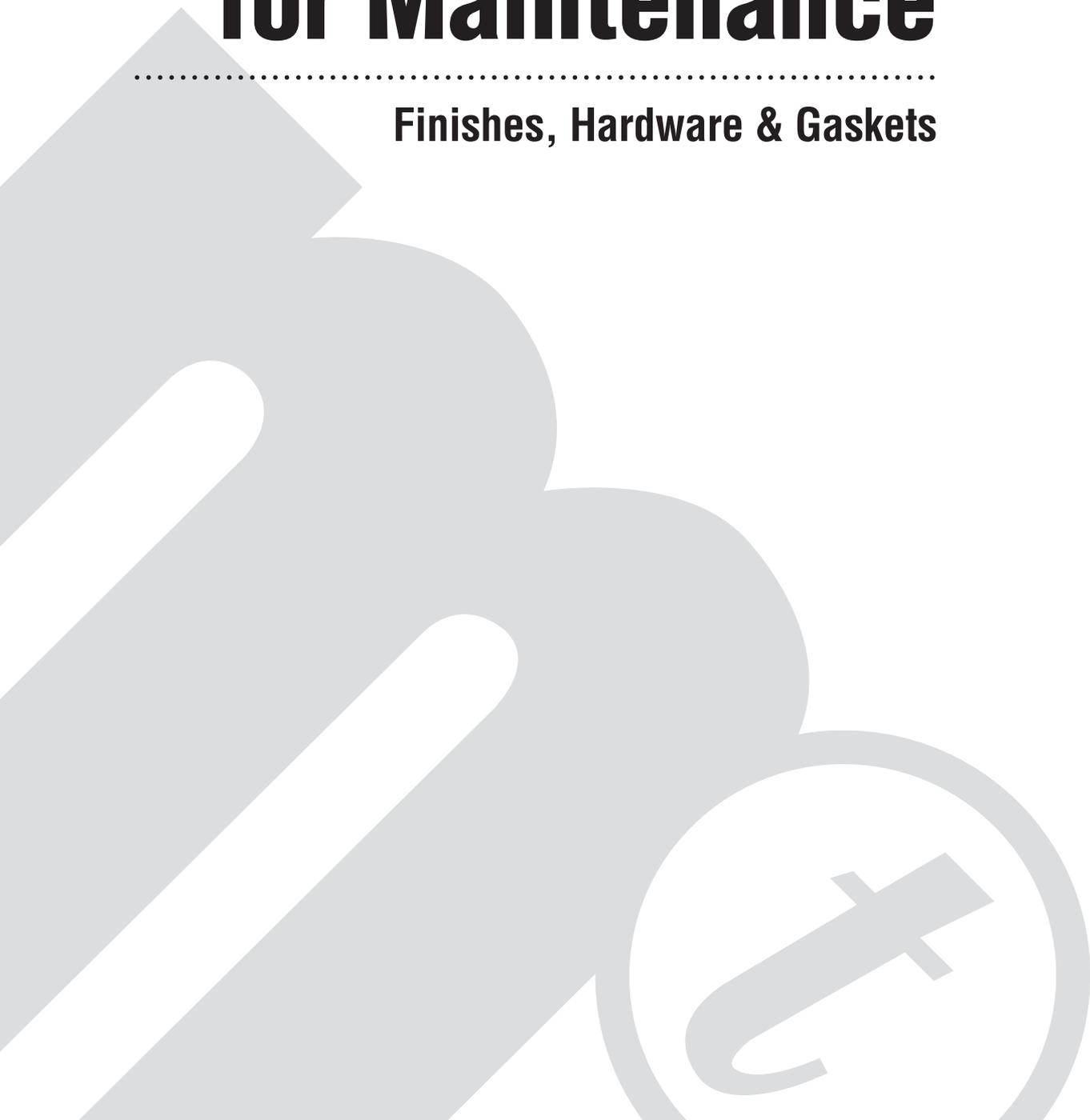




.....  
WINDOWS, DOORS &  
CURTAIN WALLING  
.....

# Recommendations for Maintenance

.....  
Finishes, Hardware & Gaskets





# Recommendations for Maintenance

**Metal Technology Ltd. are keen to ensure that their products offer the desired aesthetics and function properly for many years. In order to achieve this consideration has to be given to the regular maintenance of both the surface finishes and the moving parts of the window.**

**This guide is intended to assist all personnel concerned with the maintenance of the building, in designing a recommended programme of maintenance in order to give the building's windows maximum life and ensure that product warranties are not invalidated.**

**Where specific information on products is not available in this document, please contact Metal Technology.**

**If required the project fabricator may provide an annual maintenance service or alternatively a specialist maintenance company may be employed to carry out the work.**

## **THE CLEANING OF ALUMINIUM WINDOWS**

### **Introduction**

The strength and weather resistance of aluminium windows are not seriously impaired by oxidation or dirt deposits. When exposed to air the untreated surface of aluminium combines with oxygen to form a tough, protective oxide coating. Aluminium windows are supplied with anodised or painted finishes to decorate and protect the surface quality of the product.

Cleaning is only necessary for appearance and, particularly in the case of sliding windows, for the continued smooth operation of the window.

### **Recommendations for the routine cleaning of Aluminium windows**

#### **Finishes**

##### **ANODISED FINISHES**

Anodising, an electrochemical process, provides a uniform oxide coating on the surface of the aluminium. The resistance of the surface to natural weathering is substantially improved and the texture preserved. The anodic coating may be transparent, integrally coloured, pigmented, or dyed and the metal's natural lustre will be visible.

##### **PAINT FINISHES**

Decorative and protective organic coatings of various kinds are applied to the surface of aluminium. In the factory these coatings are applied to surfaces which have been appropriately pre-treated.

### **Determining the finish**

Before cleaning it is important to determine what finish has been applied to the aluminium. Normally the supplier should be consulted but if this information is not available or if the aluminium has been finished on site and the supplier has no knowledge of this the following tests are suggested for selection of the finish.

#### **FOR ANODISED ALUMINIUM**

A needle may be used to test the hardness of the surface. Anodic coatings are hard and glossy



# Recommendations for Maintenance

and considerable pressure will be necessary to penetrate them. The scratch will be wider than the needle point and the noise made by the operation will be audible. Sometimes the anodic surface is treated with organic coatings and these can be detected by scratching a small area of the surface with a knife edge.

## FOR PAINTED ALUMINIUM

All paints, even the hardest stoved surfaces, are soft compared with the surface of the metal. The plastic, gum-like texture can be detected with the point of a needle.

## Selection of cleaner

Non-alkaline detergent and warm water may be safely applied to any of the aluminium finishes using a soft cloth or sponge. If there is any doubt, a few moments testing the cleaner on an unobtrusive area of the aluminium is advised. This cleaner should be in the same concentration and be applied in the manner intended for the job. It should remain in the place for some time so that it dries, after which the area should be inspected for stains or for softening or dissolution of organic finishes.

Steel wool, strong acids and alkalis, and abrasive cleaners should never be used.

## Frequency of cleaning

The accumulation of atmospheric grime makes it necessary to clean the surface of aluminium regularly to maintain its appearance. In polluted industrial, marine or large city locations it is recommended that cleaning be carried out at least once every three months and in cleaner rural locations at least once every six months.

Cleaning of the metal work can usually be conveniently carried out when the window glass is cleaned.

The frequency of cleaning will also depend upon the standard of appearance that is required. It may be, for example, that windows that can be closely inspected at ground level or immediately higher will need to be cleaned more frequently than windows at higher levels.

Providing this recommended frequency is maintained it should never be necessary to use cleaners which are more aggressive than a non-alkaline detergent in warm water in concentrations which can be handled with bare hands. After application these cleaners should be removed with clear water and the area wiped dry.

It is wrong to assume that if cleaning is carried out less frequently than recommended, the surface of aluminium can be restored with the occasional use of more aggressive cleaners.

Such cleaners could damage the finish, the metal, the glazing and sealing systems, and even the glass. Therefore such practice must be avoided.

## Gaskets

The correct method for cleaning glazing gaskets and seals is to use warm water with a mild detergent. Abrasive compounds which may affect the outer surface of the seal should be avoided, as any deterioration of the outer surface enables dirt and grime to collect in the porosity of the surface.

The use of solvents is not recommended .

## Maintenance of sealants and gaskets

### WET APPLIED SEALS USED FOR THE PERIMETER JOINTS

Generally the mastics and sealants available have a shorter life than that of the windows and will therefore require periodic inspection. Where the seal has deteriorated it should be raked out and replaced using either the same type of material as before, or an alternative one which is compatible with any remaining material. Advice on suitable materials should be obtained from a sealant manufacturer if the original material is unknown, or if it is intended to use a different material than the original.

Where sealants appear to have failed prematurely (within 5 years) the advice of a sealant manufacturer should be sought since this may be due to incorrect design/selection of sealant.

## MAINTENANCE OF GLAZING GASKETS AND WEATHER SEALS

Glazing gaskets and weather seals should be inspected annually and where damage to the gaskets or shrinkage from the corners of the glazing has occurred, gaskets should be replaced. Where small gaps have opened, these may be filled with black neutral cure silicone.

## Maintenance of window and door fittings

### TOP SWING GEAR

The aluminium slider rails housing the top swing gearing must not be painted after installation. The slide tracks should be lightly lubricated with a white neutral grease (Vaseline) as required. This should be at six to twelve month intervals, depending on local conditions (e.g. temperature, usage, environment etc.)

Metal Technology recommend and can provide an optional 15g tube of lubricant for the end user.

All pivot points in the hinge (i.e. long arms and glider assembly) should be kept lightly oiled to ensure long life of the components.

### FRICITION STAYS

The hinge in general and particularly the pivots, sliding shoe and track must be kept free from dirt, debris and any obstructions at all times. At the time of installation lubricate all pivot points with light machine oil and wipe away excess - one drop per pivot is sufficient. The manufacturer suggests one of the following lubricants or equivalent:

- a) E.R.Howard 3 in 1 oil
- b) Castrol Everyman

Every five years clean any dirt or debris from the hinge and clear any obstructions from the pivots, sliding shoe and track. Apply lubrication as above. Check the tightness and security of all fixing screws and rivets.

If a hinge is fitted in an area where it is exposed to a corrosive atmosphere, (e.g. salt-laden sea air in coastal locations) we recommend in addition to the general maintenance and



# Recommendations for Maintenance

lubrication, that all metal surfaces are lightly coated with lubrication oil or sprayed with a proprietary anti-corrosion spray. It is important to follow the manufacturers instructions for any products used. Maintenance operations may need to be carried out more frequently in corrosive atmospheres. This is dependant on the severity of the prevailing conditions. If conditions are severe (e.g. Salt-laden sea spray) it would be advisable to specify Austenitic stainless steel friction stays.

## Handles

The handle is virtually maintenance free . It may be cleaned using water or a mild detergent on a damp cloth. Acid, alkaline, solvent or abrasive cleaning agents or materials should not be used.

## Butt Hinges

Butt hinges have nylon bushes to ensure continuous easy operation and should not be oiled.

## Tilt and Turn Gearing

Once a year the corner deviation, top stays and slide rods should be cleaned and lightly oiled using a non-resinous grease or oil.

Sash closing pressure may be adjusted by turning the eccentric rollers around the moving frame to increase the pressure on the locking point (care must be taken not to over tighten the gear as this could lead to damage to the handle/gear).

The screws holding the handles should be checked to ensure the handle is tightly fitted to the frame.

No attempt should be made to adjust the hinges as this may cause the window to become dangerously detached from the outer frame.

## Spring Balances

The sash balances are lubricated during the manufacturing process, and are designed to be self lubricating during the operation of the window sashes. Therefore the balances only require a minimum of maintenance.

The following checks may be carried out during the cleaning of the windows:

- Check that the balance fixing screw is secure (do not over tighten).
- Check that the bottom fixing bracket is secured to the sash and not damaged or distorted in any way.
- Check that the cross pin in the spiral is correctly seated in the fixing bracket (spirex/spiralift [Standard 58/Heavy Duty] balances only).
- Is the balance tube damaged in any way.
- If dirt and debris has built up at the bottom end of the balance, it can be cleaned with a cloth and regreased with the following:
  - Torso balances: use Castrol spray Spheerol AP2.
  - Spirex/Spiralift (Standard 58/ Heavy Duty) and ultralift (Lite Lift) balances: Multi-purpose grease can be used and we suggest that the brackets are coated at the same time.
- Check that the balance stops are in place, and that the sash moves to contact the balance stop without any undue force. This will ensure the balances are not being over extended or crushed. Finally check for smooth running of the sashes and adjust balances if required (please note Torso balances are not adjustable).
- In order to keep the balances working satisfactorily, the balances should be properly maintained. Metal Technology recommend that a few drops of light machine oil are applied through the top of the balance and the sash is worked up and down 2 or 4 times. This treatment should occur at least once a year.

**IF FOR ANY REASON THE BALANCE SHOULD BREAK, THE WINDOW SHOULD BE SEALED SHUT. A NOTICE SHOULD BE POSTED ADVISING THAT THE WINDOW SHOULD NOT BE USED UNTIL A NEW PAIR OF BALANCES IS FITTED.**

## Concealed Pivot/Locking Mechanism

The spinner pivot is fundamentally a simple window and its performance is critically dependant on the flipper seals around the outside of the moving frame.

Correct alignment to ensure these seals are in contact with the outer frame is essential to ensure the window is air and water resistant. Special care should be taken to ensure there are no gaps in the corner gaskets.

Adjustment of the position of the sash in the outer frame can be made by adjusting the screw above and below the pivot boss (i.e. to move a horizontally pivoted window down loosen the screw below the pivot boss and tighten the one above).

The friction on the pivot is achieved by the clamping forces on the pivot boss, therefore care must be taken to ensure the pivot is correctly adjusted to give the required level of friction to hold the window open.

The concealed locking gear does not require oiling and the use of oils in the area of the plastic casing is likely to be detrimental to the performance of the locking system.

## Commercial Door Fittings

As with all mechanical products, regular 'preventative maintenance' is necessary if trouble free operation is required. It is strongly recommended that such a programme is arranged either with a competent door maintenance company or with the maintenance staff of the building where the doors are installed. Items such as overhead closers, hinges, locks



# Recommendations for Maintenance

and weather-stripping need regular care to keep them functioning correctly and adjustment is especially necessary in the first few months when the doors are 'bedding in'. Particular attention should be paid to the overhead transom closer.

## CONCEALED OVERHEAD TRANSOM CLOSERS

Axim door closers and accessories are guaranteed for a period of 30 months from the date of manufacture against defect in material and workmanship. The guarantee is void if the product has been incorrectly installed or damaged in use. The following notes on maintenance should ensure that the closer will operate trouble free for many years.

The set of door controls comprise three main items. Firstly, a sealed unit 'the closer body' which is fitted inside the transom bar above the door and concealed with a removeable cover plate. Secondly a steel drive arm with a steel fixing channel fitted inside the top rail of the door 'the top arm' which may be side or end loading. Finally the door is supported by a 'bottom pivot assembly'. This consists of a shoe fitted to the underside of the door and a pivot bolt, either fitted to a floor-fixed plate or directly fixed to an aluminium threshold.

## CLOSER BODY

Broadly speaking there are six different closer options with the same external appearance. Closers are fitted with different size internal springs to give light, medium or heavy closing forces. Depending on varying factors such as weather conditions and width and height of the door, the correct strength closer should be selected. Closers are specified 'retention' or 'non-retention'. The former, sometimes referred to as 'hold-open', hold the door open at 90 degrees whilst the latter, sometimes named 'no hold-open', will return the door to a closed position regardless of the angle at which it is released. It is important not to wedge the door open, as the wedge or stop will oppose the door closer and in time will twist the door.

It is important to realise that closers can not be altered in the field, and if necessary the closer would require to be exchanged for an alternative option.

Doors using this type of door closer are generally centre hung and double action (i.e. the door will open in and out unless prevented from doing so by an applied stop). Door closers will open to 130 degrees. Door stops should not be fitted to prevent the door opening past this angle as damage could occur to the door, frame, and/or closer.

## REMOVING THE DOOR

*(This should be carried out only by experienced fitters)*

## FAULT DIAGNOSIS

The following notes should enable a competent maintenance manager to rectify any problems that might occur. If in any doubt please contact the manufacturer as the wrong action could invalidate the warranty.

- 1.** *The door does not centre firmly but swings freely perhaps for a centimetre either side of the closed position.* This is usually due to the clamp block not being fully tightened. Remove the small aluminium name plate from the door to expose the clamp block and screws. With an allen key wind in the two or three screws, depending on the arm type, very tightly. Refit the name plate.
- 2.** *The door does not centre firmly as in item 1 and has even more free play.* It is possible the clamp block has been too loose for too long and the closer spindle has worn. If this is the case carry out the remedy as in item 1. If the problem persists the closer and/or top drive arm in the door will need to be replaced. Note this is not a fault of the closer or accessories but is due to incorrect installation.
- 3.** *The door comes to rest firmly but is up to 25mm off centre.* Using a step ladder, look down on to the top rail of the door. Loosen the hold-down, countersunk screw, securing the top arm, with an allen key. Adjust the hexagonal bolts against the sides of the steel channel until the door centres are in the correct position. Tighten the hold-down screw and check other fixings.
- 4.** *The door drags on the floor/threshold or rubs on the underside of the transom.* Using a

step ladder, look down on to the top rail of the door. Loosen the hold-down, countersunk screw, securing the top arm, with an allen key and loosen off the hexagonal bolts slightly.

### **a.** *Standard top arm type:*

With the door open use a flat bladed screwdriver to turn the screw clockwise, lifting the door; or anticlockwise, lowering the door.

### **b.** *End load arm or special side loading:*

Loosen the locknut against the upstand of the channel and turn the socket head screw with an allen key, clockwise, lifting the door; or anticlockwise, lowering the door. Tighten the hold-down screw and check other fixings.

- 5.** *The door moves loosely off-centre apparently without control.* The closer has been forced and strained for some reason and the internal parts have been damaged. The closer will need to be replaced.
- 6.** *Oil Leaking.* Before dispatch each closer is subjected to stringent tests to ensure against leakage. If oil appears to be leaking from the closer try to pin-point the source. If leaking from around the spindle, the seal may be damaged. If leaking from around one of the valve screws, the same could apply. Providing the closer is within the warranty period and has not been subjected to misuse it will be replaced. A frequent cause of oil leaks is due to the closer being drilled by an installer fitting alarms, louvres or fanlights. If this is the case the closer will need to be replaced.

## SIX MONTHLY MAINTENANCE

Detach the door as previously described, remove the coverplate and expose the closer. Tighten all fixing screws and bolts. Inspect the floor bearing and wipe away any debris. Check the bearing rotates freely and the bolt is secured firmly in the plate or threshold. Tighten all fixings, including the three screws to the bottom rail of the door securing the pivot shoe. Replace the coverplate and remount the door. Tighten all the top arm fixings, particularly the clamp block screws and centre locking screw. Replace the name plate and clean down the door as per recommendations.



# Recommendations for Maintenance

## CLOSING SPEED ADJUSTMENTS

Providing the closing and final latching speeds of the door closer have been correctly set on installation it should not be necessary to readjust at a later date. However, after the door closer has completed a short settling in period, minor adjustment may be required. It should be noted that inexperienced tampering with the valve screws could cause irreparable damage. The following notes will enable the operator to make simple adjustments – if in any doubt please seek advice from the manufacturer.

It is important to realise that the two valve screws will adjust the closing and latching speeds of the door closer, but they will not adjust the closing or opening forces in any way. It is very likely the door closer will require only very minor adjustment, perhaps only one half turn of the valve screw. After any adjustment the door closing speed should be checked twice, by opening the door fully and allowing it to close, before proceeding.

Care must be taken not to unscrew the valve head beyond the level of the closer body when increasing the closer speed. Turning the valve past this limit will allow oil to escape and the closer will need to be replaced. On the other hand if the valve is turned clockwise, decreasing the closing speed, adjustment may cease when resistance is felt, as the valves are manufactured from soft metal and will be damaged along with the oil seal if excessive force is used.

## **Rebate Pivot Hardware / Commercial Casement**

Metal Technology recommend that if the windows are seriously out of adjustment the fabricator should carry out necessary adjustment to the pivots, hinges, or espagnolette gear.

Every year the corner deviation, top stays and slide rods should be cleaned and lightly oiled using a non-resinous grease or oil.

Sash closing pressure may be adjusted by turning the eccentric rollers around the moving frame to increase the pressure on the locking point (care must be taken not to over tighten the

gear as this could lead to damage to the handle/gear).

The screws holding the handles should be checked to ensure the handle is tightly fitted to the frame.

No attempt should be made to adjust the pivots as this could cause the window to become dangerously detached from the outer frame. The pivots should not be oiled or greased since this may damage the plastic component.

Friction on the pivot can be adjusted via a 4mm Allen screw (on the vent side of the pivot). This should be adjusted sufficiently to ensure the window remains open in the required position, but not over tightened, such that undue force has to be used to open the window.

## **Folding Openers & Restrictors**

These have nylon bushes to ensure continuous easy operation and should not be oiled. Fixings should be examined regularly and checked for loose screws and fixings, which should be tightened as necessary.

## **Espagnolette System**

All espagnolettes should be examined on a regular basis. All moving parts should be oiled with light oil, except where nylon bushes are provided. Keeps should be checked to ensure they have not moved and if necessary should be re-aligned to ensure adequate engagement and compression on the perimeter seals.

