



Inspection & Maintenance

Guidelines for HAGS Playground Equipment

HAGS[®]
Inspiring all generations

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1. Introduction

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

The HAGS product warranties are only valid if the inspections and maintenance in this document are followed.

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

Records of inspection and maintenance should be kept by the owner/operator in charge of the equipment, detailing what has been carried out.

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).

Important note:

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2. Routine Visual Inspection

Checklist



A routine visual inspection should be carried out on a weekly base as a minimum. 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 could be necessary:

- a. Structure not bending, cracking, loosening.
- b. No loose or missing fasteners. All bolt covers and caps are secure.
- c. No damaged paint, rusting, other corrosion or deterioration and all surfaces are free from sharp edges.
- d. All sliding surfaces (slides, sliding poles, ropes etc.) are smooth and free from sharp edges along the entire sliding area. Also make sure user zone is free from obstacles.
- e. Foundation not cracked, loose in ground or exposed due to damage or deterioration of the finished surface used.
- f. Sufficient basic level marks are visible on the equipment up-stands to allow assessment of loose fill material depth.
- g. Consumable (items that wear during use e.g. chains, ropes or bearings) items not missing bent, broken, loosened, worn.
- h. All parts are secure and that there is no excessive movement between them which may lead to finger traps and any other traps.
- i. Rotating or moving items are moving freely without wobbling or noise. (For SpinR see following specific section)
- j. No free moving obstacles within the equipment or surrounding surface like stones, branches, toys, broken glass etc.





3. Operational Inspection

Checklist



Operational Inspections should be carried out by trained inspectors (1-3 months intervals) with the results recorded in a permanent log. If anything is noticed below, please see maintenance procedure further on in this document. Care should be taken that the rate of wear and time to the next inspection is taken into account. Each play feature shall be tested with a suitable force to confirm its function.

- a. Structures like posts, decks, roofs, panels/barriers etc. and play features not bending, cracking, loosening, excessively corroded.
- Note: Special attention should be given to;
- equipment where stability relies on a single structural support.
 - dynamic items (Like Typhoon, Mobilus, Multipondo, Mantis...)
 - the area of the structure just as it enters the ground
- b. No damaged paint, rusting, deterioration or contamination and all surfaces are free from sharp edges.
- Special attention should be given to:
- all sliding surfaces and make sure the user zone is smooth along the entire sliding area and free from obstacles.
 - the area of the structure just as it enters the ground
- c. Foundation not cracked, loose in ground or exposed due to damage or deterioration of the finished surface used.
- Note: Special attention should be given to;
- equipment where stability relies on a single structural support or a linear line of structural supports.
 - dynamic items (Like Typhoon, Mobilus, Multipondo, Mantis...)
- d. Impact Attenuating Surfacing.
- Ensure there are no obstacles in the safety zone.
For inspection and maintenance of impact absorbing surfacing, please see separate section.
- e. All fixings are tightened and have no protruding sharp edges.
- No wear in attachment holes.
- f. Site is clear of all dangerous objects and rubbish.
- g. Welds show no visible cracks or corrosion.
- h. No trip points or obstruction within the falling space, free space or surrounding area.
- i. Plastic items including mouldings, panels, slides, climbing grips, plastic balls on pull handles, plugs etc., are secure and not broken, loose, cracked, sharp edges, burnt, deformed, due to UV light have any signs of embrittlement or missing.

- j. All parts are secure and that there is no excessive movement between them that may lead to finger traps or any other traps. Please pay special attention to rungs so that they do not rotate.
- k. Spinners and bouncing components are operating smoothly without noise, with no unexpected movement within bushes or bearings.
- l. Ensure any anti-slip components (e.g. decks, platforms, panels, climb walls, step treads & seat treads) have not worn through the top surface.
- m. Structural HPL components (e.g. decks, platforms, panels, climb walls, step treads & seat treads)
-has more than 90% left of its original thickness.
-has no sharp edges
- n. Walking surfaces are free from any contamination that can cause slipperiness.
- o. Ensure all product use labels and facility signage are still legible.
- p. No water is accumulated within equipment due to sand, leaves, high water table etc. and that all drain holes are open.



Rope Components

1. Ensure that the ropes are smooth all along and are not frayed, deformed or have any visible metal cord.
2. That all fixings are tight and have no protruding sharp edges.
3. HAGS recommend rope end fixings are replaced when the link cross section reaches a size of 70% of its original size compared to a non-wearing surface. All parts should be checked, including;
 - a. Connections to framework.
 - b. Split links.
 - c. Swaged eye terminals attached to the rope ends.
4. Surface finishes not damaged, rusting or deteriorating
5. Connections and bolts are secure and tight

Flextread components

1. Surface cracks are to be expected on Flextread, particularly where the material is wrapped. Ensure these surface cracks are less than 4mm and do not break through the internal reinforcement layer.
2. Check the anti-slip texture surface has not worn away.

Chain components

1. The chains are not twisted.
2. HAGS recommend chains are replaced when the chain link cross section reaches a size of 70% of its original size on any link compared to a non-wearing surface. All chain parts should be checked, including;
 - a. Eye bolts and attachment plates welded onto beam.
 - b. Split links.
 - c. End chain links.
 - d. Main chain links.
 - e. Chain swivel links where fitted move freely and have no excessive wear.
 - f. Connecting rivets are not lose or missing. If so, please contact HAGS.

Swing seats and swing chains

1. The seats are positioned at the correct height. (see separate assembly instruction for each seat)
2. The swing seat is not damaged and free from sharp edges and foreign objects.
3. The chains are not twisted.
4. HAGS recommend chains are replaced when the chain link cross section reaches a size of 70% of its original size on any link compared to a non-wearing surface. All chain parts should be checked, including;
 - a. Attachment links.
 - b. Split links.
5. Chain swivel links where fitted move freely and have no excessive wear.

Shackles

HAGS recommend shackles are replaced when the link cross section reaches a size of 70% of its original size on any link compared to a non-wearing surface.

- a. Shackle pins have no steps or cracks in them.
- b. Ensure that Roll pins are inserted and firmly in position.

Bushes, bearings and swivels (pivots and rotating items e.g. Swings, seesaws, roundabouts, overhead wheels)

1. Inspect bush/bearing/swivel for wear and excessive play (recommended maximum 0.5mm in vertical plane).
2. Bush/bearing/swivel is moving freely without squeaks or binding.

Swing Frames

1. Ensure all chain attachment points are secure, with no signs of wear, deformation, cracks or corrosion.
2. Ensure the frame legs are securely attached to any ground anchors and their foundations
3. Ensure the swing top beam is securely attached to the legs, with no signs of wear, deformation, cracks or corrosion/rot

Tube Slides

1. All clamp rings are secure.
2. All the tube sections butt tightly together. There should be no gap between sections, inside and outside.
3. All safety labels on the Tube Slide entry panel are secure and legible, replace immediately if necessary.

Dampening components (e.g. See-saw seats/stops)

1. Check for any damages, wear or cracks.
2. Dampening effect is sufficient.

Sand and water play

1. Check connections and visible parts for leakage or other damage.
2. Check pump function.

Springs

1. Check the clamps for wear, fretting, cracks, deformation or excessive corrosion.
2. Check the spring for any signs of excessive corrosion, deformation, fretting, cracks or other damage. (In particular, the area of the spring around the last base fixing position should be scrutinised).
3. No stones, gravel, branches etc. inside or close to the spring.

Wooden items

1. 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 or compromise structural strength.

2. All components where repetitive wear does occur (e.g. decks, steps, walkways) has more than 70% left of its original thickness.
3. Give a detailed check of all timber parts to confirm if any rot/degradation is present that could compromise its structural capacity.
- Special attention shall be given to dynamic items like cable ways, swing frames, and those that rely on one post for their stability.
 - The recommended inspection method for identifying early signs of degradation in timber is the use of a small diameter (approx. 3-4mm dia) steel rod with a rounded point. Attempting to insert the device a number of times at evenly spaced points around the outer face of the post, in the accessible zone where moisture and oxygen combine in their optimum, in areas under the highest levels of structural load. The probe shall not easily enter the timber when pushing and there shall be no sign of softness, when compared with a fresh timber part. Any cracks in the timber can also lead to rot establishing from the inside.
 - Care should be taken to not disturb material in the post potentially leading to future acceleration of degradation. Small pockets of rot do not necessarily mean the post will fail catastrophically in the near future and any suggested action should be considered carefully by the inspector depending on the amount and extent of degradation.
 - For structural wooden parts going direct into ground, care should be taken to ensure the inspection method and probing is carried out in the zones of the post at the greatest risk of degradation. For loose-fill surfacing at or below ground level but above the concrete foundation by temporarily scraping back the loose-fill material. For synthetic surfacing directly at or just above/below surface level. If the ground is prone to retaining water or flooding, then extra attention also needs to be taken.
 - For larger sections of timber intended to offer greater structural stability or timbers raising concern, more sophisticated test methods such as digital resi-drill inspections are available if considered necessary.
 - If any concern occurs please contact a local timber expert or contact HAGS for further advice. Where necessary products must be taken out of use, until a further investigation has been completed.

Steel items

1. Give a detailed check of all steel parts to confirm if any corrosion/degradation is present that could compromise its structural capacity. The recommended inspection method for identifying early signs of corrosion in steel is visual observation and the use of a small diameter (approx. 3-4mm dia) steel rod with a rounded point. Attempting to insert the device a number of times at evenly spaced points around the outer face of the post in the accessible zone where moisture and oxygen combine in their optimum, in areas under the highest levels of structural load. The probe shall not easily enter the steel when pushing and there shall be no sign of softness. If areas where the surface coating is broken, are detected, special attention should be given as there is a higher risk of corrosion.
- For structural steel parts going direct into the ground care should be taken to ensure the inspection method and probing is carried out in the zones of the post at the greatest risk of corrosion. For loose-fill surfacing at or below ground level but above the concrete foundation by temporarily scraping back the loose-fill material. For synthetic surfacing directly at or just above/below surface level. If the ground is prone to retaining water or flooding, then extra attention also needs to be taken.
 - Special attention shall be given to dynamic items like Mantis, Mobilus, Titan, and those that rely on one post for their stability.
 - For those steel sections intended to offer greater structural stability or those raising concern, more sophisticated test methods such as 'eddy current' tests are available if considered necessary.

If any concern occurs, please contact a local structural steel expert or contact HAGS for further advice. Where necessary products must be taken out of use, until a further investigation has been completed.

Rubber steps and disks

1. Not broken and secured to posts.
2. Not slippery.

Equipment Groups

In addition to the general checks which must be completed on all equipment, the following specific checks are also required on the particular HAGS product.

For all equipment, please also refer to the specific Installation Guides. These contain information including replacement part numbers and required torque setting for fixings. (Latest versions are available on our website).

Multi-user Spring seesaw

1. When checking the hinge bushes pay particular attention to the level of wear. (Also see general replacement criteria on page 7). It is important that the bushes are replaced, before any metal on metal contact of the structural parts.

Swingo sweeping seesaw

1. Check 'number of revolutions' to indicate if the main column bush is worn out. It is normally expected for the arms to smoothly rotate approximately 2 complete revolutions with a big push.
2. Check the 'ROSTA' joint to ensure all connections are tight, it is not worn out and still progressively controlling the rocking motion.
3. When checking fixings ensure that the top frame is tightly attached to the support post. If necessary, tighten fixings to the correct torque.

Mini Titan Carousel

1. When checking fixings ensure that the top frame is tightly attached to the central hub. If necessary, tighten fixings to the correct torque

Spinmee Roundabout

1. Check 'number of revolutions' to indicate if 're-greasing' is required. Check 'perimeter gap' between fixed and rotating sections. Check for 'noise' and 'binding'. See install guide for details. Resistance to rotation is usual and depending on grease levels it is expected that the roundabout will free-spin between 1 and 3 complete revolutions, with a strong push.
2. The turntable bearing is unsealed and therefore, the void under the deck tread plates must remain 'free-draining'. If the base is liable to flooding, then remedial action must be taken, to ensure that the water level remains below the bottom flange of the bearing - to prevent the grease from being washed out and the ball-race becoming contaminated with grit or dirt, which will adversely affect its performance and lifespan.
3. Ensure that the Turntable Bearing rotates freely. Some noise from the open turntable bearing can be expected.

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).
2. Check that roll pin is inserted and securely fixed in the hinge block. Then check for signs of rust and replace if necessary with latest version replacement parts. (Refer to maintenance procedure).

Duel Carousel

1. Check that roll pin is inserted and securely fixed in the hinge block. Then check for signs of rust and replace if necessary, with latest version replacement parts. (Refer to maintenance procedure).

Typhoon Carousel

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 and Gullwing Seesaws

1. Check seat height when fully depressed - the distance from the underside of the seat to finished surface level should be not 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.

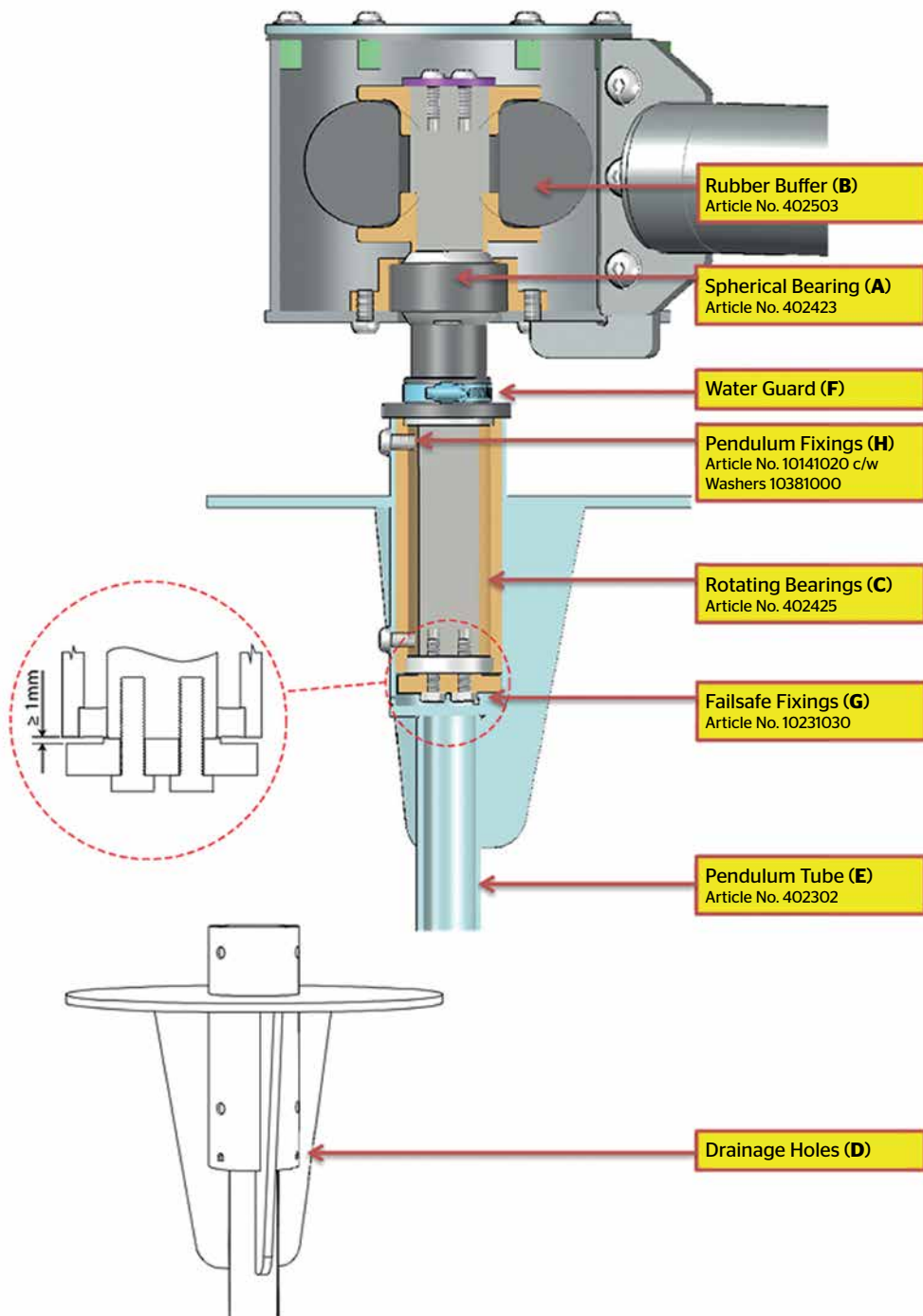
Scorpion (refer to picture on following page)

1. Check that the distance from the underside of the black rubber "Stand" component (part number 402500) to finished surface level is not less than 400mm.
2. The spherical plain bearing (A) within the top housing (also visible through the hole in the underside) requires regular lubrication to prevent steel to steel contact and wear. Check the bearing for noise/binding and lubricate as required with high pressure Lithium soap base grease including EP or solid lubricant additives. After application lift and move the pendulum in all directions to ensure the grease distributes well in between the moving steel faces. If there is excessive play within the bearing, it should be replaced by a specialist Engineer.
3. Check the rubber buffer (B) within the top housing for signs of deterioration or wear. If detected it should be replaced by a specialist engineer.
4. Ensure bearings (C) rotating the pendulum is 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 by a specialist engineer immediately if any deterioration is detected.
5. Check for any vertical movement in the pendulum/rotating bearing assembly (C & E). Ensure sufficient force is exerted to overcome the self-weight of the pendulum and any frictional forces in the bearings. If there is more than 2mm of vertical movement it could indicate loosening of failsafe fixing (G) or bearing wear (C) - immediately investigate further by following step 6 below.
6. On a 3 monthly basis, the pendulum should be removed to allow a detailed inspection of;
 - Carefully remove 6 pendulum fixing bolts (H) and keep safe for re-use.
 - Check the lower retaining disc, which acts as a 'fail-safe' against bearing failure to ensure it is still fully secure, with the retaining bolts (G) fully tight and no up and down movement of the bearings relative to the shaft. Any loosening of these bolts must be corrected immediately (recommended torque 25Nm), with thread lock being used as a back-up if required.
 - Check there is a clearance greater than 1mm from the bottom of the bearings shaft again with no play up and down the shaft that would indicate bearing wear or failure. Bearings must be replaced by a specialist engineer immediately if any deterioration is detected.
 - Ensure the 3 drainage holes (D) in the Pendulum socket (below where the pendulum connects to the shaft) are clear of debris and allow drainage of any water from the swivel bearings. Clean as required.
 - Carefully re-connect pendulum with 6 securing bolts c/w washers (H). Ensure these bolts are fully tightened (recommended torque 25Nm), with thread lock being used as a back-up if required.

Scorpion *(continued)*

7. Ensure the pendulum tube (E) 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 HAGS immediately if this has occurred.
8. Check the integrity and seal of the water guard (F) located above the pendulum connection points. If required, this should be made good with new silicon sealer to prevent water ingress to the bearing below.
9. Check all other components for wear and ensure all fixing bolts are tightly secure.

Please also refer to the Specific Installation guide. It is recommended that any part replacement should be carried out by a specialist engineer.



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

1. 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 that there is no slack movement in the vertical direction.
2. On a 3 monthly basis check for ingress of water in the base unit. If water is found to be entering the mounting hub, remove the rubber joint and re-install with a seal of silicon.

Cable ways

1. Ensure the seat is at the correct height. Minimum 350mm when loaded with 69.5kg. Periodically, the Cable way may require the cable to be re-tensioned. Refer to the Installation Instructions.
2. Tyre/Spring bump stops are acting effectively and are positioned to the dimension in the Installation Instructions.
3. Check all structural steel components for any signs of wear, deformation or cracks. In particular check the cable attachment points.
- a. Where tyres are used they 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.
- b. Where spring buffers are used, check the end stops are securely in place with no deformation and that the spring action is smooth.

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. (For the Mantis it is possible to just remove the plastic side cover). Refer to the Installation Instructions for fitting details.

1. Carriage moves freely with a normal load and the wheels/brake block are not excessively worn.
2. 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.
3. Inspect the seat assembly for damage and wear. Pay particular attention to the top connection to carriage. It is recommended that the chain fixing bolt to the carriage is periodically removed to aid inspection. Refer to chain section for discard criteria.
4. Where a universal joint is fitted to the underside of the carriage; This should be checked for any play in the joint. This can be felt without removing the rubber gaiter. If there is any doubt it is advised to pull down the rubber, check the joint and re-secure. If there is any play in the joint or the rubber gaiter is damaged it should be replaced immediately.

Wire Cable

1. Ensure the wire cables are inspected for signs of wear and corrosion, with attention to where the wire cable passes around the support frame or tensioner, within the buffer stop 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 is reduced anywhere it should be replaced immediately. Expected wire diameter can vary depending on product type. Always check against non-wearing section.
- c. Broken wires - if any broken wires are visible it should be replaced immediately.
- d. For detailed discard criteria, please refer to ISO 4309.
- e. Tie off points are secure.

Zip Rail

Periodically, it is advised to remove the carriage from the track for a detailed internal inspection as consumable parts of the carriage may need to be replaced. (For the Zip rail it is possible to detach the rail end fixing, to allow the trolley to be removed). Refer to the Installation Instructions for fitting details.

1. Carriage moves freely with a normal load and the wheels/ are not excessively worn.
2. Carriage end guards (wear pads inside track, on each end of carriage) are in place and not excessively worn as to cause finger entrapment.
3. For rope handle refer to rope section, paying particular attention to top fixing and swivel joint.
4. Check the end bump stop is still good enough to prevent steel on steel contact.

Cyclops

Additional inspection information relating to swing joint.

1. Check that the condition and tightness of the bolts, which secure the swing joint to the frame, that they are in good condition, and that the threaded ends have been peened over, as a securing measure.
2. Check visually and manually, the moving parts of the swing joint, by manipulating them, up and down, right to left, and also by pulling or pushing on it. In case of too much play, or too little play, due to wear and tear and or damage/vandalism, the faulty parts must be replaced immediately, using only original parts. The swing should be put out of commission, until replacement parts have been fitted.
3. Check that joint is well lubricated - refer to maintenance section for further detail.

Pedal (bicycle roundabout)

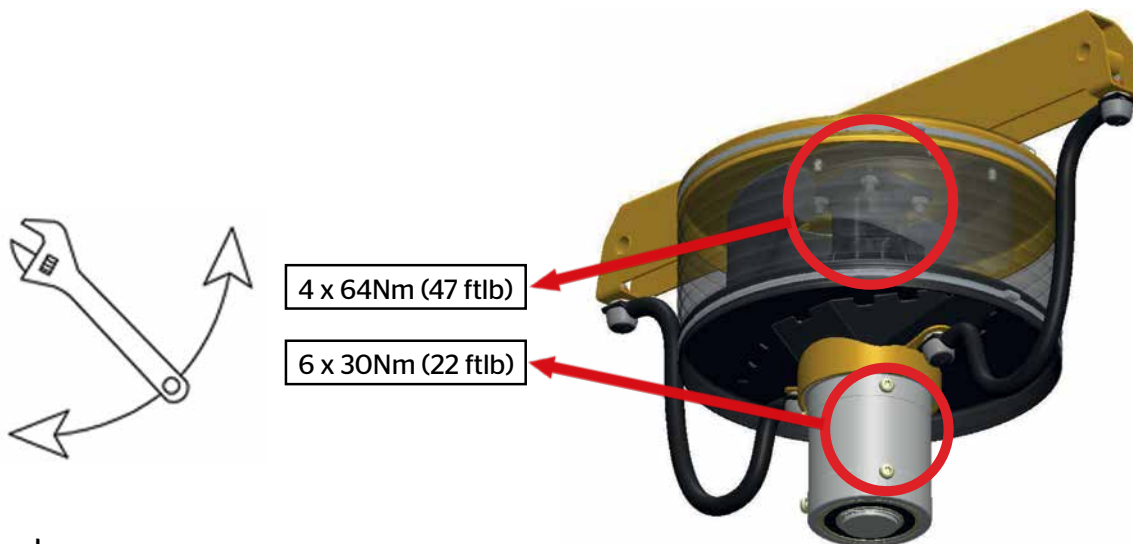
- Check wear on tyres and pedals.
- Check wear or damage on flexible wheel cover.

SpinR² (Inclusive roundabout)

- Rotate to ensure no metal-on-metal contact or excessive side to side movement. (Some rotation resistance, noise and side wobble is to be expected)
- Check cladding panels are firmly fixed and have not moved, which could introduce finger traps.
- Periodically, it recommended to remove one of the curved panels, to inspect internal parts, in particular the guide wheels, for excessive wear. (See installation guide)

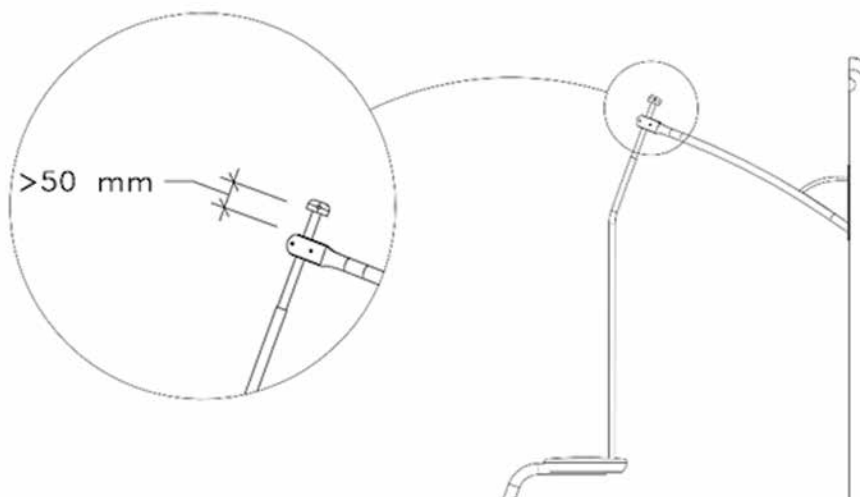
Mobilus

- Check gaiter for any damage and that it is secured.
- Check bolts according to picture below.



Tornado

- Check movement and measurements according to picture below during full revolution.
- Maximum movement up/down +/-20mm.



Inspections results fault log

Faults noticed	
Faults corrected	
Faults outstanding and need further action	
Name	
Profession	
Signature	

Notes



4. 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. The operational inspection log should also be reviewed as part of this inspection.

Special attention should be given to assess the effects of weather, presence of rotting or corrosion, and any change in the level of safety of the equipment as a result of repairs made, or of added or replaced components.

N.B. This type of inspection may require the equipment not to be in use, as some parts may need to be dismantled to inspect fully.

5. 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.

Any parts replaced must be HAGS original spare parts or comply with HAGS specifications.

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

Clean all equipment once a year unless the provision is within 1500m of the sea in which case it should be carried out every three months. To remove dirt, mould, contamination, salt deposits etc. with mild detergent solution (do not use strong solvents or solutions containing chlorinated hydrocarbons, esters, ketones or abrasive cleaners or polish) using a soft cloth, sponge or brush. Special attention given to walk areas, handrails, wooden items and horizontal surfaces.

1. Powder Coated Finish

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 1500m of the sea in which case it should be carried out every three months.

Any identified breaks or scratches in coating surface, should be made good within a month:

- any bare metal should be thoroughly abraded with a fine grade sand paper to remove any corrosion.
- clean area with a non-aggressive solvent.
- immediately repaint using HAGS touch up paint. Please contact your HAGS representative for further advice. If bare metal, please use zinc rich primer before top coat.

Avoid any refurbishment work in direct sun or in temperature less than +10 degrees.

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

2. Galvanized Steel Components

Any damage or scratches in the coating surface identified should be made good within a month:

- any bare metal should be thoroughly abraded with a fine grade sand paper to remove any corrosion.
- clean area with a non-aggressive solvent.
- then immediately repaint using a suitable cold galvanizing application.

Avoid any refurbishment work in direct sun or in temperature less than +10 degrees.

3. Wooden Items

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 or cause rot.

To keep a good look and extend the life of timber parts it is also important to keep them clean, free of contamination and review the surface treatment. However, we recommend that wooden items or treatments are checked to ensure their suitability for use on children's playground equipment.

For wearing components (e.g. decks, steps, walkways) having less than 70% left of its original thickness, shall be replaced.

a. Hardwood

It is recommended that the hardwood items should be treated if required with a drying wood oil < 30% dryness. 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

Maintenance is critical to keep the look and function of the wood. The intervals will depend on use, place of installation, vandalism etc.

Before maintaining the product you need to judge the status of the surface treatment. If there are minor mechanical damage and a solid surface layer, please use Wood stain - 'Glaze system' (transparent). If there are severe damages to the wood or the surface layer, a 'Solid colour' (opaque) wood stain must be used.

Make sure the surface is clean and free from any loose material or paint cracking.

Do not work in direct sunlight or at temperatures below +10°C.

1. Clean the old surface or damaged area thoroughly with pre-paint cleaner. Rinse carefully with water. Clean between the boards wherever necessary so that moisture run-off will be effective.
2. Let it dry until the moisture content is not above 18%.
3. Scrape or sand the damaged (dis-coloured) areas to remove loose paint and then apply two coats of oil primer. Or treat the entire surface. Let it dry between applications.

4. Leave to dry for at least 4 hours at a temp. of +10°C or above.
5. Then apply two coats of solid colour woodstain to the damaged areas. It may be necessary to apply a final coat to the entire surface. Let it dry between applications.
6. Leave to dry for at least 4 hours at a temp. of +10°C or above.

Although the pigments of our solid colour wood stains have been specially developed to match our transparent woodstain shades, slight differences may arise, as it is technically impossible to guarantee a 100% match at all times.

HAGS offer a maintenance kit and touch up paint, which are in accordance with the required safety specifications. Please contact your HAGS representative for further advice.

4. Rope components

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.

For more extensive fatigue or breaks in the rope, the net will need removed and replaced. (Where economic nets can be returned to HAGS for repair.)

5. Plastic coated chains

Remove any damaged plastic coating.

6. Bushes, bearings and swivels

If any noise or squeaking occurs or if it does not run smoothly, please apply universal grease or silicon spray. Make sure any over spill is entirely cleaned off.

If motion is still an issue or if the bush, bearing or swivel has worn out, replacement will be necessary. As a guide we recommend more than 0.5mm movement within component would require replacement.

7. Plastic components

All HAGS plastic products are UV stabilised 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 products, but after a period of 10 years in normal environments, all products should be regularly checked for signs of embrittlement and replaced as required.

8. Dynamic items and equipment where stability relies on a single structural support.

For Dynamic items of equipment or for equipment where stability relies on a single structural support for stability, it is recommended that they are scheduled for replacement after a maximum period of 15 years for structural steel and 10 years for timber. This is particularly important for these structures that are subject to fluctuating loads as fatigue can occur over time, depending on the level of use and abuse. Example products are the Mantis, Mobilus, Titan etc.

9. Sand and water play

Please make sure water supply is turned off in winter time and that the system is drained. In the spring time, when water is turned on, please also check the pump function and all connections.

10. Springs and Clamps

If the springs or clamps shows any sign of excessive corrosion, deformation, fretting, cracks or other damage (in particular, the area of the spring around the last base fixing position should be scrutinised), the spring must be replaced immediately.

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

After a period of 5 years, spring replacement should be considered as part of the maintenance routine.

11. Shackles and Hinge blocks

a. Shackle Assembly No 88096003

If any parts of the shackle assembly are worn or if the roll pin needs replacing - remove roll pin by tapping out using 3/32" diameter punch and unscrew shackle pin. To re-assemble shackle reverse disassembly procedure and locate new pin (part number 10310325) in the hole ensuring that the holes line up, tap home pin with small hammer until level with shackle face. Always ensure that a new pin is used.

b. Hinge Block No 71200115

If any parts of the hinge block assembly are worn or if the roll pin needs replacing - remove roll pin by tapping out using 3/32" diameter punch and unscrew shackle pin. To re-assemble hinge block reverse disassembly procedure and locate new pin (part number 10310330) in the hole ensuring that the holes line up, tap home pin with small hammer until level with hinge block face. Always ensure that a new pin is used and note the part number is different to a shackle.

c. Hinge Block Bolt No 71200432

For Hinge Block No. 71200115, supplied < June 2014, it is recommended that the hinge bolt is replaced with a new version, which includes an additional cap nut and associated roll pins. See specific installation guide for more information.

12. Cyclops Swing Joint

a. Swing Joint No 89404002

Lubricate all moving parts of joint with Lithium Complex EP 2 Make Unican or equivalent grease, through nipples.

Pump grease until it begins to exude between component parts and wipe off any excess. If noise is detected on any kind of part or moving bearing, the noise can be reduced by using a drop of oil.

13. 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.

14. Spinmee Roundabout Turntable bearing

These bearings are not sealed. Bearings should be re-greased at least annually with a high-quality lithium saponified NLGI consistency class 2 waterproof grease - e.g. CERAN HV, XM 460 or equivalent, which is supplied in 400g cartridges (part number 71404021). If the bearing is neglected for a long period, it may need to be replaced.

6. Surfacing

All Impact Attenuating Surfacing should undergo comprehensive routine and operational inspection and maintenance in accordance to the recommendations of EN 1176.

The frequency of inspection will vary with the type of surface/materials used and other factors e.g.: heavy use, levels of vandalism, coastal location, air pollution, age of equipment, location adjacent trees. The type of Playground equipment will also have an effect, with moving dynamic products being expected to wear and reduce the expected life of the surface more quickly. When an existing surface is viewed as being no longer effective it should be replaced.

For all types of impact attenuating surfacing particular attention shall be given to the effects of ageing (exposure to UV, heat, cold), pollution, causing degradation, or loss of the impact attenuating properties.

If areas 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).

Note: Lack of maintenance may reduce the impact attenuation properties of the surface and reduce its performance from the original EN 1177 test performance.

Routine Visual Inspection

A routine visual inspection is recommended. This should consist of the following (same as Operational) 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.

Operational Inspection

Operational Inspections (1 to 3 months intervals) should be carried out by trained operators with the results recorded in a permanent log.

Checklist



General

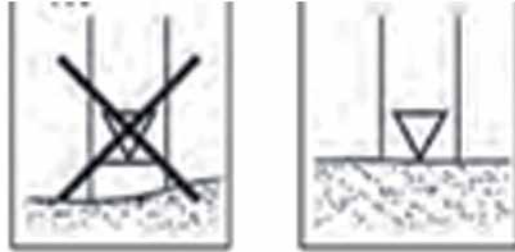
- a. Surface not compacted, damaged.
- b. Surface is clean and has no contaminates, sharp objects, mould growth or obstacles.
- c. The surface is draining well, with no water puddles or soft areas.

Additional specific checks for Rubber Wet Pour

- a. Surfaces not cracking and still bonded to all perimeter edges and equipment up-stands.
- b. Surfaces and the containment are free from protruding hard/sharp edges.
- c. Surfaces are free from contaminates or sharp objects.
- d. Surfaces are not vandalised, burnt or excessively worn.
- e. Surfaces are not slippery; free from leaf build-up or other organic growths.

Additional specific checks for Loose Fill

- a. 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. Pay particular attention to high use areas.



- b. Particles have not consolidated and within the required size range.

Additional specific information for Grass/Turf

- a. Ensure the grass is still in good condition, with no bare muddy patches.

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.

Additional specific checks for rubber Grassmatt type surfaces

- a. Ensure under-lying grass is still in good condition, with no bare muddy patches.
- b. Ensure the rubber mats have not significantly consolidated into the under-lying soil.
- c. Check adjacent mats are still securely connected and perimeter edges secured, with no trip points.

Note: The performance of Grassmatt surfaces relies on the underlying soil conditions, together with the promotion of good grass growth. This can vary from site to site and can also change seasonally or over time. The installation of the product should be continually monitored and maintained as required.

Annual Main Inspection (not exceeding 12 months)

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

Maintenance Procedures

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

Any surfaces replaced must comply with original specifications.

Rubber Wet Pour

1. Cleaning

The periodic removal of surface contamination and debris should be completed where necessary and this can be done by power washing or the application of washing detergent, copious amounts of water and sweeping with a stiff brush. A power wash of 3000psi may be required to remove some ingrained dirt or contamination.

Surfacing located in damp and shaded areas may attract moss or similar. Any proprietary pathway moss killer should be checked, to ensure its application is suitable to childrens playgrounds. Some EPDM colours may need the application of specialised bleach to bring back the original colour. If this is required, please contact us for further advice.

Loose rubber granules and debris should be brushed or blown off. Accelerated wear may occur if this is not carried out.

2. Repairing cracks

Any cracks in the surface, or where bonded to edges/equipment up-stands, identified should be made good within a month.

Any cracks should be sealed as quickly as possible. Adhesive supplied in cartridge form and applied through a mastic gun can be supplied.

3. Repairing damaged patches

Any holes/damage in the surface identified should be made good immediately.

Common forms of vandalism are burning with cigarette lighters or with fuel assistance. Burnt or other areas of damage will need to be cut out and patched by the supplier. Small holes can be repaired using a repair kit and must be completed in accordance with the original surface specification.



7. 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 – Powder coated steel parts, bolt fixings etc.
2. Stainless Steel – Slides, bolt fixings, bannister rails, chains etc.
3. Galvanised Steel – Chains, anchoring, steel reinforced ropes and other steel parts.
4. Thermo plastics – Graphic panels, rota-moulded items, post-/bolt caps etc.
5. PUR – handles, swing seats etc.
6. Tyres – swing seats, dampers, anchoring's etc.
7. HPL (High Pressure Laminate) – panels, springers, climbing walls etc.
8. Wood - Timber sections supplied prior to 2003, please treat as hazardous waste and disposed of accordingly (must not be burnt). Timber sections supplied after 2003 can be recycled as normal timber.
9. Glass – covers, panels etc.
10. Aluminium – rungs, handles etc.

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

Additional information can be found at, for example; www.environmental-expert.com



hags.com • hags@hags.com • +46 380 473 00

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