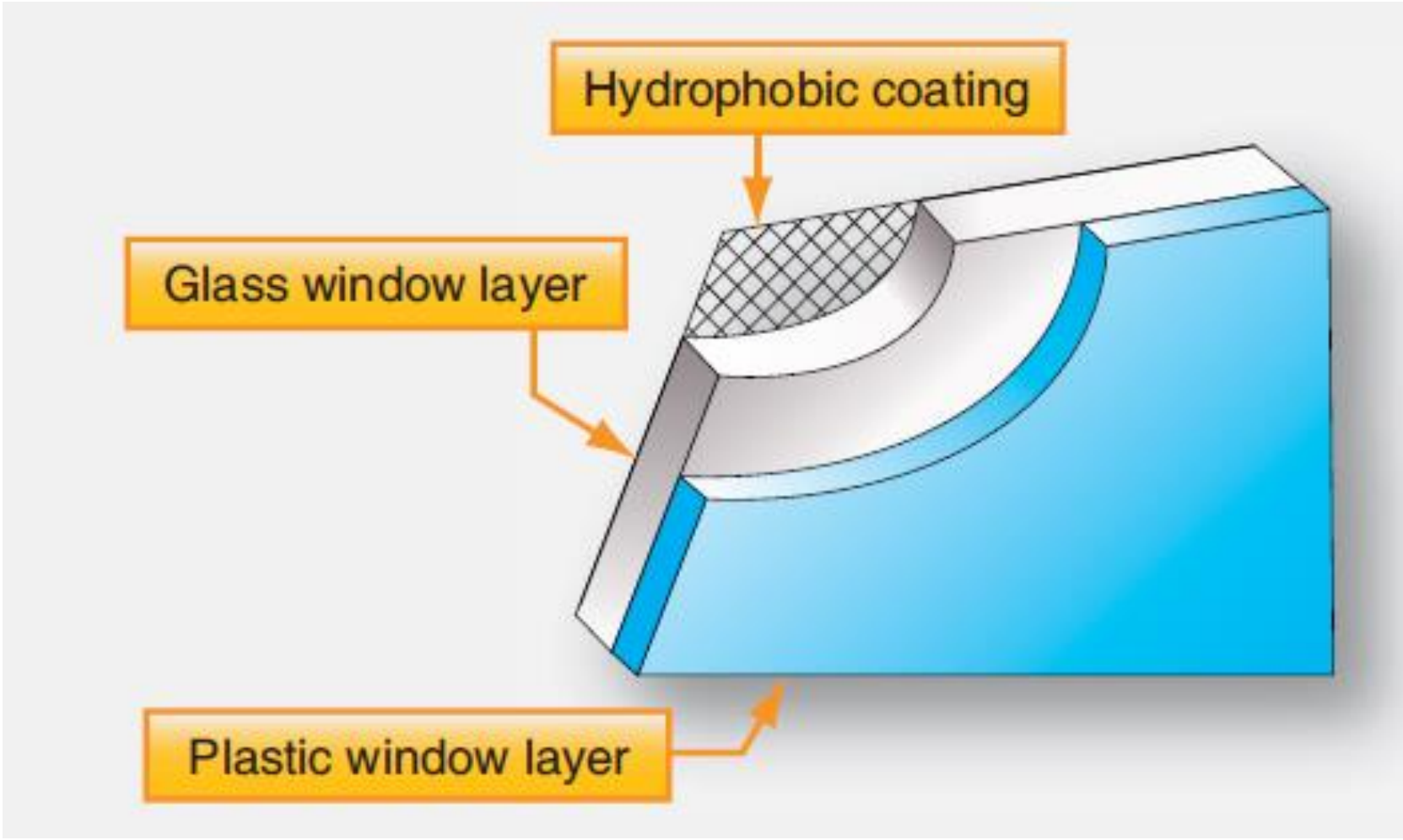
3.PNEUMATIC RAIN REMOVAL SYSTEMS

- **Windshield wipers characteristically have two basic problem areas.**
- **One is the tendency of the slipstream aerodynamic forces to reduce the wiper blade loading pressure on the window, causing ineffective wiping or streaking.**
- **The other is in achieving fast enough wiper oscillation to keep up with high rain impingement rates during heavy rain falls.**

- **The rain removal system controls windshield icing and removes rain by directing a flow of heated air over the windshield.**
- **This heated air serves two purposes. First, the air breaks the rain drops into small particles that are then blown away.**
- **Secondly, the air heats the windshield to prevent the moisture from freezing.**
- **The air can be supplied by an electric**
- **blower or by bleed air**

streaking window


RH windshield blower actuator cable
RH nozzle assembly
Windshield blower actuator
Windshield blower
LH nozzle assembly
LH windshield blower actuator cable
Bell mouth duct assembly
MADC (air data computer)
T-duct assembly
Drain line
FWD


Hydrophobic coating
Glass window layer
Plastic window layer

Did You Know?

Amazing fact of the today

A Boeing 747 is more fuel efficient than your car

धन्यवाद

Prepared By
Mr.Pankaj Salunkhe