

INSPECTION AND MAINTENANCE

SCHEDULE FOR PLAYGROUND EQUIPMENT

All playground equipment should be maintained in accordance with European Standards recommendations for the routine and operational inspection and maintenance of playground equipment: EN1176-7.

The frequency of inspection will vary with the type of equipment/materials used and other factors e.g.: heavy use, levels of vandalism, coastal location, air pollution, age of equipment.

If parts are discovered to be unsafe during inspection and cannot be replaced or corrected immediately, the equipment (or parts) should be secured against further use (immobilised or removed from site).

Routine Visual Inspection

A routine visual inspection is recommended. This should consist of the following as a minimum, in the case where the equipment is under intensive use or the object of vandalism, a daily check of this kind should be necessary:

- a. Structure not bending, cracking, loosening.
- b. Surface finish. No damaged paint, rusting, other corrosion or deterioration and all surfaces are free from sharp edges.
- c. Foundation not cracked, loose in ground or exposed due to damage or deterioration of the finished surface used.
- d. Impact Absorbing Surfacing not compacted, damaged, puddling, with no contaminants or sharp objects.

If a grass surface has been selected, ensure it is in good condition grass

Note: materials such as grass have some limited impact attenuating properties and experience has shown that if well maintained, they are effective for certain fall heights and may be used without the need to conduct a test (subject to EN 1176 and national recommendations). If not adequately maintained their impact attenuation is significantly reduced.

If a loose fill surface has been selected, ensure it is in good condition and that it is of sufficient thickness to coincide with the 'Basic Level Marks' on the equipment up stands.

- e. Consumable (items that wear during use e.g. chains, ropes or bearings) items not missing bent, broken, loosened, worn.
- f. All parts are secure and that there is no excessive movement between them which may lead to finger traps and any other traps.

INSPECTION SCHEDULE

Operational Inspection (1 to 3 months intervals)

Operational Inspections should be carried out by trained operators with the results recorded in a permanent log.

Check List General

Check ✓

- a. Structure Not bending, cracking, loosening, excessively corroded.
Note:
Special attention should be given to equipment where stability relies on a single structural support. Particular attention should be made to the area of the structure just as it enters the ground
- b. For Dynamic items of Equipment it is recommended that they are scheduled for replacement after a use period of 15 years. This is particularly important for single post structures that are subject to fluctuating loads as fatigue to the structural elements can occur over time, depending on the level of use and abuse. Example SMP products Typhoon, Titan, Tornado etc.
- c. Surface finish. No damaged paint, rusting, other corrosion or deterioration
Note:
Particular attention should be made to the area of the structure just as it enters the ground
- d. Foundation not cracked, loose in ground or exposed due to damage or deterioration of the finished surface used.
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If a loose fill surface has been selected, it is in good condition, and is of sufficient thickness to coincide with 'Basic Level Marks' on equipment up stands.
- f. That all fixings are tightened and have no protruding sharp edges.
- g. Ensure that site is clear of all dangerous objects and rubbish.
- h. Welds show no visible cracks or corrosion.
- i. No trip points or obstruction within the falling space, free space or surrounding area.
- j. Ensure that all plastic items including mouldings and plugs are secure and not broken, loose, cracked, burnt, deformed or missing and have no sharp edges.
- k. All parts are secure and that there is no excessive movement between them that may lead to finger traps and any other traps.
- l. Spinners and bouncing components are operating smoothly and are not running dry. (Grease or lubricate if necessary – see maintenance procedure).
- m. Ensure any anti-slip plastic surfaces (decks, platforms, climb walls, step treads & seat treads) have not worn through the top surface.

EQUIPMENT GROUPS

Titan Carousel

1. When checking fixings ensure that the support arms are tightly attached to the central hub. If necessary remove plastic covers and tighten fixings to the correct torque. (See Installation Instructions for the correct torque setting).

Typhoon

In addition:

1. At every inspection check for excessive wear on the bobbins (part number 404110) - to check push Wings against the mast and measure the gap between the mast and the internal diameter of the Halo rings adjacent to the bobbin fixture. If the gap is less than 5mm replace the bobbin. Repeat for all bobbins. Due to the uneven loading it is recommended that both upper and lower Halo ring assemblies are rotated 120 degrees every 9 to 12 months to spread the wear and prolong the life on the Bobbins
2. The suspension ropes (part number 404112) are a high wear component, check the integrity of the ropes at every inspection paying particular attention to the area below the universal joints at the very top of the assembly, if there are any signs of fatigue or distress replace the rope component

Typhoon annual inspection in addition to all the foregoing: -:

1. Using an appropriate device, raise the wing arm to release the tension on the suspension ropes, inspect the upper column rope connection bushes, pins, fasteners and rope ferrules – replace any or all defective or suspect components
2. Ensure that the upper column swivel block is free to rotate and free from metal to metal contact.
3. Remove the six dome headed screws securing the Upper Halo, (noting the position of the bobbins relative to wing arms) inspect all three bobbins for security, excessive signs of wear, flats or other abnormalities and that they are free to rotate – if defective replace all three bobbins. Refer to installation for replacement instructions
4. After completing the above for the upper Halo Ring repeat the same process on the lower Halo Ring

Dragonfly & Gullwing Seesaws

In addition:

1. Check seat height when fully depressed - the distance from the underside of the seat to finished surface level should not be less than 230mm
2. Check *ROSTA* rubber dampening unit (part number 502520) is functioning correctly - after being fully depressed the top component should return to a position of equilibrium $\pm 5\%$ on its own
3. In the event the "ROSTA" rubber dampening unit fails to reach equilibrium as described above or if it starts to make a "grinding" noise a replacement suspension kit can be ordered by quoting 502103 and fitting in accordance with the supplied instruction.

Scorpion

In addition:

1. Check that the distance from the underside of the black rubber "Stand" component (part number 402500) to the finished surface level is not less than 400mm
2. Check moving components for wear, lubricate with graphite spray or grease as appropriate
3. Ensure all bearings are moving freely with no noise, binding or play. Ensure the rotation of the pendulum is solely about the shaft and not being taken by the top Spherical bearing, as that would indicate the shaft bearings are not free moving. Bearings must be replaced immediately if any deterioration is detected.
4. On a 3 monthly basis the pendulum should be removed to allow a detailed inspection of the lower retaining disc to ensure it is still secure and exhibits a clearance greater than 1mm from the bottom of the shaft.

5. Ensure all fixing bolts are securely in place.
6. Ensure the pendulum tube is not bent. Any bending to this part would indicate abuse loading that could lead to damage of other parts. Take product out of use and contact SMP immediately if this has occurred.
7. Check the integrity and seal of the water guard located above the pendulum connection points.

Tempest Carousel

1. Ensure the gap between the black plastic bush that sits inside the Rotating disc and the spindle of the fixed handrail is less than 5mm. If the gap is greater than 5mm replace the black plastic bush quoting part number 209500.

Rota-Roka

2. The rubber joint should be checked at every inspection for wear and tear and replaced as required: to test apply a user load of approximately 70Kg. Check that the motion is progressively restricted in all directions with no abrupt starts and stops. Check also that there is no slack movement in the vertical direction.

Cable Rider

1. Ensure the seat is at the correct height. Minimum 400mm when loaded with 130kg. Please note that periodically the Cable Rider may require the cable to be re-tensioned. Refer to the Installation Instructions details.
2. Tyre stops are acting effectively and are positioned to the dimension in the Installation Instructions. Please note that a tyre buffers may need regular replacement on well used installations. If required protection disks are available as a retrofit kit to extend the life of tyre buffers. Please quote part number 409128.

Travelling Carriage:

Periodically it is advised to remove the carriage for a detailed internal inspection as consumable parts of the carriage may need to be replaced. Please refer to the Installation Instructions for fitting details.

3. The carriage is moving freely when normally loaded, and the wheels/brake block are not excessively worn.
4. The carriage cable guards (wear pads) are in place and not excessively worn as to cause finger entrapment, or metal to metal wear on the cable.

Wire Cable:

5. Ensure that the wire cables are inspected for signs of wear and corrosion, with Particular attention being made to where the wire cable passes around the support frame and to where it is tied off.
 - a. Corrosion – some discolouration may be expected however, if the wire is heavily corroded it should be replaced **immediately**.
 - b. Wear – if the wire diameter anywhere is reduced to 90% of the nominal diameter (10mm) is should be replaced **immediately**. Individual wire breaks should be monitored.
 - c. Broken wires- the number of visible broken wires necessitating discard of the cable is 10 wires.
 - d. For detailed discard criteria refer to BS EN 12385-3.
 - e. Tie off points are secure.

Polyethylene panels

1. Panels should be checked for cracks or other damage and replaced if required.
2. All polyethylene panels are UV stabilised high density polyethylene to provide a long trouble free life. However, after extended UV exposure some colour fading and material embrittlement can be expected. This will vary depending on the location and orientation of the panel, but after a period of 10 years all panels should be regularly checked for signs of embrittlement and replaced as required.

Rope Components

1. Ensure that the ropes are not frayed.
2. That all fixings are tight and have no protruding sharp edges.
3. Ensure foot walking ropes are maintained at an adequate tension so that the distance from the underside of the rope to finished surface level is not less than 230mm
4. HAGS recommend rope end fixings are replaced when the link cross section reaches a size of 60% of its original size compared to a non-wearing surface. Care should be taken that the rate of wear and time to the next inspection is taken into account:
 - a. Eye bolts welded onto beam.
 - b. Split links.
 - c. Swaged eye terminals attached to the rope ends.
5. Where fork end ferrules are provided check their integrity, paying particular attention to the wear on the M10 pins.

Ensure NRG & ECO foot ropes are maintained at an adequate tension so that the distance from the underside of the rope to finished surface level is not less than 230mm
6. Check the integrity of all NRG & ECO fork end ferrules paying particular attention to the wear on M10 pins, if the cross section is 60% of its original size, it must be replaced.

Chain Components

1. The chains are not twisted.
2. HAGS recommend chains are replaced when the chain link cross section reaches a size of 60% of its original size on any link compared to a non-wearing surface. Care should be taken that the rate of wear and time to the next inspection is taken into account:
 - a. Eye bolts welded onto beam.
 - b. Split link.
 - c. Top chain link.
 - d. Main chain link.
 - e. Chain swivel links where fitted move freely and have no excessive wear.

Shackles

1. HAGS recommend shackles are replaced when the link cross section reaches a size of 60% of its original size on any link compared to a non-wearing surface. Care should be taken that the rate of wear and time to the next inspection is taken into account
 - a. Shackle pins have no steps or cracks in them.

- b. Ensure that Roll pins are inserted.

Bushes (shackles, pivots and rotating items e.g. Swings and seesaws)

- 1. Inspect bush for wear (recommended maximum 0.5mm in vertical plane).
- 2. Bushes are pivoting freely without squeaks or binding.

Bearings

- 1. Units rotate freely (see maintenance procedure).

Springs

- 1. Check the clamps for wear or fretting. If the parts exhibit any sign of cracks, permanent deformation, wear or rust they should be replaced immediately.
- 2. The spring should be regularly checked for any signs of rust, deformation, fretting, cracks or other damage. (In particular, the area of the spring around the last base fixing position should be scrutinised). Should any of these be present, the spring must be replaced immediately. After a period of 2 years, this inspection should be increased in frequency depending on condition and level of use of the equipment. If the spring is still in service after a period of 5 years, it is recommended to replace it at that time as a matter of routine.

Wooden items

- 1. Ensure all wooden items (logs etc.) are not broken and have no sharp edges or splinters.
Note: All wooden items are prone to expansion and contraction that may cause temporary splits. This will depend on climate and temperature variance. Any cracks should be monitored to ensure they do not grow sufficiently to be a finger trap.
- 2. Ensure all walkways are not slippery.

Rubber steps and disks

- 1. Ensure all rubber steps and disks are not broken and secure to posts.
- 2. Ensure all rubber steps and disks are not slippery.

Nylon bushes (Swing anti-wrap bearings)

- 1. Check bush halves for wear. If the bush is worn more than the recommended maximum of 0.5mm the bush must be replaced.
- 2. Ensure grease nipple is secure and pivot is moving freely.

Swing seats

- 1. The seats are at the correct height.
- 2. The seats are all level. (Mirage swing seat hangs at an angle of approximately 30°)
- 3. The swing seat is not damaged and free from foreign objects.
- 4. The chains are not twisted.
- 5. Ensure all drain holes are clear.

Anti-slip surfaces

1. Ensure any anti-slip surfaces (decks, platforms, climb walls, step treads & seats) have not worn through the top surface.
2. Ensure the surface is free from contaminates that could make it slippery.

Annual Main Inspection (not exceeding 12 months)

A detailed inspection should be carried out by a specialist engineer and the results of such inspections entered into a permanent record. The inspection is intended to establish the overall safety of the equipment, foundations and playing surfaces.

MAINTENANCE PROCEDURE

Whilst any maintenance is carried out the equipment must be secured against use and the public warned of any risks associated with the work.

Consumable Components

Any parts replaced must comply with HAGS specifications.

See installation instructions for Part numbers, part identification and method of assembly.

1. Powder Coated Finish to Steel and Aluminium Components.

(See separate Refurbishment of Powder Coated Steel Structures on Play / Sports Equipment document).

Periodically our products should be inspected for mechanical damage, and we recommend that the powder-coated finish to steel components be cleaned with a mild detergent solution and soft cloth. This should generally be carried out at least once a year, unless the provision is within one mile of the sea in which case it should be carried out every three months. Do not use strong solvents or solutions containing chlorinated hydrocarbons, esters, ketones or abrasive cleaners or polish.

Particular attention should be paid to the areas adjacent to stainless steel components where corrosion on bare steel would be accelerated.

Any breaks in coating surface identified should be made good within 28 days.

Any bare metal should be thoroughly abraded with 600-grade paper to remove any corrosion, then immediately finished following the repair procedure Interpon PZ770 outlined in the refurbishment of powder coated steel structures instruction. (All paints available from Cromadex centres worldwide.)

2. Galvanized Steel Components.

Periodically all galvanized parts should be checked for signs of any damage that may cause rusting. The parts should then be treated with a suitable cold galvanizing application, Rust-Oleum Galva Zinc (Din 50.976) or equivalent. Damaged areas should be prepared to the product manufacturer's instructions before applying.

3. Wooden Items.

a. Hardwood.

The timber parts should have any sharp edges or splinters removed. Any cracks should be monitored to ensure they do not grow sufficiently to be a finger trap. Wooden steps and ramps should be periodically cleaned to prevent the build-up of algae or other growths which could be slippery.

It is recommended that the hardwood items should be treated if required with a light application of Linseed oil, thinned as necessary with white spirit. Ensure that all excess oil is removed prior to putting the equipment back into use. This is particularly important on step treads to ensure they are not slippery.

b. Softwood.

The timber parts should have any sharp edges or splinters removed. Any cracks should be monitored to ensure they do not grow sufficiently to be a finger trap. Prior to 2003 HAGS supplied all softwood sections CCA treated as was the norm at the time. Any CCA treated parts reaching the end of their life must be treated as hazardous waste and disposed of accordingly (must not be burnt). Timber sections supplied after 2003 were supplied untreated or by using an alternative treatment method. These items will need to be inspected and replaced on a more regular basis. The life of timber parts can be extended with the applications of coatings or other

treatment products. However, we recommend that these are checked to ensure their suitability for use on children's playground equipment.

c. Laminates.

The timber parts should have any sharp edges or splinters removed. Any cracks should be monitored to ensure they do not grow sufficiently to be a finger trap. Wooden steps and ramps should be periodically cleaned to prevent the build-up of algae or other growths which could be slippery.

4. Polyethylene Panels.

As required, these may be cleaned with a suitable graffiti remover.

Should any panels need replacing please refer to the specific products installation instructions for replacement parts.

5. Anti-slip surfaces.

Decks, platforms, climb walls, step treads & seats must be replaced prior to the top anti-slip surface layer wearing through.

6. Rope nets.

Small cuts in the outer braided layer can be re-sealed by melting the frayed ends with a small naked flame. If done immediately it will stop the plastic filaments from unwinding further. With small amounts of wear the life of the net can be extended with the use of suitable external grade heavy duty tape. This must be securely applied to prevent the introduction of entrapment areas.

If damaged or worn out replacement will be necessary. For identification of all spare parts and details of assembly refer to the installation instructions.

7. Chain Links and Support Ropes.

If damaged or worn replacement will be necessary. For identification of all spare parts and details of assembly refer to the installation instructions.

8. Coupling links (Ref. 1571500 & 1571600).

HAGS recommend chains are replaced when the link cross section reaches a size of 60% of its original size on any link compared to a non-wearing surface. Care should be taken that the rate of wear and time to the next inspection is taken into account. Please refer to installation instructions for replacement parts and procedure.

9. Bushes

Oil bearing bushes using SAE 30 mineral oil

a. Shackle Bush (Bush No. 15011612).

First remove the shackle assembly, and then using suitable drift and mallet tap out the bush. Locate the new bush (ensure that the new bush is kept clean from contamination) in position and tap home with the mallet until the bush is flush with the pivot block.

b. Seesaw Bush (Bush No. 15033025).

First remove the complete Beam & Spring Assembly from the Base Supports and Tie Bars by unbolting the 8-off M10 Resistorx bolts, then release and slide the Spindle from the Support Frame. Refer to Installation Instructions for details of the assembly. Using a suitable drift and mallet, tap out the bushes located in the Support Frame (one each side) and in the Beam (one each side). Locate the new bushes (ensuring that they are kept clean from contamination) in position and tap home with a mallet until the bushes are flush with the frame. Relocate the Beam & Spring Assembly onto the Base Supports and Tie Bars, slide in the Spindle and secure complete assembly using the M10 Resistorx bolts and washers.

c. Hanging wheel bush (Bush No. 15032620).

Tap out Spirol Pins using suitable tool, Unscrew the Hanging Wheel Spindle. This will separate the Hanging Wheel from beam remove the Flanged Bearings from there housing. Locate the new bushes (ensuring that they are kept clean from contamination) in position and tap home with a mallet until the bushes sit square against the seating face then reassemble to beam.

10. Bearings.

See installation instructions for replacement bearing parts and procedures.

11. Nylon Bushes (Swing anti-wrap bearings) Bush No. 19028901.

Apply universal grease through the grease nipple. Ensure any over spill is entirely cleaned off.

If the bush is worn more than the recommended maximum 0.5mm bush must be replaced. First remove the circlip, and then slide the bearing housing assembly off the bearing. Replace the two halves of the bearing with new ones. Grease the two halves of the new bearing with universal grease. Clean off any excess grease. Refer to installation instructions for replacement parts and procedures

12. Climb Grips.

Ensure the grips are in position and secure.

Climb grips may be cleaned to prevent build-up of algae or other growths which could be slippery using water with the aid of a stiff brush.

Refer to installation instructions for replacement parts and procedures.

13. Plastic Slides.

As required, these may be cleaned with a suitable graffiti remover. All HAGS polyethylene Slides are UV stabilised high density polyethylene to provide a long trouble free life. However, after extended UV exposure some colour fading and material embrittlement can be expected. This will vary depending on the location and orientation of the slide, but after a period of 10 years all panels should be regularly checked for signs of embrittlement and replaced as required.

14. Stainless Steel Tube Slides.

On Tube Slide ensure all the clamp rings are secure and that all the tube sections butt tightly together. There should be no gap between sections.

Ensure the Tube Slide is sitting securely on its support legs. With no gaps larger than the permissible 8mm.

Ensure all three safety labels on inside of the Tube Slide entry panel are secure and legible, replace if necessary.

15. Glass reinforced plastic roof / canopy.

As required, these may be cleaned with a suitable graffiti remover.

All HAGS GRP parts are UV stabilised high density polyethylene to provide a long trouble free life. However, after extended UV exposure some colour fading and material embrittlement can be expected. This will vary depending on the location and orientation of the roof, but after a period of 10 years all panels should be regularly checked for signs of embrittlement and replaced as required.

16. Polyethylene mouldings.

As required, these may be cleaned with a suitable graffiti remover.

All HAGS polyethylene mouldings are UV stabilised high density polyethylene to provide a long trouble free life. However, after extended UV exposure some colour fading and material embrittlement can be expected. This will vary depending on the location and orientation of the mouldings, but after a period of 10 years all panels should be regularly checked for signs of embrittlement and replaced as required.

17. Spring and Clamps

To replace the spring & clamps, refer to the installation instructions. (Dismantling is the reverse of assembling)

Surface preparation for painting may introduce surface defects that create possible weaknesses. Therefore, no repainting of the spring is recommended.

Any replacement spring will need to be checked for compatibility.

18. Shackles.

a. Roll Pin No 10310325.

Remove roll pin by tapping out using 3/32" diameter punch, locate new pin in the hole ensuring that the holes line up, tap home pin with small hammer until level with shackle face.

b. Shackle Assembly No 88096003.

If shackle is worn follow procedure 'a' to remove pin and unscrew shackle pin. To assemble shackle reverse disassembly procedure.

19. Rubber Stepping Stones & discs.

Rubber stepping stones may be cleaned to prevent the build-up of algae or other growths which could be slippery, using water with the aid of a stiff brush, a water jet being the most effective.

20. Gate closing mechanisms

a. Zaun entrance gates

DICTATOR Tube Gate Closer - RTS-e.

For regular maintenance and servicing of this unit refer to the manufacturers own Installation and Maintenance Instructions. Particular attention should be paid to ensuring the necessary lubrication and maintenance for an acceptable closing speed.
Web: www.dictatordirect.com

b. Steelway fencing gates

Steelway Fensecure Ltd recommend that maintenance, which involves oiling the hinge block, be carried out on a fortnightly basis and therefore the spring does not require tensioning any further than the original setting.

21. Vortex Internal Swivel Joint: No 87700305

The bearings used in this item of equipment are sealed for life and should require no maintenance. Should any damage occur please contact HAGS.

Instructions for retiring old equipment:

At the end of its working life HAGS equipment may be dismantled and the component parts sorted by material type for re-cycling and or disposal.

Please refer to the HAGS installation instructions for erection sequences, tools required and any Safe Working Practices that may be required.

Once dismantled parts may be sorted by material type:

1. Mild Steel – All powder coated steel parts.
2. Stainless Steel – All slides, bolt fixings and banister rails.
3. Moulded Rubber Components – All swing seats.
4. Polyethylene – All graphic panels and rota-moulded items.
5. Galvanised Steel – All swing chains and some steel posts.
6. Steel Core Nylon Sheaved Rope – All rope nets.

HAGS would urge that wherever possible parts are passed to on to specialist recycling companies.