

3.4. Window mechanism

The tilting window mechanism created for the Mirov gull wing doors is a development of an idea I first used on a Cox GTM kit car restoration, which originally came about through my dislike of the GTM sliding window arrangement. Because the doors were so thin, the only way to get the proposed flat glass to wind down was to have it swing out first before disappearing into the door. Specially-made flat glass was to be used on the Mirov as well, and, initially, because the door was so wide, it was thought that the glass could be made to operate without any fancy gymnastics. Unfortunately, the pronounced tumblehome – the angle at which the window is from vertical – meant that the glass would hit the inside of the door before it was fully open, so the tilting mechanism would have to make a repeat appearance.

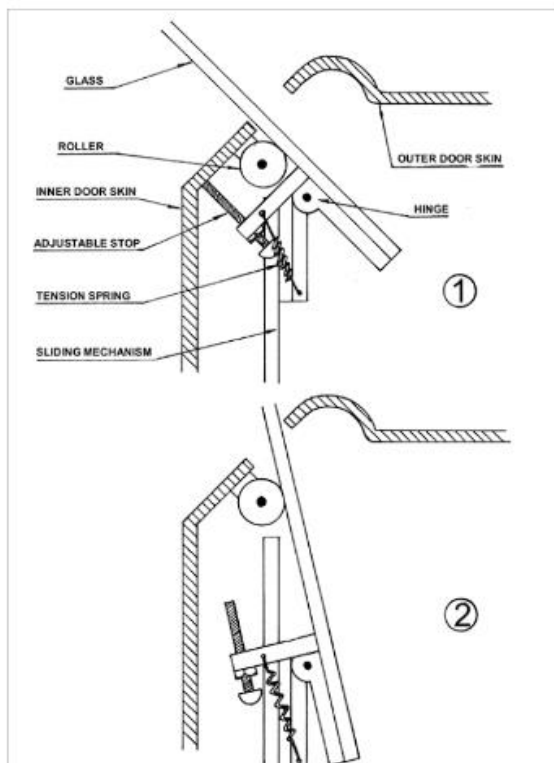
Basically, the glass is attached to the lifting mechanism with a horizontal hinge. A short pair of arms on the glass

connector.

carrier engage with the lower window frame when the pane travels up to tilt it inward onto the seal. When opening, the arms come away from the window frame, which then allows rollers on the frame to push out the glass as the carrier travels down. To make life as easy as possible the window mechanism was developed midway through the construction of the door shells before the outer skins were fitted. As with the GTM there were to be no runners to carry the glass; it would rely completely on the lifting mechanism for location, which was of the cable type of Ford origin and bolted to the inner skin of the driver's door.

Another piece of aircraft hinge was bolted horizontally to the slider of the lifting mechanism, and the glass was fitted to the hinge via a pair of brackets with built-in adjustable stops. The adjuster screws on the arms were also used to ensure the glass sat square in

DOOR CONSTRUCTION



The window shut and sitting totally flush to the door.



the frame when closed, and eliminated the misalignment any wear in the slider mechanism or hinge would cause. A small tension spring was connected between the end of each bracket and the slider assembly, which would tend to steady the glass as it travelled by subjecting it to gentle pressure that constantly attempted to tilt it inward.

The Renault donor car supplied the motors, which were nice compact units, although from the lever type of window mechanism, so an adapter was made that allowed them to directly drive the spigot on the cable lifting mechanism.

The system worked but there was a lot of friction between the glass and the lower part of the window seal when in operation. The offending seal rubber was cut away and a pair of small rubber rollers with integral bearings, sourced from an old tape recorder, were fitted to a pair of brackets. These were bolted in place just under the lower window frame to take the spring pressure as the glass moved up and down.

Two cross-sectional views showing the action of the tilting window mechanism.

Diagram (1) shows the window in the up position tilted on its hinge by the action of the adjustable stop hitting the door.

Diagram (2) shows the window lowered and forced into an upright position by the fixed roller and downward motion of the slider.



As the glass moves down, the fixed rollers force it to assume a more upright attitude.



Halfway down.